



## TECHNICAL REPORT

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# Assessment of Quality of Reproductive, Maternal, Newborn, Child, and Adolescent Health Care in Uganda and Kenya

**APRIL 2020**

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This full report of the quality of care assessment of reproductive, maternal, newborn, child, and adolescent health services in Uganda and Kenya was prepared by University Research Co., LLC (URC) for review by the United States Agency for International Development (USAID) and authored by Nancy Fronczak, Tamar Chitashvili, Ekaterine Cherkezishvili, Peter Mutanda, Gorrette Nalwadda, and Sarah Kauder of URC. The report was produced under the USAID Applying Science to Strengthen and Improve Systems (ASSIST) Project, which is made possible by the generous support of the American people through USAID and its Office of Health Systems.



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## Acronyms

ACS	Antenatal corticosteroid
ACT	Artemisinin-based combination therapy (ACT)
ANC	Antenatal care
ART	Antiretroviral therapy
ARV	Antiretroviral
ASB	Asymptomatic bacteriuria (urinary tract infection)
ASSIST	USAID Applying Science to Strengthen and Improve Systems Project
BCG	Bacille Calmette-Guerin (vaccine for TB)
BEmONC	Basic Emergency Obstetric and Newborn Care
BP	Blood pressure
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
C-section	Cesarean section
DHS	Demographic and Health Surveys
DPT	Diphtheria, pertussis, tetanus (vaccine)
EB	Evidence-based
ECP	Emergency contraceptive pills
eMTCT	Elimination of mother-to-child transmission
ENAP	Every Newborn Action Plan
EPCMD	Ending Preventable Child and Maternal Deaths
EPMM	Ending Preventable Maternal Mortality
FHT	Fetal heart tone
FP	Family planning
Hg	Hemoglobin
HepB	Hepatitis B
Hib	Hemophilus influenzae type b
HIV	Human Immunodeficiency Virus
HPV	Human papillomavirus
ICD	International Classification of Diseases
IMCI	Integrated Management of Childhood Illnesses
IMNCI	integrated Management of Newborn and Childhood Illnesses
IPT	Intermittent Preventive Therapy
ITN	Insecticide Treated Nets
IUD	Intra-uterine device
L&D	Labor and delivery
LLIN	Long-lasting insecticide-treated bednet
LBW	Low birth weight (<2500 grams)
MgSO <sub>4</sub>	Magnesium sulfate
MN	Maternal and newborn
MNCH	Maternal, newborn, and child health
MNH	Maternal and newborn health
MUAC	Mid-upper arm circumference
NBR	Newborn resuscitation
NG	Nasogastric
NSRI	Non-severe respiratory infection
OPD	Outpatient department
ORS	Oral rehydration salts/solution
PAP	Papanicolaou test
PCMD	Preventing Child and Maternal Death
PDSA	Plan Do Study Act

PNC	Postpartum/postnatal care
PPFP	Post-partum Family Planning
PPH	Postpartum hemorrhage
PPROM	Preterm premature rupture of membranes
PROM	Premature rupture of membranes
PSBI	Possible serious bacterial infection
PMTCT	Prevention of mother-to-child transmission
QI	Quality improvement
QoC	Quality of care
Rh	Rhesus (factor)
RDS	Respiratory distress syndrome
RDT	Rapid diagnostic test
RMNC+A	Reproductive, maternal, newborn, child, and adolescent (health)
RR	Respiratory rate
SSA	Sub-Saharan Africa
STI	Sexually transmitted infections
TB	Tuberculosis
TT	Tetanus toxoid vaccine
USAID	United States Agency for International Development
UTI	Urinary tract infection
VLBW	Very low birth weight ( $\leq 2000$ grams for this document)
WHO	World Health Organization

# EXECUTIVE SUMMARY

## Objectives, methods, and the study sample

The USAID Office of Health Systems (OHS) and USAID Office of HIV/AIDS (OHA) in Washington tasked the Applying Science to Strengthen and Improve Systems Project (ASSIST) team to develop a survey toolkit for assessing the quality of integrated Reproductive, Maternal, Newborn, Child, Adolescent Health (RMNC+A) including HIV services for pregnant women, exposed infants, sick children, and adolescents and to test the tools in 2-3 priority Preventing Child and Maternal Death (PCMD) and PEPFAR countries, as existing facility-based tools did not provide the information necessary for this type of assessment.

In 2017-2018, the survey toolkit was developed, and the tools were tested and implemented in 10 selected facilities in Uganda and 11 facilities in Kenya. Selection criteria included: PEPFAR/USAID-supported districts or counties, suggested by USAID field team, facilities with no on-going external Quality Improvement (QI) intervention in maternal or RMNCH services; high volume and/or high maternal and <5 mortality facilities; facilities representing all levels of the health service delivery system that provide RMNC+A and HIV services within each selected district and are connected with referral linkages; and facilities where a similar assessment had not been recently performed. Data for this study were collected May 2017-February 2018. The majority (80%) of sample facilities in Uganda were Health Center level (38% Level 3 and 62% Level 4) while the majority in Kenya were Hospital level (73%).

Uganda and Kenya have adopted World Health Organization (WHO) recommendations for RMNC+A services to varying degrees, with the degree to which adopted recommendations have been implemented unclear. The aim of this study was to describe the quality of RMNC+A health services and to gather evidence of the extent to which evidence-based (EB) interventions are being implemented. Services of focus were antenatal care (ANC), delivery and newborn care, outpatient care of the sick child and young infant, adolescent health services, and patient-centered care. The content of the childbirth section of the assessment and supporting systems for quality improvement are largely based on the WHO Quality of Care Standards for Maternal and Newborn Care.<sup>1</sup>

Additionally, Uganda and Kenya are identified as two of three countries in the world with the largest HIV epidemics. Both have adopted the main WHO recommended policies for integrated HIV services and for services for Prevention of Mother to Child Transmission (PMTCT). These services are explored in more detail in a separate HIV report.

Information related to the assessed services was gathered from a) self-administered questionnaires for providers for their knowledge, attitude, and practices; b) medical documentation review using standardized tools; c) observation for services being provided; d) interviews with clients; and e) key informant interviews and observations related to key inputs/resources and supportive systems at facility level.

There were differences in the level of facility and provider respondents between Kenya and Uganda. Among provider respondents, 14% from Uganda and 33% from Kenya were physician/clinical officer level, while 40% (Uganda) and 23% (Kenya) had qualifications lower than a registered nurse. These differences need to be kept in mind when interpreting study findings.

## Results

It should be noted, that comparisons of results between countries in this report are used only to provide pictures of different levels of existing practices. Differences should not be used to imply that services in one country are better than in the other as the facility sample was not selected to be representative of the country.

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<sup>1</sup> Standards for improving quality of maternal and newborn care in health facilities. © World Health Organization 2016.

## Cross-cutting findings

### Basic infrastructure and resources

**Utilities:** Less than half of the facilities in both countries had a regular electricity supply without gaps during a routine month, and 20% from each country did not have access to a safe water source on site. Around 70% of the facilities in each country had budgets to support functioning and maintenance of infrastructure systems.

**Infection prevention and control:** Hand hygiene practices (using soap and water or alcohol-based handrub to clean the hands) prior to client examination were not consistently observed during service provision for either country despite almost universal availability of supplies for hand hygiene in all assessed service sites. Hand hygiene between clients was observed for less than half of the observed ANC consultations in both countries. For delivery patients, hand hygiene was not practiced at key times prior to putting on gloves for a procedure but rather, was more commonly performed after the procedure and removal of gloves. Specific times when hand hygiene was most commonly practiced were after the initial vaginal examination, and after the delivery. During the observations of labor and delivery (L&D) service providers, 36% (Uganda) and 43% (Kenya) were observed not practicing hand hygiene at least once when observed at any of the 5 moments defined by WHO as times hand hygiene should be practiced,<sup>2</sup> with none of the Ugandan providers and 19% of the Kenyan providers observed using hand hygiene practices at all relevant times when observed providing labor and delivery services. Almost all L&D providers (over 90% in each country) were observed changing sterile or high-level disinfected (HLD) gloves at initial examinations and before delivery, but only 16% (Uganda) and 17% (Kenya) changed their gloves prior to cutting the umbilical cord. Hand hygiene points with soap and water or hand disinfectant were observed available in the delivery room for all Ugandan facilities and observed in 80% of the Kenyan facilities.<sup>3</sup>

There were facilities conducting deliveries that did not have the ability to sterilize equipment (60% Uganda and 18% Kenya) and facilities in Uganda where there were no stocked disposable latex gloves. Interviewed delivery clients mentioned having to purchase supplies, that included gloves (64%, Uganda and 5%, Kenya). Toilets for clients that had handwashing supplies immediately adjacent were observed in 75% of Ugandan but only 45% of Kenyan facilities.

**Service diagnostics and drugs:** Malaria rapid tests were available in all Ugandan and 82% of Kenyan facilities, and HIV rapid tests in all Ugandan and 80% of Kenyan facilities. Other rapid blood and urine tests relevant to maternal/newborn/child health services, however, were less available. These gaps were associated with weaknesses in screening or diagnosing high burden conditions (e.g., pre-eclampsia/eclampsia, anemia, asymptomatic bacteriuria) during pregnancy and childbirth. Critical drugs for treating maternal infections and providing antiretroviral therapy (ART) for PMTCT were available in all facilities. Other drugs, however, were less available in Ugandan facilities, particularly amoxicillin and a corticosteroid for treating premature labor. Less than half of facilities in each country (30% Uganda and 45% Kenya) had dedicated budgets for essential medicines, equipment (and its maintenance), and medical supplies for maternal and newborn care (MNC).

Providers reported knowing of cases where magnesium sulfate (MgSO<sub>4</sub>) was needed but was unavailable (43% Uganda and 11% Kenya), and where a caesarean section was needed but was not provided because of some gap in resources to provide the caesarean (56% Uganda and 41% Kenya). Observation of items prepared for delivery showed a major lack equipment and supplies for managing newborn respiratory emergencies in Ugandan facilities.

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<sup>2</sup> Five moments defined by WHO for hand hygiene are before and after each patient contact, before any aseptic task, and after exposure to body fluids.

<sup>3</sup> One referral hospital with delivery services in Kenya did not have the facility inputs for delivery services assessed.

Only 10% (Uganda) and 61% (Kenya) of interviewed respondents said they were satisfied with the availability of facility infrastructure to provide quality patient care, with around 1/3 from each country reporting they were dissatisfied.

**Referral systems:** Facility-level key informants reported that 30% (Uganda) and 73% (Kenya) of facilities had a functional emergency transportation vehicle onsite and estimated that follow-through on referrals was high (80% Uganda and 90% Kenya). Sub-optimal referral practices were identified by individual service providers who estimated that on average, 34% (Uganda) to 40% (Kenya) of referred mothers/infants could actually access an official vehicle when needed and that on average, 57% (Uganda) and 62% (Kenya) of infant/mothers who were referred were actually able to follow through on the referral, with the primary barrier identified by both countries as cost to the patient/families.

While almost all individual providers reported they send a referral note with patients referred out, half or fewer of these respondents reported that they routinely recorded any clinical findings, test results, or medicines provided on the referral note. This lack of information prevents identification of problems (delayed or late referrals, lack of follow-through on referral, whether the patient received the appropriate pre-referral intervention/treatment, and the outcome of referrals) that, if not addressed, may impact patient outcome. Document reviews showed that pre-referral information for patients who were referred in for complicated deliveries was not documented in both countries, for over half of complicated deliveries reviewed arrived through in-referral. For example, the referral diagnosis was not documented for 50% (Uganda) and 42% (Kenya) of in-referrals, and pre-referral treatment was not documented for 50% (Uganda) and 66% (Kenya) of the reviewed records.

Facility-level respondents estimated that on average, 19% (Uganda) and 7% (Kenya) of mothers and 13% (Uganda) and 16% (Kenya) of infants die during referrals to their facility. This may be associated with late referrals or inadequate pre-referral treatments. Further study is needed to justify key informants' estimation.

**QI activities:** Most individual providers who were interviewed reported that their facility has some type of internal QI structure (91% Uganda and 70% Kenya) with around half from each country describing the system as continuous QI. Around 2/3 (Kenya) and all (Uganda) of the key informants at facility level and around 80% or more of the individual provider respondents identified insufficient resources for implementing QI activities as an issue. Tracking and use of QI information was weak, with developing a written report based on QI results reported by 52% (Uganda) and 33% (Kenya) of providers, tracking and monitoring indicators by 48% (Uganda) and 42% (Kenya), and use of QI results for continuous learning and adaptation by 30% (Uganda) and 21% (Kenya).

**Personnel support systems:** Around 70% of providers from both countries described their working environment as collaborative and supportive, with 82% (Uganda) and 73% (Kenya) reporting they had received clinical training in the past 12 months, with most providers of the clinical training identified as donors (50% Uganda and 32% Kenya). Supervision contacts were high (92% Uganda and 79% Kenya) although only around 2/3 or less of all respondents (66% Uganda and 46% Kenya) reported they were most recently supervised within the past 3 months, and 18% (Uganda) to 41% (Kenya) reporting no supervision in the past 6 months. Although around half of the respondents from both countries who had received supervision reported they received on-the-job clinical training (around 50% for Uganda and 40% for Kenya), practices such as observation of performance using anatomic models and activities to promote EB practices were reported by only around 20% of providers from both countries. Donor-supported training and supervision were reported more frequently in Uganda than Kenya.

**Sharing patient information and patient follow-up:** Both countries had similar responses about recording patient information. Although around 1/2 of providers were satisfied with patient information shared between providers during shift changes, around 1/3 were not satisfied. About a quarter of respondents in each country reported they did not believe medical records provide sufficient information for evaluating care. Major issues identified with recording included difficulty in retrieving information from

prior visits (identified as a service-specific issue), a lack of standardized medical information forms (17% Uganda and 12% Kenya), form stock-outs (25% Uganda and 34% Kenya), and standardized forms not being filled completely (32% for both countries) or accurately (42% Uganda and 25% Kenya). Record reviews for ANC, delivery, and consultation services for sick children supported the provider perception that recording was weak, with relevant patient history and patient symptoms and danger signs not well documented.

Where relevant, 42% of Ugandan and 63% of Kenyan respondents noted that patients (either after an outpatient visit or inpatient stay) are referred to specific outpatient clinics for long-term monitoring or follow-up with a written plan defined. When asked about patients who require follow-up visits, a follow-up visit appointment was reported to be scheduled prior to discharge by 45% and 59% of respondents from Uganda and Kenya, respectively. Among respondents who reported scheduled follow-up appointments in their health facilities, 52% in Uganda and 78% in Kenya noted that the facility has a system for tracking patients who do not keep their appointments.

Around half of the respondents from each country reported working closely with existing community structures to meet patient needs, while an additional 31% (Uganda) and 24% (Kenya) reported they did some successful outreach, but this was not the norm.

### **General findings across RMNC+A services**

Knowledge, practices, and interventions were stronger in Kenya than Uganda. This may reflect the higher-level facility and service providers in the samples from Kenya than from Uganda. Additionally, the higher case-loads for services in the Kenyan facilities likely result in more exposure to patients with the complications assessed and therefore more experience in assessing and managing these conditions.

**Compliance with EB practices:** The assessment confirmed research findings in similar settings that less than half of patients receive EB MNCH/FP/RH care in a typical preventive or curative visit with variations within and across countries, with systemic gaps found in safety and infection prevention and control as well as insufficient coordination, referrals, and counter-referrals across levels of care. The gaps in quality of RMNC+A care were particularly critical in terms severity assessment and classification practices across RMNC+A content areas. This together with providers' limited ability to differentiate common pregnancy, maternal, newborn, and childhood conditions leads to incorrect diagnosis and, consequently, unjustified, non-EB treatment of common maternal, newborn, and child diseases.

The assessment also showed frequent inappropriate treatment practices for common maternal, newborn, and childhood conditions in the study facilities. This included use of medications, including antibiotics, without clinical indications; prescription of medications not supported by clinical recommendations (e.g., prescription of antibiotics that were not first or second choice); and/or inappropriate medication dosage based on the weight or age of the child.

**Client/patient assessments and routine monitoring:** Although many services providers showed knowledge about patient assessments and diagnostic tests that should be carried out, the implementation of these in practice was inconsistent. Measures least performed for all patients were measuring respiratory rate and temperature. Laboratory diagnostics were noted to be used/documentated in much lower percentages in Uganda than Kenya. Patient assessments rarely documented negative symptoms, so it was uncertain if they were assessed or not; however, observations showed that systematic assessment of risk or danger signs for the different types of patients were not routinely conducted.

**Knowledge and clinical trainings:** Provider survey results demonstrated that, with few exceptions, most care providers lack sufficient knowledge and skills to identify danger signs, determine disease severity, make the correct diagnosis, and provide appropriate treatment of pregnant women, newborns, children, and young infants. The knowledge gaps were particularly evident in relation to assessment, classification, and treatment of pre-eclampsia/eclampsia, young infants under 2 months, including EB care of young

infants with possible serious bacterial infection (PSBI), preterm labor, and preventive antibiotics for mother and infants. Often providers indicated older, no longer recommended interventions as the recommended, EB practice (e.g., bedrest and reducing salt for pre-eclampsia). This may indicate that although new knowledge is being disseminated, training about practices that are common but no longer recommended is not happening.

The study revealed that despite concerted national efforts in training RMNC+A care providers, especially around integrated management of newborn and childhood illnesses (IMNCI), care of maternal and newborn complications (e.g., newborn resuscitation) and respectful, patient-centered care are lacking. The assessment also showed that even if training on these EB practices were more frequent and widespread and protocols/guidelines were available, many of these—particularly maternity interventions, are for conditions that do not occur frequently, particularly in small, low-volume facilities.

**Documentation:** The assessment findings also suggest important **gaps in standardization of the medical documentation and recording essential RMNC+A data for EB clinical and improvement decisions.** Our study respondents did identify problems with sharing of information on patients within the facility, as well as those arriving through referral as issues in the ability to provide quality care. Documentation of findings from assessments, measurements from examinations, and education provided to clients was weak across services. A record across visits for an individual client is essential for identifying changes that may indicate risk and for identifying whether prior interventions were effective or are associated with the patient condition during the current visit. Particularly weak were documentation of negative findings during assessments, pre-referral findings and treatments, and results from referrals for treatments (e.g., diabetes, hypertension).

**Client-centered/respectful care:** Despite some gaps in actual practices that are expected to support respectful and considerate care, such as use of informed consent forms and client knowledge of complaint boxes, findings consistently supported that providers had awareness of the importance of treating clients with respect and maintaining client privacy, although knowledge about actual policies related to mistreatment of patients were not known by most providers. Most interviewed clients felt that the services they received were of good quality and that they were respected by the facility staff. General explanations about the care provided and discharge follow-up seemed to be commonly provided by health workers and understood by clients. Sharing information about specific issues, however, such as counseling for danger signs, family planning, and explanations of specific provider actions, and actively seeking questions from clients were identified by clients and through service observations as weak.

### **Service-specific findings**

**Antenatal care:** Routine ANC services for normal pregnancies—measuring blood pressure (BP), weighing women, and providing iron and folic acid—were carried out at high levels, although measuring BP every visit was less noted in Uganda (67%). Among the EB interventions assessed, the weakest was the provision of preventive calcium and low-dose aspirin for women at risk of pre-eclampsia and treatment of hypertension. Documentation of treatment for **hypertensive disorders during pregnancy** (e.g., BP $\geq$ 160/110) was extremely low in both countries (none in Uganda and 40% in Kenya). Although knowledge of the need to use antihypertensive drugs for hypertensive women was high, the reported and documented practice was low. Antihypertensives were not available in 70% of Ugandan facilities, and many providers (62%, Uganda and 40%, Kenya) reported that they refer hypertensive patients. Where the patient receives treatment through referral, the result should be a part of her record to ensure adequate follow-up.

Weaknesses in diagnostics and preventive or treatment interventions for **pre-eclampsia and eclampsia** were also particularly noted. This included lack of documented urine protein results and calcium and/or low dose aspirin supplementation to prevent pre-eclampsia and eclampsia for women with high blood pressure and administration of MgSO<sub>4</sub> for women with severe pre-eclampsia or eclampsia in both

countries. Medical documentation results were consistent with ANC visit observations and provider interview results, with gaps in practices, knowledge, and training in the management of pre-eclampsia and eclampsia during pregnancy (<20% in both countries).

Across the different data collection methods, it was evident that **HIV testing, ART for HIV positive ANC clients**, and preventive antiretroviral (ARV) for their exposed infants are universally provided services, although there were weaknesses identified in recording of the information, particularly in Kenya. The HIV test result was documented in 99% (Uganda) but for only 82% (Kenya) retrospectively reviewed ANC records, even though five of the Kenyan women were documented on ART. Partner counseling about HIV and assessing the HIV status was weak, recorded in only 32% of Ugandan and 11% of Kenyan retrospectively reviewed ANC records. Further analysis showed that assessment of partner HIV status was mostly conducted for the partners of positive women. This means that women who might be at higher risk of HIV infection from their partner were less likely to be identified.

Essentially all (over 90%) of the interviewed ANC clients who were HIV positive reported ART (either preventive or life-long) was started and all facilities had the three-drug recommended ARV regimen available. Details on management of HIV-positive women are provided in the companion report on assessment of quality of integrated RMNC+A and HIV care in Uganda and Kenya.

**Deworming** was documented in only 49% (Uganda) and 29% (Kenya) of ANC records reviewed and was observed for only around 1/2 of ANC clients. **Syphilis test** results were rarely recorded for Ugandan clients, and treatment for the few positive syphilis cases from both countries was not consistently documented. **Intermittent preventive therapy (IPT)** for malaria was also universally provided, although the full course was not completed for large percentages of women who were eligible, and distribution of long-lasting insecticide-treated bednets (LLINs) was not consistently identified—although client reports indicated that most (81%, Uganda, and 97%, Kenya) had LLINs at home.

The least consistently performed assessments during ANC were testing for urine protein (even for hypertensive women), testing and treatment for **asymptomatic urinary tract infection (ASB)**, assessing blood or urine sugar (for **gestational diabetes**), and hemoglobin measurement, with laboratory testing for these conditions being the weakest in Uganda.

Assessment results from all data sources confirmed that **assessment of** prior pregnancy history or current pregnancy signs and symptoms during ANC was carried out inconsistently. Record reviews showed a high proportion of positive to negative findings for risk history or symptoms, with no evidence of assessment of most problems. This might have been a recording weakness, except that the observation noted evidence of a general question being asked about any problems experienced for 76% (Ugandan) and 24% (Kenyan) of observed ANC clients, without a systematic assessment of the presence or absence of specific symptoms or danger signs. It appeared that while a few most common risk signs might be asked about, more commonly than others, that in general, problems were likely identified throughout the course of the ANC care, with identification prompted if a topic arose, such as during counseling or if the woman had particular concerns. This risks a problem being forgotten, or not mentioned by the woman if it had occurred but was not currently a problem, or if she felt it was minor. If current pregnancy symptoms are not assessed every ANC visit, there is risk that identification of complications early in the pregnancy (when a symptom is less severe) will be missed. Similarly, client interviews confirmed limited assessment of diet, physical activities, smoking status, or exposure to second-hand smoking, along with alcohol use and intimate partner violence--these being reported by fewer than half of ANC clients in both countries

All data collection methods supported findings that although providers know topics of importance for ANC counseling, counseling on some key topics (breastfeeding, birth spacing, or family planning [FP]) is not occurring systematically. The observation information from both countries showed evidence that counseling on risk signs during pregnancy is higher than documentation would indicate. The most common maternal risk factor that was counseled about and that women knew of, was vaginal bleeding.

Counseling on breastfeeding and FP were provided to only 1/4 or fewer women in each country (except Kenya where FP counseling was 37%).

In general, for the services where providers described recent training and use of guidelines (IPT, PMTCT, general ANC care), the related services were more consistently provided, and where guideline use and recent training were low, related services were weaker (preterm labor, various topics related to pre-eclampsia). Interventions for complications and risk were low in both countries, but higher in Kenya than Uganda, likely reflecting the higher level of facility and provider qualifications who were assessed in Kenya. Although providers showed knowledge of symptoms and interventions for various risk signs and physiological conditions, they also reported older practices that are not currently part of WHO recommendations for best practices for conditions. This was particularly noted for physiological conditions and management of women with symptoms of pre-eclampsia.

**Labor/delivery/immediate postpartum care:** While any maternal and newborn health (MNH) death reviews were reported by more than 3/4 of the service providers, mechanisms for implementing death review recommendations were lacking in both countries.

**Initial assessment practices** at admission were weak both per observation and client interviews. The average time from arrival to initial assessment at admission was more than two times higher than the recommended 15 minutes in Uganda (39 minutes) and four times higher in Kenya (68 minutes).

**Routine monitoring** for labor, delivery, and postpartum period was not conducted with the frequencies that are recommended, with maternal pulse and temperature rarely monitored. Routine monitoring was particularly weak for post-partum mothers (less than 10% in both countries). This was compounded with the limited ability of care providers to name maternal danger signs (except bleeding), preventing early identification of mothers with or at risk of complications.

Partographs were used less in practice than reported by providers (54% in Uganda and 83% in Kenya), with the use of the WHO partographs with a printed fourth action line in addition to the standard alert line rarely used. Even when partograph use was observed, routine monitoring of the labor progression and maternal and fetal conditions was less than 20% for most functions in Uganda and less than 50% in Kenya. Furthermore, there were large discrepancies in the monitoring practices that were observed compared to what was recorded.

Provision of **oxytocin immediately postpartum** for the prevention of postpartum hemorrhage (PPH), administering **preventive antibiotics for Caesarean sections**, and treatment of women with high blood pressure were commonly observed practices.

Administration of antenatal corticosteroids (ACS) for premature labor was a national policy in both Uganda and Kenya at the time of this assessment. Provider knowledge, recent training, and confidence in interventions for **prematurity and severe pre-eclampsia/eclampsia** were low, and observation showed these interventions (ACS) and administration of MgSO<sub>4</sub> in appropriate doses for severe pre-eclampsia and eclampsia were only documented for small percentages of eligible patients with further deficiencies in monitoring vital functions. Knowledge and comfort in managing PPH and delayed/obstructed labor were reported at higher levels than most other interventions. Assessments of underlying causes of PPH, such as retained placenta, and interventions other than fundal massage and a uterotonic drug (and rarely, blood transfusion), however, were rarely noted. Additionally, provision of labor augmenting drugs for delayed/obstructed labor were rarely noted.

Provider knowledge, training, use of guidelines, and documented practices related to administering **antibiotics for prevention or treatment** of maternal symptoms of infection, following WHO best practices were weak. Overall, record reviews showed 18% (Uganda) and 42% (Kenya) of women with conditions warranting antibiotics documented with an EB treatment; the others had no record of receiving any antibiotic. Yet, 2% (Uganda) and 26% (Kenya) of records showed unjustified administration of antibiotics (primarily oral) for conditions that do not require antibiotic treatment. In addition, hand hygiene

during labor and delivery processes at all recommended times was not widely observed, with stronger practices in Kenya (e.g., washing hands before aseptic task was 17% in Uganda and 57% in Kenya).

**Client-centered respectful maternal care:** While non-EB practices such as enemas and pubic shaving prior to delivery were reported by providers, client reports and observations showed that these are, in fact, rare interventions. Conversely, 1/3 of Kenyan and 3/4 of Ugandan delivered women had their perineum swabbed with antiseptic (not a recommended practice). Episiotomies are also not widely performed, although, there were 3rd and 4th degree perineal tears observed in Uganda, where the need for an episiotomy (or better perineal protection and infant control during the delivery) might have been warranted. Ugandan providers encouraged most delivery patients to have a companion throughout labor and delivery and were more consistent in explaining issues and offering comfort measures. Weaknesses in client-centered respectful maternal care included not offering pain relief, not teaching breathing techniques, not ensuring women's privacy, and abusive behavior of care provider (reported by 4-6 % of clients).

**Newborn care:** Both countries have adopted the WHO guidelines for Essential Newborn Care.<sup>4</sup> Immediately **initiating breastfeeding, measuring infant birth weight, and cord care** (keeping clean and dry with no topical agent used for facility deliveries) were observed practices almost universally, along with using tetracycline eye ointment for newborns (58% Uganda and 100% Kenya). Application of chlorhexidine to the umbilical cord (no longer a recommended practice) was observed for none of the Ugandan newborns and for 25% of Kenyan. Although breastfeeding was universal, initiating breastfeeding within the first hour was both documented and observed for only around 80% of women from both countries. Skin-to-skin practice immediately after birth was widely observed in Uganda with 84% receiving this initially and 65% continuing at least one hour after birth. **Thermal protection practices** were weaker in Kenya, with 75% of newborns receiving immediate skin-to-skin but only 33% **continuing for one hour after birth**. Documentation and observation showed that the **measuring of temperature and respiratory rate** were almost never practiced in Uganda and only for 1/2 or fewer of the newborns from Kenya. These findings were consistent with provider interview results where knowledge on infant assessment practices within first 90 minutes after birth and knowledge of newborn danger signs (except infant feeding difficulties and hypothermia) was critically low.

Training and use of guidelines related to care of the small/sick newborn and newborn resuscitation, while not commonly reported, were more frequently reported by Kenyan respondents. Recent training in newborn resuscitation was reported by less than half of respondents (37% Uganda and 45% Kenya). Kenyan respondents reported more experience in newborn resuscitation and greater comfort in providing the intervention and performed better for the neonatal resuscitation case study. Among a variety of approaches to elicit responses about identifying the infant at risk, symptoms of risk, and initial actions for suspected sepsis, the percentages of respondents identifying correct responses were low.

**Newborn thermal protection** and initial skin-to-skin practices for low birth weight (LBW) infants were weak in Uganda, and prolonged skin-to-skin or Kangaroo Mother Care (KMC) for LBW infants were not commonly reported. Kenyan facilities were higher level and used incubators/radiant warmers for these infants. These were not documented for Ugandan LBW infants. A protocol to operationalize KMC was observed for 2 of 10 Ugandan facilities and 7 of 10 Kenyan facilities, with trained staff reported (by key informants) for the 2 Ugandan, and 4 of the Kenyan facilities with a protocol, plus one additional facility, however among interviewed providers, knowledge about specific KMC implementation practices were weak.

**Newborn resuscitation** using bag and mask among retrospective record reviews of infants selected for a diagnosis of asphyxia was only used at most for around half (59% Uganda and 57% Kenya) of the

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<sup>4</sup> WHO Recommendations on Newborn Health. Guidelines Approved by the WHO Guidelines Review Committee. Updated May 2017.

infants, although outcomes for all of these infants, with and without use of bag and mask, were good. Retrospective record reviews for a general sample (born to women without any particular diagnostic criteria) of infants found that among the 7% (Uganda) and 5% (Kenya) of infants with documented newborn asphyxia, resuscitated with bag and mask was used at higher levels in Kenya (66%) than Uganda (10%).

A different sample of infants who were born to women without any particular diagnostic criteria showed that among those with a diagnosis of asphyxia, few Ugandan infants were resuscitated with bag and mask (10%) compared with 66% for Kenya. This sample included stillbirths, with Uganda having a few more fresh stillbirths than Kenya, none of whom were identified as having resuscitation attempted. Findings from both countries warrant further assessment of the appropriate and effective use of bag and mask for resuscitation. These findings were consistent with the results of the simulated newborn resuscitation case scenario on anatomic model, where 28% of observed care providers in Uganda and 75% in Kenya started ventilation within a golden minute. **Management for respiratory distress syndrome (RDS)** was weak. Use of continuous positive airway pressure (CPAP) (recommended) was recorded for 35% of preterm infants with a recorded diagnosis of RDS in Uganda, while Kenyan records did not show CPAP use (although hospitals had oxygen). The use of surfactant for preterm infants with RDS (not recommended) in Uganda and Kenya, while provided to few cases, was not restricted to premature infants with RDS recorded.

Among young (< 2 months old) infants at risk (assessed using selected patient records) **EB antibiotics** were recorded for 42% (Uganda) and 96% (Kenya) of those with conditions warranting antibiotics, with ampicillin and gentamicin the most commonly provided antibiotics in both countries. Young infants without risk symptoms also received unjustified antibiotics, particularly in Kenya where 30% who did not have the assessed conditions documented received antibiotics, which might or might not have been warranted by other conditions not documented in the chart. These were also primarily injectable antibiotics.

**Newborn- and family-centered practices:** Observation results demonstrated that routine suctioning of newborns, without justification, which is not recommended, was widely practiced in Uganda (58%). Provider interview results also shown that they are not familiar with facility policies for non-discrimination and mistreatment of infants.

**Child and young infant care:** When identifying whether the sick child had a sign or symptom assessed, the criteria was whether information on the sign/symptom was elicited, regardless of whether the finding was negative or positive. The information may have come as a result of provider recording either a positive or negative result, or observation of a provider questioning, provider identifying a sign/symptom without questioning, or the caregiver mentioning the sign/symptom. **History and severity assessments** for infants/children 0-59 months and sick young infants <2 months (analyzed separately) were incomplete and did not adhere to IMNCI recommendations for both countries, although Kenyan providers were more thorough in assessing both young infants and all children. These included the most basic measures that are considered essential parts of diagnoses, such as measuring temperature and respiratory rate, and monitoring danger signs and main symptoms as well as vaccination status. Routine assessment of nutritional status was weak, with weight measured for 45% (Uganda) and 43% (Kenya) of observed sick child consultations. Plotting the weight against a growth chart (providing evidence for interpreting the weight for the individual child), however, was only performed for 6% (Uganda) and 0% (Kenya) of the children. Record reviews similarly showed only 25% (Uganda) and 22% (Kenya) of children with recorded weights during their most recent visit, and only 4% from each country having a Z-score or mid-upper arm circumference (to identify malnutrition) recorded.

**Treatment** practices also did not adhere to IMNCI recommendations for most cases, and **over-prescription of antibiotics** was commonly noted in provider knowledge responses, documentation, and treatments provided to observed patients for all conditions. Record reviews for both countries showed that over 80% of the sick children were prescribed antibiotics, but less than 20% of these were classified as

justified.<sup>5</sup> Additionally, around 80% (Uganda) to 90% (Kenya) of the records reviewed noted prescriptions of non-EB drugs (e.g., the wrong antibiotic or multiple antibiotics, or antibiotics or antimalarials that were not warranted in view of documented symptoms or diagnoses). Additionally, children were prescribed drugs for symptomatic treatment for pain (e.g., Panadol) and fever (e.g., acetaminophen), or vitamins.

This was almost universal for observed children diagnosed with unspecified upper respiratory tract infections (e.g., cough or cold), for whom 69% (Uganda) and 17% (Kenya) were prescribed antibiotics. This would not be recommended in most cases. Among observed under 5 children prescribed antibiotics, antibiotic treatment was justified only in 16% of cases in Uganda and 9% in Kenya.

Retrospective review of records of sick infants below two months of age arriving at the outpatient clinic with **symptoms of PSBI (e.g., sepsis, meningitis, severe fever)**, showed that while countries had and supported revised WHO clinical recommendations around outpatient treatment regimen for young infants with PSBI, around 10% or less received an EB treatment<sup>6,7,8</sup> either prior to referral, or when being managed on an outpatient basis. The few observed sick young infants with PSBI also showed weak assessments, but higher levels of EB treatments for Uganda (75%), but similar levels for EB treatments for Kenyan young infants (13%) for referred and non-referred patients.

While use of amoxicillin (the EB treatment) for pneumonia was common, often the dosage was incorrect or not noted. EB treatment including **correct dosage** was documented for only around half (48% Uganda and 49% Kenya) of young infants <2 months with **diagnosed pneumonia** or a respiratory rate greater than 60 breaths per minute. Amoxicillin was not available in 70 of Ugandan facilities and 27% of Kenyan facilities.

Record reviews showed children with **diarrhea** being prescribed oral rehydration salts (ORS) (67% Uganda and 53% Kenya) and zinc (73% Uganda and 56% Kenya), with 40% (Uganda) and 11% (Kenya) being prescribed both ORS and zinc, with no non-EB prescriptions documented. Observations, however, showed these treatments provided in lower percentages, with ORS prescribed by 27% (Uganda) and 37% (Kenya) of providers, and zinc by 34% (Uganda) and 38% (Kenya). The reasons for the discrepancies in the findings from observation and record reviews need to be assessed.

When asked about malaria services, providers reported high levels of comfort in providing malaria services (79% Uganda, and all Kenyan providers), however around 1/3 or fewer of providers (21% Uganda and 36% Kenya) reported recent training for malaria, and half or more (53% Uganda and 64% Kenya) reported using guidelines when providing malaria services. In total, among observed cases, 68% (Uganda) and 65% (Kenya) of fever cases were correctly managed for **presumptive malaria** (malaria test positive treated with antimalarial, malaria test negative not treated with antimalarial).

Counseling of caregivers on how to properly administer the prescribed treatment was rare, with first doses never observed being provided in the health facilities assessed. Lastly, **counseling the caregiver to continue feeding** (6% Uganda and 17% Kenya) **and give extra fluids** (7% Uganda and 18% Kenya)

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<sup>5</sup> Justified use of antibiotics for children included diagnoses related to pneumonia, sepsis, or dysentery. Medication type prescribed is NOT indicated, not justified for that age of child or classification: 1) Use of any antibiotics in diarrhea treatment except Ciprofloxacin in case of dysentery; 2) Use of any non-EB treatment except recommended (1st choice) medication for any IMCI condition, including: a) Use of antibiotics to treat malaria (except very severe febrile illness); b) Use of antibiotics to treat cough or cold,\*RTI, URTI; c) Use of any antibiotic except oral amoxicillin to treat pneumonia or oral infection; d) Use of cotrimoxazole and/or ARV treatment for any conditions except HIV infected or HIV exposed children and e) Use of antipyretics in case of high fever ( $\geq 38.5$  and above).

<sup>6</sup> Both countries have adopted the WHO guidelines for initial treatment and referral for infants diagnosed with PSBI on an outpatient basis, and for inpatient treatment. Whether these guidelines had actually been implemented in the outpatient facilities assessed was not collected.

<sup>7</sup> Uganda Clinical Guidelines 2016. National Guidelines for Management of Common Conditions. The Republic of Uganda, Ministry of Health.

<sup>8</sup> Kenya IMCI Guidelines. Ministry of Health.2017.

was observed less for Ugandan than Kenyan sick child consultations, and where this counseling was provided, it was not associated with any specific diagnosis.

**Adolescent health services:** Adolescent-focused health services were widely reported, with advocacy for utilization of these services by adolescents frequently reported. Among preventive health services, counseling practices related to discouraging early marriage and childbirth were not strong. In general, both providers and clients indicated an awareness of the right to, and practice of, respectful service provision and protection of confidentiality for adolescent clients. Among the interviewed providers and adolescents there did not seem to be a high level of awareness of any need to target any specific services for adolescents differently from for adults, or to raise awareness for service utilization.

Providers reported practices for eliciting information from adolescents that would identify issues that may need to be addressed, but adolescent client responses did not indicate that the providers actually elicited information about these issues (e.g., substance abuse, sexual activity, HIV prevention, transmission, and testing). Substantial percentages of interviewed providers and adolescents could not provide correct responses on key risks for early marriage and pregnancy.

Higher percentages of providers reported counseling about specific consequences of early marriage than adolescents could identify, but providers' knowledge was lacking on emergency contraception. Adolescents could identify risks from early pregnancy at higher levels than the providers who indicate they counsel about the issues. Both of these comparisons seem to show that the counseling is being provided, however, the knowledge is not becoming common across these groups of adolescents. The gaps in health literacy were most evident around anemia, healthy nutrition practices to prevent anemia, consequences of getting married and having a child very young, lactational amenorrhea, family planning, emergency contraception, knowledge on HIV, menstrual hygiene, knowledge on symptoms of sexually transmitted infections with a practical absence of the knowledge on human papillomavirus and cervical cancer prevention. Less than 30% of adolescents in Kenya and 11% in Uganda are aware of particular services provided in the health facility but most of them were able to identify government facilities where they can seek care. Conversely, a higher percentage of adolescents in Uganda reported they did not get the desired service because of lack of equipment, medicines, or other materials (35% in Uganda vs 8% in Kenya).

## Key recommendations

- Continuous improvement systems focused on identifying gaps in quality of care processes and outcomes need to be institutionalized. Regular planning, testing, implementing changes, monitoring progress using indicators for these processes and outcomes, and then refining interventions based on the routine monitoring results should be enhanced and supported by facility management and subnational/national level structures. Establishment of functional QI teams needs to be supported in Kenya, and functionality of the existing QI teams should be enhanced in Uganda.
- Subnational (district or county) health structures could play a critical role in the establishment or strengthening of supporting systems for QI, including strengthening coaching and clinical mentoring, setting up/strengthening data systems and learning platforms for QI, engaging communities to demand high-quality RMNC+A services, and addressing essential input needs in health facilities.
- Standardizing medical information to be recorded and compiled, to ensure availability of a minimum level of RMNC+A data, as well as monitoring that essential medical information for individual patients (especially around severity assessment and monitoring disease progression, evidence of timeliness, reason and pre-referral treatment, and outcomes of referrals) is recorded, is needed to provide the evidence required to assess the effectiveness of the existing health services and to identify where improvements are needed. A systematic process for reviewing and

using this information for continuous improvement by facility QI teams and/or clinical supervisors needs to be defined or strengthened.

- It is essential to adopt competency-based clinical education to improve overall clinical assessment, diagnostic, and treatment practices. Routine, “low dose high-frequency” training with practical experiences/drills are needed to reinforce more recent clinical recommendations, particularly with the management of severe pre-eclampsia, PPH, IMNCI, PSBI management, and newborn resuscitation. This training should include updates on prior practices that are no longer recommended. Rotations of staff from low-volume to high-volume facilities for mentorship in these interventions along with practice using anatomic models and case studies where the actual intervention and recording of the intervention are practiced should reinforce correct dosages and techniques. The training should highlight the importance of routine assessment practices and correct classification of symptoms or disease severity as essential information for EB clinical decisions. In parallel to content-specific trainings, introducing training in ethics, psychosocial support, and respectful care is essential to enhance respectful, dignified, and patient- and family-centered RMNC+A care.
- Countries need to develop a functional mechanism for continuously updating EB clinical recommendations for priority RMNC+A conditions, and at the country level, adapt these recommendations to local context and integrate them into the various implementation and monitoring tools (job aids, care pathways, in-service and continuous professional development trainings, and publicly guaranteed service packages). Availability and use of guidelines for diagnostic criteria and treatment for priority illnesses need to be particularly strengthened. Supporting implementation of simple job aids and other provider decision support tools that clearly describe steps and treatment could improve adherence to the guidelines.
- Clinically, more focus should be placed on ensuring that service providers assess and document key symptoms, danger signs, and vital functions of pregnant women, mothers, and children; As per the prior recommendation, findings from assessments must be documented.
- Routine monitoring of diseases and timely follow up is essential to ensure timely identification of the patients with or at risk of complications and providing EB treatment.
- A fundamental paradigm shift needs to be made from disease-specific treatment approaches to integrated RMNC+A care across the service delivery and lifecycle continuum. The use of preventive services such as family planning, HIV testing, preventive immunizations, and counseling on danger signs for both mothers and babies, nutrition, risky and preventive behaviors, and services for substance and personal abuse, which clients (including adolescents) might hesitate to use without specific attention or service conditions, need to be encouraged and strengthened.
- Lastly, client-centered practices need to focus, on the one hand, on clear communication and meaningful participation of patients and their family members in shared decision making, and, on the other hand, reducing unnecessary (unjustified antibiotic treatment, routine suctioning) or harmful practices (e.g., not washing hands between the patients or procedures or administering substandard dosages of medication). Patient information and education is critical not only for better self-management and adherence to treatment, but also to ignite demand for quality and hold systems accountable.
- In addition to strengthening routine assessment and monitoring practices, efforts need to focus on enhancing the care of **mothers, newborns, and children with complications**. This is particularly true for **improving care of small and sick young infants**. Without focused attention to timely identification and EB treatment of mothers and babies with or at risk of complications, attainment of Sustainable Development Goals to reduce maternal, newborn, and child mortality will not be possible.

## Conclusions

The developed tools are appropriate, feasible to implement and provide more in-depth assessment of the quality of care for RMNC+A, according to the existing global guidance (e.g. WHO's Quality of Care framework for MNCH). The modular approach of the tools allows conducting of a focused assessment in priority clinical area of interest (e.g. ANC), as needed with fewer resources. By using information from a variety of sources, the tools allow for triangulation of results and thus provide a deeper understanding of the quality of care gap and its root-causes. The tools were found to be adequate for achieving the objective, and with minor revisions to adapt them to specific country context, they will provide an important contribution to the ability to quantify the quality of integrated RMNC+A services.

There is a need to fundamentally strengthen pre and in-service training and supervision for adherence to clinical diagnostic and treatment practices according to guidelines and EB practices.



## I. BACKGROUND

Internationally, direct causes of maternal death have been identified as hemorrhage (27%), hypertension (eclampsia) (14%),<sup>9</sup> sepsis (11%), abortion (8%),<sup>10</sup> embolism, other direct causes (13%), and other indirect causes (27%).<sup>11, 12</sup> The main causes of infant deaths include preterm birth, intrapartum-related complications (birth asphyxia or lack of breathing at birth), infections, and birth defects. The main causes of child deaths<sup>13</sup> include pneumonia, diarrhea, birth defects, and malaria.<sup>14</sup> The main causes of child death for both Kenya and Uganda are similar to those identified internationally, but also include vaccine-preventable illnesses and HIV. Causes of child deaths in Kenya have remained similar from 2012-2016, with slight reductions in most cases, except HIV and diarrhea, where the contribution to deaths has reduced by more than half during this timeframe. Similarly, for Uganda, child deaths attributed to malaria and HIV have shown reductions by around half and more for this time period.<sup>15</sup>

Recent household-based Demographic and Health Surveys (DHS) in Uganda and Kenya,<sup>16, 17</sup> show that overall, maternal, infant, and child mortality rates have improved, along with increased utilization of skilled providers for antenatal care (ANC) and facility deliveries. While access to and use of reproductive, maternal, newborn, child, and adolescent (RMNC+A) health services has increased globally, quality of care remains an impediment to accelerating the pace in preventing child and maternal deaths (PCMD) particularly in PCMD countries, including Uganda and Kenya.<sup>18</sup> Raising the quality of services by improving the ability of service providers to address the main causes of maternal, newborn, child deaths and morbidity is increasingly needed in order to achieve continuous improvements in maternal, newborn, and child health outcomes. **Annex Table 1** provides details on the DHS findings.

Training staff and ensuring the availability of drugs, diagnostics, equipment, and guidelines to address the main causes of maternal and infant death and morbidity were the focus of recent years. Child health services based on Integrated Management of Childhood Illness (IMCI) protocols have also been a continued focus over the past years. The World Health Organization (WHO) and other global bodies<sup>19</sup> have prioritized changes needed to improve maternal, newborn, and child health (MNCH) based on learning from the past decade about what has and has not worked. The recommended changes include intensified political attention and leadership, harmonized funding, and promoting the involvement of clients and communities. Additionally, implementation of high-quality childbirth care for newborns and

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<sup>9</sup> Primarily eclampsia.

<sup>10</sup> Primarily attributed to hemorrhage or sepsis.

<sup>11</sup> These may include HIV, diabetes, cardiac disease, and TB.

<sup>12</sup> Orientation workshop for technical resources persons supporting implementation of MNCH Quality of Care Programmes, 12-16th November, 2018 Nairobi, Kenya. Dr Wilson Were. Medical officer, Child Health Services. Department of Maternal, Newborn, Child and Adolescent Health.

<sup>13</sup> From the end of the neonatal period through the first five years of life.

<sup>14</sup> Newborns: Reducing mortality. WHO 28 September 2018. <https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality>.

<sup>15</sup> Acting on the call. A focus on the journey to self-reliance for preventing child and maternal deaths. USAID. June 2018.

<sup>16</sup> Kenya National Bureau of Statistics and ICF. December 2015. 2014 Kenya Demographic and Health Survey (2014 KDHS). Nairobi Kenya and Rockville, Maryland, USA.

<sup>17</sup> Uganda Bureau of Statistics (UBOS) and ICF. 2018. Uganda Demographic and Health Survey 2016 (UDHS2016). Kampala, Uganda and Rockville, Maryland, USA: UBOS and ICF.

<sup>18</sup> Acting on the Call. A Focus on the Journey to Self-reliance for Preventing Child and Maternal Deaths. June 2018. USAID. Washington DC.

<sup>19</sup> From evidence to action to deliver a healthy start for the next generation. Elizabeth Mason, Lori McDougall, Joy E Lawn, Anuradha Gupta, Mariam Claeson, Yogan Pillay, Carole Presern, Martina Baye Lukong, Gillian Mann, Marijke Wijnroks, Kishwar Azad, Katherine Taylor, Allison Beattie, Zulfiqar A Bhutta, Mickey Chopra, for The Lancet Every Newborn. Study Group\*. May 20, 2014. [http://dx.doi.org/10.1016/S0140-6736\(14\)60750-9](http://dx.doi.org/10.1016/S0140-6736(14)60750-9). World Health Organization, Geneva, Switzerland

mothers at scale are prioritized, with particular attention to ensuring sufficient health workers (numbers and skills) and monitoring the coverage for priority interventions and packages of care.

Practices that are recommended to be provided at scale for improved MNCH have been defined by WHO as well as technical groups. These include:

- Discouraging common practices for which there is no evidence of effectiveness (e.g., routine perineal shaving and enemas for women in labor, too frequent vaginal examinations during labor, and provision of non-evidence-based [EB] drugs for preventive and treatment interventions);
- Assessment and monitoring of risk symptoms and signs during pregnancy, labor and delivery, and maternal/newborn postpartum period at recommended intervals;
- Providing preventive interventions for women at risk of pre-eclampsia/eclampsia, infections, and malaria;
- Appropriate treatment of maternal hypertension, infections, and severe pre-eclampsia/eclampsia;
- Providing preventive interventions for infants and risk from preterm labor and infection;
- Appropriate treatment for newborn asphyxia (resuscitation with bag and mask) and treatment of infections;
- Appropriate diagnosis and treatment for the main causes of illness and death in children;
- Providing preventive education for adolescents and women to improve maternal, infant, and child nutrition, contraceptive practices, prevention of sexually transmitted infections, and prevention of vaccine-preventable illnesses.

There is a growing body of evidence suggesting that available services in many countries are of poor quality,<sup>20</sup> that more people die globally from poor quality of care than from access to services, and information that one out of three patients across low- and middle-income countries cited negative experience with their health system in the areas of client-centered practices with some of them experiencing disrespect and abuse.<sup>21</sup> These findings indicate the importance for having a solid understanding of the quality of RMNC+A services in medical care facilities and of the extent to which best-practices are implemented to guide quality improvement (QI) interventions at all levels of the health system.

## II. AIMS AND OBJECTIVES

The USAID Office of Health Systems (OHS) and USAID Office of HIV/AIDS (OHA) in Washington tasked the Applying Science to Strengthen and Improve Systems Project (ASSIST) team to develop a survey toolkit for assessing the quality of integrated RMNC+A including HIV services for pregnant women, exposed infants, sick children, and adolescents and to test the tools in 2-3 priority PCMD and PEPFAR countries, as existing facility-based tools did not provide the information necessary for this type of assessment.

Uganda and Kenya have adopted WHO recommendations for RMNC+A services to varying degrees, with the degree to which adopted recommendations have been implemented, unclear. The aim of this study was to describe the quality of RMNC+A health services and to gather evidence of the extent to which EB practices and interventions are being implemented. Services of focus were ANC, delivery, and newborn care, outpatient care of the sick child and young infant, adolescent health services and patient-centered

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<sup>20</sup> Countdown to 2030: tracking progress towards universal coverage for reproductive, maternal, newborn, and child health. Countdown to 2030 Collaboration\*Lancet 2018; 391: 1538–48. Published Online January 30, 2018. [http://dx.doi.org/10.1016/S0140-6736\(18\)30104-](http://dx.doi.org/10.1016/S0140-6736(18)30104-). Dr Ties Boerma, Centre for Global Public Health, Rady Faculty of Health Sciences, University of Manitoba.

<sup>21</sup> High Quality Health Systems in the Sustainable Development Goals Era: Time for a Revolution: Lancet Global Health 2018, available at: [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(18\)30386-3/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30386-3/fulltext)

care. The content of the childbirth section of the assessment and supporting systems for QI are largely based on the WHO Quality of Care Standards for Maternal and Newborn Care.

The specific objectives of this study were to identify:

1. Gaps in the quality of services provided for: a) women during pregnancy and childbirth, b) newborns, c) children < 5 years old, and d) adolescents in Uganda and Kenya. The gaps specifically focus on identifying where current practices differ from WHO EB recommendations.
2. Opportunities and barriers related to health system elements that support the provision of quality RMNC+A services. Specific elements assessed were:
  - a. Provider practice, knowledge and skills for routine monitoring of women and newborns from labor through the immediate postpartum period, newborn resuscitation, management of antenatal, labor, delivery, and postpartum complications, care of the sick child, and adolescent health care;
  - b. Availability of an essential service delivery infrastructure to support services and infection prevention, guidelines, diagnostics, and medications for diagnosing and providing interventions for risk or complications, health system components to support quality services, and other key inputs;
  - c. Availability of clinical documentation and evidence that this information provides on the quality of RMNC+A services for ANC, labor and delivery (L&D), and immediate postpartum/postnatal care (PNC) for the woman and infant, and curative care for the infant and child;
  - d. Individual and institutional QI activities, including regular collection, analysis, and use of data for clinical improvements and administrative decisions to support services; and
  - e. Client perceptions of the care they received and how they were treated.

## A. Scope of the assessment

Assessment of the clinical content for each RMNC+A focal service prioritized compliance with high-impact, EB recommendations for the clinical conditions contributing to the highest disease burden and mortality in Sub-Saharan Africa as well as essential ANC, childbirth, and child care practices to prevent development of these conditions or their complications.

In each of the focal service areas, quality of care was assessed based on input, process, and outcome indicators adapted from WHO and national guidelines.

The technical content of the assessment of selected RMNC+A practices is summarized in **Table 1**.

**Table 1: Summary of technical content for the assessment of selected RMNC+A practices**

Medical service category	Leading causes of mortality, morbidity, and disability	EB screening, prevention, and treatment practices
Antenatal care	Anemia	Iron supplementation Folic acid supplementation
	Malaria	Intermittent preventive treatment (IPT) for malaria Insecticide-treated bednets
	Tetanus	Tetanus toxoid vaccination
	Pre-eclampsia-eclampsia	Monitoring for hypertensive disorders of pregnancy Prevention

		Initial treatment and referral
<b>Maternal health</b>	Hemorrhage	Uterotonic Post-partum surveillance and prompt treatment
	Pre-eclampsia-eclampsia	Intra and post-partum surveillance of blood pressure Urine for protein Symptoms Prompt/adequate treatment (magnesium sulphate)
	Obstructed labor	Routine tracking of labor progress (e.g., partogram) and early intervention
	Infections	Routine monitoring of maternal temperature; prophylactic antibiotics for PROM; prompt treatment of identified infection
<b>Newborn health</b>	Hypothermia	Prevention <u>Essential Newborn Care</u> : thermal protection (immediate drying & skin to skin or wrapping); early breastfeeding; cord care*; prophylactic eye care; immunization; routine surveillance of newborn
	Asphyxia	Neonatal resuscitation
	Prematurity and Low birth weight	Antenatal corticosteroids Kangaroo mother care Post-partum family planning
	Infection (sepsis)	Surveillance of newborn (temperature, respirations, assessment of danger signs and signs of a critical illness) Prevention & prompt management of known risk factors (e.g., premature preterm ROM, maternal infections)
<b>Child Health</b>	Young Infant (<2 months) health: Infection	Screening signs of PSBI Initial treatment and referral Outpatient treatment if a referral is not accessible or feasible <sup>22</sup>
	Child (2 months-5 years) health Pneumonia <sup>23</sup> Diarrhea Malaria	Danger sign screening Thorough clinical assessment Prescription of antibiotics as needed Prompt initial treatment and referral Caretaker education Follow-up planning Immunization
<b>Adolescent health</b>	Early marriage and childbirth, STI/HIV	Access to health care Health education

<sup>22</sup> Outpatient Treatment for Neonates and Young Infants with Clinically Suspected Severe Infection, Lancet Global Health 2015, available at: [http://www.thelancet.com/pdfs/journals/langlo/PIIS2214-109X\(15\)70109-9.pdf](http://www.thelancet.com/pdfs/journals/langlo/PIIS2214-109X(15)70109-9.pdf).

<sup>23</sup> Liu L, Oza S, Hogan D, et al. Global, regional, and national causes of child mortality in 2000–13, with projections to inform post-2015 priorities: an updated systematic analysis. *Lancet* 2014; **385**: 430–40.

		Adolescent-friendly services
<b>Patient-centered practices</b>	NA	Birth companion & active involvement of father (if present) Patient consent for clinical interventions Respect for patient preferences (e.g., pain medication) Privacy, confidentiality of patient information

### III. METHODOLOGY

This study was implemented by the USAID ASSIST Project.

#### A. Study Design

This was a cross-sectional health facility-based survey using mixed methods for data collection, including facility audits, individual provider and client interviews, observations of client/provider interactions during service provision, and document review. The information from the various sources was triangulated to provide a picture of the quality of RMNC+A services in selected health facilities in Uganda and Kenya. Data were collected over the course of one to two days in each facility.

#### B. Tools, Country Adaptation, and Methods

In 2017-2018, the survey toolkit was developed, and the tools tested and implemented in 10 selected facilities in Uganda and 11 facilities in Kenya.

The data collection tools were based on existing tools but were substantially revised/updated to ensure the assessment of key RMNC+A practices according to the latest WHO EB clinical recommendations. The tools were also aligned with WHO *Standards on Improving Maternal and Newborn Care*<sup>24</sup> that include measures related to supporting system functions and patient experiences when receiving care. Where possible, data collection tools were adapted to provide indicators for the availability of quality RMNC+A care in health facilities, according to global measurement frameworks<sup>25</sup> for RMNC+A services.

Information related to the assessed services was gathered from: a) facility audits with information provided by key informants and observations of selected items related to facility-level resources and supporting systems; b) self-administered questionnaires for knowledge, attitudes/experiences, and practices of service providers; c) medical records and register reviews for documentation of RMNC+A services; d) observation of information shared and examinations performed while maternal and newborn care (MNC) services were being provided the day of the survey; and e) interviews with clients present the day of the survey. The tools consisted of 13 different structured questionnaires (**Table 2**).

**Table 2: Summary of data collection tools, type, and content**

#	Tool name	Type	Topics covered
1	Facility Level Key Inputs	Inventory questionnaire	The availability of health system supports for quality care Referral systems Availability of drugs, equipment, and supplies

<sup>24</sup> Standards for Improving Quality of Maternal and Newborn Care in Health Facilities, WHO, 2016 (available at: <https://apps.who.int/iris/bitstream/handle/10665/249155/9789241511216-eng.pdf;jsessionid=B8B9A1662CEA8DF4A7D90B95EB027475?sequence=1> ).

<sup>25</sup> Every Newborn Action Plan (ENAP), WHO Quality of Care (QoC) Measures around childbirth, Ending Preventable Maternal Mortality (EPMM), WHO 100 (Indicators).

2	Health Provider Questionnaire	Self-administered questionnaire	Education and experience Training, supervision, and coaching Individual and institutional QI capacity and role in QI Main barriers for providing quality RMNC+A services Training, comfort, practice, and knowledge for specific services
3	Observation on Newborn Resuscitation (NR) Bag and Mask Skills	Observation checklist	Care providers' knowledge and skills in the management of NR assessed on NeoNatalie model Clinical case study to assess NR knowledge, skills, clinical decision making, and teamwork Skills in testing the NR equipment
4	Patient Interview	Survey questionnaire	Experience and satisfaction Barriers in receiving care Interventions received Patient knowledge
5	Observation of ANC Visit	Observation checklist	Patient/family-friendly services Provision of essential interventions Patient education
6	Observation of Routine Intrapartum and Immediate Postpartum Care	Observation checklist	Admission and initial assessment Observation of all phases of labor Immediate newborn care Postpartum care Use of partograph
7	Observation of Sick Young Infant (< 2 months) Visit	Observation checklist	Assessment and treatment counseling for common childhood conditions (cough and cold, pneumonia, diarrhea, malaria) Malnutrition prevention, diagnosis, and treatment Routine vaccination
8	Observation of Sick Child (age from 2 months-5 years) Visit	Observation checklist	Assessment and treatment counseling for major conditions (including PSBI) Nutrition/feeding counseling Routine vaccination
9	ANC Medical Documentation Review	Medical documentation review	Care and documentation of essential assessments, routine tests, provision of iron/folic acid supplementation, malaria prevention, identification and management of complications, counselling, and completeness of patient records
10	Maternal and Newborn Care Medical Documentation Review	Medical documentation review	Care and documentation of essential maternal and newborn care, identification and management of complications, monitoring of mother and infant during labor, delivery, and the immediate postpartum period, and counseling

11	Maternal Complication Medical Documentation Review	Medical documentation review	Care and documentation of maternal complications (post-partum hemorrhage [PPH], pre-eclampsia/eclampsia, obstructed labor)
11a	Newborn Complication Medical Documentation Review	Medical documentation review	Care and documentation of newborns at risk or with complications (asphyxia, low birth weight, preterm birth)
12	Child Outpatient Care Medical Documentation Review	Medical documentation review	Care and documentation of assessment of vital signs, danger signs, and nutritional status; classification of IMNCI conditions; EB management of IMNCI conditions

Methods specific to the data collection for different tools are described when the results from that tool are presented.

### C. Data Collection and Training of Data Collectors

The data collection team was comprised of a supervisor and 7-8 data collectors, with numbers varying on different days. The data collectors were selected based on fluency in the spoken and written local language and English, and strong clinical content expertise in RMNC+A health. Preference was also given for persons with prior experience in conducting surveys and attainment of tertiary level education.

Individual data collector roles and responsibilities were assigned based on the organization of health services, the volume of ANC and delivery clients, the volume of sick children receiving outpatient services, and the availability of care providers, as well as other local factors that influenced the logistics of data collection in each facility. To maximize the quality and efficiency of data collection in the context of clinical content expertise, data collection teams were formed in three main domains (ANC services, childbirth services, and child and young infant care services) with each team assigned to conduct medical documentation reviews and observations for their domain of expertise. Data collectors with less clinical content expertise but knowledge of the local language were assigned to conduct client interviews. A supervisor was assigned to oversee the fieldwork, check the completion and quality of collected data for each data collector and data collection tool, distribute self-administered provider questionnaires, and complete the facility-level inputs tool (Tool #1).

Data collectors received 3½ days of training that covered the study protocol, the data collection tools, and how to collect the information in the facility. A one-day classroom training covered the review of the study protocol, an overview of the assessment and its objectives, and research ethics related to confidentiality and informed consent of study participants. Additionally, all data collection tools and informed consent forms were reviewed, with instructions for how to administer the questionnaires and complete responses in the forms, and guidance on data extraction from registers and patient records. Data collectors involved in direct observation of care (ANC, childbirth services, and young infant/child outpatient visits) and a simulated clinical scenario for neonatal resuscitation were trained on the appropriate use and implementation of the data collection tools, as well as how to conduct objective and ethical participant observation. Data collectors had two days of practical experience in data collection in one health facility in Uganda and two facilities in Kenya that provided the full range of services assessed but were not selected for the survey or included in the data analysis. Finally, a half-day classroom discussion was held to clarify any remaining questions related to the data collection tools and the process of data collection as well as team organization and information-sharing methods.

## D. Sample Selection

### 1. Facilities

In each country, study facilities (10 in Uganda and 11 in Kenya) were purposefully selected with the following criteria used to prioritize selection:

- Districts/facilities with high volume and/or high maternal and mortality for children <5 years old;
- Facilities representing all levels of RMNC+A services within each district and having referral linkages;
- Facilities in different geographic areas within not more than two districts;
- Facilities with no on-going external QI intervention in RMNC+A services;
- Facilities where a similar assessment had not been performed recently.

The majority of sample facilities in Uganda were health center level (80%) (all providing some inpatient services) and in Kenya, hospital level (73%) (**Table 3**).

**Table 3: Facility sample and percentage of sample for different methods of data collection by type of facility**

Classification of facility	Uganda					Kenya				
	Facilities N (%)	All clients interviewed N (%)	All providers interviewed N (%)	All observa- tions	All record reviews	Facilities N (%)	All clients interviewed N (%)	All providers interviewed N (%)	All observa- tions	All record reviews
Referral hospital	1 (10%)	44 (13%)	14 (20%)	51 (14%)	218 (13%)	2 (18%)	58 (28%)	30 (39%)	119 (30%)	451 (26%)
Other hospital	1 (10%)	74 (22%)	12 (17%)	43 (13%)	190 (11%)	6 (55%)	123 (59%)	52 (51%)	212 (53%)	896 (52%)
Health center (any level)	8 (80%)	217 (65%)	46 (65%)	269 (78%)	1257 (75%)	3 (27%)	28 (13%)	20 (20%)	70 (17%)	369 (22%)
Total	10 (100%)	335 (100%)	71 (100%)	344 (100%)	1665 (100%)	11 (100%)	209 (100%)	102 (100%)	401 (100%)	1716 (100%)

### 2. Providers

All health workers providing RMNC+A services who were present in the facility on the day(s) of assessment and who agreed to participate in a personal interview and/or simulated clinical scenario (informed consents were required) were included in the provider sample (**Table 3**). All providers were asked to self-complete a general module about their training, experiences, and opinions about working conditions, and then to complete service-specific modules related to services they provide (**Table 4**). Most respondents from both countries were nurses or midwives who, on average, had completed their pre-service training around 10 years prior, and had worked in the facility for an average of 6 years (**Table 4**). Kenya, however, had a higher percentage of respondents who were physician/medical officer level. The majority of respondents for each country came from 3 facilities (1 hospital and 2 health centers in Uganda and 3 hospitals in Kenya). **Annex Table 2** provides details on the distribution of interviewed providers by facility.

Respondent and sample characteristics for the different services are presented when results from each service are described.

**Table 4: Characteristics of interviewed service providers**

	Uganda (n=71)	Kenya (104)
<b>Qualification<sup>26</sup></b>		
Physician or medical clinical officer <sup>27</sup>	14% (10)	33% (34)
Professional nurses (RNs) or midwives <sup>28</sup>	41% (29)	43% (43)
Enrolled nurse or midwife <sup>29</sup>	39% (27)	11% (11)
Public health nurse	1% (1)	0
Other <sup>30</sup>	1% (1)	12% (12)
<b>Years of experience</b>		
Average years since completion of clinical training <sup>31</sup>	10.5	10.9
Average years working at this facility <sup>32</sup>	6.9	6.8
Average hours per week working in a facility	40.6	43
<b>Services personally provided</b>		
Antenatal care (ANC)	54% (38)	55% (57)
Normal labor and delivery	54% (38)	39% (41)
Labor complications	46% (33)	36% (37)
Routine newborn care	61% (43)	45% (47)
Sick child care (including young infants)	37% (26)	39% (41)
Emergency/inpatient care of sick children	37% (26)	39% (41)
Well child care	48% (34)	37% (38)
Adolescent medical services	52% (37)	36% (37)
Family planning (FP)	59% (42)	44% (46)
<b>Questionnaire module completed</b>		
General information (all respondents)	71 (100%)	104 (100%)
Antenatal care	21 (30%)	30 (29%)

<sup>26</sup> Information missing for 1 respondent from Uganda and 4 respondents from Kenya.

<sup>27</sup> Medical staff include obstetricians/gynecologists (1), doctors, medical officers (MO), and medical clinical officers (CO), with most having medical clinical officer qualifications as well as MO and CO interns.

<sup>28</sup> Registered nurses (RN) graduate from specified nursing program and pass nationally specified qualification tests to become registered.

<sup>29</sup> Enrolled nurses (EN) have formal courses as well, but these are shorter and less comprehensive than those of RNs. ENs may or may not be licensed depending on country standards. They usually work under RNs and are similar to practical nurses.

<sup>30</sup> The other qualifications included counselors (4%) and peer educators (5%).

<sup>31</sup> Information missing for 3 respondents from Uganda and 7 respondents from Kenya.

<sup>32</sup> Information missing for 1 respondent from Uganda and 18 respondents from Kenya.

Delivery care	31(44%)	20 (19%)
Newborn care	30 (43%)	22 (21%)
Child health	19 (27%)	11 (11%)
Adolescent health	30 (42%)	22 (21%)

### 3. Client interviews

Clients who received specific services in the facility (ANC, delivery, child health care, and adolescent services) were interviewed about their opinions as well as knowledge about their condition and services they had received. Informed consent was required for all interviewed clients. Parental consent was sought prior to the interview of adolescents below 18 who were not pregnant or had not given birth, and those who had not previously delivered, but were attending RMNC+A health clinics.

Eligible clients included women who attended the ANC clinic, gave birth in the facility (interviewed before discharge), women who had given birth within the last 3 months attending postnatal or MCH clinics, caretakers of sick children, and young adolescents aged 15-19 years old who had at least one previous medical visit in the facility (**Table 5**).

**Table 5: Sample numbers for client interviews**

Questionnaire	Uganda sample N (%)	Kenya sample N (%)
General information (all respondents)	335 (100%)	209 (100%)
Antenatal care	160 (48%)	161 (78%)
Maternal/newborn/postnatal care	105 (31%)	80 (38%)
Adolescent health	93 (28%)	13 (6%)
Health literacy (adolescent respondents)	95 (28%)	15 (7%)

All interviewed clients were female, with an average age of 24.1 (Uganda) and 25.1 (Kenya). Ugandan respondents were somewhat less educated than Kenyan, with 47% compared with 32% having no formal education or some primary school. Most (62% and 55% for Uganda and Kenya, respectively) were housewives living with their husbands (88% Uganda and 78% Kenya). The majority from both countries described themselves as low-middle or middle income, and in good health. **Annex Table 3** provides further details on characteristics of interviewed clients, and **Annex Table 4** provides the distribution of interviewed clients by facility.

### 4. Observations of care

Observations were conducted for ANC, women receiving services for L&D and their newborns, and children 0-59 months old receiving curative care services. The data collector sat in the area where the consultancy was taking place. Using a checklist, the data collector was instructed to mark the information that was shared between the provider and the client, regardless of whether the provider asked, or the client volunteered the information. In addition, any examinations or tests performed were to be marked. They were not to speak or interrupt the consultation. After the consultation, the observer was allowed to check the client chart/record and to clarify specific information with the provider. Further information is provided when results from the specific observations are discussed.

## 5. Eligibility for observation

- Labor and delivery: All pregnant women, mothers, and newborns present the day of the survey were eligible for observation.
- Sick young infants and children: Inclusion criteria for sick children were as follows:
  - Young infants 0-59 days old with any of the following:
    - Complaints or signs of severe illness, i.e., change in consciousness/lethargy, convulsions, vomiting everything and unable to feed or breastfeed, fever, low body temperature, diarrhea/vomiting;
    - Nutrition or feeding problems; yellowing of eyes/skin;
    - Cyanosis, surgical conditions, bleeding that required transfusion.
  - Children 60 days to 59 months old with any of the following:
    - Signs/symptoms of severe illness (e.g., change in consciousness/lethargy, convulsions, vomiting everything, unable to feed or breastfeed);
    - Fever/malaria, cough, fast/difficulty breathing, pneumonia, diarrhea/vomiting, ear problem, measles, nutrition or feeding problems.
    - This was the first outpatient visit for the child for this condition.

The sample of observed clients for each clinical domain is summarized in **Table 6**.

**Table 6: Sample numbers for observations**

Sample category	Uganda	Kenya
Observation of service provision (ANC)	137	144
Observation of service provision (sick child 60 -59 months old)	145	168
Observation of service provision (sick child 0-59 day old)	22	68
Observation of service provision (intrapartum and postpartum) (numbers varied for different stages of labor, delivery, and postpartum)	59	21

## 6. Record reviews

Recording of information is important for continuity of patient care and monitoring quality of care. Patient records should provide the information needed to identify risk based on prior history and to identify changes that may indicate risk, and the record improves systematic sharing of information between providers. Although lack of recording does not necessarily mean that an assessment or intervention was not performed, there is no way for providers to know this for certain if it is not recorded.

Records maintained at the facility were reviewed for documentation of specific information including initial assessments, results of any tests and measurements, and documentation of information shared between the clients and service providers. For each service with record reviews, the best available medical documentation (individual patient charts/records including service-specific documents such as partographs) was reviewed for recording of patient-specific information. The sample for each service was selected by reviewing the service register and identifying the most recent 15 eligible clients for each respective population (pregnant women visits, childbirth, sick children aged under five years old) and then additional cases meeting specific criteria. A record that met more than one selection criteria was considered for all applicable samples.

Following are the sampling criteria for each service:

- ANC services:

- Most recent 15 clients, plus clients with blood pressure >140/90 and clients with HIV (+) status
- Childbirth services:
  - Most recent 15 clients plus clients with maternal complications during the childbirth, including HIV+ status, severe pre-eclampsia/eclampsia, postpartum hemorrhage, obstructed labor, or prematurity (<37 weeks gestation)
  - Newborns with diagnosed newborn asphyxia, prematurity (birth at <37 weeks gestation), and very low birth weight (≤2000g)
- OPD patients aged from 60 days-59 months old with diagnoses of diarrhea or pneumonia
- OPD patients 0-59 days old with:
  - Documented signs of serious infection and/or relevant diagnosis (sepsis, severe pneumonia, malaria, meningitis) who were referred to higher-level facilities
  - Documented signs of serious infection and/or relevant diagnosis (sepsis, severe pneumonia, malaria, meningitis) who were treated at outpatient level
  - Diagnosis of pneumonia, or fast breathing (respiratory rate (RR)>60 per minute).

The sample of records reviewed is described in **Table 7**.

**Table 7: Sample numbers for record reviews**

Sample category	Uganda	Kenya
ANC record reviews (primarily information documented in registers)	357	462
Labor/delivery/postpartum (maternal and newborn essential care)	247	262
Maternal complication	354	207
Newborn complications	240	183
Sick children	737	786

## E. Supervision and quality control

Prior to data collection, all data collection instruments were field-tested to ensure clarity and logical flow of questions in both countries. These tools were then revised to ensure the highest level of data quality and adaptation to local context. The questionnaires were structured to generate information specific to each objective.

The team supervisor provided oversight in the field in order to ensure that quantitative data met good data quality standards in terms of: 1) validity; 2) integrity; 3) precision; 4) reliability; and 5) timeliness.

The field teams met daily during the data collection phase to review completed tools, data collection progress, and to plan for next steps. Quantitative data forms were reviewed daily for completeness. Random spot checks of the quantitative data were completed by the Principal Investigator (in Kenya, Kisumu County) or Assessment Supervisor (in Kenya and Uganda) to assure accuracy, validity, and completeness of the data. Any issues related to data quality and completeness were rechecked in the field. Due to a large number of questionnaires and data collection tools, data entry was not able to be completed in parallel of the fieldwork, preventing correction if inconsistencies or missing data (when such existed) were identified during data entry.

## F. Data processing and analysis

Safe handling and security of all data in both hard and soft formats were strictly enforced. To maintain strict anonymity of data, protect survey respondents, and comply with ethical standards, informed consent forms and filled data collection tools were kept separately, and data collection tools did not include any individually identifiable data.

Data for each set of tools was entered into Excel-based data entry tools, with ranges set to reduce data entry errors. Data analysis was conducted for each set of tools separately using Excel and SPSS.v18. Univariate frequency distributions for key variables with checks on outliers was performed.

Descriptive statistics were compiled from the knowledge and skills questionnaires and facility inputs tool. For a few items, where it was important for understanding results, cross-tabulations were carried out.

There were numerous missing responses in the self-administered provider interviews. Where there were responses to the main topic but missing responses for related, follow-up questions, the missing responses were assumed to be “no” or “negative”, under the assumption that respondents are more likely to provide responses for what they know or do, and more likely to skip those that do not apply to them. In some cases, where it was not appropriate to classify missing information as negative, the percentage where a response is missing is provided.

## **G. Ethical Considerations**

The study posed minimal risk given that the formative and evaluative assessment components were non-invasive and that the questions and topics discussed were within the scope of day-to-day health service delivery and utilization parameters. For all information obtained, the privacy of providers and clients was maintained: the provider questionnaires and register reviews were anonymous, without any identification of individual provider or client information.

Questionnaire completion and observation of visits were conducted after receiving written consent from the respondents and caretakers.

The study protocol was approved by a registered Institutional Review Board (IRB) in the United States (University Research Co., LLC) and by the Ethical Committee review boards in Uganda (Makerere University College of Health Sciences, Ref # HDREC, 480) and Kenya (Maseno University Ethics Review Committee, Ref #MSU/DRPI/MUERC/00409/17).

## **H. Limitations**

The objective of the sample selection for all tools, including selection of facilities was to test the tools and data collection methods. Thus, the sample was not meant to be representative of district or national services. While the results are important for documenting general practices, they cannot be used to make comparisons between facilities, countries, and services.

The results from this survey were impacted by time shortages during data collection, opportunistic samples for observations, and self-administered provider questionnaires, where there were substantial numbers of missing responses.

The data are presented by totals, which may be biased when a large percentage of the information, specifically for individual provider responses and service observations, comes from a few of the sample facilities. This is specified where it seems most relevant.

Observations are limited to the conditions existing for clients/patients available on the day of the survey. A limitation in observing ANC, childbirth services, and outpatient visits of children is that observation itself may cause the health care provider to modify his or her behavior. However, the assumption is that after a few minutes, the provider will become accustomed to the presence of an observer and function in a more natural fashion.

The results are sometimes inconsistent for the same item across data collection methods and samples. However, when the data on a subject are triangulated across the different sources of data, the results can confidently be said to reflect the general practices and issues for the facilities, for the services assessed.

## IV. RESULTS

Results for each tool are presented followed by a synthesized discussion of findings across the methods related to the overall practices and care for the specific service.

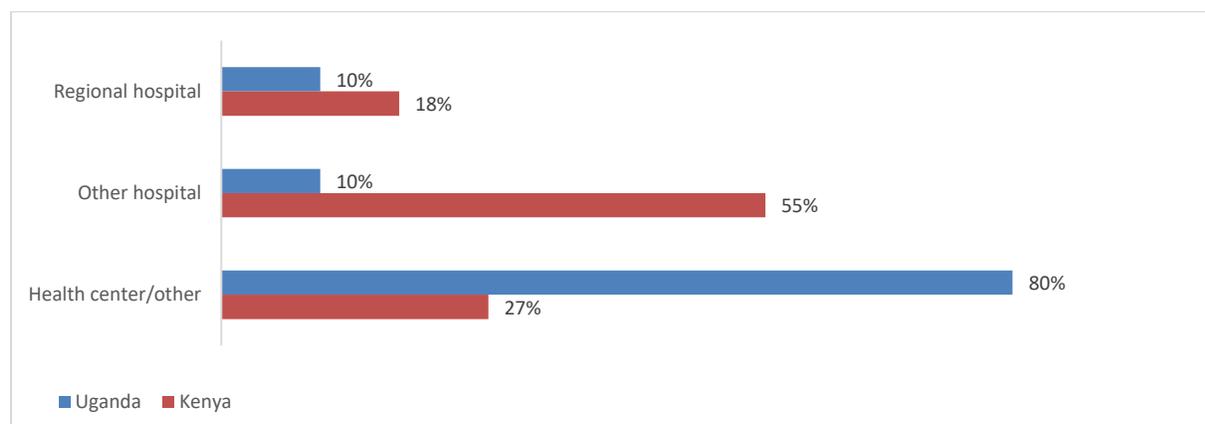
### A. Cross-cutting Facility-level Information

Information on general facility services and resources<sup>33</sup> (facility-level findings) was provided by key informants and items/conditions observed by data collectors. These are representative of the facility as a whole. The key informants were mainly managers or facility-in-charges of respective departments providing RMNC+A services. Additional information was provided by individual service providers interviewed in these facilities.<sup>34</sup> These responses represent individual provider experiences and perceptions within facilities where they work, with the number of respondents varying across facilities. The facility-level responses from key informants in some cases differed from the individual provider perceptions and in many cases varied within a facility, because of different experiences of service providers within the same facility. **Annex Table 2** provides information on the distributions of respondents across the sample facilities. **Section IV.B** provides further information on individual provider respondents' experiences and opinions for facility practices.

#### 1. Facility services and resources

**Basic infrastructure:** The sample facilities from Kenya were higher level than those from Uganda, with 73% of the Kenyan but only 20% of the Ugandan facilities classified as hospitals (**Figure 1**). All facilities for both countries, however, reported providing both outpatient and inpatient services.

**Figure 1: Facility types (Uganda n=10 facilities, Kenya n=11 facilities)**



Infrastructure elements were weak for both countries but stronger in Kenyan facilities. Better infrastructure elements for Kenya likely reflect a better infrastructure associated with hospitals (**Figure 2**). While all Ugandan and Kenyan facilities had electricity, only 10% of Ugandan and 36% of Kenyan facilities had power that meets all needs for the facility and is always available (routinely no gaps in availability of power during a month). Around 80% of the facilities for both countries had a safe water source within 500 meters of the facility. Within the facilities, 50% (Uganda) and 73% (Kenya) had systems for communicating with on-duty staff, such as intercoms or phones. With regards to infection prevention infrastructure and commodities, 40% of Ugandan, but 82% of Kenyan facilities were able to sterilize equipment for reuse, with one additional Ugandan facility able to high-level disinfect (HLD) equipment. **Annex Table 5** provides further details on infrastructure availability.

<sup>33</sup> Tool 1: Inputs

<sup>34</sup> Tool 2: Individual provider responses for general information

Toilets with handwashing materials were observed in 70% of Ugandan and 45% of Kenyan facilities. Other infection prevention items at service sites were similar for both countries, Segregated waste bins (for sharp items, infectious waste, biological waste, and non-infectious other waste) were observed in around 80% of the facilities for both countries and disposable latex gloves in 80% of Ugandan, and all Kenyan facilities. Hand hygiene points with soap and water or hand disinfectant were observed in the delivery room, ANC service area, and outpatient service areas for all Ugandan facilities. These were slightly less consistently available in the Kenyan facilities with hand hygiene supplies available in 90% of assessed delivery rooms,<sup>35</sup> and 91% of ANC and outpatient service areas.

**Figure 2: Basic facility infrastructure (Uganda n=10 facilities, Kenya n=11 facilities)**



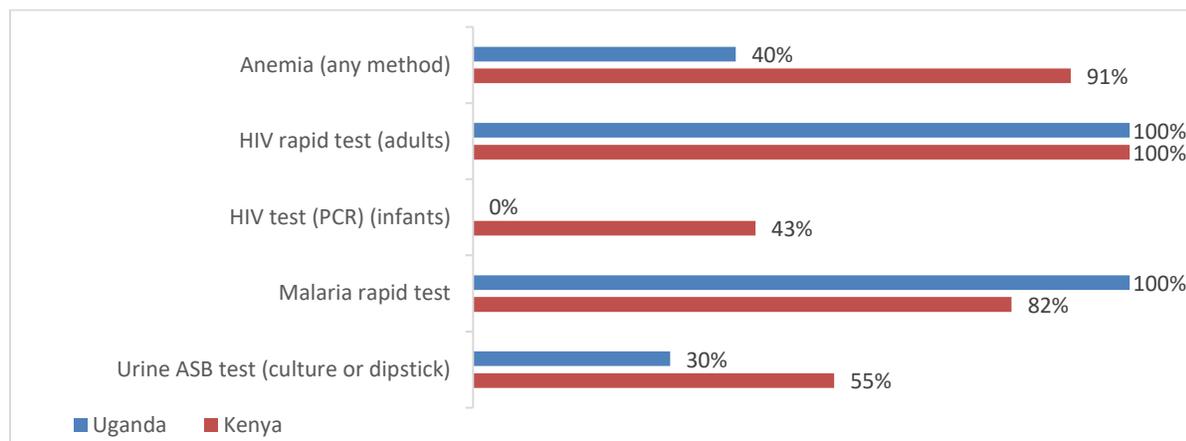
Interviewed individual providers were asked if they were satisfied that the water, sanitation and energy services allow them to provide high-quality care in their facility. Among 70 Ugandan and 102 individual Kenyan providers who were interviewed, only 10% (Uganda) and 61% (Kenya) were satisfied with the infrastructure support to providing quality care, while 32% (Uganda) and 37% (Kenya) were dissatisfied. **Annex Table 7** provides further details on provider opinions of facility infrastructure.

**Funding for facility functioning:** Around 70% of facilities from each country were reported to have a budget and protocol for the operation and maintenance of energy, safe water, and sanitation services, with 50% (Uganda) and 73% (Kenya) of the budgets for ensuring uninterrupted power supply reported to be adequate. Less than half of the facilities (30%, Uganda and 45%, Kenya) were reported to have a dedicated budget for essential medicines, equipment, and medical supplies for maternal and newborn care. **Annex Table 5** provides further details on facility financial resources.

**Availability of diagnostics:** Overall, availability of relevant diagnostic testing for maternal and newborn health (MNH), including 24-hour availability, were reported for a greater percentage of Kenyan than Ugandan facilities (**Figure 3**).

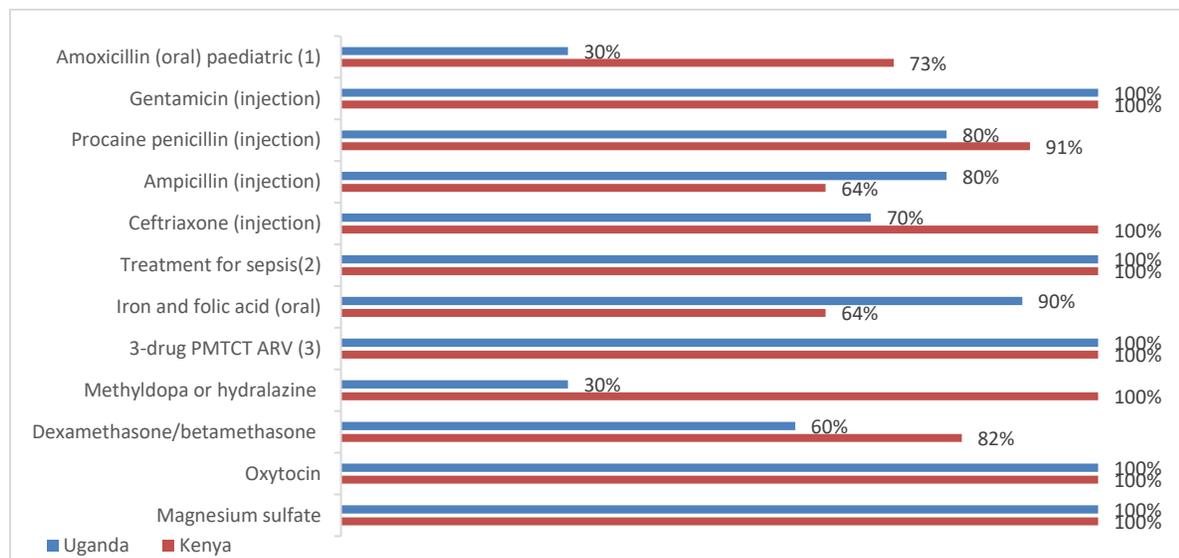
<sup>35</sup> One referral hospital with delivery services in Kenya did not have the facility inputs for delivery services assessed.

**Figure 3: Facility level availability of specific diagnostics (Uganda n=10 facilities, Kenya n=11 facilities)**



**Availability of medications for maternal and newborn care (MNC):** Availability of drugs was assessed either in the pharmacy or the delivery service area, with observation of at least one valid unit of the commodity required. In general, drugs were more available in Kenyan facilities, however, amoxicillin (for treatment of childhood pneumonia and neonatal sepsis), iron and folic acid (ANC supplements) or any ANC corticosteroids for preventive treatment for premature newborns were missing from at least one facility in each country. All facilities had first-line treatment for maternal and neonatal sepsis.<sup>36</sup> All Kenyan but only 30% of Ugandan facilities had methyldopa or hydralazine (for hypertension). The three-drug antiretroviral combination for PMTCT was available in all facilities in both countries (**Figure 4**).

**Figure 4: Availability of selected essential medicines in health facilities (Uganda n=10 facilities, Kenya n=11 facilities)**

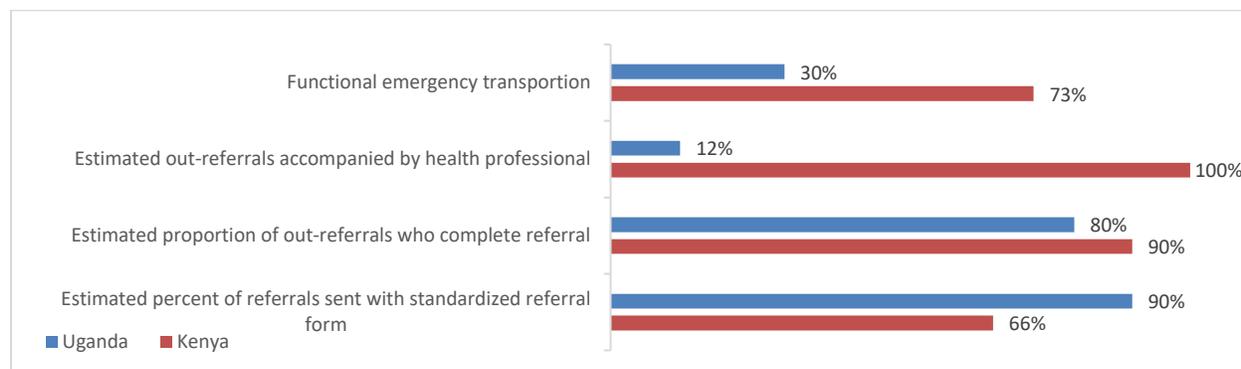


(1) Syrup or clavulanate (Augmentin); (2) Gentamicin and (either penicillin or ampicillin) or ceftriaxone; (3) AZT/3TC/EFV or AZT/3TC/NVP

<sup>36</sup> (Ampicillin [or Penicillin] and Gentamicin), or ceftriaxone for maternal sepsis. Although gentamicin is the primary drug for neonatal sepsis, adding oral amoxicillin (where intravenous drugs are not feasible) or ampicillin is also recommended.

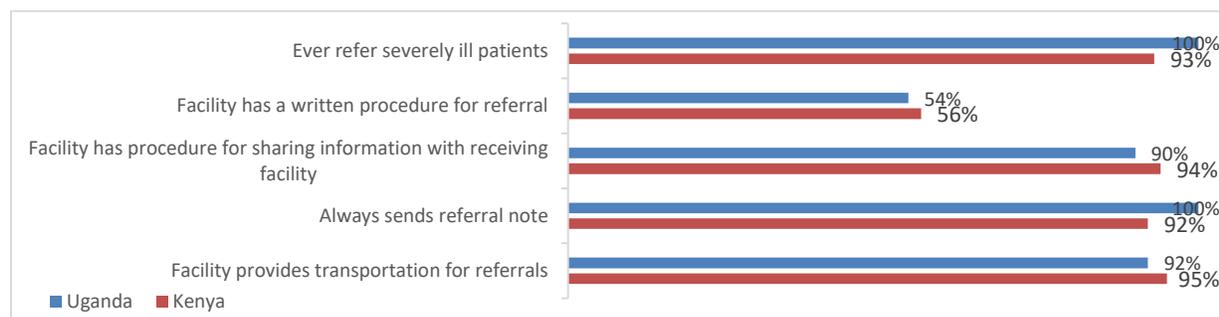
**Patient referrals:** Facility-level key informants reported that 30% (Uganda) and 73% (Kenya) of facilities had a functional emergency transportation vehicle onsite,<sup>37</sup> and estimated that follow-through on referrals was high (80%, Uganda, and 90%, Kenya). Asked to estimate the time from deciding a patient needed a referral to when the patient would arrive at the referral facility, Ugandan respondents reported longer times (30 minutes to 3 hours, median time 1 hour) than Kenyan respondents (estimates ranged from 5 minutes to 2 hours, median time 1 hour). Ugandan key informants for facility-level practices reported that, on average, 12% of maternal/newborn referrals out are accompanied by a health care professional while Kenyan key informants reported that all are accompanied (Figure 5). Annex Table 6 provides further information on facility-level referral systems.

