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TECHNICAL REPORT

Assessment of Non-communicable Disease Prevention, Screening, and Care Best Practices for Women of Reproductive Age in Albania, Armenia, Georgia, and Russia

APRIL 2012

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Kathleen Hill, University Research Co., LLC
Tamar Chitashvili, University Research Co., LLC
Jamie Trevitt, University Research Co., LLC

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DISCLAIMER

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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Abbreviations

ACE-I	Angiotensin-converting Enzyme Inhibitor (anti-hypertensive)
A1C	Glycosylated Hemoglobin or Hemoglobin A1C (blood test used to assess diabetes control over 2-3 month period)
ARB	Angiotensin II Receptor Blocker (anti-hypertensive)
BMI	Body Mass Index
BP	Blood Pressure
CCB	Calcium Channel Blocker (anti-hypertensive)
CME	Continuing Medical Education
COPD	Chronic Obstructive Pulmonary Disease
CVD	Cardiovascular Disease
DALY	Disability-adjusted Life Years
DM	Diabetes Mellitus
E&E	Europe and Eurasia Region
HCI	USAID Health Care Improvement Project
HPV	Human Papilloma Virus
HSPA	Health System Performance Assessment
HTN	Hypertension (high blood pressure)
IHI	Institute of Health Insurance (Albania)
MI	Myocardial Infarction (heart attack)
MOH	Ministry of Health
MOLHSA	Ministry of Labor, Health and Social Affairs (Georgia)
NCD	Non-communicable Disease
NCDC	National Center for Disease Control and Public Health (Georgia)
NHLBI	National Heart, Lung and Blood Institute
NRT	Nicotine Replacement Therapy
PCP	Primary Care Provider
SBE	Self Breast Exam
SSRI	Selective Serotonin Re-uptake Inhibitor (antidepressant)
URC	University Research Co., LLC
USAID	United States Agency for International Development
USPSTF	United States Preventive Services Task Force
VIA	Visual Inspection with Acetic Acid (cervical cancer screening method)
WHO	World Health Organization
WRA	Women of Reproductive Age (15-49 years)

EXECUTIVE SUMMARY

This report summarizes the results of a 2011 assessment, supported by the United States Agency for International Development (USAID), of non-communicable disease (NCD) prevention, screening, and care practices for women of reproductive age (15-49 years) in Albania, Armenia, Georgia, and Russia. Assessment results highlight critical gaps in coverage and quality of high impact services for NCDs—the leading cause of mortality and morbidity in the region. Findings and recommendations generated by this assessment are likely to be relevant to many middle- and low-income countries and to provide important insights for country-level implementation in the wake of the 2011 Political Declaration of the High Level Meeting of the UN General Assembly on the prevention and control of non-communicable diseases (UN, 2011).

In the Europe and Eurasia region, as in every world region except sub-Saharan Africa, NCDs are now the single leading cause of mortality and morbidity, exerting a harsh personal and economic toll on families and governments. Despite the accelerating global NCD disease burden and evidence for the efficacy and cost-effectiveness of NCD prevention, early detection and treatment interventions—considered “best buys” by the World Health Organization (WHO)—there is a stark absence of literature on quality and coverage of high-impact NCD services in low- and middle-income countries. The limited NCD literature in these countries contrasts sharply with the vast literature on NCD service delivery in high-income countries and on HIV/TB, maternal child, and reproductive health services in low- and middle-income countries. On the tail of the September 2011 UN High Level Meeting on NCDs, global, regional, and country stakeholders are rallying to close the “know-do” gap between established “best buy” practices as designated by WHO and their implementation and scale-up in low- and middle-income countries. A solid understanding of NCD service delivery and health system gaps is an essential first step for planning the scale-up of best buy NCD practices. This four-country assessment of ambulatory NCD services for women of reproductive age in the Europe and Eurasia region helps to shed light on what is happening for clients in this region as they interact with the health care system. It highlights service delivery and broader health system gaps and opportunities and concrete actions for scaling up best NCD practices.

Causing 63% of mortality worldwide, 80% of which occurs in low- and middle-income countries, NCDs are projected to cause 75% of all global mortality by 2020 and to be the single leading cause of mortality and morbidity in every region—including sub-Saharan Africa—by 2025 (WHO, 2010). Fully one third of NCD deaths in low- and middle-income countries are premature, occurring before age 60. In 2008, the average NCD age-standardized death rate in low- and middle-income countries was 65% higher for women and 85% higher for men, respectively, than in high-income countries (WHO, 2010). Leading causes of NCD mortality and morbidity for women of reproductive age in the region include breast and cervical cancer, cardiovascular disease, chronic respiratory conditions, diabetes, and mental health conditions (depression and other).

The NCD epidemic delivers a harsh double punch to low- and middle-income countries, already struggling to build basic health systems and control communicable diseases. In