**Figure 5: Facility level referral systems (Uganda n=10 facilities, Kenya n=11 facilities)**



Among interviewed individual providers asked about their experiences with referrals, almost all reported that they refer severely ill patients to other facilities, with an average of 55% of providers from both countries reporting their facility has a written procedure for referral and almost all (90% for each country) reported they have a procedure for sharing information with the referral facility. All Ugandan and 92% of Kenyan interviewed providers reported they always send a referral note with the patient (Figure 6). When asked to mention items that they always include in their referral note, the main information reported by respondents from both countries were the patient age and diagnosis. Half or fewer of the respondents reported that they routinely recorded any clinical findings, test results, or medicines provided on the referral note.

**Figure 6: Average percent of interviewed providers reporting different experiences with referrals at their facility (Uganda n=71 providers, Kenya n=102 providers)**

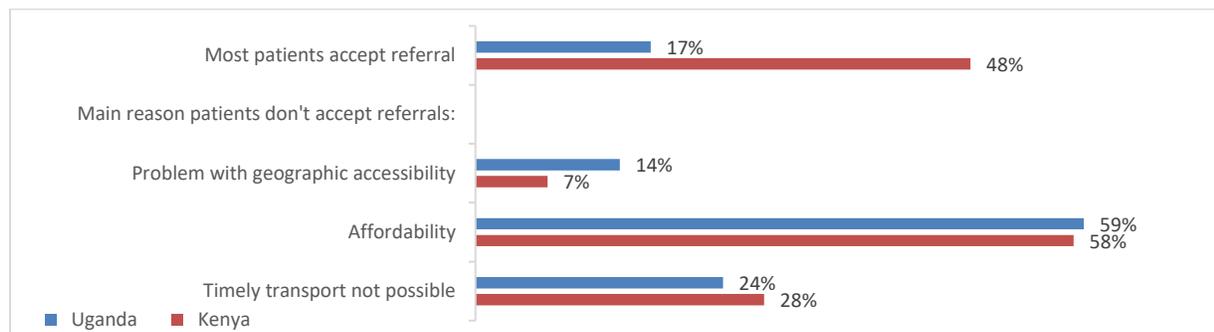


**Barriers to referrals:** Individual providers within facilities estimated, on average, that 34% (Uganda) to 40% (Kenya) of referred mothers/infants could actually access an official vehicle when needed. They also estimated that, on average, 57% (Uganda) and 62% (Kenya) of infant/mothers who were referred were actually able to follow through on the referral, with providers from both countries identifying the same

<sup>37</sup> Access to a vehicle may be higher if a system of calling for a centrally located vehicle (not assessed) is used.

primary reasons they might not refer a patient who should be referred. These were patient refusal due to cost (59% Uganda and 58% Kenya) and lack of timely access to a vehicle (24% Uganda and 28% Kenya). Only 17% (Uganda) and 43% (Kenya) of the interviewed providers thought there were no major barriers to referring patients (Figure 7).

**Figure 7: Individual provider responses for out-referral practices and barriers to effective referrals (Uganda n=71 providers, Kenya n=97 providers)**



Providers were asked to estimate the travel time for a referred patient to reach the referral site using the most common local transportation. These estimates varied widely within the same facilities, with the median time estimated by providers ranging from 2.5-3 hours (Uganda) to 1-1.5 hours (Kenya). **Annex Table 8** provides further details about provider opinions related to referrals.

**In-referrals:** At the facility level (Tool 1), key informants estimated that 19% (Uganda) and 7% (Kenya) of women being referred-in die before or during referral to the facility.<sup>38</sup> The average estimate for infants was that 13% (Uganda) and 16% (Kenya) die before or during referral to the referral.

All individual interviewed providers from Ugandan facilities and most Kenyan providers (98%) reported that they receive referrals from other facilities (Tool 2). On average, 96% of Ugandan, and 51% of Kenyan respondents felt they receive sufficient information about the patients they receive. Despite the opinion that they receive sufficient information about patients they receive, record reviews for Ugandan women with complicated deliveries showed that among 30 patients who arrived through referral from another facility only half had any note related to the referral diagnosis and a higher percentage (59%) had no record of any initial management provided prior to referral. For Kenya, 64 of 207 records reviewed were for women referred from another facility, with 42% of these having no reason for referral and even more (66%) no initial management prior to referral recorded. (**Annex Table 56** provides further details on referral status for complicated delivery cases with record review.) Documentation of reasons for ANC referrals was also lacking (see **section IV.C.2** “Record reviews for antenatal care clients”).

**Health information systems:** Most facilities (80%, Uganda and 91%, Kenya) were reported to use individual patient identifiers for newborns. Data collectors were asked to review registers to identify whether the International Classification of Diseases (ICD) was used for recording diagnoses. Use of ICD classification for mothers/infants was higher in the Kenyan facilities (estimated used for 92% of maternal and 90% of infant/child cases) than in Ugandan facilities (estimated used for 54% of maternal and 63% of infant/child cases).

<sup>38</sup> Averaged responses across facilities for each country

## Key findings for facility resources and practices

### *Strengths*

- A higher percentage of Kenyan facilities were hospitals, and these had stronger general facility-level infrastructure, and a higher proportion of the availability of MNH diagnostics and essential medications than Ugandan facilities, most of which were health centers of different levels.
- All facilities from both countries had drugs for treating maternal and neonatal sepsis.
- Procedures for referring patients to other facilities (guidelines, transportation, referral notes to send with patients) are commonly reported both at the facility level and by individual providers for both countries.
- Kenyan facilities use ICD coding for patient diagnoses at higher levels than Uganda.

### *Weaknesses*

- Gaps in basic infrastructure are noted for both countries, including the lack of a regular power supply in almost all Ugandan and 64% of the Kenyan facilities.
- Several essential drugs and diagnostic test to identify mothers and newborns at risk and provide timely treatment were lacking in 70% of Ugandan facilities, and a lower percentage (18-45%) of Kenyan facilities.
- Main barriers identified by individual providers for follow-through on recommended referrals were cost to the patient and lack of timely availability of transportation.
- Although providers did not identify information received with referrals as a major problem, record reviews for complicated delivery patients received in the sample facilities did not have consistent documentation of pre-referral assessments and treatments for in-referrals. Provider descriptions of the content of referral notes demonstrate that they are not using (or are not completing) standardized forms structured to promote consistency in information sent with patients who are referred out.
- Facility estimates of deaths during referral for infants and mothers who are referred in/out, if accurate, indicate weaknesses in timely referrals and pre-referral management.

## **B. Provider (of RMNC+A health services) interviews: Cross-cutting issues**

Health service providers for RMNC+A services were asked to self-complete a general module about their training, experiences with different aspects of care, and opinions about their working environment. They were also asked to self-complete service-specific modules (e.g., ANC, maternal care, newborn care, etc.) depending on the services they provided. The service-specific information is covered in each specific service section.

### **1. Sample of individual service providers**

The majority of provider respondents came from a few facilities, with 73% of Ugandan respondents from 5 of the 10 sample facilities and 84% of Kenyan respondents from 5 of the 11 facilities (**Annex Table 2**).

**Table 8** provides background information on the qualifications, years of experience, and services provided for the respondents.

**Table 8: Characteristics of interviewed service providers**

	Uganda (n=71)	Kenya (104)
<b>Qualification<sup>39</sup></b>		
Physician or medical clinical officer <sup>40</sup>	10 (14%)	31 (31%)
Professional nurses (RNs) or midwives <sup>41</sup>	29 (41%)	43 (43%)
Enrolled nurse or midwife <sup>42</sup>	27 (39%)	11 (11%)
Public health nurse	1 (1%)	
Other	1 (1%)	15 (15%)
<b>Years of experience</b>		
Average years since completion of clinical training <sup>43</sup>	10.5	10.9
Average years working at this facility <sup>44</sup>	6.9	6.8
<b>Services personally provided</b>		
Antenatal care	38 (54%)	57 (55%)
Normal labor and delivery	38 (54%)	41 (39%)
Labor complications	33 (46%)	37 (36%)
Routine newborn care	43 (61%)	47 (45%)
Sick child care (including young infants)	26 (37%)	41 (39%)
Emergency/inpatient care of sick children	26 (37%)	41 (39%)
Well child care	34 (48%)	38 (37%)
Adolescent medical services	37 (52%)	37 (36%)
Family planning	42 (59%)	46 (44%)

## 2. Results

**QI activities:** Among all providers answering QI questions, most (91% Uganda and 70% Kenya) reporting that their facility has some form of QI activity, including an internal team or other QI structure (87% Uganda and 68% Kenya). Among the respondents, however, 44% (Uganda) and 63% (Kenya) reported they were not directly involved with QI activities. Around half of respondents (52% Uganda and 46% Kenya) reported their facility uses a continuous QI process, with an additional 21% (Uganda) and 11% (Kenya) describing QI activities as mostly initiated by agents external to the facility (**Figure 8**).

<sup>39</sup> Information was missing for 1 Ugandan and 4 Kenyan respondents.

<sup>40</sup> Medical staff include obstetricians/gynecologists (1), doctors, medical officers, and medical clinical officers, with most having medical clinical officer qualifications.

<sup>41</sup> Registered nurses (RN) graduate from specified nursing program and pass nationally specified qualification tests to become registered.

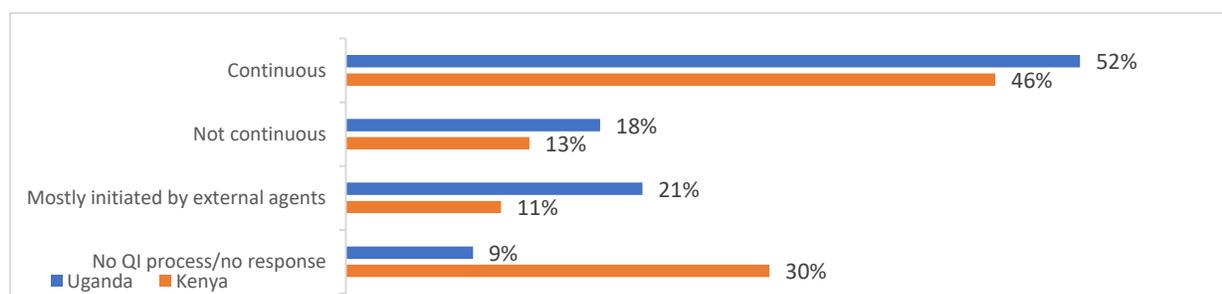
<sup>42</sup> Enrolled nurses (EN) have formal courses as well, but these are shorter and less comprehensive than those of RNs. ENs may or may not be licensed depending on country standards. They usually work under RNs and are similar to practical nurses.

<sup>43</sup> Information was missing for 3 respondents from Uganda and 7 respondents from Kenya.

<sup>44</sup> Information was missing for 1 respondent from Uganda and 18 respondents from Kenya.

When key informants for facility-level resources (Tool 1) were asked about resources for QI activities, none of the respondents from Ugandan facilities, and only those from 36% of Kenyan facilities reported that their facility had an adequate budget to support quality improvement work (see **Annex Table 5**). At the individual provider level, with multiple respondents in each facility, (Tool 2), only 14% (Uganda) and 21% (Kenya) believing that resources for QI activities were sufficient and well used. Insufficient training and resources, such as finances, and time, to support QI activities were reported by 28% (Uganda) and 34% (Kenya) of individual respondents.

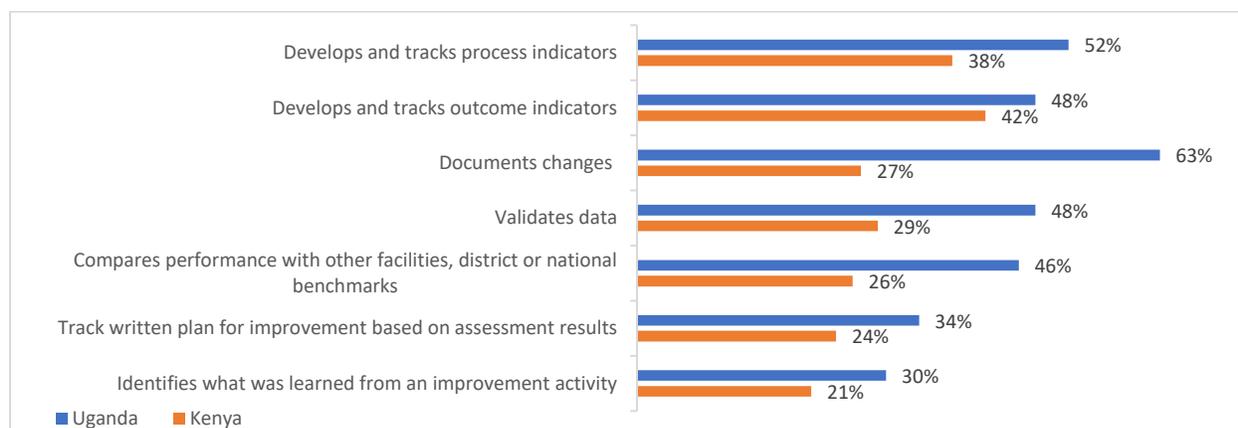
**Figure 8: Provider-reported type of QI process in their facility (Uganda n=71), Kenya n=104)**



Among providers reporting any QI activities, a variety of approaches were reported, with 39% (Uganda) and 32% (Kenya) reporting they conduct a series of plan-do-study-act (PDSA) cycles. Respondents were provided a list of options and asked if their facility used any of these for monitoring quality. Tracking of process indicators was reported by 52% (Uganda) and 38% (Kenya) of respondents, tracking outcome indicators by 48% (Uganda) and 42% (Kenya), and data validation by 48% (Uganda) and 29% (Kenya). Documentation of changes to improve care were reported by 63% (Uganda) and 27% (Kenya), however, only 34% (Uganda) and 24% (Kenya) reported that their facility develops a written plan that includes tracking of improvements based on assessment results. Few providers (1/3 in Uganda and 1/5 in Kenya) reported the use of monitoring data for learning and adaptation of improvement activities (**Figure 9**).

**Annex Table 9** provides further details on QI monitoring activities.

**Figure 9: Provider reports on facility processes for monitoring QI in their facility (Uganda n=71, Kenya n=104)**



## Key findings on QI activities

### Strengths

- Most respondents (91% Uganda and 70% Kenya) reported their facility has some type of internal QI structure with around half (52% Uganda, 46% Kenya) reporting their facility has continuous QI systems.
- 52% (Uganda) and 33% (Kenya) reported their facility uses data and develops a written report based on QI results, with 65% (Uganda) and 32% (Kenya) reporting QI activities taking place at least monthly. Forty-six percent (Uganda) and 26% (Kenya) reported they compare their results against benchmarks/other facilities or districts.

### Weaknesses

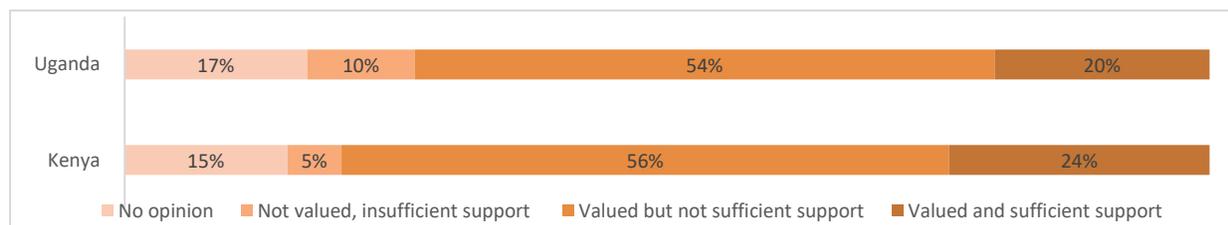
- Recent (within the past 12 months) training for QI was reported by 48% (Uganda) and 27% (Kenya).
- Few respondents at facility level (representing facility-level resources) or at providers level (representing provider experiences) believed there were sufficient and well-utilized resources for quality improvement, although facility and individual provider perceptions that resources were sufficient were higher in Kenya (36% facility and 21% at provider level) than Uganda (0% facility and 14% at provider level).
- QI activities to regularly monitor progress toward improvement and develop plans for acting upon QI results, tracking and monitoring of indicators and visual presentation of results were activities reported by half or fewer of the providers.
- Use of data from QI monitoring for continuous learning and adaptation was only reported by 1/3 of providers from Uganda and 1/5 in Kenya.
- Data validation activities (e.g. spot check of the data) were reported by less than half (48%, Uganda and 34%, Kenya) of respondents.

Over half of the providers in Uganda and one third in Kenya reported having ever received training or coaching related to QI, with 48% in Uganda and 27% in Kenya reporting this was within the past year. Among these, around half from each country reported the training or coaching was provided by representatives of donor-funded agencies. Ugandan respondents reported an average of 3.3 QI coaching meetings were held in the past 6 months to review QI progress and that they personally were involved in meetings an average of 2.1 times in the past 6 months. Kenyan respondents reported there were on average 2.6 coaching meetings the past 6 months of which they were involved with (on average) 1.2. **Annex Table 9** provides further details on provider opinions of QI systems and practices.

## Provider opinions and experiences with work environment and support in their health facilities

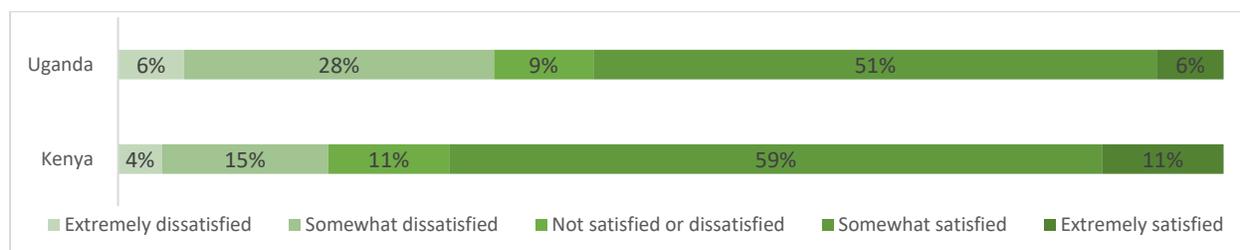
**Working environment:** The interviewed providers were asked to rate the support they received from their organization/facility both in whether they felt valued, and whether they received sufficient support (e.g., the work orientation and professional training received) to perform their work well. Most staff in both countries felt valued but that they did not receive sufficient support (**Figure 10**).

**Figure 10: Provider opinions about treatment and support they have at their job (Uganda n=71, Kenya n=104)**



When asked to rate their overall satisfaction with their job, however, only 19% of providers in Kenya and 34% in Uganda were extremely or somewhat dissatisfied (**Figure 11**).

**Figure 11: Provider reported satisfaction with their job (Uganda n=67, Kenya n=101)**



Twenty-seven percent of respondents in Uganda and 31% in Kenya reported they were actively seeking a new job. This may or may not be associated with job satisfaction as factors such as location also may influence the desire to change jobs or relocate.

When asked about specific practices to support staff, almost all providers (87% from both countries) reported they were oriented to their functions, roles, and responsibilities prior to starting work in the facility. Fewer (68% from Uganda and 52% from Kenya) reported they had received a written job description.

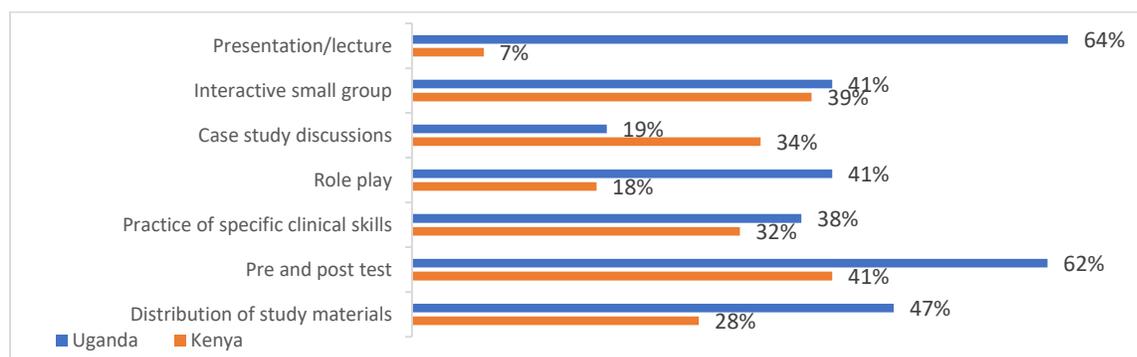
About three out of four interviewed providers in Uganda and Kenya (72% and 71% respectively) described the working environment as a team of different providers, that work together with trust, collaboration, appreciation of complementary roles, and a recognition that all contribute individually to improve patients' health. Other described their work as independent with little collaboration or appreciation of the importance of complementary roles (3% Uganda and 7% Kenya) or as interdisciplinary but not always working together as an effective team (7% Uganda and 11% Kenya). **Annex Table 10** provides details for provider opinions on the working environment and their employment experiences.

### Experience with in-service training

**All respondents for RMNC+A services** were asked about recent training (within the past 12 months) for various RMNC+A topics, regardless of which specific services they provided. In total, 82% (Uganda) and 72% (Kenya) of individual respondents reported they had received any training in the last 12 months. The percentages reporting recent training were averaged to allow generalization about training practices. On average, 11.4% of Ugandan providers and 13.9% of Kenyan providers received training on any given topic. **Annex Table 11** provides further details on in-service training reported by all providers, regardless of which RMNC-A service they provide.

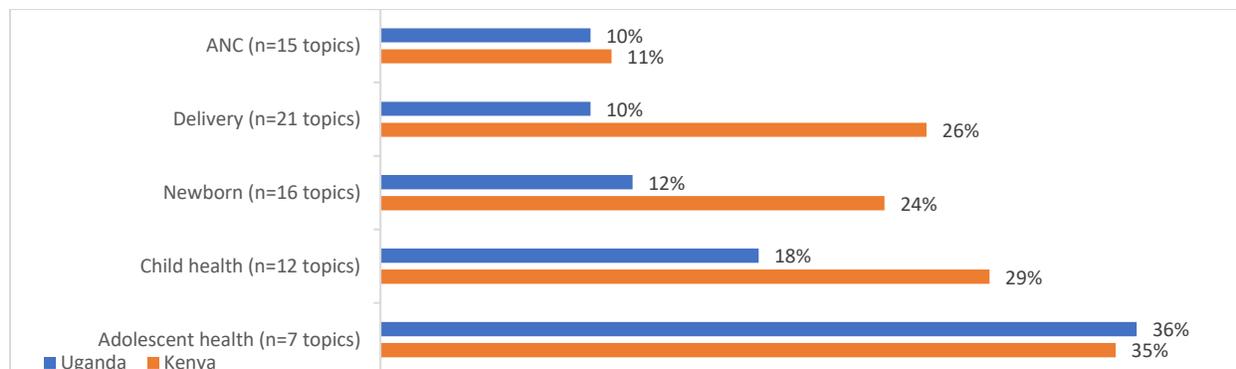
Among providers who reported receiving any training in the past 12 months, the main method reportedly used for respondents from Uganda was presentation/lecture (41%), and in Kenya, interactive small group training (39%) (**Figure 12**). Around half to 1/3 of the respondents from Uganda and Kenya reported they have regular simulation exercises for specific aspects of maternal and newborn care, with around 2/3 from each country reporting training using simulation exercises at least annually. Overall, higher percentages of Ugandan respondents reported having received training in the past 12 months and having received training using a variety of interactive methods. Donors were reported most commonly (50%, Uganda and 33%, Kenya) to have provided the training. **Annex Table 12** provides further details on the most commonly reported providers of in-service clinical training and frequency and topics for simulation exercises.

**Figure 12: Provider reported methods used for training received past 12 months (Uganda n=58, Kenya n=73)**



Additionally, however, **providers of specific services** were asked about the **training** they had received **related to those services**. Training across the multiple topics assessed for each service was averaged to provide a picture of extent to which providers of services had received recent training in the multiple relevant topics (**Figure 13**). For example, on average, the interviewed delivery service providers from Uganda reported having received training on 10% (2 of the 21 topics) whereas Kenyan providers reported having received training on 26% (2 of the 21 topics) of the 21 delivery topics in the last 12 months. Further details on service specific training reported by providers of those services are provided in **Annex Table 24** (ANC), **Annex Table 46** (L&D), **Annex Table 52** (newborn), **Annex Table 82** (child health), and **Annex Table 91** (adolescent health).

**Figure 13: Average percentage of topics for which providers of the indicated services reported receiving training in the last 12 months (number of respondents varied by service)**



**Experience with personal supervision:** Supervision contacts were high (92% Uganda and 79% Kenya) although only around 2/3 or less of all respondents (66%, Uganda and 46%, Kenya) reported they were most recently supervised within the past 3 months, and 18% (Uganda) to 41% (Kenya) reporting no supervision in the past 6 months. Slightly more than 40% of respondents from each country reporting they have a facility-based clinical supervisor for their individual performance, and higher levels (55% Uganda and 71% Kenya) reported they had supervisors from outside the facility. Among all respondents, the main providers of external supervision were district clinical officers (32% Uganda and 24% Kenya) or persons from the central MOH (37% Uganda and 5% Kenya). Additionally, external supervision was reportedly received from professional associations (15% Uganda and 18% Kenya) and representatives from donor funded projects (45% Uganda and 3% Kenya).

Among providers who reported being supervised, reported activities by supervisors were similar for external and internal supervisors. The range of activities reportedly carried out by external supervisors/coaches included on-the-job clinical training (around 50% for Uganda and 40% for Kenya)

and reviewing performance toward **outcome indicators for care** (around half or more from both countries). Observation of performance using anatomic models, and activities to promote EB practices were reported by around 20% or fewer of providers from both countries who had received, with higher levels of these activities reported conducted by external supervisors. Reports that the review of their performance was associated with **process indicators** was uniformly low (around 30% for both countries). **Annex Table 13** and **Annex Table 14** provide details on providers of supportive supervision/coaching and provider experiences with these supervisors.

### **Key findings on provider opinions and experiences with facility support and working conditions**

#### **Strengths**

- Overall, around 70% of respondents described theirs as a positive work environment.
- A high percentage of respondents had received any type of RMNC+A training in the past 12 months (82% Uganda and 72% Kenya).
- Supervision by professional organizations is occurring in both countries.

#### **Weaknesses**

- Training during the past year in newborn resuscitation was low (39% Uganda and 16% Kenya), and all newborn resuscitation training did not include using a doll for practical experience.
- Providers from both countries identified gaps in skills/mentoring to develop skills, job aids, drugs, and equipment as barriers to providing quality services.
- Around 20% of the respondents from both countries had not met with a supervisor (either from the facility or external to the facility) in the past 6 months.
- External supervision is heavily supported by donor/implementing agencies in Uganda (45%).
- While supervision was commonly reported:
  - Supervision within the past 3 months was reported by only 66% of Ugandan and 44% of Kenyan respondents.
  - 18% (Uganda) and 41% (Kenya) of respondents reported no supervision in the past 6 months.
  - Among those receiving supervision, the content was less focused on promoting compliance with EB clinical recommendations (process indicators) and drills on an anatomic model (<20% from both countries) than on general supervision of work activities and building capacity.

**Communication between providers:** Asked to identify the one most common means used for providers to communicate with other about care of a patient, written notes in the patient records (51% Uganda and 38% Kenya) was most commonly cited, followed by a combination of verbal and written communications (23% Uganda and 42% Kenya). Asked about patient handover reports for shift changes, more than half of respondents from each country expressed satisfaction with the information sharing, although an additional 1/3 of respondents from each country expressed dissatisfaction with the information shared.

**Patient records:** Asked about retrieving patient information from prior outpatient visits, the majority of respondents (70% Uganda and 65% Kenya) reported that the ease varied depending on the service. Difficulty in retrieving information or noting that the only information on prior patient visits is inpatient records maintained by the patient was described by 36% (Uganda) and 23% (Kenya) of respondents. Where facility records for patients were available for retrieval, 29% (Uganda) and 38% (Kenya) reported they could retrieve the information within 10 minutes.

Major gaps in medical documentation were identified, with the most commonly identified issues being frequent stock-outs of standardized forms (25% Uganda and 34% Kenya); standardized forms not being filled completely (32% for both countries); and standardized forms not being filled accurately (42% Uganda and 25% Kenya). Additionally, around 1/4 of respondents from each country felt that most of the time documented medical information does not provide sufficient information to assess gaps in care and

identify areas of improvement. **Annex Table 15** provides further details on the sharing of patient information and patient records.

#### **Key findings on sharing patient information**

##### **Strengths**

- Most providers reported that patient information is recorded in standardized records.
- Around 75% of providers from each country felt that medical records as completed provide enough information for monitoring or improving care.

##### **Weaknesses**

- A lack of standardized patient records was reported by 17% (Uganda) and 12% (Kenya) and, where there were standardized records, stockouts of the standardized forms were reported by 25% (Uganda) and 34% (Kenya).
- Communication about patients was primarily reported to be provided through patient records (52%, Uganda and 42%, Kenyan), but also shared verbally by providers. Around 1/3 of respondents from each country expressed dissatisfaction with the information shared between providers for continuity of patient care, and 1/4 reporting they did not believe medical records provided sufficient information for evaluating care.

**Provider-reported experiences and practices for patient follow-up (from outpatient or inpatient services):** Where relevant, 42% of Ugandan and 63% of Kenyan respondents noted that patients are referred to specific outpatient clinic for long-term monitoring or follow-up with a written plan defined. When asked about patients who require follow-up visits, a follow-up visit appointment was reported to be scheduled prior to discharge by 45% and 59% of respondents from Uganda and Kenya, respectively, and instructions given to schedule an appointment for a specific time (e.g., after one month) later for an additional 20% (Uganda) and 26% (Kenya). A system for tracking patients who do not keep their appointments was reported by 52% (Uganda) and 78% (Kenya) of respondents who reported the facility allows for scheduled follow-up appointments.

Around half of the respondents from each country reported working closely with existing community structures to meet patient needs, while an additional 31% (Uganda) and 24% (Kenya) reported they did some successful outreach, but this was not the norm.

**Annex Table 16** provides further details on patient follow-up practices.

#### **Key findings on provider reports for patient discharge follow-up**

##### **Strengths**

- 42% (Uganda) and 63% (Kenya) reported planning with written plan for follow-up of discharged patients.
- Discharge planning and a system for tracking patients who do not keep appointments were commonly reported (52%, Uganda and 78%, Kenya).
- Routine community linkages were reported by around half of respondents from each country.

##### **Weaknesses**

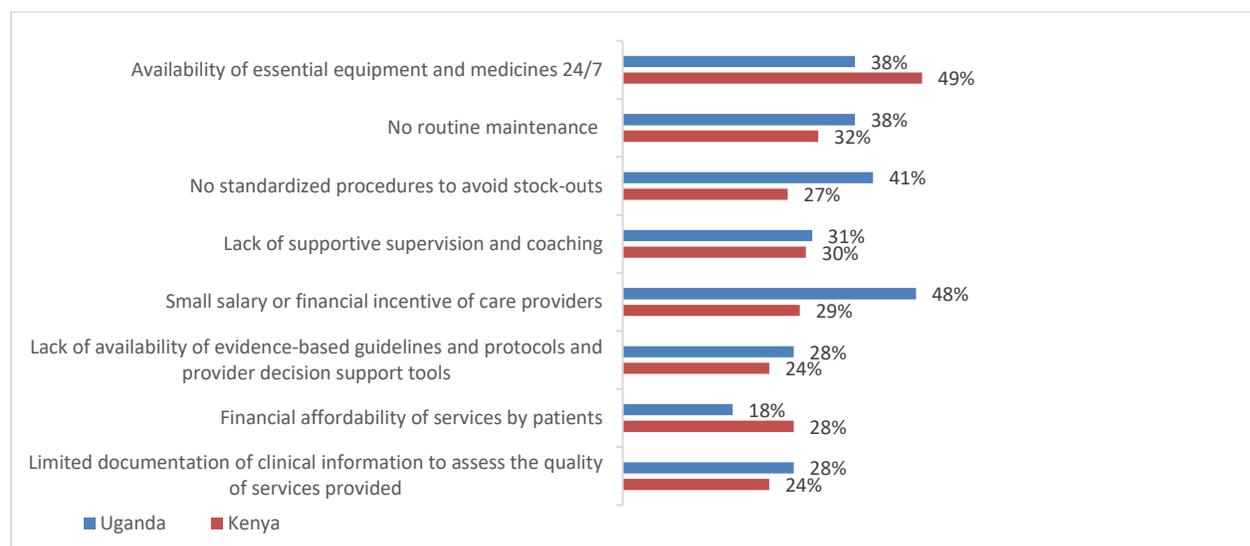
- Routine community linkages were not reported by around 1/3 (Uganda) and ¼ (Kenya) of respondents.

#### **Barriers to providing quality services**

Asked to identify any applicable barriers to providing quality services, from a list of common barriers, issues identified were similar for both countries, including 24-hour availability of essential equipment and medicines (38% Uganda and 49% Kenya)—with similar percentages reporting the need for improved equipment maintenance (38% Uganda and 32% Kenya) and systems to prevent drug stockouts (41% Uganda and 27% Kenya), and around 1/3 of respondents from both countries (31% Uganda and 30% Kenya) identified the need for more supportive supervision/coaching and job aids (**Figure 14**). Other issues commonly identified were lack of sufficient salary/staff incentives (48% Uganda and 29% Kenya)—with few (14% Uganda and 9% Kenya) reporting having received bonuses. Additional issues identified were weaknesses in documentation of information useful for assessing quality of care (28% Uganda and 24% Kenya), shortages of skilled providers for delivery services (39% Uganda and 44% Kenya), limited competency among staff (39% Uganda and 35% Kenya), and financial affordability by patients (18% Uganda and 28% Kenya).

Asked to identify **the most important barrier** to providing quality services, both countries identified the need for improved availability of essential equipment and medicines 24/7 (34% Uganda and 29% Kenya). **Annex Table 17** provides further details on barriers to quality services.

**Figure 14: Provider responses to perceived barriers for providing quality services (Uganda n=71, Kenya n=104)**



**Provider opinions on communication with patients:** More than half (55%) of respondents from each country reported that their facility has some method for assessing client satisfaction (**Annex Table 18**).

Asked about skills important for improving provider-client communication, 42% of respondents from Uganda and 33% from Kenya spontaneously mentioned active listening, but only around a quarter or fewer respondents from either country mentioned such practices as asking questions, responding to questions, verifying the understanding of patients and their families and supporting patients in problem solving. However, 59% (Uganda) and 70% (Kenya) did respond that they are effectively or actively working to provide patient-centered care.

**Protection of patient privacy:** Asked about practices to protect patient confidentiality only 23% of Ugandan and 32% of Kenyan respondents reported they only share information if there is patient consent. Patient records were reported to be kept in a secure area with limited access by 23% (Uganda) and 56% (Kenya), and visual privacy for patient examinations by 28% (Uganda) and 18% (Kenya) of respondents. All three items (requiring patient consent to share information, records stored securely with limited access, and visual privacy) were reported only by 14% (Uganda) and 13% (Kenya) of care providers. Informed consent was reported to be required for delivery services by most respondents (80%

Uganda and 58% Kenya), however, the consents were described as mostly general, covering the full delivery process, or specific for surgery, but were not separately required for other procedures during the childbirth. Practices for consents are described in more detail with delivery services in **section IV.B**. **Annex Table 18** provides further details on client-centered practices.

### **Key findings on the barriers to providing quality services, provider-patient communications, and patient privacy**

#### **Strengths**

- Informed consents from patients were reported by most respondents (80% Uganda, 58% Kenya).

#### **Weaknesses**

- Systems for maintaining equipment and drug supplies and their availability were identified as the most important item to address for improving the ability to provide quality services by 38% (Uganda) and 49% (Kenya) of respondents.
- Around 40% of respondents from both countries identified lack of skilled service providers as a barrier to quality services, identifying the need for more supportive supervision/coaching, and job aids.
- Few respondents (23% Uganda, 32% Kenya) reported that patient consent is required to share information and provide specific childbirth services/procedures (except for surgical interventions).
- Three basic practices to protect patient privacy (patient consent to share information, records stored securely, and visual privacy) were reported, by only around 14% of providers from both countries.

## **C. Antenatal Care**

**Facility statistics:** Facility-level information on ANC client visits and ANC service providers were collected to calculate the workload for ANC services. The average of each facility number of ANC visits per ANC provider per day for Uganda was 34.7 and for Kenya 16.3 (**Annex Table 5**).

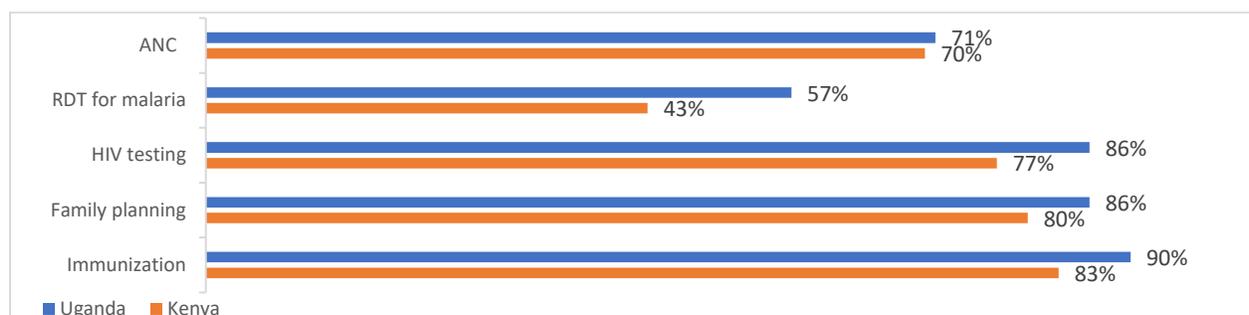
### **1. Provider interview: Knowledge and practices related to ANC**

**Sample:** Among the respondents reporting they provide ANC services, 21 from Uganda and 30 from Kenya self-completed a questionnaire about their knowledge and experiences related to these services.

#### **Results**

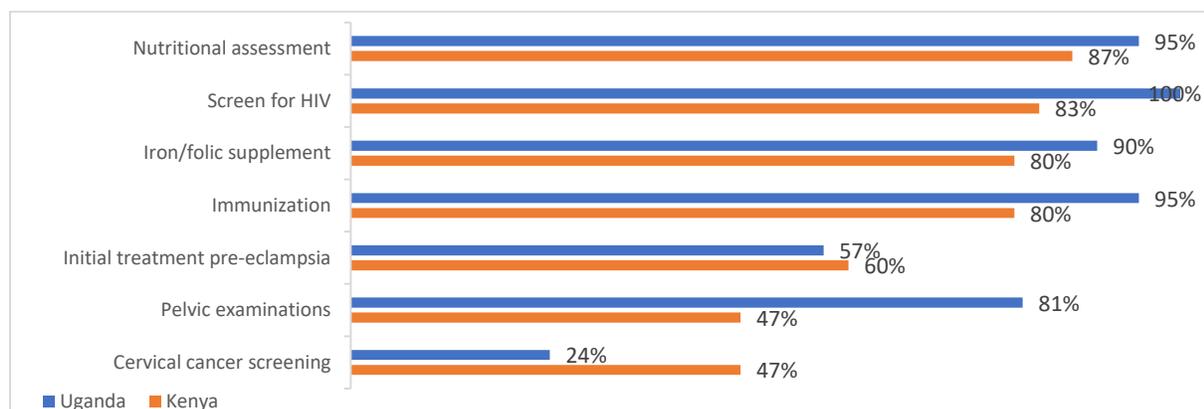
**Outreach services for ANC:** All of the Ugandan respondents and 89% from Kenya reported they participate in community-based outreach services. Among the outreach services, around 70% of providers from both countries reported ANC was provided (**Figure 15**). **Annex Table 19** provides further details on services offered through community-based outreach.

**Figure 15: Provider reports of services they provide through outreach (Uganda n=21, Kenya n=30)**



**ANC services provided:** Among routine services, the least offered by ANC service providers was the initial treatment for pre-eclampsia, reported offered by around 60% of ANC providers from both countries (Figure 16).

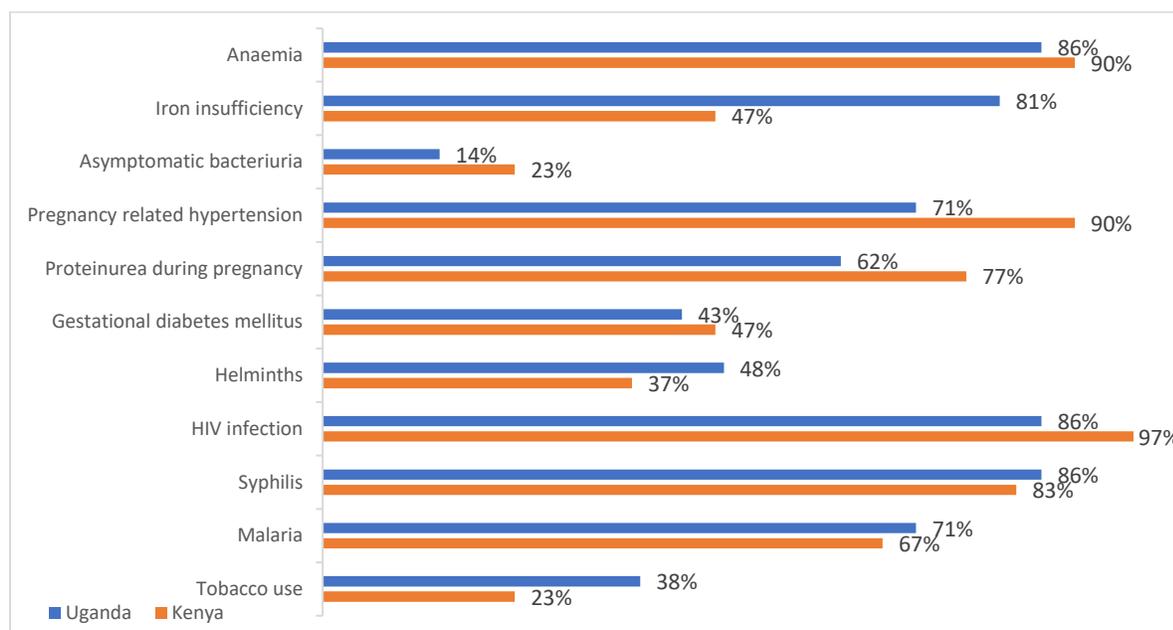
**Figure 16: Provider reports on ANC services they offer (Uganda n=21, Kenya n=30)**



**Risk screening:** Cervical cancer screening was reported by only 1/4 of Ugandan and around half of Kenyan ANC service providers while HIV screening was widely reported (100% in Uganda and 83% in Kenya) (Figure 16). Providers were asked about specific risk screening they perform at least once when providing ANC services. There are gaps in reported essential screenings for all items, with the most critical gaps in screening for hypertension and proteinuria (diagnostic signs for pre-eclampsia), diabetes (Figure 17), tobacco use and exposure to second hand smoke (reported only by 10% of Ugandan and 7% of Kenyan ANC service providers). Screening for anemia, either by clinical or blood examination, was reported by 86% (Uganda) and 90% (Kenya), and screening for iron deficiency (requiring a blood test) by 81% (Uganda) and 47% (Kenya) (Figure 17). Despite these responses, when asked how they assess anemia, only 29% of providers from Uganda and 82% from Kenya reported using blood tests.

Assessment of screening for additional factors that put a woman and her fetus at higher risk included helminths (worms) reported by 48% (Uganda) and 37% (Kenya) and substance use reported by 10% (Uganda) and 17% (Kenya). Screening for domestic abuse was reported by 81% (Uganda) and 67% (Kenya). Those who reported screening for domestic abuse felt the time and privacy was sufficient for eliciting information (65%, Uganda, and 35%, Kenya), and 59% (Uganda) and 95% (Kenya) reported a system was in place to refer the woman for help. **Annex Table 20** provides further details on reported screening of ANC clients for risk.

**Figure 17: Provider responses for items they screen for at least once when providing ANC (Uganda n=21, Kenya n=30)**



**Physical examination:** Almost all (86% Uganda and 90% Kenya) respondents reported routinely palpating the abdomen during ANC with fewer (76% Uganda and 63% Kenya) reporting actually measuring symphysis fundal height to assess fetal growth. Less than 1/4 of respondents from either country reported practices that are not recommended by WHO, such as routine antenatal cardiotocography<sup>45</sup> and routine doppler<sup>46</sup> examinations, with these practices reported more by Ugandan respondents than Kenyan. **Annex Table 20** provides further details on physical examinations.

**Counseling of ANC clients:** Asked about important issues to address when counseling ANC clients, the most common topics spontaneously mentioned were related to birth preparedness (76% Uganda and 67% Kenya) and complications and danger signs (essentially all respondents). Notable was that early and exclusive breastfeeding (5% Uganda and 30% Kenya) and newborn care (48% Uganda and 11% Kenya) were not priority topics identified by respondents. Almost all providers reported that four ANC visits are the minimum recommended. **Annex Table 20** provides further details on routine ANC counseling.

**Vitamin and mineral supplementation:** Asked what vitamin supplements for prenatal care are recommended by WHO, almost all (76% Uganda and 90% Kenya) correctly mentioned iron and folic acid, however only 14% (Uganda) and 17% (Kenya) mentioned only these two supplements. Other supplements (not recommended for routine use but mentioned by around 30-40% of respondents from each country) were Vitamin A, calcium, Vitamin C, and Vitamin D. **Annex Table 21** provides further details on provider knowledge about supplements.

**Tetanus toxoid (TT) vaccination:**<sup>47</sup> Asked to identify the response that best captured their approach to TT vaccination for previously unimmunized ANC clients, 29% (Uganda) and 53% (Kenya) of respondents correctly identified the WHO recommended timing for two doses of TT during pregnancy for women who were not previously immunized or whose status was unknown, and 19% (Uganda) and 17% (Kenya)

<sup>45</sup> WHO March 2018. <https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/antenatal-care/who-recommendation-routine-antenatal-cardiotocography>

<sup>46</sup> WHO March 2018. <https://extranet.who.int/rhl/topics/preconception-pregnancy-childbirth-and-postpartum-care/antenatal-care/who-recommendation-routine-doppler-ultrasound-examination-antenatal-care>

<sup>47</sup> Five missing responses in Kenya are excluded from the analysis

correctly identified the TT recommendation for subsequent pregnancies. However, only 5% of the Ugandan respondents (and none of the Kenyan) identified both of these correct responses. **Annex Table 21** provides further information on responses for knowledge about TT.

**Screening and management of hypertensive disorders in pregnancy:** Almost all respondents reported they measure the blood pressure either the first, or all visits, with 71% (Uganda) and 90% (Kenya) reporting measuring blood pressure every visit (which is recommended for early identification of hypertensive disorder of pregnancy or pre-eclampsia). Routine screening for proteinuria was reported by 62% (Uganda) and 79% (Kenya) of respondents. When asked the action to be taken for high blood pressure, the urine protein test was mentioned by 43% of Ugandan respondents and 53% of Kenyan, with an additional 5% (Uganda) and 14% (Kenya) reporting non-specific dipsticks/urinalysis that very likely included protein/albumin. The most common actions reported in response to a measured high blood pressure was to refer the woman for specialist care (62% Uganda and 40% Kenya), followed by routinely scheduling a follow-up visit (19% Uganda and 37% Kenya) and prescribing antihypertensive medications (19% Uganda and 13% Kenya).

Asked about WHO recommendations for preventing preeclampsia/eclampsia in high-risk women, the most common incorrect responses were to restrict dietary salt intake (67% and 63%), provide diuretics (24% and 3%), and recommend bed rest (38% and 27%) from Ugandan and Kenyan respondents, respectively. The WHO recommendation for calcium supplementation and low-dose acetylsalicylic acid were reported by only 0% and 7% (Uganda) and 5% and 13% (Kenya) respondents, with no respondents identifying both interventions.

In response to a case study presentation, most respondents (86% and 83% for Uganda and Kenya, respectively) correctly identified symptoms for severe pre-eclampsia. Provided a list and asked to mark the correct interventions for pre-eclampsia, however, almost all responses—even where they contradicted each other, were marked for Uganda, likely indicating uncertainty with how to manage this condition. Providing an appropriate antihypertensive was reported by 90% (Uganda) and 77% (Kenya) along with actions specifically not recommended by WHO, each reported by half or more of respondents. These actions included restricting sodium intake, recommending bed rest, administering magnesium sulfate, and giving diuretics. Additionally, 10% of Kenyan respondents marked that pregnancy should be interrupted. (**Annex Table 21** provides further details on knowledge and practice responses for hypertension in pregnancy.)

**Urinary tract infections (UTI):** Less than 1/4 respondents from either country reported routinely screening for asymptomatic bacteriuria (ASB), with around 1/2 reporting they have no capacity for laboratory diagnostics for ASB.<sup>48</sup> Facility-level results confirmed that tests for ASB were only available in 30% (Uganda) and 55% (Kenya) of the sample facilities. Methods reported used for diagnosing ASB were mid-stream urine culture or gram stain (34% and 20%) and dipstick (14% and 28%) by Ugandan and Kenyan respondents, respectively. Among the half of respondents (12 of 21 Ugandan and 16 of 30 Kenyan respondents) who provided answers for treating ASB, the most common treatment mentioned was prescribing an antibiotic for 5 days (42% and 38%) or 7 days (17% and 31%) by Ugandan and Kenyan respondents, respectively, or 10 days (1 Kenyan respondent). None of the respondents reported the incorrect response that ASB was benign and did not require treatment. (**Annex Table 22** provides further details on knowledge and practice responses for ASB in pregnancy.)

**Malaria prevention:**<sup>49</sup> Essentially all respondents reported providing intermittent preventive treatment (IPT) for malaria prevention, with 80% (Uganda) and 78% (Kenya) reporting they start IPT as early as possible in the second trimester. Almost all (90% for both countries) reported they provide the IPT doses at least one month apart and provide three doses, with fewer (81% Uganda and 60% Kenya) reporting

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<sup>48</sup> Five missing responses for Kenya are classified as no capacity/do not diagnose UTI.

<sup>49</sup> Nine missing responses for Kenya are classified as 'no' for the action to prevent malaria in pregnancy.

they provide insecticide-treated bednets (ITNs). Around 1/3 of the respondents reported they perform a rapid diagnostic test (RDT) for malaria if needed. (**Annex Table 22** provides further details on IPT.)

**PMTCT:** Most respondents reported screening for HIV infection, with essentially all (over 90%) reported antiretroviral therapy (ART) (either preventive or life-long) was started for HIV-positive women. All facilities had the three-drug recommended ARV regimen available. Details on management of HIV-positive women are provided in the companion report on assessment of quality of integrated RMNC+A and HIV care in Uganda and Kenya.

**Physiological symptoms:** Asked about their approach for managing physiological symptoms, almost all respondents acknowledged that these need to be addressed as they might influence the pregnancy experience and risk. However, few mentioned EB methods or women's preference as a basis for strategies for managing these symptoms.

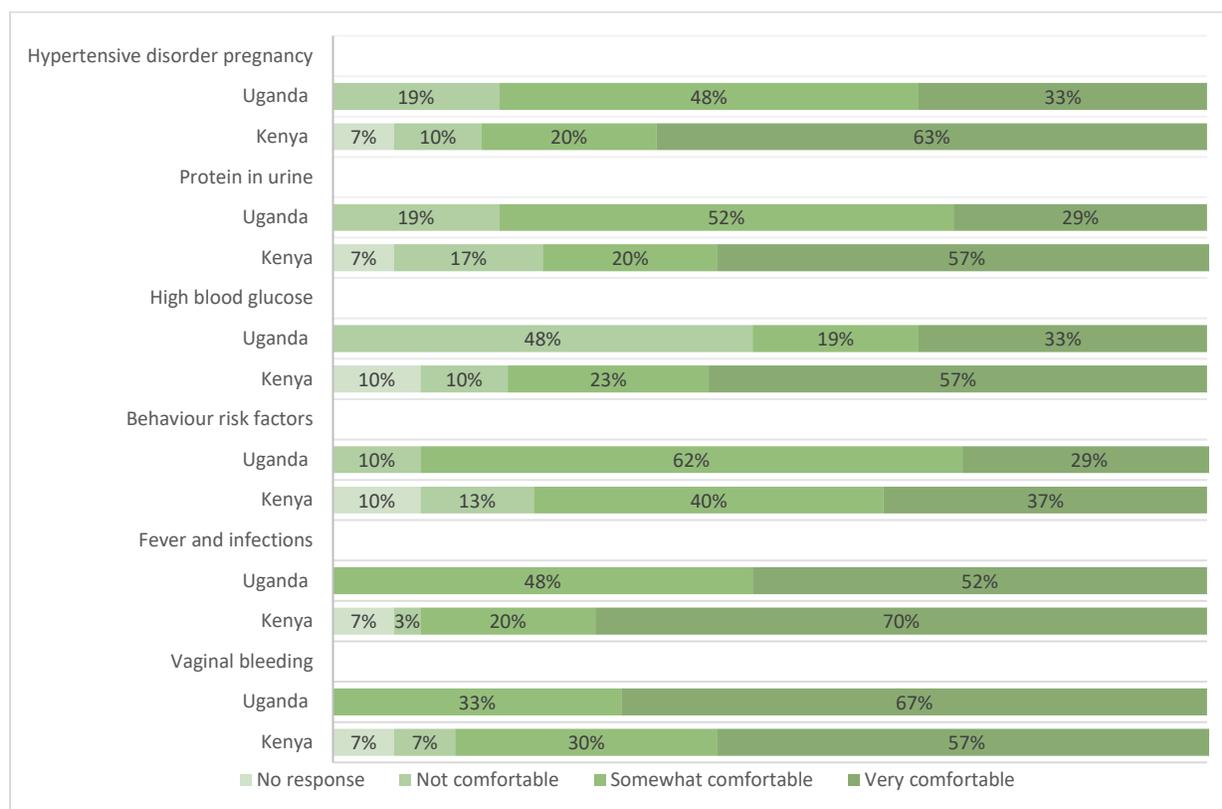
When provided a list of interventions commonly recommended to reduce nausea and vomiting in pregnancy and asked which are appropriate, none of the respondents identified all items correctly. The most commonly identified was metoclopramide (67% and 23%), ginger (14% and 30%), vitamin B6 (24% and 17%), and lemon oil (14% and 17%) for Uganda and Kenya, respectively. Although providers were familiar with the WHO-approved recommendations for reducing the discomfort of physiological symptoms, they also identified non-supported/non-proven interventions for many of the symptoms asked about.

**Annex Table 23** provides details on responses to management of a variety of common physiological symptoms during pregnancy.

**Recent trainings on ANC topics:** Almost all respondents reported receiving relevant training in the past 12 months with ANC routine screening, PMTCT, and malaria in pregnancy the most common topics. Training related to screening and management of pre-eclampsia and gestational diabetes were reported by less than 15% of respondents in both countries. **Annex Table 24** provides further details on recent training.

**Self-reported comfort with managing prenatal conditions:** Asked about their comfort in screening and providing treatment or counseling for specific ANC risk signs, including identifying the need for referral, there was a significant number of ANC care providers who were not very comfortable with these services. The level of comfort was low especially related to pregnancy-related non-communicable diseases and their physiological or behavioral risk factors. On average, 1/3 of Ugandan and 2/3 of Kenyan respondents reported feeling very comfortable managing hypertensive disorders in pregnancy or protein in urine (a symptom associated with pre-eclampsia/eclampsia), and high blood glucose. Around 2/3 of respondents from both countries reported they were very comfortable in managing vaginal bleeding, and 1/2 (Uganda) to 3/4 (Kenya) in managing fever and infection (**Figure 18**). **Annex Table 24** provides further details for provider self-described comfort with managing specific conditions.

**Figure 18: Provider reports for their level of comfort for managing the indicated ANC conditions (Uganda n=21, Kenya n=30)**



**Guidelines and job aids:** Guidelines or job aids were most commonly reported to be used for providing service for malaria in pregnancy (90% Uganda and 57% Kenya) and PMTCT (81% Uganda and 87% Kenya). **Annex Table 24** provides further information on the use of guidelines and job aids. While most providers (81% Uganda and 83% Kenya) were familiar with and used guidelines for routine ANC screening, they were less familiar with guidelines for screening and management of proteinuria (52% Uganda and 27% Kenya) and gestational diabetes (0% Uganda and 20% Kenya), counseling on intimate partner violence (38% Uganda and 23% Kenya), or on sexual and reproductive health (43% and 37%).

**Recording of ANC client information:** When asked about recording of ANC client information 76% (Uganda) and 60% (Kenya) reported the woman keeps her own patient chart. In response to questions about information maintained at the facility, around 40% of respondents from each country reported that patient notes kept in the facility are organized in a systematic way so that they are easily accessible during subsequent visits, however, around 30% of respondents from both countries reported that the facility-held ANC information is only maintained in registers, with 5% (Uganda) and 10% (Kenya) additionally reporting that information from each visit is recorded separately and that it is difficult to find information from prior visits. **Annex Table 25** provides further information on the recording of ANC information.

**Task shifting:** Delegation of ANC services to more general staff (task shifting), promoted to make the best use of limited skilled staff, was reported by 90% of Ugandan and 63% of Kenyan respondents. The tasks shifted to other service providers were distribution of iron/folic tablets (71% and 33%), RDT for malaria (67% and 27%), HIV testing (57% and 47%), providing IPT for malaria (67% and 27%), and provision of health promotion messages (23% and 43%) for Ugandan and Kenyan respondents, respectively. A higher proportion of respondents from Uganda identified tasks for which task shifting was

practiced and reported knowing of facility guidelines related to task shifting for ANC (52%) than Kenyan respondents (37%). Further details about task shifting and to whom tasks are shifted are provided in **Annex Table 25**.

### **Key findings for provider reports on ANC screening and treatment practices**

#### **Strengths**

- Basic preventive interventions (nutritional assessment, screening for HIV, provision of ART for HIV-positive women, provision of iron/folic acid, IPT for malaria, and immunization) are widely reported.
- Tests and examinations related to the above services are reportedly used.
- Screening for risk from domestic abuse is widely reported.
- Recent training in routine ANC services and screening was widely reported
- Reports of availability and use of guidelines/job aids related to PMTCT and malaria in pregnancy were common.
- Complications and danger signs were identified as priority topics for which ANC clients should be counseled.
- Over 50% of respondents reported their comfort level for managing fever and vaginal bleeding in pregnant women was high.

#### **Weaknesses**

- Screening and initial management of non-communicable diseases (NCDs) often specifically related to pregnancy, including hypertension, pre-eclampsia/eclampsia, and gestational diabetes are not consistently reported. Self-reported comfort in managing these conditions was also low in both countries.
- Assessment of risk related to substances (e.g., tobacco use, second-hand smoke, or substance abuse) was not widely reported.
- Training related to managing complications of pregnancy, and specifically hypertensive disorder/preeclampsia, was reported by less than 20% of the respondent from both countries.
- Screening for ASB and treatment of UTIs were rarely reported, with an inability to perform the test reported by multiple respondents.
- Exclusive breastfeeding and newborn care were not identified as priority topics for counseling ANC clients.
- None (or almost none) of the respondents answered correctly all knowledge questions for pre-eclampsia, nausea, heartburn, how to take antacids, interventions for leg cramps or low back/pelvic pain, and constipation.

## **2. Record reviews for antenatal care clients**

**Sample:** As noted in the individual provider interviews, most facilities do not maintain the individual ANC cards, but rather send ANC cards home with clients, with around 30% of respondents reporting the facility maintains most information in a register. Around 40% from both countries reported that the information was organized in a systematic way that made it easily accessible during follow-up visits (**Annex Table 25**). Because of this system, the sample for record review was identified from the ANC register, which also provided most information on the content of services during visits. Client selection for record review was purposeful, with the most recent 15 clients selected and then selecting subsequent clients consecutively until the sample included 15 HIV-positive women and 15 women with measured high blood pressure. One record may have met more than one selection criteria. In total, 357 ANC records were reviewed in Uganda, and 462 in Kenya. This was the first ANC visit for 56% (Uganda) and 42% (Kenya) of the women whose records were reviewed. **Annex Tables 26** and **27** provide further details on the sample.

**Record review rationale and methods:** The ANC record should provide background information on the client's pregnancy and health history so that women at higher risk for complications can be identified. In addition, there are current history and health status items that should be documented at least once (e.g., HIV status, deworming status, height, syphilis test results), and some items that should be documented at every visit (e.g., blood pressure, weight, assessment of risk signs).

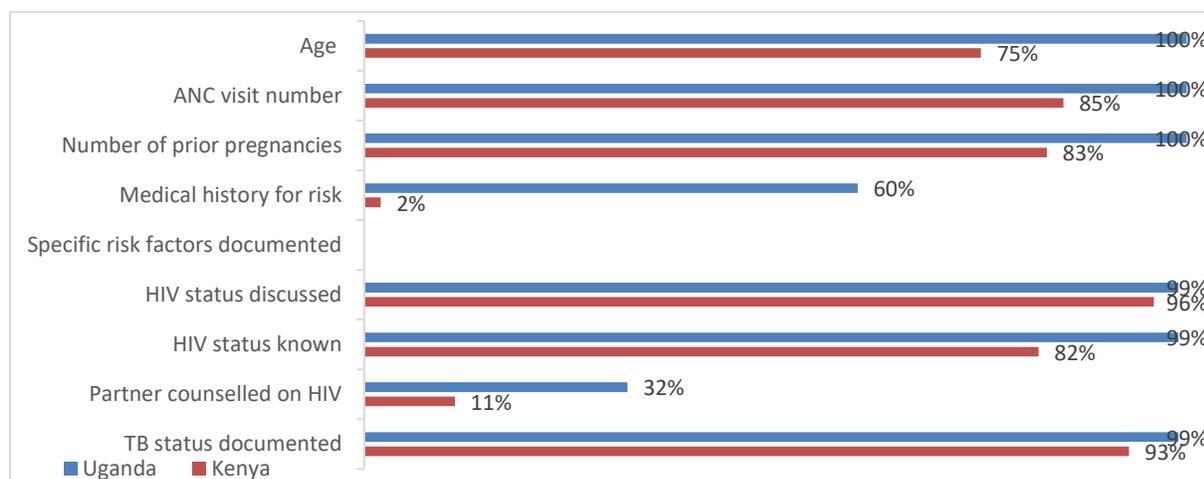
The ANC register maintained at the facility was reviewed for each selected patient and a checklist used to collect information. These registers do not consistently maintain a longitudinal record for the woman's pregnancy, with each visit being recorded by date rather than maintaining a section where the woman's information from each visit is readily accessible. This means that if the information was not copied from the women's card each visit, or if the patient information from earlier visits could not be identified, the information may not have been identified.

**Documentation of referral:** None of the records for Ugandan women had any documentation of referrals in or out. The Kenya records indicated that less than 1% of women had been referred to another facility, 8% were received as referrals from outside this facility, and 2% had some indication of referral but the type was not specified. Diagnoses that may explain the reason for referral to the facility were recorded for 66% of women.<sup>50</sup>

**Documentation of routine information and screening for risk**

**Client history:** Client history, including a medical history for identification of risk factors, number of prior pregnancies, age, HIV and tuberculosis (TB) status, behavioral risk factors (e.g., smoking), as well as height, are usually recorded the first visit. Registers did not indicate the age for 25% of the Kenyan clients whose records were reviewed, and the number of prior pregnancies was not found for 17% of Kenyan records reviewed. Height was documented for 17% of Ugandan and 67% of Kenyan women. Medical history, such as the presence or absence of chronic illnesses that might impact the pregnancy were least documented (60% Uganda and 2% Kenya). Documentation of assessment/screening for specific risk factors (HIV and TB status) was found in over 90% of records for both countries, and counseling of the partner on HIV was for 32% of Ugandan and 11% of Kenyan women with records reviewed (**Figure 19**).

**Figure 19: Results of record review: Client history (Uganda n=357, Kenya n=462)**



**Routine monitoring:** Temperature, presence or absence of danger signs, weight, and blood pressure should be documented each visit. Temperature and indications of results from screening for danger signs were rarely documented in either country, weight was commonly documented (95%, Uganda and 92%, Kenya) (**Figure 20**). Blood pressure documentation practice was weak in Uganda (67%) and almost

<sup>50</sup> These were severe hypertension (n=15), eclampsia (n=1), and diabetes (n=2).

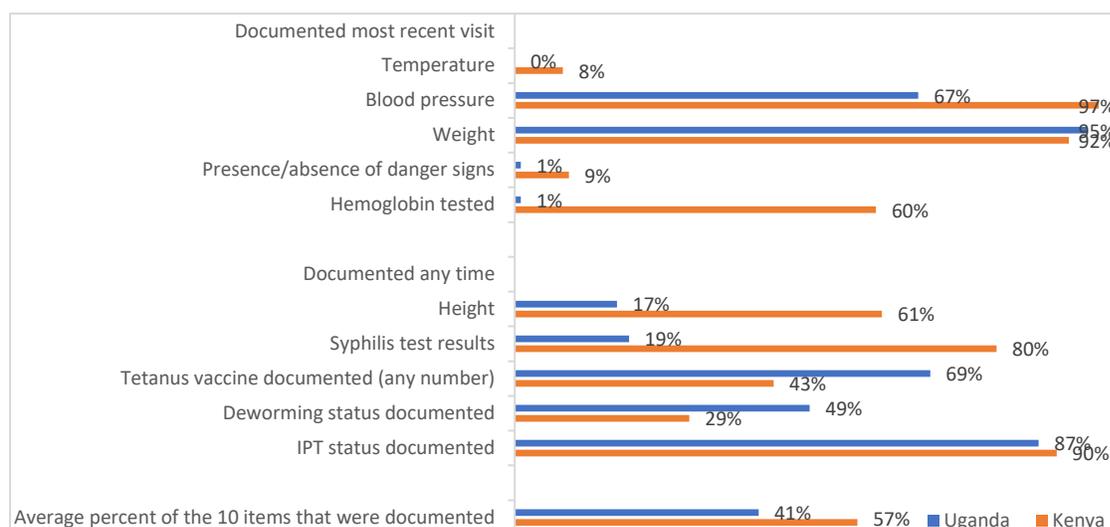
universal (97%) in Kenya. Gestational age was not recorded for the current visit for either country, although information for calculating the gestational age (date of last menstrual period) was noted.

**Additional screening and preventive interventions:** Recording of hemoglobin (Hg) test results was almost non-existent in Uganda (1%) but strong in Kenya (80%). Recording of syphilis testing was also weak in Uganda (19%) and strong in Kenya (80%) (**Figure 20**).

TT vaccination status was recorded for only 69% (Uganda) and 43% (Kenya) of women whose records were reviewed (**Figure 20**). On average the Ugandan women with TT documented had received 2.3 doses and Kenyan 2.6 doses, either during this pregnancy or prior to this pregnancy.

WHO recommends one dose of an antihelminth for pregnant women living in endemic areas, to be provided after the first trimester. Among the 49% (Uganda) and 29% (Kenya) of women whose antihelminth status was documented, 95% (Uganda) and 80% (Kenya) received their dose the most recent visit; treatment had been completed for 4% (Uganda) and 15% (Kenya) women; and an additional 1% (Uganda) and 3% (Kenya) were ineligible.

**Figure 20: Results of record review: Monitoring and testing/treatment status in records (Uganda n=357, Kenya n=462)**



IPT status<sup>51</sup> was recorded for most (87% Uganda and 90% Kenya) clients whose documentation was reviewed (**Figure 20**).

On average, each client whose record was reviewed had 41% (Uganda) and 57% (Kenya) of the 10 assessed screening and preventive intervention measures documented (**Figure 20**).

**Annex Table 28** provide further details on assessments and preventive interventions.

### Assessments and treatments for identified conditions

**Syphilis:** Among the 19% of Ugandan women tested for syphilis, 97% (n=67) were documented with negative results, and 2% (n=2) were documented positive with only one of the two documented as having treatment. For Kenya, among the 80% of women tested for syphilis (n=364), 99% were documented negative and 5 documented positive, with 2 of the 5 (40%), documented as having received treatment (**Annex Table 29**).

<sup>51</sup> Women are eligible for IPT at any time after the 12<sup>th</sup> week of pregnancy and should receive 3 doses of the IPT drug (usually sulfadoxine and pyrimethamine), with each dose one month apart. Women who are on cotrimoxazole for HIV-positive preventive treatment are also usually considered ineligible.

**Tuberculosis:** Most clients had their TB status documented (99% Uganda and 93% Kenya). Among these, none of the Ugandan clients were diagnosed with or recorded as having symptoms of TB. Seven Kenyan women had documentation of TB or suspected TB, with 4 having symptoms suspect for TB, 2 clients on TB treatment, and 1 recorded as having completed TB treatment (see **Annex Table 29**). There was no record of referral of the suspect TB patients for diagnosis or of any treatment being provided.<sup>52</sup>

**Screening for hypertensive disorders in pregnancy:** Blood pressure, essential for diagnosing hypertensive disorders in pregnancy (e.g., pre-eclampsia) should be measured at every ANC visit. Hypertension and urine protein (with other signs of organ damage) are key diagnostic signs for pre-eclampsia. Blood pressure was documented for the most recent visit for 97% of Kenyan client but only 67% of Ugandan clients (**Figure 20**). Among all women with recorded blood pressure, 16% (Ugandan) and 21% (Kenyan) were diagnosed hypertensive, although all did not have a recorded blood pressure meeting the criteria for hypertension (blood pressure > 140/90). Although all severe hypertensives (blood pressure > 160/110 mmHg) were diagnosed with hypertension, none of the Ugandan (n=6) and 6 of 15 (40%) of the Kenyan severe hypertensives were documented as receiving an antihypertensive drug, including MgSO<sub>4</sub>. **Annex Table 29** provides further details on hypertension and pre-eclampsia.

**Preventive and treatment interventions for hypertensive disorders in pregnancy:** Among the women diagnosed with hypertension, none of the 58 Ugandan women and only 3 of the 100 Kenyan women had results from a urine protein test (an essential component for diagnosing pre-eclampsia) documented. According to WHO, daily supplementation with calcium and low-dose aspirin for hypertensive or other women at risk is an EB practice for preventing pre-eclampsia.<sup>53</sup> Among 6 women with a recorded diagnosis of preeclampsia in Uganda, all were diagnosed hypertensive but there was no documentation of any receiving a urine test (for protein), an antihypertensive, MgSO<sub>4</sub>, calcium, or aspirin. The 2 Kenyan women with a recorded diagnosis of pre-eclampsia (n=1) or eclampsia (n=1) both also had hypertension. The eclamptic patient was prescribed an antihypertensive, but there was no documentation of these patients receiving a urine test or receiving MgSO<sub>4</sub>, calcium, or aspirin. **Annex Table 29** provides details on preventive interventions for hypertension and pre-eclampsia. Although one Kenyan woman was prescribed calcium and 3 were prescribed low-dose aspirin, none of these patients were documented as hypertensive or pre-eclamptic.

**Documentation of preventive counseling and interventions:** Provision of preventive iron and folic acid supplementation were documented for around 2/3 (Uganda) and 3/4 (Kenya) of the women whose records were reviewed. Counseling on general topics such as maternal and infant feeding and family planning was recorded in high percentages of records for Ugandan clients (over 95% for all topics checked) but for only half of the Kenyan client records (**Figure 21**). **Annex Table 28** provides details on preventive interventions.

**Antimalarial services:** Testing for malaria is not a routine part of ANC, and none of the records from Uganda showed ANC clients tested for malaria. Among the 21% (n=96) of ANC records for Kenyan clients where a malaria test was recorded, 11 (11%) had positive test results, and 82% of these were documented to have received treatment (see **Annex Table 29**).

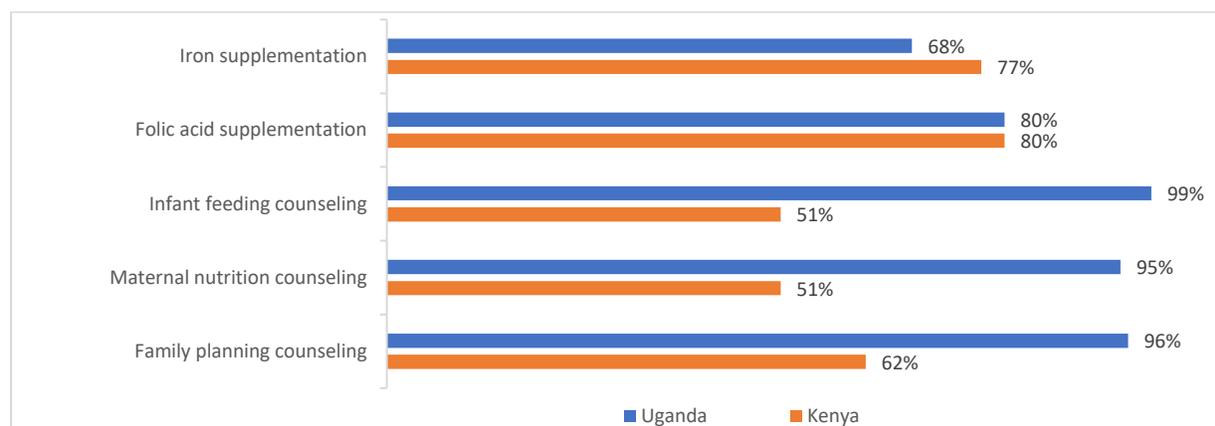
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<sup>52</sup> Two patients had anti-TB treatment recorded in the database but were not classified as suspect TB or TB cases so this is likely a data collection error.

<sup>53</sup> WHO recommendations for prevention and treatment of pre-eclampsia and eclampsia. © World Health Organization 2011.

[http://apps.who.int/iris/bitstream/handle/10665/44703/9789241548335\\_eng.pdf;jsessionid=A4EBCEDC399361C362F351A7F60D2D0A?sequence=1](http://apps.who.int/iris/bitstream/handle/10665/44703/9789241548335_eng.pdf;jsessionid=A4EBCEDC399361C362F351A7F60D2D0A?sequence=1)

**Figure 21: Results of record review: Preventive interventions for ANC clients (Uganda n=357, Kenya n=462)**



### Key findings from record reviews for routine ANC practices

#### Strengths

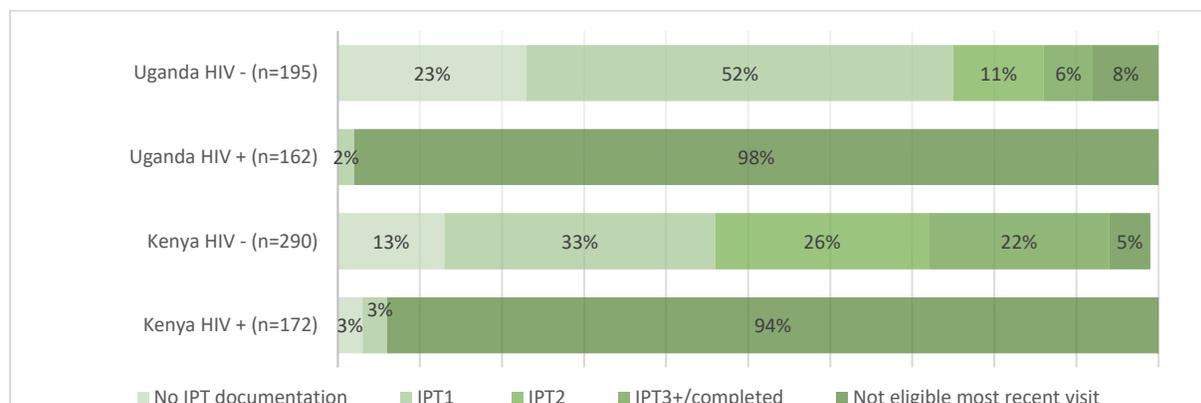
- HIV test results were recorded for most women.
- Ugandan records had prior history and risk assessment documented more consistently than Kenyan records, and also documented higher levels of counseling related to infant feeding and maternal nutrition as well as family planning than those for Kenyan women.
- Kenyan records had the care process including screening tests and preventive interventions more consistently documented than Ugandan records.

#### Weaknesses

- Completing the ANC register for a visit is dependent on the woman bringing her personal ANC card (which she keeps) so that prior history and interventions can be copied. This also requires the service provider to take the time to copy information from prior visits. Lack of documentation provided evidence that even if the information is recorded in the woman's personal ANC card it is not carried over to the facility records (or the information from prior visits was not found).
- Documentation of results from screening for relevant medical history, presence or absence of danger signs, including temperature, and behavioral risks are weak.
- Screening measures that should be recorded at every visit are not consistently documented. The most critical gap was documentation of blood pressure in Uganda, but also a lack of documentation of negative findings for risk signs.
- Only 19% of the records reviewed for Uganda had syphilis test results recorded.
- Less than half of the records (49%, Uganda, and 29%, Kenya) had the woman's deworming status documented.
- Documentation of blood pressure was low in Uganda (67%), and documentation of treatment for hypertensive disorders during pregnancy, extremely low in both countries (none of the Ugandan women with documented hypertension and only 40% of Kenyan women with blood pressure >160/110 had documentation of antihypertensives being prescribed).
- Although there were few cases, weaknesses in diagnostics and preventive or treatment interventions for pre-eclampsia and eclampsia were particularly noted. This included lack of documented urine protein results and calcium and/or low dose aspirin supplementation to prevent pre-eclampsia and eclampsia for women with high blood pressure and administration of MgSO<sub>4</sub> for women with severe pre-eclampsia or eclampsia in both countries.

IPT status<sup>54</sup> was recorded for most (87%, Uganda and 90%, Kenya) clients whose documentation was reviewed (**Annex Table 28**), with 50% (Uganda) and 39% (Kenya) documented HIV-positive and thus considered not eligible for IPT because they were receiving cotrimoxazole. Among the non-HIV positive clients, one IPT dose was documented for 52% (Uganda) and 33% (Kenya), with a second dose recorded for 11% (Uganda) and 26% (Kenya). An additional 6% (Uganda) and 22% (Kenya) had completed 3 or more doses (**Figure 22**). Interpretation of these results needs to be conducted considering gestational age during prior visits, however, what was clear is that 95% of Ugandan and 79% of Kenyan women for whom this was recorded as their first visit had a first dose IPT documented.

**Figure 22: Documentation of IPT practices among HIV-positive and HIV-negative clients**



The records for Ugandan and Kenyan women documented that 34% of ANC clients in each country received long-lasting insecticide-treated bednets (LLINs) or a voucher for a LLIN. **Annex Table 28** provides details for IPT.

### Key findings for documentation for antimalarial interventions during ANC

#### Strengths

- IPT is being implemented in both countries.
- Among eligible, most first visit clients were recorded receiving a 1<sup>st</sup> dose IPT.

#### Weaknesses

- Around 20% of eligible Kenyan women were not documented to have received IPT their first visit.

**HIV and PMTCT:** Among all 357 ANC records reviewed in Uganda, the final HIV status was known for 99%, and among all 462 records reviewed from Kenya, the final HIV status for 82%.

Both Uganda (in 2012)<sup>55</sup> and Kenya in 2016)<sup>56</sup> have officially adopted the WHO recommendation for PMTCT that all HIV-positive pregnant women be enrolled in life-long ART if possible, irrespective of CD4 cell levels, clinical stage, age, pregnancy, or breastfeeding status. According to a retrospective review of

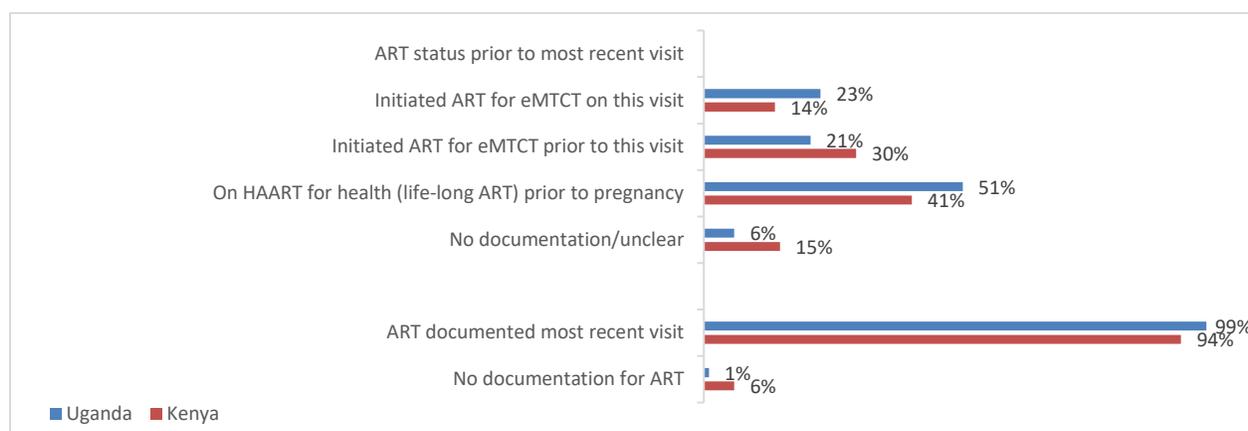
<sup>54</sup> Women are eligible for IPT at any time after the 12<sup>th</sup> week of pregnancy and should receive 3 doses of the IPT drug (usually sulfadoxine and pyrimethamine) with each dose one month apart. Women who are on cotrimoxazole for HIV positive preventive treatment are also usually considered ineligible.

<sup>55</sup> Consolidated Guidelines for Prevention and Treatment of HIV in Uganda. Ministry of Health, Uganda. November 2016.

<sup>56</sup> Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infections in Kenya, 2016 Edition.

ANC client records, almost all (99%) HIV positive pregnant Ugandan women were enrolled in the 3-drug ART regimen (as per Ugandan protocol), with 51% having been on HAART for their own health prior to their pregnancy. The Kenyan PMTCT protocol is also to provide the 3-drug ART regimen, and 94% of the Kenyan women were on an ART regimen. However, recording of the exact ART regimen women were on was unclear based on the medical documentation review. Forty-one percent of the Kenyan women were on HAART for their own health prior to their pregnancy (**Figure 23**).

**Figure 23: Results from record reviews: ANC HIV positive clients ART status and regimen (Uganda n=160, Kenya n=163)**



All but one Ugandan and all Kenyan facilities had the 1st line ARV regimen for Option B and B+ available.<sup>57</sup> The ARV regimen was not documented for 6% (Kenya) and 1% (Uganda) of the HIV-positive women.

**Annex Table 30** provides further details on the HIV test and ART status for ANC clients who were HIV positive. Details on PMTCT for HIV-positive women are provided in the companion report on assessment of quality of integrated RMNC+A and HIV care in Uganda and Kenya.

### 3. Observation of ANC visits

#### Sample

A total of 137 ANC visits were observed in Uganda and 144 in Kenya. All ANC clients the day of the survey were eligible for observation if they and the provider gave consent. The ANC consultation was observed, and after completed, the patient's ANC card was reviewed for information from prior visits.

The majority of observed service providers were enrolled nurses or midwives, followed by nursing or midwifery (non-degree) professionals, and almost all were female. This was the first ANC visit for around ¼ of the observed clients. **Annex Table 31** and **Annex Table 32** provide further details on the observed service providers and ANC clients.

Among all observed clients, one (1%) from Uganda and 27 (19%) from Kenya were referred elsewhere in the facility, which includes referral to the lab or a higher level provider; four from Kenya (3%) were admitted to the facility, and one from Kenya (1%) was referred to another facility.

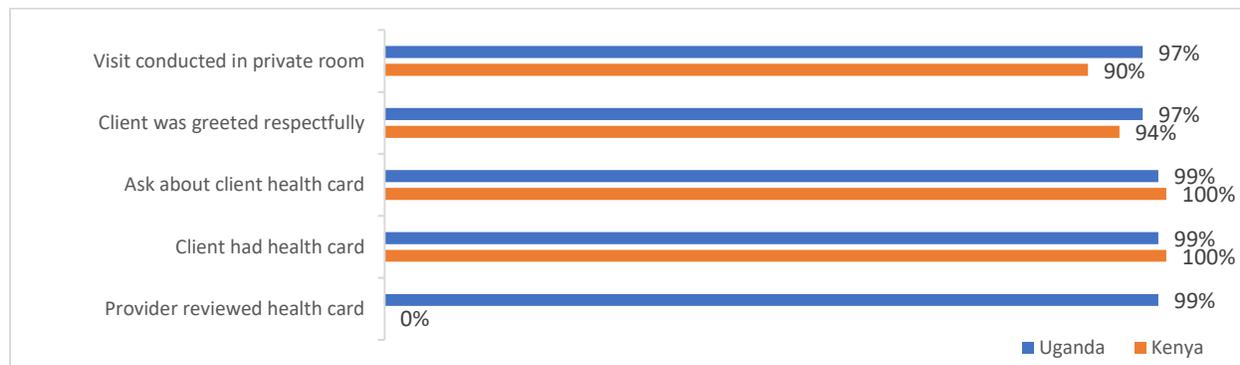
#### Results

**Information on prior visits and client-centered ANC:** Among the observed ANC consultations, almost all were conducted in a private setting with the client treated respectfully. In addition, almost all clients had their ANC card where prior visit information was recorded, and almost all providers wrote information

<sup>57</sup> TDF/3TC/EFV in any formulation.

in the card prior to the patient departure. While essentially all (99%) of the Ugandan providers were observed reviewing the client health card prior to completing the consultation, none of the Kenyan providers were noted to check the card, indicating, although they might record in the card, they were not accessing information that might be relevant to identifying changes from prior visits (see **Figure 24**).

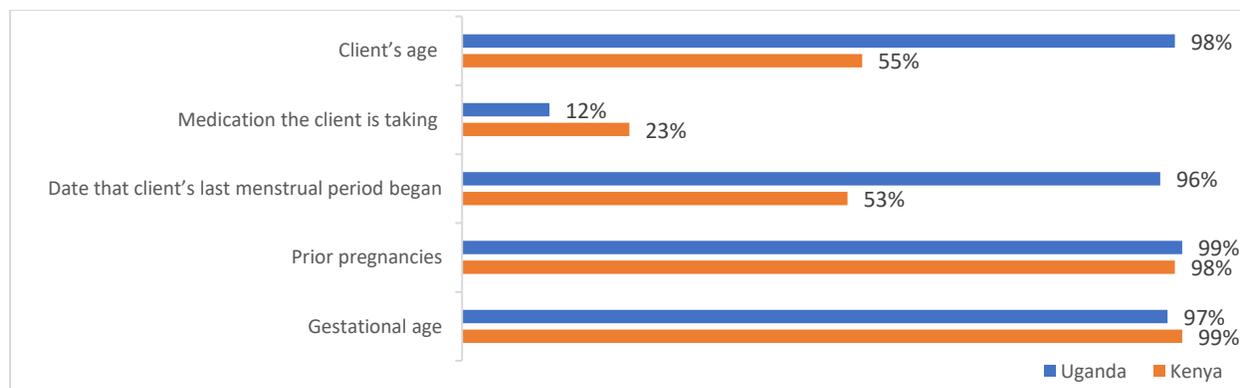
**Figure 24: Observed client-centered practices (Uganda n=137, Kenya n=144)**



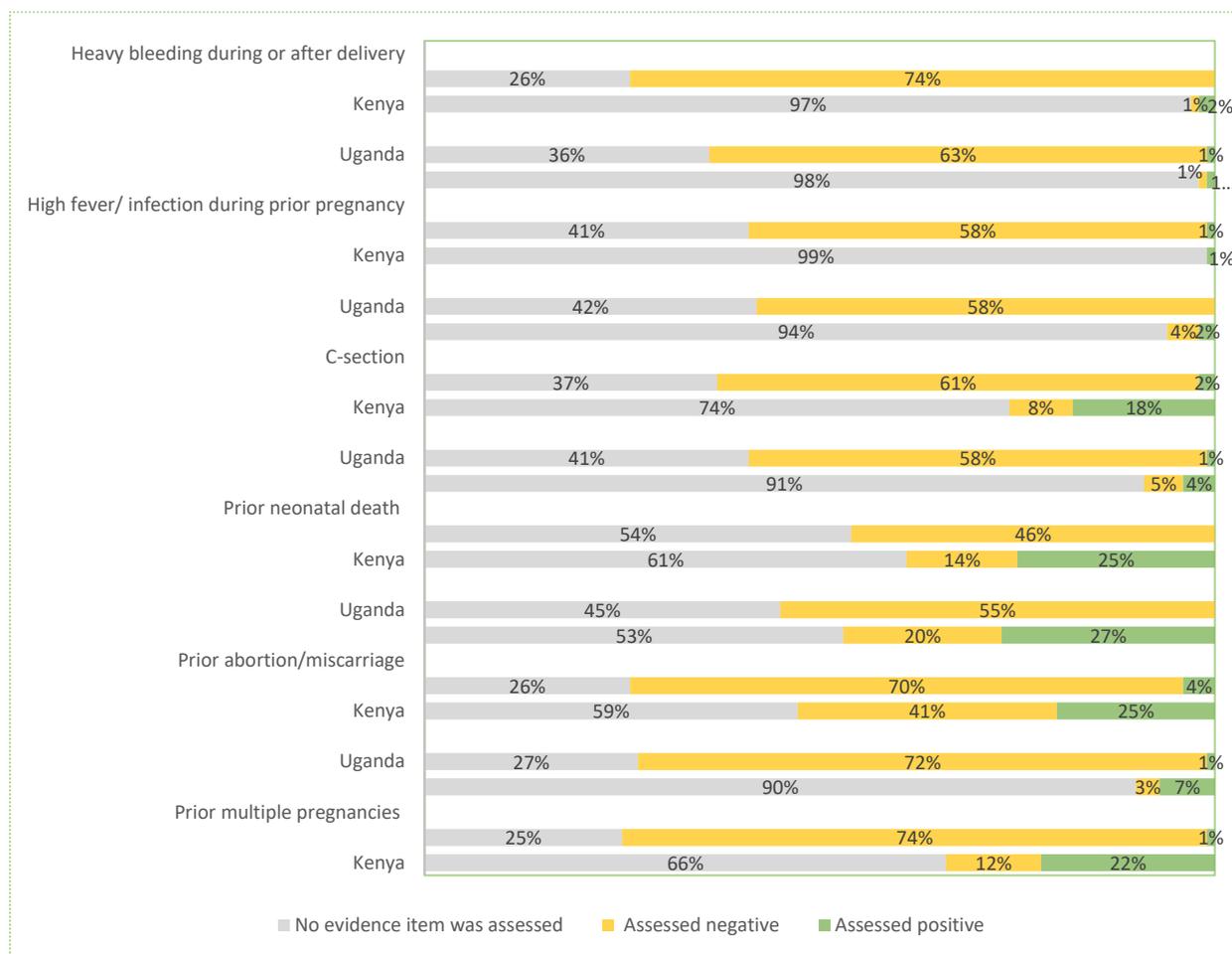
**History on current pregnancy:** Assessment of any medications the client was taking (**Figure 25**) was noted for small percentages of the observed ANC clients. Even if the client is not taking any medications, this should be documented in the record and confirmed with each visit, since the information may change over time.

**History on prior pregnancy(es):** Any complications from prior pregnancies should also be assessed as these may indicate risk for the current pregnancy and delivery and provide early evidence of the need for interventions. This information may have been gathered during the observed visit if it was the first visit, and if it was a follow-up visit should have been documented in the patient ANC card reviewed after the observation. Among ANC clients with prior pregnancies there was evidence that complications from a prior pregnancy were assessed for around 50-75% of the Ugandan and for less than half of the eligible Kenyan women (**Figure 26**).

**Figure 25: Observed (or documented in the individual ANC card) assessment of initial client history (Uganda n=137, Kenya n=144)**



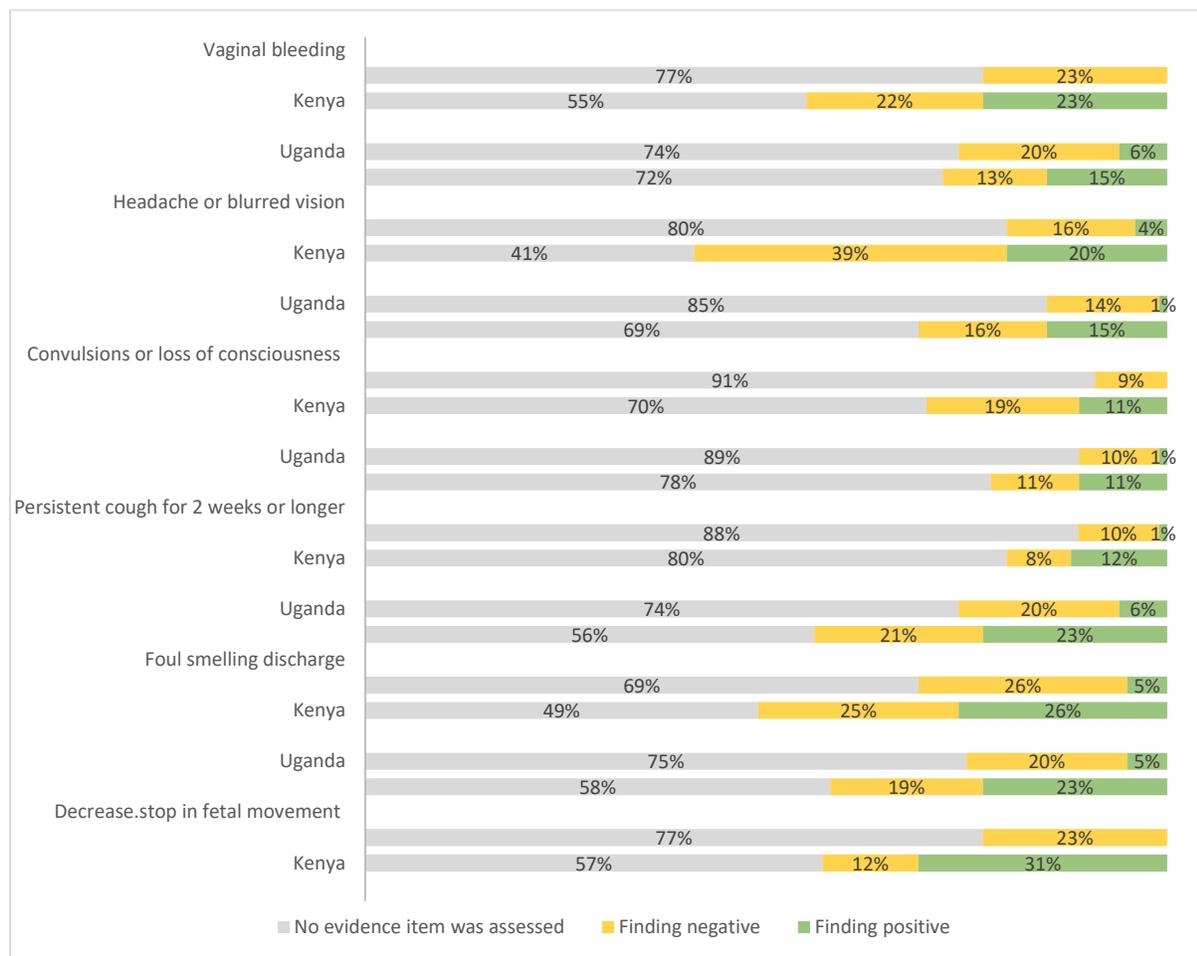
**Figure 26: Observed (or documented in the individual ANC card) prior pregnancy history assessed (Uganda n= 137, Kenya n=144)**



**History of chronic illness:** Any history of chronic illnesses should be assessed for all pregnant women as they may contribute to complications of pregnancy and delivery. Among the observed clients, 53% (Uganda) and 31% (Kenya) had any assessment of chronic conditions either observed or documented in their ANC card. This is similar to results for assessment of prior pregnancy history. In total, 10% (Uganda) and 26% (Kenya) of observed clients were classified as having a history of pre-existing hypertension or hypertension of pregnancy and 9% (Uganda) and 4% (Kenyan) having pre-existing kidney disease. **Annex Table 33** provides further details on assessments of chronic illnesses.

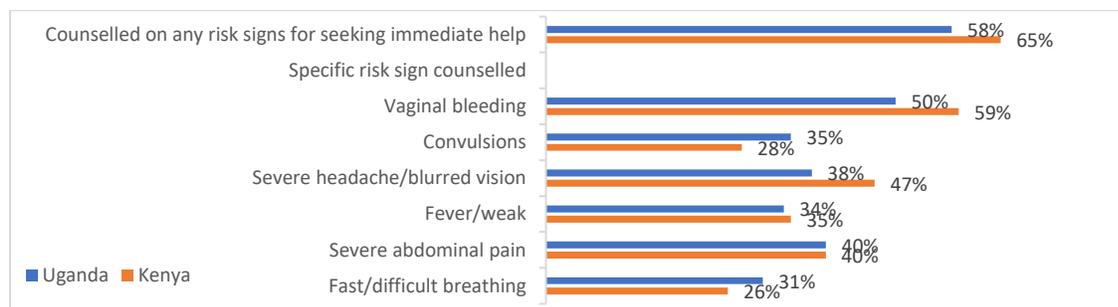
**Assessment of risk signs and symptoms:** Risk signs and symptoms should be assessed every ANC visit. If not assessed during the visit, the data collectors checked the ANC card for any evidence that the signs and symptoms were previously assessed. A general question about any problems experienced was asked of 76% (Ugandan) and 24% (Kenyan) women, however, for the 11 specific risk symptoms to be assessed, there was evidence that, on average, 20% of the Ugandan women and 38% of the Kenyan were assessed for each symptom (**Figure 27**).

**Figure 27: Observed (or documented in the individual ANC card) results for assessment of signs and symptoms for risk during current pregnancy (Uganda n=137, Kenya n=144)**



Similar to findings for chronic conditions, unexpected high percentages of positives, particularly for Kenyan women, may point to a lack of documentation where there are negative findings or, more likely, since these symptoms should be assessed at every visit (so should have been assessed during the observation), these may have been self-reported or identified during physical examination. Despite the low percentages of clients for whom there was evidence that specific risk signs were assessed, there was evidence that a larger percent were counselled to seek immediate help if the symptoms occurred (Figure 28). Vaginal bleeding was the most commonly noted complication identified and counselled about.

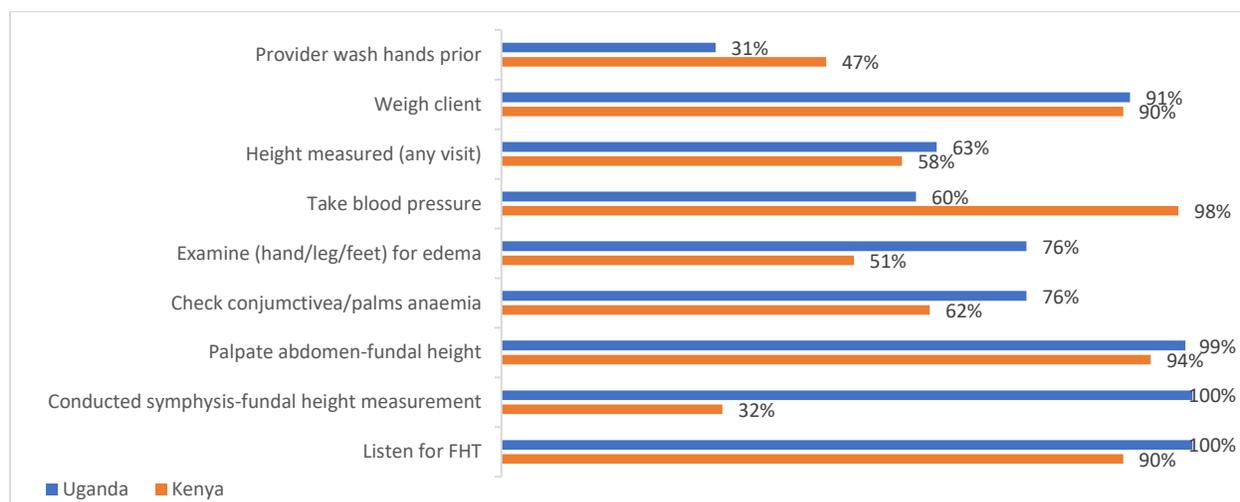
**Figure 28: Observed (or documented in the individual ANC card) risk signs for which women were counselled to seek immediate help (Uganda n=137, Kenya n=144)**



**Assessment and counseling on physiological symptoms:** The practices and results for assessing physiological symptoms follow those noted for the prior assessments, with around 80% (Uganda) and 90% (Kenya) of observed ANC clients having no evidence that specific symptoms were assessed. Where there was evidence of symptoms/conditions being assessed, most were positive, indicating likely that these were unprompted complaints by the client—or that the provider did not document the majority of assessments where there were negative results. Where there were positive findings (e.g., nausea and vomiting, heartburn, constipation) there was no evidence that the client received advice on ways to minimize the symptom. **Annex Table 34** provides further details on the assessment of physiological symptoms.

**Physical examination:** Among the physical examinations for identifying risk factors, most should be performed every visit. Providers rarely wash their hands between observed ANC clients and measuring blood pressure, checking hands/legs for edema, and assessing anemia status were not consistently performed for the observed visit. Almost all clients were weighed, had their abdomen palpated for assessing gestational age (and potentially infant position), and were checked for fetal heart presence (and rate). The results of the blood pressure assessment during the visit is consistent with medical documentation results and indicates relatively low practice (60%) of this essential intervention in Uganda and almost universal practice (98%) in Kenya (see **Figure 29**).

**Figure 29: Observed physical examination during ANC visit (Uganda n=137, Kenya n=144)**



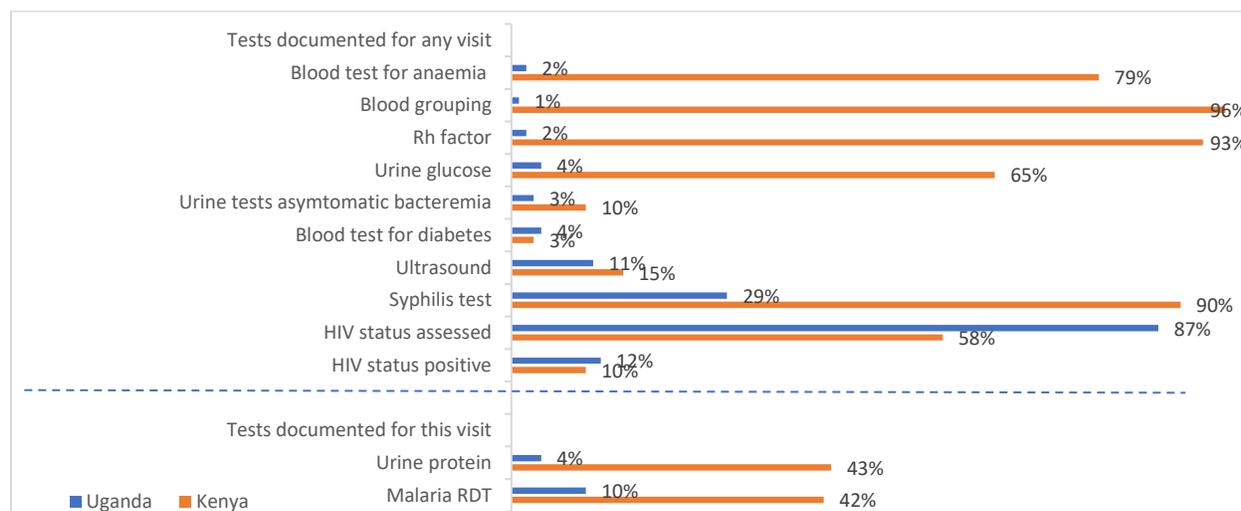
**Laboratory screening tests:** Few of the observed Ugandan clients had recommended blood/urine tests for ANC risk screening ordered or documented in general. Kenya was more consistent in performing and documenting the screening tests (**Figure 30**). Among the women confirming a cough for two or more weeks, one of three from Uganda and none of the 17 Kenyan women had a TB test performed (**Annex Table 35**). Blood sugar any time during the pregnancy (for gestational diabetes or diabetes mellitus) was assessed for only 4% of Ugandan and 3% of observed Kenyan clients and testing for anemia (any method) for 2% of Uganda and 79% of Kenyan clients. Among women with urine protein assessed, five of six of the Ugandan women (83%) and 38 of 62 Kenyan women (61%) had confirmed proteinuria,<sup>58</sup> indicating the testing is likely selective for women with hypertension or other risks for pre-eclampsia. Urine protein testing related to hypertension is discussed in the section on hypertensive disorders of pregnancy. **Annex Table 36** provides further details on physical examinations and laboratory screening for risk.

**HIV status:** In total, 87% (Uganda) and 58% (Kenya) of observed ANC clients had evidence (either observed or in their personal ANC cards) that the HIV status was assessed, with 12% (Uganda) and 10% (Kenya) having evidence they were HIV-positive (**Figure 30**). Although all facilities in both countries had

<sup>58</sup> Spot urine protein/creatinine >30 mg/mmol [0.3 mg/mg] or >300 mg/day or at least 1 g/L [‘2 + ’] on dipstick testing

the HIV rapid test available the day of the survey, there remained 13% (Uganda) and 42% (Kenya) of women without a known HIV status after the observed visit. Among Kenyan women there was only evidence that one was asked about the partner HIV status.<sup>59</sup> **Annex Table 35** provides further details on HIV status.

**Figure 30: Observed (or documented in the individual ANC card) diagnostic tests performed at any time during this pregnancy (Uganda n=137, Kenya n=144)**



**Diagnosis and management of hypertension and pre-eclampsia:**<sup>60</sup> Among the 60% of observed Ugandan ANC clients for whom blood pressure was recorded, none had measurements recorded that were above 140/90. Among all Kenyan women, 98% had a blood pressure recorded, with 33% (n=52) measured between 140–159/90–109 mmHg, and 7% (n=10)  $\geq 160/110$  mmHg. Among clients with any hypertension, 55% were tested for urine protein, and one was diagnosed pre-eclampsia/eclampsia. All patients with pressures  $\geq 160/110$  mmHg had an antihypertensive provided/prescribed. Half of the severe hypertensive clients also had a urine protein result documented, and one had pre-eclampsia diagnosed. Among all observed ANC clients, 8% (n=11) of Ugandan and 4% (n=6) of Kenyan women were prescribed a daily calcium supplement. However, none of the 13 Ugandan or 43 Kenyan women at risk for pre-eclampsia were provided/prescribed low-dose aspirin or calcium (**Table 9**).

**Table 9: Actions observed or noted in client individual ANC card for hypertensive disorder of pregnancy in Kenya**

<b>A</b>	<b>Hypertension in pregnancy</b>	<b>(n=144)</b>
	Blood pressure measured	98%
	Measured, BP is 140–159/90–109 mmHg after 20 weeks gestation	33%
	Measured, BP is $\geq 160/110$ mmHg after 20 weeks gestation	7%
	<b>BP <math>\geq 140/90</math> mmHg</b>	<b>(n=57)</b>
	Protein in urine measured	55%
	Preeclampsia diagnosed if GA $\geq 20$ and proteinuria at least 1 g/L [ $2+$ ] on dipstick testing)	5%
	Calcium prescribed	0%
	Low dose aspirin prescribed	0%
<b>B</b>	<b>BP <math>\geq 160/110</math> mmHg</b>	<b>(n=10)</b>
	Nifedipine prescribed	10%

<sup>59</sup> This information was not assessed for Uganda.

<sup>60</sup> History of pre-eclampsia, multiple pregnancies, diabetes, high blood pressure, autoimmune disease, or renal disease

Aldomet (Methyldopa) prescribed	20%
Hypertension diagnosed	10%
Eclampsia diagnosed if GA $\geq$ 20 weeks	20%
Severe pre-eclampsia diagnosed if GA $\geq$ 20 weeks	0%
Calcium prescribed	0%
Low-dose aspirin prescribed	0%

**Counseling for maternal nutrition:** Counseling on most nutrition topics was not consistent, with evidence that only around 1/3 (Uganda) to 1/2 (Kenya) of the observed women were counseled on healthy eating and 1/3 (Uganda) to 1/5 (Kenya) counselled on physical activity during pregnancy.

#### **ANC preventive interventions (Figure 31)**

**Tetanus toxoid vaccine:** Among all clients, 69% (Uganda) and 72% (Kenya) were prescribed/received TT during the observed visit. An additional 1% (Uganda) and 33% (Kenya) were not eligible for a TT vaccine during this visit.<sup>61</sup> Among the women receiving TT this visit, an explanation of the purpose of the TT vaccine was provided for 63% (Uganda) and 87% (Kenya).

**IPT:** Among clients with a gestational age of 13 weeks or more, 75% (Uganda) and 79% (Kenya) were prescribed/received IPT for malaria<sup>62</sup> during this visit or were not eligible.<sup>63</sup> The standard that IPT should not be started until 13 or more weeks gestation was mostly followed, however, one of four observed Ugandan and both observed Kenyan clients who were < 13 weeks gestation received IPT. Among clients receiving IPT this visit, an explanation of the purpose (79% Uganda and 89% Kenya) and how to take the medicine (99% Uganda and 92% Kenya) was provided. A description of the drug side effects was less commonly provided (57% Uganda and 9% Kenya). There was evidence that an ITN or voucher for ITN (or evidence the client already had an ITN) was provided (any visit) for only 53% (Uganda) and 65% (Kenya) of the observed clients. Among these, evidence that the use of the ITN was explained was universal for Ugandan women (95%) but for less than half (46%) of the Kenyan women.

**Deworming:** Among all clients, 49% (Uganda) and 54% (Kenya) were eligible<sup>64</sup> and received deworming medication this visit or had documentation of having received deworming at an earlier visit. Around half of the eligible women had no evidence of receiving deworming medication. An additional three of four Ugandan women <13 weeks gestational age (75%), who are not eligible for deworming treatment received deworming medication. Among the women receiving deworming medication this visit, the purpose was explained to 93% (Uganda) and 82% (Kenya), how to take the medicine to 90% (Uganda) and 33% (Kenya), and side effects to 50% (Uganda) and 8% (Kenya).

**Prevention of anemia:** Iron and folic acid were provided to around 90% of all observed clients, with 74%, (Uganda) and 89% (Kenya) of these women counselled on how to take the supplement.

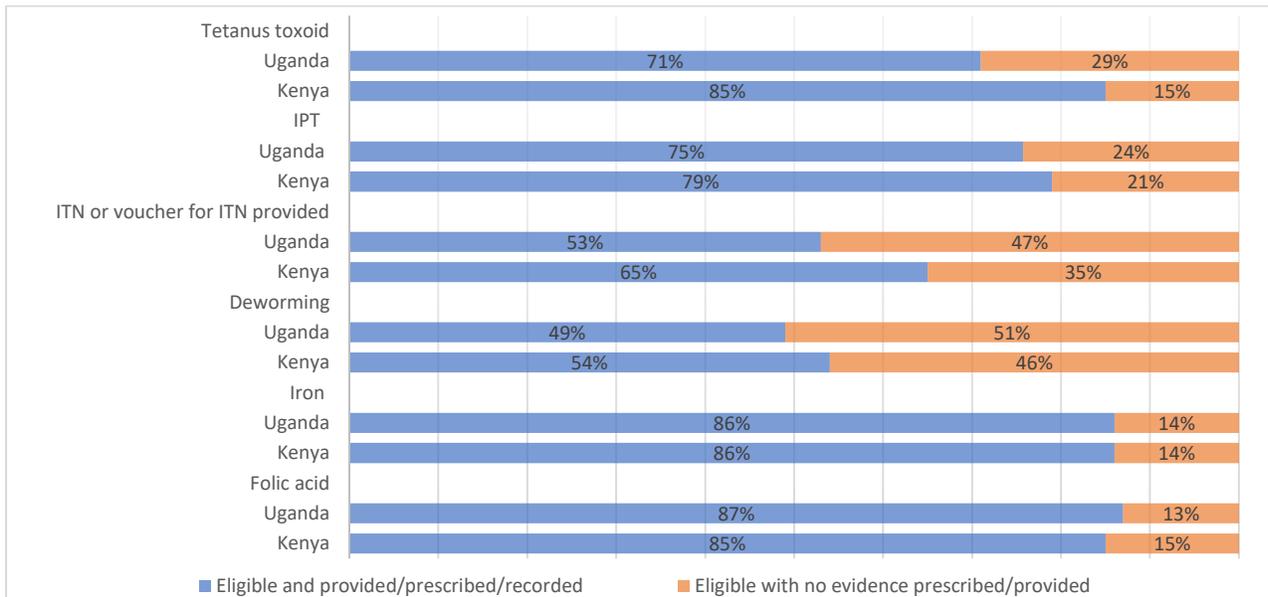
<sup>61</sup> It is assumed the ineligible women were up-to-date with needed TT injections for this pregnancy prior to this visit. Two Ugandan and 47 Kenyan women were not eligible for TT this visit.

<sup>62</sup> =>13 weeks pregnant and full dose not completed prior to this visit.

<sup>63</sup> Women who were =>for whom this was the 4+ visit, and ineligible it is assumed they had completed the three doses. No Ugandan and eight Kenyan women were ineligible.

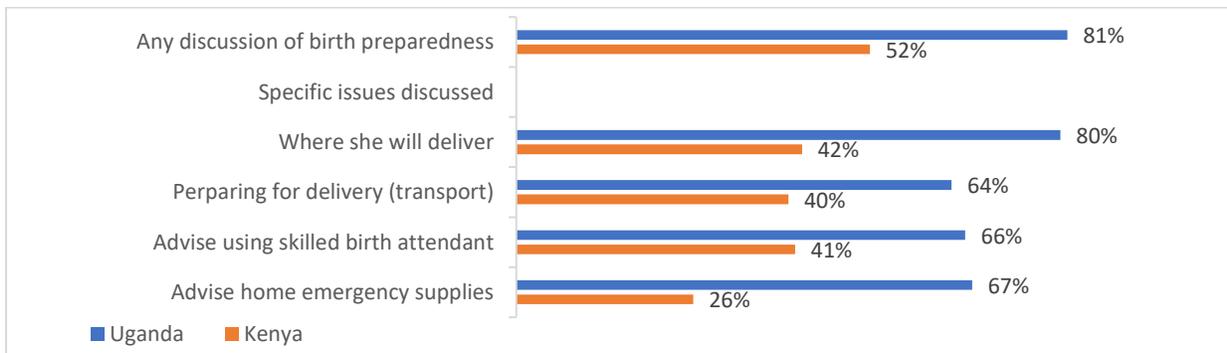
<sup>64</sup> 13 or more weeks gestational age and has not received deworming previously.

**Figure 31: Observed (or documented in the individual ANC card) ANC preventive interventions<sup>65</sup> (Uganda n=137, Kenya n=144)**



**Birth preparedness counseling:** Issues related to birth preparedness were discussed with 81% (Ugandan) and 52% (Kenyan) of the observed women (**Figure 32**).

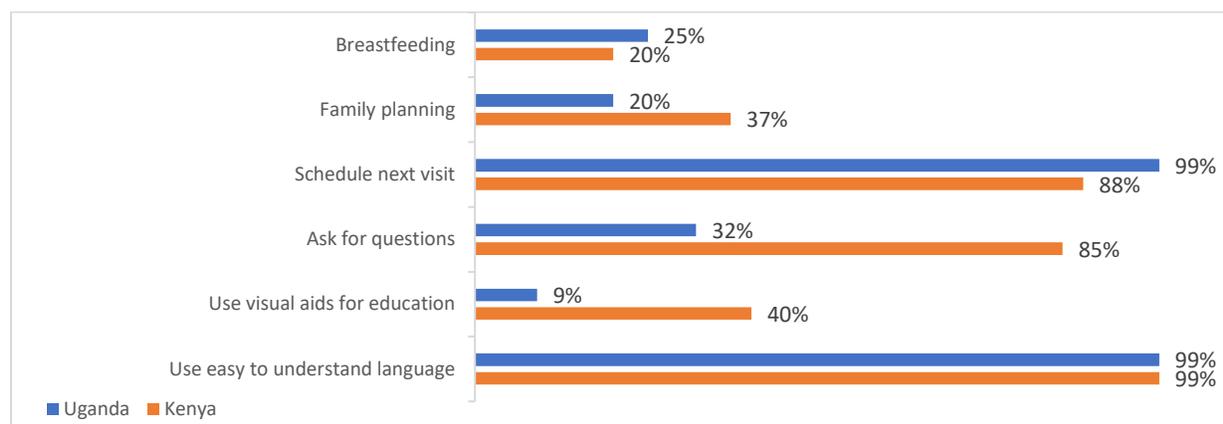
**Figure 32: Observed (or documented in the individual ANC card) counseling provided about birth preparedness (Uganda n=137, Kenya n=144)**



**Additional counseling:** During the observed visit only around 1/4 women from either country were advised about breastfeeding and slightly more about using family planning for spacing births, while the scheduling of the next visit and use of easy-to-understand language were common practices both in Uganda and Kenya (**Figure 33**).

<sup>65</sup> Gestational age was missing for four women (Uganda) and one woman (Kenya). None of the missing gestational age received the IPT intervention.

**Figure 33: Observed (or documented in the individual ANC card) additional counseling practices (Uganda n=137, Kenya n=144)**



Annex Table 29 provides further details on counseling and ANC preventive interventions.

### Key findings for observed ANC visits

#### Strengths

- Use of individual ANC cards was almost universal.
- Provider attitude and practices were respectful of the client.
- Identification of positive findings for risk history or symptoms was noted.
- Blood and urine tests for screening were widely used in Kenya
- Iron and folic acid were routinely provided/prescribed in both countries.
- Essential TT and IPT practices were strong in both countries.
- Counseling on birth preparedness was provided for higher percentages of women in Uganda than in Kenya.

#### Weaknesses

- Kenyan providers were not observed to refer to ANC cards brought by the client, potentially limiting their access of information for prior pregnancy or prior visits, needed for identifying change.
- Low percentages of negative risk history might indicate that negative results are not documented or that the full history is not assessed unless the woman mentions a problem.
- Both countries showed weaknesses in the performance of essential examinations that should be performed each visit, including blood pressure for Uganda.
- Laboratory testing for anemia, gestational diabetes, TB, Syphilis and other essential diagnostic interventions were low, especially in Uganda (for all except HIV testing).
- After the observed ANC visit 13% of Ugandan and 42% of Kenyan clients did not have an observed or documented assessment of HIV status, although all facilities in both countries had the HIV rapid test available the day of the survey. Assessment of partner HIV status was not evident for most women.
- Preventive or treatment interventions for hypertension and diagnosed pre-eclampsia were rarely noted.
- Counseling about specific risk signs, for which help should be sought was noted for only ½ or less of women in each country, and counseling on breastfeeding and FP were provided to only ¼ or fewer women in each country (except Kenya where FP counseling was 37%).

- Handwashing between clients was observed for less than ½ of the observed consultations in both countries.

### 3. Client interviews: ANC services

#### Sample

Pregnant women attending ANC on the day of the survey who had at least one prior antenatal visit were eligible for interview. In total, 160 ANC clients from Uganda and 161 from Kenya were interviewed.<sup>66</sup> The interviewed ANC clients reported they had thus far had, on average, 2.8 (Uganda) and 2.7 (Kenya) ANC visits, essentially all visits at the survey facility.

#### Results

**Prior ANC visits and waiting time:** On average, the Ugandan women reported their first ANC visit was at 15.8 weeks and Kenyan women, at 21.5 weeks of pregnancy. The Ugandan women reported they waited an average of 141 minutes and Kenyan women 45 minutes before seeing the provider. **Annex Table 37** provides further details on the ANC client experiences.

#### Client-centered practices during the ANC visit

**Physiological symptoms:** Among the 76% (Uganda) and 53% (Kenya) interviewed women who reported they had physiological symptoms (e.g., heartburn, low back pain) during this pregnancy, 40% (Uganda) and 65% (Kenya) reported they did not discuss the symptom with the provider, with the most common reasons provided that they did not feel the provider thought the symptom was important (19%, Uganda, and 4%, Kenya) or because they personally were embarrassed and felt the symptom was unimportant (15%, Uganda, and 20%, Kenya). **Annex Table 38** provides further details on client symptoms and discussion of these with the provider.

**Discussion of birth companion:** Among interviewed women, 73% (Uganda) and 59% (Kenya) reported they were advised they could have a birth companion during delivery, and 86% (Uganda) to 52% (Kenya) of all interviewed women reported they had selected a birth companion. Few women (21%, Uganda, and 7%, Kenya) had brought their birth companion with them for the ANC visit. (See **Annex Table 37**.)

**Problems and satisfaction with ANC:** Despite the responses on discussing physiological symptoms, almost all respondents reported they felt that there was no problem with discussing problems or concerns with the ANC provider (91% Uganda and 84% Kenya), and that the explanations about their questions or treatments were sufficient (94% Uganda and 80% Kenya). Clients were satisfied with the degree of visual and auditory privacy (98% Uganda and 84% Kenya) during their visit. Cost was identified as a major problem by 7% (Kenyan) and 2% (Uganda) of respondents and the time they waited for services as a major problem by respondents from both countries (38% for Ugandan and 14% for Kenyan women). Although few specific problems were identified as major problems, and, in fact, Ugandan women were more likely to identify specific problems as major problems, 2% of the Ugandan and 34% of the Kenyan women said they were not satisfied with the most recent visit. **Annex Table 39** provides further details on opinions about their ANC experiences and the facility.

#### ANC service components

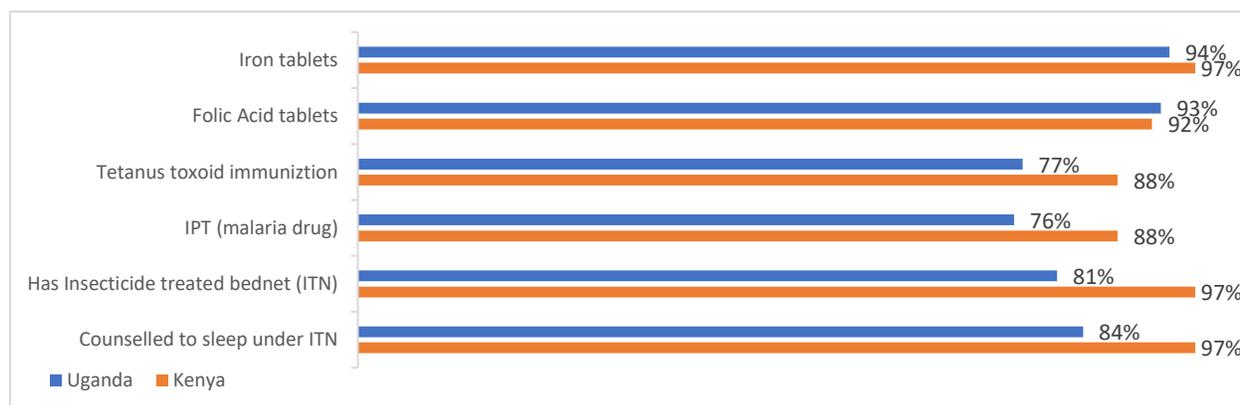
**Diagnostics:** Reports of blood and urine tests at the most recent visit were much higher by Kenyan women, supporting findings from record reviews and observations. Essentially none (1%) of the Ugandan women but almost all (94%) of Kenyan women reported a urine test for protein, glucose, and bacteria. Ultrasound at any visit was reported by 11% (Uganda) and 13% (Kenya), with some women reporting more than one ultrasound with an average of 1.4 (Uganda) and 1.3 (Kenya).

<sup>66</sup> There were missing responses for most questions from one or two Ugandan women.

**Preventive interventions and examinations:** Reports for receiving iron and folic, tetanus toxoid, and malaria preventive treatment were high (**Figure 34**). Depending on their visit number and prior TT history all women would not have received two TT doses yet during this pregnancy. Among those reporting any TT (77%, Uganda, and 88%, Kenya) Ugandan women reported having received (on average) 1.5 TT doses and Kenyan women, 1.3.

Depending on the visit number and gestational age during this visit, all women would not have received the three recommended doses of an IPT drug. Among the interviewed clients, 76% (Uganda) and 88% (Kenya) reported they had received at least one dose of IPT, with the average number of doses reported as 1.4 (Uganda) and 2.8 (Kenya). Only 37% of Ugandan women reported receiving an ITN from the facility, but 90% of Kenyan respondents reported they received an ITN from the facility.

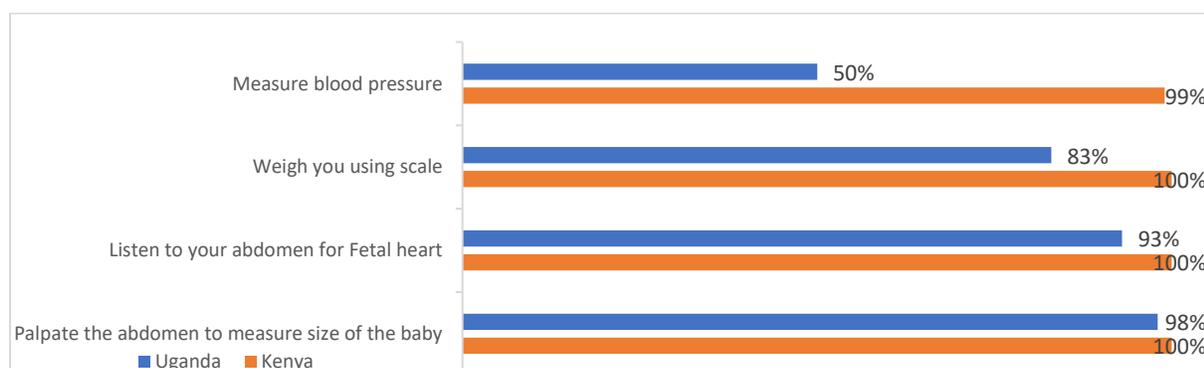
**Figure 34: Client reports on elements of ANC (Uganda n=160, Kenya n=161)**



Essentially all Kenyan clients reported that during their most recent visit their blood pressure measurement, weight, listening for fetal heart tones (FHT), and palpation of the abdomen were performed. The percentages of Ugandan respondents reporting these actions were lower, particularly for blood pressure measurement (**Figure 35**).

Assessment of diet, physical activities, smoking status and second-hand smoking along with alcohol use and intimate partner violence were less reported components of ANC, with around ½ or fewer reported these from the two countries, with reports a bit higher from Uganda. Assessment of intimate partner violence was reported by 16% (Uganda) and 11% (Kenya) of respondents **Annex Table 40** provides further details on assessments ANC clients reported.

**Figure 35: Clients reporting the indicated assessments the most recent ANC visit (Uganda n=160, Kenya n=161)**



**Counseling:** Reports on counseling were similar from women of both countries although a smaller percentage of Ugandan than Kenyan respondents reported receiving counseling for most topics. The majority of women (at least 30% from both countries, did not report receiving counseling on such topics as family planning, danger signs, healthy diet and physical exercise, and only 11% (Uganda) and 47% (Kenya) reported counseling about benefits of breastfeeding. Birth preparedness and a healthy maternal diet were the most frequently reported topics for counseling in both countries. **Annex Table 41** provides further details on topics for which clients reported receiving counseling.

**Client knowledge:** When asked to name danger signs for which they should seek immediate help, 44% (Uganda) and 61% (Kenya) interviewed clients reported vaginal bleeding, less than ½ from either country identified any other danger signs. **Annex Table 41** provides further details on client knowledge of risk/danger signs. **Annex Table 42** provides comparative results where similar information was assessed through client reports on experiences, observations, and record reviews.

#### **Key findings for ANC client interviews**

##### **Strengths**

- Clients felt they were treated well and with respect.
- Clients reported they felt they could discuss issues with the providers
- Around 10% or fewer clients reported different specific issues as major problems.
- Counseling on maternal diet and birth preparedness were reported by over half of clients from both countries.
- Routine ANC interventions (iron/folic acid, IPT, tetanus toxoid) were reported by almost all respondents from both countries.
- Routine assessments of woman's weight, fetal heart, and palpation of the abdomen were reported at high percentages in both countries.

##### **Weaknesses**

- Clients with symptoms reported they did not discuss them, feeling they were unimportant or that providers would think they were unimportant.
- Non-specific dissatisfaction with the visit was reported by clients from both countries, particularly from Kenya.
- Waiting time was the most commonly identified issue for dissatisfaction in both countries.
- Assessment of diet, physical activities, smoking status and second-hand smoking along with alcohol use and intimate partner violence were reported by ½ or fewer ANC clients in both countries.
- Reported assessment of blood pressure was about 50% in Uganda.
- Client knowledge of risk signs in pregnancy was low, with the most mentioned risk being vaginal bleeding, with 13% Ugandan and 64% Kenyan clients reporting receiving counseling about danger signs.

## **A. Childbirth Services**

### **Availability of essential facility-level inputs**

As previously noted, a higher proportion of Kenyan facilities (73%) than Ugandan (80%) were classified as hospitals. Availability of services and other key inputs reflect these differences in facility levels.

All basic emergency obstetric and newborn care (BEmONC) signal functions<sup>67</sup> were reported available in

<sup>67</sup> Parenteral uterotonics for prevention or management of PPH, parenteral anticonvulsants for managing hypertensive disorders during pregnancy and childbirth, parenteral antibiotics for pregnancy-related infections,

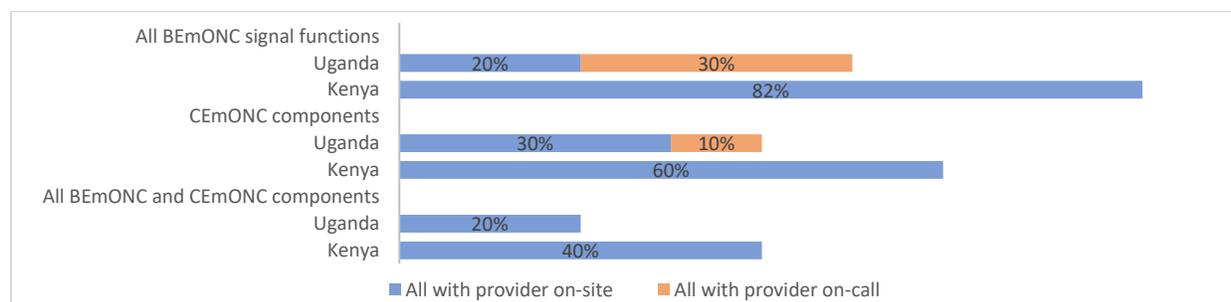
50% of Ugandan facilities (with 3 of 5 of these of facilities using on-call staff to provide some of these services) and 82% of Kenyan facilities. Comprehensive emergency obstetric and newborn care (CEmONC) (blood transfusion and C-sections along with all BEmONC signal functions) were reported available by onsite staff in none of the Ugandan and 40% of Kenyan facilities. C-section services were provided by 40% of Ugandan facilities (with one of four facilities using on-call staff to provide the service) and blood transfusion by 40% (with one of four facilities using on-call staff to provide the service). C-section services were provided by 40% of Kenyan facilities, and blood transfusion services in 60% of the facilities (**Figure 36**). **Annex Table 43** provides further details on the availability of specific signal functions. On the day of the data collection all sample facilities in both countries had the drugs to treat maternal and infant sepsis, to provide postpartum oxytocin, and to provide MgSO<sub>4</sub> for eclampsia (**Figure 4**). However, respondents reported knowing of cases requiring MgSO<sub>4</sub> when it was not available in the facility because of a stock-out (43% Uganda and 11% Kenya) and of cases requiring a C-section who did not receive it because of lack of staff or resources (56% Uganda and 41% Kenya). This could include providers who refer patients for C-section where timely transportation was not available. **Annex Table 44** provides further details on these resource gaps.

## 1. Provider interviews

### Sample

Providers of delivery care and newborn care were interviewed for their knowledge, experience, and practices. In total 31 (Uganda) and 20 (Kenya) providers completed the delivery services questionnaire, and 18 Ugandan and 16 Kenyan completed the newborn care questionnaire. The same provider may have completed both questionnaires.

**Figure 36: Availability of BEmONC and CEmONC components in surveyed facilities (Uganda n=10 facilities, Kenya=11 facilities)**



Respondents for delivery services reported attending an average of 39.5 (Uganda) and 100 (Kenya) births per month, and respondents for newborn care reported attending an average of 44.8 (Uganda) and 199.9 (Kenya) births per month. Interviewed providers estimated the average length of stay for normal vaginal deliveries was 16 hours for both countries, instead of a minimum of 24 hours after birth, as recommended by WHO<sup>68</sup> (see **Annex Table 44**). Facility-level key informants reported delivery to delivery staff ratios for nights and weekends that were substantially better in Kenya (around 4 to 1) than in Uganda (around 7-10).

**Case reviews for deaths and near misses:** Information about maternal or newborn death audits<sup>69</sup> was provided by different (overlapping) groups of health workers—those providing delivery services, those

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manual removal of placenta, manual removal of retained products of conception, newborn resuscitation, and assisted deliveries (e.g. use forceps or vacuum extractor).

<sup>68</sup> WHO recommendations on postnatal care of the mother and newborn. OCTOBER 2013

<sup>69</sup> It is assumed that non-respondents were not eligible for these questions (i.e., they provided child or adolescent health services and no maternal/newborn health services).

providing newborn care services, and all interviewed providers. Providers who answered MNH service provider questions came from a few facilities in each country, so information on the case reviews reflects the knowledge of all interviewed providers about practices in their facility. Among all interviewed providers, 73% (Uganda, n=71) and 76% (Kenya, n=104) reported their facility conducted any reviews of patient deaths and near misses. Among those reporting their facility conducts any death audits, almost all respondents (81% Uganda and 92% Kenya) reported their facility has a formal structure for reviewing death audit findings, with 69% (Uganda) and 83% (Kenya) reporting death audit findings are reviewed at least every three months. Asked to specify mechanisms for acting on results of death reviews, most providers simply reiterated that this is part of the review process. Reviews of near misses (cases where the mother/infant required interventions to prevent death) were reported by 30% or fewer of providers from each country.

Among all Kenyan providers responding to questions about the death reviews, 91% (n=84) estimated that all maternal deaths are reviewed and 80% (n=84) that all perinatal death are reviewed. Kenyan MNH service providers, a subset of all respondents, estimated similar levels of coverage for maternal death reviews (84%, n=17 respondents) and for perinatal death reviews (73%, n=16 respondents).

Among all Ugandan providers (n=52), 81% estimated that all maternal deaths are reviewed, and 67% that all perinatal deaths are reviewed. Ugandan MNH service provider estimates of coverage for death reviews were much lower than the estimates provided by all providers, estimating 47% of all maternal deaths are reviewed (n=14 respondents), and that 48% of all perinatal deaths are reviewed (n=12 respondents) (Figure 37). Annex Table 45 provides further details on death reviews.

**Figure 37: Specific facility death review practices reported by general RMNC-A service providers (Uganda n=52, Kenya n=84)**



#### Key findings for maternal/perinatal/neonatal death reviews

##### Strengths

- Any MNH death reviews are reported by 73% of Ugandan and 81% of Kenyan service providers.
- Most facilities with death reviews have a formal structure for reviewing findings on a regular basis.

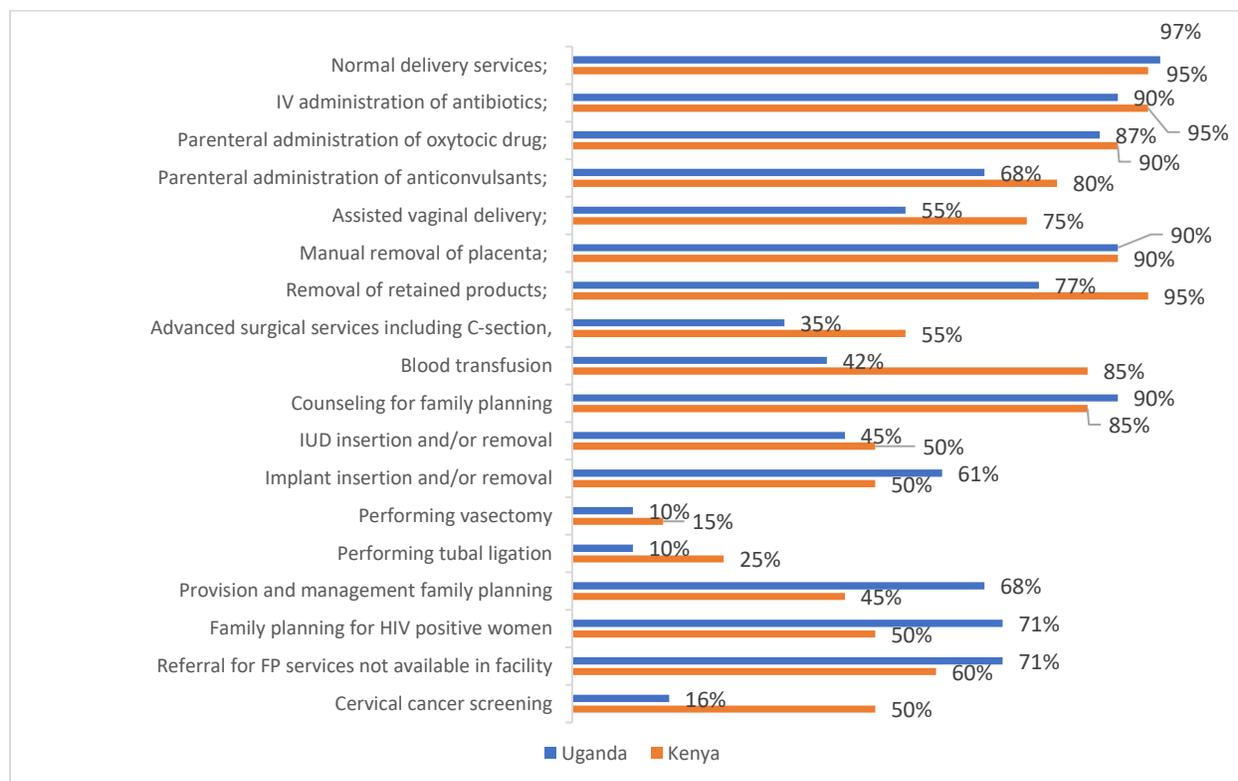
##### Weaknesses

- Estimates of death review coverage as well as mechanisms of implementing review recommendations are lower in Uganda than in Kenya.
- Described mechanisms for acting on findings from death reviews were not specific, with no descriptions indicating that the changes are implemented.

#### Provider interviews: Labor and delivery (L&D) service providers

**Services offered:** Among the 31 (Uganda) and 20 (Kenya) interviewed labor and delivery service providers, almost all reported they provided basic delivery services and administration of injectable uterotonic drugs. Provision of other signal functions was less frequently reported by these providers, with parental anticonvulsants and assisted deliveries reported by 80% or less of the respondents from both countries and removal of retained products by 77% of Ugandan respondents, but 95% of Kenyan. Overall, a higher proportion of Kenyan respondents reported providing the various delivery and related family planning services (**Figure 38**). **Annex Table 43** provides further details on the signal functions reported available in the facility, according to a facility key informant.

**Figure 38: Provider-reported Maternal and FP Services (Uganda n=31, Kenya n=20)**



**Self-reported comfort with managing maternal conditions:** Kenyan respondents reported more comfort in managing complications of labor and delivery than those from Uganda. Across five specific complications of labor/delivery assessed<sup>70</sup>, an average of 28% of Ugandan and 67% of Kenyan respondents reported a high comfort level with providing the screening and management of high-burden maternal complications (PPH, pre-eclampsia/eclampsia, prolonged/obstructed labor, peripartum infections, and preterm delivery), while an average of 14% (Uganda) and 7% (Kenya) reported low levels of confidence across these same services (**Figure 39**). **Annex Table 46** provides further details on self-described comfort with the management of complications of labor and delivery.

**Recent training:** Training in topics related to delivery care during the prior 12 months was not reported by the majority of L&D service providers. On average 10% of Ugandan and 31% of Kenyan respondents reported recent training for each of 5 topics related to major complications of labor and delivery<sup>71</sup>. Recent training related to consideration and involvement of the client and management of physiological symptoms were also reported by only 6% of Ugandan and 20%-25% of Kenyan respondents. Across the

<sup>70</sup> Pre-eclampsia/eclampsia, obstructed/prolonged labor, maternal infections, preterm birth, postpartum hemorrhage.

<sup>71</sup> Pre-eclampsia/eclampsia, obstructed/prolonged labor, maternal infections, preterm birth, life-saving skills.

21 topics asked about, an average of 11% (Uganda) and 25% (Kenya) had received training in each topic (Figure 39). Annex Table 46 provides further details on training.

**Guidelines and job aids:** On average, 39% of Ugandan and 57% of Kenyan L&D service providers reported using guidelines and job aids for each of five specific complications or relevant interventions asked about<sup>72</sup> (Figure 39). Annex Table 46 provides further details on the use of guidelines/job aids.

**Figure 39: Average percentage of delivery service providers reporting recent training, using guidelines/protocols, and feeling very comfortable providing services across the indicated number of topics. (Uganda n=31, Kenya n=20)**



**Facility policies and information sharing:** Most respondents were aware of facility policies on shift hand-over (65% for both Uganda and Kenya), with 82% (Uganda) and 65% (Kenya) satisfied with information sharing between staff about delivery patients. Fewer reported awareness of facility policies on sharing patient information when transferring clients to another unit, facility, or on discharge. Respondents were least aware of any facility policy about **non-discrimination and ensuring no mistreatment of patients**. Asked about their satisfaction with information sharing during client handover, most providers (82% Uganda and 65% Kenya) were somewhat or very satisfied with the process and results. Annex Table 47 provides further details on provider knowledge and perceptions of information-sharing policies and practices.

**Client-centered practices:** All respondents reported obtaining **informed consents** from delivery patients, with 26% (Uganda) and 45% (Kenya) reporting generic informed consents on admission and specific informed consents reported for C-sections (87% Uganda and 83% Kenya). Few respondents reported informed consents for an episiotomy (3% Uganda and 6% Kenya) or augmentation of labor (29% Uganda and 0% Kenya).

Upon questioning, 65% (Uganda) and 45% (Kenya) thought the decision about the woman's **delivery position** should be decided by the provider, taking circumstances into account, 58% (Uganda) and 60% (Kenya) thought the mother should make this decision, and some provided both responses.

**Allowing a birth companion** to be present during labor and delivery was reported as a practice by 87% (Uganda) and 80% (Kenya) of respondents. Asked who could be a birth companion, most providers (59% for Uganda and 87% for Kenya) reported that the woman could choose anyone, however, 30% of Ugandan respondents said that the companion could only be a close relative. All of the Ugandan respondents who reported allowing a companion noted that they orient the companion to their role while only 43% of the Kenyans reported this.

Annex Table 48 provides further details on practices for client-centered care.

**Reported routine practices for labor and delivery: Use of partographs** was reported by 97% (Uganda) and all Kenyan respondents, with most respondents reporting having used a partograph within the past week (74% for Uganda and 78% for Kenya). When asked how frequently they use a partograph,

<sup>72</sup> Pre-eclampsia/eclampsia, obstructed/prolonged labor, maternal infections, preterm birth, administration of antenatal corticosteroids.

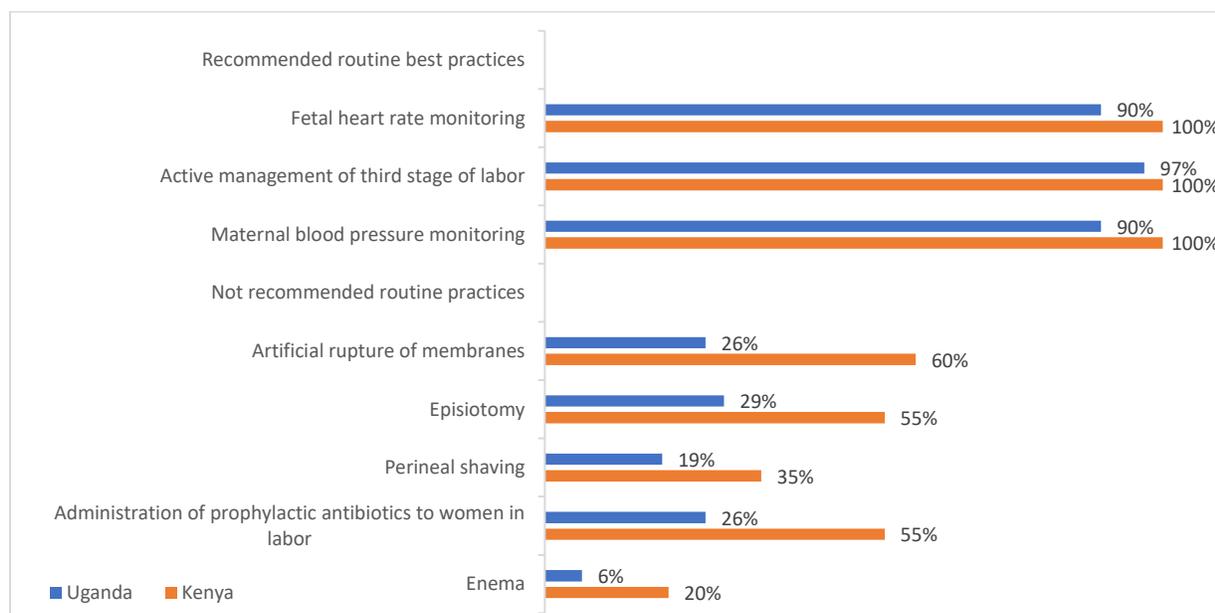
63% (Uganda) and 95% (Kenya) reported always, with an additional 22% (Uganda) and 5% (Kenya) reporting most of the time (see **Annex Table 49**).

Routine monitoring and immediate postpartum practices (monitoring fetal heart rate, monitoring maternal blood pressure, and active management of 3<sup>rd</sup> stage labor) were reported by over 90% of Ugandan and all Kenyan providers. When asked to choose the best response among several, 82% (Uganda) and 72% (Kenya) of respondents reported they provide a uterotonic to all women after a vaginal delivery and that the uterotonic is provided within one minute after delivery (63% Uganda and 78% Kenya). Waiting five minutes, or until after delivery of the placenta was, incorrectly, the response of 33% (Uganda) and 22% (Kenya) of providers.

Interventions that are not recommended or are harmful practices for routine, uncomplicated deliveries (artificial rupture of membranes, episiotomy, perineal shaving, prophylactic antibiotics without meeting specific criteria, and enema) were reported by a substantial percentage (around 20%-30% of Ugandan and 35%-60% of Kenyan) of respondents (**Figure 40**).

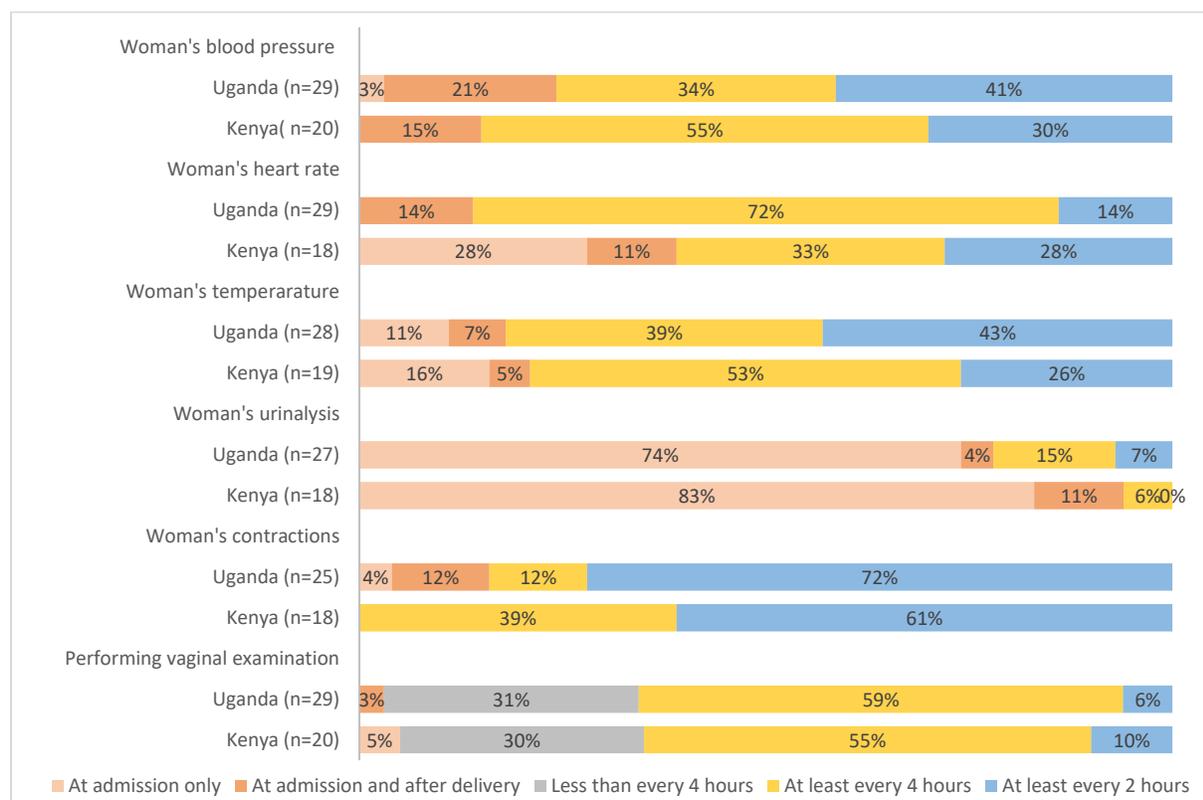
**Annex Table 50** provides further details on provider knowledge of best practices during labor and delivery.

**Figure 40: Percentage of L&D providers reporting the indicated practice is routinely provided for all mothers during labor or delivery (Uganda n=31, Kenya n=20)**



When asked about the frequency with which they conducted routine patient monitoring practices throughout labor and delivery, only small percentage of providers reported routine monitoring of blood pressure at least every four hours (24% Uganda and 15% Kenya), checking heart rate at least every four hours (14%, Uganda, and 39%, Kenya), and assessing contractions at least every two hours (28%, Uganda, and 39%, Kenya). Urine examinations on admission were reported by over 3/4 of the providers. Too frequent or infrequent routine vaginal examinations were reported by 9% (Uganda) and 15% (Kenya) (**Figure 41**). Similarly, only 3% of care providers in Uganda and none from Kenya responded correctly on the accuracy of 4 statements on what is normal for cervical dilation, timing, and contractions for normal active labor. **Annex Table 50** provides further details on provider knowledge about normal labor.

**Figure 41: Percentage of L&D providers reporting specific monitoring practices and their frequency during labor and delivery (number of respondents differ by item)**



**Reported interventions for prevention and management of maternal complications:** Asked to identify the one best response among several provided, only 35% (Uganda) and 20% (Kenya) identified the correct response—hand washing, as the single best way to prevent infection in the mother and infant (see **Annex Table 50**).

**Use of antibiotics:** Asked when during labor prophylactic antibiotics should be provided, 42% (Uganda) and 55% (Kenya) correctly identified antibiotics should be used if the woman has a fever. Additionally, however, respondents incorrectly identified prophylactic antibiotics routinely being warranted where the membranes had ruptured 18 or more hours prior to delivery (81% Uganda and 100% Kenya), when the patient has been in active labor 24 or more hours (35% Uganda and 55% Kenya), and where there is a prior history of neonatal sepsis (29% Uganda and 20% Kenya).

**Antenatal corticosteroids (ACS) for premature infants:** Administration of ACS for infants at risk of preterm birth was national policy for both Uganda Kenya at the time of this survey.<sup>73,74</sup> Thirteen percent (Uganda) and 35% (Kenya) correctly identified 22-34 weeks gestation as the time to provide corticosteroids to the mother for better infant outcome, and 10% (Uganda) and 35% (Kenya) identified signs of maternal infection as a contraindication for providing corticosteroids. All correct conditions required for safe administration of ANC corticosteroids were noted by none of the respondents from Uganda and 5% from Kenya.

**Management of severe pre-eclampsia:** When asked about dosing for MgSO<sub>4</sub>, responses showed extensive weaknesses in contraindications and how to provide the dosages. None of the care providers from Uganda and Kenya reported correctly on all five items in the pre-eclampsia treatment case study.

<sup>73</sup> Uganda Profile of Preterm and low-birth weight prevention and care. Every Premie SCALE. Updated May 2019.

<sup>74</sup> Kenya Profile of Preterm and low-birth weight prevention and care. Every Premie SCALE. Updated May 2019.

**Annex Table 50** provides further details on provider responses to the management of severe pre-eclampsia/eclampsia.

**PPH:** Providers could correctly describe the most important steps to take for management of early and late PPH attributed to atonic uterus, with only 3% of Ugandan care providers, however, correctly selecting only correct interventions. **Annex Table 50** provides further details on provider responses to management of PPH.

**Annex Table 50** provides further details on provider knowledge and responses for each case study for maternal care during labor, delivery, and postpartum.

**Pre-discharge services:** Immediate **post-partum family planning (PPFP)** counseling prior to discharge was reported by 81% (Uganda) and 55% (Kenya) of the providers of L&D services. Knowledge of appropriate methods for contraception at different points in the immediate postpartum period in view of breastfeeding practices was high. In particular, the respondents showed an understanding that combined hormonal contraceptives are not appropriate for PPFP and understood the timing for when intrauterine devices are appropriate. On the other hand, correct order of the top three most effective methods was not reported by any care providers from Uganda or Kenya. **Annex Table 51** provides further details on provider knowledge about PPFP.

**Postnatal contact** to mothers and babies 48-72 hours after normal birth were reported by 72% (Uganda) and 75% (Kenya) of providers of L&D services (**Table 10**). Among these, most report the postpartum visit is scheduled prior to discharge (82% Uganda and 100% Kenya) with an estimate from both countries that around 60% of women actually receive the postnatal visit. Among the respondents who reported that they routinely screen a group for cervical cancer (43% Uganda and 60% Kenya), most (92% Uganda and 42% Kenya) reported that this is performed during PNC visits, with an additional 33% (Uganda) and 42% (Kenya)<sup>75</sup> reporting this is performed during ANC.<sup>76</sup> Among these, most report the process used is visual inspection (50%, Uganda, and 42%, Kenya) followed by the PAP smear (25% for both Uganda and Kenya)<sup>77</sup> (see **Annex Table 44**).

**Table 10: Percentage of interviewed L&D providers reporting the indicated discharge services**

Discharge practices for women receiving delivery services <sup>78</sup>	(n=31)	(n=20)
Provide FP counseling prior to discharge	81%	55%
The facility usually provides postnatal contact with a skilled health-care provider to mothers and babies 48–72 hours after normal birth	68%	75%
Among providers in the facility usually providing postnatal contact with a skilled health-care provider to mothers and babies 48–72 hours after normal birth, how it is organized	(n=17)	(n=15)
The provider delivers home visits	18%	0%
The women have a follow-up visit scheduled at discharge	82%	100%
An estimated number of patients who had the postnatal contact after 48-72 hours from delivery out of 10 recent patients (average across responses)	6.7	6.0

<sup>75</sup> There may have been more than one response for where the cervical cancer screening is routinely conducted.

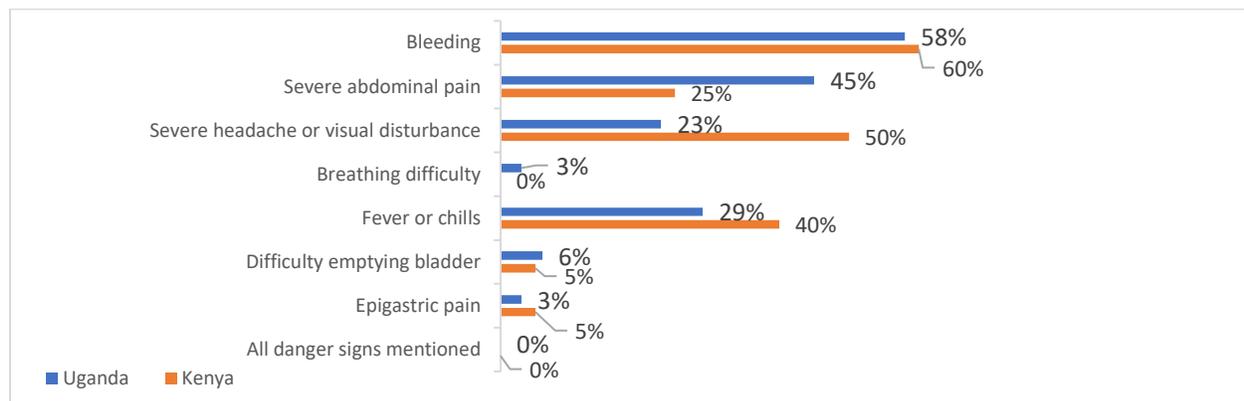
<sup>76</sup> There was no response from one Kenyan respondent.

<sup>77</sup> There was no response from four Ugandan and four Kenyan respondents.

<sup>78</sup> Missing responses (2-3 for Uganda and up to 9 for Kenya) are assumed to be negative.

Asked to mention (non-prompted) maternal danger signs they routinely counsel women on at discharge, around 60% of L&D care providers reported bleeding, with half or fewer mentioning other symptoms that might indicate infection or other complications. None of the respondents mentioned all key danger signs (Figure 42).

**Figure 42: L&D service provider responses (non-prompted) for danger signs mothers are counseled about prior to discharge (Uganda n=31, Kenya n=20)**



### Key findings for L&D service provider responses about delivery care

#### Strengths

- Client-centered approaches, including encouraging birth companions and actions to include clients in decisions were widely reported.
- Use of partographs is near-universally reported.
- Provision of signal functions of intravenous antibiotic, injectable uterotonic drugs, and manual removal of placenta were widely reported, by around 90% of Ugandan and 95% of Kenyan respondents.
- Knowledge about correct initial steps in caring for postpartum hemorrhage was high.
- Reported use of guidelines/job aids for pre-eclampsia/eclampsia and management of obstructed labor was over 60% in both countries.
- Overall, Kenyan respondents reported more training, more use of guidelines, and had better knowledge about management of complications of labor and delivery.
- Knowledge about methods of contraception that are appropriate in the immediate postpartum time period was high.

#### Weaknesses

- Training, guidelines, and knowledge for management of maternal complications were particularly low for Ugandan respondents.
- Although higher in Kenyan respondents (around 50% for some topics), recent training for the management of complications of labor and delivery was not widely reported.
- Self-reported comfort, by Ugandan providers, in providing services for most complications was lowest for pre-eclampsia/eclampsia (20%) and prolonged/obstructed labor (23%). For Kenyan providers, the main self-identified weakness was low confidence for managing prolonged/obstructed labor (20%).
- Reported routine monitoring practices during labor and delivery as per recommended practices were weak, with blood pressure, heart rate, and uterine contractions not reported monitored with sufficient frequency, and vaginal examination reported performed too frequently.

- Signal functions of parental anticonvulsants and assisted delivery were reported in lower percentages than other signal functions.
- Knowledge about use and administration of magnesium sulfate and reported gaps in availability indicated a basic weakness in the ability to provide safe management for pre-eclampsia/eclampsia.
- Knowledge about the use of ACS for preterm infants was weak.
- Ability to spontaneously name the most common danger signs (except bleeding) was weak.
- Provision of practices that are not recommended or that may be harmful practices were frequently reported, particularly in Kenya.
- Although almost all respondents reported they provide counseling on family planning, lower percentages reported routinely counseling postpartum women on appropriate methods prior to discharge.

#### 4. Provider interview: Newborn care

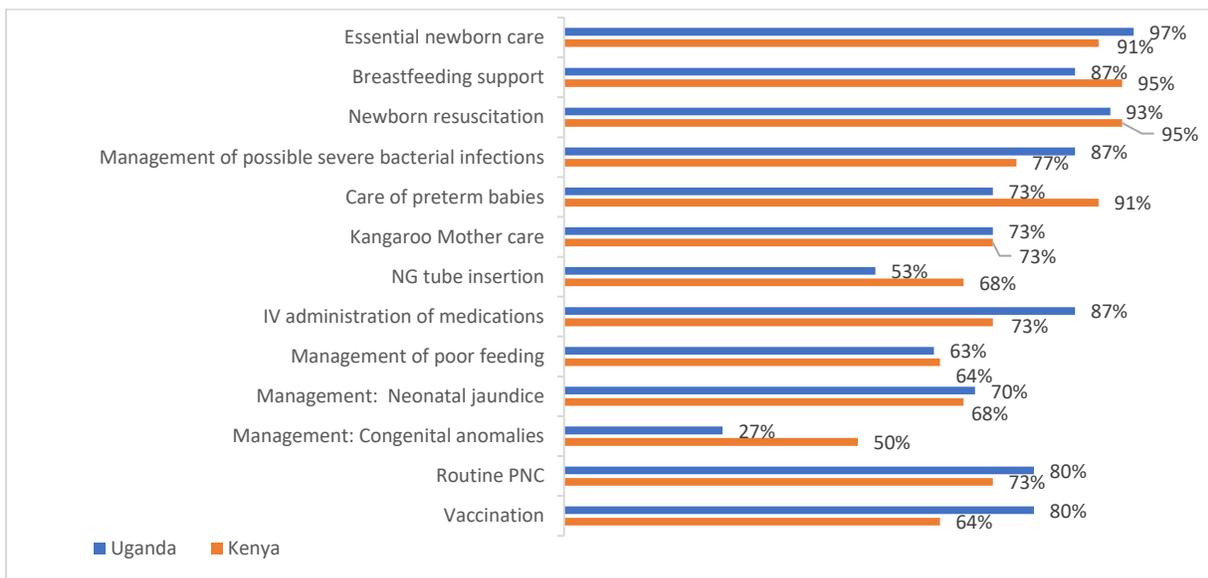
##### Sample

Among the respondents reporting they provide newborn care services, 30 from Uganda and 22 from Kenya answered questions about their knowledge, attitude, and experiences related to these services.

##### Provider practices and knowledge

**Services provided:** A full range of newborn care services was reported to be provided by the respondents (**Figure 43**). The services least provided, in both countries, were the management of congenital abnormalities, nasogastric tube insertion, and management of poor feeding.

**Figure 43: Self-reported newborn and infant care services provided by respondents (Uganda n=30, Kenya n=22)**



When asked about how many newborn resuscitations they had performed the prior month, among the 22 of 30 (Uganda) and 18 of 22 (Kenya) respondents providing a response, the average was 4.7 (Uganda) and 8.1 (Kenya) (see **Annex Table 44**).

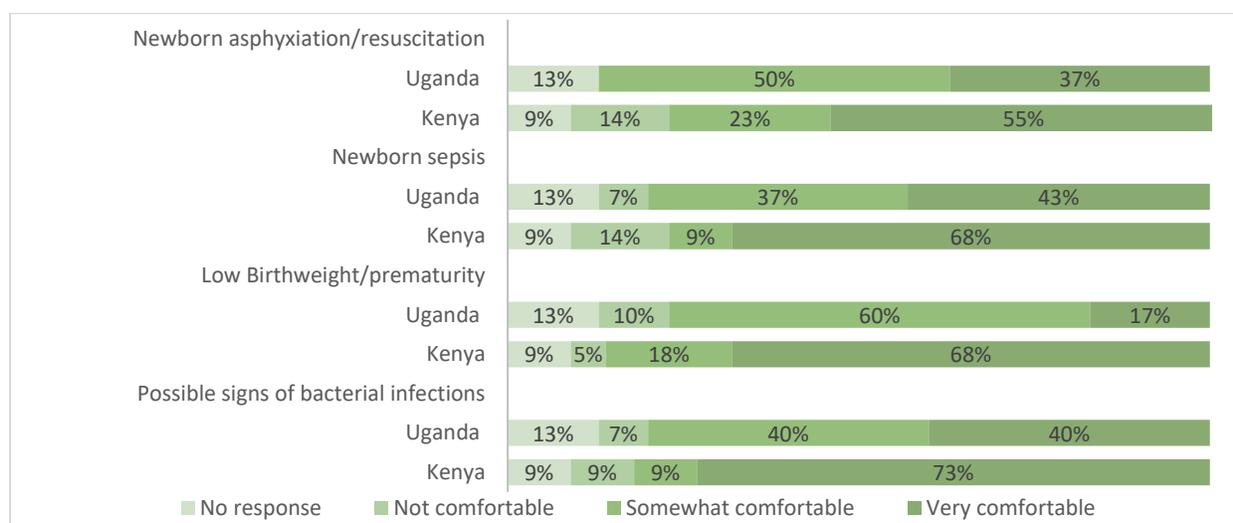
**Recent training:** Training in newborn care subjects during the prior 12 months was not reported by the majority of respondents, although it was reported by a larger proportion of Kenyan than Ugandan

respondents. Newborn resuscitation was the most frequently reported training (37% and 45%) reported, respectively, by Ugandan and Kenyan respondents. On average, 12% (Uganda) and 24% (Kenya) of respondents received training in each of 16 newborn care topics asked about.

**Guidelines and job aids:** Slightly less than half of the respondents reported using guidelines for management of possible serious bacterial infection (PSBI) in young infants. In general, use of guidelines was reported more by Kenyan than Ugandan respondents. On average, 42% (Uganda) and 55% (Kenya) of respondents reported using guidelines or job aids related to each of six newborn care topics asked about.

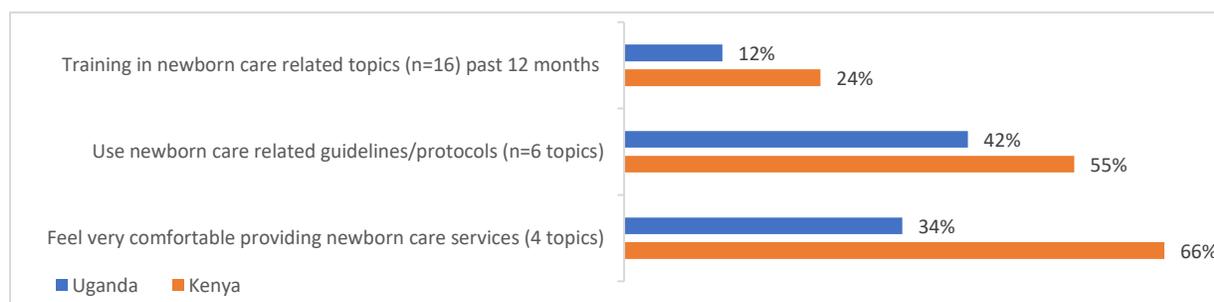
**Self-reported comfort with managing newborn conditions:** Among the services asked about, Kenyan respondents reported they were more comfortable in providing services for the sick or small newborn than Ugandan respondents. On average, 34% (Uganda) and 66% (Kenya) of respondents reported feeling very comfortable providing care for common newborn complications/conditions (**Figure 44**).

**Figure 44: Self-reported provider comfort with providing specific services (Uganda n=30, Kenyan=22)**



Overall, Kenyan respondents showed more exposure and comfort with topics related to newborn care than Ugandan respondents (**Figure 45**).

**Figure 45: Average percentage of newborn care respondents, reporting recent training, using guidelines/protocols, and feeling very comfortable providing services across the indicated number of topics (Uganda n=30, Kenya n=22)**



**Annex Table 52** provides further details on the use of guidelines, training, and level of comfort in providing care for newborn complications.

**Effective communication and other patient-centered practices:** Asked about familiarity with facility policies, standard operating procedures/guidelines for information sharing in different circumstances, 53% (Uganda) and 73% (Kenya) of respondents knew expectations for information sharing at shift change, with half or fewer respondents knowing policies for information sharing for other situations such as transfers within the facility (33% and 50%), when referring to other facilities (40% and 41%), and on discharge (50% and 41%) for Ugandan and Kenyan respondents, respectively. Asked about satisfaction with communication during handover reports in the facility, 43% (Uganda) and 58% (Kenya) were satisfied, 42% (Uganda) and 29% (Kenya) dissatisfied, and around 15% for each country had no opinion positive or negative.

Few newborn care providers (13%, Uganda, and 23%, Kenya) reported familiarity with policies related to discriminatory practices or mistreatment of newborns.

**Annex Table 47** provides further details on communication and familiarity with policies.

**Reported routine practices:** Provided a set of responses and asked to select their first action after a baby is born, 19% of the Ugandan and 33% of Kenyan respondents correctly selected drying the infant thoroughly. Thirty-eight percent of respondents from both countries prioritized ensuring the infant was breathing, with an additional 35% (Uganda) and 24% (Kenya) prioritizing placing the infant skin-to-skin with the mother. Only 8% (Uganda) and 5% (Kenya) incorrectly prioritized tying the umbilical cord.

Almost all (96% Uganda and 100% Kenya) respondents reported routinely facilitating skin-to-skin contact between the infant and mother. Among these, maintaining skin-to-skin contact immediately after birth for at least 15 minutes was reported by 38% (Uganda) and 55% (Kenya), followed by at least 1/2 an hour (23% and 27%), at least one hour (35% and 5%), and at least two hours (4% and 14%) for Ugandan and Kenyan respondents, respectively.

Provided options for when they initiate breastfeeding, almost all (96% Uganda and 100% Kenya) chose within the first hour after birth, with 36% (Uganda) and 5% (Kenya) choosing immediately after birth, and 7% (Uganda) and 45% (Kenya) within the first 30 minutes after birth.

Provided options for when they clamp/tie and cut the umbilical cord, around 3/4 of respondents from each country correctly chose around 1-3 minutes after birth. An additional 5% (Kenya) chose clamping/tying and cutting the umbilical cord after the placenta is delivered.

Asked about other practices, 90% of Ugandan respondents and 77% of Kenyan reported they provide BCG and polio vaccines to newborns. All respondents reported that in their facilities the newborns stay with their mothers, with 59% (Uganda) and 38% (Kenya) of newborn care providers responding that if there is no medical problem, the mother should determine whether the infant should stay with her or not.

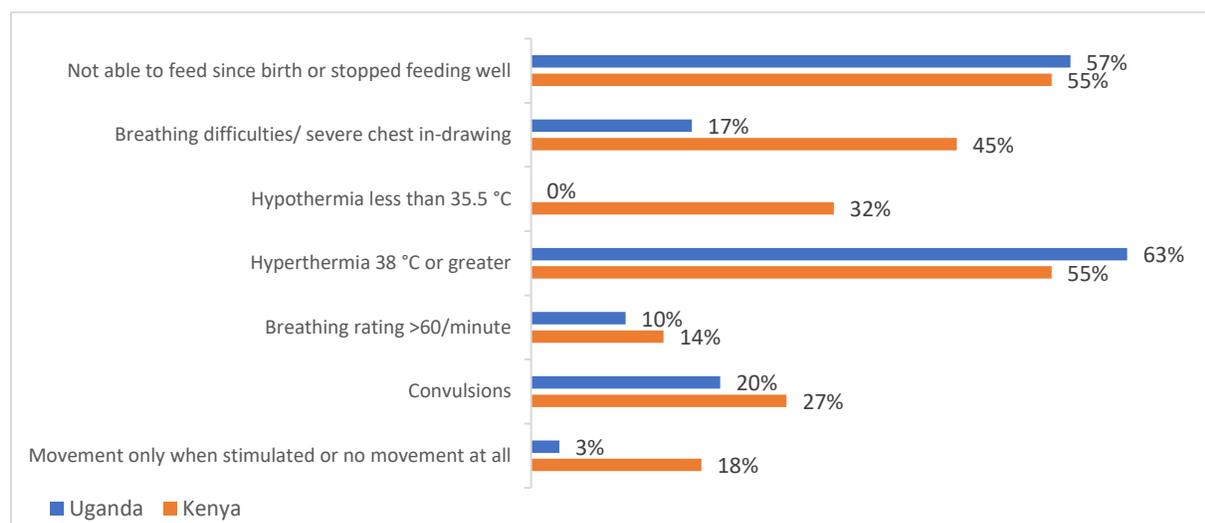
**Knowledge about correct routine newborn care:** Providers were asked open-ended questions, and in some cases, asked to select the best answer among a set of responses for management of a situation. Among non-prompted responses to a question about the steps in immediate essential newborn care, the percentage of respondents identifying specific steps (for Uganda and Kenya, respectively) are as follows:

- Dry the baby thoroughly (20% and 45%)
- Ensure the baby is breathing (10% and 14%)
- Place infant skin-to-skin (70% and 59%)
- Cover with a towel after skin-to-skin (63% and 41%)
- Ensure infant initiates breastfeeding within one hour (67% and 64%)

Few respondents (20% and 5%) mentioned that a full assessment of the newborn, measuring temperature (10% and 9%) or even cord care (47% and 27%) should be performed within the first 90 minutes after birth (Uganda and Kenya, respectively). **Annex Table 53** provides further details on knowledge and practices for routine newborn care.

Among a variety of approaches to elicit responses about identifying the infant at risk, symptoms of risk, and initial actions for suspected sepsis, percentages of respondents identifying correct responses were low. Asked to identify danger signs (non-prompted), less than 20% of Ugandan respondents mentioned hypothermia, fast breathing, movement only when stimulated, or convulsions. Although higher proportions of Kenyan respondents identified danger signs, the percentages were still low (**Figure 46**). Similarly, when provided a list of possible responses, low temperature (<35C) as a possible sign of newborn sepsis was correctly identified only by 10% of Ugandan and 14% of Kenyan respondents. Other knowledge questions on specific newborn care practices were high overall except for indications for KMC initiation and KMC interventions. **Annex Table 54** provides further details on knowledge and practices for care of the infant with complications.

**Figure 46: Newborn care provider identified danger signs in newborns that require immediate attention (spontaneous responses) (Uganda n=30, Kenya n=22)**



### Key findings from provider responses for newborn care

#### Strengths

- Thermal protection practices (drying the infant and skin-to-skin practices) are widely reported for the immediate postnatal period.
- Almost all providers correctly identified beginning breastfeeding within the first hour after birth.

#### Weaknesses

- An estimated 54% (Uganda) to 25% (Kenya) of neonatal deaths are reportedly not routinely reviewed.
- Providers are not familiar with facility policies for non-discrimination and mistreatment of the infant.
- Lack of knowledge of policies regarding information sharing during infant transfers and lack of satisfaction with information sharing when changing shift was around 50% for both countries.
- Recent training in newborn resuscitation was not reported by around half of the respondents from both countries.
- Self-reported comfort levels in identifying and managing suspect sepsis or PSBI and responses to case studies on suspect sepsis were weak. Knowledge was also low.
- Specific initial infant assessments that should be conducted within 90 minutes after birth were not identified by most respondents.

- Provider knowledge about the time that the skin-to-skin position should be maintained after delivery was low.
- The knowledge on newborn danger signs requiring immediate attention, except infant feeding difficulties and hyperthermia, was critically low
- Knowledge of KMC indications and KMC interventions was low

## 2. Case study on newborn resuscitation using an anatomic model

### Sample

An attempt was made to interview all providers of RMNCH+A services who were present the day of the survey about their experience, training, and knowledge. The knowledge of those providing newborn care was assessed using a simulated clinical case study administered using a checklist to observe and identify key activities carried out on an anatomic model (mannequin of Neonatalie) by the care provider. Two data collectors participated in this data collection, with each marking what was observed and then comparing their results for the observation.

Thirty-four delivery service health providers from 10 facilities in Uganda and 27 from eight facilities in Kenya were interviewed and then asked to demonstrate newborn resuscitation (NBR) techniques using a Neonatalie. All the interviewees from Uganda and all but one from Kenya were nursing/midwifery staff (**Table 11**). Around 75% of the respondents from both countries reported they had received hands-on skills training in NBR, with the average time since the most recent training 31 months (Uganda) and 26 months (Kenya).

**Table 11: Characteristics of providers participating in NBR case study**

Qualifications	Uganda	Kenya
Medical staff	0%	1 (4%)
Nursing/midwifery professional	32% (n=11)	61% (n=17)
Enrolled nurse/midwife or other	68% (n=23)	36% (n=10)
<b>Training</b>	(n=34)	(n=28)
Reported any hands-on skills training in Newborn Resuscitation	74%	75%
Among those with training, most recent NBR training (months ago)	30.5	25.8

**Information collection:** A case study describing a scenario where the provider was called to assist in the delivery of a term baby expected to be born in around 10 minutes, with no complications thus far, was read to the respondent and additional information provided depending on responses to the case. Items the respondent was to identify were pre-delivery preparation, initial care of the newborn, and then how to respond when the newborn is described as not crying/breathing.

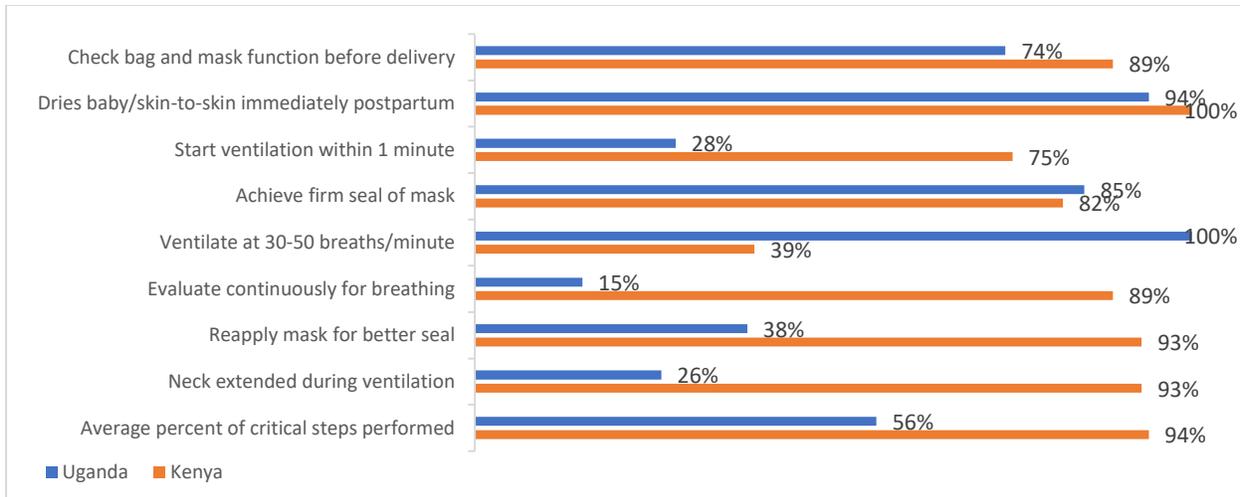
**Results:** Among seven critical steps in newborn resuscitation, providers from Uganda performed an average of 3.9, and those from Kenya, 6.6 (**Figure 47**). Weak points in the critical steps were starting ventilation within one golden minute (Uganda 28% and Kenya 75%), Kenya ventilating at an adequate number of breaths per minute (39%), and Uganda checking their mask seal and reassessing the infant throughout the process (less than 40% for any of the three types of assessment observed).

Additional items checked included:

- If the providers cleaned their hands in preparation (29% in Uganda vs 0% in Kenya);

- Different times when the infant lack of breathing should have been identified and relevant actions taken (mixed results between the countries);
- Issues related to technical aspect - extending the neck and clearing secretions during the resuscitation process (26% and 38% for providers in Uganda vs 93% and 75% for those in Kenya); and
- Following four specific steps for preparing the resuscitation bag and mask prior to the delivery (an average of 36% of the four steps for Uganda vs 79% for Kenya) (**Figure 47**).

**Figure 47: Case study: Critical steps identified related to newborn resuscitation (Uganda n=34, Kenya n=28)**



### Key findings for the case study for newborn resuscitation

#### Strengths

- Around 75% of providers from both countries reported being trained in NBR.
- Immediate postpartum drying of the infant and skin-to-skin practices were almost universal.
- Providers from both countries checked the bag and mask prior to delivery (74% for Uganda and 89% for Kenya) and maintained a firm seal during resuscitation.
- Kenya providers were consistently stronger in following the expected steps, including early identification of the infant respiratory distress for the case study.

#### Weaknesses

- All providers had not been trained in NBR, and the average time for most recent training was almost two or more years for providers in both countries.
- Ugandan providers were particularly weak in identifying key items, following expected steps for preparation for delivery and NBR practices, and resuscitating in the 1<sup>st</sup> golden minute.
- Providers describing handwashing prior to delivery was universally weak.

### 3. Record review for labor, delivery, and immediate postpartum care of mothers and newborns

#### Sample

Three different samples of records were selected for retrospective review of documentation. The first was for women who delivered, without selecting for any specific conditions (non-select), with the most recent

deliveries for whom records were available selected (general sample). The second sample was for complicated maternal cases. The most recent records with the existence of the specific maternal condition and/or maternal complications during the childbirth, including HIV+ status, severe pre-eclampsia/eclampsia, PPH, obstructed labor, and childbirth at <37 weeks of gestation, were selected (maternal complication sample). The third sample was for complicated newborn cases with the focus on newborns with asphyxiation and low birth weight/prematurity documented (newborn complication sample).

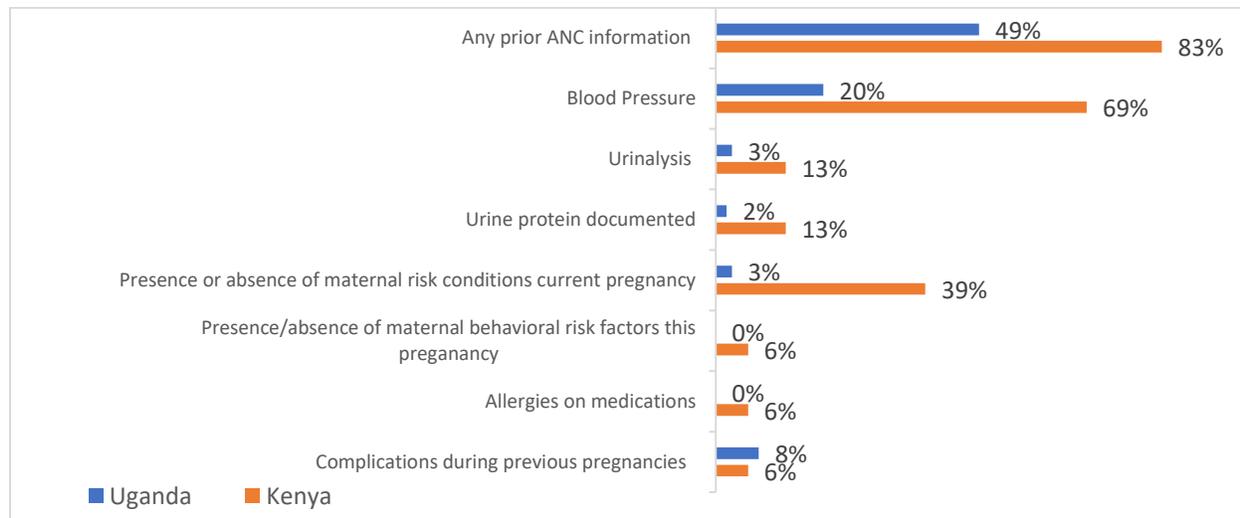
Details on these different samples are described in the following sections when the record review results are discussed.

### Findings from record review of the general sample

Records were reviewed for care received during labor and delivery for 247 (Uganda) and 262 (Kenya) women in the general sample. Among these records, birth complications were recorded for 24% of the Ugandan and 19% of the Kenyan clients. The most common complications recorded were prematurity (9% Uganda and 3% Kenya), low birth weight (14% Uganda and 2% Kenya), and obstructed labor (3% Uganda and 4% Kenya). There was one maternal death (Kenya). **Annex Table 56** and **Annex Table 57** provide further details on recorded complications and birth outcomes.

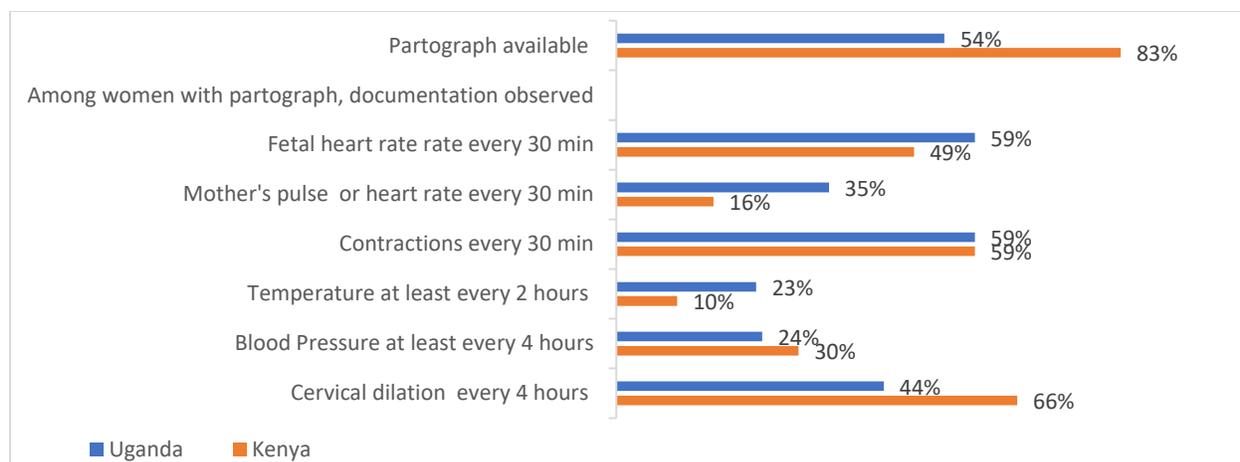
**Recording of relevant maternal information on admission for delivery:** Information that provides evidence of risk was not consistently recorded. For example, although information from ANC for this pregnancy was recorded for 49% (Uganda) and 83% (Kenya) of the cases, prior pregnancy history was recorded for only 8% (Uganda) and 6% (Kenya) (**Figure 48**). **Annex Table 57** provides further details on recorded complications from prior pregnancies.

**Figure 48: Record review: documentation on admission for delivery (general sample) (Uganda n=247, Kenya n=262)**



**Recording during labor and delivery:** Among the women whose records were reviewed the first stage of labor, a partograph was filled for 54% (Uganda) and 83% (Kenya). Among these, information from routine monitoring was inconsistently recorded. Blood pressure, temperature, and maternal pulse/heart rate were the least monitored practices at appropriate intervals during the labor and delivery (**Figure 49**).

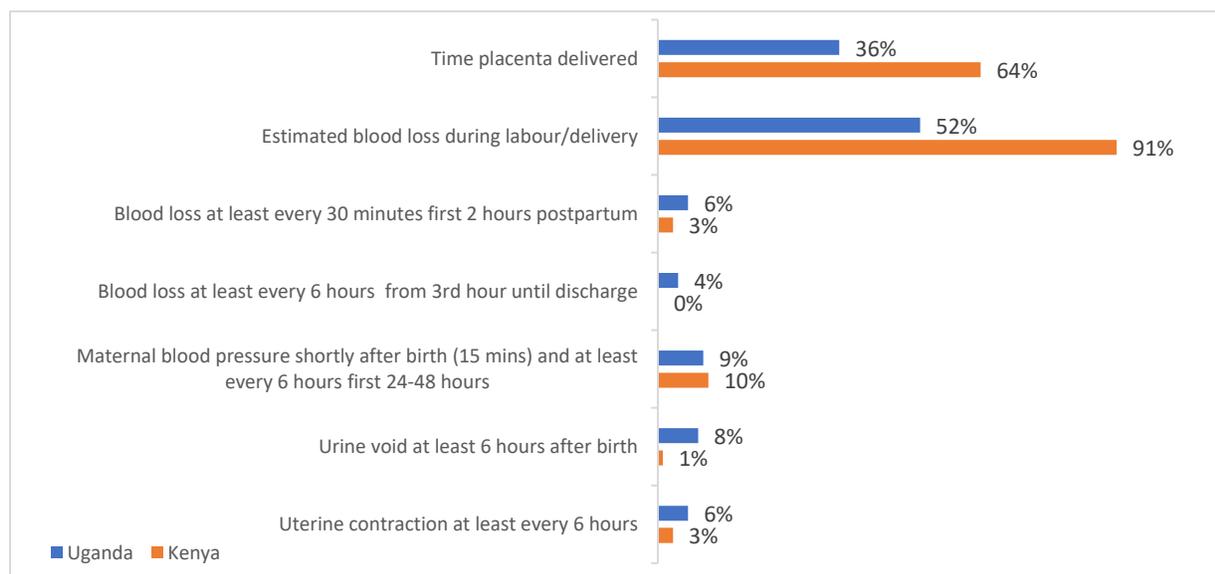
**Figure 49: Record review: Monitoring during labor for women admitted in the 1st stage of labor (Uganda n=247, Kenya n=183) for whom a partograph was available (Uganda n=133, Kenya n=152) (General sample)**



**Immediate postpartum care of mothers:** Records reviewed for care in the immediate postpartum period had documentation that over 90% of the women from each country were provided a uterotonic, with almost all recorded administered by the intramuscular route. Around 40% from each country had the timing of the uterotonic administration recorded at less than 1 minute postpartum. A substantial number of records, however, did not record the time (56% Uganda and 29% Kenya) or the route (27% Uganda and 58% Kenya) of administration.

The time the placenta was delivered was recorded for only 36% (Uganda) and 64% (Kenya) of clients and estimated blood loss for 52% (Uganda) and 91% (Kenya). Additional recommended postpartum monitoring (frequency of assessment of blood loss, urination, uterine contractions, maternal temperature, blood pressure) was documented at recommended frequencies for 10% or fewer women from each country (Figure 50). Annex Table 58 provides further details.

**Figure 50: Record review: Documentation of immediate postpartum maternal monitoring and care (Uganda n=247, Kenya n=262) (General sample)**



## Interventions for the prevention and treatment of maternal complications

**Tears:** Episiotomies (not recommended as routine practice) were rarely recorded (1% each country) although an additional 2% of the Ugandan women had 3<sup>rd</sup> or 4<sup>th</sup>-degree perineal tears documented. Whether these cases should have had episiotomies or not would require further information.

**Antibiotic use:** Among women with indications for antibiotics recommended as WHO best practices<sup>79</sup> (n=40, Uganda and n=12, Kenya), 18% of the Ugandan and 42% of the Kenyan women had documentation of correct antibiotic treatment. Few of the cases documented with preterm premature rupture of membranes (PPROM) from either country received an antibiotic. It should be noted, however, that these may not have actually been PPRM, as the ratio of recorded cases with PPRM compared with PROM (> 18 hours but not for premature delivery) was very high for both countries. Whether this was accurate or there was an error in recording or data collection is unclear, although the tools and data collection training provided clear guidance on PPRM. Among women with C-sections, the one eligible case from Uganda had documentation of receiving an appropriate antibiotic<sup>80</sup> prior to the C-section. Among Kenyan women with C-sections (n=17), all were recorded as receiving an injectable antibiotic prior to the procedure. Most of the C-sections were recorded as receiving several injectable antibiotics plus an oral antibiotic. Around 1/5 (22%) of women in Uganda and over half of the women in Kenya (57%) with conditions documented that are not recommended for routine antibiotics by WHO best practices<sup>81</sup> (and without any other documented conditions where antibiotics are recommended) received antibiotics.

Additionally, among women without any documentation of conditions where WHO has recommendations about routine antibiotic use, 2% of Ugandan women and 26% of Kenyan women received antibiotics, primarily metronidazole or amoxicillin (oral). There may have been other conditions where this was warranted (e.g., sexually transmitted infections) but these conditions were not documented. There were no cases documented with the diagnosis of endometriosis in either country. **Annex Table 59** provides further details on complicated cases and antibiotic provision.

**Immediate postpartum care of newborns:** Documentation of immediate postpartum care practices for the newborns were varied (**Table 12**), however, temperature and respiratory rate were not documented for over half of the infants from both countries in either the immediate postpartum or the later postpartum stages.

**Table 12: Record review: Documentation of newborn care and findings immediately postpartum (general sample)**

Findings	Uganda	Kenya
	(n=247)	(n=263)
Meconium observed in amniotic fluid	0%	2%
Clear amniotic fluid documented	70%	52%
Clear amniotic fluid and infant suctioned	34%	1%
Cord clamping within 1-3 mins after birth	45%	0%
Immediate dry	61%	7%
Immediate skin-to-skin*	69%	Not available

<sup>79</sup> Preterm premature rupture of membranes (PPROM), manual removal of placenta, 3<sup>rd</sup> or 4<sup>th</sup> degree perineal tear, post-partum fever >38 at least once, and pre-cesarean section.

<sup>80</sup> The WHO recommendation is for cephalosporin or penicillin. One Kenyan case receiving both ampicillin and cephtriaxone was also classified as correct.

<sup>81</sup> Episiotomy, meconium stained amniotic fluid, assisted vaginal birth, PROM.

Continued skin-to-skin with mother during the 1st hour	37%	17%
Weight measurement within first hour	96%	97%
Temperature measured within first hour	3%	24%
Respiratory rate counted within first hour	1%	47%
Cord care (chlorhexidine or no medication)	100%	95%
Tetracycline eye drops or ointment	62%	73%
Breastfeeding initiated within 1st hour after birth	70%	79%

Documentation of postpartum monitoring of the newborn was also weak. In total, including infants with vital signs measured within the first hour after birth, only 7% (Uganda) and 42% (Kenya) had a temperature documented, with documentation of respiratory rate at any time even lower. Provision of birth doses for BCG and polio vaccines was documented for around 3/4 of Ugandan and 1/3 of Kenyan infants, and essentially no children received the Hepatitis B vaccine. Vitamin K provision was documented for around 1/2 (Ugandan) to 1/3 (Kenya) of the newborns. Documentation of feeding status, including whether the infant was exclusively breastfeeding was much higher (**Table 13**).

**Table 13: Documentation of newborn monitoring (general sample)**

Newborn monitoring	Uganda	Kenya
	(n=247)	(n=263)
Exclusive breastfeeding	90%	84%
Temperature measurement at any time after birth	7%	42%
Any count of the respiratory rate at any time after birth	8%	4%
BCG vaccine administered	81%	31%
Polio vaccine administered	82%	30%
Hepatitis B vaccine administered	0%	1%
Vitamin K and BCG administered	56%	35%
Routine documentation of feeding status	65%	78%

### Interventions for the prevention and treatment of newborn complications

**Asphyxia:** Among the 7% (Uganda, n=18) and 5% (Kenya, n=12) of infants from the general sample documented as having asphyxia, there were country differences in the management. Among infants with diagnosed asphyxia, documentation indicated no intervention (50% Uganda and 33% Kenya), rubbing the back, without another respiratory stimulation (30% Uganda and none of the Kenya infants), and resuscitation using bag and mask—either with or without initially rubbing the back (10% Uganda and 66% Kenya) (**Figure 51**). Among the infants who were resuscitated by bag and mask, successful resuscitation was documented for 88% (seven of eight) Kenyan infants, and not documented for the other infant who is assumed to have also been successfully resuscitated.<sup>82</sup> Both Ugandan infants who were resuscitated by bag and mask were documented as successful resuscitations. Among asphyxiated babies with no interventions (n=9) or rubbing the back only (n=7) in Uganda, three babies (25%) died prior to discharge, and the others were discharged live.<sup>83</sup> Kenya had four babies with no interventions, who were documented as live births.<sup>84</sup> Fresh stillbirths among the births in the general sample, which may be associated with inadequate resuscitation, were documented for 2% (Uganda, n=4) and <1% (Kenya,

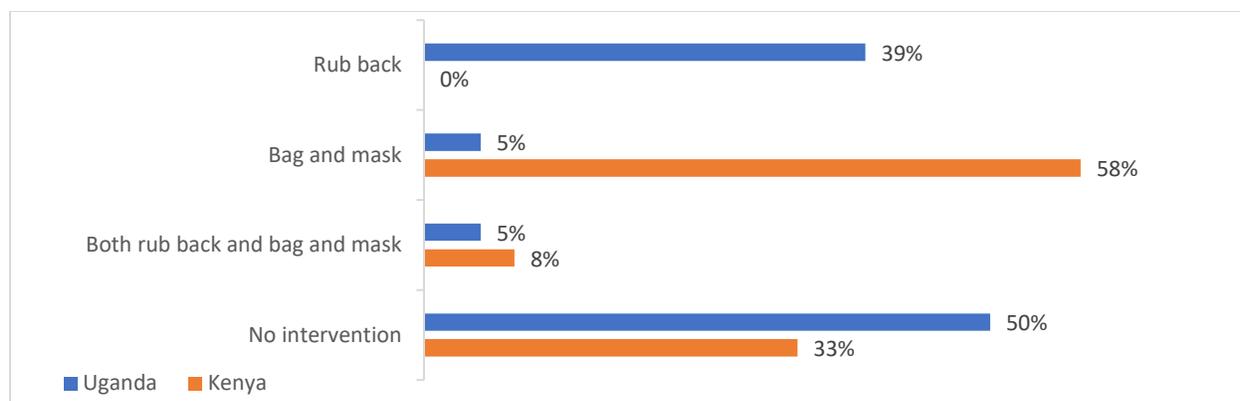
<sup>82</sup> The infant was documented a live birth and death prior to discharge was not documented, so is assumed to have been discharged live.

<sup>83</sup> The infants were documented live births and death prior to discharge was not documented, so are assumed to have been discharged live.

<sup>84</sup> These infants were documented as live births and death prior to discharge was not documented, so are assumed to have been discharged live.

n=1). None of the fresh stillbirths had documentation of resuscitation efforts. **Annex Table 60** provides further details on newborns diagnosed with asphyxiation and the respiratory interventions provided.

**Figure 51: Recorded interventions for newborns diagnosed with asphyxia (general sample) (Uganda n=18, Kenya n=12)**



**Prematurity:** Although the numbers of infants in this sample with specific problems were small, it was noteworthy that among women eligible for ACS to reduce respiratory complications in premature infants (gestational age  $\geq 24$  weeks and  $< 34$  weeks), only around 30% from each country received any ACS regimen. Routine surfactant administration (not recommended) was provided for 4% (Uganda, n=1 case) and 20% (Kenya, n=2) of these cases.<sup>85</sup>

**Thermal protection:** Among the newborns with a birth weight  $\leq 2000$  grams (Uganda 22%, Kenya 3%), 17% (Uganda) and 29% (Kenya) were documented as having KMC initiated, with around half of the Ugandan infants and all the Kenyan infants continuing intermittent KMC throughout the infant's stay in the facility. Seventy-five percent of the  $\leq 2000$  gram Kenyan newborns were documented as receiving radiant warmer/incubator warmth. Among the 58% (Uganda) and 13% (Kenya) of infants with a birth weight  $\leq 2500$  grams, 3% (Uganda) were transferred to a higher-level facility, and 1% (Uganda) and 42% (Kenya) were documented as being referred internally to another unit for a higher level of care.

**Infant infection/risk for infections:** Among infants with any symptoms of infection or associated risk of infection, the most common symptoms recorded for Uganda (n=4) were severe chest indrawing (50%) and fever.  $\geq 38c$  (25%) and for Kenya (n=9) poor feeding (33%) fever  $\geq 38c$  (67%), and temperature  $\leq 35.5$  (22%). Two (50%) of the Ugandan infants and three (33%) of the Kenyan infants with conditions that WHO best practices recommend receiving antibiotics were provided injectable antibiotics. An additional two infants in each country were recorded as receiving antibiotics with no documentation of eligible conditions noted.

**Annex Table 61** provides further details on newborn complications and management.

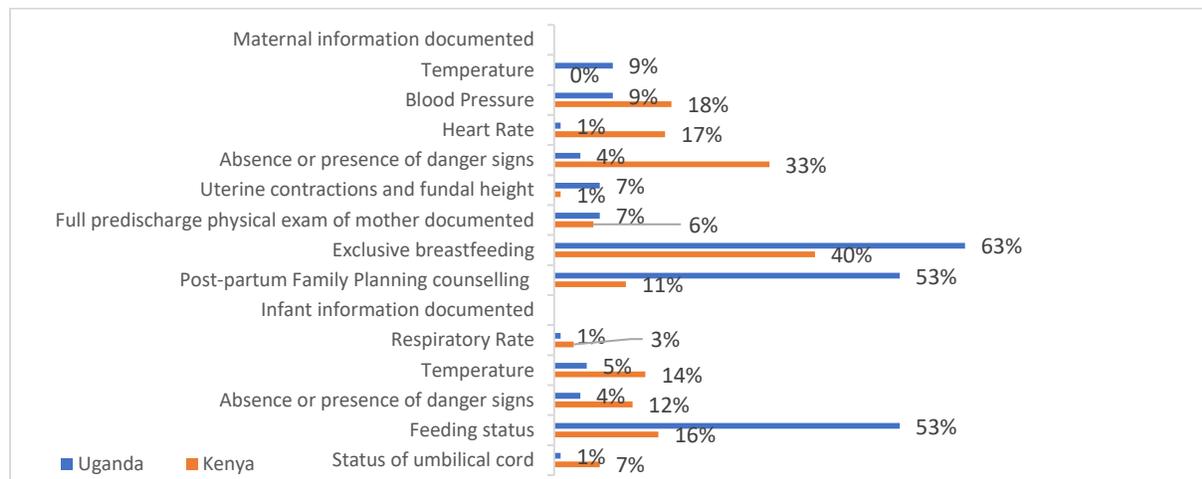
**Pre-discharge documentation:** Among the postpartum interventions, iron and folate were prescribed for 57% (Uganda) and 27% (Kenya) of women, and Vitamin A—which is not recommended, for 71% (Uganda) and 44% (Kenya).

The mother and infant status on discharge (e.g., the mother's health, infant feeding, umbilical cord status, and any risk conditions) should be documented both to provide evidence that key items were checked and to provide a frame of reference for identifying change during outpatient postpartum care. Maternal

<sup>85</sup> One Kenyan infant was documented as being intubated, but this was not a case of asphyxia, but rather was a premature, low-birth weight infant who also had incubator care documented. Two additional Kenyan infants are reported to have been intubated, but there is no indication for why or that the infants were sick or transferred, so these are assumed to be errors.

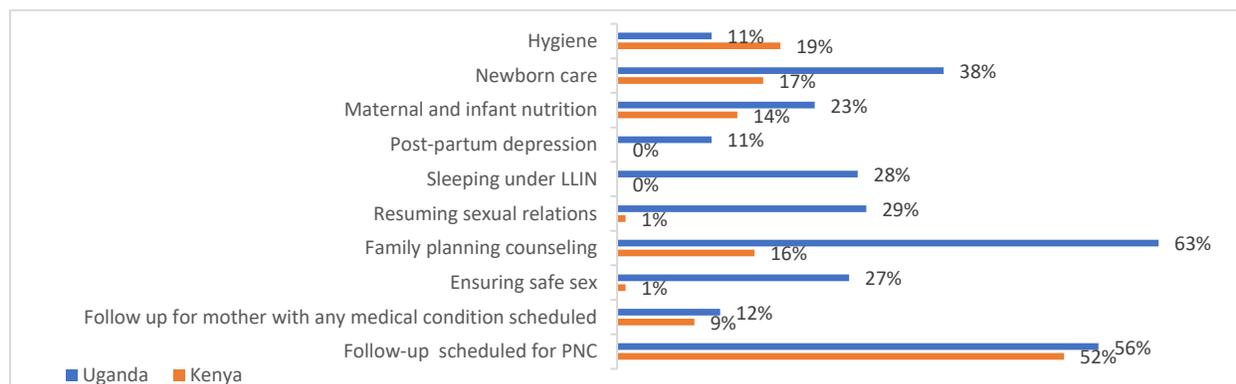
vital signs and the presence or absence of risk signs on discharge were rarely documented. The most commonly documented item for both countries was whether the infant was exclusively breastfeeding, followed by FP counseling in Uganda (53%) (Figure 52).

**Figure 52: Record review: documentation of pre-discharge assessments and counseling for the mother and newborn (Uganda n=247, Kenya n=262)**



Overall, FP counseling provided prior to discharge was documented more frequently for Ugandan than Kenyan women. PPFPP counseling along with their method of choice on discharge (lactational amenorrhea method, 36%, and condoms, 23%) was documented for Ugandan women. Choice of contraceptive method on discharge was not documented for Kenyan women. A scheduled postpartum visit was documented for slightly more than half of the women from both countries (Figure 53).

**Figure 53: Record review: documentation of counseling provided to newly delivered women prior to discharge (Uganda n=247, Kenya n=262)**



**Key findings from record reviews for labor, delivery, and postpartum care of mothers and newborns (general sample)**

**Strengths**

- Documentation of maternal practices was slightly stronger in Kenya while newborn care practices were better recorded in Uganda.
- Both countries document routine administration of uterotonics postpartum for prevention of PPH.
- Infant weight and feeding status are more consistently recorded than other information.

- Sample records documented that infants with newborn asphyxia were resuscitated with bag and mask at higher levels in Kenya, and the sample records showed Kenya had lower levels of fresh stillbirths.

### **Weaknesses**

- Information to indicate an admission assessment of prior and current pregnancy history was lacking.
- Routine monitoring of both mother and babies at all stages was deficient. This included completion of the partograph at recommended intervals, reducing the benefits of the partograph for clinical management of the labor and delivery.
- Routine monitoring was particularly weak during the postpartum period, with less than 10% of records documenting postpartum monitoring best practices among mothers
- Best practices for antibiotic use for mothers and infants were not followed. Irrational use of antibiotics included overuse of antibiotics when not necessary with parallel underuse of antibiotics when indicated.
- Both countries showed low percentages of women with eligible infants receiving ACS.
- Documentation of newborn resuscitation with bag and mask for neonatal asphyxia in Uganda was not common. Overall, among the infants who were diagnosed with newborn asphyxia, only 50% in Uganda had documentation of any intervention.
- None of the fresh stillbirths from either country were diagnosed asphyxia, and none had recorded interventions.
- Thermal protective practices for low birth weight infants were weak in Uganda, where no incubator/radiant warmer use was documented. Small percentages of low birth weight infants were recorded as being placed skin-to-skin with a lesser percentage of low birth weight newborns with continued KMC.
- Documentation of discharge planning and assessment was also weak, including documentation of danger signs assessment for mothers and babies prior to discharge.

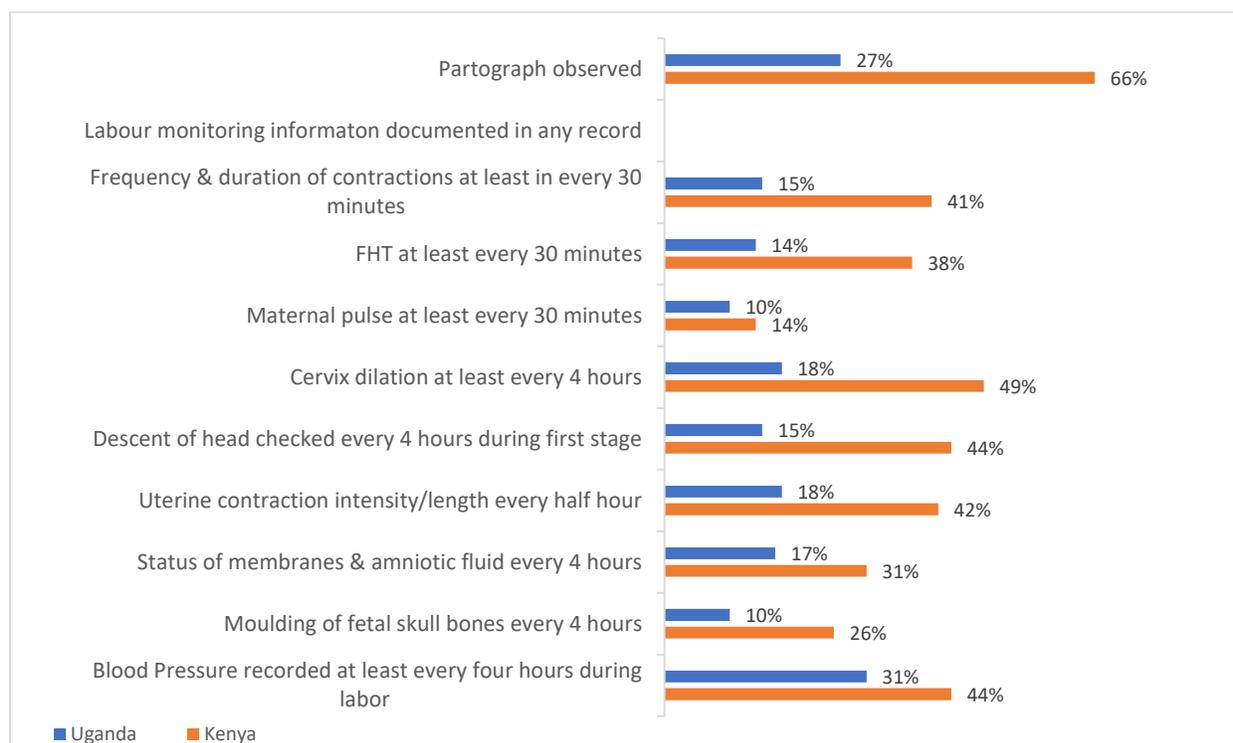
### **Findings from record review of sample for maternal complications**

**Sample:** Records of 354 (Uganda) and 207 (Kenya) women were selected to assess the care provided for specific complications of labor and delivery. The eligibility criteria for this sample was any diagnosis of severe pre-eclampsia/eclampsia, obstructed labor, signs of maternal infection, PPH, and HIV positive. Nine percent of the Ugandan and 31% of the Kenyan cases selected for the maternal complications sample arrived through a referral from health facilities. Among the 32 Ugandan women arriving through facility referral (referral-in), 34% had a referral note. Among the 64 Kenyan referrals-in, 53% had a referral note. All referral notes provided the reason for referral but among records with a referral note identified, less than half (41% Uganda and 34% Kenya) had pre-referral assessment and treatment recorded.

**Annex Table 56** and **Annex Table 62** provide further details on the maternal complications sample.

**Routine monitoring and interventions recorded for complicated delivery cases:** Among all maternal complications sample records reviewed, a partograph was available for 27% (Uganda) and 66% (Kenya) cases, with 70% of the Ugandan partographs a national format (with an alert line for labor) and 82% of the Kenyan partographs the newer WHO one (with the alert line but also a fourth action line). The partographs showed limited documentation of routine monitoring measures that are recommended (**Figure 54**). Urinalysis results were rarely documented (6% Uganda and 22% Kenya). **Annex Table 63** provides further details on monitoring the labor and delivery for the maternal complications sample.

**Figure 54: Results of record review: Partograph use and partograph documentation of routine monitoring (Uganda n=354, Kenya n=207) (sample of maternal complications)**



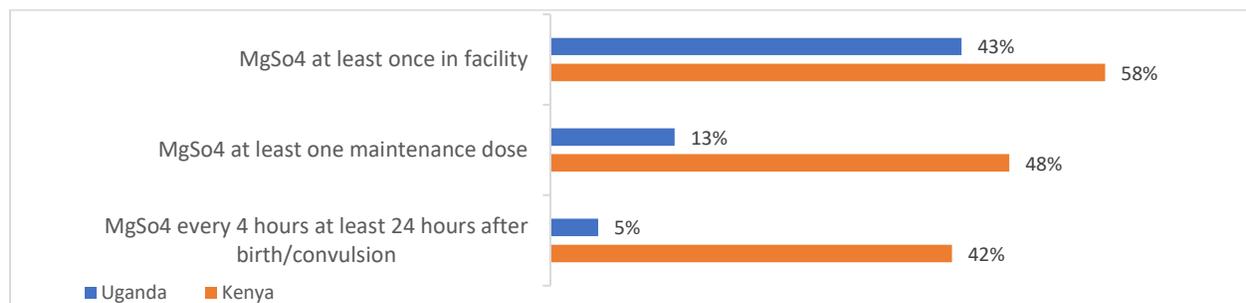
Administration of a postpartum uterotonic was documented for 36% (Uganda) and 84% (Kenya) of women. Among these, documentation that allowed estimation of the time between delivery and administration was only available for 5% of the Ugandan and 43% of the Kenyan cases. Even if women were referred in postpartum, there should be documentation for whether a postpartum uterotonic was administered.

Documentation of the results of the examination of the placenta for completeness was recorded for 8% (Uganda) and 70% (Kenya), and an estimate of blood loss for 12% (Uganda) and 82% (Kenya).

**Diagnosis and management of severe pre-eclampsia:** Among the maternal complications sample for record reviews, there were 50 records from Uganda and 69 from Kenya with the diagnosis of severe pre-eclampsia, with almost all also having documentation indicating the woman did meet the criteria for severe pre-eclampsia. Among these, 19% (Uganda) and 6% (Kenya) were referred out to another facility within four hours. Twenty-two percent (Uganda) and 38% (Kenya) of all severe pre-eclamptic diagnosed cases had been diagnosed by a provider who referred them to the survey facility. Among in-referrals diagnosed with severe pre-eclampsia, 58% (Uganda) and 46% (Kenyan) had referral notes indicating that they had received pre-referral treatment with MgSO<sub>4</sub>, with the referral notes indicating that 58% (Uganda) and 35% (Kenya) had received the full loading dose of MgSO<sub>4</sub>.

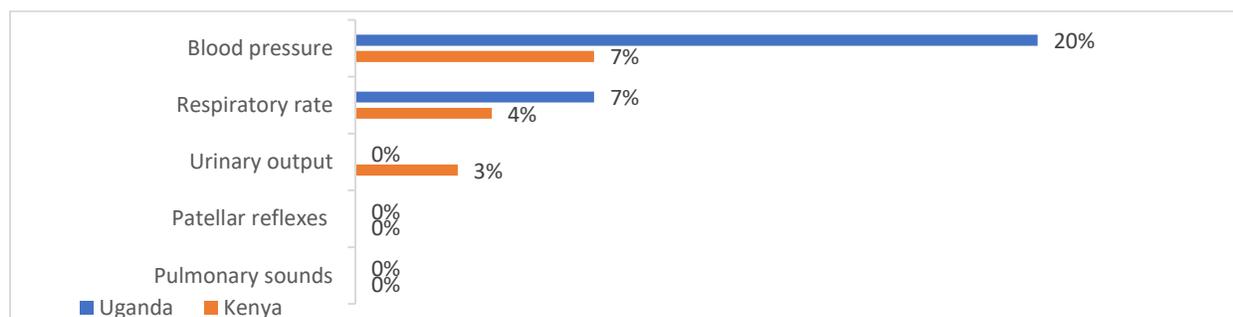
Among all women diagnosed with severe pre-eclampsia, 43% (Uganda) and 58% (Kenya) had a record of receiving MgSO<sub>4</sub> at least once in this facility, and 13% (Uganda) and 48% (Kenya) of receiving at least one maintenance dose in the facility. Only 5% (Uganda) and 42% (Kenya) of the severe pre-eclampsia cases had documentation of receiving MgSO<sub>4</sub> every four hours for at least 24 hours after delivery or seizure (whichever occurred the most recently) (Figure 55).

**Figure 55: Magnesium sulfate administration in the facility, for severe pre-eclamptic women (Ugandan=54, Kenya n=69) (maternal complications sample)**



Among the severe pre-eclampsia patients, routine monitoring was weak (**Figure 56**), and there was no documentation of respiratory rate and urine outputs to monitor MgSO<sub>4</sub> toxicity (respiratory rate <16 per minute and urine output <100 milliliters every four hours). Documentation of blood test results for severe pre-eclamptic cases was low, with liver enzymes documented for 4% (Uganda) and 23% (Kenya) of severe pre-eclamptic women. Coagulation results were documented for no Ugandan women and for 22% of Kenyan, and blood count values were documented for no Ugandan women but for 35% of Kenyan women. **Annex Table 64** provides further details on monitoring and management of severe pre-eclamptic cases.

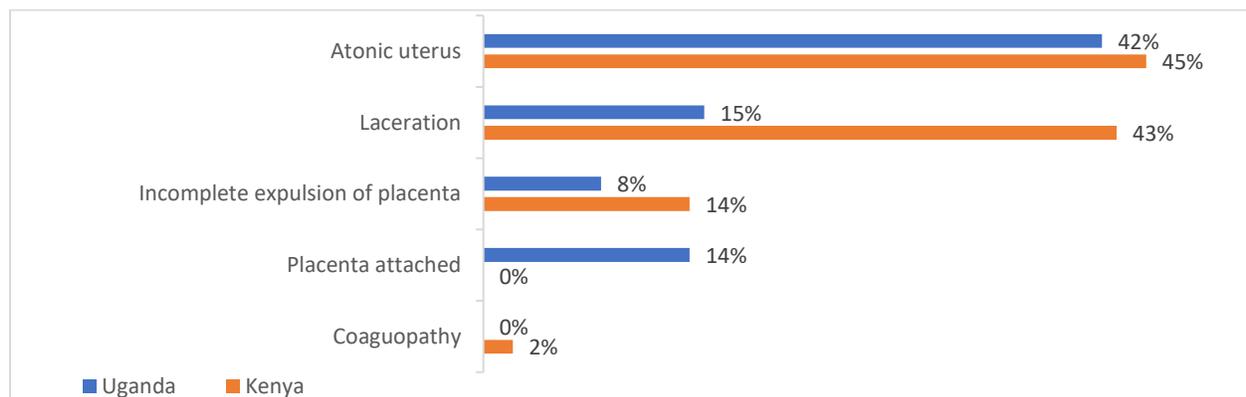
**Figure 56: Record review: Hourly monitoring of maternal condition for mothers with severe pre-eclampsia (Ugandan=54, Kenya n=69) (maternal complications sample)**



Among the 22% (Uganda) and 10% (Kenya) of women with **seizures** documented, few (1/3, Uganda, and 1/10, Kenya) had diazepam administration documented. Among the severe pre-eclamptic women with a **diastolic blood pressure >110** documented at least once, 92% of the Ugandan and all of the Kenyan women had the administration of an antihypertensive drug documented.

**PPH:** Among the maternal complications sample for record reviews, there were 78 from Uganda and 44 from Kenya with the diagnosis of PPH. The most commonly recorded associated cause of PPH was atonic uterus. Kenyan records had documentation of identified conditions associated with PPH for a higher proportion of women than Uganda (**Figure 57**).

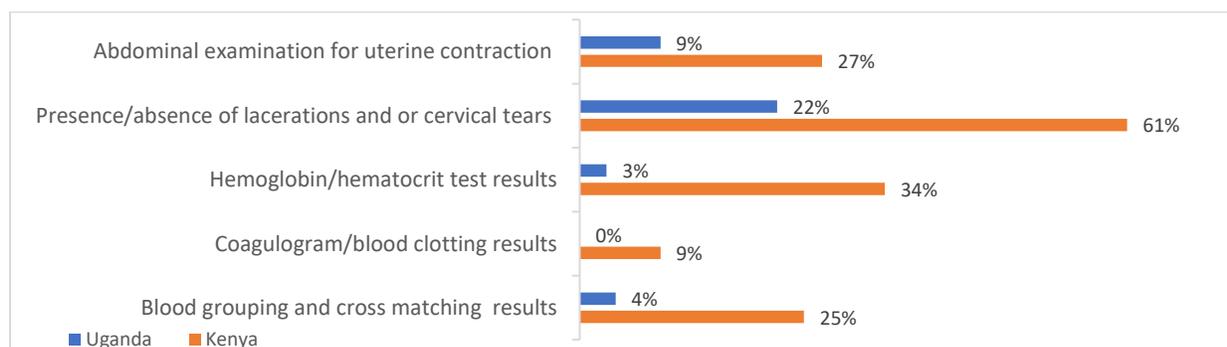
**Figure 57: Record review: Documentation of associated conditions for PPH (more than one condition may apply) (Uganda n=78, Kenya n=44) (maternal complications sample)**



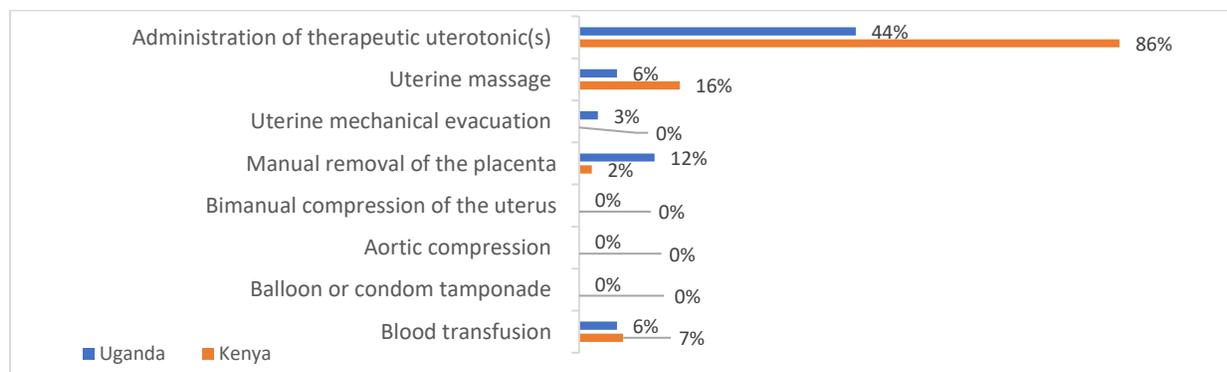
Kenya also had documentation for more of the examinations related to the identification of conditions that may contribute to PPH (**Figure 58**) and of interventions for management of PPH (**Figure 59**).

Administration of a therapeutic uterotonic, uterine massage, and blood transfusion were the most documented interventions for both countries. There was no documentation of bimanual compression of the uterus, aortic compression, or balloon or condom tamponade being used for PPH in either country.

**Figure 58: Examinations recorded that are related to the diagnosis and management of PPH (Uganda n=78, Kenya n=44) (maternal complications sample)**



**Figure 59: Interventions recorded for PPH (Uganda n=78, Kenya n=44) (maternal complications sample)**



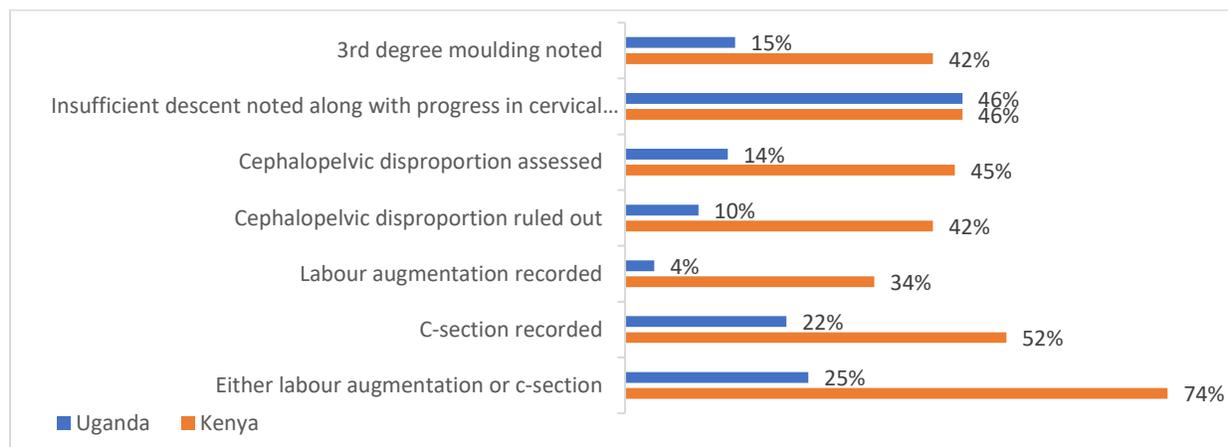
**Annex Table 65** provides further details on the assessment and management of PPH.

**Delayed/obstructed labor:** Among the maternal complications sample for record reviews, there were 125 cases from Uganda and 65 from Kenya with the diagnosis of obstructed labor.<sup>86</sup> Among these women, only 5% (Uganda) and 30% (Kenya) had a partograph with a fourth action line (the new WHO partograph has both a standard alert line plus an action line) observed. Among records where the action line was crossed, all Ugandan but only around 1/2 of the Kenyan records had the diagnosis of delayed/prolonged labor recorded. Among all records where delayed/prolonged labor was diagnosed, 37% of the Ugandan and 19% of the Kenyan diagnoses were accompanied by a partograph where the action line had been crossed.

It is important to note that current WHO recommendations (2018) suggest that minimum cervical dilatation rate of 1 cm/hour throughout active first stage is unrealistically fast for some women and slower than 1 cm/hour cervical dilatation rate alone should not be a routine indication for obstetric intervention, but these recommendations were not available at a time of the assessment (2016).

Among all records (with or without a partograph) where a diagnosis of delayed or obstructed labor was recorded, documentation of assessments related to the cause of the problem was available in around half of the Kenyan records and fewer of the Ugandan records. Administration of a labor-augmenting drug was recorded for 4% (Uganda) and 41% (Kenya) of the cases and C-section for 22% (Uganda) and 52% (Kenya) (**Figure 60**). In total, 25% of the Ugandan and 74% of the Kenyan women had one (or both) of these interventions documented. **Annex Table 65** provides further details on assessing and managing delayed/prolonged labor.

**Figure 60: Record review: documentation of assessments relevant to diagnosis of delayed/obstructed labor (Uganda n=125, Kenya n=65) (maternal complications sample)**



**Preterm birth:** It is recommended that ACS be provided from 24 weeks to 34 weeks of gestation to improve preterm birth outcomes when preterm birth is imminent, gestational age assessment can be accurately measured, there is no clinical evidence of maternal infection, and adequate childbirth and preterm newborn care is available (including resuscitation, thermal care, feeding support, infection treatment, and safe oxygen use). Although information on all of the above conditions of safe administration of ACS was not available, administration of ACS for prevention of adverse newborn outcomes was reviewed.

Among women with a gestational age below 37 weeks documented (30% Uganda and 44% Kenya), administration of an ACS was documented for 11% (Uganda) and 15% (Kenya) of women  $\leq$  34 weeks gestation. It was additionally documented for 19% (Uganda) and 17% (Kenya) of infants  $>34$  and  $<37$

<sup>86</sup> Cases where the partograph alert line was documented as passed were classified as delayed/obstructed labor even if this diagnosis was not recorded.

weeks gestation. Ugandan records noted that dexamethasone was the ACS used for 43% of the ACS cases, with the specific drug not recorded for the remaining records.<sup>87</sup> In Kenya, dexamethasone was used the most (93%) with the remaining cases receiving betamethasone.

Preventive antibiotics for C-sections were recorded for 40% of Ugandan C-sections, but 98% of Kenyan C-sections. All six cases with signs of maternal infection or chorioamnionitis recorded for Uganda were provided antibiotics, but only 80% of the 16 Kenyan cases had documentation of antibiotics.

### **Key findings for record reviews of selected maternal conditions and complications**

#### **Strengths**

- Kenyan records had a more complete recording of examinations and monitoring for these complicated cases.
- Documentation of therapeutic oxytocin being provided for PPH was almost universal in Kenya. Administration of MgSO<sub>4</sub> (pre-referral or loading dose) was also strong in both countries.
- Use of antihypertensive medicines for pre-eclamptic women with diastolic blood pressure >110 mmHg was near-universal in both countries
- Preventive antibiotics for C-sections were provided for 98% of Kenyan cases.

#### **Weaknesses**

- Partographs were not routinely used for monitoring of labor and delivery in Uganda. Even when a partograph was observed, routine monitoring of the labor progression and maternal and fetal conditions was less than 20% for the most functions in Uganda and less than 50% in Kenya.
- Monitoring and management of severe pre-eclampsia were weak. The weakness was particularly critical for monitoring vital signs, urine output, and laboratory test assessment of vital organ functions.
- For cases with severe pre-eclampsia, continuous administration of MgSO<sub>4</sub> every four hours for at least 24 hours was weak, particularly in Uganda.
- Only 1/3 of women with seizures received Diazepam in both countries.
- Use of a therapeutic uterotonic was the most frequent intervention for women with PPH, with almost total absence of therapeutic interventions (e.g., balloon tamponade, bimanual compression of uterus, aortic compression); Interventions to reduce bleeding other than a uterotonic for PPH were not used, although 6%-7% of PPH cases required blood transfusion.
- Documentation of hemoglobin and blood cross-matching was low for both countries, although higher for Kenyan women.
- Documentation of estimated blood loss during delivery was low
- Assessment of potential contributing factors for delayed/obstructed delivery was not consistently documented, and augmentation of labor was documented only for 4% and 41% of cases of delayed/obstructed labor in Uganda and Kenya, respectively.
- Low percentages of potentially eligible women with premature labor were provided ACS, and the provision did not consistently follow gestational age guidelines.
- Preventive antibiotics for C-sections were documented for only 40% of Ugandan women.

### **Findings from record review of sample for newborn complications**

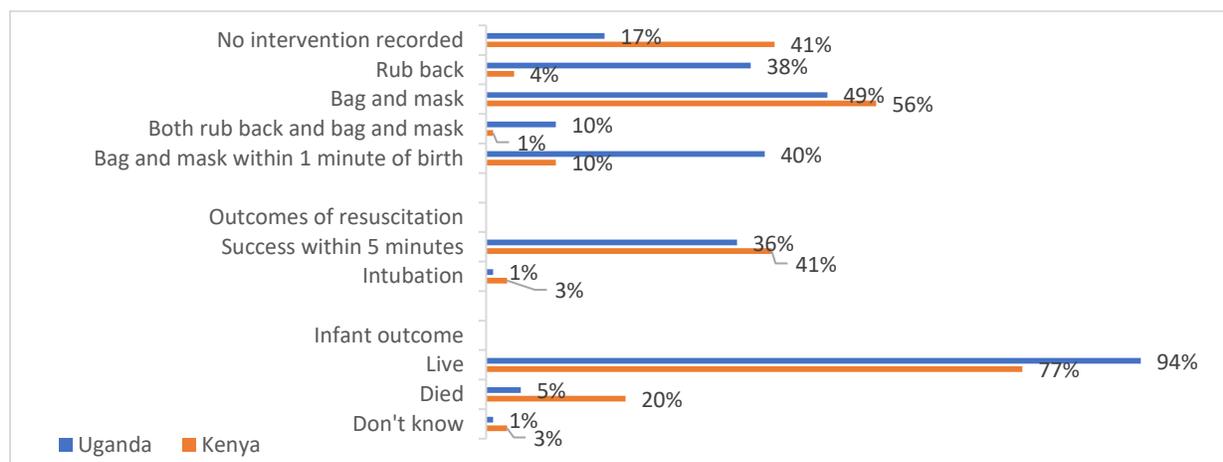
**Sample:** Records of 240 (Uganda) and 183 (Kenya) infants were selected to assess the care provided for specific newborn complications. The eligibility criteria for this sample included any diagnosis of asphyxia and very low birth weight. Most of the infants for both samples were born in the facility. One percent of the Ugandan and 7% of the Kenyan infants were received through referral. Ten percent of the Ugandan but 52% of the Kenyan infants were referred for care to a higher-level unit in the facility, and 9% of the

<sup>87</sup> Betamethasone is not available /used in Uganda so these were likely dexamethasone.

Ugandan and 5% of the Kenyan infants referred to another facility for higher-level care. Comparatively, a higher proportion of the infants in the Kenyan sample were less than 34 weeks of gestation. **Annex Table 56** provides further details on the complicated newborn delivery sample.

**Asphyxia:** Among the infant complications sample records reviewed, 83 Ugandan and 70 Kenyan were for infants diagnosed with asphyxia.<sup>88</sup> Among these, the bag and mask were used for resuscitation for 49% (Uganda) and 56% (Kenya) of the infants, with the record indicating the bag and mask resuscitation as started within one minute of birth for most of the Ugandan infants. Rubbing the back was also documented for an additional 28% of infants in Uganda and 3% in Kenya. Among all infants with newborn asphyxiation diagnosed, 94% (Uganda) and 77% (Kenya) resulted in a live infant (**Figure 61**). **Annex Table 68** provides further details on management of asphyxia.

**Figure 61: Record review interventions and outcomes for newborn asphyxia (newborn complications sample) (Uganda n=83, Kenya n=70)**



**Very low birth weight infant:** Among the select sample infants, those with a birth weight  $\leq 2000$  grams<sup>89</sup> (70% Uganda, 56% Kenya), had differences in the illness of the infants and the level of care provided in the facility. Most Ugandan facilities were health centers, and most Kenyan were hospitals. Most of the very low birth weight infants from Uganda (70%) were classified as stable at birth, whereas for Kenya only 21% were classified as stable. Seven percent of Ugandan infants and 16% of Kenyan were referred to a higher-level facility, and 11% of Ugandan, but 60% of Kenyan were referred to a higher-level unit in this facility. This is in line with documentation that the infant received care in an incubator/radiant warmer (3%, Uganda, and 65%, Kenya). Most of the unstable infants (80%, Uganda, and 86% Kenya) received incubator/radiant warmer care.

Neither country had documentation of kangaroo mother care in high percentages for these very low birth weight infants, but where it was documented, it was stronger in Ugandan facilities where 42% of the stable and 26% of the unstable infants were documented receiving KMC, with almost all receiving KMC throughout their stay. For Kenya, 5% of the unstable infants are documented as receiving KMC, with almost all receiving it throughout their stay.

**Annex Table 69** provides further details on management of very low birth weight infants.

**Premature infants:** Among the select sample infants, 45% (Uganda) and 74% (Kenya) had gestational ages of  $<37$  weeks documented. Among these, 26% (Uganda) and 63% (Kenya) were very premature,

<sup>88</sup> Where there were inconsistencies in the database for whether asphyxia was recorded or not, the response immediately prior to collecting information about asphyxia interventions was accepted as the most accurate.

<sup>89</sup> Where there were inconsistencies in the database for birth weight, either a recorded weight  $\leq 2000$  grams or the recording that the infant was  $\leq 2000$  grams prior to collecting information on KMC was accepted.

with gestational ages  $\geq 24$  weeks and  $< 34$  weeks, and 70% (Uganda) and 35% (Kenya) with gestational ages  $\geq 34$  -37 weeks. Antenatal corticosteroids were not used for most cases—none of the Ugandan and only three of the Kenyan infants (two with gestational age  $\geq 24$  weeks and  $< 34$  weeks, and one with gestational age  $\geq 34$  -37 weeks) were provided ACS.

WHO recommends CPAP for premature infants with respiratory distress syndrome (RDS). Uganda recorded CPAP provision for 35% of their 17 premature infants with RDS—all infants with gestational ages of  $\geq 24$  weeks and  $< 34$  weeks—and only used surfactant for one case (age  $\geq 34$  -37 weeks without RDS documented). Kenya did not record CPAP but provided surfactant to three infants; one was not premature and not classified with RDS, one was  $< 34$  weeks without RDS documented, and one was  $< 34$  weeks with RDS documented. The facility-level resources showed that oxygen was available in 6 of 11 and CPAP in 5 of 11 Kenyan<sup>90</sup> facilities. **Annex Table 70** provides further details on management of premature infants.

**Infants with/at risk for sepsis/severe infection:** Among the 19% (Uganda) and 28% (Kenya) of infants in the select sample who were at risk or with symptoms of infection documented, the most common conditions were poor feeding (73% Uganda and 17% Kenya), rapid respiratory rate ( $\geq 60$  breaths per minute) (93% Uganda and 33% Kenya), severe chest in-drawing (76% Uganda and 25% Kenya), and fever ( $\geq 38$  °C or higher) (20%, Uganda, and 58%, Kenya). Antibiotics were recorded for 42% (Uganda) and 96% (Kenya) of infants with conditions warranting antibiotics, with ampicillin and gentamicin the most commonly provided antibiotics in both countries. **Annex Table 71** provides further details on the symptoms and antibiotic prescriptions. It should be noted that among infants without documented symptoms for risk, 4% of Ugandan but 30% of Kenyan infants had antibiotics prescribed; however, determining whether these were warranted (e.g., there was another condition such as a less severe infection) would require further investigation.

#### **Key findings for record reviews of selected infant conditions and complications**

Kenyan infants were documented as more severely ill than Ugandan infants in this sample.

##### **Strengths**

- Kenya was able to provide care for these sick infants in high-level infant care units and used incubator/radiant warmer for most very small infants.
- Kenya used EB treatment for infants with conditions warranting antibiotics for 96% of infants.

##### **Weaknesses**

- Uganda used KMC at low levels for very small infants and yet did not use incubator/radiant warmer to maintain thermal protection.
- Both countries showed weak practices in care for premature infants.
- Both countries had low percent use of the bag and mask for infants with asphyxia.

## **4. Observation of intrapartum and immediate postpartum care services**

### **Sample**

Observation on intrapartum and immediate postpartum care were conducted in the facilities where these services were provided at a time of the assessment. Additional efforts were made (whenever possible) to visit the facility when intrapartum care was provided to complete the observation. Consequently, the observations of women in Kenya occurred in one referral hospital (n=16) and one other hospital (n=5). Observations in Uganda occurred in 10 facilities, with at least 2 observations from each facility (**Table 14**). When possible, the same women were observed throughout all stages of the labor, delivery, and

<sup>90</sup> Data on oxygen was not collected in the major referral hospital but it was assumed that they do have oxygen.

postpartum period, but for most cases, the observations were made based on the stages of labor or delivery that were ongoing or started during the day/time of the facility assessment. This was the second or more pregnancy for 48% of the Ugandan and 100% of the Kenyan women. Information was collected through direct observation and review of documents where the provider recorded information over the course of the admission. Details on the sample and different documents the provider wrote in/referred to during the delivery process are described in **Annex Table 72**.

**Table 14: Number of women observed during each stage of labor, delivery, and postpartum period**

	Admission	First stages of labor	Delivery	Partograph review	Total different women observed at any time
Uganda	42	43	32	26	59
Kenya	8	14	14	19	21

**Admission history assessment:** Among the women whose admission care was observed, a respectful greeting and introduction of the provider to the client was observed for 98% and 81% (Uganda) and 88% and 63% (Kenya). The Ugandan providers were observed in practice to be more consistent in encouraging the presence of a companion for labor and delivery (76%) compared with Kenyan providers (25%), and in practice around 90% of Ugandan and 8-14% of Kenyan women were observed accompanied by a companion at different points in the delivery process.

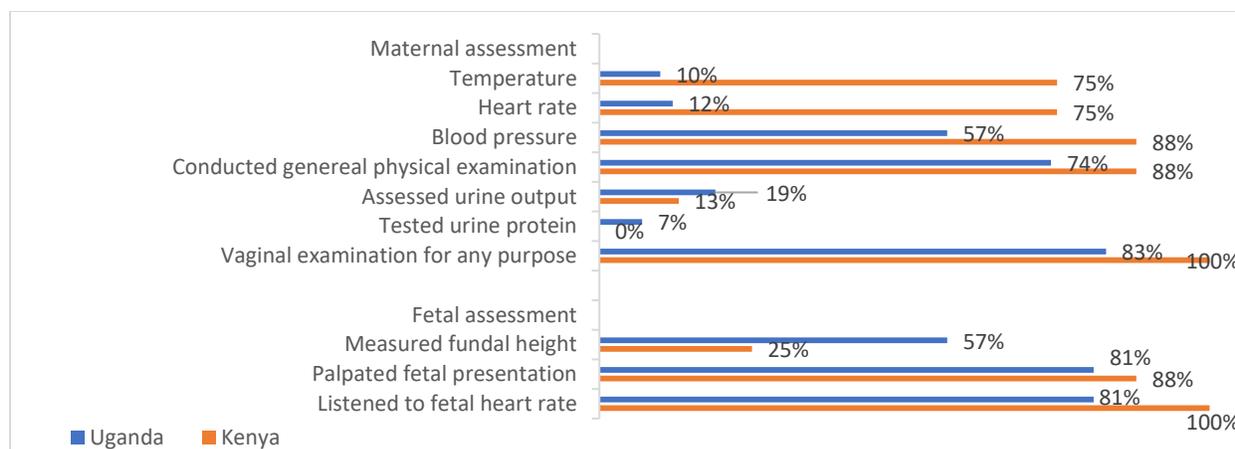
**Health and pregnancy history:** Key information (age, length of pregnancy, parity) for this pregnancy was assessed for almost all women (93% Uganda and 88% Kenya) and HIV status was assessed for 88% of the observed admissions for both countries. Except for vaginal bleeding (assessed for 21%), specific complications the woman had experienced during this pregnancy were assessed for 5% or fewer Ugandan women. Kenyan providers were more consistent in asking about complications experienced during this pregnancy, with the most common assessments for a history of fever (63%), foul discharge (38%), and vaginal bleeding (75%). Among those with prior pregnancies, 60% of Ugandan and all Kenyan clients were asked generally about any complications during prior pregnancies. Over half of the Ugandan women were specifically asked about prior C-section and abortion, and over half of the Kenyan women about high blood pressure, hemorrhage, stillbirth, and abortion.

A review of labor and delivery records **maintained for the observed women during the delivery process** showed that the age, gestational age, gravida, and parity were recorded for 73% (Uganda) and 100% (Kenya) of the women. The presence of any complications during this pregnancy was documented for 68% of Ugandan and all Kenyan women. Sixty-four percent of Ugandan and 95% of Kenyan women had any documentation related to complications for a prior pregnancy. Documentation of screening for risk or preventative interventions was low for Ugandan women, where syphilis test results were documented for 2%, hemoglobin (5%), tetanus immunization status (47%), and HIV status (69%). These essential interventions were almost universally recorded in charts in Kenya (except a syphilis test result, which was recorded in 76% of charts). **Annex Table 73** provides details on patient history that were observed or identified in records during the admission process.

**Admission physical examination:** Overall, Kenyan providers were observed to perform more of the initial assessments recommended for women in labor (**Figure 62**). Checking urine protein, and measuring the woman's temperature, pulse, and the fundal height were some of the weakest elements for the admission physical examination.

On average, 40% of the Ugandan women, but 93% of the Kenyan, had documentation of at least one reading for each of 12<sup>91</sup> assessment results. **Annex Table 73** provides details on the information that was observed or identified in records during the admission for the observed women.

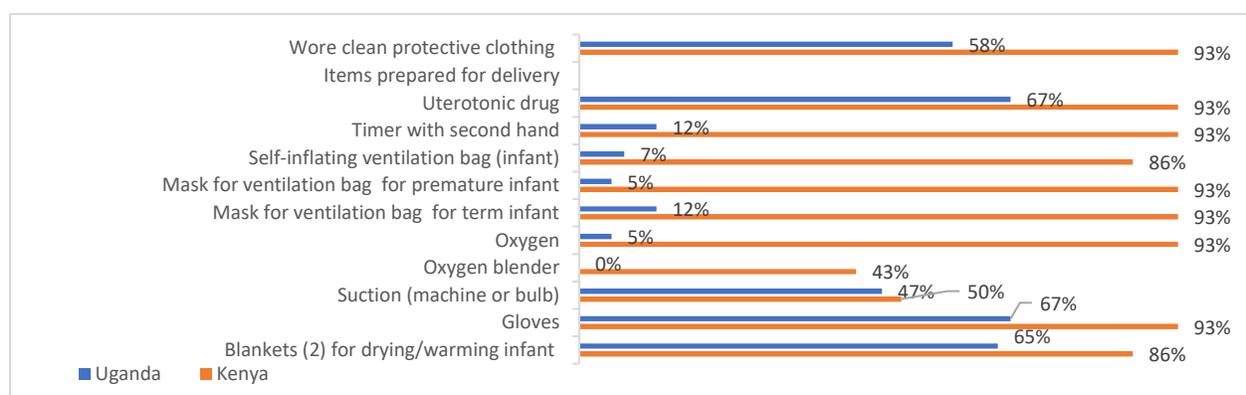
**Figure 62: Observed admission assessments for women in labor (Uganda n=42, Kenya n=8)**



Observation on preparation for delivery demonstrated that Kenyan providers were better prepared for delivery than Ugandan care providers, including equipment and oxygen for resuscitation (**Figure 63**). The last result may be explained by the facility sample where the observations were conducted (hospitals in Kenya vs mostly health centers in Uganda).

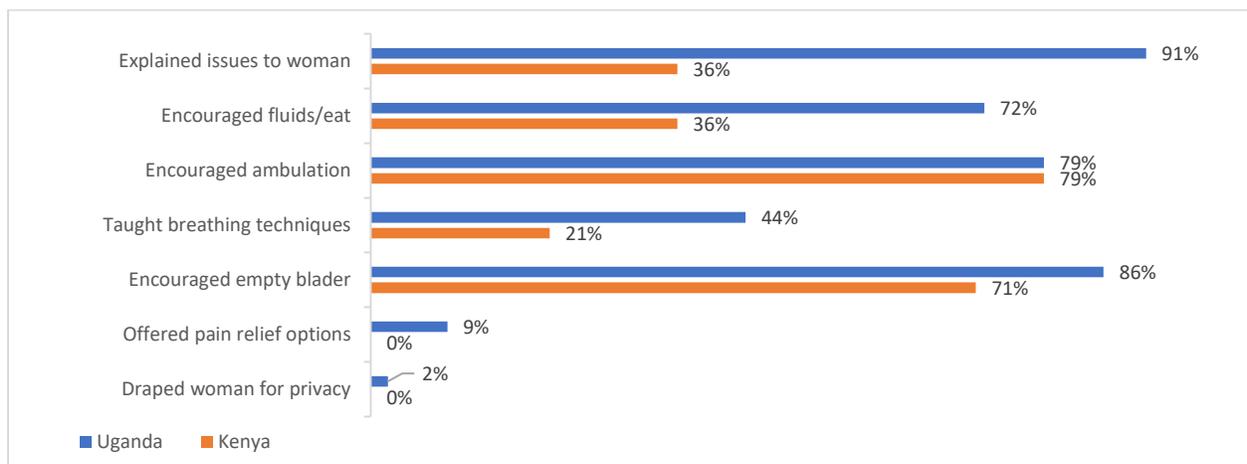
**Practices observed during labor:** Among the women whose first-stage labor was observed, providers were attentive to comfort and dignity, with Ugandan providers observed more frequently to provide interventions to improve comfort and dignity. The least observed elements for both countries were offering of pain relief, teaching breathing techniques, and draping the woman for privacy (**Figure 64**). **Annex Table 74** provides further details on supportive care provided for women in labor.

**Figure 63: Observed provider preparation for delivery (Uganda n=43, Kenya n=14)**



<sup>91</sup> Syphilis test result, hemoglobin result, tetanus toxoid status, HIV status, maternal blood pressure, temperature, heart rate, FHT, cervical dilation, contractions, fetal lie, fetal presentation.

**Figure 64: Observed patient-centered practices during first-stage of labor (Uganda n=43, Kenya n=14)**



### Key findings for observed admission practices for delivery patients

#### Strengths

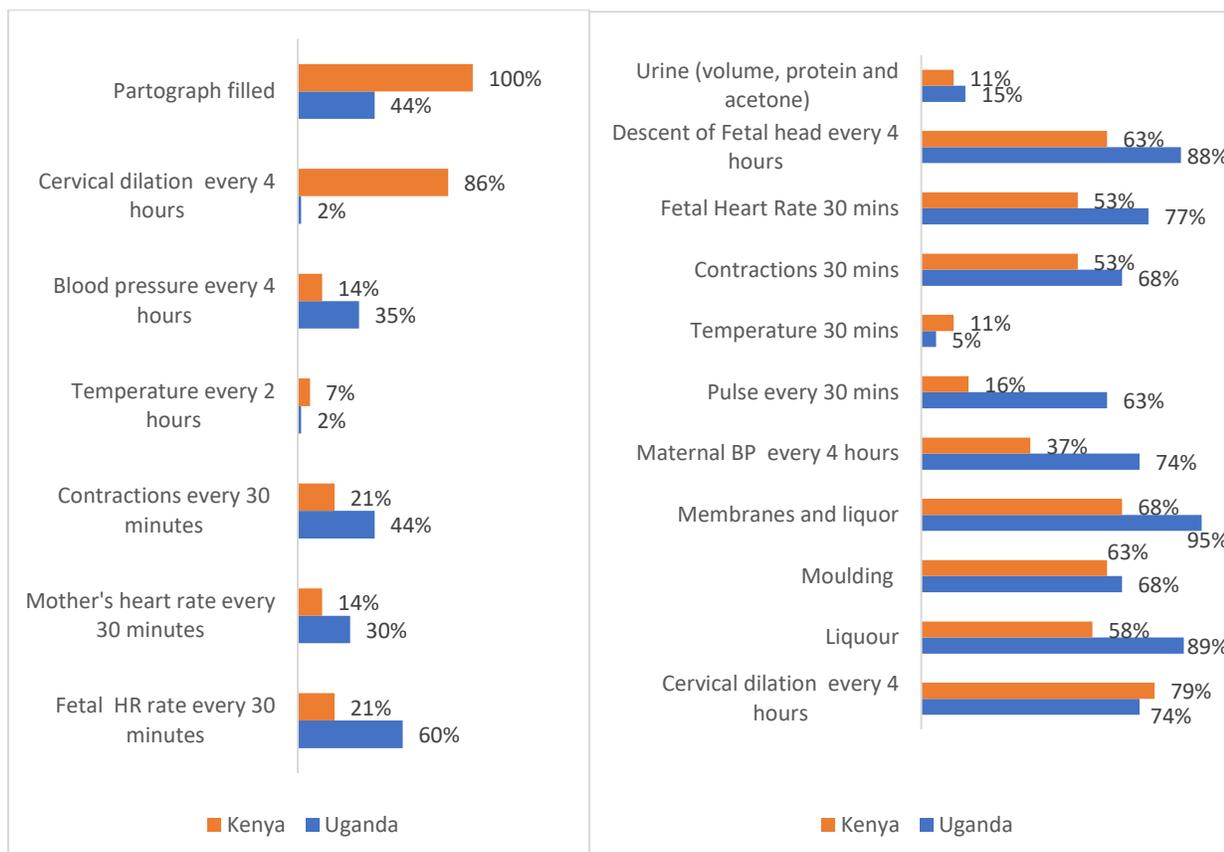
- Providers from both countries were observed to be respectful of their patients.
- Basic pregnancy history (age, gestational age, gravida, and parity) were widely assessed/documentated.
- A large percentage of Kenyan women had essential ANC laboratory diagnostic results documentated.
- Ugandan providers encouraged most delivery patients to have a companion throughout the L&D process and were more consistent in explaining issues and offering comfort measures.
- Few of the practices that WHO recommends not be done, including those that are not comfortable for patients (enemas, perineal shaving), or that might be harmful, were observed.

#### Weaknesses

- Assessment of complications from prior pregnancies or during this pregnancy was weak, with patients asked a general question rather than about specific complications.
- Ugandan women rarely had ANC laboratory diagnostic results.
- Checking urine protein and measuring the woman's temperature, pulse, and the fundal height were some of the weakest elements for both countries for the admission physical examination.
- Weaknesses in client-centered practices included not offering pain relief, not teaching breathing techniques, and not draping the woman for privacy.

**Monitoring labor:** Routine monitoring of signs and symptoms during the first stage of labor at the frequencies recommended as best practices were not observed except for cervical dilation in Kenya (86%) and fetal heart rate monitoring in Uganda (60%). During the first stage of labor contractions were checked every 30 minutes for 44% of Ugandan and 21% of Kenyan women and blood pressure measured at least every four hours for 35% of Ugandan and 14% of Kenyan women (**Figure 65**). The most deficient practices for both countries during this time were monitoring of uterine contractions,

temperature and blood pressure (and cervical dilation for Uganda). **Annex Table 75** provides further details on the observations during the first stage of labor.



**Monitoring of labor on partographs:** Documentation on a partograph was explored for the women who were observed during labor. Among women observed at the 1st stage of labor, a partograph was used for 44% (Uganda) and 100% (Kenya). While the partograph was used twice as frequently in Kenya, it was substantially better completed in Uganda, with temperature and urine output as the least frequently documented practices (less than 15%) in both countries (**Figure 66**).

It is important to mention that routine monitoring practices at the first stage of labor recorded on the partograph were substantially higher (particularly in Uganda) than the observed practices in the same sample (**Figure 66** and **Table 15**). For example, among 14 Ugandan and six Kenyan women with documented maternal blood pressure, only seven Ugandan (50%) and one (17%) Kenyan woman had this practice confirmed by observation (**Table 15**). The differences between what was observed and what was documented need further investigation, to identify whether the recording was incorrect, or whether the observation missed some activities (less likely to be true). The largest difference noted was in checking cervical dilation and temperature assessment in Uganda and maternal BP assessment in both countries. **Annex Table 75** provides further details on observed monitoring practices, and **Annex Table 77** further details on partograph documentation and differences among documented versus observed practice.

**Table 15: Observed measurement during the 1st stage of labor among women whose partograph indicated the same practice**

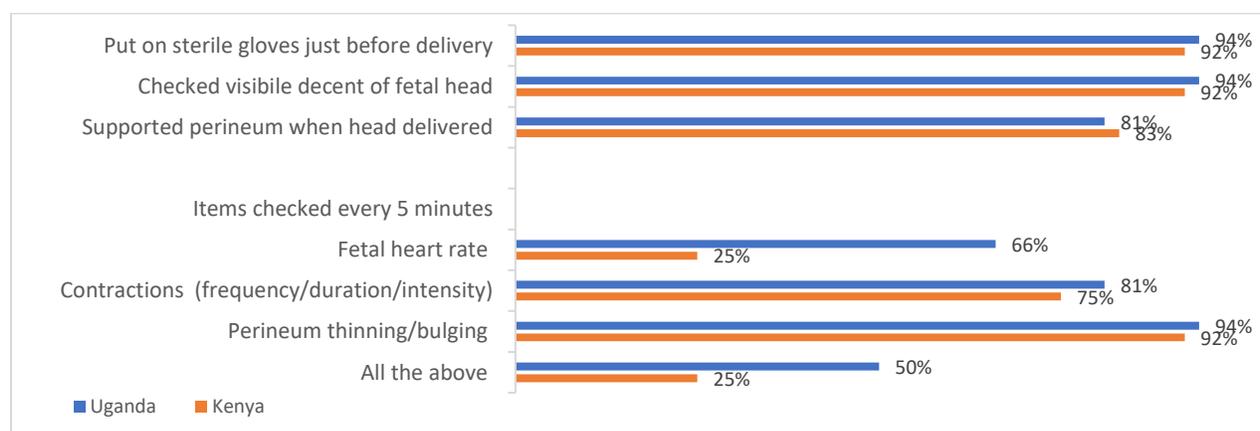
Practice	Uganda	Kenya
Cervical dilation assessment observed (if partograph indicated as done)	0% (0/14)	82% (9/11)
Maternal BP assessment observed (if partograph indicated as done)	50% (7/14)	17% (1/6)
Pulse assessment observed (if partograph indicated as done)	42% (5/12)	100% (2/2)
Temperature assessment observed (if partograph indicated as done)	0% (0/1)	100% (1/1)
Fetal heart rate assessment observed (if partograph indicated as done)	79% (11/14)	50% (3/6)

**Monitoring during second and third stage labor:** Monitoring during the second and third stages of labor was more consistent than that performed during the first stage, with practices to monitor the head descent and protect the perineum observed (**Figure 67**). The least observed action was monitoring fetal heart rate, particularly in Kenya (only 25% of observed deliveries).

**Annex Table 76** provides further details on observed actions and patient monitoring during the second and third stages of labor.

**Delayed/obstructed labor:** Among the observed women for whom a partograph was used, only three Ugandan women were observed to have passed the partograph alert line for delayed/obstructed labor. Actions taken were to encourage them to walk and to alert emergency transportation (1 of 3), ask them to empty the bladder and continue to hydrate but omit solid food (2 of 3). The action line was reached by two of these women at which time a specialist was consulted and preparation made for a C-section (see **Annex Table 77**).

**Figure 67: Observed provider actions and patient monitoring for 2<sup>nd</sup> and 3<sup>rd</sup> stage labor (Uganda n=32, Kenya n=12)**



**Key findings for observed practices during labor and delivery**

**Strengths**

- Kenyan providers showed more consistency than Ugandan in the assessment and monitoring of the delivery patient and the fetus.
- Partograph use for the observed Kenyan women was universal.

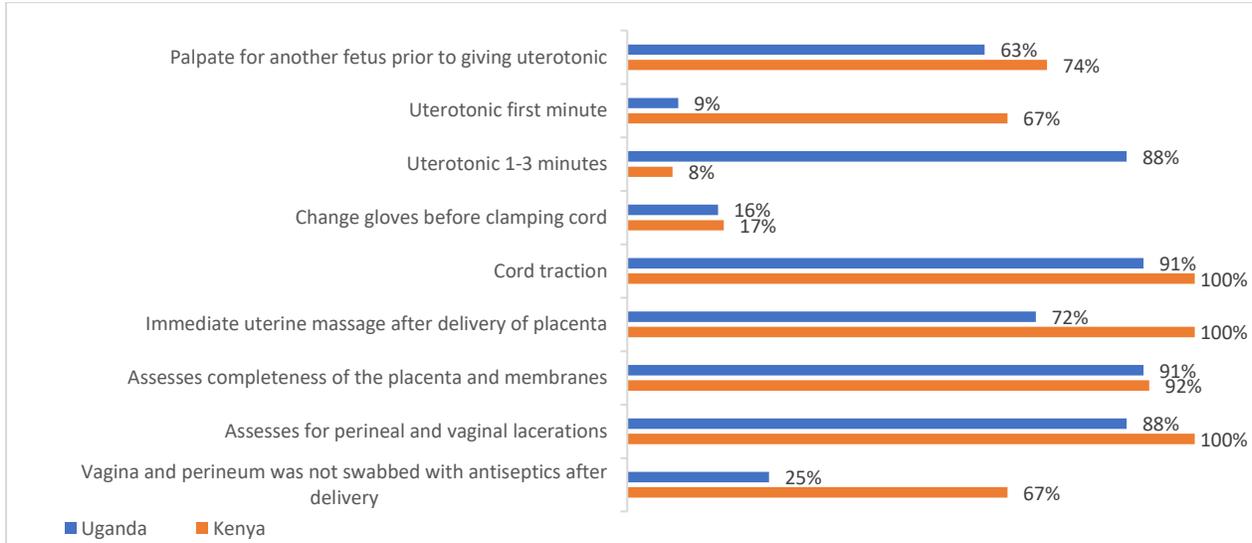
- Overall, monitoring during the second stage of labor was stronger than during the first stage.
- Changing gloves between procedures (except for prior to clamping the cord) was widely observed.

### Weaknesses

- Routine monitoring of signs and symptoms during the first stage of labor at the frequencies recommended as best practices were not observed except for cervical dilation in Kenya (86%) and fetal heart rate monitoring in Uganda (60%).
- Partograph use in Uganda was low, and there were large discrepancies in the picture of monitoring practices that were observed compared with what was recorded in both countries. The reasons for the differences need to be further explored.
- Routine monitoring during labor, delivery, and postpartum was weak for both countries.
- Monitoring of fetal heart rate during the 2<sup>nd</sup> and 3<sup>rd</sup> stage of labor was weak in both countries, but more so in Kenya.

**Immediate postpartum actions:** Immediate postpartum actions to assess and prevent complications that were observed included steps to prevent infection and PPH. There were country differences in practices, with administering a postpartum uterotonic within the first minute postpartum (the best practice recommendation) more often observed in Kenya and within the first 1-3 minutes in Uganda. Almost all postpartum women (78% Uganda and 83% Kenya) received the uterotonic intramuscularly. Providers from both countries applied cord traction with suprapubic counter traction and immediately massaged the uterus after delivery for most deliveries (**Figure 68**). Less than 1/5 of the providers changed their gloves before clamping the umbilical cord, a recommended practice.

**Figure 68: Observed practices during the immediate postpartum period (Uganda n=32, Kenya n=12)**



Additionally, among the observations, there were two justified episiotomies (to reduce obstruction), and nine tears (six of which were third or fourth degree) for Uganda and three tears for Kenyan women. Four (36%) of these for Uganda and all for Kenya were repaired using a local anesthetic. None of the Ugandan women with third or fourth degree tears were given an antibiotic to prevent peripartum infections. Conversely, swabbing vagina and perineum with antiseptic, which is not recommended practice for prevention of peripartum infections by WHO,<sup>92</sup> was widely applied in Uganda (75%) and less frequently in

<sup>92</sup> <https://www.ncbi.nlm.nih.gov/books/NBK327075/>

Kenya (33%) (**Figure 68**). Bladder catheterization because of inability to urinate postpartum was performed on 13% (Uganda) and 17% (Kenya) of all observed women. **Annex Table 76** provides further details on immediate postpartum care.

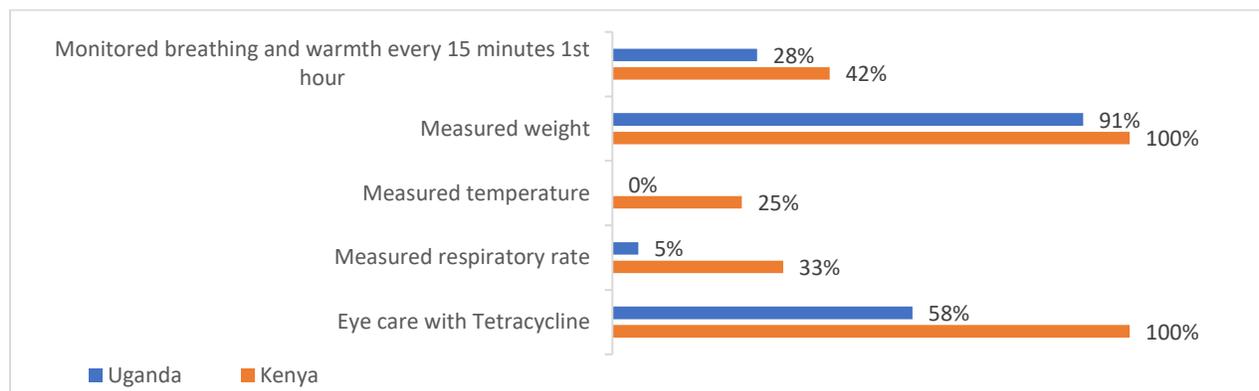
**Postpartum care for newborn and mother:** Assessed essential newborn care practices were immediately drying the newborn, skin-to-skin contact, and initiation of the breastfeeding within the first hour. Continued skin-to-skin contact was less observed, particularly in Kenya (33%). In parallel, routine suctioning of airways, when amniotic fluids are clear (not a recommended practice by WHO) was observed in 58% of newborns in Uganda and 17% in Kenya (**Table 16**). WHO recommends keeping the umbilical cord clean and dry for facility deliveries, without using a topical preparation. Kenyan providers were observed applying chlorhexidine to the cord, which is no longer recommended.

**Table 16: Observed immediate postpartum newborn care**

	Uganda (n=59)	Kenya (n=21)
Immediately and thoroughly dried baby with a towel after breathing assessed	81%	100%
Discarded wet towel and covered infant with a dry towel	79%	83%
Suctioned airways when amniotic fluids were clear	58%	17%
Immediately placed the newborn on the mother's abdomen "skin to skin"	84%	75%
Continued skin-to-skin with mother during the 1st hour (with the body and head covered)	65%	33%
Assisted the mother to initiate breastfeeding within the first hour.	81%	75%
Monitored baby every 15 minutes in the first hour for chest indrawing, fast breathing, warmth	28%	42%
Weighed the infant	91%	100%
Measured infant temperature	0%	25%
Measured infant respiratory rate	5%	33%
Provided infant eye care with Tetracycline	58%	100%
Provided cord care with Chlorhexidine	0%	25%
Administered Vitamin K	2%	0%

Assessment of the newborn and monitoring of the mother and infant for danger signs during the first hour after birth was inconsistent, although practices were performed more regularly for observed Kenyan deliveries than Ugandan (**Figure 69**). The measurement of newborn weight and eye care was universal in Kenya and stronger in Uganda compared to other essential assessment practices (91% and 58%, respectively). The least performed activities were monitoring of breathing and warmth every 15 minutes during the first hour postpartum and, in fact, any measurement of the temperature or respiratory rate during the immediate postpartum period.

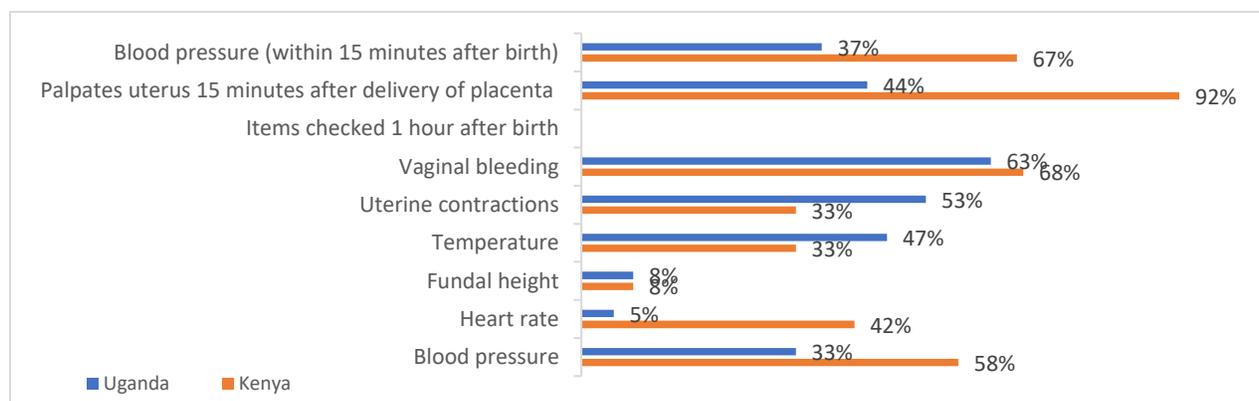
**Figure 69: Observed monitoring of the newborn in the immediate postpartum period (Uganda n=43, Kenya n=12)**



Maternal monitoring was also weak with most monitoring observations occurring for less than 50% of the women in either country. Postpartum vaginal bleeding was the most commonly monitored item, while fundal height and heart rate monitoring were the least performed practices in both countries (**Figure 70**). **Annex Table 78** provides further details on immediate postpartum care and monitoring.

It is noteworthy to mention that documentation of essential practices during the postpartum period varied within 50% - 65% range in both countries. This included documentation of uterotonic (while its administration was universally observed in both countries), blood loss, delivery method, and birth time (see **Annex Table 72**).

**Figure 70: Observed maternal monitoring in the immediate postpartum period (Uganda n=43, Kenya n=12)**



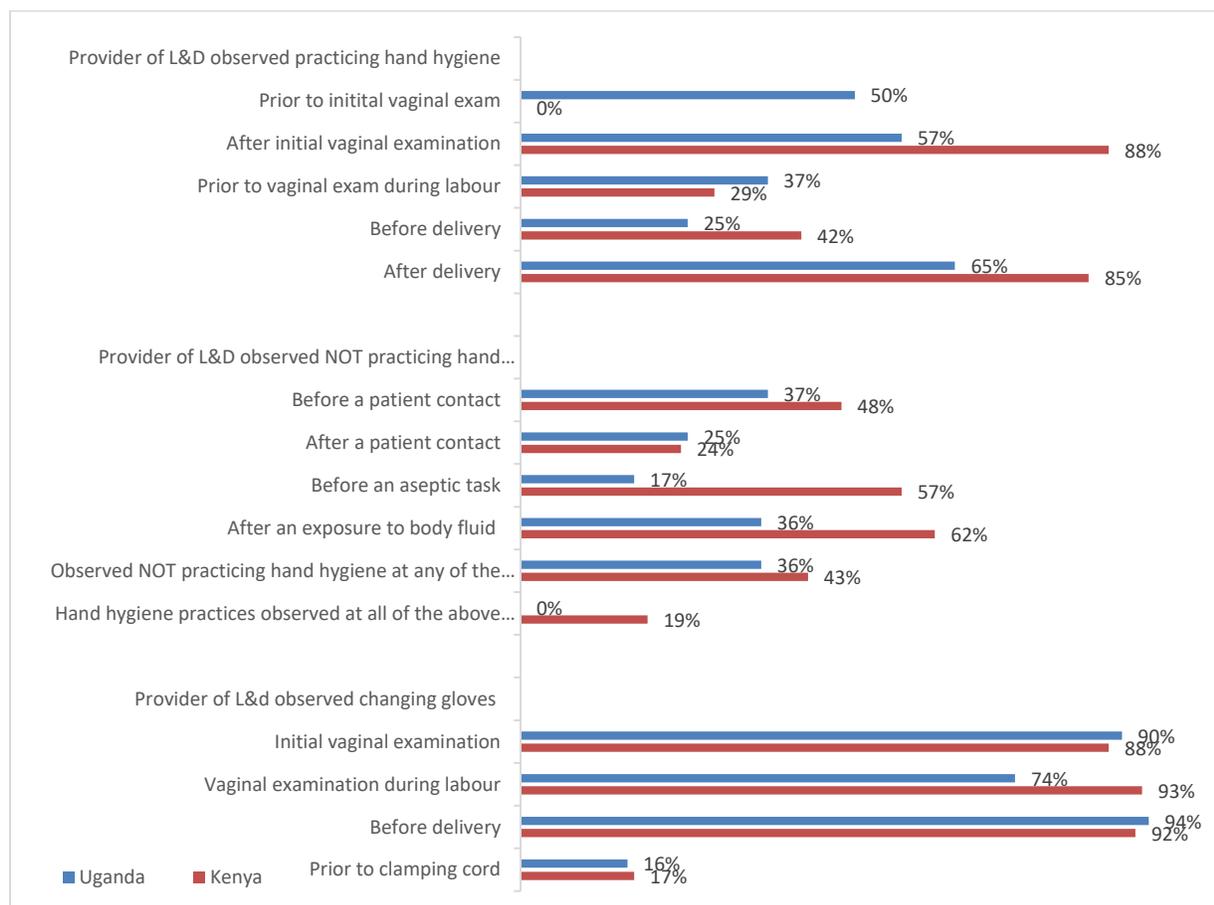
**Unnecessary or harmful practices:** While practices that are not recommended (such as enemas, shaving pubic hair) or harmful were rarely observed for an individual case, others that are not recommended (routine suctioning of airways and swabbing vagina or perineum with antiseptics after delivery) were observed, particularly in Uganda. At least one unnecessary or harmful practice was observed for 78% of the observed women in Uganda and 29% in Kenya. In addition, abusive behavior was noted for 3%-5% of the observed deliveries in each country. **Annex Table 79** provides details on the non-recommended practices observed.

**Hygiene and infection prevention:** Infection prevention is a major focus for quality maternity care. Hand hygiene (washing the hands with soap and water or using alcohol-based handrub) and changing gloves at recommended times during labor and delivery were not consistently observed (**Figure 71**), and providers did not identify handwashing as the single best infection prevention practice. Hand hygiene

(washing with soap and water or using alcohol-based handrub) was not practiced at key times prior to putting on gloves for a procedure but rather, was more commonly performed after the procedure and removal of gloves. Specific times when hand hygiene was most commonly practiced were after the initial vaginal examination, and after the delivery (**Figure 71**). During the observations of L&D service providers, 36% (Uganda) and 43% (Kenya) were observed not practicing hand hygiene at least once when observed at any of the 5 moments defined by WHO as times hand hygiene should be practiced,<sup>93</sup> with none of the Ugandan providers and 19% of the Kenyan providers observed using hand hygiene practices at all relevant times when observed providing labor and delivery services. Almost all L&D providers (over 90% in each country) were observed changing sterile or HLD gloves at initial examinations and before delivery, but only 16% (Uganda) and 17% (Kenya) changed their gloves prior to cutting the umbilical cord. Hand hygiene points with soap and water or hand disinfectant were observed available in the delivery room for all Ugandan facilities and observed in 80% of the Kenyan facilities (**Figure 71**).<sup>94,95</sup>

Post-delivery disinfection practices were widely practiced in both countries (**Figure 72**). Wiping the apron after delivery was the weakest item for both countries. This practice may not be applicable to all deliveries if a clean cloth gown is used for each delivery.

**Figure 71: Observed infection prevention practices during labor through delivery (Uganda n=59, Kenya n=21)**

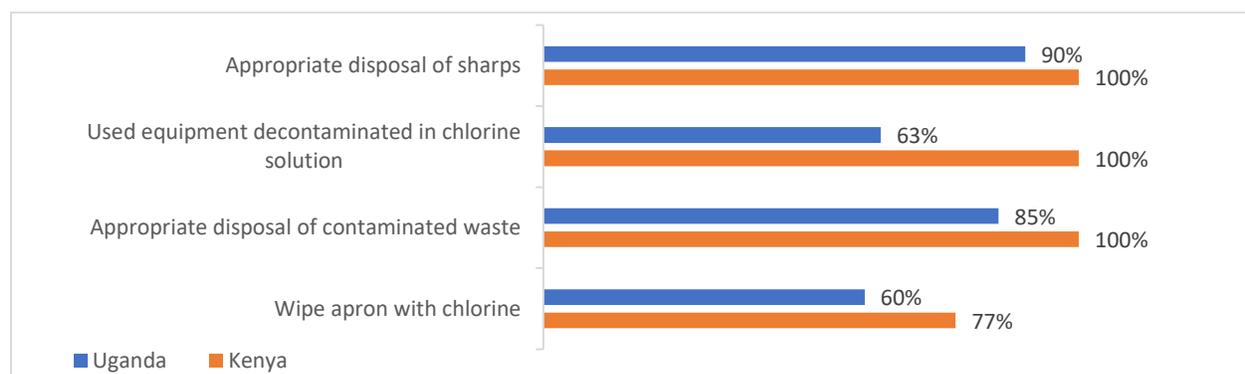


<sup>93</sup> Five moments defined by WHO for hand hygiene are before and after each patient contact, before any aseptic task, and after exposure to body fluids.

<sup>94</sup> One referral hospital with delivery services in Kenya did not have the facility inputs for delivery services assessed.

<sup>95</sup> Hand hygiene resources were not assessed in other maternity/newborn service sites.

**Figure 72: Observed post-delivery disinfection practices (Uganda n=59, Kenya n=21)**



**Key findings for observed practices during the immediate postpartum period**

**Strengths**

- Active management of the third stage of labor was universally practiced although Ugandan providers delayed giving oxytocin until one to three minutes rather than in the first minute postpartum.
- Assessing the completeness of the placenta and whether there were perineal lacerations was widely practiced (around 90% or more).
- Essential newborn care was mostly strong.
- Skin-to-skin practice in Uganda was widely practiced, with 84% receiving this initially and 65% continuing at least an hour.
- Postpartum infection prevention practices were strong in Kenya.
- Routine postpartum monitoring of the mother was stronger in Kenya, but still weak in numerous routine checks, such as checking uterine contractions and fundal height.

**Weaknesses**

- Routine postpartum monitoring of the mother was weak in Kenya.
- 1/3 of Kenyan but 3/4 of Ugandan delivered women had their perineum swabbed with antiseptic—not a recommended practice.
- Ugandan women had a higher proportion of third or fourth degree perineal tears and these were not treated with antibiotics (a recommended practice).
- Routine suctioning of newborns, where an indication for this was not noted, was widely practiced in Uganda (58%).
- While 75% of the observed newborns in Kenya initially received skin-to-skin practices, continuation for at least an hour dropped to 33%.
- Hand hygiene at all recommended times was not widely observed.

**5. Client interview: Delivery and newborn care services**

**Client characteristics:** Clients who had delivered in the facility were interviewed prior to discharge. On average, 105 Ugandan and 80 Kenyan women answered questions about their delivery experience.

**Annex Table 80** provides further details on the interview responses.

Ugandan women had been admitted an average of 5.6 hours and Kenyan women an average of 7.9 hours prior to delivery, with most (80% Uganda and 74% Kenya) reporting they were examined immediately on arrival, with the first full examination (blood pressure and abdominal palpations) occurring

on average, after 68 minutes (Uganda) and 39 minutes (Kenya). Most respondents from Uganda (around 90%) reported they had a companion with them during admission, labor, and delivery, and most Kenyan respondents (84%) reported they had a companion with them during admission, but only around 1/3 reported a companion was with them during labor and delivery. Among the companions from both countries, less than half reported any orientation about their role during labor and delivery. Overall Ugandan respondents felt communication from the providers about their care, and between providers when handling their case over was good (around 84% to over 90%), with Kenyan women feeling slightly less positive about communications. On average, women from both countries reported they left the facility around 1.5 days (30-33 hours) after birth.

Most had uncomplicated vaginal deliveries (81% Uganda, 85% Kenya) with an additional 1% from each country having a vaginal delivery with complications. Planned C-sections<sup>96</sup> were received by 11% (Uganda) and 3% (Kenya), with an additional 7% (Uganda) and 6% (Kenya) receiving emergency C-sections.<sup>97</sup> Among the women with vaginal deliveries, the average estimated time they were in labor was 6 hours (Uganda) and 11.6 hours (Kenya), estimating that, on average, they pushed 18.2 (Uganda) and 10.3 (Kenya) minutes.

**Client-centered care:**<sup>98</sup> Among the women where position during labor was relevant (i.e., they did not have planned or early emergency C-sections), only 10% (Uganda) to 37% (Kenya) reported the provider discussed the position for delivery, with most of these from Uganda (67%) reporting the provider made the decision, while those from Kenya (84%) felt they made the decision. Again, among those for whom labor conditions were relevant, 71% (Uganda) and 39% (Kenya) reported they were told they could have food and drink during labor. Among those reporting, if they asked for food or drink, most (3/4, Uganda and 2/3, Kenya) reported they were given sufficient food and drink.

Clients were asked about examinations performed, decisions they participated in, and their perceptions of how they were treated during admission, labor, and delivery. In general, clients were content with the way they were treated, their level of involvement in decisions, and the degree of privacy that they had, with around 90% (Uganda) and 75% (Kenya) reporting satisfaction with privacy at all stages of the labor and delivery. Overall, 82% (Uganda) and 58% (Kenya) reported that they felt their needs and preferences were always taken into account. Of note, however, 5% (Uganda) and 18% (Kenya) of the respondents reported they felt their preferences were almost never taken into account.

Among various practices during labor, the use of enemas and shaving the pubic area were not reported by Ugandan clients (0% and 1%) and rarely reported (11% and 6%) by Kenyan clients. Episiotomies were less commonly reported by respondents from Uganda (5%) than Kenya (22%). Less than 10% (9% Uganda and 2%, Kenya) of clients from either country reported being offered pain medicines. Around 2/3 of respondents from each country reported they were encouraged to walk. Vaginal examinations were reported by 90% (Uganda) and 67% (Kenya) of women, with women from Uganda reporting less frequent (on average two) vaginal examinations, than Kenyan women who reported, on average 13.1 examinations.

**Early postpartum experiences:** Among the few women (six or seven from each country) reporting the infant was not healthy at birth, almost all reported they received additional emotional support from the providers. Immediate skin-to-skin practice was reported by 57% (Uganda) and 75% (Kenya) of respondents, and most (96%, Uganda, and 76%, Kenya) reported the infant remained with them after birth. Almost all (99% from both countries) reported breastfeeding, with over 90% reporting they were asked to begin breastfeeding (or were not asked—with the assumption they began without prompting) within the first hour after birth. At the time of the interview, 93% (Uganda) and 89% (Kenya) of the women

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<sup>96</sup> Decided prior to or immediately on admission.

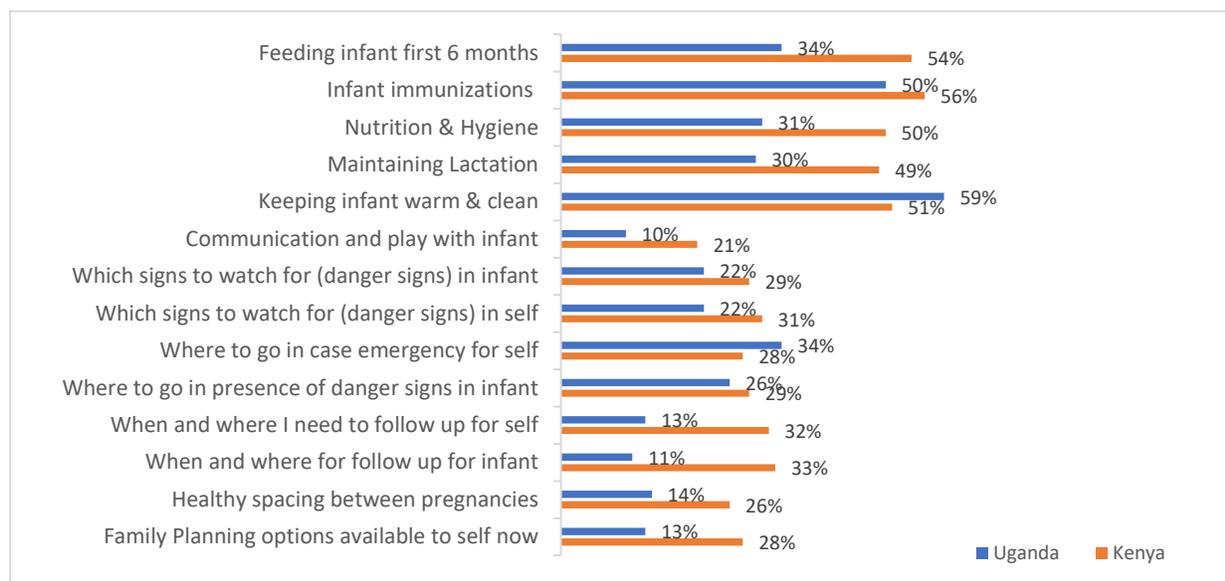
<sup>97</sup> Decision was made at least one hour after admission.

<sup>98</sup> The actual percentages are less meaningful than the trends because denominators were not consistent.

reported they were exclusively breastfeeding. Only 16% (Uganda) and 42% (Kenya) reported they were advised to feed the infant on demand.

Routine counseling relevant to the health of the newborn and postpartum woman was limited, with 26% (Uganda) and 37% (Kenya) reporting having received counseling about any of 14 topics asked about (Figure 73). Counseling on danger signs for mother or baby was only reported by around 1/4 of Ugandan and 1/3 of Kenyan women, and counseling on birth spacing/family planning only by 13% (Uganda) and 28% (Kenya). Among these, only five Ugandan and three Kenyan women reported they had selected a method prior to discharge, with almost none reporting their spouse/partner was invited to participate in the discussion. Overall, around 11% of the respondents from each country expressed dissatisfaction with the education/information they received.

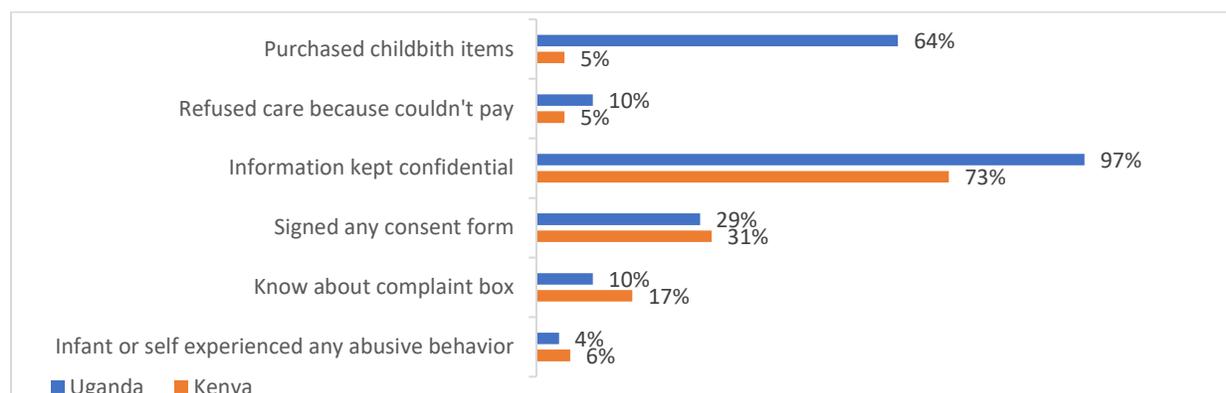
**Figure 73: Percentage of postpartum women who reported receiving counseling on indicated topics (Uganda n= 105, Kenya n=78)**



**Labor and delivery conditions in health facilities:** Generally, the Ugandan respondents were very satisfied and Kenyan respondents satisfied with the cleanliness of the labor and delivery rooms, with only around 4% reporting they thought these areas were dirty. The washing area and toilet, however, were assessed by around 13%-16% (Uganda) and 16%-20% (Kenya) as dirty. Overall, 90% or more from both countries were satisfied with the water, sanitation, and water/lighting conditions for labor, delivery, and postpartum services, with slightly fewer of the Kenyan women (77%) satisfied when crowding and privacy were added to the infrastructure assessment.

**Factors that might influence use of services:** Asked about issues that might influence use of services, more Ugandan than Kenyan clients mentioned factors related to being required to purchase childbirth items (e.g., gloves) or being refused care because they could not afford it, and 4% (Uganda) and 6% (Kenya) reported they felt they or their infant experienced some form of abusive behavior in the facility (Figure 74). Rude or unhelpful behavior from nursing/midwifery staff was reported by 1% (Uganda) and 9% (Kenya), and by non-medical/nursing staff (e.g., cleaners, kitchen staff) by 3% (Uganda) and 13% (Kenya). Few knew about the existence of a complaint box. Only around 1/3 from either country reported signing a consent form for any intervention or procedure. On a positive note, most believed their personal information was kept confidential. Overall, over 80% from both countries reported they had access and interacted with staff as much as they desired and that the staff was supportive of them; around 90% felt they were treated respectfully.

**Figure 74: Percentage of interviewed postpartum women reporting factors that might influence service usage (Uganda n=105, Kenya n=80)**



When asked to rate their experience in the facility overall, 96% (Uganda) and 74% (Kenya) rated their experience positive, and only 1% (Uganda) and 4% (Kenya) rated it negatively; 7% of women in Kenya and 4% in Uganda reported they or their baby experienced physical, verbal or sexual abuse during the childbirth.

#### Key findings for client interviews for labor/delivery/postpartum services

##### Strengths

- Almost all clients were satisfied with their experiences in the facility during all stages of labor, delivery, and postpartum care.
- Almost all felt their needs and desires were considered and were satisfied with the way they were treated and that they were treated respectfully.
- Almost all were satisfied with the facility infrastructure where they received services.
- Exclusive breastfeeding through the early postpartum period was universal.

##### Weaknesses

- The average time of initial assessment at admission was more than two times higher than recommended 15 minutes in Uganda (39 minutes) and four times higher in Kenya (68 minutes).
- Assessment of blood pressure at admission was poor in Uganda.
- Companion of choice during labor and delivery was less reported from Kenya (about 1/3 of women) than in Uganda (> 2/3 of women).
- Routine assessment and counseling practices relevant to the health of the newborn and postpartum woman, including immediate PFP, was limited.
- A small percentage of Kenyan (5%) and a higher percentage of Ugandan (64%) women reported having to purchase items for delivery services and being refused some services due to lack of ability to pay.
- 4-6% of clients from both countries reported they experienced abusive behavior by some staff or service providers.
- Few knew about the presence of complaint boxes.
- Routine counseling relevant to the health of the newborn and postpartum woman was limited, with 26% (Uganda) and 37% (Kenya) reporting counseling about any of 14 topics asked about.
- Despite reporting they felt their needs and desires were considered, only 1/3 or fewer clients had informed consent forms requested.

## B. Child Health Services

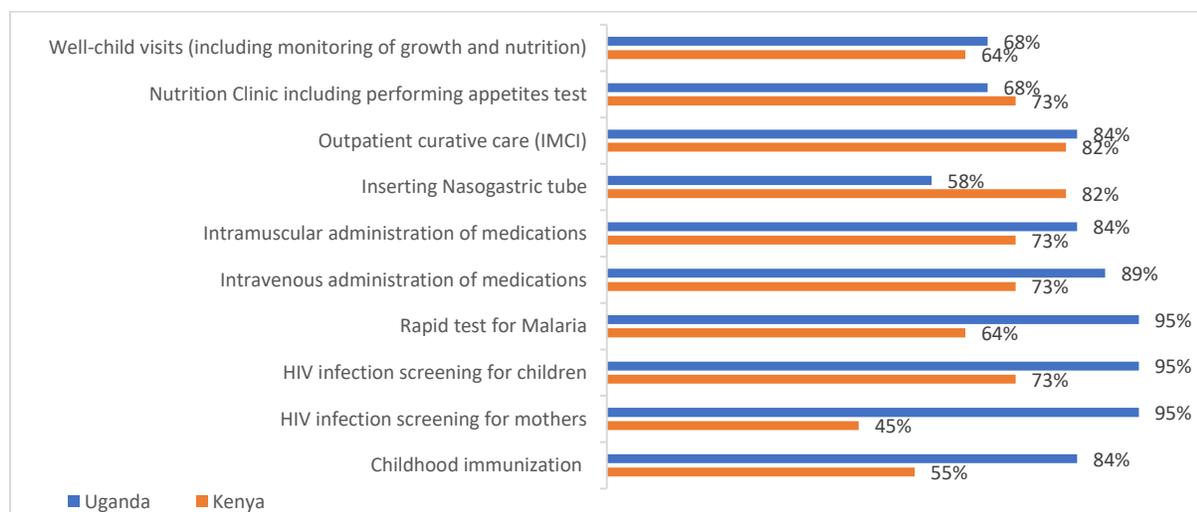
**Facility statistics:** Facility-level information on sick child consultation visits and service providers for sick child consultation services were collected to calculate the workload for sick child consultation services. The average of each facility number of sick child consultation visits per provider of care for sick children per day for Uganda was 23 and for Kenya 18.2 (see **Annex Table 5**).

### 1. Provider interviews: Child health services (<5 years old)

Among the respondents reporting they provide outpatient child health services, 19 from Uganda and 11 from Kenya answered questions about their knowledge, experiences, and practices related to these services.

**Services provided and procedures performed:** Around 2/3 of the respondents from both countries reported they provide services for well-child assessments (e.g., growth monitoring). More than 80% provide outpatient curative care, with almost all of the Ugandan respondents providing the specific services and procedures for administering medicines and diagnosing illness, and a lesser percentage from Kenya reporting they provide each of these services (**Figure 75**). Overall, outpatient pediatric care providers in Uganda reported a wider range of services compared to care providers from Kenya.<sup>99</sup>

**Figure 75: Services and procedures provided by interviewed service providers (Uganda n=19, Kenya n=11)**



**In-service training:** Training in the past 12 months (recent training) in each of the 12 topics relevant to the treatment of the ill child as well as immunization and infant feeding was reported, on average, by 18% (Uganda) and 30% (Kenya) of respondents. The topics with the highest percentage of respondents reporting recent training were infant feeding (21% and 45%), malaria (21% and 36%), HIV in children (26% and 27%), and malnutrition (32% and 27%) for respondents from Uganda and Kenya, respectively. **Annex Table 22** provides further details on in-service training.

<sup>99</sup> The lower percentages of Kenyan providers reporting they provide specific services may reflect organization within the facility, where services (e.g., child immunization, HIV tests, RDT for malaria) are actually provided by other providers in different service sites, or may indicate a difference in understanding of the question (i.e., whether providers interpreted ordering a test as providing the service). It will be important to assess if services are offered by different providers, in different service sites impacts utilization and receipt of the test/service or not.

**Guidelines and job aids:** Guidelines or job aids were reported by around half of respondents. Guidelines or job aids for IMCI and malaria were reported to be used the most frequently, by 37% and 53% of care providers in Uganda and by 73% and 64% care providers in Kenya, respectively. **Annex Table 82** provides further details on the use of guidelines and job aids.

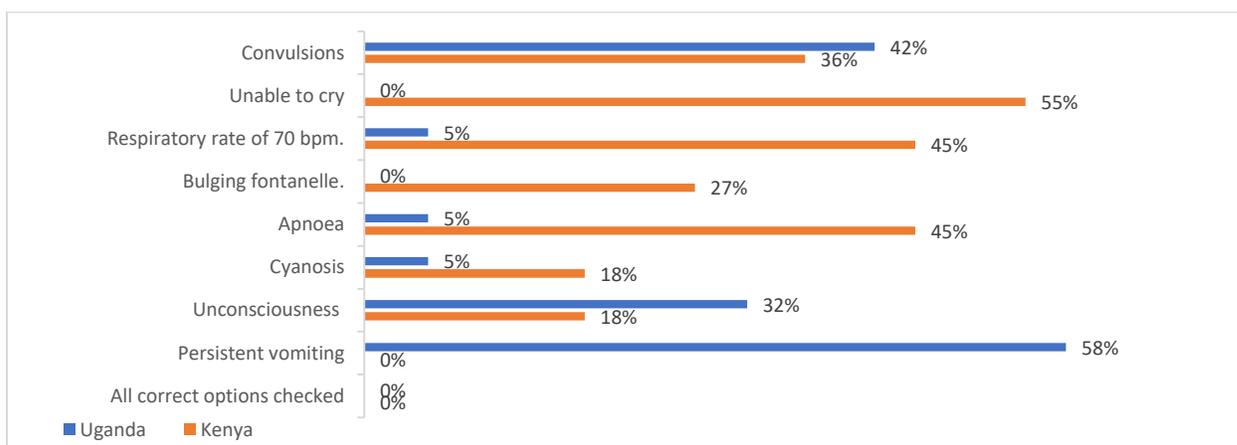
**Self-reported comfort with providing specific services:** When asked their level of comfort independently managing and deciding the need for referral for different child health services, the majority of providers in both countries expressed high levels of comfort in managing severe dehydration and malaria. Malnutrition was the subject providers (16% Uganda and 18% Kenya) expressed the least comfort in managing.

When asked about pneumonia services, around 2/3 of interviewed providers from both countries reported high levels of comfort in providing services, around 1/3 or less reported recent training related to childhood pneumonia, and around 50% reported using guidelines when providing these services. When asked about malaria services, high levels of comfort in providing malaria services were reported by 79% of Ugandan and all Kenyan providers. Around 1/3 or fewer reported recent training for malaria, and half or more reported using guidelines when providing malaria services. When asked about diarrhea services, high comfort in providing services for severe diarrhea were reported by 63% (Uganda) and 82% (Kenya) of providers, with less than 1/3 reporting recent training and around half reporting they use guidelines when providing services for diarrhea. **Annex Table 82** provides further details on self-reported comfort in providing services.

### Provider knowledge

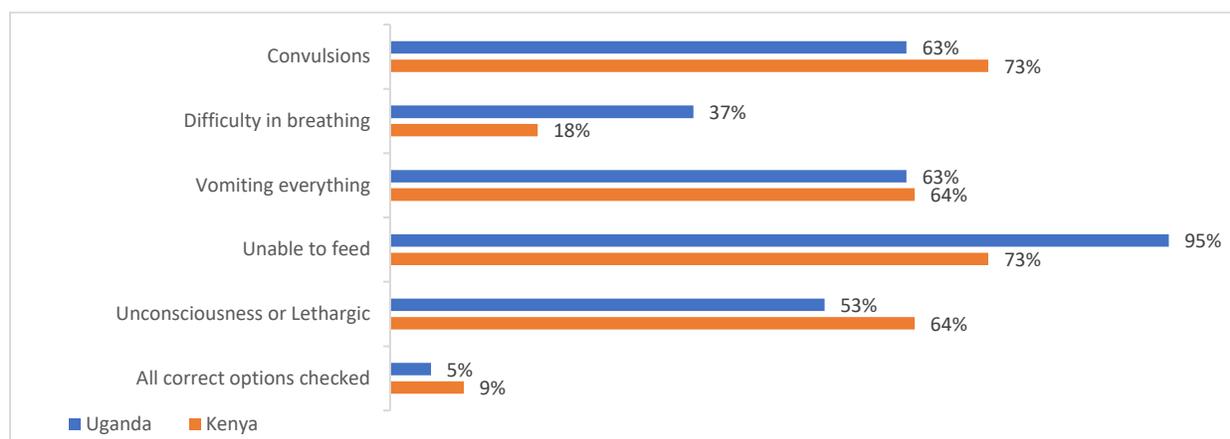
**Provider practices and knowledge for sick newborns:** When asked to spontaneously mention symptoms for a critically ill newborn, Kenyan respondents provided a more complete list than those from Uganda (**Figure 76**), although only around 1/2 of the providers mentioned at least one symptom.

**Figure 76: Provider reported signs of critical illness among young infants <2 months (unprompted) (Uganda n=19, Kenya n=11)**



Asked to identify IMCI identified danger signs for children aged two months to five years old, only 5% (Uganda) and 9% (Kenya) mentioned all five IMCI danger signs without prompted responses (**Figure 77**). The most commonly mentioned danger sign was inability to feed (95%, Uganda, and 73%, Kenya).

**Figure 77: Provider reported IMCI danger signs (unprompted) (Uganda n=19, Kenya n=11)**



**Responses to case scenarios:** Presented with a scenario for an infant with signs of a moderate respiratory infection (the infant had fast breathing but no other danger symptoms), 32% (Uganda) and 20% (Kenya) correctly identified prescribing amoxicillin (seven days) for home treatment, with follow-up visit as the correct response.

Asked to mention the signs of possible severe bacterial infection among young infants <2 months, none of the respondents provided the six main symptoms. The identification of symptoms was similar for both countries. The most commonly identified were fever 38C or greater (79% and 82%) and convulsions (68% and 64%) for Uganda and Kenya, respectively.

Presented with a scenario for a young infant with signs of severe infection, only one respondent (from Kenya) correctly identified the recommended actions to be taken. The most common correct actions<sup>100</sup> identified were immediate referral (84% and 55%) and administering injectable ampicillin (21% and 73%) and gentamicin (21% and 64%) for Uganda and Kenya, respectively.

The knowledge around diagnosis and management of complicated **severe acute malnutrition** was less than 11% in Uganda and 9% in Kenya, and its correct classification known by 11% and 19% of providers, respectively. Correct treatment of **common cough or cold** was reported by 37% and 20% care providers in Uganda and Kenya; **diagnostic criteria of pneumonia** were reported by 26% and 20% care providers; antibiotic use criteria for **diarrhea** were reported by 32% and 27% of health workers and correct antibiotic treatment of babies with bloody diarrhea, by 42% and 36% of respondents in Uganda and Kenya, respectively.

Asked about malaria testing in view of different situations, 79% (Uganda) and 82% (Kenya) appropriately noted that malaria testing is always recommended prior to treatment, that high prevalence does not exclude the necessity of the test (74% Uganda and 100% Kenya), and low prevalence does not exclude the necessity of the test (79% Uganda and 82% Kenya). The correct response was provided for all three situations by 74% (Uganda) and 64% (Kenya) of providers. Provided with a case scenario of an epidemic of malaria in the district and a one-year-old baby brought with a history of fever for two days with other examination findings generally normal, 84% (Uganda) and 73% (Kenya) of providers correctly identified from among a list that the recommendation is to perform a malaria test prior to treating.

Finally when asked for the best response among a list, for a six-month-old child with no severe classification and missing DPT/ Hemophilus B/Hepatitis B **vaccination**, all correct responses: counsel the mother on the importance of vaccinations (37% Uganda and 36% Kenya), provide the missing vaccination (47% Uganda and 55%,Kenya), and counsel the mother on when to return for the next due

<sup>100</sup> Consistent with WHO recommendations and national policy

vaccinations (53% Uganda and 36% Kenya) were reported by 21% (Uganda) and 27% (Kenya) of providers.<sup>101</sup>

**Annex Table 83** provides further details for provider responses to case studies and knowledge for infant and child care.

## 2. Record reviews: outpatient services for children ≤5 years old

### Sample

Individual patient records were pulled for review, using a checklist to identify if specific information was recorded. Records for the most recent 15 sick children aged under five years old who had received outpatient services were sought. Additionally, the most recent records meeting the following criteria were also selected.

- For outpatient visits of sick young infant age up to two months:
  - Documented signs of serious infection and/or relevant diagnosis (sepsis, severe pneumonia, malaria, meningitis) referred to higher-level facilities
  - Documented signs of serious infection and/or relevant diagnosis (sepsis, severe pneumonia, malaria, meningitis)
  - Diagnosis of pneumonia, or fast breathing (RR>60 per minute)

The final sample was 737 Ugandan records (42% were for children < 2 months old) and 786 Kenyan records (36% were for children < 2 months old).

**Table 17** provides a breakdown of the diagnoses for the patients whose records were reviewed. A patient may have had more than one diagnosis.

**Table 17: Characteristics of patients whose outpatient medical records were reviewed**

Age of patient	Percentage of children < 2 months old among those with the indicated diagnosis/symptom	Uganda (n=737)	Kenya (n=756)
Diagnosed with respiratory tract infection (cough or cold)	38%	162	192
Diagnosed with malaria	16%	166	77
Diagnosed with pneumonia		139	160
Diagnosed with diarrhea		167	175
Presented with complaint of fever		298	152

In both countries, individual patient charts were not available for the children, so information from a structured register was collected for the most recent visit meeting the eligibility criteria. The register had columns that specified basic examination and history information that was to be recorded. This did include fever, weight, danger signs, treatment with oral rehydration and zinc, and referral information.

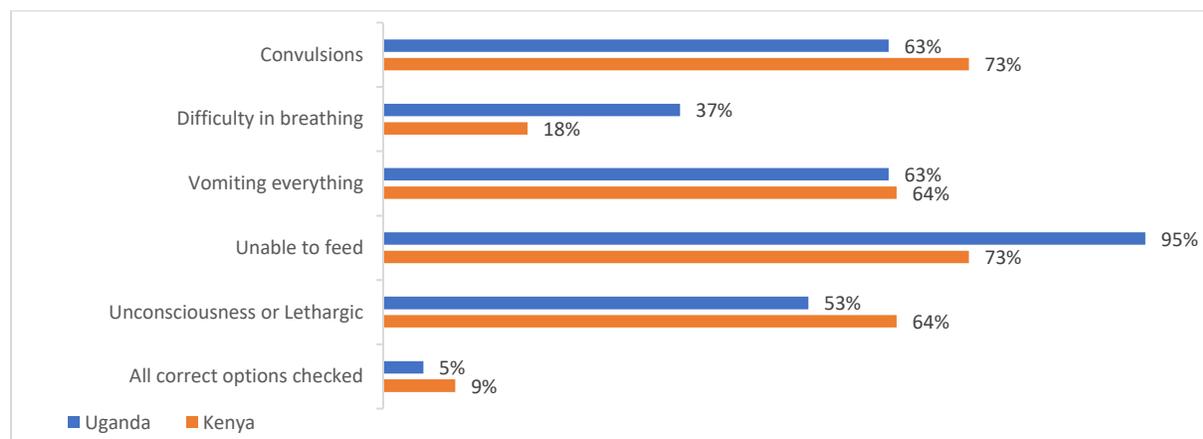
**Annex Table 84** provides details on the record review sample characteristics.

### Results

<sup>101</sup> The total providing all correct responses also includes persons who provided additionally an incorrect response (counsel caregiver to return for immunization when cough is gone—42%, Uganda and 91%, Kenya).

**Basic assessment practices:** Among all records reviewed, few had documentation of basic assessment findings. In addition, the most commonly documented items were weight: 25% and 22% for Uganda and Kenya, respectively, and temperature in Kenya (25%) while it was not documented in Uganda (**Figure 78**). A Z score or measured mid-upper arm circumference (MUAC) for an objective assessment of nutritional status, however, was present for only 4% of records in each country.

**Figure 78: Results of record review: Physical assessment of sick child (Uganda n=737, Kenya n=786)**



Only two client records from Uganda and three from Kenya had documentation of an HIV test for the child. **Annex Table 85** provides further details on general documentation for the sick child.

**Management of severe illnesses in young infants (< 2 months old):** Among the infants below 2 months of age arriving at the outpatient clinic with symptoms of PSBI (or any other diagnosis, such as sepsis, meningitis, or severe fever), documentation showed that around 40% or less of babies with PSBI were referred to a higher level. Less than 12% of babies with PSBI or a similar diagnosis received any EB treatment, either prior to referral, or when being managed at the outpatient level (**Table 18**). Among the young infants diagnosed with pneumonia, EB treatment was performed by 46% of providers in Kenya and 21% in Uganda (**Table 18**).

**Management of cough/cold (respiratory tract infection):** Among the children whose records were reviewed, 22% (Uganda) and 24% (Kenya) were diagnosed with a non-severe or unspecified respiratory tract infection (RTI), including cough or cold, upper RTI (URTI) or RTI. Among these, around 40% from each country were below two months of age, and the illness was classified as a cough/cold for 35% in Uganda and 23% in Kenya (**Figure 79**).

Most non-severe RTIs are URITs and are viral (including colds) which should not be treated with antibiotics. Indications for an antibiotic may include additional ear infection, purulent nasal discharge, and other symptoms indicative of bacterial infection and some conditions with symptoms of sore throats. Survey managers reviewed the records to classify prescription of antibiotics as justified or not.

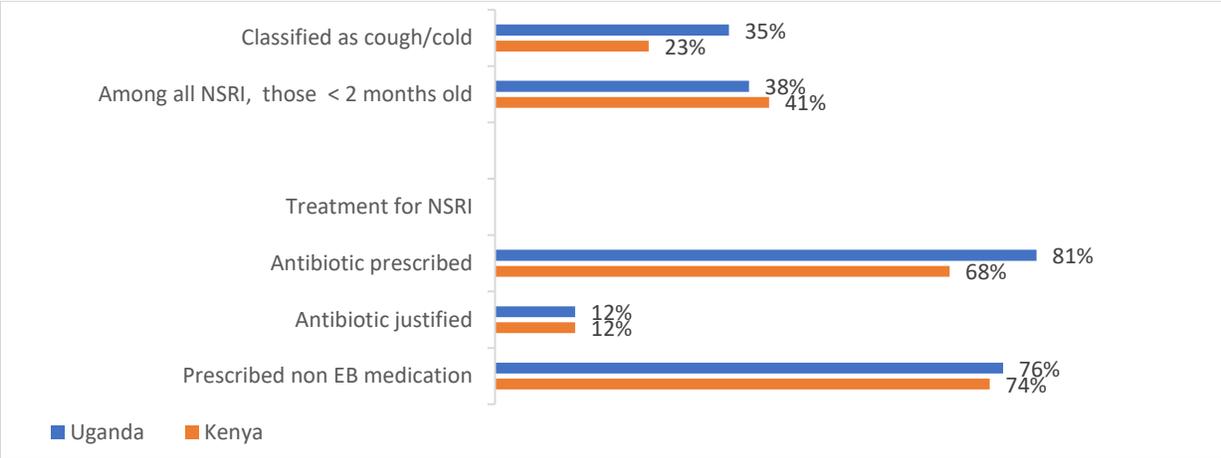
**Table 18: Results of record review for young infants < 2 months old diagnosed with PSBI or pneumonia**

Condition/indicator	Uganda	Kenya
PSBI or other similar conditions	n=129	n=110
Referred to higher level for treatment with or without EB re-referral treatment	33% (42)	37% (41)

Referred to higher level with EB pre-referral treatment	1% (1)	11% (11)
Managed as out-patient (with or without EB management)	67% (86)	63% (69)
Provided outpatient EB care	9% (11)	1 % (1)
<b>Pneumonia</b>		
Diagnosed pneumonia or respiratory rate (RR) >60	21% (65)	46% (51)
Among young infants diagnosed pneumonia or RR > 60	n=65	n=51
Young infants diagnosed pneumonia or RR > 60 and received EB antibiotic in correct dose	48% (31)	49% (25)

For both countries, over 80% of the patients were prescribed antibiotics, but less than 20% were classified as justified. Additionally, around 80% (Uganda) to 90% (Kenya) of the records noted prescriptions of non-EB drugs (e.g., the wrong antibiotic or multiple antibiotics, or medications that are not warranted in view of existing diagnoses).

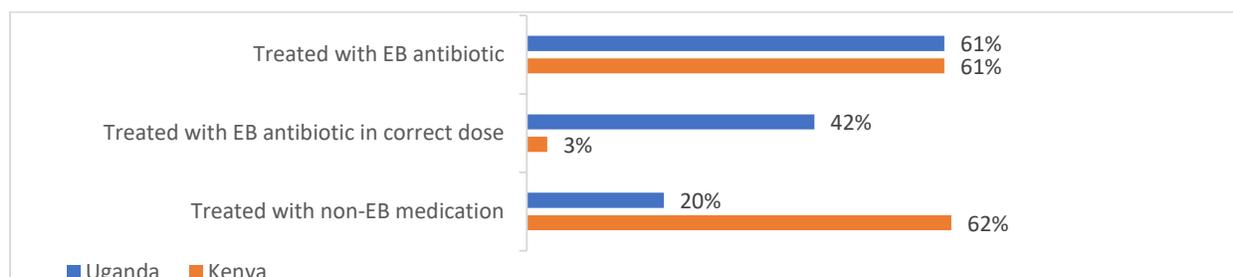
**Figure 79: Results of record review: Management for children diagnosed with non-severe or unspecified RTIs (URTI/RTI) (Uganda n=162, Kenya n=192)**



**Management of diagnosed pneumonia:** Among the children 2 to 59 months old whose records were reviewed, 32% (from both countries) were diagnosed with pneumonia. Almost none of the records (none from Uganda and only 2% of all records from Kenya) had a documented respiratory rate, so the diagnosis is based on the provider judgement without corroborating information of a documented rapid respiratory rate (above 60 is the norm for severe respiratory illness).

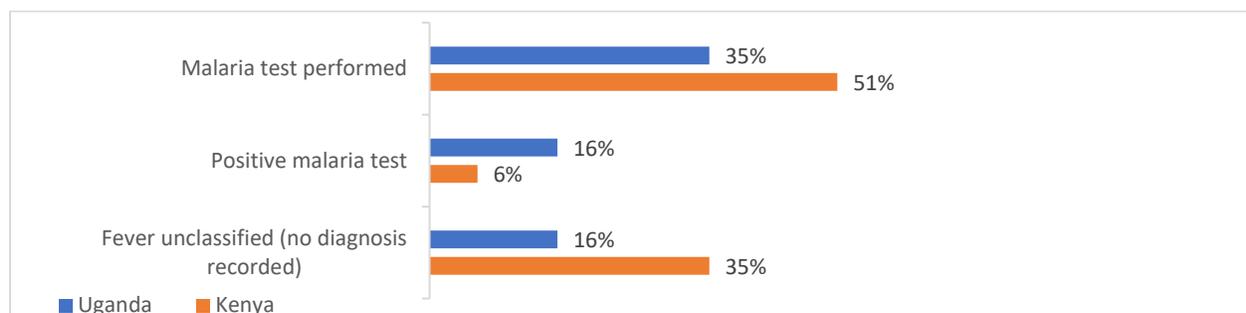
Both countries provided EB treatment (most often amoxicillin) for children with pneumonia, although treatment differed by age group. Among children < two months old with pneumonia, 48% (Uganda) and 49% (Kenya) received the EB drug (amoxicillin). Among children 2 to 59 months old, 61% from both countries had the EB drug documented, however, only 42% from Uganda and 3% from Kenya had the correct dosage for the antibiotic documented (**Figure 80**). Non-EB medicines were also prescribed for 20% of the patients in Uganda and 62% in Kenya, with an additional 9% from Uganda and 12% from Kenya having no treatment recorded. The non-EB medicines may have been additional antibiotics, drugs for symptomatic treatment (e.g., chlorpheniramine or inhalers such as salbutamol) or drugs to treat other existing conditions but for which the need was not documented.

**Figure 80: Results of record review: Management of patients 2-59 months old diagnosed with pneumonia (Uganda n=139, Kenya n=160)**



**Presumptive malaria:** Among the children whose records were reviewed 40% (Uganda) and 19% (Kenya) had a presenting symptom or history of fever. The fever diagnosis was primarily based on touch or history, since only 25% of Kenyan records (and no Ugandan records) had a measured temperature recorded. Among the presumptive malaria patients, less than half (35%) in Uganda, and half (51%) in Kenya received a malaria blood test, with 46% (Uganda) and 12% (Kenya) of those who were tested having a positive result. In total, among all presumptive malaria patients, 16% (Uganda) and 6% (Kenya) had a positive malaria blood test documented, and 16% (Uganda) and 35% (Kenya) had no specific diagnosis associated with their fever symptom (**Figure 81**).

**Figure 81: Results of record review: Management of patients with presenting symptom of fever (presumptive malaria) (Uganda n=298, Kenya n=152)**



**Management of patients diagnosed malaria:** Among all < 5 patients, 22% (Uganda) and 10% (Kenya) were diagnosed with malaria. Among these, 16% (Uganda) and 32% (Kenya) were under two months old. The first-line treatment for malaria in Uganda and Kenya is artemisinin-based combination therapy (ACT), an EB medication. The patient may receive additional medications since children not infrequently seek services with multiple illnesses at the same time. However, they should not receive non-EB drugs. For malaria patients, non-EB drugs would include antibiotics, without additional diagnoses that warrant antibiotics, or a second antimalarial, among other medications.

A large proportion of children (48% Uganda and 90% Kenya) were diagnosed with malaria without a recorded positive blood test. Among all children diagnosed with malaria, an antimalarial prescription was recorded for 85% (Uganda) and 40% (Kenya), however, only 3% (Uganda) and 19% (Kenya) were EB antimalarials. Most of the children prescribed the EB antimalarial were also prescribed non-EB drugs (**Table 19**).

In total, among all patients diagnosed with malaria, none of the Ugandan and 3% of the Kenyan had the appropriate management of their malaria (RDT positive test result and received an EB treatment).

**Table 19: Results of record review: Management of patients < 5 diagnosed with malaria**

	Uganda	Kenya

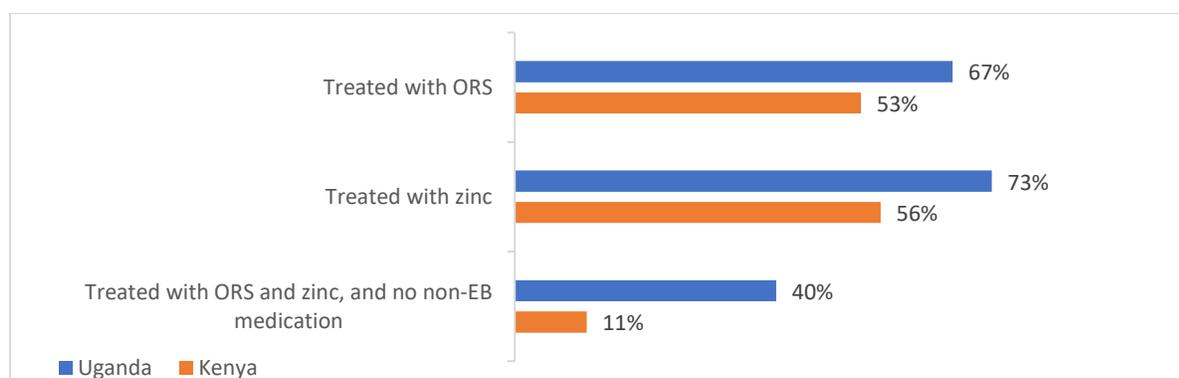
A	All diagnosed malaria	(n=166)	(n=77)
	< 2 months old	16%	32%
	Antimalarial prescribed	85% (n=141)	40% (n=31)
	EB antimalarial prescribed	3% (n=5)	19% (n=15)
	EB antimalarial prescribed along with a non-EB drug	2% (n=4)	16% (n=12)
B	Among diagnosed malaria: RDT and treatment results		
	Received RDT	57% (n=95)	30% (n=23)
	RDT test positive	52% (n=87)	10% (n=8)
	RDT test positive and received antimalarial	24% (n=40)	5% (n=4)
	RDT test negative and received antimalarial	4% (n=7)	(n=0)
	RDT test positive and EB antimalarial prescribed	0% (n=0)	3% (n=2)

**Management of diagnosed diarrhea:** WHO recommends that children with watery diarrhea be treated with oral rehydration solution (ORS) and zinc and that they not be given antibiotics.

Among the children 2 to 59 months old whose records were reviewed, 39% (Uganda) and 35% (Kenya) were diagnosed with diarrhea. Among these, 40% from Uganda and 11% from Kenya had ORS and zinc treatment recorded without additional non-EB medications prescribed (**Figure 82**). In total, around 2/3 of the children received ORS and zinc, but for 27% of children in Uganda and 42% in Kenya, non-EB drugs, such as antibiotics, were also concurrently prescribed.

**Management of severe illnesses in young infants (< 2 months old):** Records selected for specific illnesses were reviewed to gain a perspective of the management for cases that would rarely be present on the day of a survey. The diagnostics critical for diagnosis (measuring temperature and respiratory rate) were not commonly performed. Among the young infants below two months of age arriving at the outpatient clinic with symptoms of PSBI (e.g., sepsis, meningitis, or severe fever), documentation showed that around 10% or less received an EB treatment, either prior to referral or when being managed on an outpatient basis (**Table 20**). Less than half of those with pneumonia received the correct EB antibiotic in the correct dose.

**Figure 82: Results of record review: Management of patients diagnosed with diarrhea (Uganda n=167, Kenya n=175)**



**Table 20: Results of record review for infants < two months old diagnosed with PSBI or pneumonia**

PSBI	Uganda (n=307)	Kenya (n=283)
Diagnosed PSBI	42% (n=129)	39% (n=110)
Among young infants diagnosed with PSBI	N=129	N=110
Referred to higher level for treatment with or without EB re-referral treatment	13% (n=43)	37% (n=41)
Referred to higher level with EB pre-referral treatment	1% (n=1)	10% (n=11)
Managed outpatient with or without EB management	67% (n=86)	63% (n=69)
Managed outpatient using EB methods	9% (n=11)	1% (n=1)
Pneumonia		
Diagnosed pneumonia or respiratory rate (RR) >60	21% (n=65)	46% (n=51)
Among young infants diagnosed pneumonia or RR > 60	N=65	N=51
Infants diagnosed pneumonia or RR > 60 and received EB antibiotic in correct dose	48% (n=31)	49% (n=25)

### Key findings for record review documentation of outpatient care for children

#### Strengths

- Prescription of the first line EB antibiotic for pneumonia was documented for 61% of the pneumonia patients for both countries.
- A majority of the children with diarrhea were prescribed ORS and zinc.

#### Weaknesses

- Documentation of the major symptoms, danger signs, and physical assessment findings was limited in both countries. This includes using objective means for identifying malnutrition or growth faltering.
- The outpatient register does not provide specific spots for critical information such as the respiratory rate or danger signs, for example. This reduces the opportunity to use medical documentation for assessing illness severity, proper diagnosis/classification, and treatment practices of common childhood illnesses.
- All common childhood conditions that were assessed showed weak documentation and low percentages treated according to EB recommendations.
- The use of non-EB medications is widespread for almost all the conditions assessed.
- Pre-referral treatment and appropriate outpatient treatment for young infants < 2 months old with PSBI was provided for 11% or less of the infants from both countries.
- Use of antibiotics for upper respiratory tract infections (e.g., cough/cold) is widespread and unjustified in most of the cases.
- Dosage for the EB antibiotic for pneumonia was either wrong or not recorded for most cases. Young infants below two months who were diagnosed with pneumonia had an EB antibiotic prescribed for only around 1/2 of the cases in both countries.
- Half or fewer fever cases were tested for malaria.

- Among patients diagnosed with malaria, the figures are similar, with half or fewer of the diagnoses supported by blood test and prescription of the EB antimalarial, without additional non-EB medications for less than 1 in 5 patients diagnosed with malaria.
- Assessment of the child for malnutrition was rarely documented.

### 3. Observation of consultations for sick children

#### Sample

The consultations for sick children brought to the outpatient service area were observed, with different tools and analyses used for children 0-59 days old or 60 days-59 months old. After the consultations for sick children, the observer was allowed to check the client card/chart and to ask the provider about unclear patient classifications or for clarification about information that is recorded that might have been used in decision making but was not observed, such as vital signs or assessments that might routinely be performed prior to the consultation.

Eligibility criteria included all children described as sick by the caretaker who had one of the common childhood conditions or relevant symptoms and who presented for outpatient curative services for the first time for any of the following conditions:

- Complaints or signs of severe illness (i.e., change in consciousness/lethargy, convulsions, vomiting everything and unable to feed or breast feed, fever, low body temperature, and diarrhea/vomiting;
- Nutrition or feeding problems; yellowing of eyes/skin;
- Cyanosis, surgical conditions, bleeding that requires transfusion.

Sick young infants tended to be assessed and treated by higher level clinicians. The providers from Uganda were much more likely to have received any prior training in IMCI or in PSBI. **Annex Table 86** provides further details on the characteristics and training for observed service providers and children.

#### Results

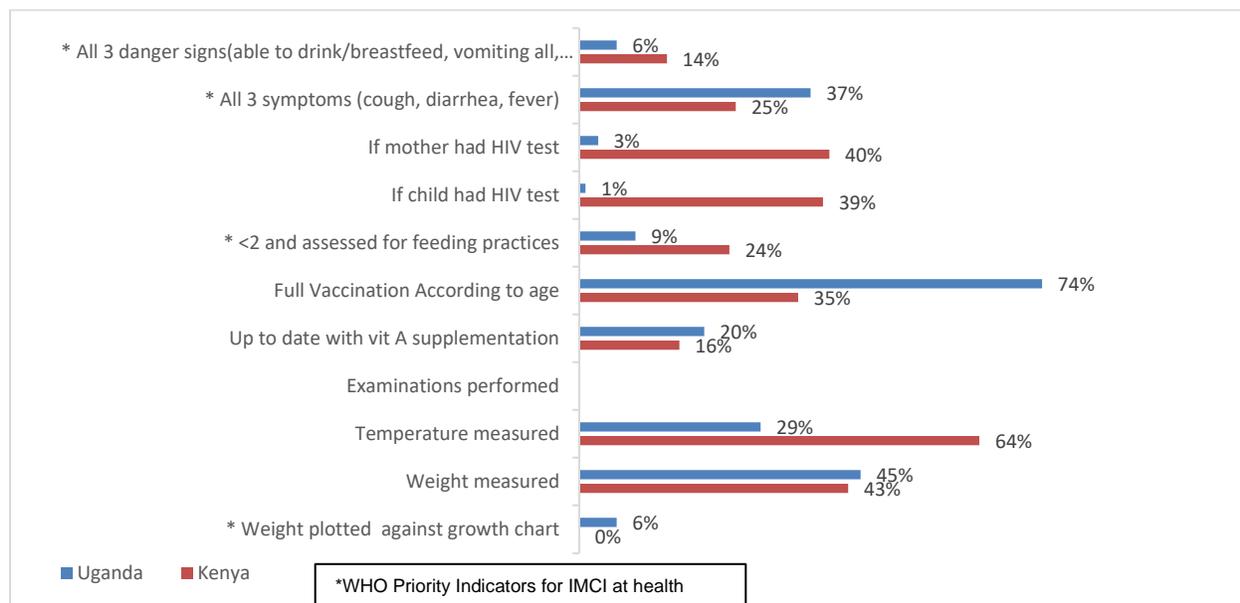
##### Observation of sick children (two months to five years)

**Assessment:** Patients whose consultation was observed did not receive full assessments of IMCI three danger signs<sup>102</sup> (6% and 14%) or major symptoms<sup>103</sup> (37% and 25%) for Uganda and Kenya, respectively. The immunization status of the child was found to be up-to-date for age for 74% of the Ugandan and 35% of the Kenyan observed children. Vitamin A supplementation, however, was only current for less than ¼ of the children in either country. Routine **assessment of nutritional status** was weak, with weight measured for 45% (Uganda) and 43% (Kenya) of observed consultations but plotting the weight against a growth chart (providing evidence for interpreting the weight for the individual child) only performed for 6% (Uganda) and 0% (Kenya) of the children. Other essential assessment practices were also performed on small numbers of the observed children (**Figure 83**). **Annex Table 89** provides further details on other assessments.

<sup>102</sup> Whether the child is able to drink anything, whether breastfeeding, and whether vomiting everything

<sup>103</sup> Whether the child has had cough, diarrhea, or fever

**Figure 83: Child assessment practices observed (or documented in the individual child health card) (Uganda n=145, Kenya n=168)**

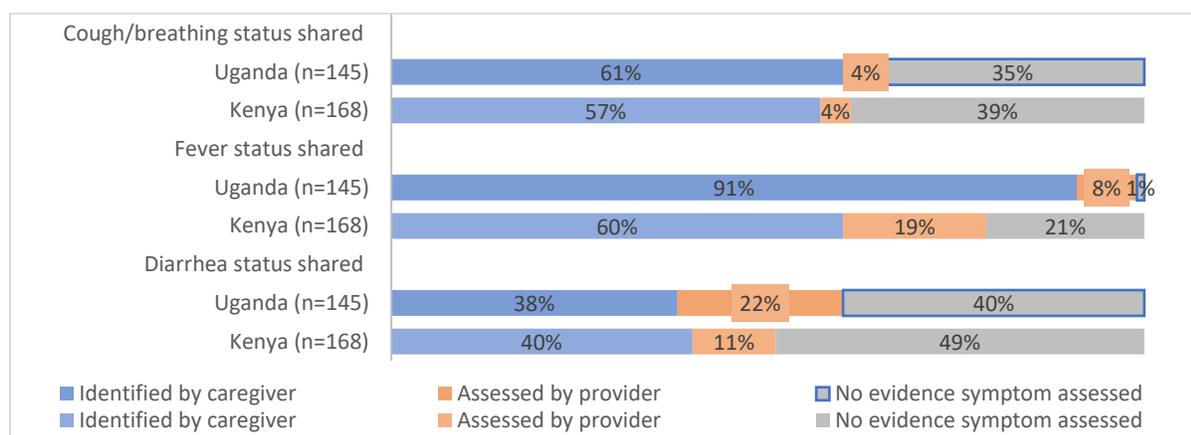


**Specific symptoms assessed:** The assessment of critical child illness symptoms was primarily passive, where the caregiver mentioned the symptom as a reason for coming to the facility, with few providers asking about the symptom if it was not mentioned by the caregiver (**Figure 84**).

**Prescription of antibiotics:** Around half of the children received antibiotics, with 16% (Uganda) and 9% (Kenya) of the prescriptions justified by the diagnosis (e.g., pneumonia and dysentery) (see **Annex Table 89**). Among those prescribed antibiotics, 14% (Uganda) and 25% were told how to take the medicine. None were provided the first dose during the consultation.

**Education for caregiver:** Explanations about how to take prescribed medicine were rarely observed, and administration of the first dose during the consultation almost never. Advice on feeding the sick child was also rarely observed being provided, with 7% and 6% of Ugandan caregivers and 17% and 18% of Kenyan caregivers instructed to give the child extra fluids and to continue feeding the child. Few (4% Uganda and 12% Kenya) asked the caregiver any questions about her health. **Annex Table 88** provides further details on education provided to the caregiver.

**Figure 84: Observed (or documented in the individual child health card) signs or symptoms assessed (Uganda n=145, Kenya n=168)**

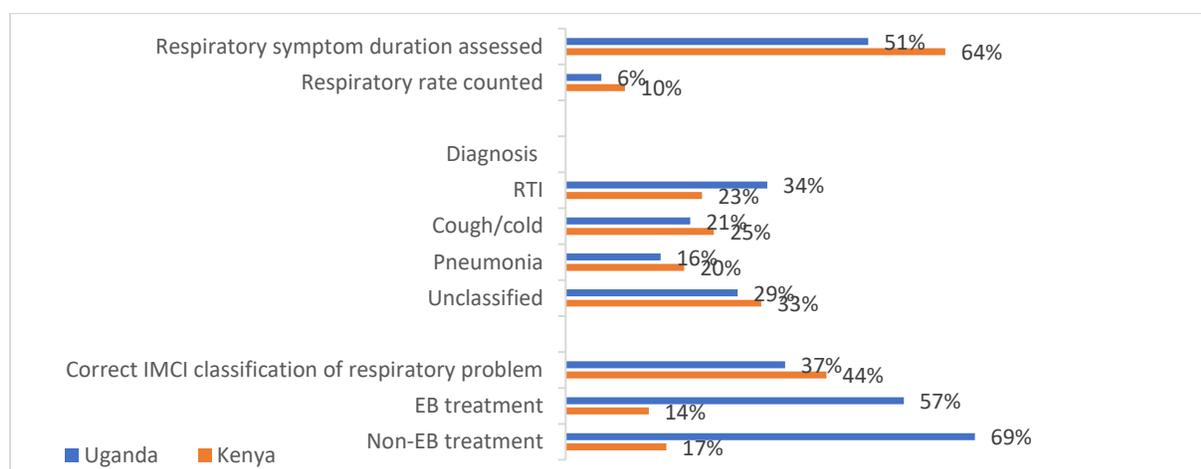


## Diagnosis and management of specific symptoms/diagnoses

**Respiratory symptoms:** Among the 65% of Ugandan children and 61% of Kenyan children who were assessed for respiratory symptoms, 95% of the Ugandan (n=90) and 99% of the Kenyan (n=100) had positive symptoms. Among those with respiratory symptoms, 51% (Uganda) and 64% (Kenya) were asked about duration of the symptoms, however, only 6% (Uganda) and 10% (Kenya) had their respiratory rate counted (**Figure 85**).

Overall, 37% (Uganda) and 44% (Kenya) of observed children with respiratory symptoms were correctly classified, as per IMCI guidelines. Among the children diagnosed with pneumonia only 57% (Uganda) and 14% (Kenya) received the EB, first-line treatment of amoxicillin, and few (7% for Uganda and 9% for Kenya) had a follow-up visit scheduled for three days later. Among the children with diagnoses of combined/other respiratory tract infection or cough, 69% (Uganda) and 17% (Kenya) were prescribed antibiotics. This would not be recommended in most cases.

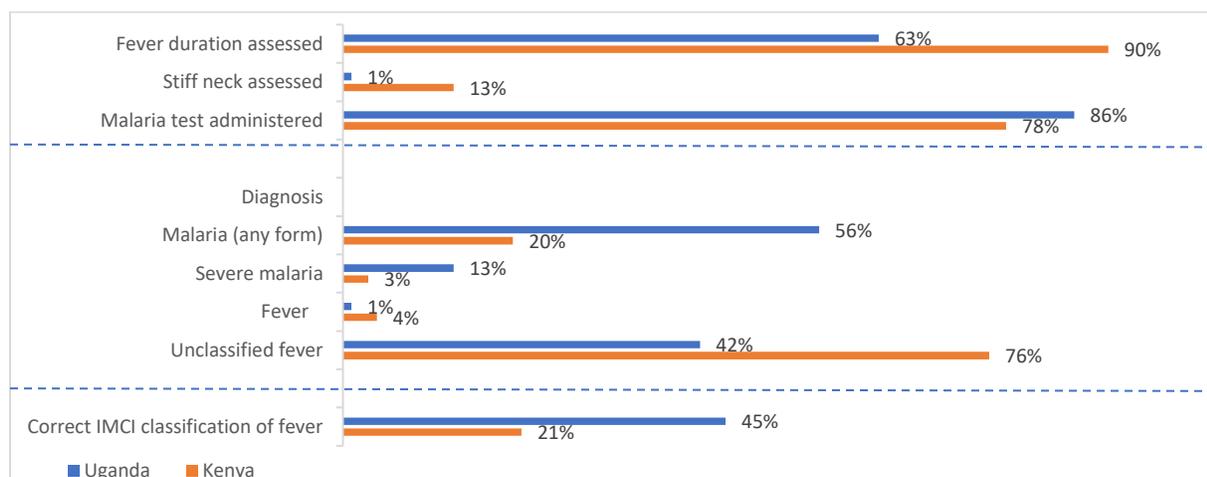
**Figure 85: Observed (or documented in the individual child health card) respiratory symptom assessment and management (Uganda n=90, Kenya n=100)**



**Fever symptoms:** Among the 95% of Ugandan and 79% of Kenyan children who were assessed for fever, 99% (Ugandan) and 79% (Kenyan) had positive symptoms. Among those with symptoms of fever, the duration was assessed for 63% (Uganda) and 90% (Kenya) and whether the patient had a stiff neck (symptom for meningitis) was assessed for only 1% (Uganda) and 13% (Kenya).

Among the children with fever, 86% (Uganda) and 78% (Kenya) had a malaria test, as recommended by WHO. Overall, 45% (Uganda) and 21% (Kenya) of observed children with fever symptoms were correctly classified, as per IMCI guidelines (**Figure 86**).

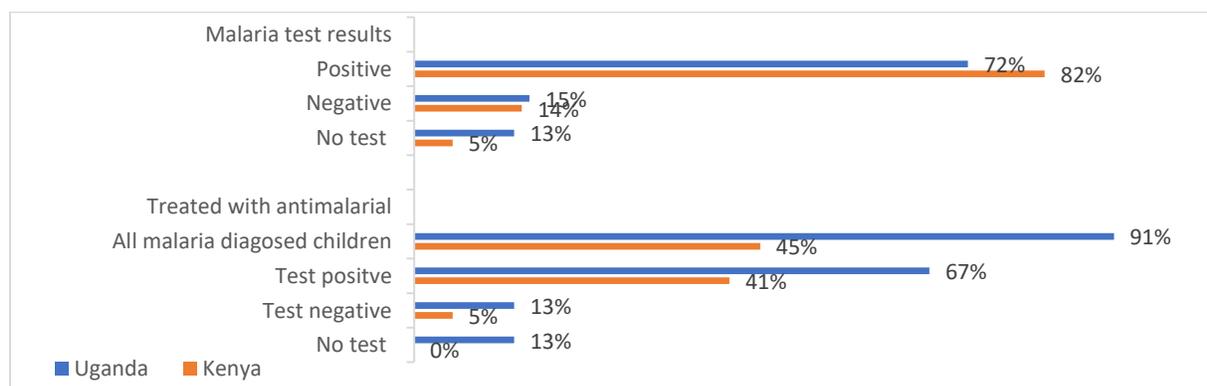
**Figure 86: Observed (or documented in the individual child health card) fever symptom assessment and classification (Uganda n=139, Kenya n=110)**



WHO recommends that all fever patients in endemic areas be considered presumptive malaria cases and that a malaria test be performed, with treatment based on a positive malaria blood test.<sup>104</sup> In total, 68% (Uganda) and 65% (Kenya) of observed **fever cases (presumptive malaria)** were correctly managed (given malaria test, if positive treated with antimalarial, if malaria test negative do not treat with antimalarial). Among the presumptive malaria patients who did not receive correct management were four fever patients (Uganda) with positive malaria tests who were not diagnosed or treated for malaria, 10 Ugandan patients who tested negative but received antimalarials, and one fever patient with no test and no malaria diagnosis but who received antimalarials (Kenya). **Annex Table 87** provides further details on the management of presumptive malaria cases.

Among those **diagnosed with malaria**, 72% (Uganda) and 82% (Kenya) were based on a positive malaria test; the others were based on clinical diagnosis (**Figure 87**). From those diagnosed with malaria, 15% in Uganda and 31% in Kenya had a negative test, and 13% (Uganda) and 6% (Kenya) had no test. In total, among all diagnosed malaria patients, 67% (Uganda) and 41% (Kenya) had a positive test and received an antimalarial. Among caregivers of patients who were prescribed an antimalarial, 9% of the Ugandan caregivers but none of the Kenyan caregivers were told how to take the drug. None was provided the first dose during the consultation. **Annex Table 88** provides further details on education provided to caregivers.

**Figure 87: Observed (or documented in the individual child health card) management for diagnosed malaria cases (Uganda n=79, Kenyan=22)**



<sup>104</sup> [https://apps.who.int/iris/bitstream/handle/10665/162441/9789241549127\\_eng.pdf?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/162441/9789241549127_eng.pdf?sequence=1)

**Diarrhea symptoms:** Among the 60% of Ugandan and 52% of Kenyan children who were assessed for diarrhea symptoms, 68% (Uganda) and 82% (Kenya) had positive symptoms. Among those with symptoms of diarrhea, the duration was assessed for 41% and 68%, a drink was offered and observed if the child would take it for only 3% and 18%, history of blood in the stool (symptom of dysentery) for 19% and 39%, and skin pinch to assess the level of dehydration performed for 10% and 42% of observed clients from Uganda and Kenya respectively. The most common diagnosis was unclassified diarrhea (61% for Uganda and 69% for Kenya), 2% (Uganda) and 6% (Kenya) were classified as having dysentery, and gastroenteritis for 23% of Kenyan children. Dehydration status was only specified for 3% (Uganda) and 42% (Kenya). Almost none of the diarrhea cases had the diarrhea classification identified, and the non-classified are assumed to be the most common type, watery diarrhea.

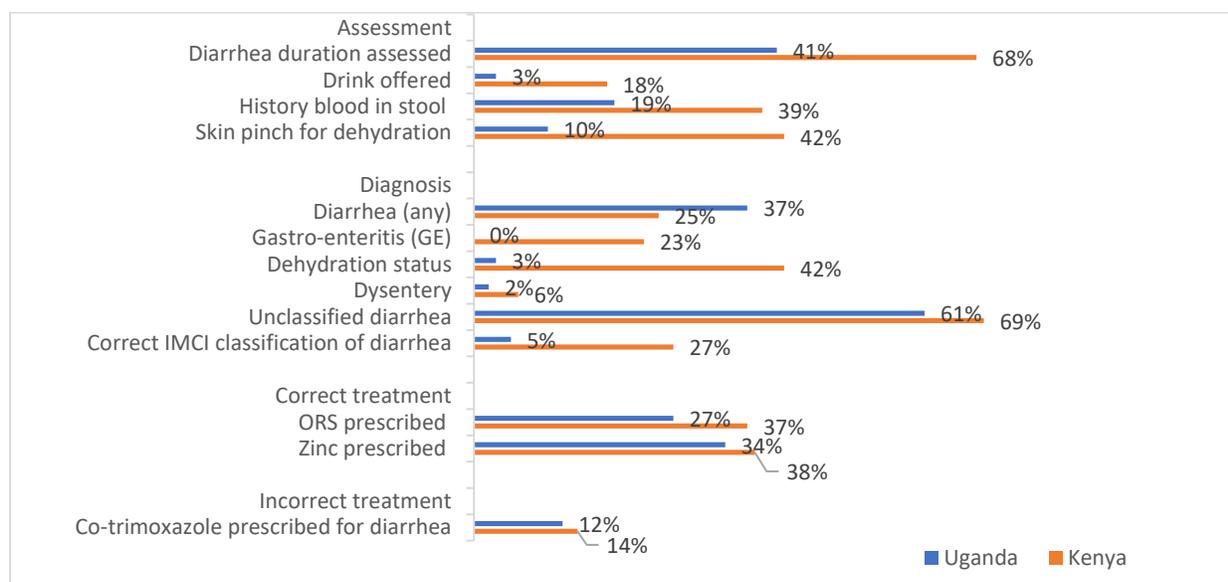
Overall, 5% (Uganda) and 27% (Kenya) of observed children with diarrhea symptoms were correctly classified, as per IMCI guidelines (**Figure 88**). Less than 40% of the children with diarrhea from either country received ORS and zinc, the recommended treatment, and 12% (Uganda) to 14% (Kenya) were incorrectly prescribed cotrimoxazole for diarrhea. Among those who were prescribed ORS, none from Uganda, but 35% from Kenya were told how to provide the ORS and 12% received a demonstration but none received any ORS during the consultation (see **Annex Table 88**).

**Prescription of antibiotics:** Around half of the observed children received antibiotics, with 16% (Uganda) and 9% (Kenya) of the prescriptions justified by the diagnosis (e.g., pneumonia and dysentery). Among those prescribed antibiotics, 14% (Uganda) and 25% were told how to take the medicine. None was provided the first dose during the consultation.

**Patient education:** As noted previously, explanations about how to take prescribed medicine were rarely observed, and administration of the first dose during the consultation almost never explained.

Advice on feeding the sick child was also rarely observed being provided, with 7% and 6% of Ugandan caregivers and 17% and 18% of Kenyan caregivers instructed to give the child extra fluids and to continue feeding the child. Few care providers (4% Uganda and 12% Kenya) asked the caregivers any questions about their own health.

**Figure 88: Observed (or documented in the individual child health card) diarrhea assessment, classification, and treatment (Uganda n=59, Kenya n=71)**



## Key findings from observation of the sick child

### Strengths

- Malaria testing for fever patients was performed on most eligible children

### Weaknesses

- Overall, adherence to IMCI guidelines for the assessment of a sick child, diagnostic criteria, and treatment for respiratory, fever, and diarrhea illnesses were weak for children under 5 years of age.
- Over-prescription of antibiotics for high burden conditions such as respiratory tract infections and diarrhea was observed.
- Provision of instructions to the caregiver on how to properly administer the prescribed treatment, and for maintaining the child's hydration and nutrition during illness was rare, with first doses never observed being provided in the facility.

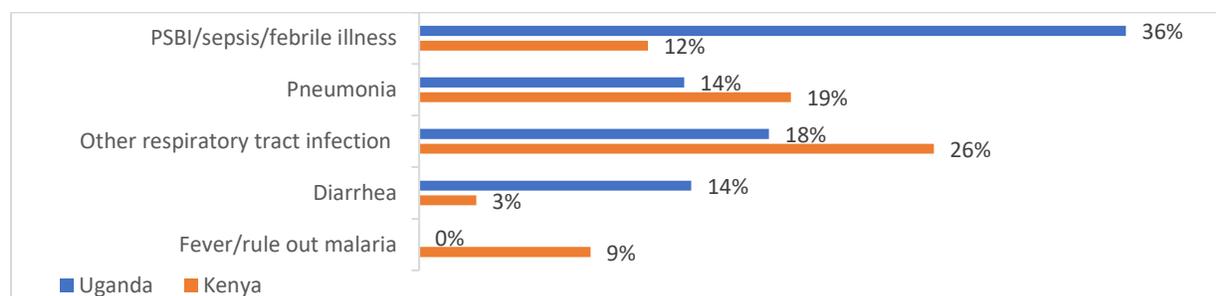
## 4. Observation on care of the sick young infants < 2 months

### Sample

Outpatient consultations for 22 young infants below two months old from Uganda and 68 from Kenya were observed. The average age was 28.5 days (Uganda) and 32 days (Kenya). Young infants were observed in four of the 10 Ugandan facilities, for nine different providers, and in Kenya in eight of 11 facilities for 14 different providers. The providers in both countries were all non-physician clinicians<sup>105</sup> **Annex Table 86** provides further details on the observed provider and infant characteristics.

Among the most common diagnoses, PSBI and related diagnoses (e.g., sepsis) made for 36% (Uganda) and 12% (Kenya) and pneumonia for 14% (Uganda) and 19% (Kenya) of observed young infants (**Figure 89**).

**Figure 89: Common IMCI priority diagnoses among observed young infants < 2 months old (Uganda n=22, Kenya n=68)**

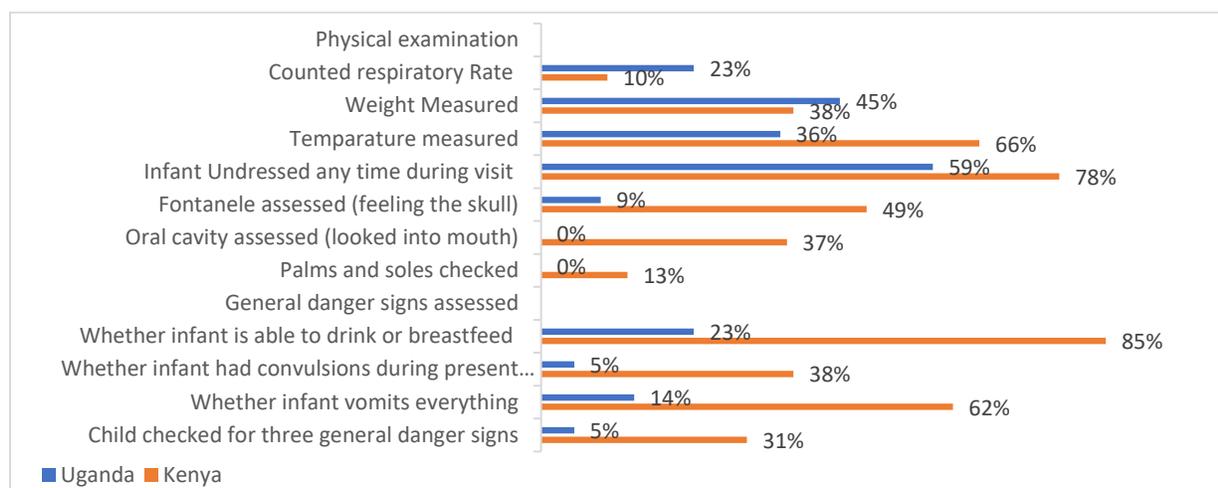


### Results

**Assessment:** Similar to the assessment for children between 2 months - 5 years, the physical assessment for the young infants below 2 months, showed weaknesses. Kenyan providers completed more of the assessments than Ugandan providers, however respiratory rate or infant weight were rarely assessed in both countries. Ugandan providers assessed each item for less than half of the observed young infants (**Figure 90**).

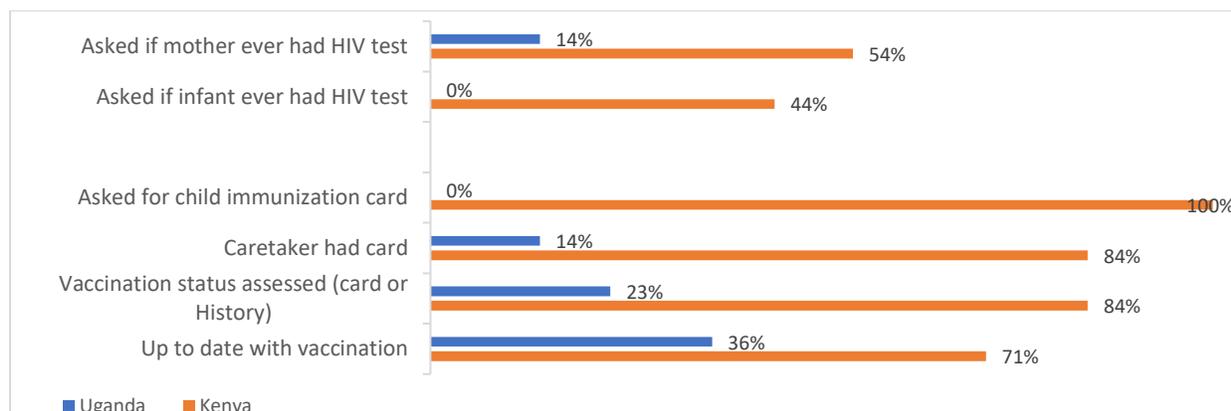
<sup>105</sup> This cadre, includes clinical officers, representing a higher level of training and authorized practice nursing/midwifery cadre.

**Figure 90: Observed assessments of the sick infant < 2 months old (Uganda n=22, Kenya n=68)**



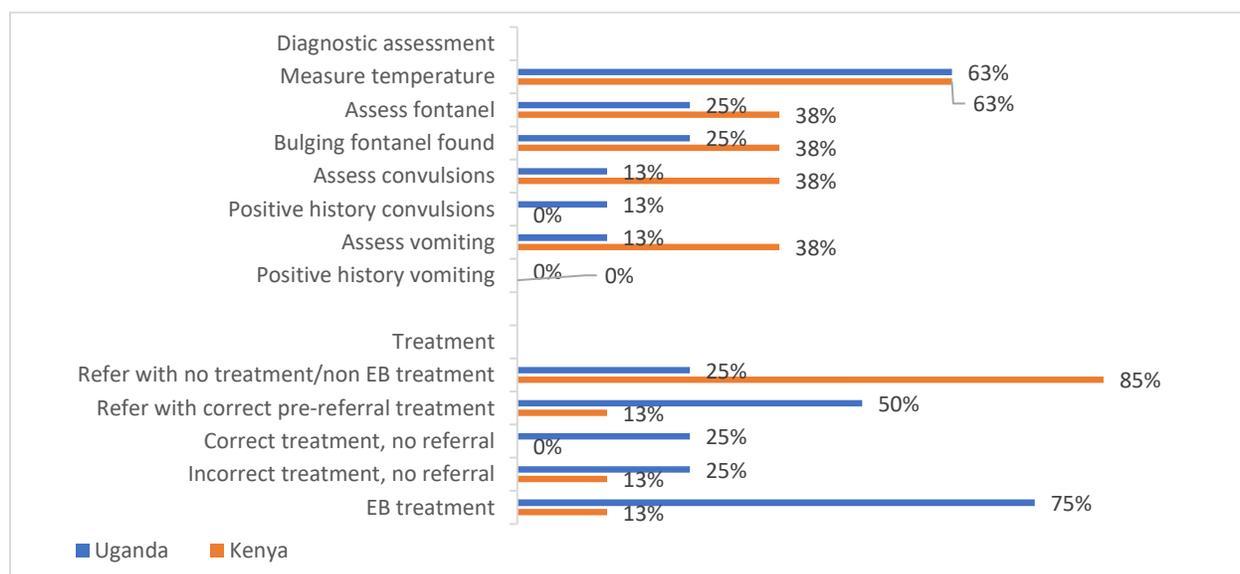
Additionally, the infant risk for HIV was assessed for few Ugandan infants and around half of the Kenyan infants. Similarly, few Ugandan providers actively assessed infant immunization status, although the 1/3 of young infants who were assessed were up-to-date. Kenyan providers were more thorough in assessing immunization status (over 80%), with most (71%) up-to-date with their immunizations (**Figure 91**).

**Figure 91: Observed assessments of HIV and immunization status for infants < two months old (Uganda n=22, Kenya n=68)**



**Management of PSBI/sepsis:** Eight patients with diagnoses of PSBI or any similar diagnosis, such as sepsis, neonatal sepsis, acute febrile illness, or septicemia, were observed in both countries. Examinations that would be expected when assessing fever for PSBI include measuring the temperature and assessing convulsions and other signs of severe infection. As seen in **Figure 92**, among assessments for PSBI, measuring fever was the most common assessment. Treatment followed EB practices for most cases in Uganda (gentamycin and ampicillin or penicillin), including for pre-referral treatment. The two Ugandan cases incorrectly treated received amoxicillin without gentamycin. The treatment in Kenya was not EB. Only one referred patient received pre-referral treatment (gentamycin), and the others have no treatment recorded. The one Kenyan case that was not referred received amoxicillin without gentamycin.

**Figure 92: Observed infant assessment and treatment: PSBI (Uganda n=8 and Kenya n=8)**



**Diagnosis and management of pneumonia:** Among observed Ugandan young infants, three were diagnosed with pneumonia and four with other respiratory tract infection diagnoses; among observed Kenyan young infants, 13 were diagnosed with pneumonia and 18 with other respiratory diagnoses.

Almost none of the young infants with respiratory diagnoses had their respiratory rate counted, so, while a provider may have subjectively assessed “rapid breathing” this was not a diagnostic criterion used for pneumonia. Most Kenyan young infants were undressed and assessed for symptoms of respiratory distress. Among the Kenyan young infants with pneumonia, 31% were referred for treatment, with only one receiving pre-referral treatment. Among Kenyan cases treated at the outpatient level, the EB treatment was provided for 38%. Among the three Ugandan patients with pneumonia, all received EB treatment (**Table 21**).

**Table 21: Management of pneumonia for observed young infants < 2 months old**

Assessment	Uganda (n=3)	Kenya (n=13)
Count respirations	0%	8%
Undress to assess	67%	77%
Infant had symptoms of severe respiratory distress	33%	77%
<b>Management</b>		
Refer without pre-referral treatment	0%	23% (n=3)
Refer with pre-referral gentamicin+penicillin	67% (n=2)	8% (n=1)
No referral, no outpatient treatment	0%	15% (n=2)
Outpatient treatment: amoxicillin/ampiclox (oral)	0%	31% (n=4)
Outpatient treatment: gentamicin+penicillin (injectable)	0%	
Outpatient treatment: gentamicin+penicillin +amoxicillin (oral)		8% (n=1)
Outpatient treatment: penicillin (injectable)	33% (n=1)	

Outpatient treatment: cotrimoxizole (oral)	0%	15% (n=2)
EB treatment	100% (n=3)	38% (n=5)

### Key findings from observation of the outpatient care of sick children ≤ 5 years old

#### Strengths

- Malaria testing for fever patients was performed on most eligible children
- Observed Ugandan infants with PSBI and pneumonia diagnoses were mostly appropriately treated.
- Observed practices showed that EB services are more commonly provided than documentation would imply.

#### Weaknesses

- Overall, adherence to IMCI guidelines for assessment of an illness, diagnostic criteria, and treatment for respiratory, fever, and diarrhea illnesses were weak for all aged children.
- Over-prescription of antibiotics for all common childhood conditions, especially for respiratory tract infections and diarrhea, was observed.
- Counseling to the caregiver on how to properly administer the prescribed treatment and on maintaining the child's hydration and nutrition during illness were rare, with first doses never observed being provided in the facility.
- Observed Kenyan young infants with PSBI and pneumonia mostly did not receive EB treatment.
- Pre-referral treatments are less frequently provided for Kenyan than Ugandan young infants, although both countries refer without pre-referral treatment.

## C. Adolescent-friendly Health Services

### 1. Provider interview: Adolescent health services

Among the respondents reporting they provide adolescent healthcare services, 28 from Uganda and 23 from Kenya answered questions about their experiences related to these services. Among the variety of adolescent health services respondents reported they offered, counseling was reported for all topics and clinical management was often more commonly reported than counseling, for illness-related issues where prevention is relevant—indicating that adolescent patients are treated but not necessarily proactively educated about issues that may impact their health. **Table 22** provides examples of the services adolescent care providers report that they provide.

**Table 22. Services respondents report they provide for adolescents**

Service category	Specific service provided	Uganda (n=28)	Kenya (n=23)
Normal growth and pubertal development	Counseling	54%	52%
	Clinical Management	14%	22%
Mental health and mental health problems	Counseling	25%	35%
	Clinical Management	43%	39%
Adolescent-specific immunization	Counseling	18%	13%
	Clinical Management	36%	17%

Family planning	Counseling	71%	65%
	Clinical Management	39%	35%
Safe abortion (where legal), and post-abortion care	Counseling	21%	39%
	Clinical Management	50%	48%
Antenatal care and emergency preparedness, delivery and postnatal care	Counseling	36%	48%
	Clinical Management	57%	43%
Reproductive tract infections/ sexually transmitted infections	Counseling	39%	57%
	Clinical Management	79%	65%
HIV	Counseling	64%	74%
	Clinical Management	57%	74%
Substance use and substance use disorders	Counseling	43%	70%
	Clinical Management	36%	22%

**Annex Table 90** provides further details on the services the respondents report that they offer.

**Training and guidelines:** Around half of the respondents from each country reported having received training in communication skills in talking with adolescents; 32% (Uganda) and 52% (Kenya) reported training related to the importance of respecting the rights of adolescents to respect and privacy; and 43% (Uganda) and 22% (Kenya) in clinical case management of adolescent patients. At least one respondent from each country reported using guidelines or job aids related to the services they provide. The most common guidelines/job aid reported to be used was on counseling related to adolescent health topics. The guidelines for adolescent health services varied by country, depending on priority topics for the country. **Annex Tables 90** and **91** provides further information on reported use of guidelines and training received by providers of adolescent health services.

**Self-reported comfort with providing specific services:** Although most respondents expressed comfort in their work with adolescents, 4% from Uganda and 14% from Kenya responded that they were not comfortable providing care or answering adolescent questions. In general, around 1/3 of Ugandan respondents and 50% or more of Kenyan respondents were familiar with adolescent-specific policies. The policy the fewest expressed familiarity with (14% from Uganda, and 22% from Kenya) was the policy regarding planning transition from pediatric to adult care.

**Annex Table 92** provides information on provider awareness of facility policies related to adolescent health services.

**Adolescent-friendly practices:** When asked about privacy for adolescent information, 57% (Uganda) and 74% (Kenya) of respondents reported that they do not disclose information about the adolescent to anybody without the adolescent's consent or court order. A few (21%, Uganda, and 17%, Kenya) reported they provide this information to legal guardians if requested or any interested party if they have legitimate interest (e.g., to ensure safety of other students) (14%, Uganda, and 4% Kenya) without seeking adolescents' consent. **Annex Table 92** provides further information on provider knowledge of adolescent-friendly practices.

Adolescent-friendly service practices that respondents reported discussing or taking action about included convenient service hours (46% and 30%), minimizing waiting time (75% and 48%), for Ugandan and Kenyan respondents, respectively. In general, providers of adolescent services reported they advocate with adults and adolescents about the value of adolescent-specific services. Additional activities include

training outreach workers and peer educators, and reassuring adolescents that information and services are confidential, except in specific situations.

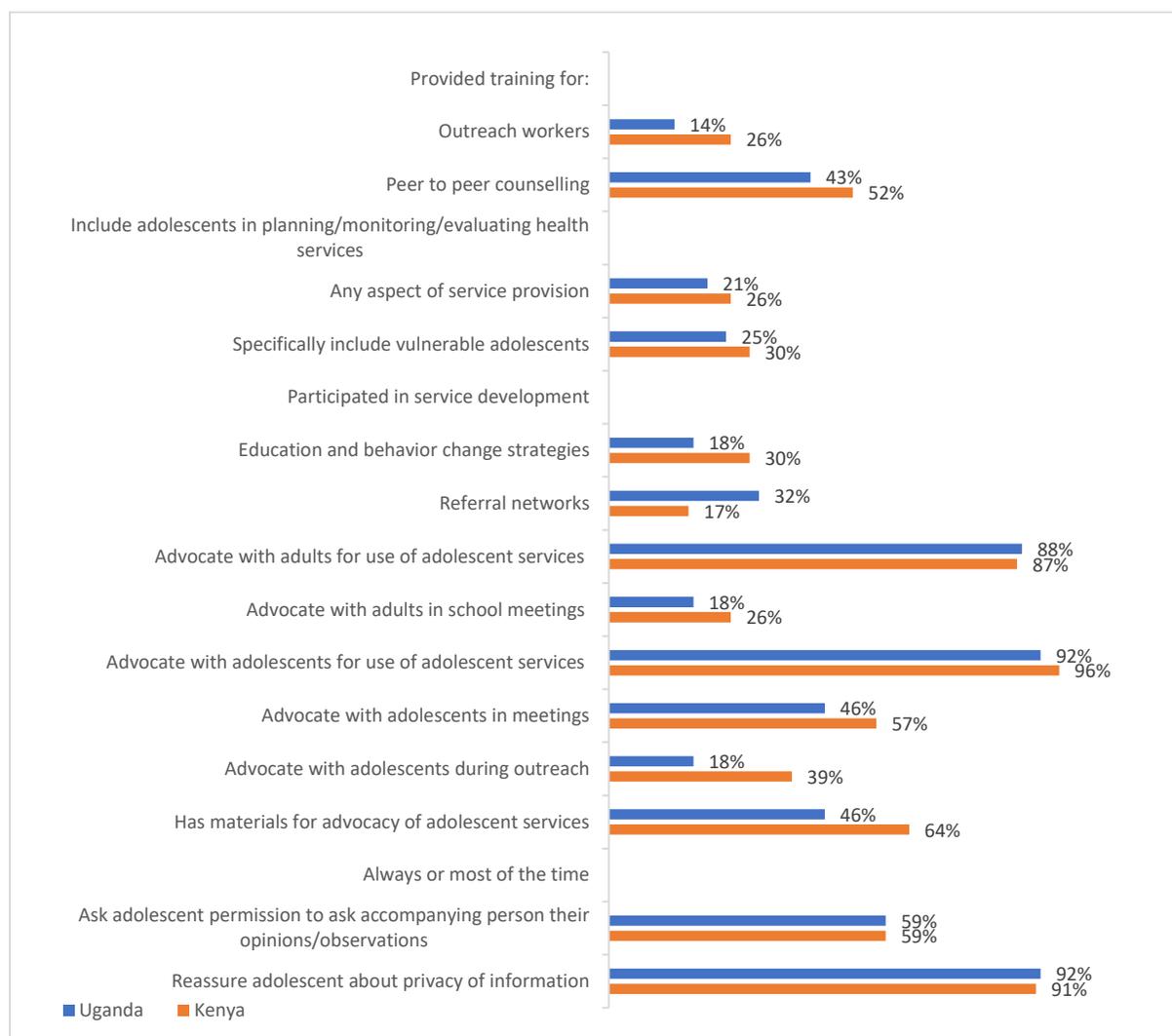
**Figure 93** and **Annex Table 93** provides details on provider awareness of issues about adolescent use of health services and experiences with promoting adolescent health service use.

**Counseling of adolescents:** When asked about counseling of the adolescent, providers reported they always or almost always ask about their home and relationship with adults (77% and 82%), ask about school (82% and 78%), and ask about sexual relationships (89% and 76%) for Ugandan and Kenyan respondents, respectively. They also reported asking about questions more directly related to health such as eating habits (56% and 50%), physical activity (48% and 50%), and substance use (77% and 81%), Ugandan and Kenyan respondents, respectively. **Annex Table 94** provides details on provider description of the frequency with which they employ various interactions and practices aimed toward adolescent-friendly services and counseling.

Around 80% of respondents from each country reported routinely educating adolescents about consequences of early marriage and the health consequences of having a baby at a young age (92% Uganda, and 76% Kenya). The most common consequence of youth pregnancy mentioned was difficult labor (33% and 46%) for Uganda and Kenya, respectively. Additional counseling messages providers mentioned related to early marriage and pregnancy in youth are described in **Figures 96** and **97**. **Annex Table 95** provides further details on counseling related to early marriage and pregnancy.

**Knowledge about contraceptives:** Providers were asked about their knowledge of the effectiveness and side effects of different contraceptive methods. On average, the respondents from both countries ranked contraceptive methods from the lowest effectiveness to highest correctly. They were less certain about various conditions under which the emergency contraceptive pill was appropriate. **Annex Table 96** provides further details on contraceptive services provided and provider knowledge about contraceptives for adolescent health.

**Figure 93: Provider actions to improve adolescent service utilization (Uganda n=30, Kenya n=22)**



### Key findings of provider interviews on adolescent health services

#### Strengths

- Advocacy with adults and adolescents for utilization of adolescent health services is widely reported.
- Reported availability and utilization of guidelines/job aids for adolescent focused services were widely reported, particularly for issues where adolescents may be highly vulnerable (e.g., violence, reproductive health)
- Over half of providers of adolescent health services reported recent training in related subjects
- Confidentiality of adolescent services is an acknowledged issue that is addressed in promoting service utilization.

#### Weaknesses

- Advocacy for adolescent health service utilization outside of the facility (e.g., in schools, community meetings) were reported by less than 1/2 of respondents.

- Provider knowledge about contraceptive effectiveness and situational utilization, particularly for emergency contraception, could be enhanced to improve effectiveness of counseling.
- Familiarity with policies/normative guidance around planning the transition from pediatric to adult care was weak in both countries.

## 2. Client interview: Adolescent health services

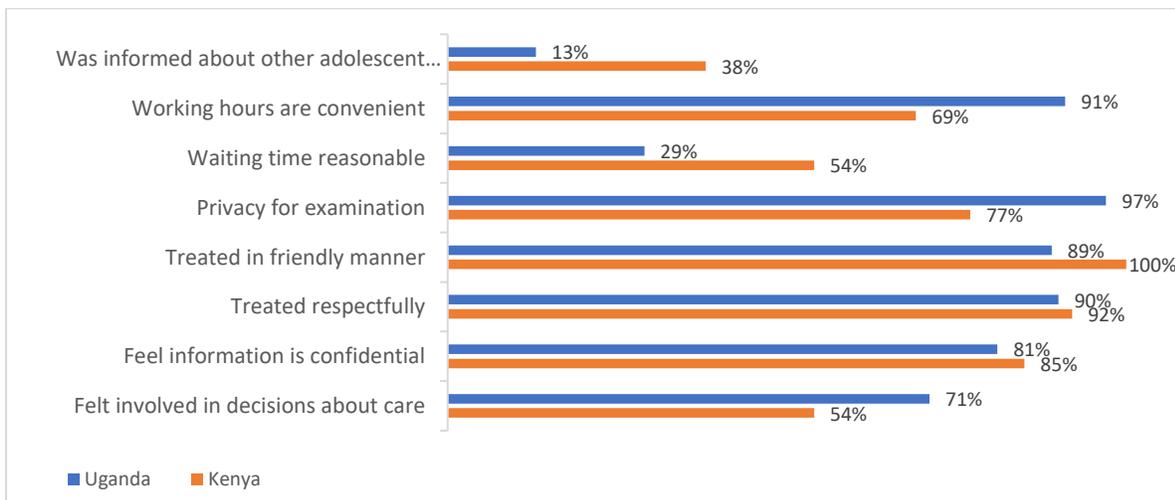
Ninety-three adolescent clients from Uganda and 13 from Kenya were interviewed, all female. Among these, over half from both countries came to the facility alone. Most youths came for the services without a companion (59% Uganda and 46% Kenya). Among all respondents, Ugandan youth were more likely to be accompanied by their spouse (38%) and Kenyan by a parent/guardian (38%). Most (89% from Uganda and 54% Kenya) were at the facility for ANC services. An additional 9% (Uganda) and 46% (Kenya) were seeking care for an illness. **Annex Table 97** provides further details on characteristics of adolescent respondents.

Few respondents (13% from Uganda and 38% from Kenya) reported they had received information about additional services available for adolescents, and few could name (non-prompted) services other than those they were seeking that were available for adolescents. Services of interest where adolescent-friendly services might particularly affect utilization, such as FP services, HIV services, and services for substance use, were rarely mentioned. Ugandan respondents mentioned almost no services. Among Kenyan respondents, the most commonly mentioned services were for pregnancy-related or curative care services (around 1/3 or respondents mentioned these). **Annex Table 97** provides further details on adolescent knowledge of other services.

**Improving utilization of services:** Among questions about issues that might influence adolescent willingness to use services, most in Uganda (96%) but few from Kenya (23%) reported they had received information about the availability of services for adolescents from the community. Most adolescents felt they were treated respectfully and were comfortable with the services and privacy (**Figure 94**), although few respondents were familiar with specific patient rights, with the right to be treated respectfully mentioned most often (15% and 33% for Ugandan and Kenyan respondents, respectively).

**Service components:** Overall, adolescents of both countries were satisfied with provided services, except waiting time that seemed to be reasonable only to 29% of Ugandan adolescents and slightly over half of Kenyan youth (**Figure 94**).

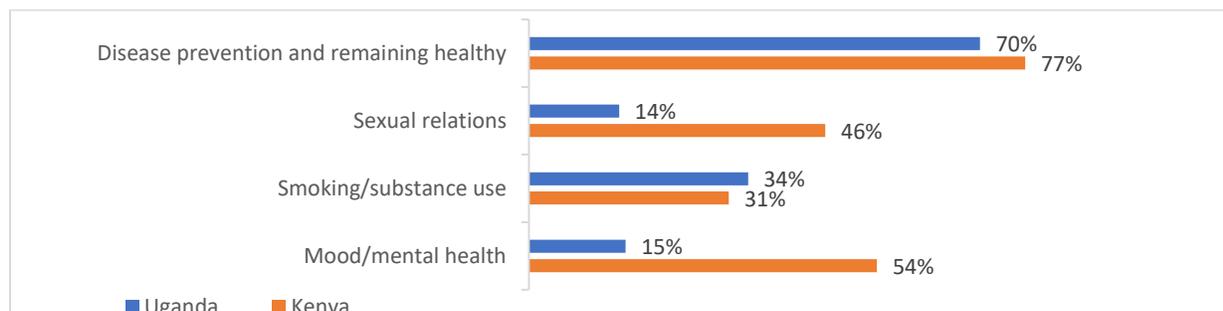
**Figure 94: Client experiences this visit regarding issues that might influence adolescent willingness to use services (Uganda n=93, Kenya n=13)**



**Annex Table 97** provides further details on adolescent client responses on non-service specific issues.

Respondents from Uganda reported more information was asked by the provider about the home and life-style situation, along with mental health and sexual relations than those from Kenya. Substance use/smoking was reported by around 1/3 of respondents from both countries (**Figure 95**).

**Figure 95: Client reported issues discussed during most recent service (Uganda n=93, Kenya n=13)**



### Adolescent knowledge/awareness of lifestyle issues

Adolescent respondents<sup>106</sup> were asked questions to assess their awareness and knowledge about issues particularly relevant to female reproductive health.

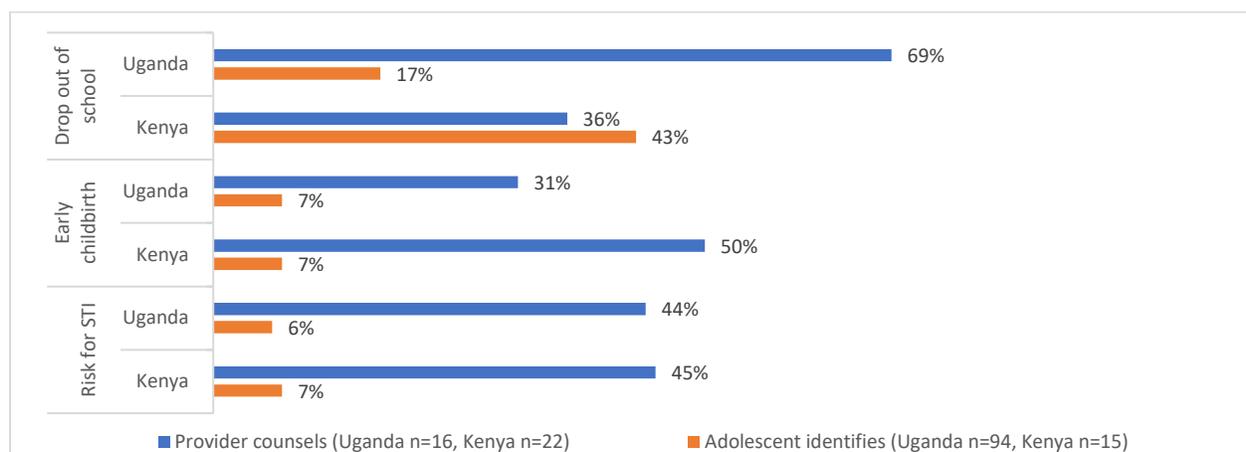
**Anemia:** Asked to mention what they know about anemia, the most common (non-prompted) response was that it leads to weakness and tiredness (33% Uganda and 40% Kenya). Response for preventing anemia were to eat leafy green vegetables (46% and 20%) or vegetables (20% and 27%) from Ugandan and Kenyan respondents, respectively. Additional iron and folic acid tablets were mentioned by 23% (Uganda) and 13% (Kenya).

**Early marriage and pregnancy:** Asked about consequences from early marriage, 17% (Uganda) and 43% (Kenya) mentioned dropping out of school. Only 7% from each country mentioned early childbirth (**Figure 96**).

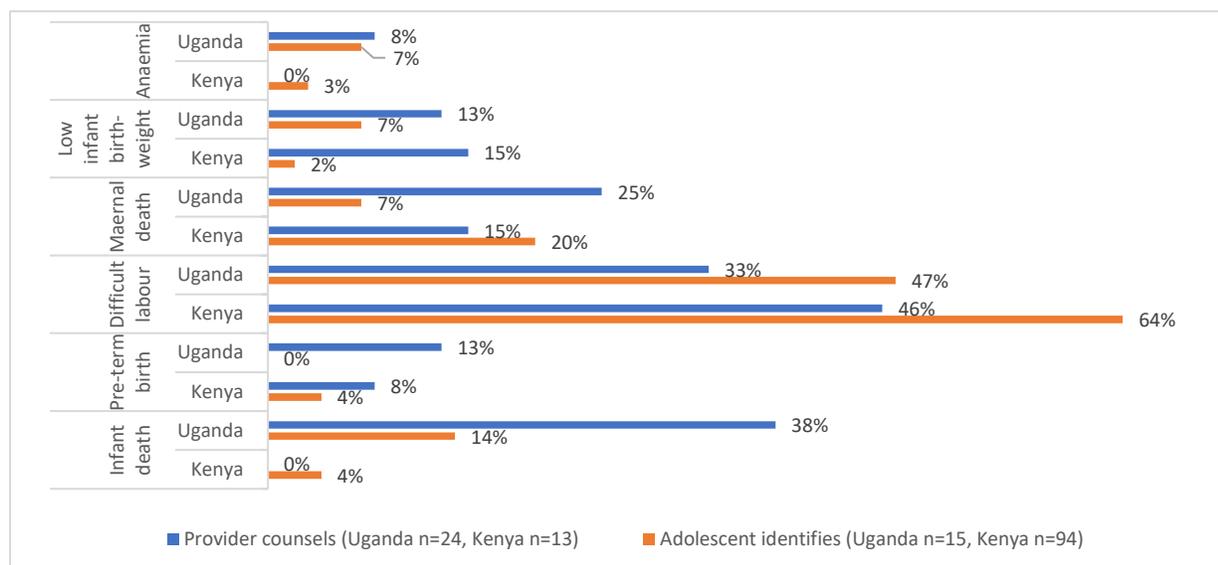
Asked about consequences of childbirth at a young age the most common response was difficult labor (47% of Ugandan and 64% of Kenyan respondents). Additional consequences mentioned were death of the mother (7% and 20%) and death of the baby (14% and 4%) from Ugandan and Kenyan respondents, respectively (**Figure 97**).

<sup>106</sup> One adolescent health respondent did not complete the adolescent knowledge interview, and three adolescents who did not complete the adolescent health interview (two completed the ANC interview) did complete the adolescent knowledge interview.

**Figure 96: Provider reports of counselling messages provided and adolescent identified consequences of early marriage**



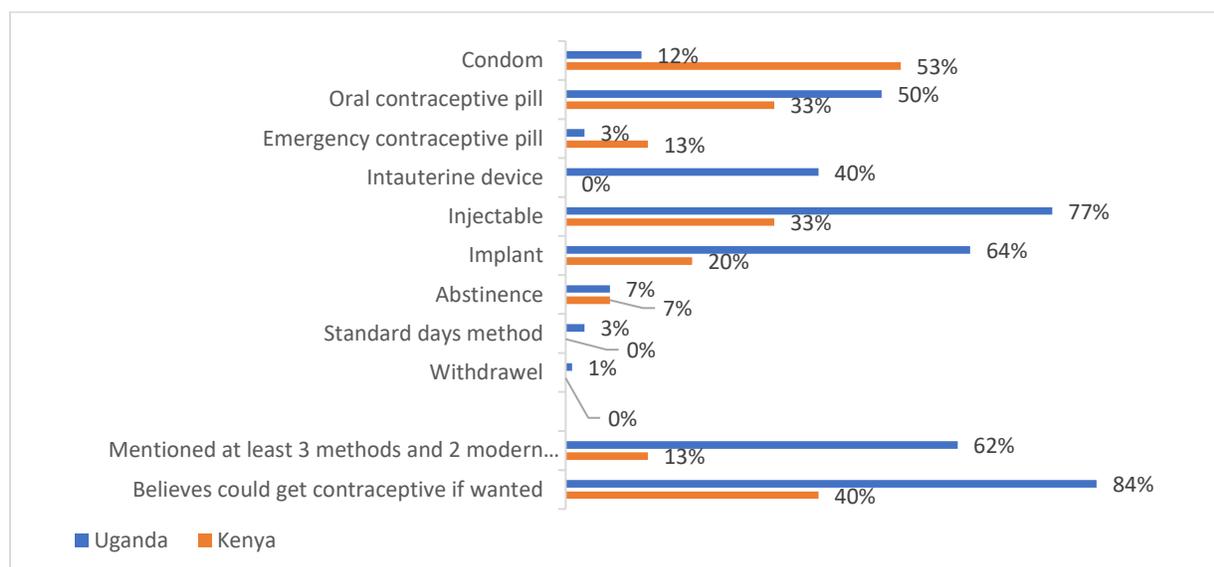
**Figure 97: Provider counselled messages and adolescent identified consequences of early pregnancy**



Asked where adolescent girls could receive ANC services, the most common response was government hospital (79% and 67%) and health center (23% and 20%) for Ugandan and Kenyan respondents, respectively.

**Family planning and contraception:** Respondents were asked to name contraceptive methods that they knew of, non-prompted (**Figure 98**). Ugandan respondents were able to spontaneously mention more methods than Kenyan respondents.

**Figure 98: Client responses: Knowledge of types of contraceptive methods (unprompted) (Uganda n=95, Kenya n=15)**



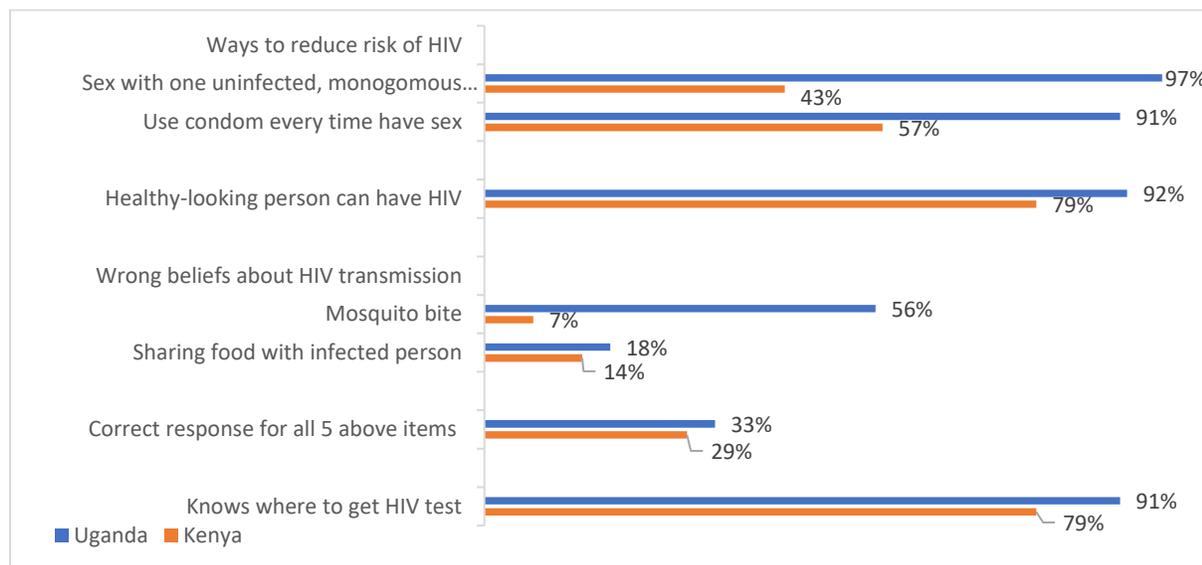
Asked specifically about emergency contraceptive pills (ECP), 9% (Uganda) and 33% (Kenya) of respondents reported they knew of this method, with 3 of 5 of the Kenyan respondents familiar with the method knew what the ECP pills were for and where to get them. Fourteen of 19 (74%) of the Ugandan respondents who had heard of the ECP knew what the pills were for, with 11 (58%) reporting they knew where to get ECPs.

**HIV:** Asked specifically about HIV prevention, transmission, and testing, only around 1/3 of respondents from each country correctly answered five questions about HIV prevention and transmission (**Figure 99**). Kenyan respondents more correctly identified each individual item correctly. Almost all respondents (91% Uganda and 79% Kenya) reported they knew where they could get an HIV test if they wanted.

**Menstrual care:** When asked to provide non-prompted items for health care when menstruating, 93% (Uganda) and 86% (Kenya) of respondents mentioned they should shower daily when menstruating, and 83% (Uganda) and 93% (Kenya) mentioned they should use sanitary napkins. Few respondents mentioned drying cloths used in lieu of sanitary napkins in the sun, or how to safely dispose of sanitary napkins. Almost all respondents (89% Uganda, and 86% Kenya) mentioned two appropriate items.

**Sexually transmitted infections (STIs):** Asked if they knew of diseases that can be transmitted through sexual intercourse, 97% (Uganda) and 57% (Kenya) said yes. Among the 92 (Ugandan) and eight (Kenyan) respondents who knew of sexually transmitted diseases, non-prompted symptoms most commonly mentioned were abdominal pain (20% Uganda, 43% Kenya), and genital ulcers/sores (14% Uganda and 29% Kenya). Ugandan respondents also mentioned other common symptoms of genital discharge (20%), foul-smelling discharge (8%), and burning/pain with urination (13%). At least one correct response was provided by 54% of Ugandan and 29% of Kenyan respondents. The majority (96%--88 of 92 Ugandan and 79%--5 of 7 Kenyan) identified a government health facility as a location for seeking care.

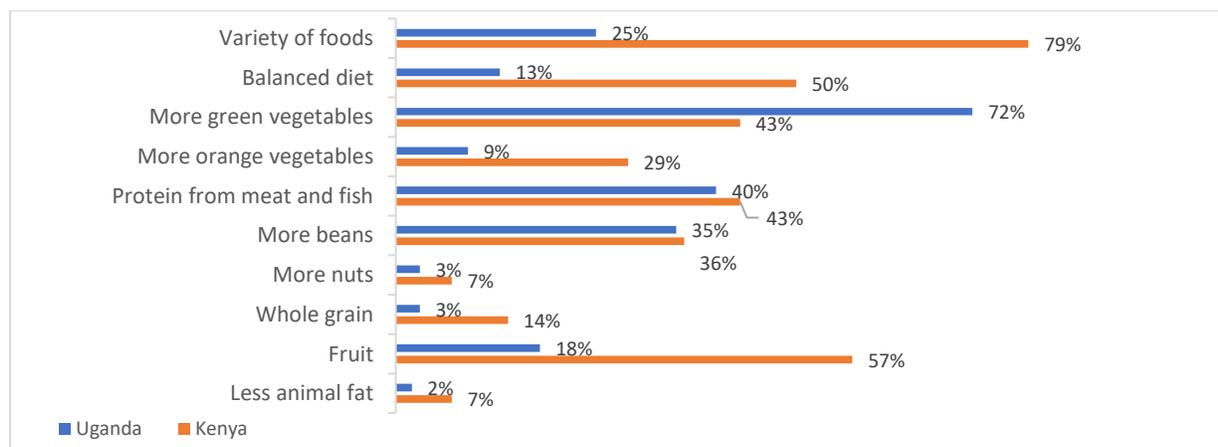
**Figure 99: Client responses: Knowledge about HIV prevention, transmission, and testing (Uganda n=95, Kenya n=14)**



**Other healthy behaviors:** Asked about foods for healthy eating, respondents spontaneously mentioned a variety of correct foods and food mixtures (**Figure 100**). A few Ugandan respondents also mentioned eating less processed food, less salt, and less sugar.

Other questions only had respondents from Uganda, with 97% identifying seven hours as appropriate for weekly exercise, 9% identifying the HPV vaccination for preventing cervical cancer, and only 3% identifying that the HPV vaccination should be provided before becoming sexually active.

**Figure 100: Client response: Knowledge about healthy eating (unprompted) (Uganda n=91, Kenya n=14)**



**Annex Table 98** provides further details on adolescent knowledge about health and health services.

**Key findings for adolescent health services**

**Strengths**

- Adolescent-focused health services and advocacy for utilization of these services by adolescents were frequently reported by service providers.

- Both providers and clients indicate an awareness of the right to and practice of respectful service provision and protection of confidentiality for adolescent clients.
- Almost all respondents (91% Uganda and 79% Kenya) reported they knew where they could get an HIV test if they wanted.

#### **Weaknesses**

- Counseling practices to discourage early marriage and childbirth were not strong, with substantial percentages of interviewed providers and adolescents unable to name key risks for early marriage and pregnancy.
- Only around 1/3 of respondents from each country correctly answered a series of questions about HIV prevention and transmission, with more Kenyan respondents correctly identifying each individual item.

## **I. DISCUSSION**

This section presents and discusses synthesized results across all data sources for client-centered best practices for RMNC+A, cross-cutting issues, and the context of interpreting the results. It highlights inter-country differences and common trends by analyzing and triangulating data from different sources.

### **A. Evidence-based Practices for Client-centered RMNC+A Services**

EB practices to reduce symptoms and manage high-burden maternity conditions, such as hypertension in pregnancy, pre-eclampsia, preterm labor, and postpartum hemorrhage, remain weak, with low percentages of providers reporting training and practices for these conditions. Findings were similar for implementation of EB practices for child health services.

#### **1. Antenatal care**

In general, there was no evidence that thorough assessments of risk history, risk signs and symptoms, and physiological symptoms are conducted. Where this information was documented, high proportions of responses were positive, likely indicating that the issues were raised either because the woman was experiencing a problem, or where full assessments were carried out, those negative responses were not routinely recorded. It appeared that while a few most common risk signs might specifically be asked about (e.g., vaginal bleeding) more commonly than others, that in general, problems likely were identified if a topic arose, such as during counseling or if the woman had particular concerns. If only a general question rather than each symptom is asked, this may result in inconsistent identification of symptoms that may have occurred between visits but are not a problem the day of the visit. On the other hand, as the interviewed ANC clients stated, symptoms may not be thought to important enough to mention. This attitude risks late identification of problems or complications during pregnancy and limits the opportunity of timely intervention and positive care outcome.

All data collection methods supported findings that although providers know topics of importance for ANC **counseling**, counseling on some key topics (breastfeeding, birth spacing, or family planning) is not occurring systematically. The observation information from both countries showed evidence that counseling on risk signs during pregnancy is higher than documentation would indicate. The most common maternal risk factor that was counseled and that women knew of was vaginal bleeding.

Interventions related to **physiological signs, risk signs, and complications** frequently were not noted to follow EB practices. Providers could identify some of the EB practices, but also identified interventions that may be based on older practices that are no longer recommended (e.g., bed rest and reduced salt for pre-eclampsia).

Although overall, Kenya had stronger monitoring and treatment practices, there were weaknesses for both countries. Routine monitoring of **blood pressure** and checking **urine protein**, even for hypertensive women, was not consistent, especially in Uganda. Provision of antihypertensives during pregnancy was not routine, and, if the woman was referred for treatment, the follow-up was not documented. Additionally, while screening for **syphilis** and **diabetes** in pregnancy was not routinely documented; where positive results were found, follow-up treatment was not documented.

Recommended diagnostics (testing for anemia, urinalysis for bacteria and for protein, blood cross-match and typing, syphilis testing, and blood or urine sugar) were not reported by providers as commonly assessed and were rarely documented, particularly for Uganda. Using laboratory diagnostics is important for reducing the subjectivity of assessment and for early identification of problems. Facility capacity for conducting these tests in Uganda was particularly low (with the exception of syphilis testing), even though there are rapid tests for most of these. Observation of services and review of individual ANC cards and delivery records showed that Kenya consistently was stronger in using laboratory diagnostics, supported by client responses about receiving tests.

Provider responses indicated that a large percentage of providers from both countries (more so from Uganda) were not comfortable with managing hypertension in pregnancy, pre-eclampsia, or diabetes in pregnancy and did not use guidelines for these conditions. These are also the complications for which practices were weak. The level of comfort may be associated with the experience in encountering and managing some of these complications. Kenyan facilities were higher level and had more specialized staff. It is possible that the providers at Ugandan health centers (the majority of the Ugandan assessed facilities) were not authorized to provide some of the interventions such as antihypertensives or interventions for pre-eclampsia. Even if the services were provided through internal or out-referrals, results were not documented and thus were not available for clinical management of the pregnant women with or at risk of abovementioned complications.

Provider knowledge of recommended IPT practices was high for both countries, and IPT status<sup>107</sup> was recorded for most (87% Uganda and 90% Kenya) clients whose documentation was reviewed. Although almost all eligible<sup>108</sup> ANC clients had received at least one IPT dose, the full IPT course was rarely found to have been provided even where the number of visits indicated the client was eligible for having completed the regimen. Availability/use of guidelines for IPT by Kenyan providers was lower than for Ugandan providers. Distribution of LLINs was reported by 81% (Uganda) and 60% (Kenya) of interviewed providers, and client interviews indicated high levels of ownership (81% Uganda and 97% Kenya).

In general, the services where providers described recent training and use of guidelines (IPT, PMTCT, general ANC care), the related services were more consistently provided, and where guideline use and recent training were low, related services were weaker (preterm labor, various topics related to pre-eclampsia). Provision of interventions for complications and risk were low in both countries, but higher in Kenya than Uganda, likely reflecting the higher level of facility and provider qualifications who were assessed in Kenya. Although providers showed knowledge of symptoms and interventions for various risk signs and physiological conditions, they also reported older practices that are not currently recommended by WHO. This was particularly noted for physiological conditions and management for women with high blood pressure and symptoms of pre-eclampsia.

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<sup>107</sup> Women are eligible for IPT at any time after the 12<sup>th</sup> week of pregnancy and should receive 3 doses of the IPT drug (usually sulfadoxine and pyrimethamine) with each dose one month apart. Women who are on cotrimoxazole for HIV positive preventive treatment are also usually considered ineligible.

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## 2. Care around childbirth

Reported practices, observations, and client responses indicate that there is an **awareness and actual follow-through in practice to involve the client in decisions and to provide treatment respectfully**. In general, clients were content with the way they were treated, their level of involvement in decisions, and the degree of privacy that they had. Generalized informed consent and consents for C-sections were widely reported to be practiced. Practices that are not confirmed best practices and that may discomfort women (e.g., pubic shaving, enemas) were reported by 20-30% of providers from Uganda and around 60% of Kenyan providers, but observation and client interviews showed these were actually rarely carried out.

Encouraging the presence of birth companions was described by most providers as a common practice, and interviewed clients reported they had birth companions with them at different stages of the delivery process. This was more often encouraged and practiced among observed clients in Uganda than in Kenyan. Among the observed women for labor and delivery services, around 90% of Ugandan and 8-14% of Kenyan women were accompanied by a companion at different points in the delivery process.

Episiotomies (not recommended as routine practice) were rarely recorded (1% each country) although an additional 2% of the Ugandan women had third- or fourth-degree perineal tears documented (none of which received prophylactic antibiotics). Whether these cases should have had episiotomies or not would require further information.

**Recent training, knowledge, and use of guidelines** for EB practices were not reported by most providers, although they were reported by more Kenyan than Ugandan providers. For most EB practices for maternal and newborn health care, **providers self-reported comfort in providing routine services** was high, but self-reported comfort in providing interventions to minimize complications, low. Providers reported more comfort in managing complications that have been addressed over many years (such as delayed/obstructed labor and postpartum hemorrhage) and where drug interventions were known; record reviews showed drug interventions were used. More recently promoted EB interventions for PPH (e.g., condom tamponade) and to reduce risk of pre-eclampsia (e.g., calcium and aspirin) were rarely reported as interventions used by providers, nor were they noted during record reviews. In general, Kenyan respondents reported a high comfort level with screening for and managing high-burden maternal complications (PPH, pre-eclampsia/eclampsia, prolonged/obstructed labor, peripartum infections, and preterm delivery), while an average of 14% (Uganda) and 7% (Kenya) reported low levels of confidence across these same services. This may well be a reflection of the overall greater experience of Kenyan respondents in conducting deliveries, the higher-level qualifications among interviewed Kenyan providers, and the higher-level facilities for the Kenyan sample.

Overall, Kenyan providers showed stronger **practices at all stages of L&D**, although these were still weak. Across all methods of assessment and all stages of L&D, the least commonly assessed and recorded information were urine protein results, urinalysis results, syphilis test results, a full assessment of symptoms and risk-factors during prior or current pregnancy, and measured temperature and maternal pulse. Observations and record reviews showed gaps in monitoring during L&D, particularly with the timing and recording of both maternal and fetal measures. Use of partographs was reported by almost all providers completing the delivery questionnaire, however record reviews showed lower levels of actual availability of completed partographs, particularly in Uganda, where partographs were found for 44% compared with 84% of Kenyan deliveries with record reviews from a general sample. Records selected for review of maternal complications deliveries had a lower percentage of records with partographs (27% Uganda and 66% Kenya). It was notable that, whereas the recording on partographs was similar for those reviewed during record reviews and observations, recording of measurements on partographs was more frequent than measurements actually observed. The differences between what was observed and what was documented need further investigation, to identify whether the recording was incorrect, or whether the observation missed some activities. These discrepancies, along with limited utilization and or

completion of partograph, hinder the opportunity of using this tool for effective management of the labor and delivery.

The documentation of **immediate postpartum care** was not strong. Routine provision of oxytocin within the first minute after birth was reported by most providers (62% Uganda and 78% Kenya) and observation showed similar levels of actual practices. The timing of the provision of oxytocin, however, was not recorded around 30% or more of the records from each country. Recording of the time the placenta delivered and estimated blood loss was low for all reviewed delivery records, including those for observed delivery clients. Preventive measures of immediate postpartum uterine massage/examining the placenta for completeness were observed for most (72%/91% of Ugandan clients and 100%/92% of Kenyan clients), however these practices were rarely documented.

**Antibiotics for prevention and treatment of maternal conditions:** Provider knowledge, training, use of guidelines, and documented practices related to administering antibiotics for prevention or treatment of maternal symptoms of infection, following WHO best practices, were weak. When provided a situation and then asked about treatment, types of cases where antibiotics are routinely warranted were over-reported by almost all providers. Overall, record reviews showed 18% (Uganda) and 42% (Kenya) of women with conditions warranting antibiotics documented with an EB treatment; the others had no record of receiving any antibiotic. Pre-surgical EB antibiotics for cesarean sections (C-sections) (a correct practice) were almost universally recorded for Kenyan patients in all record reviews, but for less than half of Ugandan C-sections.

Providers' knowledge, self-reported provision of the services, and documentation review showed that while knowledge of symptoms and monitoring for **pre-eclampsia** was high, practices for prevention and treatment were low. Knowledge and comfort in providing the service were reported at much higher levels by Kenyan respondents, however, record reviews showed that while severely pre-eclamptic women received MgSO<sub>4</sub> when indicated, provision of the full treatment and adequate monitoring of the women during the treatment was not ensured.

Although low percentages of ANC record reviews demonstrated **antihypertensive treatment** of pregnant women with high blood pressure, the delivery records showed almost all delivery patients (92%, Uganda and all Kenyan) with severe pre-eclampsia (diastolic blood pressure >110) had an antihypertensive documented.

Knowledge for identification and interventions for **PPH** was high, however, actual practices documented for monitoring and treatment of PPH were less comprehensive. There was no documentation of bimanual compression of the uterus, aortic compression, or balloon or condom tamponade being used for PPH from either country, although provider knowledge questions indicated knowledge of these interventions, particularly in Kenya.

Among records reviewed with a diagnosis of **prolonged/obstructed labor**, few used a partograph with a 4<sup>th</sup> action line (5%, Uganda, and 30%, Kenya). Results from assessments related to identifying the cause of the delayed labor and administration of labor augmentation drugs were rarely recorded.

Knowledge about criteria for safe administration of **ACS** was low, and record reviews showed low percentages of women with preterm labor received ACS. Among the few cases, the providers did not seem to differentiate ACS administration by the degree of prematurity in that they used ACS both before and after 34 weeks of gestation.

Training and use of guidelines related to care of the **small/sick newborn**, while not common, were more frequently reported by Kenyan respondents, with Kenyan respondents also reporting more experience with newborn care for complications. Knowledge, however, was not strong. Among a variety of approaches to elicit responses about identifying the infant at risk, symptoms of risk, and initial actions for suspected sepsis, the percentages of respondents identifying correct responses were low. Ask to identify danger signs (non-prompted), less than 20% of Ugandan childbirth care provider respondents mentioned

hypothermia, fast breathing, movement only when stimulated, or convulsions. Although higher proportions of Kenyan respondents identified danger signs, the percentages were still low.

Management of young infants with RDS was weak in both countries, with the EB intervention (CPAP) used at low levels in Uganda and not documented in Kenya.

Recent training on **newborn resuscitation** was reported by less than half of respondents (37%, Uganda, and 45%, Kenya). Kenyan respondents reported more experience in newborn resuscitation and greater comfort in providing the intervention and performed better for the neonatal resuscitation case study. Management of newborn asphyxia was assessed in record reviews for a general sample and for a sample selected specifically for the diagnosis of asphyxia. The record reviews for a general sample of infants documented that infants with newborn asphyxiation were resuscitated with bag and mask at higher levels in Kenya (56%) than Uganda (10%); however, among the infants selected for diagnosis of asphyxia, the levels of resuscitation with bag and mask were similar (59% Uganda and 57% Kenya). Ugandan providers documented only rubbing the back (39%) or no intervention (50%) most often in the general sample of infants with asphyxia whereas Kenyan providers rarely documented rubbing the back and documented no interventions for 33% (general sample) and 41% (complicated infant sample). Review of records without particular selection criteria showed no documentation of newborn resuscitation attempts for stillbirths from either country. It is unclear whether this is because resuscitation attempts for stillbirths that were unsuccessful were not documented or not attempted. Without information documented on the fetal heart rate at admission and throughout the course of the delivery in delivery registries, it is not clear whether the fresh stillbirth happened before the admission of the women in labor or as a result of an intrapartum event in the health facility. Additionally, the poorer results among the records for infants selected for asphyxia may be a result of other conditions that the infant had (a higher proportion of Kenyan infants in this sample had very low birth weights).

Neither country used **KMC** in high percentages for infants with  $\leq 2000$  grams birth weights, but where it was used, it was stronger in Ugandan facilities. Among these LBW infants, 65% (Kenya) and 3% (Uganda) were documented as receiving radiant warmer/incubator warmth. A protocol to operationalize KMC was observed for 2 of 10 Ugandan facilities and 7 of 10 Kenyan facilities, with trained staff reported (by key informants) for the 2 Ugandan, and 4 of the Kenyan facilities with a protocol, plus one additional facility, however among interviewed providers, knowledge about specific KMC implementation practices were weak. KMC practices in Uganda should be strengthened, particularly in those facilities where special care or NICUs are not available. Even where incubators are available (Kenya), the feasibility of promoting intermittent KMC should be strengthened.

Among **infants at risk/symptoms of sepsis/severe bacterial infection** (assessed using selected patient records) antibiotics were recorded for 42% (Uganda) and 96% (Kenya) of infants with conditions warranting antibiotics. Infants without risk symptoms also received antibiotics (particularly in Kenya where 30% who did not have the assessed conditions documented), which might or might not have been warranted by other conditions.

Routine **documentation of the infant and maternal status on discharge** was low, with the exception of documenting the infant feeding status. Although the record reviews and interviews are not from the same clients, the information from both sources is consistent, with client interviews supporting that low percentages of women received routine postpartum assessments, with assessments reported by Kenyan clients (and documented by providers) at higher percentages than Ugandan clients.

Provider and client responses and record reviews confirmed that routine counseling on maternal and newborn risk signs after discharge was not consistent and poorly practiced, with vaginal bleeding being the most commonly cited complication by providers and clients for which to seek help. Additionally, client interviews supported the record review finding that low percentages of women received routine postpartum assessments, with findings higher for Kenyan than Ugandan clients.

Although high percentages of delivery service providers report providing **counseling about FP** prior to discharge (81% Uganda and 55% Kenya), the percentage of women reporting they received counselling on FP prior to discharge was much lower (28% Uganda and 13% Kenya).

Any facility performing deliveries should be able to provide the **maternal signal functions**. The lack of provision of several of the key signal functions (parental anticonvulsants and assisted delivery) along with low levels of reported training, particularly in Uganda, indicate there is scope to increase the availability of these life-saving interventions. Although pre-eclampsia/eclampsia was one of the topics with higher levels of providers reporting they use protocols/guidelines, the knowledge questions indicated that the providers lack expertise in actual administration protocols.

On the day of the data collection, all sample facilities in both countries had the drugs to treat maternal and infant sepsis, to provide postpartum oxytocin, and to provide MgSO<sub>4</sub> for eclampsia. However, respondents reported knowing of cases requiring MgSO<sub>4</sub> when it was not available in the facility because of a stock-out (43% Uganda and 11% Kenya). While the reasons for gaps in availability of MgSO<sub>4</sub> were not assessed in this survey, it may be that the relatively rare cases requiring MgSO<sub>4</sub>, particularly at facilities without high case volumes frequently result in MgSO<sub>4</sub> expiring, or not being replaced because it is so rarely needed.<sup>109</sup> Providers also reported knowing of cases requiring a C-section who did not receive it because of lack of staff or resources (56% Uganda and 41% Kenya). Again, the reasons for the lack of service availability were not assessed but might include lack of timely transportation for referrals.

### 3. Outpatient care of children under five years old

Provider knowledge, record reviews, and observed consultation showed the **IMCI assessment** recommendations were not readily known (or followed) by providers. When identifying whether the sick child had a sign or symptom assessed, the criteria was whether information on the sign/symptom was elicited, regardless of whether the finding was negative or positive. The information may have come as a result of provider recording either a positive or negative result, or observation of a provider questioning, provider identifying a sign/symptom without questioning, or the caregiver mentioning the sign/symptom. Record reviews and observations showed low levels of documentation for the assessment of sick children, including full assessment of three IMCI danger signs<sup>110</sup> with recorded findings (0% Uganda and 8% Kenya) and observed findings (6% Uganda and 14% Kenya) or major symptoms<sup>111</sup> observed (37% Uganda and 25% Kenya). Less than 30% of children had recorded or observed measurement of temperature or recorded respiratory rate (0% Uganda and 2% Kenya).

An overall observation of consultations and review of patient records showed that **adherence to IMCI guidelines** for the assessment of illness, diagnostic criteria, and treatment for respiratory, fever and diarrheal illnesses was weak. This was true for young infants (< 2 months) and older children. Reported use of IMCI guidelines for their work was low by Ugandan (37%) and higher (73%) by Kenyan providers. Despite this, there were no consistent findings of stronger practices nor knowledge for IMCI among Kenyan service providers.

Routine **assessment of nutritional status** during observations and record reviews was noted to be weak, particularly in placing a child's weight into a context for interpretation for adequate growth. Additionally, observed counseling of the caregiver for providing additional fluids and continued feeding for the sick child was not common.

Although around 2/3 of interviewed providers from both countries reported high levels of comfort in providing services for **pneumonia**, around 1/3 or less reported recent training related to this and around 50% reported using guidelines for childhood pneumonia. Record reviews and observation showed that

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<sup>109</sup> This explanation has been provided in other countries to explain lack of MgSO<sub>4</sub>.

<sup>110</sup> Whether the child is able to drink anything, whether breastfeeding, and whether vomiting everything

<sup>111</sup> Whether the child has had cough, diarrhea, or fever

the respiratory rate is rarely counted, and, while all methods showed that amoxicillin is known and used as the EB drug for pneumonia, record reviews and observation showed high percentages of the prescribed doses were incorrect.

High levels of comfort in providing malaria services were also reported; however, around 1/3 or fewer of providers reported recent training for malaria, and half or more reported using guidelines when providing malaria services. Observed and record review information showed that correct **management of fever (presumptive malaria cases)** using RDT results as the basis for diagnosis and treatment was low for both countries. Record reviews showed lower percentages of fever patients receiving an RDT (35%, Uganda, and 51%, Kenya) than observations (80% Uganda and 75% Kenya). Record reviews also showed fewer cases with a malaria diagnosis tested (57% Uganda and 30% Kenya) and with the diagnosis based on a positive malaria test (52%, Uganda, and 10%, Kenya) than observed. The discrepancies between the record review findings and the observation results should be investigated. It may be that an RDT was conducted but the results were recorded in another location (e.g., the laboratory) rather than the register/patient chart, or that only positive results were recorded in the register/patient chart—a large proportion of the test results were positive—prior to drawing conclusions about the management of presumptive malaria. Additionally, the low percentage of EB antimalarial prescribed should be investigated to determine if this is because the documentation gap, or there is another problem.

High comfort levels for providing services for **severe diarrhea** were reported by 63% (Uganda) and 82% (Kenya) of providers, however, less than 1/3 reported recent training and around half reported they use guidelines when providing services for diarrhea. Record reviews showed children with diarrhea being prescribed ORS (67% Uganda and 53% Kenya) and zinc (73% Uganda and 56% Kenya), with 40% (Uganda) and 11% (Kenya) being prescribed both ORS and zinc, with no non-EB prescriptions documented. Observations, however, showed these treatments provided in lower percentages, with ORS prescribed by 27% (Uganda) and 37% (Kenya) of providers, and zinc by 34% (Uganda) and 38% (Kenya). The reasons for the discrepancies in the findings from observation and record reviews need to be assessed.

**Over-prescription of antibiotics** for respiratory tract infections, fever, and diarrhea was found. Record reviews for both countries showed that over 80% of the sick children were prescribed antibiotics, but less than 20% of those prescribed were classified as justified.<sup>112</sup> Additionally, around 80% (Uganda) to 90% (Kenya) of the records reviewed noted prescriptions of non-EB drugs (e.g., the wrong antibiotic or multiple antibiotics, or medications that are not warranted in view of existing symptoms or diagnoses).

**Young infant services:** Despite early adoption of WHO PSBI guidelines at the national level, the EB outpatient treatment regimen is not yet fully implemented in health care facilities of Uganda and practically is non-existent in Kenya. With practical absence of assessment and PSBI outpatient management practices in studied health facilities in Kenya, many severely ill young infants may be “left behind” without needed care. Recent training on treatment of the sick infant was not commonly reported, with 16% or less of Ugandan providers and around 1/3 of Kenyan providers reporting training in PSBI, around 1/3 of the providers from each country reported using guidelines when managing PSBI, and high comfort levels in managing severe febrile diseases or PSBI reported by 25% of Ugandan and half of Kenyan providers.

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<sup>112</sup> Justified use of antibiotics for children included diagnoses related to pneumonia, sepsis, or dysentery. Medication type prescribed is **NOT** indicated, not justified for that age of child or classification: 1) Use of any antibiotics in Diarrhea treatment except Ciprofloxacin in case of dysentery; 2) Use of any non-EB treatment except recommended (1<sup>st</sup> choice) medication for any IMCI condition, including: a) Use of antibiotics to treat malaria (except very severe febrile illness); b) Use of antibiotics to treat cough or cold,\*RTI, URTI; c) Use of any antibiotic except oral amoxicillin to treat pneumonia or oral infection; d) Use of cotrimoxazole and/or ARV treatment for any conditions except HIV infected or HIV exposed children and e) Use of antipyretics in case of high fever ( $\geq 38.5$  and above)

Similar to findings for all observed children, the assessment of the sick infant was weak, although Kenyan providers were more thorough. EB treatment was low for both observed and record review information, although EB management of pneumonia was somewhat higher for Uganda.

#### **4. Adolescent health services**

Adolescent-focused health services were widely reported, with advocacy for utilization of these services by adolescents frequently reported. Among preventive health services, counseling practices related to discouraging early marriage and childbirth were not strong.

In general, both providers and clients indicate an awareness of the right to, and practice of, respectful service provision and protection of confidentiality for adolescent clients. Among the interviewed providers and adolescents, there did not seem to be a high level of awareness of any need to target any specific services for adolescents differently from those for adults, or to raise awareness for service utilization. The adolescent responses may be biased by the services the respondents were receiving; however, when asked about adolescent services, they did not seem to recognize services for adolescents as different from those for adults. The fact that over half of the adolescents had come to the facility on their own may indicate a comfort in seeking the services that were received by the adolescent respondents (ANC and curative care) and that they will be treated well.

Providers reported practices for eliciting information from adolescents that would identify issues that may need to be addressed, but adolescent client responses did not indicate that the providers actually elicited information about these issues (e.g., substance abuse, sexual activity). Substantial percentages of interviewed providers and adolescents could not provide key risks of early marriage and pregnancy.

Higher percentages of providers reported counselling about specific consequences of early marriage than adolescents could identify. Adolescents could identify risks with early pregnancy at higher levels than the providers who indicate they counsel about the issues. Both of these comparisons seem to show that the counseling is being provided, however, the knowledge is not becoming common across these groups of adolescents. Their higher knowledge of the dangers with early pregnancy may be more related to community and family exposure than to learning from health workers. These topics seem to be appropriate for general community and school education, so that the information becomes more a part of the general adolescent awareness.

#### **B. Cross-cutting Issues**

**Documentation** of findings from assessments, measurements from examinations, and information shared were weak across services. A lack of standardized forms to make documentation, particularly of negative findings, easy and rapid, and to serve as a job aid to remind providers of the items to be checked for a particular service was evident. There were gaps, however, noted even in recording in ANC cards where data items to be checked are standardized.

All data collection methods supported findings that **counseling** on some key topics (for maternity, breastfeeding, birth spacing, and FP; for child health, how to take medications) is not occurring systematically in ANC or prior to discharge after delivery and at the outpatient visits of sick children. In general, however, client interviews demonstrated more consistency in provision of preventive education and interventions than the record review and observation would indicate.

#### **C. Context for Interpreting the Results**

Comparisons of results between countries in this report are used only to provide pictures of different levels of existing practices. Differences should not be used to imply that services in one country are better than in the other as the facility sample was not selected to be representative of the country. The majority of sample facilities in Uganda were health center level (80%) while the majority in Kenya were hospital

level (73%). This may have contributed to consistent results showing Kenyan providers implementing best practices at higher levels than Ugandan providers.

Provider responses to case findings and knowledge questions must be put into context. Providers completed the questionnaires themselves with some questions allowing multiple responses and some asking for the “best” response. The instructions may not have been understood. For example, reports of routinely providing discouraged interventions (e.g., enemas, perineal shaving, episiotomies) were higher than the actual practice observed/reported by clients.

Medical documentation at each visit and point of care, including referral and counter-referral notes for an individual client, is essential for clinical and improvement decisions. Lack of documentation does not necessarily mean that information-sharing or an action did not occur, but it does mean that gaps in service provision (e.g., for risk symptoms) may not be identified and that monitoring of pregnancy, delivery, and disease progression, particularly for patients with complications, is difficult. It also limits the ability to assess the care processes or outcomes and use the data for continuous improvement, learning, and adaptation.

Comparison of results across methods, such as percentages of providers reporting they routinely provide a service, percentage of clients/patients for whom specific information was shared or examination results or interventions provided, and percentage of clients reporting an item varied between the different data collection methods for the same item. These variations may be due to different samples, or errors in reporting of actions or recording in client records by providers, observations by data collectors, or recall by a client. There was, however, consistency in the trends for practices that were strong and those that were weak.

## II. CONCLUSIONS AND RECOMMENDATIONS

Despite progress over the past 20 years, there are still unacceptably high levels of morbidity and mortality in mothers, newborns, and children under five in lower- and middle-income countries. Every day, approximately 830 women and 15,000 children die from largely preventable causes. More than one fourth of girls and women in Sub-Saharan Africa cannot access voluntary FP services, leading to unplanned pregnancies and maternal mortality and morbidity. Globally, neonatal mortality was at 31 deaths per 1000 live births in 2017, still far from the SDG goal of 12 in 2030. In Uganda and Kenya, NMR is 20 (2018) and 21 (2017) respectively. More than a quarter of the world’s children under five years of age suffer from undernutrition, and each year, around 12 million infants and young children in USAID’s priority countries do not receive basic immunizations.<sup>113</sup> Most of the maternal, neonatal, or child death and high-burden diseases are readily preventable or manageable with proven, cost-effective interventions, but these high-impact interventions are not implemented correctly and consistently for every patient every time in low- and middle-income countries, including in sub-Saharan African countries like Uganda and Kenya.

The assessment confirmed research findings in other similar settings that less than half of patients receive EB MNCH/FP/RH care in a typical preventive or curative visit with variations within and across countries<sup>114</sup> and systemic gaps also found in safety and infection prevention and control and insufficient coordination, referrals, and counter-referrals across levels of care.

The gap in quality of RMNC+A care was particularly critical in terms severity assessments and classification practices across RMNC+A content areas. This together with providers’ limited ability to differentiate common pregnancy, maternal, newborn, and childhood conditions leads to incorrect diagnosis and, consequently, unjustified, non-EB treatment of common maternal, newborn, and child

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<sup>113</sup> Trends in maternal mortality: 1990 to 2010. WHO, UNICEF, UNFPA and The World Bank Estimates. Geneva: World Health Organization; 2012.

<sup>114</sup> Lancet Glob Health 2018; 6: e1196–252 Published Online September 5, 2018 [http://dx.doi.org/10.1016/S2214-109X\(18\)30386-3](http://dx.doi.org/10.1016/S2214-109X(18)30386-3)

diseases. The assessment findings suggest that global and national monitoring frameworks and action plans that focus primarily on monitoring the progress and improving RMNC+A care outcomes based on compliance with EB treatment of specific, high-burden clinical conditions (e.g., appropriate antibiotic treatment for suspected pneumonia, MgSO<sub>4</sub> for severe preeclampsia, etc.) limit the opportunity to identify and address existing critical gaps in severity assessment and classification, the essential first steps to guide EB RMNC+A clinical interventions. Emphasis primarily on disease-specific interventions may also lead to poor MNC care outcomes due to ineffective treatment of incorrectly classified clinical conditions.<sup>115</sup> These findings further confirm the need of a **fundamental paradigm shift in the way MNCH/FP/RH services are delivered**, by supporting integrated, people-centered health services and programming.

The assessment also showed frequent inappropriate treatment practices for common maternal, newborn, and childhood conditions in the study facilities. These included: use of medications, including antibiotics, without clinical indications; prescription of medications not supported by clinical recommendations (e.g., prescription of antibiotics that were not first or second choice), and/or inappropriate medication dosage based on the weight or age of the child.

Unjustified antibiotic prescription practices call for increased action to improve rational antibiotic prescription for high-burden maternal, newborn, and childhood conditions in health facilities in Uganda and Kenya. In addition to safety concerns, inappropriate prescription practices lead to poor pediatric care outcomes, contribute to the emerging challenge of antimicrobial resistance, and are associated with unnecessary costs burdening health care systems in resource-constrained settings.

Provider survey results further demonstrated that, with few exceptions, most care providers lack sufficient knowledge and skills to identify danger signs, determine disease severity, make the correct diagnosis, and provide appropriate treatment of pregnant women, newborns, children, and young infants. The knowledge gaps were particularly evident in relation to assessment, classification, and treatment of pre-eclampsia/eclampsia and young infants under two months, including EB care of young infants with PSBI.

Our study revealed that despite concerted national efforts in training RMNC care providers, especially around IMNCI, care of maternal and newborn complications (e.g., newborn resuscitation) and respectful, patient-centered care is lacking. An earlier study (2004) reflecting on implementation of IMNCI programming in Uganda also came to a similar conclusion and had suggested pre-service training and continuous refresher trainings, provision of which has been decentralized to the district level and to other organizations.<sup>116</sup> The main **providers of training and supervision should be integrated into the routine health system for sustainability of these practices and transition from donor dependence**. This means that when donors and other external to the Ministry of Health implement activities that a strategy for ensuring that activities that will be needed long-term (e.g., routine retraining on most topics) be planned from the beginning and that Ministry staff be a part of all activities, rapidly assuming responsibility, even if external technical and financial support continues to be needed.

The assessment also showed that even if training on these EB practices was more frequent and widespread and protocols/guidelines were available, many of these—particularly maternity interventions, are for conditions that do not occur frequently, particularly in small, low-volume facilities. This makes practical training critical, so that the providers have more than theoretical knowledge about how to perform procedures or administer essential drugs. The use of **case-studies and practical training** along with observation of clinical work as a part of supervision should be implemented routinely. Practical training may be provided through simulations, incorporating visual aids to the extent possible (e.g., highly

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<sup>115</sup> Chitashvili T, Cherkezishvili E, Karamagi E, Mwanja N. *AMR Control*. 2017.

<http://resistancecontrol.info/2017/improving-rational-antibiotic-treatment-of-common-childhood-conditions-in-uganda/>.

<sup>116</sup> Nsungwa-Sabiiti J, Burnham G, Pariyo GW. Implementation of a National Integrated Management of Childhood Illness (IMCI) Program in Uganda. *Journal of Health and Population in Developing Countries*. 2014;1-15.

[https://www.researchgate.net/publication/238078702\\_Implementation\\_of\\_a\\_National\\_Integrated\\_Management\\_of\\_Childhood\\_Illness\\_IMCI\\_Program\\_in\\_Uganda](https://www.researchgate.net/publication/238078702_Implementation_of_a_National_Integrated_Management_of_Childhood_Illness_IMCI_Program_in_Uganda).

effective videos developed by the Global Health Media Project on different aspects of maternal, newborn, and child care)<sup>117</sup> but also through programs to bring providers from smaller/low case load facilities to larger ones where they can gain experience related to diagnosing and managing complications under mentors.

The assessment also found that newer **clinical guidelines and EB recommendations** around maternal and newborn care are not consistently available or fully implemented in Uganda and Kenya. Within the context of constantly changing evidence, it is essential that countries develop a functional mechanism of continuously updating EB clinical recommendations for priority RMNC+A conditions and at the country level, adapt these recommendations to local context and integrate them into the various implementation and monitoring tools (job aids, care pathways, in-service and continuous professional development trainings, and publicly guaranteed service packages).

Effective care outcomes cannot be achieved without **participation of patients and their families in care** in the health facility and at home.<sup>118</sup> Pregnant women, children, their parents, and other caregivers should be provided with clear information during care and follow-up about: the disease or condition and its potential long-term effects; frequency and dosage of medications; supplementary care (e.g., to keep the child healthy, such as feeding and keeping children warm); and when and how to access further support or follow-up care. In addition, children should be assessed for vaccination status and counseled and referred for missing vaccinations. Therefore, proper communication, counseling, and follow-up of pregnant women, children, adolescents, and their families are as essential and equally critical component of care as severity assessment, classification, and treatment that can and must be addressed through QI interventions.

Assessment results suggest that many of the problems related to **supporting key inputs** in health facilities remain unsolved both in Uganda and Kenya. Insufficient infrastructure and commodities together with staff shortages and turnover undermine successes achieved in improved utilization of services and pose challenges to continuously improving and sustaining the quality of RMNC+A care. In order to roll out and effectively implement EB practices for RMNC+A services, it is important to integrate all aspects of the health system to support resource availability (facility infrastructure, pharmaceuticals, and trained and skilled service providers), to provide support to the service providers in the work environment to improve their effective EB service provision (supervision, job aids), and to monitor implementation of activities to roll out EB services and to monitor the results of these practices, using quality improvement methods. Considering the critical role of the local (district in Uganda and county in Kenya) health system in sustaining RMNC+A improvement efforts, resources for district and county health offices must be mobilized to address resource availability issues within and across health facilities (e.g., key inputs such as infrastructure, human resources, commodities, ambulance services) and to provide continuous coaching to health facility teams (e.g., transportation to health facility).

The assessment findings also suggest important gaps in standardization of medical documentation and recording of essential RMNC+A data for EB clinical and improvement decisions. Our study respondents did identify problems with sharing of information on patients within the facility, as well as those arriving through referral as hindrances to their ability to provide quality care. To generate essential data for informed clinical and improvement decisions, it is essential to support adaptation of WHO-recommended minimum MNCH data elements in sub-Saharan African countries by incorporating them into the standardized medical documentation.

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<sup>117</sup> <https://globalhealthmedia.org/videos/>

<sup>118</sup> WHO. 2018. Standards for improving the quality of care for children and young adolescents in health facilities. Geneva: World Health Organization (WHO). [http://www.who.int/maternal\\_child\\_adolescent/documents/quality-standards-child-adolescent/en/](http://www.who.int/maternal_child_adolescent/documents/quality-standards-child-adolescent/en/)

The assessment also confirmed findings of other studies that despite the fact that in sub-Saharan Africa, an estimated one-third of health care providers' time is spent on recording and reporting, the data are disconnected from decision-making. Few care providers (1/3 in Uganda and 1/5 in Kenya) in our study reported using monitoring data for learning and adaptation or improvement activities. The need to strengthen the provider acceptance of the important linkages between documentation and the ability to provide quality services to patients, and the need for **regular monitoring of the care processes and health and patient-centered outcomes** for continuous improvement and adaptation should be highlighted in pre- and in-service trainings.

Additionally, focusing coaching and clinical mentoring (both internal and external) and improvement teams' activities based on the needs identified from regular monitoring of quality of RMNC+A care processes and patient and family-centered outcomes, by simultaneously improving compliance with EB care and addressing waste/ inefficiencies in the process and content of care, is important for targeting the underlying problems through local solutions and efficient utilization of the limited resources.

Lastly, this multi-country assessment provides strong grounds for recommending improvement in the availability and quality of data on service quality and for regularly monitoring the quality of care and related outcomes at the health facility, subnational, national, and global levels. In parallel is the issue of data plethora, particularly for input-related data, that "*are quickly out of date, weakly connected to the content of care delivered and lose usefulness for supply planning.*" Many health information systems contain limited data elements or standardized patient records necessary for measuring MNCH/FP/RH processes and outcomes and have limited indicators for measuring quality at all levels. Even when data exist, the validity of indicators collected raise concerns: for example, household surveys are not well suited for identifying children who truly have pneumonia, while limited documentation of respiratory rate and other signs/symptoms limit the ability to accurately identify the proportion of cases with appropriate treatment. For example, reported maternal morbidity and mortality in health facilities greatly exceeded the rates if the estimates of morbidity are linked to documentation of the administration of essential interventions for conditions related to the morbidity and mortality. Measuring quality using process indicators, patient- and family-centered outcomes, and patient experience of care across the care continuum is essential but not done.<sup>119</sup> Health systems should invest in improving availability and use of quality of care indicators at all levels and most importantly, using the data for continuous clinical and improvement decisions. Fewer but better metrics around effective coverage, quality, and patient/family-centered outcomes for RMNC+A should be harmonized across countries, using existing tools and HMIS platforms (e.g., DHMIS) to the extent possible to generate, collect, aggregate, analyze, and use RMNC+A quality of care data for improving quality and patients' experience of care.

The developed tools are appropriate, feasible to implement and provide more in-depth assessment of the quality of care for RMNC+A, according to the existing global guidance (e.g. WHO's QoC framework for MNCH than other tools commonly used for assessing facility-based RMNC+A services. These tools specifically:

- Allow more in-depth assessment of integrated RMNC+A and HIV care, including availability of various ART regimen, Pre-EP and other priority services.
- Place much larger emphasis on patient-centered practices and experience of care, based on WHO's QoC framework for childbirth and pediatric care. Specifically, based on recently published WHO QoC standards of MNC, the tools explore continuity of care, referral, effective communication, respect and preservation of dignity, and emotional support. These components were not covered in depth by any other global facility assessment tools, including SARA and SPA.

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<sup>119</sup> Lancet Global Health 2018; 6: e1196–252 Published Online September 5, 2018 [http://dx.doi.org/10.1016/S2214-109X\(18\)30386-3](http://dx.doi.org/10.1016/S2214-109X(18)30386-3).

- Care of sick children is specifically tailored to assess two different age groups, young infants below 2 months and children above 2 months of age, it focuses on outpatient management of severe possible bacterial infection among young infants based on the updated WHO recommendations, the area that has not previously been explored in depth.
- Provider questionnaires cover knowledge assessment for all priority content area (ANC, maternal, newborn and child health) as well as the observation on simulated clinical scenario on the anatomic model for newborn resuscitation. These areas are not covered by SPA or SARA, but are critically important to understand the root-cause of the quality gap.
- Assess the use of unnecessary, harmful practices, including non-EB use of antibiotics across MNCH continuum, the area that identified deficient in many LMICs but are not covered by SPA or SARA.
- Place a larger emphasis on individual and institutional QI capacity and functionality of continuous QI process within the facility, including routine measurement of quality for CQI and data driven decision-making.
- Supplement costly observations on processes of care with assessment of medical documentation (neither SARA nor SPA have similar modules). This is particularly helpful to assess quality of care of infrequent events (e.g. complications) within limited resources and help countries to identify gaps in availability of medical information essential to assess quality of MNCH care.

The modular approach of the tools allows conducting of a focused assessment in priority clinical areas of interest (e.g. ANC), as needed with fewer resources. By using information from a variety of sources, the tools allow for triangulation of results and thus provide a deeper understanding of the quality of care gap and its root-causes. The tools were found to be adequate for achieving the objective, and with minor revisions to adapt them to specific country context, they will provide an important contribution to the ability to quantify the quality of integrated HIV services with RMNC+A services.

## **A. Recommendations**

To improve RMNC+A practices in Uganda, Kenya and other similar settings, the following measures need to be considered:

### **1. Recommendations for the tools**

- Develop standardized tabulation plan and dummy tables for each tool, and for relevant comparisons of results across tools.
- Datasets should be linked within a given facility and that provider if we need to analyze performance of a single facility.
- Responses/observations can be linked for the same provider for more in-depth analysis, if needed.
- Assigned data collectors should check completeness of the provider self-administered questionnaires and make sure the provider completes all questions before returning the questionnaire to data collection team.

### **2. Crosscutting Recommendations**

- Continuous improvement systems focused on identifying gaps in quality of care processes and outcomes need to be institutionalized. Regular planning, testing, implementing changes, monitoring progress using indicators for these processes and outcomes, and then refining interventions based on the routine monitoring results should be enhanced and supported by facility management and subnational- and national-level structures. Establishment of functional QI teams needs to be supported in Kenya, and functionality of the existing QI teams should be enhanced in Uganda.

- Subnational (district or county) health structures could play a critical role in the establishment or strengthening of supporting systems for QI, including strengthening coaching and clinical mentoring, setting up/strengthening data systems and learning platforms for QI, engaging communities to demand high-quality RMNC+A services, and addressing essential input needs in health facilities.
- Standardizing medical information to be recorded and compiled, to ensure availability of a minimum level of RMNC+A data as well as monitoring that essential medical information (especially around severity assessment and monitoring disease progression, evidence of timeliness, reason and pre-referral treatment and outcomes of referrals) is recorded, is needed to provide the evidence required to assess the effectiveness of existing health services and to identify where improvements are needed. A systematic process for reviewing and using this information for continuous improvement by facility QI teams and/or clinical supervisors needs to be defined or strengthened.
- It is essential to adopt competency-based clinical education to improve overall clinical assessment, diagnostic, and treatment practices. Routine, “low-dose, high-frequency” training with practical experiences/drills are needed to reinforce more recent clinical recommendations, particularly with the management of severe pre-eclampsia, PPH, IMNCI, PSBI, and newborn resuscitation. This training should include updates on prior practices that are no longer recommended. Rotations of staff from low-volume to high-volume facilities for mentorship in these interventions along with practice using anatomic models and case studies where the actual intervention and recording of the intervention are practiced should reinforce correct dosages and techniques. The training should highlight the importance of routine assessment practices and correct classification of symptoms or disease severity as essential information for EB clinical decisions. In parallel to content-specific trainings, introducing training in ethics, psychosocial support, and respectful care is essential to enhance respectful, dignified, and patient- and family-centered RMNC+A care.
- Countries need to develop a functional mechanism for continuously updating EB clinical recommendations for priority RMNC+A conditions, and at the country level, adapt these recommendations to local context and integrate them into the various implementation and monitoring tools (job aids, care pathways, in-service and continuous professional development trainings, and publicly guaranteed service packages). Availability and use of guidelines for diagnostic criteria and treatment of priority illnesses need to be particularly strengthened. Supporting implementation of simple job aids and other provider decision support tools that clearly describe steps and treatment could improve adherence to the guidelines.
- Clinically, more focus should be placed on ensuring that service providers assess and document key symptoms, danger signs, and vital functions of pregnant women, mothers, and children; As per the prior recommendation, findings from assessments must be documented. In addition, routine monitoring of diseases and timely follow up is essential to ensure timely identification of the patients with or at risk of complications and providing EB treatment.
- A fundamental paradigm shift needs to be made from disease-specific treatment approaches to integrated RMNC+A care across service delivery and lifecycle continuum. The use of preventive services such as FP, HIV testing, preventive immunizations, counseling on danger signs for both mothers and babies, nutrition, and risky and preventive behaviors, and services for substance and personal abuse, which clients (including adolescents) might hesitate to use without specific attention or service conditions, need to be encouraged and strengthened.
- Lastly, client-centered practices need to focus, on the one hand, on clear communication and meaningful participation of patients and their family members in shared decision making, and on the other hand, reducing unnecessary (e.g., unjustified antibiotic treatment, routine suctioning) or harmful practices (e.g., not washing hands between patients or procedures or administering substandard dosages of medication). Patient information and education are critical not only for

better self-management and adherence to treatment, but also to ignite demand for quality and holding systems accountable.

### **3. Clinical Content-specific Recommendations**

#### **Antenatal care**

- Improving the maintenance of a longitudinal record for maternity cases from ANC visits through delivery that includes documentation of negative findings and services that are received through referral during pregnancy is essential for improving information needed to improve identification of risk and problems throughout the pregnancy and delivery. While duplication is not desired, a system for ensuring that critical information for evaluation is maintained at the facility is needed.
- Job aids to remind providers (and clients) of the risk signs and symptoms that should be assessed at every ANC visit as well as pre-printed forms where findings (positive or negative) can be simply checked should improve availability of this information.
- Developing protocols for all nursing and physician providers of ANC to prescribe treatments for syphilis, hypertension, and pre-eclampsia and/or ensuring that results of referrals for treatment are documented in the patient record should be considered.
- Strengthening the system for PMTCT to include assessing (and documenting) partner HIV status is needed.

#### **Childbirth services**

- Routine training with practical experience is needed to reinforce more recent recommendations, particularly with management of severe pre-eclampsia and PPH. Rotations of staff from low-volume to high-volume facilities for mentorship in these practices along with practice using models and case studies where the actual intervention and recording of the intervention are practiced should reinforce correct dosages and techniques.
- Strengthening newborn resuscitation skills should be enhanced, particularly in Uganda.
- A system for supervisors to routinely rotate MgSO<sub>4</sub> supplies from low- to high-utilization facilities and replace the supply in low-use facilities with drugs with later expiration dates might minimize the expiration and wastage of the drug and improve availability when needed.
- Supervisors should systematically review case management for patients with complications, and their findings should be reviewed with district/regional managers, and interventions to improve problems identified across facilities developed by these personnel. This requires more complete documentation.
- Routine assessment and monitoring practices during labor, delivery, and the postpartum period need to be strengthened. Job aids such as pre-printed forms and posters to reinforce the frequency and content recommended for routine assessments are options. Reinforcing using the partograph for all women in labor, regardless of the stage at which they arrive, should improve recording of immediate postpartum information and monitoring labor progression.
- Posters to promote birth spacing and breastfeeding should be used to passively promote these practices.
- In addition to routine monitoring during labor, delivery, and the early post-partum period, efforts need to be focused on enhancing care of mothers and newborns with complications. This is particularly true for improving care of small and sick newborns. Without focused attention on timely identification and EB treatment of mothers and babies with or at risk of complications, reduction of the maternal mortality ratio to less than 70 per 100 000 live births and the neonatal mortality rate to less than 12 per 1000 live births (SDGs) will not be possible.

#### **Outpatient care of children under five years of age**

- Improving medical documentation, recording essential information, data quality, and data use should be a critical component of any IMNCI care improvement activity. Supervisors should

review records for adherence to diagnostic and treatment protocols. The information to be recorded needs to be specified and reinforced during supervision and through job aids.

- There is a need for increased attention to child- and family-centered practices, well reflected in the pediatric quality of care standards recently launched by WHO.
- Assessment of nutritional status, feeding practices prior to the illness, and feeding practices during illness should be prioritized.
- There is an urgent need to adopt and implement newly updated WHO guidance on Management of Sick Young Infant within IMNCI Chart Booklet guideline<sup>120</sup> by countries, including by countries, including Uganda and Kenya.
- Integration of PSBI into clinical trainings and enhancing the efforts to address the knowledge and skills gaps in IMNCI at different levels (facility, district, and national) is also needed.

#### **Adolescent health services**

- More focus is needed on encouraging the use of preventive services such as FP, HIV testing, preventive immunizations, and services for substance and sexual abuse, which adolescents might hesitate to use without specific attention or service conditions that encourage utilization.
- Providers should be encouraged to use every facility visit, regardless of the service provided, to screen for identification of risk situations in adolescents and the need for preventive services, as the adolescent's situation may change between visits.
- Using a checklist specific for adolescent screening and preventive education, and posters to raise awareness among adolescents (and accompanying persons) about issues for which they should consider seeking services, might increase early interventions.
- Collecting more information on current utilization/lack of utilization of preventive services is important for understanding if changes in service provision strategies and encouraging utilization are needed.

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<sup>120</sup> Integrated Management of Childhood Illness: management of the sick young infant aged up to 2 months. IMCI chart booklet ISBN 978-92-4-151636-5

## V. ANNEX

### A. General Information

Annex Table 22. Use of services and estimated death rates for Kenya and Uganda<sup>121,122</sup>

A.	Statistics from household survey respondents	Uganda			Kenya		
		2016	2011	20001	2014	2009	2004
	Antenatal care by skilled provider <sup>1</sup>	97%	95%	90	96%	92%	88%
	Reported components of ANC						
	Blood pressure measured	72%			94%		
	Iron tablets received	88%			69%		
	Urine sample	3%			89%		
	Blood sample taken	93%			96%		
	Facility delivery <sup>2</sup>	73%	57%	37%	61%	43%	
	Perinatal mortality <sup>3</sup>	38			29	37	
	Neonatal mortality rate <sup>4</sup>	27	27	33	22	24	26
	Infant mortality rate <sup>5</sup>	43	54	88	39	43	51
	Under 5 mortality <sup>6</sup>	64	90	151	72	74	115
	Maternal mortality ratio <sup>7</sup>	336			362		
	<sup>1</sup> Women with a live birth in the five years preceding the survey reporting they received ANC from a skilled provider for their most recent pregnancy <sup>2</sup> Among women having a live birth in the prior 5 years Deaths per 1000 live births during the prior 5 years <sup>3</sup> Deaths in infants more than 7 months gestation to 7 days postpartum <sup>4</sup> Deaths in livebirths during the first 30 days of life <sup>5</sup> Deaths in livebirths during first year of life <sup>6</sup> Deaths in children 0-59 months of age <sup>7</sup> Maternal deaths during the prior 5 years per 1000 live births during the prior 5 years						

<sup>121</sup> Newborns: Reducing mortality. WHO 28 September 2018. <https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality>.

<sup>122</sup> Acting on the call. A focus on the journey to self-reliance for preventing child and maternal deaths. USAID. June 2018

**Annex Table 23. Distribution of provider respondents by facility**

UGANDA (n=71)			Kenya (n=102)		
FACILITY	FACILITY LEVEL	PROPORTION OF RESPONDENTS	FACILITY	FACILITY LEVEL	PROPORTION OF RESPONDENTS
1	Referral hospital	20%	1	General hospital	14%
2	Health center/clinic	8%	2	Referral hospital	26%
3	Health center/clinic	11%	3	General hospital	10%
4	Health center/clinic	8%	4	General hospital	4%
5	Health center/clinic	7%	5	Referral hospital	13%
6	General hospital	17%	6	General hospital	21%
7	Health center/clinic	0%	7	Health center/clinic	7%
8	Health center/clinic	3%	8	General hospital	2%
9	Health center/clinic	15%	9	General hospital	0%
10	Health center/clinic	10%	10	Health center/clinic	0%
			11	Health center/clinic	3%

**Annex Table 24. Characteristics of interviewed clients**

	UGANDA(n=335)	KENYA (n=209)
Average age	24.1	25.1
Married/cohabitation	95%	90%
Unmarried	5%	10%
<b>Highest formal education</b>		
None/some primary	47%	32%
Completed primary/some secondary	39%	42%
Completed secondary or higher	13%	26%
<b>Main occupation</b>		
Student	3%	6%
Housewife	62%	55%
Farming	19%	2%
Service/business	8%	35%
<b>Currently living with</b>		
Husband	88%	78%
Parents	9%	14%
Alone	1%	3%
<b>Self-described economic status</b>		
Poor	23%	5%
Low-middle	57%	16%
Middle	17%	71%
Upper middle/upper	2%	8%
<b>Self-described health status</b>		
Good	88%	90%
Medium	6%	7%
Bad/very bad	6%	3%
<b>Reason for visit</b>		
Scheduled visit for woman	44%	49%
Scheduled visit for child	9%	22%
Personal medical issue	16%	5%
Sick child	7%	3%
Delivery	22%	11%
<b>Reproductive status</b>		
Ever was pregnant	81%	99%
Currently pregnant	56%	52%

**Annex Table 25. Distribution of client respondents by facility**

UGANDAN CLIENT RESPONDENTS						KENYA CLIENT RESPONDENTS					
FACILITY	FACILITY LEVEL	General information (n=335)	Adolescent module (n=93)	ANC module (n=160)	MNH module (n=105)	FACILITY	FACILITY LEVEL	General information (N=209)	Adolescent module (n=13)	ANC module (n=161)	MNH module (n=80)
1	Referral hospital	13%	16%	12%	14%	1	General hospital	6%	15%	6%	9%
2	Health center/clinic	12%	16%	11%	14%	2	Referral hospital	14%	23%	18%	39%
3	Health center/clinic	12%	4%	14%	15%	3	General hospital	11%	31%	14%	12%
4	Health center/clinic	13%	13%	11%	11%	4	General hospital	5%	8%	6%	1%
5	Health center/clinic	8%	9%	11%	5%	5	Referral hospital	7%	15%	4%	10%
6	General hospital	22%	25%	22%	8%	6	General hospital	6%	0%	7%	15%
7	Health center/clinic	7%	9%	7%	7%	7	Health center/clinic	6%	0%	0%	0%
8	Health center/clinic	0%	0%	0%	0%	8	General hospital	17%	0%	20%	11%
9	Health center/clinic	4%	0%	2%	9%	9	General hospital	14%	0%	10%	6%
10	Health center/clinic	8%	0%	11%	6%	10	Health center/clinic	9%	0%	9%	2%
						11	Health center/clinic	10%	8%	4%	2%

## Results

### A. Facility services and resources

Annex Table 26. Facility infrastructure and systems reported by key informants (facility-level response)

		Uganda (n=10)	Kenya (n=11)
<b>A</b>	<b>Power</b>		
	Any electricity source (grid, generator, or solar)	100%	100%
	Electricity meets all needs of facility	33%	73%
	Routinely, no power outage without alternative source during a month	10%	36%
<b>B</b>	<b>Equipment sterilization</b>		
	Ability to sterilize equipment	40%	82%
	Ability to high-level disinfect (HLD) equipment	10%	55%
	Ability to sterilize or HLD equipment	50%	82%
<b>C</b>	<b>Infection prevention</b>		
	At least one toilet/latrine for every 20 overnight/inpatients	90%	64%
	At least one hand hygiene station (soap/water/towels or alcohol-based hand rub) per 10 beds	50%	36%
	Hand hygiene in ANC service area	100%	91%
	Hand hygiene in outpatient service area	100%	91%
	Hand hygiene in delivery service area	100%	82%
	Hand hygiene in all 3 assessed sites	100%	82%
<b>D</b>	<b>Financial resources</b>		
	Budget and protocol for the operation and maintenance of energy, safe water and sanitation services	70%	73%
	Budget considered adequate to ensure uninterrupted source of energy in the facility	50%	73%
	Dedicated budget for essential medicines, equipment (and its maintenance) and medical supplies for maternal and newborn care)	30%	45%
	Budget adequate to support quality improvement work	0%	36%
<b>E</b>	<b>Health information systems</b>		
	Average for pregnant or post-partum women visited or admitted to the facility with diagnosis aligned with ICD codes (information from review of registers)	54%	92%
	Average for newborns or children visited or admitted to the facility with diagnosis aligned with ICD codes (information from review of registers)	63%	90%

		Uganda (n=10)	Kenya (n=11)
	Estimated workload for specific services <sup>1</sup>		
	# of ANC visits per ANC provider per day	34.7	16.3
	# of child outpatient visits per child care provider per day	23.0	18.2
<b>F</b>	<b>Other</b>		
	Facility has clear communication channels to reach staff on duty at all times	50%	73%
	<sup>1</sup> The average was calculated using facility reported service statistics and facility provided daily average number of providers of the service.		

**Annex Table 27. Facility referral systems reported by key informants (facility-level response)**

	Referral system	Uganda (n=10)	Kenya (n=11)
	Estimated percent of women who would reach higher level facility if referred	79%	87%
	Estimated percent of newborns who would reach higher level facility if referred	81%	88%
	Estimated percent of newborns or severely ill infants who would reach higher level facility if referred	69%	44%
	Average time for referred woman to reach referral facility (minutes)	69	44
	Estimated percent of newborns/young infants referred to this facility that die before/during transfer	13%	16%
	Estimated percent of women in labour/immediate postpartum referred to this facility that die before/during transfer	19%	7%
	Estimated percent of urgent referrals out who are accompanied by health care professional	16%	100%
	Estimated percent of urgent referrals out who are sent with completed standardized referral form	90%	66%

**Annex Table 28. Facility infrastructure and systems reported by interviewed providers of RMNC+A services (Provider-level response)**

	Provider opinion of facility infrastructure	Uganda (n=71)	Kenya (n=104)
	Satisfaction with water/sanitation/energy at facility that allows high-quality care		
	Extremely dissatisfied	19%	14%
	Somewhat dissatisfied	26%	23%
	Neither satisfied nor dissatisfied	6%	3%
	Somewhat satisfied	40%	48%
	Extremely satisfied	10%	13%

**Annex Table 29. Experiences with referral systems reported by interviewed providers of RMNC+A services (Provider-level response)**

Referral system	Uganda (n=71)	Kenya (n=104)
Ever refer severely-ill patients out	100%	93%
Facility has protocol or established procedure that defines when and where to refer patients if needed		
Yes, written protocol that is available for quick reference	54%	56%
Yes, follow established procedure, not written anywhere	46%	37%
Any procedure of communication with the receiving facility	90%	90%
Facility offer transportation for patients with urgent referral	92%	95%
Estimate, on average, percent of urgent referrals able to use facility transportation	3.4	4.0
Estimate, on average, time it take for the patient to get to the higher level referral center using the most common local transport (hours)	3.1	7.5
Estimate, on average, percent of urgent referrals able who would reach referral hospital	5.7	6.2
<u>Any reasons</u> why provider may not refer a severely-ill patient to a higher level facility / hospital (prompted responses)		
Patient does not accept referral due to geographic accessibility	24%	23%
Patient does not accept referral due to affordability	69%	42%
Timely transportation to higher level facility is not possible	48%	24%
Does not think this is a problem--most patients referred accept	17%	43%
Among providers who identify problem with patient accepting referral: <u>Main reason</u> provider won't make referral for severely-ill patient to a higher level facility/hospital	(n=43)	(n=59)
Patient does not accept referral due to geographic accessibility	14%	7%
Patient does not accept referral due to affordability	59%	58%
Timely transportation to higher level facility is not possible	24%	28%
Established procedure to issue referral note for each referred patient	100%	96%
Items routinely include in referral note	(n=71)	(n=89)
Patient's age	77%	75%
Date	82%	33%
Diagnosis/classification	72%	74%
Complaints	52%	26%
Clinical findings	51%	31%
Test results (if applicable)	44%	39%
Medications given (if applicable)	48%	42%

	Uganda	Kenya
Referral system		
Cares for patients referred from lower level facilities	100%	98%
Thinks receives enough information from referring facilities in order to provide timely care for these patients	96%	51%
Has established communication with lower level facilities about back-referred patients	96%	70%

## 1. Provider interviews: Cross-cutting issues

**Annex Table 30. Quality improvement activities in facility**

	Uganda	Kenya
<b>A</b> Opinion on resources for process improvement activities	(n=71) <sup>1</sup>	(n=104) <sup>1</sup>
Training, financial support, and time rarely available to support improvement work. Any improvement activities we do are in addition to our daily work.	28%	34%
Some resources available to support improvement work, but they are not used as often as we could. Change ideas are implemented without much discipline.	23%	14%
Ample resources to support continual improvement work. Studying, measuring and improving care in a scientific way are essential parts of daily work.	14%	21%
Can't rate	35%	31%
<b>B</b> Description of quality improvement (QI) process for facility		
Type of QI process used	(n=71) <sup>1</sup>	(n=104) <sup>1</sup>
Facility has continuous QI process	52%	46%
Facility has some internal QI initiatives but not a continuous QI process	18%	13%
QI process in facility mostly initiated by external agents (coaches, supervisors)	21%	11%
Facility has no QI process/no response to question	8%	30%
Facility has QI team(s) or other internal quality improvement structure	87%	68%
Among respondents in facilities with QI team—QI team activities (multiple responses allowed)	(n=62)	(n=71)
Planning and designing improvement	82%	72%
Implementing improvement	73%	61%
Routinely monitoring improvement	79%	79%
Refining improvement based on assessment results	45%	54%
Identifying improvement priorities	69%	54%
Conducting series of plan-do-study-act (PDSA) cycles	39%	32%
<b>C</b> Processes reported for monitoring QI (multiple responses allowed)		
Develops and tracks process indicators	52%	38%

		Uganda	Kenya
	Develops and tracks outcome indicators	48%	42%
	Documents changes	63%	27%
	Presents data visually	49%	36%
	Develops written results	52%	33%
	Validates data	48%	29%
	Analyzes and interprets the data within the QI team	61%	36%
	Aggregates and disaggregates data to better understand gaps at individual and facility level	25%	23%
	Documents internal and external factors contributing to or hindering improvement	39%	23%
	Compares performance with other facilities, district or national benchmarks	46%	26%
	Identifies what was learned from an improvement activity	30%	21%
	Develops and tracks written plan for improvement based on assessment results	34%	24%
	None of the above/no QI activities/other/missing response	30%	59%
<b>D</b>	<b>Frequency for QI monitoring</b>	<b>(n=71)<sup>1</sup></b>	<b>(n=104)<sup>1</sup></b>
	Daily or weekly	1%	5%
	Every 2-3 weeks	39%	4%
	Every month	25%	23%
	Every 1-3 months	3%	9%
	Every 4-6 months	0%	12%
	Every 6-11 months	3%	4%
	Annually	3%	11%
	Does not monitor QI progress/missing response	25%	34%
	<b>Most recent training/coaching for QI activities</b>	<b>(n=71)<sup>1</sup></b>	<b>(n=104)<sup>1</sup></b>
	During last 6 months	38%	14%
	During last 7-12 months	10%	13%
	During last 13-24 months	3%	2%
	More than 24 months ago	3%	4%
	Do not remember/never/missing information	46%	67%
<b>F</b>	<b>Among those reporting they received QI capacity building or coaching, the provider of their education (multiple responses allowed)</b>	<b>Uganda (n=38)</b>	<b>Kenya (n=35)</b>
	Clinical officer from District/County Health Management Team	16%	17%
	Administrative officer from District/County Health Management Team	26%	11%
	Central MoH	26%	3%

		Uganda	Kenya
	Member of professional association	11%	14%
	Representative of donor-funded project (Specify)	58%	49%
<b>G</b>	<b>Recent QI activities</b>		
	Average number of team meetings facility held past 6 months to review progress on improving quality of care using process and/or outcome data?	3.3 (n=49)	2.6 (n=66)
	Average number of quality improvement team meetings activities provider was engaged/participated in the preceding six months	2.1 (n=50)	1.2 (n=81)
	Average for time of the most recent improvement cycle (PDSA) provider completed (individually or as part of the QI team) within facility	3.5 months ago	4.6 months ago
<b>H</b>	<b>Respondent role in designing, planning, and implementing the quality improvement process in facility</b>	(n=55)	(n=81)
	Leads the improvement process	5%	4%
	Participates in designing and planning of the improvement process	51%	22%
	Not involved in the QI process	44%	63%
	Facility has no individual or institutional initiative to design and plan QI	0%	11%
	No response or facility has no QI activities	23%	22%
<b>I</b>	<b>Reported activities among leaders of QI activities</b>	(n=3)	(n=5)
	Facilitate an enabling environment for quality improvement	33%	60%
	Develop coaching strategies to support the implementation of improvement activities	67%	0%
	Support team members to undertake, manage and sustain QI activities	100%	80%
	Monitor and evaluate QI team functionality and performance	100%	20%
	<sup>1</sup> 7% of Ugandan and 30% of Kenyan respondents did not answer the quality questions. It was assumed they were not familiar with QI activities so they are included in the denominator.		

**Annex Table 31. Provider opinions related to employment**

	Uganda (n=71)	Kenya (n=104)
Issues related to current employment		
Actively seeking new job	27%	31%
Oriented to functions, roles, responsibilities upon assignment in the facility or unit	87%	87%
Received written job description for this facility	68%	52%
Perception of teamwork at facility		
Provider works independently and is responsible for own part of work. There is lack of collaboration and appreciation for the importance of complementary roles.	3%	7%
The care approach is interdisciplinary, but we are not always able to work together as an effective team.	7%	11%
Care is provided by a team of different care providers, that work together with trust, collaboration, appreciation of complementary roles, and a recognition that all contribute individually to improve patients' health.	72%	71%
No opinion	18%	12%

**Annex Table 32. Topics for training reportedly received by in the past 12 months by all interviewed individual providers**

	Uganda (n=71)	Kenya (n=104)
Received any clinical training the past 12 months	82%	73%
<b>Topics included in training</b>		
Antenatal care	7%	17%
PMTCT or eMTCT	13%	22%
Routine assessment and treatment of women during labor, childbirth (RaT)	10%	15%
Routine postnatal care for mothers	7%	13%
Treatment of PPH	31%	18%
Diagnosis/treatment of pre-eclampsia/eclampsia	15%	21%
Diagnosis and treatment of obstructed labor	11%	12%
Treatment of women with or at risk for infections	10%	11%
Essential newborn care immediately after birth	25%	18%
Breastfeeding support	6%	16%
Newborn resuscitation	39%	16%
Routine postnatal care of newborns	4%	13%
Care of preterm labor	6%	7%
Care of sick newborns	6%	10%
Care of small newborns	7%	10%
Care of preterm babies	10%	11%
Treatment of newborns with suspected infection or risk factors for infection	1%	12%
Family planning	14%	27%
Post-partum family planning	4%	14%
Care of sick young infants within 2 months	6%	11%
IMCI: integrated management of childhood illness	7%	7%
Training on care of common childhood conditions (other than IMCI)	3%	7%
Care of adolescents	11%	13%
Adolescent-friendly services	20%	13%
Average percent receiving training for each topic	11.4%	13.9%

**Annex Table 33. Clinical training methods and frequency**

		Uganda	Kenya
<b>A</b>	<b>Providers of clinical training</b>	<b>(n=58)</b>	<b>(n=73)</b>
	Facility management	16%	22%
	Government agency	12%	22%
	Donor	50%	32%
	Co-worker within facility	21%	14%
	Don't know / can't remember	2%	5%
<b>B</b>	<b>Training through simulation/drills</b>	<b>(n=58)</b>	<b>(n=76)</b>
	Providers reporting ever participating in drill or simulation exercises on aspects of care	54%	36%
	<b>Among those reporting they participated in drills or simulation exercises, frequency of the activity</b>	<b>(n=38)</b>	<b>(n=37)</b>
	Every month	37%	41%
	Every 2-3 month	16%	19%
	Every 4-6 month	5%	0%
	Every year	5%	11%
	Less than every year	32%	38%
	Missing response	5%	
<b>C</b>	<b>Topics for drills/simulation exercises provider participates in</b>		
	Routine care during labor and childbirth	47%	43%
	Detection of obstetric complications during labor and childbirth	50%	41%
	Essential newborn care	45%	30%
	Breastfeeding support	34%	49%
	Basic newborn resuscitation	42%	46%
	Management of preterm labor	34%	22%

**Annex Table 34. Personal experience with supportive supervision/coaching**

		Uganda	Kenya
<b>A</b>	<b>Providers reports on supervision</b>	<b>(n=71)</b>	<b>(n=104)</b>
	Ever received supportive supervision	92%	79%
<b>B</b>	<b>Reported provider of supportive supervision/coaching</b>		
	Clinical supervisor within the facility	45%	41%
	Peer within the facility	14%	11%
	Manager	13%	4%
	Other staff in the facility	15%	13%
	External coach or external supervisor	55%	71%
	Other staff in the facility	8%	15%
	No supervision	8%	21%
<b>C</b>	<b>Affiliation of external providers of supportive supervision/coaching</b>		
	Clinical officer from District/County Health Management Team	32%	24%
	Administrative officer from District/ County Health Management Team	42%	10%
	Central MoH	37%	5%
	Member of professional association	15%	18%
	Representative of donor-funded project	45%	3%
	Other	7%	7%
<b>D</b>	<b>Frequency of supportive supervision or coaching (internal or external)</b>		
	Every month	32%	18%
	Every 2-3 months	34%	28%
	Every 4-6 months	14%	13%
	Every year	4%	12%
	Missing information or no supervision reported	14%	29%
<b>E</b>	<b>Details about personal experience with supportive supervision</b>		
	Average supportive supervision visits received in the past three months	1.58 (n=51)	1.5 (n=81)
	Average number of interactions per month with professional mentors for clinical competence and performance improvement	2.2 (n=44)	1.6 (n=71)

**Annex Table 35. Provider reports of activities carried out by their supervisors**

Activities of supportive supervision or coaching providers	External providers of supervision		All sources of supervision	
	Uganda (n=39)	Kenya (n=74)	Uganda (n=65)	Kenya (n=82)
Observe work	38%	47%	57%	44%
Review of my clinical records	67%	47%	68%	39%
Review of my reports	72%	46%	74%	51%
Review of performance toward care outcome indicators	56%	50%	54%	52%
Review of performance toward clinical process indicators	15%	30%	32%	30%
QI capacity building	69%	18%	55%	22%
On-job clinical trainings	51%	41%	49%	40%
Observe performance with an anatomic model/doll (e.g., NeoNatalie)	26%	7%	18%	6%
Distribution/sharing of the evidence-based guidelines, protocols, pathways	23%	19%	15%	18%
Provide updates on administrative or technical issues related to work	31%	20%	31%	28%
Participating in care improvement activities	41%	27%	40%	27%

**Annex Table 36. Provider experiences with communicating patient information**

		Uganda	Kenya
<b>A</b>	<b>Main means used to communicate with other health care providers taking care of the same patient (e.g., specialist to specialist or primary care to specialist) (best answer selected)</b>	(n=71)	(n=104)
	Usually patients do not have multiple providers	3%	7%
	Communication usually occurs via written notes in the patient records or specific visit notes	51%	38%
	Communication usually occurs via direct verbal communication	10%	4%
	Communication usually occurs via a combination of verbal and written communication	23%	42%
	It is not common practice for different providers of an individual patient to communicate in any way.	8%	1%
	No response to this question	6%	8%
<b>B</b>	<b>Satisfaction with the communication during clinical hand-over among members of the health care team in the health facility</b>	(n=71)	(n=104)
	Extremely dissatisfied	6%	7%
	Somewhat dissatisfied	28%	23%
	Nor satisfied not dissatisfied	7%	14%
	Somewhat satisfied	46%	38%
	Extremely satisfied	10%	14%
	No response	3%	4%
<b>C</b>	<b>Approximate time to retrieve information from patient's previous outpatient visit in this facility</b>	(n=58)	(n=89)
	Less than 10 minutes	29%	38%
	10-59 minutes	63%	47%
	60-99 minutes	5%	12%
	More than 100 minutes	4%	2%
<b>D</b>	<b>Experience retrieving information from patient prior outpatient visit (multiple responses allowed)</b>	(n=71)	(n=104)
	Ease and difficulty depends on the type of visit patient had (eg ANC visits, well-child visit, FP visits, outpatient care of sick patient, etc.)	70%	65%
	It is generally easily accessible to me for review during the patients' outpatient visit	23%	17%
	It is generally not possible or extremely difficult to retrieve information on previous outpatient visit in this facility	7%	9%
	The only information on previous outpatient visits I may get is from patients' standardized card or passport	23%	9%
	The only information on previous visits I may get is from non-standardized patients' notebook	6%	5%
<b>E</b>	<b>Documentation used</b>	(n=51)	(n=79)
	Standardized documents allow provider to document essential aspects of RMNCHA care	73%	85%
	Major gaps in availability, completeness and accuracy of medical documentation in your facility	(n=71)	(n=104)

	Uganda	Kenya
No standardized registers, data collection forms, clinical and observation charts in place at all time for routine recording and monitoring of all care processes for reproductive, maternal, newborn, child and adolescent care (RMNCHA)	17%	12%
There are standardized forms for most of the RMNCHA care processes, but we have frequent stock-outs and cannot document the information all the time	25%	34%
No standardized information or do not routinely document information on clinical follow-up of patient	15%	7%
No standardized information or do not routinely document information on hand-over of the patients	13%	6%
Most of the times, standardized medical information is not filled completely	32%	32%
Most of the time, standardized medical information is not filled accurately	42%	25%
Most of the time, medical information does not provide sufficient information to assess gaps in care and identify areas of improvement	24%	22%
None or very limited information available (e.g., referral notes) on previous care provided to the patient in other facility to ensure continuity of care	11%	20%
None or very limited information is available on previous care provided to the patient in this facility to ensure continuity of care	13%	8%

**Annex Table 37. Provider experience with patient follow-up**

		Uganda	Kenya
<b>A</b>	<b>Described practices for patient follow-up from outpatient or inpatient services (best answer selected)</b>	<b>(n=71)</b>	<b>(n=104)</b>
	Patients do not usually receive instructions on long-term monitoring or follow-up	7%	4%
	Patient is instructed to visit facility of their choice for follow-up	45%	17%
	Patient is referred to specific outpatient clinic for long-term monitoring or follow-up with a written plan defined	42%	63%
	Patient is instructed to go to specific outpatient clinic for long-term monitoring or follow-up but without written plan	4%	6%
<b>B</b>	<b>Usual process in facility when a patient needs a follow-up visit (including discharged patients) (best answer selected)</b>	<b>(n=71)</b>	<b>(n=104)</b>
	Patients are given a follow-up visit before they leave on the day of their visit	45%	59%
	Patient is told when to come back and asked to schedule a follow-up visit at a later time	20%	26%
	Patient is told to come back if s/he has a problem	24%	6%
	There is no usual practice with regard to follow-up visits in our facility.	3%	3%
	We are not able to schedule patient visits in this facility and patients are told to come back at a specified time (without an assigned appointment)	1%	2%
	No response to this question	7%	5%
		<b>(n=46)</b>	<b>(n=88)</b>
	Where appointments are made: There is a system or procedure to track patients who do not come for a scheduled follow-up visit	52%	78%
<b>C</b>	<b>Description of experience with community outreach in facility (best answer selected)</b>	<b>(n=71)</b>	<b>(n=104)</b>
	We focus on the patients who come to our unit. We haven't implemented any outreach programs in our community. Patients and their families often make their own connections to the community resources they need.	7%	12%
	Facility has tried a few outreach programs and have had some success, but it is not the norm for us to go out into the community or actively connect patients to the community resources that are available to them.	31%	24%
	We are doing everything we can to understand our community. We work closely with existing community structures to meet patient needs.	49%	49%
	No response	13%	15%

**Annex Table 38. Provider identified barriers to providing quality services**

		Uganda	Kenya
A	Identified barriers for providing high quality medical services in the facility (multiple responses allowed)	(n=71)	(n=104)
	Availability of essential equipment and medicines 24/7	38%	49%
	No routine maintenance	38%	32%
	No standardized procedures to avoid stock-outs	41%	27%
	Lack of availability of evidence-based guidelines and protocols and provider decision support tools	28%	24%
	Shortage of designated skilled care providers present in delivery area 24/7	34%	44%
	Absence of designated area at respective point of care 24/7	21%	17%
	Availability of skilled care providers 24/7	10%	13%
	Limited knowledge and/or skills	14%	21%
	Limited QI competencies among facility staff	39%	35%
	Lack of supportive supervision and coaching	31%	30%
	Poor recognition and referral of high risk conditions to appropriate centers	20%	18%
	Lack of recognition of complications	13%	14%
	Care coordination between care providers	8%	18%
	Lack of clear staff roles between care providers during childbirth	15%	12%
	Lack of clear separation of tasks	14%	17%
	Poor standardization of records and registers to capture essential quality of care process and outcome data	17%	16%
	Limited documentation of clinical information to assess the quality of NR provided	28%	24%
	Small salary or financial incentive of care providers	48%	29%
	Financial affordability of services by patients	18%	28%
B	Identified <u>main</u> barriers for providing high quality medical services in the facility (one response allowed)		
	Availability of essential equipment and medicines 24/7	34%	29%
	No routine maintenance	0%	9%
	No standardized procedures to avoid stock-outs	5%	5%
	Lack of availability of evidence-based guidelines and protocols and provider decision support tools	5%	11%
	Shortage of designated skilled care providers present in delivery area 24/7	9%	7%
	Absence of designated area at respective point of care 24/7	0%	3%
	Availability of skilled care providers 24/7	7%	9%

	Uganda	Kenya
Limited knowledge and/or skills	0%	9%
Limited QI competencies among facility staff	18%	3%
Lack of supportive supervision and coaching	11%	9%
Poor recognition and referral of high risk conditions to appropriate centers	0%	1%
Lack of recognition of complications	0%	0%
Care coordination between care providers	0%	1%
Lack of clear staff roles between care providers during childbirth	0%	1%
Lack of clear separation of tasks	0%	0%
Poor standardization of records and registers to capture essential quality of care process and outcome data	5%	0%
Limited documentation of clinical information to assess the quality of NR provided	0%	2%
Small salary or financial incentive of care providers	5%	0%
Financial affordability of services by patients	0%	1%

**Annex Table 39. Patient-centered care**

		Uganda	Kenya
<b>A</b>	<b>Confidentiality</b>	(n=71)	(n=104)
	Facility has any internal procedure/guideline to ensure confidentiality of patient information	65%	82%
	Measures implemented in the facility to protect patient confidentiality (multiple responses allowed)		
	Staff do not disclose any information given to or received from patient to third parties, such as family members, school teachers or employers, without the patient's consent	23%	32%
	Case records are kept in a secure place, accessible only to authorized personnel	23%	38%
	There are curtains in windows and doors, a screen separating the consultation area from the examination area to maintain privacy during the consultation	28%	18%
	Measures are implemented to prevent unauthorized access to electronically stored information	18%	9%
	Information on the identity of the patient and the presenting issue are gathered in confidence during client registration	25%	13%
	At least 3 of the above measures to protect confidentiality are reported	14%	13%
<b>B</b>	<b>Formal consent process for services in the facility</b>		
	Yes, has formal consent process approved at the national level (by government)	55%	12%
	Yes, has formal consent process approved at the facility level	25%	46%
	No formal consent process	0%	31%
	No response to the question	20%	12%
<b>C</b>	<b>Client /provider communication</b>		
	Facility regularly uses any method for measuring patient satisfaction	68%	61%
	Most important skills for good communication between providers and patients (unprompted, multiple responses accepted)		
	Active listening	42%	33%
	Asking questions	25%	15%
	Responding to questions	27%	14%
	Verifying the understanding of patients and their families	24%	15%
	Supporting patients in problem-solving	20%	7%
	Description of patient focus in facility (select most accurate for your facility from prompted responses)		

		Uganda	Kenya
	Most of us, including our patients, would agree that we do not always provide patient-centered care. We are not always clear about what patients want and need.	4%	4%
	We are actively working to provide patient-centered care and we are making progress toward more effectively and consistently learning about and meeting patient needs.	34%	47%
	We are effective in learning about and meeting patient needs, including caring, listening, educating, and responding to their special requests, and provision of smooth services.	25%	23%
	No response	37%	26%

## B. Antenatal care

### 1. ANC provider interviews

Annex Table 40. Provider services related to ANC and MNH

		Uganda	Kenya
<b>A</b>	<b>ANC services offered by provider</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Nutritional assessment of the pregnant woman	95%	87%
	Performing rapid diagnostic tests	76%	23%
	Screening for HIV infection	100%	83%
	Distribution of nutrition supplements (iron, folic acid)	90%	80%
	Pelvic examination	81%	47%
	Cervical cancer screening	24%	47%
	Immunization services	95%	80%
	IV administration of medications	57%	43%
	Initial treatment for pre-eclampsia	57%	60%
	Treatment of HIV infection	Na	76% (n=17)
	PrEP (pre-exposure prophylaxis)	na	65% (n=17)
<b>B</b>	<b>Community-based outreach services</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Any community-based outreach services	100%	83%
	Antenatal care	71%	70%
	Rapid diagnostic test for malaria	57%	43%
	HIV testing	86%	77%
	Family planning	86%	80%
	Immunization	90%	83%

**Annex Table 41. Provider ANC assessment and counseling practices**

		Uganda	Kenya
<b>A</b>	<b>Routine risk screening assessments performed</b>	<b>N=21</b>	<b>N=30</b>
	Anemia	86%	90%
	Asymptomatic bacteriuria	14%	23%
	Pregnancy-related hypertension	71%	90%
	Proteinuria during the pregnancy	62%	77%
	Gestational diabetes mellitus	43%	47%
	Tobacco use	38%	23%
	Exposure to second-hand smoke	10%	7%
	Substance use	10%	17%
	HIV infection	86%	97%
	Syphilis	86%	83%
	Tuberculosis	76%	77%
	Malaria	71%	67%
	Helminthiasis	48%	37%
	Iron insufficiency	81%	47%
	Intimate partner violence	81%	67%
	Believe privacy and time allocated for the screening for intimate partner violence are adequate for disclosure	65% (n=17)	35% (n=20)
<b>B</b>	<b>Fetal assessments routinely performed at least once</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Abdominal palpation for the assessment of fetal growth	86%	90%
	Symphysis-fundal height (SFH) measurement for the assessment of fetal growth	76%	63%
	Routine antenatal cardiotocography	19%	3%
	Ultrasound scan before 24 weeks of gestation	24%	17%
	Doppler ultrasound of fetal blood vessels	10%	3%
<b>C</b>	<b>Item identified as important for ANC counseling (non-prompted responses)</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Birth preparedness/individual birth plan (IBP)	76%	60%
	Pregnancy complication preparedness	81%	40%
	Birth spacing	5%	10%
	Family planning	14%	37%
	Danger signs (when to seek medical care)	62%	77%
	Delivery with skilled attendant	38%	30%

	Uganda	Kenya
Nutritional counseling	48%	57%
Rest and hygiene	14%	13%
Safer sex	0%	10%
Care of common discomforts in pregnancy	57%	0%
Use of IPT and ITNs	0%	23%
Avoidance of alcohol and drugs	5%	0%
Immunization	10%	10%
Newborn care	48%	10%
Early and exclusive breastfeeding	5%	27%
HIV testing and PMTCT	57%	20%
Postnatal care	48%	3%
Any vaginal bleeding	86%	83%
Convulsions or fits	19%	63%
Severe headaches or blurred vision	29%	70%
Fever and is too weak to get out of bed	38%	43%
Severe abdominal pain	71%	40%
Fast or difficult breathing	0%	3%
Fever	48%	50%
Foul smelling discharge from her vagina	14%	50%
Abdominal pain	38%	37%
Feels ill	29%	27%
Swelling of fingers, face and legs	38%	37%

**Annex Table 42. Provider knowledge of WHO recommendations**

		Uganda	Kenya
A	Asked to name dietary supplements recommended for all pregnant women, according to WHO	(n=21)	(n=30)
	Iron	76%	90%
	Vitamin C	38%	37%
	Folic acid	76%	93%
	Calcium	33%	60%
	Vitamin A	33%	23%
	Zinc	33%	27%
	Multiple micronutrients	38%	17%
	Vitamin B6	14%	17%
	Vitamin E	14%	17%
	Vitamin D	38%	27%
	<b>Correct: Only Iron and Folic acid selected</b>	14%	17%
B	Asked to identify the response(s) that indicate their approach for TT vaccination for previously unimmunized ANC clients:	(n=21)	(n=30)
	Two doses of a tetanus toxoid-containing vaccine (TT-CV) one month apart with the second dose given at least two weeks before delivery.	29%	53%
	Three doses of a tetanus toxoid-containing vaccine (TT-CV) one month apart with the last dose given at least two weeks before delivery.	29%	0%
	One dose as soon as possible, the second 6 months after delivery and two more doses, in the two subsequent years or during two subsequent pregnancies.	24%	13%
	One dose of a TT-CV during each subsequent pregnancy to a total of five doses	19%	17%
	<b>Correct: Only a and d selected</b>	5%	0%
C	Best response for WHO recommendation for interventions to prevent pre-eclampsia for women at high risk of developing pre-eclampsia	(n=21)	(n=30)
	Calcium supplementation	0%	7%
	Advice to rest at home	38%	27%
	Restriction in dietary salt intake	67%	63%
	Vitamin D supplementation	10%	0%
	Combined vitamin C and vitamin E supplementation	5%	7%
	Thiazide diuretics	24%	3%
	Low-dose acetylsalicylic acid	5%	13%

		Uganda	Kenya
	<b>Correct: Only a and g checked</b>	0%	0%
D	Diagnosis based on case study: 28 weeks pregnant woman complains of severe headaches for 3 days, dizziness and blurred vision. Difficulty standing up since last night. Blood pressure 165/110 and 3+ protein in her urine.	(n=21)	(n=30)
	Moderate pre-eclampsia	10%	0%
	Correct: Severe pre-eclampsia	86%	83%
	Chronic hypertension	0%	0%
	Eclampsia	5%	10%
D	Provider to select all management based on diagnosis provider chose		
	If possible hospitalize her in area without noise, bright lights, or external stimuli.	100%	77%
	Interrupt the pregnancy as soon as possible	95%	10%
	Encourage her to continue the pregnancy until at least 32 weeks to allow for fetal maturation	90%	63%
	Recommend her reducing dietary sodium to decrease blood pressure	95%	77%
	Correct: Give her antihypertensive (hydralazine, labetalol or nifedipine)	90%	77%
	Give diuretics	81%	47%
	Take her blood pressure at least every 15 minutes	95%	77%
	Allow her to rest until her blood pressure stabilizes and then refer her to a higher level of care	90%	47%
	Slowly give her 4g of 50% Magnesium Sulfate IV over 5 minutes.	95%	53%
	Administer oral Betamethasone or Dexamethasone	100%	57%
	Slowly give her 4 g of 20% Magnesium Sulfate IV over 5 minutes.	90%	50%
	Promptly after IV administration follow with 5 g of 50% magnesium sulfate solution in each buttock as a deep IM injection with 1 mL of 2% lignocaine in the same syringe.	100%	50%
	Promptly after IV administration follow with 10 g of 20% magnesium sulfate solution in each buttock as a deep IM injection with 1 mL of 2% lignocaine in the same syringe.	95%	23%
	<b>Only correct response (e)</b>	0%	0%
E	Provider estimate for average number of ANC visits women make in facility	4.1 (n=17)	3.9 (n=25)

**Annex Table 43. Provider practices in screening and interventions for specific conditions**

		Uganda	Kenya
<b>A</b>	<b>Practice: Routine method used to screen for anemia</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Complete blood count	10%	11%
	On-site hemoglobin testing	19%	46%
	Hemoglobin color scale	0%	25%
	Clinical findings	71%	18%
<b>B</b>	<b>Practice: Screening high blood pressure during the pregnancy</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Measure blood pressure at the first ANC visit	29%	23%
	Measure blood pressure at all visits	71%	93%
	Ask pregnant women to measure blood pressure twice a day and bring diary at each visit	0%	7%
	Do not measure blood pressure at all	14%	0%
	Start measuring blood pressure at or after 20th week of gestation	0%	0%
	<b>Knowledge/practice: Steps taken if blood pressure is <math>\geq 140/90</math> mmHg</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Refer pregnant women urgently to the specialist care	62%	40%
	Recommend bedrest for a week	0%	3%
	Perform electrocardiogram	0%	0%
	Perform blood test	0%	10%
	Perform urine test	57%	73%
	Type of urine test		
	Protein	33%	40%
	Dipstick (not specified)		7%
	Dipstick (protein and glucose)		10%
	Albumin	10%	10%
	Urinalysis	5%	
	Acetons	10%	17%
	Prescribe antihypertensive regularly	19%	13%
	Schedule follow-up visit	19%	37%
<b>C</b>	<b>Practice: Usual approach to diagnose asymptomatic bacteriuria (ASB) during pregnancy</b>	<b>(n=21)</b>	<b>(n=30)</b>
	No capacity to diagnose ASB	52%	37%
	Midstream urine culture	29%	17%
	On-site midstream urine gram-staining	5%	3%
	Dipstick tests	14%	27%

		Uganda	Kenya
D	Knowledge/practice: Among those diagnosing asymptomatic bacteriuria (ASB) during pregnancy, usual approach for its management	(n=12)	(n=16)
	Repeat the tests for confirmation of diagnosis	17%	13%
	Refer to specialist care	25%	13%
	Prescribe antibiotic for 5 days	42%	38%
	Prescribe antibiotic for 7 days	17%	31%
	Prescribe antibiotic for 10 days	0%	6%
	No action, ASB is benign condition and no intervention is necessary	0%	0%
D	Practice: Interventions for malaria	(n=21)	(n=30)
	No routine interventions except health education	14%	3%
	Performing rapid diagnostic test for malaria	33%	30%
	Distributing Insecticide-treated nets at ANC visit	81%	60%
	Intermittent preventive treatment with sulfadoxine-pyrimethamine (IPT-SP)	100%	97%
	Knowledge/practice: When usually start IPT-SP:		
	At the first ANC visit	5%	0%
	<b>Correct: As early as possible in the second trimester</b>	<b>80%</b>	<b>78%</b>
	As early as possible in the third trimester	5%	0%
	At 20 <sup>th</sup> week of gestation	10%	7%
	How long between doses of IPT-SP		
	At least a week	0%	3%
	At least 14 days	5%	0%
	<b>Correct: At least a month</b>	<b>90%</b>	<b>90%</b>
	At least 6 weeks	5%	0%
	Average for number of doses of IPT-SP patients usually receive during a pregnancy	2.7 (n=15)	3.4 (n=24)

**Annex Table 44. Knowledge about interventions to reduce physiological symptoms during pregnancy<sup>123</sup>**

		Uganda (n=21)	Kenya <sup>(2)</sup> (n=30)
A	Symptoms: Nausea and vomiting		
	(a) Doxylamine	0%	3%
	(b) Metoclopramide (heartburn)	67%	23%
	(c) Ginger	14%	30%
	(d) Chamomile	0%	0%
	(e) Vitamin B6	24%	17%
	(f) Acupuncture	0%	0%
	(g) Lemon oil	14%	17%
	(h) Mint oil	0%	7%
	Answered correctly all nausea questions (c,d,e, and f)	0%	0%
B	Symptoms: Heartburn	Uganda (n=21)	Kenya <sup>2</sup> (n=30)
	(a) Doxylamine	0%	0%
	(b) Metoclopramide (heartburn)	0%	0%
	(c) Ginger	5%	0%
	(d) Chamomile	0%	3%
	(e) Avoidance of large, fatty meals	29%	43%
	(f) Avoidance of alcohol	5%	7%
	(g) Cessation of smoking	0%	7%
	(h) Raising the head of the bed to sleep	5%	50%
	(i) Antacids	67%	47%
	Answered correctly all heartburn questions (e-i)	0%	3%
	Appropriate utilization of antacids	Uganda (n=21)	Kenya <sup>3</sup> (n=30)
	(a) Magnesium carbonate antacids should be given the preference over aluminum hydroxide antacids	95%	43%
	(b) Aluminum hydroxide antacids should be given the preference over magnesium carbonate antacids	86%	23%
	(c) They should be strictly avoided as not safe during the pregnancy	95%	7%
(d) They should be taken strictly after the meal	95%	33%	
(e) They should be taken two hours apart from other medications	90%	30%	
Answered correctly all antacid questions (e)	0%	0%	

<sup>123</sup> WHO recommendations on antenatal care for a positive pregnancy experience. World Health Organization. 2016.

<b>C</b>	<b>Symptoms: Managing leg cramps</b>	<b>Uganda (n=21)</b>	<b>Kenya<sup>4</sup> (n=30)</b>
	(a) Oral magnesium	5%	10%
	(b) Oral calcium	38%	33%
	(c) Muscle stretching	62%	23%
	(d) Relaxation	48%	23%
	(e) Heat therapy	10%	7%
	(f) Ice therapy	5%	17%
	(g) Physiotherapy	38%	23%
	(h) Support belts	10%	3%
	(i) Dorsiflexion of the foot	19%	3%
	(j) Plantar extension of the foot	0%	3%
	(k) Oral vitamins B6	29%	10%
	(l) Oral vitamins B1	5%	3%
	Answered correctly all leg cramp questions (a and b)	0%	0%
<b>D</b>	<b>Symptoms: Low back and pelvic pain</b>	<b>Uganda (n=21)</b>	<b>Kenya<sup>5</sup> (n=30)</b>
	(a) Healthy eating	19%	19%
	(b) Regular exercise	90%	85%
	(c) Smoking cessation	0%	8%
	(d) Calcium supplementation	38%	42%
	(e) Iron supplementation	24%	12%
	(f) Folic acid supplementation	19%	12%
	Answered correctly low back and pelvic pain questions (b)	0%	12%
<b>E</b>	<b>Symptoms: Constipation</b>	<b>Uganda (n=21)</b>	<b>Kenya<sup>6</sup> (n=30)</b>
	(a) Adequate intake of water	71%	78%
	(b) Adequate intake of dietary fiber (found in vegetables, nuts, fruit and whole grains)	76%	93%
	(c) Oral calcium	0%	0%
	(d) Wheat bran	0%	11%
	(e) Fiber supplements	38%	19%
	(f) Stimulant laxatives regularly	10%	0%
	(g) Stimulant laxatives occasionally	10%	11%
	Answered correctly constipation questions (d,e)	0%	0%
<b>F</b>	<b>Symptoms: Varicose veins and edema</b>	<b>Uganda (n=21)</b>	<b>Kenya<sup>7</sup> (n=27)</b>
	(a) Adequate intake of water	0%	11%

(b) Compression stockings	86%	93%
(c) Leg elevation	67%	59%
(d) Water immersion	5%	0%
(e) Thiazide diuretics	10%	0%
(f) Phlebotonics (e.g., rutoside)	5%	0%
(g) Foot massage by a professional masseur	0%	15%
Answered correctly varicose veins and edema questions (b,c,d)	0%	0%
<p>(1) Kenya had substantial missing responses. These were classified as “no”, under the assumption that providers who chose not to respond to these questions did not have a full knowledge of the topic. Missing responses were as follows: <sup>1</sup> Nausea and vomiting: 7 (23%); <sup>2</sup> heartburn: 4 (13%); <sup>3</sup> Antacid: 10-13 (33%=43%); <sup>4</sup> Leg cramps: 8 (27%); <sup>5</sup> Low-back/pelvic pain: 4 (13%); <sup>6</sup> Constipation: 3 (10%); <sup>7</sup> Varicose veins/edema: 3 (10%).</p> <p>(2) To be classified as correct the respondent must provide the correct response and none of the incorrect responses.</p>		

**Annex Table 45. Provider responses for antenatal care services and support for quality services**

Topic/service	Reported use guidelines/job aids		Training received in past 12 months		Self-perceived level of comfort providing the service			
	Uganda (n=21)	Kenya (n=30)	Uganda (n=21)	Kenya (n=30)	Uganda (n=21)		Kenya (n=30)	
					High	Low	High	Low
Focused antenatal care			24%	20%				
Routine screening for ANC	86%	77%						
Obstetric emergency training for complications of pregnancy and their management			14%	13%				
Updated WHO recommendations on positive pregnancy experience			0%	10%				
Screening and management of pre-eclampsia	52%	27%	14%	13%				
Screening and management of hypertension	57%	27%			33%	19%	63%	10%
Screening and management of proteinuria	24%	20%			29%	19%	57%	17%
Screening and management of gestational diabetes	0%	20%	0%	7%	33%	48%	57%	10%
Screening for HIV infection and PMTCT			48%	43%				
Prevention and referral for preterm birth			0%	7%				
Screening and management of preterm labor	19%	27%						
Danger signs during pregnancy, labor and childbirth education			0%	13%				
Fever and infections					52%	0%	70%	3%
Vaginal bleeding					67%	0%	57%	7%
Nutritional assessment of the pregnant woman			0%	3%				
Nutrition and lifestyle counseling for ANC			0%	3%				

Topic/service	Reported use guidelines/job aids		Training received in past 12 months		Self-perceived level of comfort providing the service			
	Uganda (n=21)	Kenya (n=30)	Uganda (n=21)	Kenya (n=30)	Uganda (n=21)		Kenya (n=30)	
					High	Low	High	Low
Screening and modification of behavioral risk factors					29%	10%	37%	13%
Birth preparedness counseling			0%	7%				
Clinical inquiry on intimate partner violence and domestic violence			5%	0%				
Supportive response for intimate partner violence			5%	0%				
Malaria in pregnancy	90%	57%	33%	30%				
Interpersonal communication/counseling skills/cultural competence			10%	0%				
Prevention of mother-to-child transmission of HIV (PMTCT)	81%	87%						
PrEP (pre-exposure prophylaxis)			Not asked	18%				
<b>Familiar with additional guidelines and policies</b>								
Routine ANC screenings	81%	83%						
Counseling on intimate partner violence	38%	23%						
Sexual and reproductive health policy	43%	37%						

**Annex Table 46. Additional practices to support ANC services**

		Uganda	Kenya
<b>A</b>	<b>Provider practices for recording of patient information</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Patient notes are usually kept in the facility organized in systemic way, that makes them easily accessible during next visits	43%	40%
	Patient notes are kept in the facility; however, we open new one at each visit as it is difficult or impossible to find the previous records	5%	10%
	Only facility held medical information is recorded in the registers	29%	33%
	Each pregnant woman carries her own patient notes during pregnancy	76%	60%
<b>B</b>	<b>Task shifting</b>	<b>(n=21)</b>	<b>(n=30)</b>
	Respondent ever engaged in task-shifting	90%	63%
	Task shifts to promote health-related behaviors for maternal and newborn health	90%	63%
	Aware of guidelines for task shifts to provide quality antenatal care	52%	37%
	<b>Services usually delegated to more general health cadre</b>		
	Health promotions messages	24%	43%
	ANC referral	48%	27%
	RDT (malaria)	67%	27%
	HIV testing	57%	47%
	Distribution of folic acid supplements	71%	23%
	Distribution of iron supplements	71%	33%
	Intermittent preventive treatment for malaria	67%	27%
	<b>Who is involved in task shifting<sup>1</sup></b>		
	Lay health workers	38%	17%
	Auxiliary nurses	29%	10%
	Nurses	33%	43%
	Midwives	52%	17%
	Doctors	52%	10%
<sup>1</sup> Some of these responses seem to reflect the qualification of the person designating tasks and not the person to whom tasks are designated.			

## 2. Record review for ANC clients

**Annex Table 47. Selection characteristics for reviewed ANC records**

	Uganda N (% of sample)	Kenya N (% of sample)
Most recent 15 clients	42% (n=151)	50% (n=230)
HIV positive	45% (n=161)	36% (n=165)
Documented blood pressure over 140/90	16% (n=58)	16% (n=75)
Total different records	357	462

**Annex Table 48. Characteristics of clients whose ANC records were reviewed**

		Uganda	Kenya
<b>A</b>	Age of client	(n=357)	(n=462) <sup>2</sup>
	10-19 years old	49 (14%)	23 (7%)
	20-24	115 (32%)	127 (37%)
	25-29	91 (25%)	80 (23%)
	30+	101 (28%)	115 (33%)
<b>B</b>	ANC visit number		<sup>3</sup>
	First	199 (56%)	167 (42%)
	2 <sup>nd</sup>	70 (20%)	95 (24%)
	3 <sup>rd</sup>	46 (13%)	60 (15%)
	4 <sup>th</sup> or more	42 (12%)	73 (18%)
<b>C</b>	Prior pregnancy		
	Average number of prior pregnancies	2.4	1.8
<sup>2</sup> N was 345, with information missing for 117 records			
<sup>3</sup> N was 395, with information missing for 67 records			

**Annex Table 49. Documentation of ANC assessments and interventions reviewed ANC records**

	Documentation	Uganda	Kenya
<b>A</b>	<b>Physical measurements</b>	<b>(n=357)</b>	<b>(n=462)</b>
	Temperature	0	8%
	Blood Pressure	67%	97%
	Weight	95%	92%
	Height	17%	61%
	MUAC / BMI	83%	29%
<b>B</b>	<b>Risk assessments</b>		
	Presence or absence of danger signs	1%	9%
	Presence or absence of prior diseases/ complications	60%	2%
	Behavioral risk factors documented	0%	0%
	Hemoglobin tested	1%	60%
<b>C</b>	<b>Preventive interventions</b>		
	Deworming treatment status documented	49%	29%
	<b>Specify the deworming status (if documented)</b>	<b>(n=174)</b>	<b>(n=135)</b>
	Anthelmintic received this visit	95%	80%
	Anthelmintic due at this visit, but not received	0%	1%
	Not eligible or not due at this visit	1%	3%
	Anthelmintic treatment completed (given previously)	4%	15%
	Not given, eligibility can not be established	0%	1%
	<b>IPT for malaria</b>		
	<b>Among non HIV+ patients: Intermittent preventive treatment documented</b>	<b>(n=195)</b>	<b>(n=290)</b>
	IPT1	52%	33%
	IPT2	11%	26%
	Not eligible (e.g., 1 <sup>st</sup> trimester)	8%	5%
	Completed	6%	18%
	IPT3	0	3%
	IPT4	0	1%
	Not documented	23%	13%
	<b>1<sup>st</sup> visit clients with 1<sup>st</sup> dose IPT recorded</b>	<b>95% (n=83)</b>	<b>79% (n=57)</b>
	<b>Intermittent preventive treatment documented (for HIV(+))</b>	<b>(n=162)</b>	<b>(n=172)</b>

Documentation		Uganda	Kenya
	IPT1	2%	3%
	Not eligible (HIV+)	98%	94%
	Not documented	0	3%
	Tetanus vaccination documented	69%	43%
	# TT doses received	2.3 (n=247)	2.6 (n=196)
	Iron supplementation documented	68%	77%
	Folic acid supplementation documented	80%	80%
<b>D</b>	<b>Topic with documentation of counseling</b>	<b>(n=357)</b>	<b>(n=462)</b>
	Infant feeding counseling documented	99%	51%
	Maternal nutrition counseling documented	95%	51%
	FP counseling documented	96%	62%
	HIV + women counseled for dual protection documented	80% (n=162)	73% (n=172)
	HIV + women counselled on ARV treatment adherence documented	0	29% (n=172)

**Annex Table 50. Documentation of screening for risk and interventions provided**

		Uganda	Kenya
<b>A</b>	<b>Tuberculosis</b>	(n=357)	(n=462)
	TB status documented	99%	93%
	TB status (if documented)	(n=354)	(n=431)
	TB unlikely (no TB signs)	100%	98%
	TB suspect	-	1% (n=4)
	Diagnosed with TB, not on TB treatment	-	0%
	Diagnosed with TB, currently on TB treatment	-	0% (n=2)
	Completed TB treatment	-	0% (n=1)
<b>B</b>	<b>Syphilis</b>	(n=357)	(n=462)
	Tested for syphilis	19%	80%
	Results of syphilis test	(n=67)	(n=369)
	Test results negative	97%	99%
	Tested positive given treatment	1% (n=1)	1% (n=2)
	Tested positive no treatment	1% (n=1)	1% (n=3)
<b>C</b>	<b>Malaria</b>	(n=357)	(n=462)
	Long-lasting insecticide net (LLIN) was given	34%	34%
	Tested for malaria documented	0	21% (n=96)
	Malaria test positive	-	11% (n=11)
	Treatment given if test positive	-	82%
<b>D</b>	<b>Hypertension and pre-eclampsia</b>	(n=357)	(n=462)
	Blood pressure documented most recent visit	67%	97%
	Blood pressure if documented	(n=238)	(n=441) <sup>4</sup>
	<140/90mmHg	76%	85%
	140–159/90–109 mmHg	21% (n=51)	11% (n=48)
	> 160/110 mmHg	3% (n=6)	3% (n=15)
	Patients with blood pressure ≥160/110 mmHg and:	(n=6)	(n=15)
	Hypertension diagnosed	100%	100%
	Antihypertensive prescribed	0%	40%
	MgSO4 administered	0%	0%
	Referred to another facility	0%	0%
	Diagnosed hypertensive (BP > 140/90) and:	16% (n=58 <sup>1</sup> )	21% (n=100 <sup>2</sup> )

	Uganda	Kenya
Urine protein (urinalysis) recorded	0%	3%
Calcium prescribed	0%	0%
Low-dose aspirin prescribed	0%	0%
Referred to another facility	0%	0%
Diagnosed pre-eclampsia	2% (n=6)	0.4% (n=2 <sup>3</sup> )
Diagnosed hypertensive or pre-eclamptic and received calcium	0 (0%)	1% (1 of 100)
Diagnosed hypertensive and pre-eclamptic and received low-dose aspirin	0 (0%)	0 (0%)
No diagnosis of hypertension or pre-eclampsia and received low-dose aspirin	0	n=1

<sup>1</sup> Includes one woman whose blood pressure did not meet the definition for hypertension (>140/90)  
<sup>2</sup> Includes 35 women whose blood pressure did not meet the definition for hypertension (>140/90) plus one woman whose blood pressure was not recorded the most recent visit.  
<sup>3</sup> One woman was not diagnosed with hypertension.  
<sup>4</sup> Six Kenyan women recorded as having a blood pressure measured did not have an actual measure recorded

**Annex Table 51. Documentation of HIV test and ART status for ANC clients**

	Uganda	Kenya
HIV	(n=356)	(n=462)
Any note indicating assessment of HIV status/discussion of importance of HIV test	99% (n=353)	96% (n=445)
HIV status known most recent visit	98%	81%
Most recent HIV test result (any visit)		
Positive (includes retested clients)	45% (n=160)	35% (n=162)
Positive: positive test result not recorded but documentation of both HIV staging and an ART regimen being prescribed	0%	1% (n=5)
Negative	54% (n=193)	46% (n=213)
Not known	1% (n=3)	18% (n=82)
ARV status for PMTCT most recent visit	(n=162)	(n=172)
Enrolled in 3-drug Art regimen	99%	
Enrolled in ART, exact regimen unclear		94% <sup>1</sup>
Among enrolled, those on life-long ART prior to pregnancy	51%	41%
Facility availability of 1 <sup>st</sup> line ART regimen for PMTCT	(n=10 facilities)	(n=11 facilities)
TENOFOVIR + LAMIVUDINE + EFAVIRENZ [TDF + 3TC + EFV]	90%	100%
<sup>1</sup> There were inconsistencies in the ARV regimen recorded for Kenyan women.		

### 3. Observation of ANC consultation

**Annex Table 52. Information on observed providers of ANC service**

A	Cadre of provider	% and number of ANC visits observed	
		Uganda (n=137)	Kenya (n=144)
	Nursing professionals (non-degree nurses)	0%	35% (n=50)
	Degree Nurses (BSN nurse)	3% (n=4)	12% (n=17)
	Midwifery Professionals (non-degree midwives)	41% (n=56)	9% (n=13)
	Degree Midwives	14% (n=19)	1% (n=1)
	Enrolled nurse/enrolled midwife	42% (n=57)	43% (n=62)
	Other	1% (n=1)	1% (n=1)
B	Sex of observed provider	Uganda (n=137)	Kenya (n=142 <sup>124</sup> )
	Male	4% (n=5)	9% (n=13)
	Female	96% (n=132)	91% (n=129)

<sup>124</sup> Missing information for two providers.

**Annex Table 53. Information on observed ANC clients**

A	Number of prior pregnancies	Uganda (n=135)	Kenya (n=141 <sup>125</sup> )
	0	21% (n=29)	26% (n=37)
	1	18% (n=24)	31% (n=44)
	2	19% (n=26)	18% (n=25)
	3+	33% (n=44)	21% (n=30)
	Unspecified 2 <sup>nd</sup> or greater pregnancy	9% (n=12)	4% (n=5)
B	ANC visit observed for this client	Uganda (n=137)	Kenya (n=144)
	First	25% (n=34)	28% (n=40)
	Second	45% (n=61)	30% (n=43)
	Third or more	26% (n=39)	42% (n=59)
	Unknown	2% (n=3)	
	Average gestational age current visit	Uganda (n=133)	Kenya (n=143)
	Average for estimated weeks pregnancy	28.0	26.4

**Annex Table 54. Assessment of history for chronic conditions**

	Item	Uganda ( n=137)	Kenya (n=144)
		Assessed	Assessed
	Existence of any chronic conditions assessed	53%	31%
	Existence of chronic conditions confirmed	10%	26%
		Uganda (n=14)	Kenya (n=38)
	Diabetes or gestational diabetes assessed	0%	89%
	High blood pressure (previous or existing) assessed	86%	63%
	Autoimmune disease assessed	0%	24%
	Renal disease assessed	86%	16%

<sup>125</sup> Missing information for three clients.

**Annex Table 55. Assessment of physiological symptoms (Observed or noted in client's individual ANC card) (Uganda n=137, Kenya n=144)**



**Annex Table 56. Physical examinations and laboratory screening for risk (observed or noted in client individual ANC card)**

		Uganda	Kenya
A	Physical examination	(n=137)	(n=144)
	Weigh the client	91%	90%
	Measures height of the client (any time)	63%	58%
	Take the client's blood pressure	60%	98%
	Check conjunctiva/palms for anemia	76%	62%
	Palpate the client's abdomen for uterine height	99%	94%
	Conducted symphysis-fundal height measurement	100%	32%
	Listen to the client's abdomen for fetal heartbeat	100%	90%
B	Laboratory screening for risk	(n=137)	(n=144)
	Test for anemia (any time during this pregnancy)	2%	79%
	Full blood count	0% (n=3)	6% (n=114)
	HB testing using hemoglobinometer	67% (n=3)	94% (n=114)
	HB testing by color scale	67% (n=3)	5% (n=114)
	Blood grouping (anywhere or anytime)	1%	96%
	Rh factor (anywhere)	2%	93%
	Urine test		
	Test for proteinuria (this visit)	4%	43%
	If measured confirmed proteinuria this visit (spot urine protein/creatinine >30 mg/mmol [0.3 mg/mg] or >300 mg/day or at least 1 g/L ['2 +'] on dipstick testing)	83% (n=6)	61% (n=62)
	Test for asymptomatic bacteriuria ASB (any time during pregnancy)	3%	10%
	Midstream urine culture	50% (n=4)	7% (n=14)
	Midstream urine gram staining	50% (n=4)	7% (n=14)
	Urine dipstick for ASB	100% (n=4)	93% (n=14)
	Urine test for glucose (any time during pregnancy)	4%	65%
	Blood test for gestational diabetes or diabetes mellitus in plasma (any time during pregnancy)	4%	3%
	Fasting plasma glucose	33% (n=6)	25% (n=4)
	1 hour plasma glucose	67% (n=6)	0% (n=4)
	2 hour plasma glucose	67% (n=6)	75% (n=4)
	Ultrasound scan (any time during pregnancy)	11%	15%
	Syphilis test (any time during pregnancy)	29%	90%
Malaria test (RDT) (this visit)	10%	42%	

		Uganda	Kenya
	TB test if cough >2 weeks confirmed by client	33% (n=3)	0% (n=17)
C	HIV		
	Health worker ask about or the client mention her HIV status	87%	58%
	Health worker perform, inquire about, or refer for an HIV test	80%	53%
	Client is HIV-positive	12%	10%
	Partner status assessed	Not collected	1%

**Annex Table 57. Preventive interventions and related counseling (observed or noted in client individual ANC card)**

		Uganda	Kenya
Preventive interventions and related counseling this visit		(n=137)	(n=144)
<b>A</b>	<b>Supplements</b>		
	Prescribed daily calcium supplementation	8%	4%
	Prescribed Vit A supplementation	9%	3%
	Prescribed Zinc supplementation	8%	3%
	Prescribed iron and folic acid	91%	99%
	Explained purpose of iron or folic acid	74% (n=125)	89% (n=142)
	Explained how to take pill	90% (n=125)	88% (n=142)
	Explained possible side effects	48% (n=125)	14% (n=142)
	Give supply of iron	86% (n=125)	86% (n=142)
	Give supply of folic acid	87% (n=125)	85% (n=142)
<b>B</b>	<b>Tetanus toxoid</b>		
	Among all clients prescribed or gave a tetanus toxoid (TT) injection	71% (n=137)	52% (n=144)
	Among all clients, percentage not eligible for TT this visit	1%	33%
	Among clients receiving TT this visit, % purpose of the TT injection is explained	63% (n=95)	87% (n=75)
<b>C</b>	<b>Anti-malarial</b>		
	Anti-malarial prophylaxis: Prescribed or gave anti-malarial prophylaxis (SP for IPT) (among all clients)	74%	79%
	Ineligible (<13 weeks gestation) and received anti-malarial	1 of 4	2 of 2
	Eligible (≥13 weeks of gestation) and received anti-malarial	75% (n=133)	79% (n=142)
	Explained the purpose of the preventative treatment with anti-malarial medication	79% (n=101)	89% (n=114)
	Explained how to take the anti-malarial medication	99% (n=101)	92% (n=114)
	Explained side effects of anti-malarial medication	57% (n=101)	9% (n=114)
	Gave voucher for ITN or gave free ITN, or ITN already purchased by client	53%	65%
	Importance of using ITN explained	95% (n=73)	46% (n=93)
<b>D</b>	<b>Deworming</b>		
	Deworming: Prescribed or gave deworming medication	50%	53%
	Ineligible (<13 weeks of gestation) and received deworming	3 of 4	0 of 2
	Eligible (≥13 weeks of gestation) and received deworming	49% (n=133)	54% (n=142)
	Explained the purpose of deworming	93% (n=68)	49% (n=76)
	Explained how to take deworming medication	90% (n=68)	33% (n=76)

		Uganda	Kenya
	Explained side effects of deworming medication	50% (n=68)	8% (n=76)
<b>E</b>	<b>General counseling topic</b>	<b>(n=137)</b>	<b>(n=144)</b>
	Healthy eating	37%	51%
	Physical activity	34%	19%
	Restricted caffeine intake	0%	1%
	Increased daily energy and protein intake	13%	40%
	Protein dietary supplementation	12%	42%
	Health worker inform the client about the progress of the pregnancy	88%	83%
	Health worker discussed breastfeeding	25%	20%
	Health worker discussed family planning for use and spacing of pregnancies after delivery	20%	37%
	Health worker counselled on when to return for next visit	99%	88%
	Health worker asked whether the client had any questions?	32%	85%
	Health worker used any visual aids (e.g. nutrition, FP, HIV/STI) for health education or counseling during the consultation	9%	40%
<b>F</b>	<b>Counseling for safe pregnancy and delivery</b>	<b>(n=137)</b>	<b>(n=144)</b>
	Client counselled on any of the following reasons to seek immediate care	58%	65%
	Client counselled to seek immediate care if she has:	<b>(n=137)</b>	<b>(n=144)</b>
	Vaginal bleeding	50%	59%
	Convulsions	35%	28%
	Severe headaches with blurred vision	38%	47%
	Fever and is too weak to get out of bed	34%	35%
	Severe abdominal pain	40%	40%
	Fast or difficult breathing	31%	26%
	Counsel about any of following key items for birth preparation	81%	52%
	Asked the client where she will deliver	99%	42%
	Advised the client to prepare for delivery (e.g., arrange for emergency transportation)	80%	40%
	Advised the client to use a skilled health worker during delivery	64%	41%
	Discussed with client what items to have on hand at home for emergencies (e.g., sterile blade)	66%	26%
<b>G</b>	<b>Sharing of information</b>	<b>(n=137)</b>	<b>(n=144)</b>
	Health worker used easy-to-understand language for the client	99%	99%
	Client bought personal ANC card	100%	100%
	Health worker asked about the ANC card	99%	100%

		Uganda	Kenya
	Health worker referred to ANC card prior to beginning consultation	100%	0%
	Health worker wrote in ANC card	100%	100%

#### 4. Client interviews: Antenatal care

**Annex Table 58. Client ANC experience**

	Uganda	Kenya
Client ANC experience	(n=160)	(n=161)
Number of ANC visits did you have in total during last (current) pregnancy	2.8	2.7
Number of ANC visits in this facility	2.6	2.7
Weeks pregnant at first ANC visit	15.8	21.5
Waiting time between arrival and consultation (minutes)	141.2	44.8
Issues discussed with provider		
Ability to have birth partner/companion during delivery	73%	59%
Has chosen birth companion (during current pregnancy)	86%	52%
Birth companion attended ANC visits with client	21%	7%

**Annex Table 59. Client reported physiologic symptoms experienced**

	Uganda	Kenya
Symptoms experienced during the pregnancy (prompted responses)	(n=160)	(n=161)
Nausea/vomiting	17%	22%
Heartburn	31%	17%
Leg cramps	23%	6%
Low back pain	53%	25%
Constipation	6%	7%
Varicose veins or edema	11%	11%
<b>Patients with any of above problems</b>	<b>76% (n=120)</b>	<b>53% (n=86)</b>
Had symptoms and was able to talk with provider about them	60%	35% (n=86)
Had symptoms and was NOT able to talk with provider about them	40%	65%
<b>Main point of discussion (among those able to talk with provider)</b>	<b>(n=72)</b>	<b>(n=30)</b>
Understand different options of relieving and how long they will last	25%	53%
Were given exact recommendation	44%	103%
Were told they will resolve on their own and you just need patience	24%	27%
Discussion helped have more positive experience of the pregnancy	100%	88%
<b>Main reason not able to discuss them (client perception)</b>	<b>(n=48)</b>	<b>(n=56)</b>
Provider did not consider these important	19%	4%
Embarrassed to discuss trivial things	15%	20%
No response	67%	75%

**Annex Table 60. Client opinion on issues related to their ANC experience**

Issue	Uganda (n=160)			Kenya (n=161)		
	Level of problem			Level of problem		
	Major	Minor	None	Major	Minor	None
Time waited to see a provider	38%	43%	19%	14%	19%	63%
Ability to discuss problems or concerns about your pregnancy	1%	8%	91%	4%	8%	84%
Amount of explanation received about the problem or treatment	1%	5%	94%	14%	4%	80%
Privacy from having others see the examination	1%	1%	99%	9%	4%	84%
Privacy from having others hear the consultation discussion	1%	1%	98%	6%	7%	85%
Availability of medicines at this facility	13%	26%	61%	6%	11%	81%
The hours of service at this facility, i.e., when they open and close	1%	3%	96%	4%	6%	87%
The number of days services are available	0%	1%	98%	1%	2%	93%
The cleanliness of the facility	0%	4%	96%	1%	2%	93%
How the staff treated you	1%	4%	95%	4%	3%	91%
Cost for services or treatments	2%	4%	94%	7%	4%	86%
Overall satisfaction at last visit	2% not satisfied	11% more or less	88% very satisfied	34% not satisfied	60% more or less	4% very satisfied

**Annex Table 61. Client reported ANC examination components**

		Uganda	Kenya
<b>A</b>	<b>During most recent ANC visit provider asked about:</b>	<b>(n=160)</b>	<b>(n=161)</b>
	Any complaints	72%	78%
	Diet	53%	59%
	Physical activity	41%	45%
	Smoking status	39%	24%
	Whether somebody is smoking in the same room (at home)	20%	23%
	Alcohol use	48%	23%
	Substance abuse	26%	22%
	Intimate partner violence	16%	11%
<b>B</b>	<b>During most recent ANC visit provider activities:</b>		
	Measure blood pressure	50%	99%
	Weigh client using scale	89%	100%
	Listen to abdomen for fetal heart	93%	100%
	Palpate the abdomen to measure size of the baby	98%	100%
<b>C</b>	<b>Tests provider did during last (current) pregnancy</b>		
	Blood tests	4%	80%
	Complete blood count	1%	6%
	Hemoglobin testing	0%	94%
	Blood grouping	1%	99%
	Blood RH	1%	99%
	HIV test	97%	100%
	Syphilis test	8%	95%
	Fasting plasma glucose	0%	4%
	1 h plasma glucose	0%	1%
	2 h plasma glucose	0%	4%
	Urine tests	1%	96%
	Urine tests for protein	0%	98%
	Urine tests for bacteria	0%	97%
	Urine tests for glucose	0%	94%
<b>D</b>	<b>Additional tests/examinations during last/current pregnancy</b>		
	Ultrasound at least once	11%	13%

		Uganda	Kenya
	Number of ultrasounds	1.4 (n=16)	1.3 (n=18)
	Weeks pregnant at first ultrasound	10.3 (n=16)	21.6 (n=20)
	Vaccinated against tetanus	77%	88%
	Doses of vaccine	1.5 (n=124)	1.3 (n=141)
	Referred/counselled on tetanoid toxoid vaccination	51% (n=35)	53% (n=15)
<b>E</b>	<b>Interventions during last/current pregnancy</b>		
	Iron	94%	97%
	Folic acid	95%	92%
	Treatment to prevent malaria	76%	88%
	Number of times received treatment for malaria	1.4	2.8
	Discussed importance of sleeping under insecticide-treated net (ITN)	83%	97%
	Received ITN from the facility	37%	90%
	Has insecticide-treated net (ITN)	81%	97%

**Annex Table 62. Client-reported counselling received and knowledge**

		Uganda	Kenya
A	Items counselled on	(n=160)	(n=161)
	Birth preparedness (how to prepare for birth)	58%	66%
	Pregnancy complication preparedness	14%	48%
	Family planning services	13%	49%
	Healthy spacing between the pregnancies	9%	40%
	Danger signs (when to seek medical care)	13%	64%
	Healthy diet	53%	69%
	Physical activity	9%	43%
	Dangers of smoking	3%	25%
	Benefits of breast feeding	11%	47%
	Danger signs client can mention requiring immediate attention at facility--emergency (non-prompted)		
	Vaginal bleeding	44%	61%
	Convulsions	6%	9%
	Severe headaches with blurred vision	8%	41%
	Fever and is too weak to get out of bed	10%	14%
	Severe abdominal pain	21%	39%
	Fast or difficult breathing	1%	6%
	# of immediate danger signs mentioned	0.9	1.7
	Mentioned all immediate danger signs	1%	1%
B	Danger signs client can mention requiring attention at facility as soon as possible (non-prompted)	(n=158)	(n=158)
	Fever	39%	10%
	Foul smelling vaginal discharge	13%	23%
	Abdominal pain	23%	34%
	Feels ill	32%	26%
	Swelling of fingers, face, legs	8%	15%
	Number of danger signs mentioned	1.2	1.1

**Annex Table 63. Client-reported ANC services received compared with observed and recorded information where response categories are similar**

	Topic	Uganda			Kenya		
		Client reported (n=160)	Observed or recorded in individual ANC card (n=137)	Recorded in reviewed client records (n=357)	Client reported (n=161)	Observed or recorded in individual ANC card (n=144)	Recorded in reviewed client records (n=395)
<b>A</b>	Issues asked about or discussed during most recent ANC visit						
	Any complaints the woman has	72%			78%		
	Diet	53%	37%		59%	51%	
	Physical activity	41%	34%		45%	19%	
	Smoking status	39%	23%		24%	1%	
	Whether somebody is smoking in the same room	20%			23%		
	Alcohol use	48%	41%		23%	1%	
	Substance abuse	26%			22%		
	Intimate partner violence	16%	1%		11%	1%	
<b>B</b>	Examinations most recent ANC visit						
	Measured temperature			0%			8%
	Measure blood pressure	50%	60%	67%	99%	98%	97%
	Weigh using scale	89%	91%	95%	100%	90%	92%
	Listen to abdomen for fetal heart	93%	100%		100%	90%	
	Palpate the abdomen to measure size of the baby	98%	99%		100%	94%	
<b>C</b>	Tests provider conducted most recent ANC visit						

Topic	Uganda			Kenya		
	Client reported (n=160)	Observed or recorded in individual ANC card (n=137)	Recorded in reviewed client records (n=357)	Client reported (n=161)	Observed or recorded in individual ANC card (n=144)	Recorded in reviewed client records (n=395)
Blood tests (any)	4%			80%		
Complete blood count	1%	0%		6%	6%	
Hemoglobin testing	0%	2%	1%	94%	79%	60%
Blood grouping	1%	1%		99%	96%	
Blood RH	1%	2%		99%	93%	
HIV test/status assessed	97%	80%	99%	100%	53%	96%
Syphilis test	8%	29%	19%	95%	90%	80%
Fasting plasma glucose	0%			4%		
1 hour plasma glucose	0%			1%		
2 hour plasma glucose	0%			4%		
Urine tests(any)	1%			96%	0%	
Urine tests for protein	0%	4%		98%	43%	
Urine tests for bacteria	0%	3%		97%	10%	
Urine tests for glucose	0%	4%		94%	65%	
Ultrasound (any time)	11%	11%		13%	15%	
<b>D</b> Items client counseled on during any ANC visit						
Birth preparedness	58%	81%		66%	52%	
Pregnancy complications	14%		60%	48%		2%
Family planning services	13%		96%	49%		62%

Topic	Uganda			Kenya		
	Client reported (n=160)	Observed or recorded in individual ANC card (n=137)	Recorded in reviewed client records (n=357)	Client reported (n=161)	Observed or recorded in individual ANC card (n=144)	Recorded in reviewed client records (n=395)
Healthy spacing between the pregnancies	9%	20% (both items asked as one question)		40%	37% (both items asked as one question)	
Danger signs (when to seek medical care)	13%	58%		64%	65%	
Healthy diet	53%	37%	95%	69%	51%	51%
Physical activity	9%	34%		43%	19%	
Any behavioral risk factors documented			0%	25%		0%
Dangers of smoking	3%	1%		47%	0%	
Benefits of breast feeding	11%	25%		47%	20%	
Infant feeding			99%			51%
Problems ever experienced this pregnancy		Assessed (Confirmed among those assessed)			Assessed (Confirmed among those assessed)	
Nausea/vomiting	17%	18% (33%)		22%	10% (80%)	
Heartburn	31%	18% (40%)		17%	7% (90%)	
Leg cramps	23%	16% (18%)		6%	3% (60%)	
Low back pain	53%	13% (89%)		25%	3% (100%)	
Constipation	6%	14% (11%)		7%	3% (100%)	
Varicose veins or edema	11%	27% (22%)		11%	5% (86%)	

Topic	Uganda			Kenya		
	Client reported (n=160)	Observed or recorded in individual ANC card (n=137)	Recorded in reviewed client records (n=357)	Client reported (n=161)	Observed or recorded in individual ANC card (n=144)	Recorded in reviewed client records (n=395)
Woman has any of above symptoms	76%			53%		

### C. Labor, delivery, postpartum, and newborn care

Annex Table 64. Facility-level details for delivery services

A	Signal functions	Uganda (n=10)			Kenya (n=11)		
		Offered by provider onsite	Only offered by provider on-call	Not offered	Offered by provider onsite	Only offered by provider on-call	Not offered
	Oxytocin postpartum to prevent hemorrhage	100%	0%	0%	100%	0%	0%
	Anticonvulsant (MgSo4)	90%	10%	0%	100%	0%	0%
	Antibiotic for maternal sepsis	100%	0%	0%	100%	0%	0%
	Manual removal of placenta	70%	10%	20%	82%	0%	18%
	Remove retained products of conception	80%	10%	10%	100%	0%	0%
	Assisted delivery	20%	30%	50%	82%	0%	18%
	Newborn resuscitation	100%	0%	0%	100%	0%	0%
	All signal functions	20%	30%	50%	82%	0%	18%
B	CEmONC services						
	Caesarean section	30%	20%	50%	40%	0%	60%
	Blood transfusion	30%	10%	60%	60%	0%	40%
	All CEmONC services	20%	0%	80%	40%	0%	60%

## 1. Provider interview: Delivery care

**Annex Table 65. Summary information based on provider experiences for delivery/newborn care respondents**

		Uganda		Kenya	
		Delivery care	Newborn care	Delivery care	Newborn care
<b>A</b>	<b>Services provided</b>	(n=31)	(n=30)	(n=20)	(n=22)
	Average number of deliveries each month	39.5	44.8	100	197.9
	Average number of newborn resuscitations in the past month		4.7 (n=22)		8.1 (n=18)
	Provide normal delivery services	97%	*	95%	*
	Provide essential newborn care	*	97%	*	91%
	Provide family planning counselling	90%	*	85%	*
<b>B</b>	<b>Practices and experiences with providing care for delivery and postpartum patients</b>	(n=28)		(n=18)	
	Average length of stay (hours) after uncomplicated vaginal delivery	16.1		16	
	Has had at least one severe pre-eclampsia or eclampsia patient in the health facility who did not receive the full dose of magnesium sulfate because of a stock-out	43%		11%	
	From ten severe pre-eclampsia or eclampsia patients, opinion of how many would not receive the full dose of magnesium sulfate because of a stock-out	5.3 (n=6)		2 (n=1)	
	Ever had one patient who needed emergency C-Section and but could not receive due to lack of supplies or staff trained to conduct caesarean section	56%		41%	
	From 10 patients in need of emergency cesarean section, opinion how many could not receive it due to lack of supplies or staff trained to conduct caesarean section	3.4 (n=14)		4 (n=5)	
<b>C.</b>	<b>Cervical cancer screening</b>	(n=31)		(n=20)	
	Routinely screen any group of your patients for cervical cancer?	39%		60%	
	<b>When and how patients are screened for cervical cancer</b>	(n=12)		(n=12)	
	In the maternity before the discharge	17%		8%	
	At postnatal contact	92%		42%	
	At ANC visit	33%		42%	
	Pap smear	25%		25%	
	Visual inspection with acetic acid	50%		42%	
	* Question was not asked				

**Annex Table 66. Summary information for all providers responding to MNH death review questions**

		All providers responding to questions		Responses from providers of MNH services	
		Uganda	Kenya	Uganda	Kenya
		(n=71)	(n=104)	(n=31)	(n=20)
<b>A</b>	<b>Facility practice for death reviews</b>				
	Any reviews of maternal/infant deaths/near misses	73%	81%	61%	90%
		(n=52)	(n=84)		
	Facility has committee for MNH death audits	81%	92%		
	Frequency of committee meetings				
	At least monthly	50%	71%		
	Not monthly but at least every 3 months	19%	12%		
	Not every 3 months but at least every 6 months	2%	1%		
	Not every 6 months but at least annually	4%	4%		
	No regularity/no response	25%			
<b>B</b>	<b>Maternal cases</b>	(n=52)	(n=84)		
	Facilities conducts any maternal death reviews	92%	95%		
	Facilities conducts any review of maternal near-misses	27%	30%		
	Estimates for proportion of maternal deaths reviewed	(n=48)	(n=80)	(n=14)	(n=17)
	Estimated actual percentage of maternal deaths reviewed			47%	84%
	Response: All are reviewed	81%	91%		
	Response: More than half are reviewed	10%	1%		
	Response: Some but few are reviewed	8%	8%		
<b>C</b>	<b>Neonatal cases</b>	(n=52)	(n=84)	(n=30)	(n=22)
	Facility conducts any neonatal death reviews	75%	67%	57%	86%
	Facility conducts any review of neonatal near-misses	12%	25%		
	Estimated actual percentage of neonatal deaths reviewed			46% (n=9)	75% (n=16)
<b>D</b>	<b>Perinatal cases</b>	(n=52)	(n=84)		
	Facility conducts perinatal death reviews	88%	89%		
	Estimates for proportion of perinatal deaths reviewed	(n=46)	(n=75)	(n=12)	(n=16)
	Estimated actual percentage of perinatal deaths reviewed			38%	73%
	Response: All are reviewed	67%	80%		
	Response: More than half are reviewed	9%	5%		

		All providers responding to questions		Responses from providers of MNH services	
		Uganda (n=71)	Kenya (n=104)	Uganda (n=31)	Kenya (n=20)
	Response: Some but few are reviewed	24%	15%		

**Annex Table 67. Provider responses for delivery services and support for quality services**

Topic/service	Reported use guidelines/job aids		Training received in past 12 months		Self-perceived level of comfort providing the service			
	Uganda (n=30)	Kenya (n=20)	Uganda (n=31)	Kenya (n=20)	Uganda (n=31 <sup>1</sup> )		Kenya (n=20 <sup>1</sup> )	
					High	Low	High	Low
Routine care for labor and normal vaginal delivery			10%	45%				
Positive impact of the presence of a chosen companion during labor and birth			6%	20%				
Non-pharmacological and pharmacological pain relief during labor and birth			3%	25%				
Interpersonal and cultural competence in providing emotional support during labor and birth			6%	25%				
Identification and management of obstetric emergencies			19%	40%				
Management postpartum hemorrhage					45%	6%	65%	5%
Screening and management of pre-eclampsia/eclampsia	61%	90%	16%	35%	16%	29%	70%	10%
Emergency obstetric care (EmOC)/Life-saving skills (LSS)			16%	35%				
Management of prolonged and obstructed labor	61%	70%	6%	35%	35%	23%	55%	20%
Recognition and management of maternal peri-partum infections	42%	50%	6%	25%	26%	6%	70%	5%
Preterm birth/labor care of mothers and babies	39%	55%	6%	25%	16%	6%	75%	5%
Administration of antenatal corticosteroids	23%	30%						
Removal of placenta or products of conception D&C, vacuum aspiration, etc.			10%	25%				

Topic/service	Reported use guidelines/job aids		Training received in past 12 months		Self-perceived level of comfort providing the service			
	Uganda (n=30)	Kenya (n=20)	Uganda (n=31)	Kenya (n=20)	Uganda (n=31 <sup>1</sup> )		Kenya (n=20 <sup>1</sup> )	
					High	Low	High	Low
Manual removal of placenta			23%	20%				
Special delivery care practices for preventing mother-to-child transmission of HIV			16%	25%				
Assisted vaginal delivery apply vacuum or forceps			10%	25%				
Resuscitate a newborn with bag and mask			35%	25%				
Cervical cancer screening	6%	45%	3%	35%				
Maternal death or near miss reviews/audits			10%	20%				
Standard infection control and precautions for transmission			13%	25%				
Harmful practices and unnecessary interventions			3%	10%				
Referral protocols and guidelines			3%	20%				
Clinical hand-over policy and communication of important information for hand-over, referral or discharge			0%	15%				

<sup>1</sup> Uganda had 1-2 missing responses and Kenya had 1 non responses for several questions about level of comfort. These are in the denominator and are assumed to be low level/don't provide the service/don't know responses, but are not included in the low comfort level statistic.

**Annex Table 68. Provider responses about knowledge about facility policies and satisfaction with communication between providers**

		Delivery care	Newborn care	Delivery care	Newborn care
<b>A</b>	<b>Familiarity with facility information sharing policies</b>	(n=31)	(n=30)	(n=20)	(n=22)
	Change of shift information sharing	65%	53%	65%	73%
	Transfer within facility	35%	33%	65%	50%
	Satisfaction with information sharing within facility	82%	43%	65%	58%
	Transfer to other facility	45%	40%	55%	41%
	Discharge	42%	50%	60%	41%
	Policies against discrimination or maltreatment	16%	13%	45%	23%
<b>B</b>	<b>Satisfaction with communication among members of the health care team during clinical hand-over of patients in the health facility?</b>	<b>Delivery care (n=28)</b>	<b>Newborn care (n=26)</b>	<b>Delivery care (n=20)</b>	<b>Newborn care (n=26)</b>
	Extremely dissatisfied	0%	4%	10%	0%
	Somewhat dissatisfied	14%	38%	15%	29%
	Not satisfied not dissatisfied	4%	15%	10%	14%
	Somewhat satisfied	68%	35%	50%	48%
	Extremely satisfied	14%	8%	15%	10%

**Annex Table 69. Provider responses for attitudes and practices for client-centered care**

		Uganda	Kenya
<b>A</b>	<b>Obstetric interventions for which provider reports asking a patient to sign a consent form</b>	<b>(n=31)</b>	<b>(n=20)</b>
	None, do not use consent form	0%	0%
	Generic consent form at time of admission	26%	45%
	Episiotomy	3%	5%
	Cesarean section	87%	75%
	Augmentation or induction of labor	29%	0%
<b>B</b>	<b>Provide reported practices related to birth companion</b>	<b>(n=31)</b>	<b>(n=20)</b>
	Normally allow a birth companion to be present during a woman's labor	87%	80%
	Normally allow a birth companion to be present during a woman's delivery	87%	80%
	<b>Who can be a companion during a delivery</b>	<b>(n=27)</b>	<b>(n=15)</b>
	Only close relative (mother, husband)	30%	13%
	Only relative, but not important how close	4%	0%
	Any female	4%	0%
	Anybody of pregnant woman's choice	59%	87%
	Other	4%	0%
	Provide orientation sessions or have information materials written or pictorial to orient the companion on their role	100%	43%
<b>C</b>	<b>Statements patient-centered labor and delivery practices</b>	<b>(n=31)</b>	<b>(n=20)</b>
	<b>Correct:</b> It is appropriate for a woman to walk around during labor	94%	100%
	<b>Correct:</b> Women should be allowed to eat and drink during the labor	87%	90%
	<b>Correct:</b> Neonatal resuscitation skills are important for all obstetric providers	84%	100%
	<b>Correct:</b> Patient privacy should be a priority even when the maternity is very busy	87%	90%
	<b>Correct:</b> Confidentiality of patient information is not a problem in my maternity	32%	50%
	<b>Correct:</b> Patients should have a companion with them during labor	87%	95%
	<b>Correct:</b> Patients should have a companion with them during delivery	81%	80%
	<b>Correct:</b> A woman should choose her preferred delivery position	58%	60%
	<b>Incorrect:</b> Choice of position for vaginal delivery should be made by healthcare professional based on mother's and fetus condition	65%	45%
	<b>Incorrect:</b> It is best to avoid discussing complicated obstetric decisions with a woman in labor as she may become anxious or not be able to understand	26%	15%
	<b>All correct</b> items and no incorrect items identified	16%	15%

**Annex Table 70. Partograph use**

	Uganda	Kenya
	(n=31)	(n=20)
Ever use partograph	97%	100%
Most recent use of partograph	(n=27)	(n=18)
Never	4%	0%
Within past week	74%	78%
Within past month	15%	17%
Within past 6 months	4%	6%
Over 6 months ago	4%	0%
Frequency for use of a partograph in clinical practice	(n=27)	(n=20)
Always	63%	95%
For most of the times	22%	5%
At half of the cases	7%	0%
Less than half of the cases	4%	0%
Very rarely	4%	0%

**Annex Table 71. Delivery service provider responses to case studies/knowledge questions**

		Uganda	Kenya
A	Best way to prevent sepsis in both mother and child	(n=31)	(n=20)
	<b>Correct: Wash hands appropriately before every patient contact</b>	35%	20%
	Incorrect: Administer IV antibiotics during labor if there is ROM > 8 hours	39%	35%
	Incorrect: Use sterile or high-level disinfected sheets during birth	13%	5%
	Incorrect: Wash the vulva and perineum with antiseptic solution	3%	35%
	No response	10%	5%
B	Gestational age to administer antenatal corticosteroids to mother to improve newborn outcomes		
	<b>Correct: 22-34 weeks</b>	13%	35%
	Incorrect: <36 weeks	48%	20%
	Incorrect: <32 weeks	13%	20%
	Incorrect: 20-30 weeks	10%	10%
	No response	16%	15%
C	Conditions where administration of antenatal steroids is contraindicated		
	<b>Correct: Clinical signs of maternal infection</b>	10%	35%
	Incorrect: Clinical signs maternal hypertension	35%	15%
	Incorrect: Documented maternal hyperglycemia	16%	25%
	Incorrect: Pregnancy with multiple babies	3%	5%
	No response	36%	20%
D	Conditions required for safe administration of antenatal steroids		
	<b>Correct: Gestational age assessment can be accurately undertaken</b>	39%	50%
	<b>Correct: Preterm birth is considered imminent</b>	23%	60%
	<b>Correct: Capacity to recognize and safely manage preterm labor and birth</b>	26%	40%
	<b>Correct: Preterm newborn can receive adequate care if needed including resuscitation, thermal care, feeding support, infection treatment, and safe oxygen use</b>	26%	40%
	Incorrect: Blood transfusion can be provided if necessary	6%	10%
	Incorrect: Advanced surgical services including C Section is available in the facility	6%	20%
	<b>All correct items and no incorrect items identified</b>	0%	5%
E	Statements on monitoring labor		
	<b>Correct: The cervix should dilate at an average rate of at least 1 cm per hour</b>	74%	85%
	<b>Correct: A normal time range for the second stage of labor (between full cervical dilatation and delivery) is 3-4 hours</b>	19%	15%

		Uganda	Kenya
	Incorrect: Active labor is diagnosed when a woman has regular contractions and her cervical dilatation is at least 2 cm	19%	10%
	Incorrect: For active labor to be effective, the frequency of uterine contractions should be at least every 6-7 minutes	32%	40%
	<b>All correct items and no incorrect items identified</b>	3%	0%
<b>F</b>	<b>When membranes should be ruptured artificially by the provider</b>		
	<b>Correct:</b> Immediately prior to delivery when they are bulging in vagina	55%	55%
	<b>Correct:</b> As part of augmentation of labor	26%	50%
	Incorrect: At start of second stage	32%	15%
	Incorrect: Routinely during active phase of labor	0%	40%
	Incorrect: Upon admission for all women	0%	5%
	Incorrect: To check color of fluid/liquor when fetal distress is noted	29%	30%
	Incorrect: Not to be ruptured	16%	0%
	Incorrect: Don't know	0%	5%
	<b>All correct items and no incorrect items identified</b>	3%	15%
<b>G</b>	<b>Pre-eclampsia with symptoms 5 hours after initial magnesium sulfate</b>		
	<b>Correct:</b> Repeat loading dose	35%	10%
	<b>Correct:</b> Encourage her to continue the pregnancy until at least 32 weeks to allow for fetal maturation	10%	5%
	Incorrect: Stabilize blood pressure with diuretics	29%	25%
	Incorrect: Interrupt the pregnancy as soon as possible	29%	20%
	Incorrect: Give 5 g of 50% magnesium sulfate solution with 1 mL of 2% lignocaine in the same syringe by deep IM injection into alternate buttocks every four hours	52%	70%
	<b>All correct items and no incorrect items identified</b>	0%	0%
<b>H</b>	<b>Conditions to warrant withhold or delay administering next dose of magnesium sulfate maintenance</b>		
	<b>Correct:</b> Respiratory rate 15 per minute	6%	70%
	<b>Correct:</b> For last 4 hours, urinary output was 90 ml	16%	20%
	<b>Correct:</b> For last 4 hours, urinary output was 80 ml	29%	60%
	<b>Correct:</b> Absence of patellar reflexes	19%	75%
	Incorrect: Symptoms and signs of pulmonary edema	32%	35%
	Incorrect: Respiratory rate 25 per minute	32%	10%
	Incorrect: Respiratory rate 20 per minute	3%	0%
	Incorrect: For last 4 hours, urinary output was 110 ml	3%	10%

		Uganda	Kenya
	Incorrect: Presence of patellar reflexes	13%	10%
	<b>Only correct options checked</b>	0%	10%
	Discontinue magnesium sulfate (non-prompted response) 24 hours after delivery or the last convulsion, whichever occurs last	10%	35%
I	Which women should receive postpartum uterotonic		
	Incorrect: Women with anemia	0%	6%
	Incorrect: Women with prior history of PPH	11%	6%
	Incorrect: Women with hematologic bleeding disorder	7%	11%
	<b>Correct: All women after vaginal delivery</b>	82%	72%
	Incorrect: Women > age 35	0%	6%
J	When to provide uterotonic postpartum		
	Incorrect: Within 5 minutes after delivery of fetus	22%	11%
	Incorrect: Immediately after delivery of placenta	11%	11%
	<b>Correct: Within one minute after delivery</b>	63%	78%
	Incorrect: It depends on the weight of the fetus	4%	0%
K	First action(s) for postpartum hemorrhage	(n=31)	(n=20)
	<b>Correct: Massage uterus fundus</b>	77%	65%
	<b>Correct: Examine vagina and perineum for lacerations</b>	81%	70%
	<b>Correct: Administer a uteronic (IV or IM)</b>	71%	70%
	<b>Correct: Begin IV fluids</b>	45%	70%
	<b>All correct items identified</b>	45%	50%
L	Appropriate actions for woman with heavy bleeding postpartum from atonic/uncontracted uterus		
	<b>Correct: Perform abdominal compression of aorta</b>	29%	35%
	<b>Correct: Insert condom tamponade</b>	6%	70%
	<b>Correct: Refer to doctor or hospital</b>	68%	55%
	Incorrect: Massage the fundus	84%	90%
	Incorrect: Give uterotonics IM or IV	84%	95%
	Incorrect: Perform bimanual compression of uterus	71%	75%
	Incorrect: Start IV fluids	68%	85%
	Incorrect: Empty urinary bladder	84%	85%
	Incorrect: Take blood for hemoglobin, grouping and x-matching	71%	90%
	Incorrect: Raise foot of bed	26%	45%

		Uganda	Kenya
	Incorrect: Don't know	0%	5%
	<b>All correct</b> items and no incorrect items identified	3%	
M	When to provide prophylactic antibiotics during labor	(n=31)	(n=20)
	<b>Correct: If there is maternal fever</b>	42%	55%
	Incorrect: If it has been 18 hours or more since rupture of membranes (ROM)	81%	100%
	Incorrect: If the mother has been in active labor for > 24 hours	35%	55%
	Incorrect: If there is a prior history of neonatal sepsis in a previous pregnancy	29%	20%
	Only correct options (a) checked	3%	0%

**Annex Table 72. Delivery service provider responses to knowledge questions for family planning**

		Uganda	Kenya
<b>A</b>	Effectiveness of Family planning options overall	(n=31)	(n=20)
	Levonorgestrel Intrauterine System (Most effective)	3.5 (2)	4.5 (1)
	Combined oral contraceptives (3 <sup>rd</sup> effective)	3.7 (1)	3.9 (2)
	Standard days method (Least effective)	2.2 (5)	1.4 (5)
	Lactational amenorrhea method (2 <sup>nd</sup> effective)	2.6 (4)	2.4 (4)
	Male condoms (4 <sup>th</sup> effective)	3.4 (3)	3.1 (3)
	Correct order identified for top 3 most effective methods	0%	0%
<b>B</b>	Family planning options for 32-year-old non-smoking mother 28 hours after delivery. Breastfeeding but plans to introduce partial formula feeding. History or lab show no other medical conditions		
	<b>Correct:</b> Copper-bearing intrauterine device	48%	70%
	<b>Correct:</b> Levonorgestrel (LNG) intrauterine device	13%	45%
	<b>Correct:</b> Hormonal implants	29%	70%
	<b>Correct:</b> Progestin-only oral contraceptives	48%	50%
	<b>Incorrect:</b> Combined injectable contraceptives (CICs)	13%	25%
	<b>Incorrect:</b> Combined oral contraceptives	19%	33%
	<b>Incorrect:</b> Progestogen-only injectables	45%	59%
	All correct and no incorrect options checked	0%	0%
<b>C</b>	Family planning options for 32-year-old non-smoking mother 18 hours after delivery. Formula feeding. History or lab show no other medical conditions		
	<b>Correct:</b> Copper-bearing intrauterine device	52%	65%
	<b>Correct:</b> Levonorgestrel (LNG) intrauterine device	23%	60%
	<b>Correct:</b> Hormonal implants	39%	65%
	<b>Correct:</b> Progestin-only oral contraceptives	16%	45%
	<b>Incorrect:</b> Combined injectable contraceptives (CICs)	48%	78%
	<b>Incorrect:</b> Combined oral contraceptives	39%	75%
	<b>Incorrect:</b> Progestogen-only injectables	10%	45%
	All correct and no incorrect options checked	0%	0%
<b>D</b>	Family planning options for 32-year-old non-smoking mother 48 hours after delivery. Formula feeding. History or lab show no other medical conditions		
	<b>Correct:</b> Hormonal implants	39%	45%
	<b>Correct:</b> Progestin-only oral contraceptives	23%	30%

		Uganda	Kenya
	Incorrect: Copper-bearing intrauterine device	48%	60%
	Incorrect: Levonorgestrel (LNG) intrauterine device	26%	40%
	Incorrect: Combined injectable contraceptives (CICs)	42%	60%
	Incorrect: Combined oral contraceptives	35%	55%
	Incorrect: Progesterone vaginal ring	16%	30%
	All correct and no incorrect options checked	0%	0%

## 2. Provider interview: Newborn care

**Annex Table 73. Newborn care service providers experiences and perceptions related to quality services**

Topic/service	Reported use guidelines/job aids		Training received in past 12 months		Self-perceived level of comfort providing the service			
	Uganda (n=30)	Kenya (n=22)	Uganda (n=30)	Kenya (n=22)	Uganda (n=30 <sup>1</sup> )		Kenya (n=22 <sup>1</sup> )	
					High	Low	High	Low
Essential newborn care (e.g., cord care, warming, early and exclusive breastfeeding)	40%	68%	17%	45%				
Resuscitation of newborns not crying or breathing at birth	60%	73%	37%	45%	37%	0%	55%	14%
Practice resuscitation using doll after training—any time			80%	82%				
Most recent resuscitation practice with doll (average number of months ago)			14.8 months ago	7.1 months ago				
Care of the very small newborn	30%	55%	10%	27%	17%	10%	68%	5%
Care of the sick newborn	33%	55%	10%	27%				
Recognition and management of suspected newborn infections			3%	18%	43%	7%	69%	14%
Management of possible serious bacterial infection (PSBI) in newborns and young infants	47%	45%	3%	14%	40%	7%	73%	9%
Nutrition /feeding counseling			10%	18%				
Routine vaccination			10%	27%				
Integrated care of common newborn conditions			0%	14%				
Kangaroo mother care (KMC)			7%	23%				
Standard infection control and precautions for transmission			3%	14%				
Harmful practices and unnecessary interventions			0%	9%				

Topic/service	Reported use guidelines/job aids		Training received in past 12 months		Self-perceived level of comfort providing the service			
	Uganda (n=30)	Kenya (n=22)	Uganda (n=30)	Kenya (n=22)	Uganda (n=30 <sup>1</sup> )		Kenya (n=22 <sup>1</sup> )	
					High	Low	High	Low
Clinical hand-over policy and communication of important information for hand-over, referral, or discharge			0%	9%				
Referral protocols and guidelines	40%	32%	0%	9%				
Interpersonal communication/counseling skills/cultural competence			7%	9%				
<sup>1</sup> Uganda had 4 missing responses and Kenya had 2 missing responses for questions about level of comfort. These are in the denominator and are assumed to be low level/don't provide the service/don't know responses but are not included in the low comfort level statistic.								

**Annex Table 74. Routine care practices reported by providers of newborn care services**

		Uganda	Kenya
<b>A</b>	<b>Vaccines provided to newborns</b>	<b>(n=30)</b>	<b>(n=22)</b>
	No routine vaccines	3%	0%
	BCG	90%	77%
	Polio	90%	77%
	Hepatitis B	0%	14%
<b>B</b>	<b>Additional reported routine care practices</b>	<b>(n=26)</b>	<b>(n=22)</b>
	Facilitate skin-to-skin contact with baby after the birth	96%	100%
	When place the newborns for the first time at mother's abdomen and chest after drying and clamping the cord		(n=22)
	<b>Correct: Immediately after birth</b>	na	100%
	After first medical assessment		0%
	After BCG vaccination		0%
	Not routinely		0%
	Usual time babies kept skin-to-skin contact with mothers after the birth	(n=26)	(n=22)
	At least 15 minutes	38%	55%
	At least for half an hour	23%	27%
	<b>Correct: At least an hour</b>	35%	5%
	At least two hours	4%	14%
	When usually clamp or tie and cut umbilical cord during routine care	(n=28)	(n=21)
	Immediately after birth	Na	19%
	<b>Correct: Around 1-3 minutes after birth</b>	Na	76%
	After the placenta is delivered	75%	5%
	Before a baby has cried	na	0%
	When usually initiate breastfeeding during routine care	(n=28)	(n=20)
	Immediately after birth	36%	5%
	Within first 30 minutes	7%	45%
	<b>Correct: Within the first hour</b>	54%	50%
	Within first 24 hours	4%	0%
<b>C</b>	<b>Knowledge/practice questions correctly answered</b>		
	If no medical problems, mother should decide if infant should stay with her.	59%	38%
	Mother with caesarean section should not mix bottle feeding with breast feeding	96%	100%

		Uganda	Kenya
	Infant can be placed on mother's abdomen immediately after birth	96%	90%
	Among listed activities help baby breathe if necessary is identified as activity for first minute after birth	89%	73%
D	Non-prompted responses for steps in immediate newborn care for infant from uncomplicated delivery	(n=30)	(n=22)
	Dry the baby thoroughly	20%	45%
	Ensure baby was breathing/ crying	10%	14%
	Provide thermal protection: place skin-to-skin with mother	70%	59%
	Once placed skin-to-skin with mother, cover with dry towel	63%	41%
	Clamp and cut cord with sterile blade/scissors	53%	41%
	Monitor newborn breathing every 15 min	0%	5%
	Monitor newborn temperature by hand every 15-30 min	7%	0%
	Ensure mother initiates breast feeding within 1 hour	67%	64%
E	Non-prompted responses for infant care that should be provided within the first 90 minutes after birth	(n=30)	(n=22)
	Assess/examine newborn within 90 mins	20%	5%
	Measure temperature	10%	9%
	Weigh newborn	17%	9%
	Provide eye care	3%	9%
	Provide cord care	47%	27%
	Give Vitamin K (can be later, if too busy)	10%	14%
F	Non-prompted responses for infant care that should be provided the first minute after birth	(n=28)	(n=22)
	Weigh the baby	4%	5%
	<b>First action: Help the baby breathe if necessary</b>	<b>89%</b>	<b>73%</b>
	Ensure mother initiates breast feeding	4%	0%
	Provide eye care	4%	0%
	Deliver the placenta	0%	0%
	Evaluate the heart rate	0%	5%
G	Steps to prepare for birth		
	<b>Correct: You identify a helper and be prepared for emergency plan of action</b>	<b>70%</b>	<b>73%</b>
	You ask everyone but the mother to leave the area and do not disturb	7%	5%
	Your equipment should be safely kept in sterile cabinet	37%	9%

		Uganda	Kenya
	Measure mother's temperature	7%	5%

**Annex Table 75. Knowledge and practices for identifying and managing complications in newborns, as reported by providers of newborn care services**

		Uganda	Kenya
A	Spontaneously mentioned signs and symptoms for severe clinical infection (sepsis) in newborn		
	Not feeding	63%	41%
	Too hot/cold	63%	41%
	Convulsions	30%	14%
	No movement	0%	18%
	Chest in-drawing or fast breathing	27%	36%
	Yellow palms or soles of feet	40%	14%
B	Spontaneously mentioned danger signs in newborn that require immediate attention		
	Not able to feed since birth or stopped feeding well	57%	55%
	Breathing difficulties/ severe chest in-drawing	17%	45%
	Hypothermia less than 35.5 °C	0%	32%
	Hyperthermia 38 °C or greater	63%	55%
	Breathing rating >60/minute	10%	14%
	Convulsions	20%	27%
Movement only when stimulated or no movement at all	3%	18%	
C	Among a list of activities, percentage identifying correct action for event:		
	First minute after birth help baby breathe if necessary	89%	73%
	Identified first step for helping baby breathe: bag and mask ventilation	17%	36%
	Prepare for birth: Identify helper and be prepared for emergency plan of action	70%	73%
	Baby non-responsive: Dry baby thoroughly	80%	64%
	Baby born through meconium-stained amniotic fluid: Clear airway before drying baby	53%	64%
	Baby non-responsive and does not respond to other steps: begin ventilation	83%	77%
	Ventilation: should squeeze bag for gentle movement of chest	70%	59%
	Least important vital sign to be monitored first few hours: urine output	67%	59%
	Ventilation with bag not appearing effective: reapply mask for better seal	90%	86%
	Can stop ventilation if infant heart rate at least 120 and baby breathing/crying	90%	68%
	Identified first step thermal protection: dry and cover infant	73%	77%
Identified immediate care for delivered woman with fever during labor (investigate and treat for infection; and treat newborn with ampicillin and gentamicin for 2 days preventive treatment for sepsis)	67%	27%	

		Uganda	Kenya
	Correctly identified clinically stable infant <2000 grams eligible for KMC	7%	36%
D	Early symptom prompting observation for newborn sepsis:		
	<b>Correct: Identified: Low temperature (&lt;35c)</b>	<b>10%</b>	<b>14%</b>
	Incorrect: Post-date infant	7%	0%
	Incorrect: Prolonged rupture membranes	83%	73%
	Incorrect: History neonatal sepsis in sibling	10%	5%
E	Correctly identified KMC interventions		
	Baby wear only diaper	37%	59%
	Mother does not need special clothing	63%	86%
	Baby should be placed under the mother's breasts in horizontal position, facing upwards to facilitate breastfeeding on demand	20%	18%
	<b>All responses for KMC interventions correct</b>	<b>13%</b>	<b>27%</b>

**Annex Table 76. Additional knowledge in providers of newborn care services**

		Uganda	Kenya
A	Non-prompted responses for basic equipment necessary for appropriate immediate newborn care		
	Dry warm towels or cloths	43%	50%
	Sterile blade or scissors	27%	5%
	Sterile or disposable cord ties/ clamps	40%	18%
	Cap for baby	20%	5%
	Source of warmth: heating lamp or incubator	17%	68%
	Self-inflating ventilation bag	3%	36%
	Newborn face mask size 1	0%	27%
	Newborn face mask size 0	3%	18%
	Penguin suction/Mucus extractor/ suction/ bulb syringe	20%	36%
	Flat surface	7%	45%
	Clock or watch with seconds	3%	0%
B	Reprocessing equipment for reuse		
	Identified first step: wipe outside or soak completely in chlorine solution	43%	41%
	Identified steps in reprocessing reusable bag, mask, and manual suction device (preclean, disassemble, clean, reassemble, HLD or sterilize, proper storage)	10%	9%

### 3. Record reviews: Labor, delivery, and postpartum care

Annex Table 77. Characteristics for women and their infants with labor/delivery record reviews

Sample	General sample		Maternal complication sample		Newborn complication sample	
	Uganda % (Number)	Kenya % (Number)	Uganda % (Number)	Kenya % (Number)	Uganda % (Number)	Kenya % (Number)
	(n=247)	(n=262)	(n=354)	(n=207)		
<b>A</b>	<b>Maternal characteristic (averaged)</b>					
Average maternal age	25.7	26.2	23.7	24.9	23.5	25.0
Average parity (delivery)	2.7	2.0	1.9	1.8	1.9	1.7
Mean gravida (pregnancy)	3.5	3.1	2.9	2.8	2.9	2.6
Gestational age (weeks)	37+weeks (64%)	37+weeks (84%)	36.1	35.2		
Length of stay (hours) after delivery	<=24 <sup>1</sup> 80%	<24 <sup>1</sup> 53%	43.4	61.0		
Prior caesarean section	1%	5%				
<b>B</b>	<b>Referral status</b>					
Referred by CHW	Na	na	1%	0%		
Self-no external referral	82%	96%	12%	66%	80%	36%
Referred in from health center	Not collected	Not collected	8%	25%		
Referred in from hospital	Not collected	Not collected	0%	6%		
Referred in from any facility	4%	4%	9%	31%	1%	7%
Referred out to another facility	3%	0%			9%	5%
Referred to another unit in facility	0% (n=1)	3%			10%	52%
Among in-referred from another facility			(n=32)	(n=64)		
Any referral note available			34%	58%		
Record documented diagnosis on admission			50%	34%		
Record documented pre-referral treatment			41%	64%		
<b>C</b>	<b>Mode of delivery<sup>2</sup></b>					
Spontaneous vaginal	98%	93%	49%	69%	98%	86%

Sample	General sample		Maternal complication sample		Newborn complication sample	
	Uganda % (Number)	Kenya % (Number)	Uganda % (Number)	Kenya % (Number)	Uganda % (Number)	Kenya % (Number)
Assisted vaginal	Not collected	Not collected	Not collected	Not collected	0%	1%
Planned caesarean section	Not collected	Not collected	3% (n=10)	0	Not collected	Not collected
Unplanned/uncertain caesarean	<1% (n=1)	17% (n=6)	10% (n=37)	27% (n=55)	1%	13%
Not known	1%(n=3)	4% (n=12)	38% (n=134)	4% (n=9)	0% (n=1)	1%
<b>E Recorded complications for this delivery</b>	<b>(n=247)</b>					
Any birth complications recorded	24% (n=60)	19% (n=49)				
<b>F Maternal outcome</b>						
Alive	99%	99%	Na	Na		
Referred out	0%	0%				
Dead	0%	0% (n=1)	1%	0%		
Not recorded	1%	0% (n=1)	Na	Na		
<b>G Newborn outcome</b>						
Alive	93%	97%	53%	89%	92%	88%
Stillborn fresh	2%	0%	3%	1%	5%	10%
Stillborn macerated	0%	2%	1%	2%		
Died before discharge	2%	0%	2%	3%	Not collected	Not collected
Not recorded	3%	0%	41%	4%	3%	2%
<b>H Newborn gestational age</b>						
Full terms (≥37 weeks)	64%	84%			53%	25%
35-36 weeks	10%	4%			24%	19%
≤34 weeks	11%	7%			15%	53%
Not recorded	16%	5%			7%	3%
<sup>1</sup> Information not recorded for 10% (Uganda) and 30% (Kenya) <sup>2</sup> No assisted deliveries were documented for Uganda and 1 (<1%) was documented for Kenya						

**Annex Table 78. Characteristics for women and their infants with L&D record reviews (general sample)**

	Sample	Uganda % (Number)	Kenya % (Number)
		(n=247)	(n=262)
<b>A</b>	<b>Complications</b>		
	Woman HIV +	52%	42%
	Newborn with asphyxia	7%	5%
	LBW ( $\leq$ 2000 g)	24%	1%
	Baby born <37 weeks	21%	6%
<b>B</b>	<b>Birth weight</b>		
	$\leq$ 1000gm	0%	0%
	1001-1500gm	8%	2%
	1501-2000gm	16%	2%
	2001-2500gm	11%	9%
	$\geq$ 2500gm	62%	85%
	Not recorded	3%	1%
<b>C</b>	<b>Mother length of stay in facility</b>		
	<12 hours	6%	16%
	12-23 hours	23%	29%
	24 hours	51%	8%
	24-47 hours	4%	9%
	$\geq$ 48 hours	4%	9%
	Not recorded	10%	30%
<b>D</b>	<b>Recorded complications for this delivery</b>	<b>(n=247)</b>	
	Any birth complications recorded	24% (n=60)	19% (n=49)
	Specific complications documented for this delivery, among all cases		
	Obstructed labor	3%	4%
	Maternal sepsis	0%	0%
	Post partum endometritis	0%	0%
	Eclampsia	1%	0%
	Maternal PPH	2%	2%
	Pre-eclampsia	0%	0%
	Prematurity (< 37 weeks)	9%	3%
	Low birth weight (< 2500 gm)	14%	2%

	Sample	Uganda % (Number)	Kenya % (Number)
		(n=247)	(n=262)
	Neonatal asphyxia	2%	1%
	Neonatal sepsis	0%	2%
<b>E</b>	<b>Recorded complications from prior deliveries</b>	<b>(n=247)</b>	
	Any prior pregnancy complications recorded	8% (n=19)	6% (n=15)
	Specific prior pregnancy complications documented among all cases		
	High blood pressure	6%	0% (n=1)
	Convulsions	1%	0%
	Heavy bleeding during or after delivery/hemorrhage	6%	0%
	Previous C sections	5%	3%
	Prior stillbirths	5%	1%
	Prolonged labor	2%	0%
	Prior neonatal death	5%	1%
	Abortion	8%	2%
	Prior assisted delivery	2%	0%
<b>F</b>	<b>Newborn gestational age</b>		
	Full terms ( $\geq 37$ weeks)	64%	84%
	35-36/6 weeks	10%	4%
	$\leq 34$ weeks	11%	7%
	Not recorded	16%	5%
<b>G</b>	<b>Source of recorded information</b>		
	Mother's chart	21%	87%
	Infant's chart	0	33%
	Partograph	52%	89%
	Maternity register	85%	87%
	Discharge form	0	55%

**Annex Table 79. Record review findings on documented details for immediate postpartum care and postpartum monitoring (general sample)**

		Uganda	Kenya
	Postpartum care	n=224	n=242
<b>A</b>	<b>Uterotonic use</b>		
	Uterotonic administered		
	< 1 minute postpartum	42%	36%
	1-5 minutes postpartum	1%	33%
	>5 minutes postpartum	1%	3%
	Timing not recorded	56%	29%
	Specific uterotonic provided		
	Oxytocin	90%	100%
	Misoprostol	1%	0
	Ergometrine	4%	0
	Not recorded	5%	0
	Route of uterotonic		
	Intramuscular	73%	36%
	Intravenous push	0%	2%
	Intravenous drip	0%	5%
	Not recorded	27%	58%
<b>B</b>	<b>Recording of postpartum monitoring</b>	n=247	n=262
	Time placenta delivered	36%	64%
	Estimated blood loss during labor/delivery	52%	91%
	Blood loss at least every 30 minutes first 2 hours postpartum	6%	3%
	Blood loss at least every 6 hours from 3rd hour until discharge	4%	0%
	Maternal blood pressure shortly after birth (15 mins) and at least every 6 hours first 24-48 hours	9%	10%
	Urine void at least 6 hours after birth	8%	1%
	Uterine contraction at least every 6 hours	6%	3%
	Fundal height assessment documented anywhere after birth	9%	8%
	Maternal temperature at least every 6 hours first 24-48 hours	4%	1%

**Annex Table 80. Record review findings for documented administration of antibiotics and the patient related condition (general sample)**

	Item	Percent with condition (Number of cases)		Women received antibiotic	
		Uganda	Kenya	Uganda	Kenya
<b>A</b>	Conditions documented where antibiotic warranted by best practices	(n=247)	(n=262)	% (number of cases with condition)	% (number of cases with condition)
	Pre-term premature rupture of membranes (PPROM) (before 37 weeks gestation)	13% (33 cases)	3% (9 case)	18% (6 of 33 cases) <sup>5</sup>	33% (3 of 9) <sup>11</sup>
	Manual removal of the placenta	0% (1 case)	0% (1 case)	0% (0 of 1)	0% (0 of 1)
	3rd or 4th degree perineal tear	2% (5 cases)	0% (0 case)	0% (0 of 5)	0 cases
	Postpartum fever>38 at least once	0% (2 <sup>2</sup> case)	1% (2 cases)	50% (1 of 2) <sup>6</sup>	100% (2 of 2) <sup>12</sup>
	Total number of different women (conditions) <i>a woman may have more than one condition</i>	15% (37 women with 41 conditions <sup>3</sup> )	12 (12 women with 12 conditions)		
	Among the different women in prior line, percentage receiving the correct antibiotic regimen <sup>1</sup>			18% (7 of 41)	42% (5 of 12)
	Among the different women in prior line, percentage receiving no antibiotic			82%	58%
	Women with c-section	(1 <sup>15</sup> case)	6% (17 (cases)		
	Percentage of women with c-section receiving any antibiotic prior to incision			100% <sup>7</sup> (1 case)	100% (17 of 17) <sup>13</sup>
<b>B</b>	Conditions where maternal antibiotic not warranted by best practices			n=247	n=262
	Episiotomy	1% (3 cases)	1% (n=2)	0% (0 of 2) <sup>8</sup>	0% (0 of 2)
	Meconium stained amniotic fluid documented	5% (6 cases)	5% (12 cases)	67% (2 of 3) <sup>9</sup> cases)	66% (3 of 5) <sup>14</sup> cases)
	Assisted vaginal birth	0% (0 case)	0% (1 case)	0	100% (1 of 1)
	Premature rupture of membranes (PPROM) (>18 hours)	1% (1 case <sup>4</sup> )	0% (1 case)	0% (0 of 1)	100% (1 of 1)
	Sum of cases with conditions where routine antibiotic is not recommended (ineligible <sup>7</sup> ) and there are no other indications for antibiotic (a woman may have more than one condition)	14	9		

	Among those with conditions where WHO does not recommend routine antibiotic, those receiving an antibiotic			22% (2 of 9)	57% (5 of 9)
	Total women without any of above conditions (where antibiotics are warranted or specifically not warranted by WHO), who received an antibiotic		233	2% (3 <sup>10</sup> of 209)	26% (59 <sup>10</sup> of 226)
<b>C</b>	<b>Antibiotics prescribed/provided</b>			<b>(n=247)</b>	<b>(n=262)</b>
	Penicillin			1% (2 case)	7% (18 cases)
	Ampicillin			0% (1 case)	1% (3 cases)
	Gentamicin			1% (2 cases)	5% (12 cases)
	Metronidazole			3% (7 cases)	24% (62 cases)
	Cephalosporine			1% (3 cases)	3% (9 case)
	Clindamycin			0% (1 cases)	1% (2 case)
	Erythromycin			0% (0 cases)	1% (2 case)
	Amoxicillin			2% (4 cases)	25% (66 cases)
<p><sup>1</sup> No women received an incorrect antibiotic.</p> <p><sup>2</sup> An additional woman who was diagnosed sepsis but had no documented fever and received no antibiotics is not classified among these cases.</p> <p><sup>3</sup> Two women had 3 conditions, One had c-section plus fever plus PPRM and one had fever plus manual removal of placenta plus 3<sup>rd</sup> or 4<sup>th</sup> degree tear</p> <p><sup>4</sup> Uganda 2 cases were classified as both PPRM and ROM. They were reclassified as PPRM only.</p> <p><sup>5</sup> 1 case was recorded receiving metronidazole+amoxicillin, 1 amoxicillin, 1 penicillin+gentamicin, and 3 amoxicillin.</p> <p><sup>6</sup> 1 case was recorded receiving cephalosporin and clindamycin.</p> <p><sup>7</sup> One case received ampicillin and on penicillin and gentamicin.</p> <p><sup>8</sup> One case had additional conditions warranting antibiotics so is excluded from the antibiotic analysis for this condition.</p> <p><sup>9</sup> 3 cases had additional conditions warranting antibiotics so are excluded from the antibiotic analysis for this condition.</p> <p><sup>10</sup> These cases were assessed to ensure they did not also have caesarean, PPRM, MRP, tears, or fever, or meconium stained amniotic fluid, assisted vaginal birth, episiotomy, or PROM documented. Included in those without additional conditions are 1 case diagnosed with maternal sepsis case (Uganda) who had no fever or antibiotics documented, and 4 neonatal sepsis (Kenya) with no antibiotics documented.</p> <p><sup>11</sup> 2 cases were recorded receiving penicillin (injectable, 1 case amoxicillin (oral)</p> <p><sup>12</sup> Both cases were recorded receiving amoxicillin (oral)</p> <p><sup>13</sup> All 17 were recorded as receiving an injectable antibiotic (16 received penicillin or cephtriaxone, the WHO recommendation and 1 received ampicillin and clindamicinan ) prior to the c-section with most receiving combinations of injectable plus and oral antibiotic. One case recorded as receiving an antibiotic before a C-section was recorded as a vaginal delivery who received an oral antibiotic and stayed in the facility 12 hours. This was not classified as a C-section.</p> <p><sup>14</sup> 7 cases had additional conditions documented (5 caesarean, 2 PPRM)</p> <p><sup>15</sup> 5 additional women were recorded as not receiving and antibiotic prior to C-section, but were recorded also as being vaginal births. There was no evidence that these were C-section so the vaginal birth classification is accepted.</p>					

**Annex Table 81. Birth outcome and breathing interventions (general sample)**

A	Birth outcome	Uganda					Kenya				
		Diagnosis of asphyxia (n=18)					Diagnosis of asphyxia (n=12)				
		No intervention	Rub back	Bag and mask	Both rub back and bag and mask	Successful bag and mask resuscitation recorded	No intervention	Rub back	Bag and mask	Both rub back and bag and mask	Successful bag and mask resuscitation recorded
	Born live	39% (n=7)	28% (n=5)	5% (n=1)	5% (n=1)	100% (n=2)	33% (n=4)	0	58% (n=7)	8% (n=1)	87% (n=7)
	Fresh stillbirth	0	0	0	0		0	0	0	0	
	Macerated stillbirth	0	0	0	0		0	0	0	0	
	Died prior to discharge	11% (n=2)	5% (n=1)	0	0		0	0	0	0	
	Outcome not known	0	5% (n=1)	0	0		0	0	0	0	13% (n=1)
	Total	50% (n=9)	39% (n=7)	5% (n=1)	5% (n=1)		33% (n=4)	0	58% (n=7)	8% (n=1)	(n=8)
B	Birth outcome	No diagnosis of asphyxia (n=229)					No diagnosis of asphyxia (n=250)				
		No intervention	Rub back	Bag and mask	Rub back and bag and mask		No intervention	Rub back	Bag and mask	Rub back and bag and mask	
	Born live	(n=214)	(n=2)	0	0		(n=242)	0	0	0	
	Fresh stillbirth	(n=4)	0	0	0		(n=1)	0	0	0	
	Macerated stillbirth	(n=1)	0	0	0		(n=6)	0	0	0	
	Died prior to discharge	(n=1)	0	0	0		0	0	0	0	
	Outcome not known	(n=7)	0	0	0		(n=1)	0	0	0	
	Total	227	2	0	0		250	0	0	0	

**Annex Table 82. Documented details for risk symptoms and interventions for newborn (general sample)**

		Uganda	Kenya
<b>A</b>	<b>Newborn characteristic</b>	<b>(n=247)</b>	<b>(n=262)</b>
	Premature births (<37 weeks pregnancy)	29%	12%
	Gestational age among premature births	<b>(n=72)</b>	<b>(n=31)</b>
	Gestational age ≥24 weeks and <34 weeks	35%	32%
	Gestational age ≥34 -37 weeks of gestation	65%	68%
<b>B</b>	<b>Interventions for gestational age ≥24 weeks and &lt;34 weeks</b>	<b>(n=25)</b>	<b>(n=10)</b>
	Antenatal corticosteroids (ACS)	28%	30%
	ACS initiated at least 24 hours prior to delivery	8%	20%
	ACS regimen documented	24%	20%
	Surfactant administered for preterm infants	4%	20%
	<b>Documented ACS regimen:</b>	<b>(n=6)</b>	<b>(n=2)</b>
	24 MG (IM) betamethasone or dexamethasone, 4 doses, 6 mg 12 hour intervals	0%	100%
	Betamethasone or dexamethasone 6 mg (< 4 doses)	67%	0%
	Betamethasone or dexamethasone 12 mg (< 2 does)	17%	0%
	Referred to higher level facility or unit in facility	28%	40%
<b>B</b>	<b>Newborn infection</b>	<b>(n=247)</b>	<b>(n=262)</b>
	Newborn with documented signs of infection	2%	3%
	<b>Symptoms documented for newborns with signs of infection</b>	<b>(n=4)</b>	<b>(n=9)</b>
	Not able to feed since birth or stopped feeding well	0%	33%
	Convulsions	0%	0%
	Fast breathing (≥60 breaths per min)	0%	11%
	Severe chest in-drawing,	50%	11%
	Fever (38 °C or greater)	25%	67%
	Low body temperature (less than 35.5 °C)	0%	22%
	Movement only when stimulated or no movement at all	0%	0%
	Newborn with maternal risk of infection ( if membranes ruptured> 18 hours before delivery or mother had fever> 38 °C before delivery or during labor, or amniotic fluid was foul-smelling or purulent)	25%	11%
	Preterm premature rupture of membranes (premature rupture of membranes that occurs before 37 weeks)	50%	11%
	Presence of any of the above signs of infection noted	100%	89%
	Newborn with signs of infection prescribed antibiotic	75%	33%

	Antibiotic use	Any infant with antibiotic recorded		Infant with symptoms of infection with antibiotic recorded	
		Uganda (n=247)	Kenya (n=62)	Uganda (n=4)	Kenya (n=9)
	Number of different infants receiving antibiotic (number of drugs)	n=4 <sup>1</sup> (5 drugs)	n=5 <sup>2</sup> (13 drugs)	50% (n=2)	33% (n=3)
	Penicillin	0%	0%	0%	44%
	Ampicillin	0.4% (n=1)	0.4% (n=1)	25%	11%
	Gentamicin	0.4% (n=1)	1.5% (n=4)	25%	44%
	Metronidazole	0%	0.4% (n=1)	0%	11%
	Cephalosporine	0%	0.4% (n=1)	0%	33%
	Clindamycin	0%	0.4% (n=1)	0%	11%
	Erythromycin	0.4% (n=1)	0.4% (n=1)	0%	11%
	Amoxicillin	0.4% (n=1)	0.4% (n=1)	25%	11%
	Benzyl Penicillin	0.4% (n=1)	0%	25%	0%
<b>C</b>	<b>Low birth weight</b>			<b>(n=247)</b>	<b>(n=262)</b>
	Birth weight ≤ 2000 (Very LBW)			22%	3%
	<b>Kangaroo Mothercare (KMC)</b>			<b>(n=54)</b>	<b>(n=7)</b>
	Very LBW newborn documented as clinically stable			39%	43%
	KMC initiated <sup>3</sup>			17%	29%
	KMC continued throughout stay			9%	29%
	The reason of not receiving KMC noted			4%	57%
	Baby cared in a thermo-neutral environment (radiant warmer or incubator)			0%	71%
	<b>Other specialized care for LBW infants</b>			<b>(n=247)</b>	<b>(n=262)</b>
	Birth weight ≤ 2500			58%	13%
	<b>Any specialized care provided for LBW babies weighing ≤2500</b>			<b>(n=143)</b>	<b>(n=33)</b>
	Referral to higher level facility			3%	0%
	Specialized nursery (NICU)			1%	42%
<sup>1</sup> 2 Ugandan infants (each receiving 2 drugs) did not have information on whether they had symptoms of infection or or risk for infection. <sup>2</sup> 2 Kenyan infants (1 received 1 drug and 1 2 drugs) did not have documentation of symptoms of infection or risk for infection. <sup>3</sup> Early, continuous and prolonged skin-to-skin contact between the mother and the baby, and exclusive breastfeeding (ideally) or feeding with expressed breast milk)					

**Annex Table 83. Record review: Information on sample for maternal complication**

	Information	Uganda (n=354)	Kenya (n=207)
<b>A</b>	<b>Diagnoses recorded</b>		
	Severe pre-eclampsia	15%	33%
	Postpartum hemorrhage (PPH)	22%	21%
	Delayed or obstructed labor	35%	26%
<b>B</b>	<b>Status on admission</b>		
	Active labor	47%	64%
	Stage 1 active labor	40%	49%
	Stage 2 active labor	6%	12%
	Active, stage not documented	1%	3%
	Other condition noted for women not in active labor		
	Pre-eclampsia toxemia (PET)/eclampsia-convulsions/headache	0%	14%
	Latent phase	1%	0% (n=1)
	Other complication (reduced fetal activity, PROM, etc.)	0%	6%
	Other (baby born prior to arrival, started labor in facility, false labor, etc.)	4%	0%
	No information	48%	13%
<b>C</b>	<b>Fetal status on admission</b>		
	Fetus alive on admission	59%	94%
	Fetus not alive on admission	1%	3%
	Cannot tell from documentation	40%	3%
	<b>Number of fetuses</b>		
	One	61%	94%
	Two	6%	3%
	Cannot tell from documentation	33%	2%
	<b>Fetal presentation</b>		
	Cephalic	47%	95%
	Breech	1%	2%
	Cannot tell from the documentation	53%	3%
<b>D</b>	<b>Mode of delivery</b>		
	Spontaneous vaginal	49%	69%

Information	Uganda (n=354)	Kenya (n=207)
Assisted (instrumented)	0%	0%
Caesarean section planned	3%	0%
Emergency caesarean section	10%	27%
Cannot tell from the documentation	38%	4%
<b>E Additional delivery conditions</b>		
Duration stage 1 labor (median hours)	7 (n=68)	8 (n=92)
Duration stage 2 labor (median hours)		
Labor was induced (including artificial rupture membranes)	2%	24%
Maternal near miss recorded	2%	3%
<b>F Maternal outcome</b>		
Discharge home	54%	87%
Referred to another facility	35%	6%
Referred within same facility	1%	2%
Maternal death	1%	0%
Cannot tell from documentation	9%	3%
<b>G Fetal outcome</b>		
Livebirth: discharged home	47%	76%
Livebirth: referred to another facility	5%	5%
Livebirth: referred within same facility	1%	8%
Livebirth: neonatal death	2%	3%
Stillbirth: Fresh	3%	1%
Stillbirth: Macerated	1%	2%
Cannot tell from documentation	41%	4%

**Annex Table 84. Record review: Partograph documentation (maternal complications sample)**

		Uganda (n=354)	Kenya (n=207)
	Recording of labor information		
<b>A</b>	Type of partograph used		
	New WHO	8%	54%
	National/not identified	20%	12%
	No partograph identified	73%	34%
	When the use of the partograph is initiated (cm dilation)	5.8	5.9
<b>B</b>	Documentation identified (in any record format)		
	Frequency & duration of contractions at least in every 0.5 hours	15%	41%
	Fetal heart tones at least in every 0.5 hours	14%	38%
	Maternal pulse at least in every 0.5 hours	10%	14%
	Urinalysis performed at least once	6%	22%
	Cervix dilation every 4 hours	18%	49%
	Descent of head every 4 hours during first stage	15%	44%
	Uterine contraction (intensity and length) every 0.5 hours	18%	42%
	Status of membranes & amniotic fluid every 4 hours	17%	31%
	Molding of fetal skull bones every 4 hours	10%	26%
	Blood pressure recorded at least once before delivery	27%	58%
	Blood pressure recorded at least every four hours during labor	31%	44%
	Intravenous (IV) line placed	15%	35%
	Intravenous fluids given	94%	79%
	Urinary catheter inserted	6%	18%

**Annex Table 85. Record review results for diagnosis and initial management of severe pre-eclampsia (maternal complications sample)**

Information	Uganda (n=354)	Kenya (n=207)
	% (n)	% (n)
Cases diagnosed with severe pre-eclampsia	15% (n=54)	33% (n=69)
Cases meeting diagnostic criteria for severe pre-eclampsia	13% (n=45)	33% (n=68)
Among patients diagnosed with severe pre-eclampsia	(n=54)	(n=69)
Cases with diagnosis severe pre-eclampsia referred-in to facility	22%	38%
Cases with diagnosis severe pre-eclampsia referred out to other facility within 4 hours of arrival	19%	6%
Among in-referrals with diagnosis severe pre-eclampsia	(n=12)	(n=26)
Documentation of any pre-referral MgSO4	58%	35%
Documentation of pre-referral full loading dose MgSO4	50%	31%
Administration of MgSO4 in this facility	(n=54)	(n=69)
Evidence patient received any MgSO4 this facility	43%	58%
Dosage and/or mode of administration recorded	33%	51%
Patient received MgSO4 intravenously <sup>1</sup>	28%	48%
Patient received MgSO4 intramuscularly <sup>1</sup>	35%	42%
Patient received MgSO4 in both buttocks	35%	39%
Maintenance dose administered at least once	13%	48%
MgSO4 administered every 4 hours for at least 24 hours after delivery or seizure whichever occurred the last	5%	42%
Recorded monitoring for severely pre-eclamptic case	(n=54)	(n=69)
Blood pressure documented at least hourly	20%	7%
Respiratory rate documented at least hourly	7%	4%
Urinary output documented at least hourly	0%	3%
Patellar reflexes documented at least hourly	0%	0%
Pulmonary sounds documented at least hourly	0%	0%
One or more signs above documented, indicating MgSO4 toxicity (RR<16, Urine output<100ml per 4 hour)	0%	0%
Blood test—Liver enzyme results documented	4%	23%
Blood test—Coagulation/blood clotting results documented	0%	22%
Blood test—Platelet count results documented	0%	35%
Management of associated complications	(n=54)	(n=69)
Development of seizures in the facility recorded	22%	10%
Among seizure patients, administration of diazepam recorded	33% (n=12)	14% (n=7)

Information	Uganda (n=354)	Kenya (n=207)
Diastolic BP $\geq$ 110 recorded at least once	46%	52%
Among patients with diastolic BP $\geq$ 110 recorded at least once, administration of anti-hypertensive recorded	92% (n=25)	100% (n=36)
<sup>1</sup> The patient may have received MgSO4 through both routes of administration		

**Annex Table 86. Record review results for prevention and management of PPH (maternal complications sample)**

A	Assessments and interventions related to PPH	Uganda (n=354)	Kenya (n=207)
	Administration of uterotonic after delivery recorded	36%	84%
	Among women with uterotonic documented, time between childbirth and administration of oxytocin can be calculated	5% (n=126)	43% (n=173)
	Examination of placenta for completeness is noted	8%	70%
	Estimated blood loss is recorded	12%	82%
	Estimated blood loss (ml)	467.3 (n=44)	392.7 (n=169)
	Diagnosis of PPH made	22%	21%
B	Postpartum hemorrhage	(n=78)	(n=44)
	<b>Examinations related to PPH</b>		
	Abdominal examination for uterine contraction	9%	27%
	Presence/absence of lacerations and or cervical tears	22%	61%
	Hemoglobin/hematocrit test results	3%	34%
	Coagulogram/blood clotting results	0%	9%
	Blood grouping and cross matching results	4%	25%
	<b>Conditions diagnosed</b>		
	Condition associated with PPH: Atonic uterus	42%	45%
	Condition associated with PPH: Laceration	15%	43%
	Condition associated with PPH: Incomplete expulsion of placenta	8%	14%
	Condition associated with PPH: Placenta attached	14%	0%
	Condition associated with PPH: Coagulopathy	0%	2%
	<b>Recorded interventions for PPH</b>		
	Administration of therapeutic uterotonic(s)	44%	86%
	Uterine massage	6%	16%
	Uterine mechanical evacuation	3%	0%
	Manual removal of the placenta	12%	2%
	Bimanual compression of the uterus	0%	0%
	Aortic compression	0%	0%
	Balloon or condom tamponade	0%	0%
	Blood transfusion	6%	7%

**Annex Table 87. Record review results for prevention and management of delayed/obstructed labor (maternal complications sample)**

	Uganda	Kenya
Information	(n=354)	(n=207)
Diagnosis of delayed/obstructed labor	35%	26%
Labor monitored using partograph with 4 <sup>th</sup> (action) line	8%	30%
Among those using partograph with 4 <sup>th</sup> action line)	(n=18)	(n=63)
Action line crossed	83%	33%
Action line crossed and delayed/obstructed labor diagnosed	100%	48%
Among records where diagnosed delayed/obstructed labor or crossed 4 <sup>th</sup> (action) line is documented	(n=125)	(n=65)
3rd degree moulding noted	15%	42%
Insufficient descent noted along with progress in cervical dilatation and strong uterine contractions	46%	46%
Cephalopelvic disproportion assessed	14%	45%
Cephalopelvic disproportion ruled out	10%	42%
Labor augmentation recorded	4%	34%
C-section recorded	22%	52%
Either labor augmentation or C-section	25% <sup>1</sup>	74% <sup>2</sup>
<sup>1</sup> One patient had both augmentation and C-section. <sup>2</sup> 8 patients had both augmentation and C-section.		

**Annex Table 88. Record review results for prevention and management of prematurity (maternal complications sample)**

	Condition	Uganda	Kenya
<b>A.</b>	<b>Prematurity</b>	<b>(n=354)</b>	<b>(n=207)</b>
	Gestation age < 37 weeks	30%	44%
	<b>Interventions</b>	<b>(n=107)</b>	<b>(n=91)</b>
	Administration of antenatal corticosteroids (ACS) recorded for gestation < 37 weeks	13%	15%
	Administration of MgSO4 recorded for gestation <37 weeks	2%	24%
	<b>Very premature infants</b>	<b>(n=354)</b>	<b>(n=207)</b>
	Gestation age ≤ 34 weeks	23%	29%
	Administration of ACS when gestational age ≤ 34 weeks	11% (n=81)	15% (n=61)
	<b>Which ACS was provided</b>	<b>(n=14)</b>	<b>(n=14)</b>
	Betamethasone	43%	7%
	Dexamethasone	0%	93%
<b>B.</b>	<b>Risk for infection</b>	<b>(n=354)</b>	<b>(n=207)</b>
	<b>Eligibility for antibiotic provision</b>		
	Chorioamnionitis diagnosed	1%	1%
	Maternal infection (temp > 380C) recorded	1%	1%
	Preterm prelabor (PPROM) rupture of membranes	1%	10%
	<b>Eligible cases with antibiotic administration recorded</b>		
	Signs of maternal infection or chorioamnionitis or C-section in women with antibiotics administration	35% (n=54)	55% (n=116)
	Antibiotic administration in case of signs of maternal infection or chorioamnionitis	100% (n=6)	80% (n=20)
	Antibiotics recorded in case of C-section	40% (n=47)	98% (n=55)
	Antibiotics recorded in case of PPRM	67% (n=3)	15% (n=20)

**Annex Table 89. Record review results for infant diagnosed with asphyxia (infant complications sample)**

	Uganda	Kenya
	(n=240)	(n=183)
Diagnosed asphyxia	35%	38%
	(n=83)	(n=70)
No intervention identified	24%	42%
Rub back	39%	4%
Newborn resuscitation with bag and mask recorded	54%	56%
Both rub back and bag and mask used	10%	1%
Resuscitation with bag and mask noted within 1st minute after birth recorded	46%	10%
Successful newborn resuscitation with bag and mask recorded (breathing within 5 minutes after resuscitation)	41%	41%
Newborn intubation recorded	1%	3%
Immediate "skin to skin"	78%	1%
Breastfeeding within 1st hour	71%	4%
<b>Newborn outcome (for asphyxia)</b>		
Alive	90%	77%
Died	8%	20%
Not known	1%	3%

**Annex Table 90. Record review results for infant with very low birth weight  $\leq 2000$  grams or premature (infant complications sample)**

	Uganda	Kenya
	(n=240)	(n=183)
Very low birth weight (VLBW) ( $\leq 2000$ grams)	70%	56%
Kangaroo mother care (KMC) for VLBW infants	(n=168)	(n=102)
VLBW infant stable	70%	21%
Infant was stable and KMC provided	42%	0%
Infant stable and received KMC continuously through stay	40%	0%
Infant was not stable and KMC provided	26%	5%
Infant was not stable and received KMC continuously through stay	26%	4%
Other interventions provided		
Infant placed in incubator	3%	65%
Referred to higher-level facility	7%	16%
Referred to a higher-level unit in this facility	11%	60%
Newborn outcome (for very low birth weight)		
Alive	96%	90%
Died	3%	9%
Not known	1%	1%

**Annex Table 91. Record review results for premature infants (infant complications sample)**

	Uganda	Kenya
	(n=240)	(n=183)
Premature infant gestational age <37 weeks	45%	74%
	(n=108)	(n=136)
Gestational age ≥24 weeks and <34 weeks	26%	63%
Gestational age ≥34 -37 weeks	70%	35%
Gestational age not specified	4%	2%
<b>Interventions provided</b>	<b>(n=105)</b>	<b>(n=136)</b>
Antenatal corticosteroid (ANC) given to mother of premature infant	0%	2%
Antenatal corticosteroid initiated at least 24 hours prior to delivery	0%	100% (n=3 <sup>1</sup> )
Surfactant given to preterm infants	1%	2%
Respiratory distress syndrome noted	16%	22%
Continuous positive airway pressure (CPAP) for preterm infants with respiratory distress syndrome	6%	0%
Referral to higher level facility or specialized nursery (NICU)	24%	66%

<sup>1</sup> Two with a gestational age ≥24 weeks and <34 weeks, and 1 with a gestational age ≥34 -37 weeks

**Annex Table 92. Record review results for infants at risk for sepsis/severe infection (infant complications sample)**

		Uganda	Kenya		
		(n=240)	(n=183)		
Infants with any symptoms risk where antibiotics are indicated		19%	28%		
<b>Symptoms for risk</b>		<b>(n=45)</b>	<b>(n=52)</b>		
Not able to feed since birth or stopped feeding well		73%	17%		
Convulsions		13%	8%		
Fast breathing ( $\geq 60$ breaths per min)		93%	33%		
Severe chest in-drawing		76%	25%		
Fever ( $38^{\circ}\text{C}$ or greater)		20%	58%		
Low body temperature (less than $35.5^{\circ}\text{C}$ )		9%	21%		
Movement only when stimulated or no movement at all		2%	0%		
Newborn with maternal risk of infection <sup>1</sup>		4%	2%		
Preterm premature rupture of membranes (premature rupture of membranes that occurs before 37 weeks)		4%	2%		
Antibiotic prescribed for any of above infants		42%	96%		
		With documented infection risk conditions		No documented infection risk conditions	
		Uganda	Kenya	Uganda	Kenya
<b>Specific antibiotic prescribed</b>		<b>(n=52)</b>	<b>(n=52)</b>	<b>(n=188)</b>	<b>(n=131)</b>
Penicillin		0%	73%	0%	28%
Ampicillin		44%	23%	4%	2%
Gentamicin		42%	87%	4%	29%
Metronidazole		2%	2%	0%	1%
Cephtriaxone		0%	12%	0%	0%
Septrim		0%	0%	0%	0%
Erythromicin		0%	0%	0%	0%
Amoxicillin		0%	0%	0%	1%
Ampiclox		0%	33%	0%	3%
<b>Number of antibiotics per infant</b>					
0		54%	4%	96%	70%
1		4%	6%	0%	1%
2		42%	50%	4%	26%
3		0%	39%	0%	4%

				Uganda	Kenya
4	0%	2%		0%	0%
<sup>1</sup> Membranes ruptured > 18 hours before delivery or mother had fever > 38 °C before delivery or during labor, or amniotic fluid was foul-smelling or purulent <sup>2</sup> <b>Ampiclox</b> is a combination of penicillin antibiotics, which is commonly prescribed to provide a broader spectrum of activity, especially against penicillin-resistant infections. It is available in oral tablets and capsule, injectable, syrup, and neonatal drops.					

#### 4. Observation: Labor, delivery, postpartum care

**Annex Table 93. Documents reviewed for any women observed for labor, delivery, or postpartum care and information recorded (maternal observation)**

		Uganda	Kenya
<b>A</b>	Type of document used to augment observation	(n=59)	(n=21)
	Mother-baby card/passport	42%	62%
	Individual maternal chart	44%	95%
	Individual newborn chart	3%	5%
	Maternity registry	47%	86%
	Referral form	5%	5%
<b>B</b>	Observed information recorded for admission assessment	Uganda (n=59)	Kenya (n=21)
	Woman's age	73%	100%
	Gestational age	73%	100%
	Gravida	73%	100%
	Parity	71%	100%
	History for prior pregnancy	64%	95%
	History for current pregnancy	68%	100%
	Rapid plasma reagin (RPR) results (syphilis)	2%	76%
	Hemoglobin (Hb) results	5%	100%
	Tetanus immunization status	47%	90%
	HIV status	69%	100%
	Blood pressure of woman	44%	100%
	Temperature of woman	3%	90%
	Heart rate of woman	10%	67%
	Fetal heart tone (FHT)	59%	95%
	Cervical dilation	68%	100%
	Frequency, intensity, and duration of contractions	46%	100%
	Fetal lie (position)	64%	100%
	Fetal presentation	64%	100%

		Uganda	Kenya
C	Observed information recorded for postpartum assessments		
	Administration of uterotonic for prevention of PPH	51%	52%
	Birth time	61%	52%
	Delivery method	63%	52%
	Estimated blood loss	61%	52%

**Annex Table 94. Information observed (or documented in delivery records) assessed during admission process**

		Uganda (n=59)	Kenya (n=21)
<b>A</b>	<b>Provider behavior</b>		
	Respectfully greets the pregnant woman	98%	88%
	Introduces him/herself to pregnant women	81%	63%
	Encourages the woman to have a support person present during labor and birth	76%	13%
	Asks woman (and support person, if present) if she has any questions	76%	25%
	Checks client card OR asks client her age, length of pregnancy, and parity	93%	88%
<b>B</b>	<b>Danger signs experienced during this pregnancy that were observed assessed</b>	<b>2%</b>	
	Fever	0%	63%
	Foul-smelling discharge	0%	38%
	Headaches or blurred vision	0%	25%
	Swollen face or hands	21%	13%
	Convulsions or loss of consciousness	88%	25%
	Shortness of breath	0%	0%
	Vaginal bleeding	21%	75%
	HIV status checked	88%	88%
<b>C</b>	<b>Information assessed about prior pregnancies</b>	<b>(n=20)</b>	<b>(n=8)</b>
	Any complications during previous pregnancies	60%	100%
	High blood pressure	35%	63%
	Convulsions	10%	25%
	Intra or post partum hemorrhage	40%	63%
	Caesarean section	50%	38%
	Stillbirth	30%	100%
	Prolonged labor	10%	38%
	Neonatal death	40%	38%
	Abortion	60%	50%
	Assisted delivery	10%	13%
<b>D</b>	<b>Admission assessment</b>	<b>(n=42)</b>	<b>(n=8)</b>
	Washes his/her hand with water and soap or alcohol-based hand rub before initial examination	50%	0%

Uses sterile gloves when performing vaginal examination	90%	88%
Explains procedures to woman (support person) before proceeding	88%	100%
Takes temperature	10%	75%
Takes pulse	12%	75%
Takes blood pressure	57%	88%
Asks/notes amount of urine output	19%	13%
Tests urine for presence of protein	7%	0%
Performs general examination (e.g., looks for pallor, edema)	74%	88%
Checks fundal height with measuring tape	57%	25%
Checks fetal presentation by palpation of abdomen	81%	88%
Checks fetal heart rates with fetoscope/doppler/ultrasound	81%	100%
Performs vaginal examination (cervical dilation; fetal descent, position, membranes, meconium)	83%	100%
Informs the pregnant woman of findings	81%	63%
Removes gloves after caring for patient	81%	100%
Washes his/her hand after examination	57%	88%

**Annex Table 95. Observed supportive care during labor (stage 1)**

	Uganda (n=43)	Kenya (n=14)
Supported woman during labor in a friendly way	100%	100%
Birth companion was with women during the 1st stage	88%	14%
Explained what would happen in labor to the woman and/ or her support person	91%	36%
Encouraged woman to consume fluids/food throughout labor	72%	36%
Encouraged/assisted woman to ambulate and assume different positions during labor	79%	64%
Explained and taught breathing techniques for labor and delivery	44%	21%
Encouraged woman to walk around freely during labor and delivery	79%	79%
Encouraged woman to eat and drink as she wished	70%	36%
Encouraged woman to empty the bladder	86%	71%
Gave woman any option of pain relief during labor	9%	0%
Draped woman (one drape under buttocks, one over abdomen)	2%	0%
Washed his/her hands before examination of woman	37%	29%
Wore high-level disinfected or sterile gloves for vaginal examination	74%	93%
Did digital vaginal examination when membranes ruptured and amniotic fluid came	65%	79%

**Annex Table 96. Observed (or recorded) monitoring during labor (stage 1)**

	Uganda (n=43)	Kenya (n=14)
Checked fetal HR rate every 30 minutes	60%	21%
Checked mother's heart rate every 30 minutes	30%	14%
Checked contractions every 30 minutes	44%	21%
Checked temperature at least every 2 hours	2%	7%
Checked blood pressure at least every 4 hours	35%	14%
Checked cervical dilation at least every 4 hours	2%	86%

**Annex Table 97. Observed actions and support during 2nd stage labor**

		Uganda (n=43)	Kenya (n=14)
<b>A</b>	<b>Birth companion</b>		
	Birth companion was women throughout labor and delivery	91%	8%
<b>B</b>	<b>Patient assessments</b>		
	Fetal heart rate checked every 5 minutes	66%	25%
	Frequency, duration, and intensity of contractions checked every 5 minutes	81%	75%
	Perineum thinning and bulging checked every 5 minutes	94%	92%
	Visible descend of fetal head or check during contraction checked every 5 minutes	94%	92%
	All following items checked every 5 minutes during the observation on 2nd stage	50%	25%
<b>C</b>	<b>Actions and interventions</b>		
	Washed hands with clean water and soap before delivery	25%	42%
	Put on sterile gloves just before delivery	94%	92%
	Conducted episiotomy only where there was physical obstruction due lesions or scar tissue in the perineum	11%	0%
	Supported perineum as baby's head was delivered	81%	83%
	Verified the absence of another fetus by palpating abdomen prior to administration of uterotonic	63%	75%
	Timing of administration of prophylactic uterotonic		
	Anterior shoulder	0%	8%
	Within 1 minute	9%	67%
	Within 3 minutes	88%	8%
	After placenta	0%	17%
	Administration route for uterotonic		
	Intravenous (push)	0%	0%
	Intravenous (drip)	3%	0%
	Intramuscular	78%	83%
<b>D</b>	<b>Additional postpartum actions and interventions</b>		
	Changed gloves before clamping the cord	16%	17%
	Applied traction to cord while applying suprapubic counter traction	91%	100%
	Performed uterine massage immediately following delivery if placenta not expelled	72%	100%
	Assessed completeness of the placenta and membranes	91%	92%

Assessed for perineal and vaginal lacerations	88%	100%
Episiotomy/tears were repaired using local anaesthesia	36% (n=11)	100% (n=3)
Antibiotic provided if 3rd, 4th degree tear	0% (n=6)	0% (n=0)
Vagina and perineum <u>not</u> swabbed with antiseptics after delivery	25%	67%
Bladder catheterisation was performed (if woman not able to urinate)	13%	17%
Urgent referral initiated at any time during the 2nd-3rd stage of referral	0%	0%

**Annex Table 98. Information on partograph use during the first-stage labor among women observed for 1st stage**

	Uganda(n=43)	Kenya(n=14)
Use of partograph	44%	100%
Information recorded on partograph (where partograph was filled)	(n=19)	(n=14)
Cervical dilation (checked at least every 4 hours)	74%	79%
Cervical dilation assessment observed (if partograph indicated as done)	(0/14)	(9/11)
Liquor	89%	50%
Moulding	68%	57%
Membranes and liquor	95%	57%
Maternal blood pressure (BP) (every 4 hours, if diastolic BP <90mmHg, if >90, every hour)	74%	43%
Maternal blood pressure assessment observed (if partograph indicated as done)	(7/14)	(1/6)
Pulse (every 0.5 hours)	63%	14%
Pulse assessment observed (if partograph indicated as done)	(5/12)	(2/2)
Temperature (every 0.5 hours)	5%	7%
Temperature assessment observed (if partograph indicated as done)	(0/1)	(1/1)
Contractions (every 0.5 hours)	68%	43%
Fetal heart rate (every 0.5 hours)	74%	43%
Fetal heart rate assessment observed (if partograph indicated as done)	(11/14)	(3/6)
Descent of fetal head (at least every 4 hours)	89%	57%
Urine (including volume, protein, and acetone)	5%	14%

**Annex Table 99. Observed immediate postpartum maternal and newborn care**

	Uganda (n=59)	Kenya (n=21)
Immediately and thoroughly dried baby with towel after breathing assessed	81%	100%
Discarded wet towel and covered infant with dry towel	79%	83%
Suctioned airways when amniotic fluids were clear	58%	17%
Immediately placed newborn on the mother's abdomen "skin to skin"	84%	75%
Continued skin-to-skin with mother during the 1st hour (with body and head covered)	65%	33%
Assisted the mother to initiate breastfeeding within the first hour	81%	75%
Monitored baby every 15 minutes in the first hour for chest indrawing, fast breathing, warmth	28%	42%
Weighed the infant	91%	100%
Measured infant temperature	0%	25%
Measured infant respiratory rate	5%	33%
Provided infant eye care with Tetracycline	58%	100%
Provided cord care with Chlorhexidine	0%	25%
Administered Vitamin K	2%	0%
Took mother's blood pressure shortly (within 15 mins) after birth	37%	67%
Palpated uterus 15 minutes after delivery of placenta	44%	92%
Checked the following items 1 hour after birth		
Vaginal bleeding	63%	58%
Uterine contractions	53%	33%
Fundal height	47%	33%
Maternal temperature	0%	8%
Maternal heart rate	5%	42%
Maternal blood pressure	33%	58%

**Annex Table 100. Observed practices that are not recommended for delivery services**

Practice that is not recommended	Uganda (n=59)	Kenya (n=21)
Enema	0%	0%
Pubic or perineal shaving	0%	0%
Slap newborn	0%	0%
Hold newborn down	0%	0%
Milk the cord of newborn	0%	0%
Stretching of perineum	0%	0%
Digital stretching of perineum	2%	0%
Verbal abuse	3%	0%
Physical abuse	3%	5%
None of above	0%	71%
Frequent (more often than every 4 hours) vaginal examination	5%	0%
Manual exploration of uterus after delivery (if placenta is complete)	3%	5%
Episiotomy	3%	0%
Aspirate newborn as soon as head is born with no meconium or signs of airway block	2%	10%
Restrict food & fluids	2%	0%
None of above	22%	71%
Physical abuse	3%	5%
None of above	0%	71%
Frequent (more often than every 4 hours) vaginal examination	5%	0%
Manual exploration of uterus after delivery (if placenta is complete)	3%	5%
Episiotomy	3%	0%
Aspirate newborn as soon as head is born with no meconium or signs of airway block	2%	10%
Restrict food & fluids	2%	0%
None of above	22%	71%

## 5. Client interview: Maternal and newborn care

**Annex Table 101. Information on interviewed maternal and newborn service clients**

		Uganda (n=105)	Kenya (n=80)
<b>A</b>	<b>Transportation to facility</b>		
	Average travel time from home to facility (minutes)	45.0	29.4
	Had difficulty arranging transportation to facility	26%	11%
<b>B</b>	<b>How client came to facility</b>		
	Walked	14%	20%
	Health facility transportation	0%	4%
	Public transportation	16%	64%
	Private transportation	10%	13%
<b>C</b>	<b>Initial experiences</b>		
	Hours admitted prior to delivery	5.6	7.9
	Received attention immediately on arrival	80%	74%
	Average estimated time from arrival to initial examination (minutes) for those reporting they did not receive immediate attention on arrival	67.7 (n=19)	39.0 (n=21)

**Annex Table 102. Interviewed maternal and newborn service client interview responses**

		Uganda	Kenya
<b>A</b>	<b>Care received</b>	<b>(n=105)</b>	<b>(n=80)</b>
	Received immediate attention from medical staff on arrival	80%	74%
	Examined vaginally at admission	89%	94%
	Blood pressure measured at admission	41%	95%
	Baby's heart rate listened to at admission	80%	93%
	<b>How baby's heart listened to during labor</b>		
	Did not listen at all	14%	19%
	Not sure	0%	1%
	Through connected monitors	0%	1%
	Listening to abdomen with stethoscope/fetoscope	86%	78%
<b>B</b>	<b>Interventions during labor</b>		
	Had vein punctured during labor	15%	52%
	Enema prior to delivery	1%	11%
	Shaved private area at any time	0%	6%
	Episiotomy before delivery	5%	22%
	Examined vaginally during labor	90%	67%
	Estimated number of vaginal examinations	2	13.1
<b>C</b>	<b>Client-centered practices</b>		
	Family member/friend with her at all times during admission	95%	84%
	Companion of choice with her during labor	89%	35%
	Companion of choice with her during delivery	86%	31%
		<b>(n=45)</b>	<b>(n=12)</b>
	Companion received orientation on his(her) role during labor and/or childbirth	48%	43%
	Companion satisfied with the orientation given on his(her) role during labor and/or childbirth:	78%	67%
	<b>Comfort</b>		
	Stage 1: Satisfied with the degree of privacy during examinations and treatment	89%	83%
	Stage 2 and 3: Satisfied with degree of privacy during stay in the labor area	90%	68%
	Stage 2 and 3: Satisfied with the degree of privacy during your stay in the childbirth area	94%	73%
	Provider discussed she could have food and drink during labor	71%	39%

		Uganda	Kenya
	At any point of labor felt hungry or thirsty and asked for food or drink	25%	39%
	Given sufficient food or drink	78%	66%
	Encouraged to walk around during the first stage of labor	67%	59%
	Walk around during the first stage of labor	67%	55%
	<b>Pain management</b>		
	Was offered options to relief pain during labor (if yes, types of pain management offered)	9%	2%
	Chosen method was effective	100% (n=8)	100% (n=1)
	<b>Pain management options offered</b>	<b>(n=8)</b>	<b>(n=1)</b>
	Oral medications	43%	100%
	IV medications	0%	0%
	Medication given in spine	0%	0%
	Continuous labor support	60%	0%
	Bath	40%	0%
	Intradermal water block	0%	0%
	Maternal movement and positioning	80%	0%
	Childbirth education	60%	0%
	Relaxation and breathing	60%	0%
	Heat and cold	0%	0%
	Any of acupressure , hypnosis, aromatherapy, music, audio, analgesia	0%	0%
<b>D</b>	<b>Communication with providers</b>	<b>(n=105)</b>	<b>(n=80)</b>
	Stage 1: Each member of the delivery team introduce and identify self when they came into the room	16%	31%
	Stage 1: Health workers explained any examination or procedure before performing them	44%	70%
	Stage 1: Health workers asked permission before performing any examination or procedure	42%	65%
	2 <sup>nd</sup> stage labor: Was asked for consent prior to being examined	19%	73%
	<b>Stage 1: Feels provider(s) explained things clearly during labor and delivery</b>		
	Yes, very well	84%	75%
	Some of the time	6%	3%
	No	10%	23%

		Uganda	Kenya
	Stage 1: Felt provider(s) (doctors and nurse)s communicated well with one another (e.g., when one was arriving and one was leaving):		
	Yes, very well	92%	64%
	Some of the time	6%	5%
	No	2%	19%
	Stage 1: Felt providers showed good knowledge of her history and the care that had been given to date (e.g., did not have to repeat the same to every provider involved in your care):		
	Yes, very well	94%	69%
	Some of the time	5%	1%
	No	1%	16%
E	Participation in decisions during labor and delivery	(n=86)	(n=68)
	Different positions to give birth discussed by provider	10%	37%
	Who decided birth position	(n=9)	(n=25)
	Self	33%	84%
	Provider	67%	16%
	Overall, felt needs and preferences were taken into account by providers during the labor	(n=105)	(n=80)
	Yes, all of the time	82%	58%
	Some of the time	13%	24%
	No, not most of the time	5%	18%
	Overall, felt she made shared decisions about labor	88%	72%
	Postpartum: Overall, felt made shared decisions about the birth	89%	79%
	Felt that needs and preferences were taken into account by providers during the postnatal period		
	Yes, all of the time	84%	64%
	Some of the time	11%	21%
	No, not most of the time	5%	16%
	Overall opinions of total experience		
	Postpartum: Overall, felt needs and preferences were taken into account by providers during childbirth:		
	Yes, all of the time	84%	67%

		Uganda	Kenya
	Some of the time	13%	18%
	No, not most of the time	3%	15%
	<b>Opinions on staff</b>		
	<b>Doctors</b>		
	Polite, helpful	84%	70%
	Good or bad at different times	16%	8%
	Rude, unhelpful	0%	0%
	<b>Nurses</b>		
	Polite, helpful	84%	78%
	Good or bad at different times	15%	13%
	Rude, unhelpful	1%	9%
	<b>Cleaning/kitchen/other non-medical staff</b>		
	Polite, helpful	75%	62%
	Good or bad at different times	20%	6%
	Rude, unhelpful	3%	13%
	<b>Other hospital staff (e.g., nutritionists, physiotherapists, pharmacists)</b>		
	Polite, helpful	76%	54%
	Good or bad at different times	22%	3%
	Rude, unhelpful	2%	0%
	<b>Opinion on frequency and length of time when interacting with staff</b>		
	As much and as long as I needed	83%	81%
	Not as much and as long as I needed	12%	19%
	They were unavailable almost all time I needed	5%	0%
	<b>Feeling about amount of support received from staff</b>		
	Much support	86%	82%
	Less than amount needed	12%	18%
	No support at all	2%	0%
	<b>Felt could ask questions</b>	30%	73%
	<b>Felt questions would be answered</b>	89%	73%
	<b>Overall, have felt was given opportunity to discuss concerns and preferences</b>		
	Yes, all of the time	78%	65%
	Some of the time	13%	16%

		Uganda	Kenya
	No, not most of the time	9%	19%
	Overall, felt was adequately informed by the care provider(s) about the actions and decisions taken for your care	80%	82%
	Overall, felt the facility met her religious and cultural needs	94%	85%
	Overall, felt providers were warm and kind		
	Yes, all of the time	89%	77%
	Some of the time	10%	21%
	No, not most of the time	1%	3%
	Overall, felt treated with respect dignity preserved	97%	90%
	Overall, satisfaction that choices and preferences were respected		
	Extremely dissatisfied	2%	5%
	Somewhat dissatisfied	1%	1%
	Nor satisfied not dissatisfied	3%	9%
	Somewhat satisfied	13%	33%
	Extremely satisfied	81%	52%
	Overall, rating of birth experience in this facility		
	Positive	96%	74%
	Not positive not negative	3%	19%
	Negative	1%	4%
	Would recommend childbirth in that facility to friend or relative	97%	96%
<b>F</b>	<b>Birth events</b>	<b>(n=105)</b>	<b>(n=80)</b>
	Estimated time in labor (hours)	6.0	11.6
	Time pushed the baby (minutes)	18.4	10.3
	Uncomplicated vaginal birth	81%	85%
	Vaginal birth with any maternal complication	1%	1%
	Planned C-section (or emergency decided at admission)	11%	3%
	Emergency C-section (decided after at least 1 hour of admission)	7%	6%
	Decision on C-section made by	(n=19)	(n=7)
	Self	0%	0%
	Provider	11%	0%
	Together with care provider	84%	86%
<b>G</b>	<b>Newborn postpartum status</b>	<b>(n=105)</b>	<b>(n=80)</b>

	Uganda	Kenya
Baby's weight (average)	3096.2 grams	2972.6 grams
Baby in skin-to-skin contact immediately after delivery	57%	75%
Baby healthy at delivery	94%	90%
<b>If no, what was the problem</b>	<b>(n=6)</b>	<b>(n=7)</b>
Birth asphyxia	83%	14%
Preterm birth	0%	71%
Feels received additional emotional support from health facility staff on this occasion	100%	80%
<b>Mother/baby status</b>	<b>(n=105)</b>	<b>(n=80)</b>
Baby kept in room with mother for almost the whole time in the hospital	96%	76%
<b>Who decided where baby stayed after delivery:</b>		
Self	10%	83%
Providers	90%	17%
Baby and mother separated at birth	75%	47%
<b>Reason</b>	<b>(n=81)</b>	<b>(n=38)</b>
Clean/dry the baby	5%	8%
To weigh	70%	3%
Oxygen/suction/postnatal	6%	18%
Mother problems (weak/bleeding)	5%	58%
<b>What feeding baby at the hospital</b>	<b>(n=105)</b>	<b>(n=80)</b>
Breastfeeding	99%	99%
<b>Who provided most support and education about breastfeeding</b>	<b>(n=105)</b>	<b>(n=80)</b>
Doctor	2%	13%
Midwife	51%	5%
Nurse	3%	52%
Caretaker/mother/ grandmother	11%	0%
Self	33%	0%
No one	0%	27%
<b>When asked to initiate breastfeeding after delivery</b>		
Never	5%	41%
Immediately after birth	87%	35%
In first hour after birth after birth	5%	15%

		Uganda	Kenya
	Between 1-6 hours after birth	2%	4%
	Between 6-24 hours after birth	0%	3%
	> 24 hours after birth	0%	0%
	<b>How often advised to breastfeed baby</b>		
	Once in every 3 hour with 6 hour night rest	1%	1%
	Once in every 3 hour day and night	3%	4%
	Once in every 4 hour with 8 hour night rest	0%	0%
	Once in every 4 hour day and night	1%	0%
	On demand as much as possible day and night	16%	42%
	Child currently exclusively breastfed	93%	89%
<b>H</b>	<b>Postpartum care (n reflects clients who provided valid response)</b>	<b>(average n=99) Average (median)</b>	<b>(average n=71) Average (median)</b>
	Hours in facility after delivery (hours)	31.8 (24)	30.5 (18)
	Number of times medical staff checked her after birth	0.9 (0)	1.3 (1)
	Number of times medical staff checked blood loss	0.3 (0)	1.27 (0)
	Number of times medical staff palpated abdomen to check whether uterus was contracting	0.4 (0)	0.9 (0.5)
	Number of times blood pressure was measured	0.3 (0)	1.3 (1)
	Number of times temperature was measured	0.1 (0)	1 (0)
	Number of times heart rate or pulse was measured	0.1 (0)	1 (0)
	Baby receive full clinical examination before discharge	8%	53%
<b>I</b>	<b>Health education and information</b>		
	Overall satisfied with the health education and information received from care providers postpartum		
	Extremely dissatisfied	7%	4%
	Somewhat dissatisfied	4%	7%
	Not satisfied not dissatisfied	2%	14%
	Somewhat satisfied	13%	30%
	Extremely satisfied	74%	45%
	<b>Counseling topics covered with mother</b>		
	What baby needs to drink/eat for first 6 months	34%	54%
	Immunization needs of baby	50%	56%

		Uganda	Kenya
	Nutrition & hygiene	31%	50%
	Maintaining lactation	30%	49%
	Keeping baby warm & clean	59%	51%
	Communication and play with the baby	10%	21%
	Danger signs to watch for in baby	22%	29%
	Danger signs to watch for in self	22%	31%
	Where to go in case emergency for self	34%	28%
	Where to go in presence of danger signs in baby	26%	29%
	When and where to go for follow-up for self	13%	32%
	When and where to go for follow-up for baby	11%	33%
	Healthy spacing between pregnancies	14%	26%
	Family planning options available to her now	13%	28%
	Average % of women reporting receiving counseling on any of the 14 topics	26%	37%
J	Family planning	(n=14)	(n=22)
	Spouse(partner) invited on the counseling session on family planning	33%	9%
	Accepted/chose FP method before discharge?	36%	14%
	Method selected	(n=5)	(n=3)
	Emergency contraception pills	(n=1)	(n=0)
	Progestogen-only injections (non-BF women)	(n=3)	(n=1)
	Male condoms	(n=0)	(n=1)
	Lactational amenorrhea (LAM)	(n=0)	(n=1)
K	Opinion of facility conditions		
	Labor room		
	Very clean	82%	29%
	Clean/satisfactory	16%	60%
	Dirty	2%	4%
	Ward room		
	Very clean	80%	25%
	Clean/satisfactory	15%	69%
	Dirty	4%	4%
	Place to wash		
	Very clean	58%	8%

		Uganda	Kenya
	Clean/satisfactory	23%	71%
	Dirty	13%	16%
	<b>Toilet</b>		
	Very clean	55%	7%
	Clean/satisfactory	20%	72%
	Dirty	16%	20%
	Satisfied with the water, sanitation and energy services	92%	97%
	Satisfied with the power and lighting source	89%	92%
	Overall, satisfied with the environment of the labor and childbirth area, including the cleanliness, proximity to a toilet, general lighting, level of crowding and privacy	94%	77%
<b>L</b>	<b>Additional information related to use of services</b>		
	Had to purchase gloves and other necessary items for childbirth	64%	5%
	Was refused any care in this facility because of inability to pay	10%	5%
	Feels private information has been kept confidential while in this maternity	97%	73%
	Signed a consent form for clinical care or any clinical procedures from admission to discharge	29%	31%
	Felt that every time asked to sign a consent form was given adequate explanation for issue and options	18%	41%
	Knows of complaints box in the facility	10%	17%
	Knows where complaints box is kept	8 of 10	13 of 13
	Made any complaint while in the maternity	6%	3%
	Complaint acted upon without repercussions	1 of 6	1 of 2
	Complaint was about respect and preservation of the dignity of self and family	4 of 6	0 of 2
	Experienced physical, verbal, or sexual abuse, to self or newborns, during labor or childbirth or after birth	4%	6%
<b>M</b>	<b>Postnatal follow-up<sup>1</sup></b>		
	Number of postnatal contacts with skilled health care provider at home or facility	.05 (0) (n=95)	1.9 (1) (n=75)
	When first postnatal contact after the childbirth took place (hours postpartum)	18 (12) (n=3)	12.8 <sup>2</sup> (6) (n=64)
	Ever received cervical cancer screening	23%	17%
	Most recent time had cervical cancer screening (years ago)	2.2 (n=22)	1.8 (n=10)
<sup>1</sup> It seems patients are reporting PNC visits AFTER they were discharged.			
<sup>2</sup> An additional 3 patients reported their first PNC contact was more than 2 weeks postpartum.			

## D. Child Health Services

### 1. Provider interview: Child Health Services

**Annex Table 103. Provider responses: Child health services and support for quality services**

Topic/service	Reported use guidelines/job aids		Training received in past 12 months		Level of comfort providing service			
	Uganda (n=19)	Kenya (n=11)	Uganda (n=19)	Kenya (n=11)	Uganda (n=21)		Kenya (n=11)	
					High	Low	High	Low
Integrated care of young infant <2 months (IMCI)			11%	27%				
Integrated care of common childhood conditions (IMCI)	37%	73%	16%	27%				
Management of possible serious bacterial infection (PSBI) in newborns or young infants	32%	27%	16%	36%	26%	11%	55%	9%
Severe febrile illness					26%	5%	64%	9%
Nutrition /feeding/ breastfeeding counselling	58%	55%	21%	45%				
Assessment, treatment, counseling for cough or cold	53%	45%	11%	27%				
Assessment, treatment, counseling for pneumonia	42%	55%	16%	27%	63%	5%	64%	0%
Assessment, treatment, counseling for diarrhea	47%	55%	26%	18%				
Severe dehydration					63%	0%	82%	0%
Assessment, treatment, counseling for malaria	53%	64%	21%	36%	79%	0%	100%	0%
Assessment, treatment, counseling for anemia	37%	45%	11%	18%				
Screening, treatment, counseling for HIV infection	58%	55%	26%	27%	32%	16%	55%	0%
Malnutrition prevention, diagnosis, and treatment	58%	45%	32%	27%	32%	16%	36%	18%
Childhood immunization			5%	36%				

**Annex Table 104. Provider responses: Knowledge about diagnosis and actions for case studies of sick infants/young children (responses prompted by list)**

A	Sick infant (<12 months old)		
	Case complaint: Six week old infant breathing fast (respiration rate=66), no chest in-drawing. Reported eating well, no other abnormal findings.	Uganda (n=19)	Kenya (n=10)
	Correctly identified treatment from listed options: Prescribe home treatment with oral Amoxicillin for 7 days and a follow-up visit.	32%	20%
	Case complaint: 4 week old boy with history of two days' illness. Reported stopped feeding well and feels hot. Examination findings axillary temperature 38 °C, respirations 63 breath per minute, baby is awake and conscious, but three attempts to feed are not successful. Actions selected from listed options. (PSBI)		
	(a) Prescribe home treatment with oral amoxicillin for 7 days	5%	0%
	(b) Recommend immediate referral to higher level facility	84%	55%
	(c) Give ORS at the clinic	0%	9%
	(d) Administer injectable ampicillin	21%	73%
	(e) Administer injectable gentamicin	21%	64%
	(f) Treat to prevent low blood sugar	42%	55%
	(g) Check immunization status and vaccinate if needed	16%	36%
	(h) Give paracetamol at the clinic	42%	45%
	(i) Prescribe home treatment with oral Septrim for 5 days	0%	0%
	All correct options (b,d, e, f, g) checked	0%	9%
	Correct antibiotics: gentamicin + amoxicillin	0%	9%
	Correct dosage for correct antibiotics	0%	0%
	Case complaint: 7 month old with temperature 38.3c, lethargy, a stiff neck, and convulsions		
	Injectable antimalarial	16%	18%
	Oral antimalarial	0%	0%
	Paracetamol	63%	64%
	Injectable antibiotic	63%	45%
	Oral antibiotic	5%	0%
	Diazepam	84%	73%
	Perform malaria rapid test before giving antimalarial	74%	82%
	ORS	11%	0%
	Give breast milk, substitute or sugar water with a spoon	37%	18%

Zinc	0%	0%
All correct options (injectable antimalarial , injectable antibiotic, diazepam, give breast milk, substitute or sugar water with a spoon )	0%	0%
Case complaint: 7 month old with temperature 38.3c, lethargy, a stiff neck, and convulsions	(n=19)	(n=11)
Malaria test before giving antimalarial	74%	82%
Injectable antimalarial	16%	18%
Oral antimalarial	0%	0%
Paracetamol	63%	64%
Injectable antibiotic	63%	45%
Oral antibiotic	5%	0%
Diazepam	84%	73%
Oral rehydration solution	11%	0%
Give breast milk, substitute or sugar water with a spoon	37%	18%
Zinc	0%	0%
All correct responses (injectable antimalarial, injectable antibiotic, diazepam, and give breast milk, substitute or sugar water with a spoon)	0%	0%
Case complaint: 28 days-old with 2 days history of cough and difficulty breathing. On examination, patient is lethargic. Recommended next step of management	(n=19)	(n=8)
Selected correctly from list of choices: Give an appropriate dose of IM/IV Ampicillin and Gentamicin and refer	47%	100%
Case complaint: Exclusively breastfed 5 week old infant, history of frequent watery stool, reported infant not vomiting and is feeding well. Assessment finds active baby, no signs of dehydration, and normal examination finding		
Selected correctly from list of choices	16%	18%
Case complaint: A 6-month-old child with a cough. Child missed their third DPT/Hib/HepB vaccination. Select response from a list.		
Correct: Counsel mother on importance of vaccines	37%	36%
Correct: Administer missing vaccine	47%	55%
Correct: Counsel when to return for next vaccine	53%	36%
All correct responses identified:	21%	27%
Wrong response: Counsel mother to bring child for vaccination once cough is resolved	42%	91%
Case complaint: 10-month-old history of swelling of both feet for four days with skin and hair color changes, child's mother passed away and father providing care.	(n=19)	(n=11)

	Selected correctly from list of choices: Give an appropriate antibiotic, keep child warm, feed to prevent low blood sugar and refer.	11%	9%
B	Sick child 12 or more months old		
	Case complaint: 3-year-old child that presents with cough, nasal congestion, respiratory rate of 28 breaths per minute and no sign of chest in-drawing		
	Soothe the throat, relieve the cough with safe remedy and follow up in 5 days if not improving	37%	20%
	Case complaint: 2-year-old with dry cough, restless. Your clinical assessment reveals a temperature of 37.7oc and chest in-drawing, and a respiratory rate of 50 bpm, other findings are normal. What is the most likely classification? Select the single best answer		
	Selected correctly from list of choices: Pneumonia	26%	20%
	Case complaint: 1 year old, low-grade fever, watery diarrhea, yellow-greenish in color. Assessment: slow skin pinch and sunken eyes, temperatures 37.60c. Child irritable, eager to drink. Other findings are normal. What recommended classification should you document in the OPD register	(n=19)	(n=11)
	Selected correctly from list of choices: Classified illness as diarrhea with some dehydration	89%	91%
	Correct response: Give ORS, Zinc (Plan B), counsel mother on danger signs and follow up in 5 days	58%	64%
	Correctly identified that greenish, watery, more than 3 days, diarrhea with vomiting are not indications for the use of antibiotics in diarrhea	32%	27%
	IMCI treatment for 3 year old with bloody diarrhea	(n=19)	(n=11)
	Oral ciprofloxacin for 3 days with ORS, Zinc, and follow-up	42%	36%
	Case complaint: One year old with mid-upper-arm-circumference (MUAC) of 109mm. No other abnormalities are seen on examination. You offer ready-to-use therapeutic food (RUTF), child completes the portion given.		
	Correctly classified case from among list: Uncomplicated severe acute malnutrition	68%	36%
	Correctly identified that MUAC 118 mm, weight of 8 kg, and weight for height below -2 Z score are measures do not meet the criteria for classification of severe acute malnutrition in a 1 year old	11%	18%
C	Provider knowledge		
	Knowledge of symptoms of Possible Severe Bacterial infection (PSBI) in a young infant (under 2 months of age) (Correct spontaneous responses from provider)	Uganda (n=19)	Kenya (n=11)
	Not able to feed since birth or stopped feeding well confirmed by observation	68%	64%
	Convulsions	37%	45%
	Fast breathing 60 breaths per minute or more	32%	36%
	Severe chest in-drawing	11%	27%
	Fever 38 °C or greater	79%	82%

Low body temperature less than 35.5 °C	5%	0%
Movement only when stimulated or no movement at all	0%	18%
All options identified as correct	0%	0%
Provider asked to select the best answer(s) to classify or treat fever at OPD according to IMCI standards	Uganda (n=19)	Kenya (n=11)
Correctly identified that high prevalence of malaria does not exclude necessity of performing malaria rapid diagnostic test	74%	100%
Correct identified that malaria test (if available) should be administered to every child before antimalarial treatment	79%	82%
Correctly identified that it is wrong that low malaria prevalence region children with obvious cause of fever do not need malaria rapid test	79%	82%
All correct responses provide	74%	64%

## 2. Record reviews for child health

**Annex Table 105. Characteristics of < 5 year old patients whose outpatient medical records were reviewed**

A Age of patient		Uganda (n=737)	Kenya (n=786)
	Below 2 months old	42% (n=307)	36% (n=283)
	2 to 59 months old	58% (n=430)	64% (n=503)
B Sex of patient			
	Male	51%	55%
	Female	43%	44%
	Not documented	5%	1%
C Diagnosis of patient			
	Non-severe respiratory illness (NSRI) (0-59 months old)	22% (n=162)	24% (n=192)
	Fever (0-59 months old)	40% (n=298)	19% (n=152)
	Malaria (0-59 months old)	22% (n=166)	10% (n=77)
		(n=430)	(n=503)
	Diarrhea (2-59 months old)	39% (n=167)	35% (n=175)
	Pneumonia (2-59 months old)	32% (n=139)	32% (n=160)

**Annex Table 106. Record review results for < 5 patient assessments**

Items recorded	Uganda (n=737)	Kenya (n=786)
Temperature	0%	25%
Weight	25%	22%
Height/Length	3%	11%
Z score/MUAC	4%	4%
Respiratory rate	0%	2%
Presence or absence danger signs/Signs of severe disease	0%	8%
Vaccination status	0%	1%
HIV testing	0%	0%
<b>Classification recorded for the patient</b>		
Severity classification	0%	58%
IMCI classification	47%	50%
<b>Treatment recorded</b>		
Antibiotic prescribed	71%	60%
Justified antibiotic	54%	52%
Evidence-based treatment	28%	38%
Non-evidence-based medication prescribed (if medications are recorded)	50%	73%
<b>Sex of patient</b>		
Male	51%	55%
Female	43%	44%
Not documented	5%	1%

### 3. Observation of child health consultations

**Annex Table 107. Characteristics of observed sick children and providers**

Characteristics of child	Sick infant (0-59 days old)		Sick child (60 days-59 months old)	
	Uganda	Kenya	Uganda	Kenya
Total observations	22	68	145	168
Male	47%	64%	45%	58%
Female	53%	36%	55%	42%
Average age	28.5 days	32.0 days	22.3 months	21.7 months
Symptom/Diagnosis of child	Uganda	Kenya	Uganda	Kenya
Fever	0%	9% (n=6)	96%	65%
PSBI/sepsis	36% (n=8)	12% (n=8)		
Respiratory illness	18% (n=4)	26% (n=18)	62%	60%
Pneumonia	14% (n=3)	19% (n=13)	10%	13%
Malaria			54%	13%
Diarrhea	14% (n=3)	3% (n=2)	41%	42%
Provider characteristics				
Male	55%	16%	56%	22%
Female	41%	84%	44%	78%
Average age in years	45.7	32.8	38.2	32.6
Qualifications				
Non-physician clinician	95%	72%	31%	60%
Clinical officer		28%		40%
Enrolled nurse or midwife	5%		65%	
Ever received training in IMCI	91%	79%	15%	46%
Average months since IMCI training	32.5	44.7	30.8	44.7
Ever received training in possible serious bacterial infection (PSBI)	27%	2%	2%	
Average months since PSBI training	42.4	Na	Not provided	

**Annex Table 108. Observation of management for suspect malaria cases in children < 5 years of age**

Correct management for described condition	Uganda	Kenya
Fever symptom identified	(n=139)	(n=110)
Malaria test, positive	43% (n=60)	19% (n=21)
Malaria test, negative	37% (n=52)	56% (n=62)
Malaria test, results not known	5% (n=7)	3% (n=3)
No malaria test	14% (n=20)	22% (n=24)
<b>Diagnosed as malaria</b>		<b>(n=22)</b>
Fever, test positive	40% (n=56)	16% (n=18)
No fever, test positive	1% (n=1)	
Fever, test negative	9% (n=12)	3% (n=3)
Fever, no malaria test/no results	7% (n=10)	1% (n=1)
<b>Treated with antimalarials</b>		
Fever, test positive and diagnosed malaria	37% (n=52)	8% (n=9)
No fever, test positive, diagnosed malaria	1% (n=1)	
Test positive and not diagnosed malaria	7% (n=10)	1% (n=1)
Test negative	7% (n=10)	
Fever, no test, no diagnosis malaria		1% (n=1)
<b>Additional cases</b>		
Fever, test positive, no diagnosis malaria, no treatment	3% (n=4)	

**Annex Table 109. Education and counselling provided to caregiver of child**

	Patient status	Uganda	Kenya
<b>A</b>	<b>Child diagnosed/prescribed antibiotic</b>	<b>(n=80)</b>	<b>(n=76)</b>
	Explained correct administration of antibiotics	14%	25%
	Demonstrated correct administration of antibiotics	3%	0%
	Gave/asked mother to give 1st dose antibiotic	0%	0%
	Caregiver was asked open-ended questions	0%	1%
<b>B</b>	<b>Child diagnosed/prescribed antimalarial</b>	<b>(n=73)</b>	<b>(n=10)</b>
	Explained correct administration of antimalarial	10%	0%
	Demonstrated correct administration of antimalarial	3%	0%
	Gave/asked mother to give 1st dose antimalarial	0%	0%
	Caregiver was asked open-ended questions	0%	0%
<b>C</b>	<b>Child diagnosed/prescribed ORS</b>	<b>(n=17)</b>	<b>(n=26)</b>
	Explained correct administration of ORS	0%	35%
	Demonstrated correct administration of ORS	0%	12%
	Gave/asked mother to give 1st dose ORS	0%	19%
	Caregiver was asked open-ended questions	0%	0%
<b>D</b>	<b>Child diagnosed with pneumonia</b>	<b>(n=14)</b>	<b>(n=22)</b>
	Adequate follow-up visit (in 3 days) planned for pneumonia	7%	9%
<b>E</b>	<b>All observed patients</b>	<b>(n=145)</b>	<b>(n=168)</b>
	Caregiver advised to give extra fluids*	7%	18%
	Caregiver advised to continue feeding*	6%	17%
	Asked at least one question on mother's health	4%	12%

**Annex Table 110. Additional assessments observed for the sick child**

A	Immunization	(n=145)	(n=168)
	Immunization status assessed by provider	26%	43%
	Fully immunized according to age (by card or observation)	74%	35%
	Up-to-date for Vitamin A supplementation (by card or observation)	20%	16%
B	Antibiotics		
	Antibiotic prescribed	55%	16%
	Among those prescribed an antibiotic, prescription justified according to diagnosis	16% (n=80)	9% (n=15)

**E.**

## F. Adolescent health care

### 1. Provider interview: Adolescent Health Care

Annex Table 111. Services providers report they provide for adolescents

Service category	Specific service provided	Services reported provided by respondent		Use guidelines/job aids for service	
		Uganda (n=28)	Kenya (n=23)	Uganda (n=30)	Kenya (n=23)
Normal growth and pubertal development	Normal growth and pubertal development	68%	57%	46%	39%
	Counseling	54%	52%	43%	39%
	Clinical management	14%	22%	7%	26%
	Referral	4%	13%	4%	17%
Pubertal delay	Pubertal delay information	29%	30%	18%	22%
	Counseling	64%	52%	43%	35%
	Clinical management	18%	17%	7%	17%
	Referral	11%	17%	14%	26%
Precocious puberty	Information	29%	35%	14%	22%
	Counseling	46%	39%	25%	30%
	Clinical management	14%	22%	14%	22%
	Referral	14%	22%	11%	22%
Mental health and mental health problems	Information	21%	26%	14%	13%
	Counseling	25%	35%	14%	30%
	Clinical management	43%	39%	25%	26%
	Referral	50%	30%	14%	22%
Nutrition, including anemia	Information	39%	22%	36%	22%
	Counseling	32%	30%	39%	35%
	Clinical management	50%	57%	11%	39%
	Referral	25%	30%	11%	22%
Physical activity	Information	50%	43%	29%	35%
	Counseling	32%	22%	25%	22%
	Clinical management	11%	17%	4%	26%
	Referral	7%	13%	7%	17%
Adolescent-specific immunization	Information	43%	26%	21%	43%

Service category	Specific service provided	Services reported provided by respondent		Use guidelines/job aids for service	
		Uganda (n=28)	Kenya (n=23)	Uganda (n=30)	Kenya (n=23)
	Counseling	18%	13%	18%	30%
	Clinical management	36%	17%	29%	35%
	Referral	14%	17%	4%	26%
Menstrual hygiene and health	Information	82%	57%	39%	48%
	Counseling	36%	39%	46%	35%
	Clinical management	14%	26%	18%	26%
	Referral	7%	17%	4%	17%
At least one family planning and contraception method – oral contraceptive pills, IUDs, condoms, emergency contraceptive pills, implants, injectable contraceptives	Information	50%	65%	43%	52%
	Counseling	71%	65%	54%	52%
	Clinical management	39%	35%	43%	43%
	Referral	18%	22%	11%	17%
Safe abortion (where legal), and post-abortion care	Information	14%	30%	14%	39%
	Counseling	21%	39%	29%	35%
	Clinical management	50%	48%	43%	43%
	Referral	21%	35%	7%	35%
Antenatal care and emergency preparedness, delivery and postnatal care	Information	36%	39%	29%	35%
	Counseling	36%	48%	39%	30%
	Clinical management	57%	43%	46%	39%
	Referral	25%	39%	18%	30%
Reproductive tract infections/ sexually transmitted infections	Information	36%	65%	21%	48%
	Counseling	39%	57%	36%	57%
	Clinical management	79%	65%	46%	48%
	Referral	21%	26%	4%	39%
HIV	Information	46%	57%	36%	65%
	Counseling	64%	74%	46%	78%
	Clinical management	57%	74%	57%	65%
	Referral	25%	43%	7%	52%
Sexual violence	Information	36%	48%	18%	65%
	Counseling	61%	61%	36%	70%

Service category	Specific service provided	Services reported provided by respondent		Use guidelines/job aids for service	
		Uganda (n=28)	Kenya (n=23)	Uganda (n=30)	Kenya (n=23)
	Clinical management	43%	43%	32%	39%
	Referral	29%	57%	4%	43%
Family violence	Information	39%	43%	11%	39%
	Counseling	61%	70%	36%	43%
	Clinical management	29%	30%	18%	22%
	Referral	11%	48%	11%	35%
Bullying and school violence	Information	32%	43%	29%	39%
	Counseling	54%	61%	29%	52%
	Clinical management	4%	13%	7%	17%
	Referral	14%	26%	11%	30%
Substance use and substance use disorders	Information	36%	43%	21%	30%
	Counseling	43%	70%	36%	52%
	Clinical management	36%	22%	11%	30%
	Referral	21%	39%	14%	39%
Injuries	Information	21%	26%	18%	26%
	Counseling	25%	30%	21%	39%
	Clinical management	82%	65%	43%	30%
	Referral	18%	22%	14%	30%
Skin problems	Information	29%	35%	18%	39%
	Counseling	29%	39%	21%	48%
	Clinical management	82%	70%	32%	43%
	Referral	18%	30%	14%	43%
Chronic conditions and disabilities	Information	25%	26%	14%	26%
	Counseling	32%	48%	25%	35%
	Clinical management	64%	57%	25%	39%
	Referral	46%	43%	21%	26%
Endemic diseases	Information	32%	13%	18%	22%
	Counseling	21%	22%	11%	17%
	Clinical management	75%	48%	39%	26%
	Referral	25%	30%	14%	17%

Service category	Specific service provided	Services reported provided by respondent		Use guidelines/job aids for service	
		Uganda (n=28)	Kenya (n=23)	Uganda (n=30)	Kenya (n=23)
Common conditions during adolescence (fatigue, abdominal pain, diarrhea, headache)	Information	46%	39%	32%	30%
	Counseling	54%	35%	32%	30%
	Clinical management	79%	57%	36%	39%
	Referral	21%	13%	4%	17%
Vaccines advocated/provided	HPV	46%	0%		
	Hepatitis B	36%	4%		
	Tetanus toxoid	71%	13%		

**Annex Table 112. Provider training in adolescent health care**

Topic	Uganda (n=28)	Kenya (n=23)
Communication skills to talk to adolescents	54%	48%
Communication skills to talk to adult visitors/community members	36%	43%
The policy on privacy and confidentiality	36%	48%
Clinical case management of adolescent patients	43%	22%
Orientation on the importance of respecting the rights of adolescents to information and health care that is provided in a respectful, non-judgmental, and non-discriminatory manner	32%	55%
Policies and procedures to ensure free or affordable service provision	21%	35%
Data collection, analysis and use for quality improvement	29%	35%
How confident do you feel about your knowledge of how to provide care to adolescents?		
Confident	54%	86%
Somewhat/not confident	42%	10%
Not confident	4%	5%

**Annex Table 113. Provider knowledge of adolescent health care policies**

Aware of facility policies for the following	Uganda (n=28)	Kenya (n=23)
Which services should be provided in the facility and which in the community	36%	52%
Referral guidelines/standard operating procedures (SOPs)	36%	52%
Policy/SOPs for a planned transition from pediatric to adult care	14%	22%
Guidelines/SOPs on informed consent	29%	48%
Guidelines/SOPs on providing services to all adolescents irrespective of their ability to pay, age, sex, marital status or other characteristics	32%	61%
Guidelines/SOPs on providing free, or affordable, services to adolescents	29%	52%
Guidelines/SOP on measures to protect the privacy and confidentiality of adolescents	32%	52%
Facility policy regarding disclose any information given to or received from an adolescent to third parties, such as family members, school teachers or employers		
We do not disclose it to anybody without adolescent's consent without court order	57%	74%
We provide this information to legal guardians if requested, without seeking adolescents consent	21%	17%
We provide this information for any interested party if they have legitimate interest (e.g., ensure safety of other students)	14%	4%

**Annex Table 114. Provider awareness of issues and experiences with adolescent health**

Topic	Uganda (n=28)	Kenya (n=23)
<b>Awareness of issues related to adolescent health</b>		
Knows of any groups of adolescents in community(ies) that are vulnerable regarding health issues	96%	74%
<b>Ever discussed following with manager/colleagues</b>		
Make working hours convenient for adolescents?	46%	30%
Minimize waiting time?	75%	48%
Provide services to adolescents with or without an appointment?	57%	70%
Did you ever participate in a facility self–assessment of the quality of care provided to adolescents? Do you think the working hours in this facility are convenient for adolescents?	96%	78%
<b>Have you ever trained any of the following</b>		
Outreach workers in adolescent health care?	14%	26%
Adolescents in providing certain services, for example, health education for peers, counseling?	43%	52%
<b>Have you ever involved any of the following groups in these activities</b>		
Adolescents in the planning, monitoring, and evaluation of health services?	25%	22%
Adolescents in any aspects of service provision?	21%	26%
Vulnerable groups of adolescents in the planning, monitoring, and evaluation of health services and service provision?	25%	30%
<b>Have you ever worked with any of the following</b>		
Agencies and organizations in the community to develop health education and behavior oriented communication strategies and materials and plan service provision?	18%	30%
Organizations from health and other sectors (for example social, recreational, legal) to establish referral networks for adolescent clients?	32%	17%
<b>Promoting adolescent health services</b>		
Do you inform adults visiting the health facility about services available for adolescents, and why it is important that adolescents use the services?	88%	87%
Do you have support materials to communicate with parents, guardians, and other community members and organizations about the value of providing health services to adolescents?	46%	64%
Do you inform adolescents about the availability of health, social services, and other services available?	92%	96%
Provider does outreach work	100%	76%
Has plan for outreach activities	83%	
Conducted any outreach sessions with adolescents to inform them about the services available?	18%	39%

Conducted any outreach sessions with adolescents on health education about various topics?	18%	39%
<b>Activities during the last 12 months</b>		
Participated in school meetings to inform parents/guardians and teachers about the health services available for adolescents and why it is important that they use the services?	18%	26%
Participated in meetings with youth and other community organizations to inform them about the health services available for adolescents and why it is important that adolescents use the services?	46%	57%
Did you ever participate in a facility self-assessment of the quality of care provided to adolescents? Do you think the working hours in this facility are convenient for adolescents?	96%	81%

**Annex Table 115. Provider reported routine practices for adolescent friendly health services**

Providers' responses on the specific practices	Uganda (n=28)	Kenya (n=23)
<b>Introduce yourself first to the adolescent</b>		
Always	67%	91%
Most of the time	15%	5%
Sometimes	19%	5%
Never	0%	0%
<b>Ask the adolescent what he/she likes to be called</b>		
Always	41%	41%
Most of the time	26%	18%
Sometimes	22%	18%
Never	11%	23%
<b>Ask the adolescent who he/she has brought with him/her to the consultation?</b>		
Always	42%	59%
Most of the time	35%	9%
Sometimes	12%	18%
Never	12%	14%
<b>Explain to adolescents that are accompanied that you routinely spend some time alone with the adolescent towards the end of the consultation?</b>		
Always	19%	40%
Most of the time	42%	30%
Sometimes	31%	15%
Never	8%	15%
<b>Ask the adolescent permission to ask the accompanying person(s) their opinions/observations?</b>		
Always	33%	50%
Most of the time	26%	9%
Sometimes	33%	23%
Never	7%	18%
<b>Obtain, in cases when an informed consent from a third party is required, the adolescent's assent to the service/procedure?</b>		
Always	40%	45%
Most of the time	24%	27%

Sometimes	32%	18%
Never	4%	9%
Ensure that no one can see or hear the adolescent client from outside during the consultation or counseling?		
Always	63%	68%
Most of the time	30%	14%
Sometimes	7%	9%
Never	0%	9%
Ensure that there is a screen between the consultation and examination area?		
Always	38%	67%
Most of the time	42%	10%
Sometimes	19%	0%
Never	0%	24%
Assure the adolescent client that no information will be disclosed to any one (parents/other) without his/her permission?		
Always	70%	82%
Most of the time	22%	9%
Sometimes	4%	9%
Never	4%	0%
Explain to the adolescent client the conditions when you might need to disclose information, such as in situations required by law, and if that is the case you will inform him/her of the intention to disclose unless doing so would place them at further risk of harm?		
Always	65%	62%
Most of the time	19%	14%
Sometimes	15%	10%
Never	0%	14%
Keep all records/lab test reports under lock and key or password protected if in the computer?		
Always	50%	86%
Most of the time	23%	5%
Sometimes	12%	0%
Never	15%	9%
Asking the adolescent questions about home and relationships with adults?		
Always	54%	50%
Most of the time	23%	32%

Sometimes	19%	18%
Never	4%	0%
Asking the adolescent questions about school?		
Always	56%	64%
Most of the time	26%	14%
Sometimes	15%	14%
Never	4%	9%
Asking the adolescent questions about his/her eating habits?		
Always	30%	36%
Most of the time	26%	14%
Sometimes	37%	41%
Never	7%	9%
Asking the adolescent questions about sports or other physical activity?		
Always	12%	36%
Most of the time	36%	14%
Sometimes	48%	41%
Never	4%	9%
Asking the adolescent questions about sexual relationships? Only adolescents of an appropriate age.		
Always	59%	62%
Most of the time	30%	14%
Sometimes	11%	14%
Never	0%	10%
Asking the adolescent questions about smoking, alcohol, or other substances?		
Always	58%	62%
Most of the time	19%	19%
Sometimes	23%	10%
Never	0%	10%
Asking the adolescent questions about how happy he/she feels, or other questions about his/her mood or mental health?		
Always	42%	57%
Most of the time	15%	5%
Sometimes	35%	29%
Never	8%	10%

**Annex Table 116. Additional information on adolescent health service provision, from service providers**

Services provided to all adolescents regardless of status (ability to pay, marital, etc.)	Uganda (n=28)	Kenya (n=23)
Hormonal contraceptives	68%	48%
Condoms	89%	83%
STI treatment	82%	70%
HIV testing and counselling	93%	91%
Medical termination of pregnancy/abortion [where legal]	18%	30%
<b>Reasons cited for adolescents being denied services in the past year</b>		
Stock-outs	54%	22%
Malfunction/lack of equipment	29%	9%
<b>Vaccines providers routinely screen, counsel, or refer for:</b>		
HPV	46%	0%
Hepatitis B	36%	4%
Tetanoid Toxoid	71%	13%
<b>Early marriage and pregnancy</b>		
Routinely educate adolescents on health and other consequences of getting married early	81%	80%
<b>Consequences provided as an example (for getting married early) (spontaneous)</b>		
Dropping out of school	36%	69%
Early childbirth	50%	31%
More prone to sexually transmitted diseases	45%	44%
At least 2 items from the list were named	55%	44%
Do you routinely educate adolescents on health consequences of having a baby at a young age?	92%	76%
<b>Consequences of having a baby at a young age</b>		
Anemia	8%	0%
Babies with low birth weight	13%	15%
Death of the mother	25%	15%
Difficult labor	33%	46%
Preterm birth	13%	8%
Death of the baby	38%	0%

**Annex Table 117. Service provider knowledge about contraceptives**

Mean effectiveness (5=most effective)	Uganda (n=23)	Kenya (n=17)
Withdrawal (2)	1.5	1.6
Hormonal implants (5)	4.6	4.1
Combined injectable contraceptives (CICs) (4)	4.5	4.1
Standard days method (1)	1.9	2.1
Diaphragm (3)	2.4	3.1
Understanding about true statements for emergency contraceptives		
Statement (CORRECT RESPONSE)	Percent reporting the comment is true	
	Uganda (n=27)	Kenya (n=19)
It is the only method that can help prevent pregnancy after a woman has had unprotected sex (TRUE)	89%	61%
Is safe for regular use (FALSE)	21%	9%
A woman using ECP repeatedly should receive additional family planning counseling to select the most appropriate continuous method (TRUE)	86%	74%
Is ineffective after 36 hours of unprotected sex (FALSE)	43%	9%
Is safe to use in postpartum period (TRUE)	43%	17%
Must be used within 5 days (120 hours) of unprotected sex (TRUE)	29%	43%
It cannot be used in rape victims (FALSE)	21%	17%
Does not disrupt existing pregnancy (TRUE)	54%	39%
Is not safe for a woman living with HIV/AIDS (FALSE)	18%	9%
Cannot be used together with antiretroviral (ARV) medicines (FALSE)	21%	0%

## 2. Client interview: Adolescent Health Care

**Annex Table 118. Responses for all interviewed adolescent clients regardless of services received**

	Uganda	Kenya
Interviewed client information	(n=93)	(n=13)
Average number of visits by adolescent respondents	2.6	4.2
Most recent visit accompanied by		
Self	59%	46%
Parent/guardian	1%	38%
Sibling	0%	0%
Spouse	38%	8%
Friend	1%	0%
No response		8%
	(n=37)	(n=6)
Among accompanied clients, those who reported they did have time alone with health care worker	92%	83%
	(n=93)	(n=13)
Guardian (parent/spouse/ in-laws/other) support adolescent using this health facility	96%	92%
Ever received information, counselling, or health services in the community setting (for example in school, clubs, community meetings)	96%	23%
Services received most recent visit		
ANC	89%	54%
Sick/treatment/medical	9%	46%
No response	2%	
Knowledge of other adolescent services		
Was informed about other adolescent services at any time	13%	38%
Other service topics respondent knows about that are provided for adolescents		
Physical and pubertal development	0%	15%
Menstrual hygiene/ problems	2%	15%
Nutrition	1%	23%
Anemia	0%	15%
Immunization	3%	15%
STIs	6%	15%
HIV	11%	15%
Family planning: Oral contraceptive pill	1%	8%
Family planning: Condoms	1%	23%
Family planning: IUD	3%	0%

	Uganda	Kenya
Family planning: Emergency contraceptive pill	1%	0%
Family planning: Implant	0%	8%
Family planning: Injectables	2%	8%
Antenatal care	4%	31%
Safe delivery	3%	31%
Postpartum care	2%	23%
Safe abortion	0%	15%
Post-abortion care	0%	8%
Dermatology	0%	31%
Mental health	0%	15%
Substance use	0%	0%
Violence	0%	8%
Injuries	1%	15%
Fever	4%	31%
Diarrhea	2%	31%
Malaria	6%	31%
TB	0%	31%
Respondent named at least 2 other services apart from the service sought this visit	10%	38%
During your last visit, has any service provider referred you to another health facility for services not provided here?	4%	0%
Did the provider give you a detailed referral note (stating the health condition, address of the referral, working hours and cost of services)?	100% (n=3)	na
If one day you will need services that are not provided in this facility, do you know where to go, or whom to ask?	76%	38%
<b>Services ever received</b>		
Have you ever been vaccinated for HPV?	25%	8%
If no, did your provider ever counselled about/ referred for HPV vaccination?	10% (n=70)	8% (n=12)
Have you ever been vaccinated for Hepatitis B?	22%	15%
If no, did your provider ever counselled about/ referred for Hepatitis B vaccination?	27% (n=73)	0% (n=11)
If you ever been vaccinated for Tetanoid Toxoid?	73%	69%
If no, did your provider ever counselled about/ referred for Tetanoid Toxoid vaccination?	16% (n=25)	25% (n=4)
Did your provider ever counsel or offer you HIV testing	Not available	0%
If an adolescent in your locality had an unwanted pregnancy, would they know where to go for medical advice?	58%	69%
<b>Conditions during visit today</b>		
Client observed signboard in a language understood that mentioned the operating hours of the facility	13%	31%
Working hours were convenient	91%	69%

	Uganda	Kenya
Reasonably short waiting time ( < 30 minutes)	29%	54%
Curtains in doors/windows so that nobody can see examination	97%	77%
Comfortable seating in the waiting area	95%	85%
Drinking water available	14%	46%
<b>Areas described as clean</b>		
Surroundings	92%	100%
Consultation areas	92%	92%
Toilets, which were functional	80%	85%
<b>Client reported personal interactions with provider</b>		
Talked about how to prevent diseases and what to do to stay healthy	70%	77%
Informed about the services available	13%	38%
Asked questions about home and relationships with adults	18%	69%
Ask questions about school	39%	62%
Ask questions about eating habits	16%	77%
Asked questions about sports or other physical activity	18%	38%
Asked questions about sexual relationships	14%	46%
Asked questions about smoking, alcohol or other substances	34%	31%
Asked questions about how happiness or other questions about mood/mental health	15%	54%
Was treated in a friendly manner	89%	100%
Was respectful of client needs	90%	92%
<b>Privacy and client participation during service provision</b>		
Other person entered room during consultation	15%	23%
Was assured by service provider at the beginning of the consultation that information will not be shared with anyone without client consent	11%	62%
Client feels confident that the information shared with service provider today will not be disclosed to anyone else without consent	81%	85%
Feels health information provided during the consultation was clear and that well understood	91%	100%
Provider asked if client agreed with the treatment/procedure/ solution that was proposed	19%	62%
Client overall, felt involved in the decisions for care. For example, had a chance to express opinion or preference for the care provided, and opinion was listened to, and heard	71%	54%
<b>Issues during visit</b>		
Did not get the desired services because equipment was not available (either the facility did not have the equipment or it was not functional)	23%	0%
Did not get the desired services because of a lack of medicines or other supplies needed for the service	12%	8%
Patient reports they had contact with anyone from support staff (receptionist, cleaning, etc.)	24%	15%

	Uganda	Kenya
Patients with contact with support staff	(n=22)	(n=2)
Among patients with contact with support staff, percentage that feel that support staff were friendly and treated client with respect	86%	100%
Did not get the desired services because equipment was not available (either the facility did not have the equipment or it was not functional)	23%	0%
Did not get the desired services because of a lack of medicines or other supplies needed for the service	12%	8%
Patient reports they had contact with anyone from support staff (receptionist, cleaning, etc.)	24%	15%
Patients with contact with support staff	(n=22)	(n=2)
Among patients with contact with support staff, percentage that feel that support staff were friendly and treated client with respect	86%	100%
<b>General information on services</b>		
Observed informational materials for adolescents, including video or TV, in the waiting area	20%	8%
Liked the informational materials	89% (n=19)	100% (n=1)
Was denied necessary services at this health facility	8%	0%
Has seen a display of patient rights	3%	31%
<b>Rights named by respondent (unprompted)</b>		
Considerate, respectful and non-judgmental attitude	15%	23%
Respect for privacy during consultations, examinations, and treatments	9%	23%
Protection from physical and verbal assault	12%	0%
Confidentiality of information	9%	0%
Non-discrimination	11%	0%
Participation	6%	0%
Adequate and clear information	12%	0%
At least 3 mentioned from the list above	8%	8%
Has you seen a display which mentions that services will be provided to all adolescents without discrimination	4%	8%
Has seen a display of the confidentiality policy?	1%	23%
Today, or in other occasions, client or friends were approached to help staff in working with adolescents in this adolescent clinic/ health facility	6%	8%
Today, or in other occasions, client or friends were approached to help in planning health services, or any activity to improve the quality of services such as surveys, participating in meetings to discuss the quality of care, or any other	3%	0%
Has ideas for how adolescents can get more involved in planning designing and implementing good quality health care in this community	8%	8%

### 3. Adolescent knowledge health literacy

**Annex Table 119. Responses for all interviewed adolescent clients regardless of services received**

Knowledge about anemia (Unprompted responses)	Uganda (n=95)	Kenya (n=15)
Less hemoglobin/ blood	4%	27%
It leads to: Weakness/tiredness	33%	43%
HL1c Loss of appetite	5%	7%
Repeated illness	4%	7%
Slow growth and stunting	3%	7%
# of correct answers	0.5	0.87
HL1 Satisfactory answer (at least 2 items from the list were named)	8%	50%
<b>Knowledge about preventing anemia (Unprompted responses)</b>		
Iron and folic acid tablets	23%	14%
Eat leafy greens	47%	20%
Eat vegetables	20%	27%
Eat meat and liver	8%	7%
Drink milk	6%	7%
Eat eggs	8%	7%
Have a balanced diet	5%	13%
# of correct answers	1.2	0.9
At least 2 methods from the list were named on how to prevent anemia	36%	29%
<b>Name any health or other consequences of getting married very young</b>		
Dropping out of school	17%	43%
Early childbirth	7%	7%
More prone to sexually transmitted diseases	6%	7%
# of correct answers	0.3	0.6
At least 2 items from the list were named	8%	0%
<b>Name any health or other consequences of having a baby at a young age</b>		
Anemia	3%	7%
Babies with low birth weight	2%	7%
Death of the mother	20%	7%
Difficult labor	64%	47%

Preterm birth	4%	0%
Death of the baby	4%	14%
# of correct answers	1.0	0.8
At least 2 items from the list were named	18%	17%
Do you know what is the minimum number of check-ups that a pregnant woman should get? (Four for Uganda)	65%	53%
Know where a girl can go for a check-up		
Government hospital	79%	77%
Adolescent clinic	5%	8%
Health center/office	23%	23%
Adolescent clinic	3%	0%
Private hospital	3%	23%
Other (please specify)	50%	17%
Name any contraceptive methods		
# of modern contraceptives mentioned	2.5	1.7
Condom	12%	57%
Oral contraceptive pills	50%	36%
Emergency contraceptive pills	3%	14%
IUD	40%	0%
Injectables	77%	36%
Implants	64%	21%
Abstinence	7%	7%
AM	1%	0%
Standard days method	3%	0%
Withdrawal	1%	0%
# of correct answers	2.6	1.7
Satisfactory knowledge (At least 3 methods from the list, with at least 2 modern contraceptives, were named)	62%	17%
Do you think you could get one if you needed it?	84%	43%
Have you heard about emergency contraceptive pills?	20%	36%
Do you know what they are used for?	82%	60%
Do you think you could get them if you needed them?	73%	75%
Have you heard about condoms?	96%	93%
Why condoms are used		
For contraception/ preventing pregnancy	74%	77%

Preventing HIV or other sexually transmitted infections	87%	77%
Satisfactory knowledge (both pregnancy and STI prevention is mentioned)	58%	46%
Know where could get condom		
Shop	26%	46%
Pharmacy	17%	15%
Government hospital / clinic/family planning center	78%	62%
Adolescent clinic	13%	0%
Private hospital/clinic/ family planning center	39%	0%
Community volunteer	13%	0%
Auxiliary nurse midwife	0%	0%
Satisfactory knowledge (at least one place is mentioned)	87%	46%
Do you feel you could get a condom if you needed one?	83%	27%
Have you heard of HIV?	98%	100%
Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners?	97%	43%
Can a person reduce the risk of getting HIV by using a condom every time they have sex?	91%	57%
Can a healthy-looking person have HIV?	92%	79%
Can a person get HIV from mosquito bites?	56%	7%
Can a person get HIV by sharing food with someone who is infected?	18%	14%
Correct (all five questions are answered correctly)	33%	36%
If you would want to get tested for HIV, do you know where you can readily get an HIV test?	91%	79%
What care to take each month during the menstrual cycle		
Daily shower	93%	86%
Use soft and clean cloth	12%	29%
Wash cloth with soap and water	21%	14%
Dry cloth in sunlight	7%	0%
Store cloth in clean place	6%	0%
Use sanitary napkins	83%	93%
How to dispose of sanitary napkins	8%	0%
# of correct answers	2.3	2.2
At least two items from the list were named	89%	86%
Have you ever heard of diseases that can be transmitted through sexual intercourse?	97%	57%
Know any symptoms of sexually transmitted infections		

Abdominal pain	20%	43%
Genital discharge	20%	0%
Foul-smelling discharge	8%	0%
Burning pain on urination	14%	0%
Genital ulcers/sores	14%	29%
At least one correct symptom is named	54%	29%
Where self or another same age would you know where to go for a check-up and treatment if had symptoms of STI		
Self-treat	1%	14%
Traditional healer	1%	0%
Adolescent clinic	3%	14%
Government facility	96%	71%
Auxiliary nurse midwife	4%	14%
Private clinic	19%	0%
Satisfactory (at least one health care facility is named)	96%	71%
Understanding what healthy eating means (prompted responses)		
Eating variety of foods	25%	79%
Balanced diet	13%	50%
More green vegetables	72%	43%
More orange vegetables	9%	29%
Getting protein from meat and fish	40%	43%
More beans	35%	36%
More nuts	3%	7%
Whole grain	3%	14%
Fruit	18%	57%
Less animal fat	2%	7%
Less processed food	1%	0%
Less salt	1%	0%
Less added sugar	2%	0%
Other understandings for health		
How many hours of moderate or vigorous physical activity per week to stay healthy?	97%	0%
Could you name the ways how can you can prevent cervical cancer	9%	0%
What age is optimal for HPV vaccination, do not read options, select the closest	3%	0%



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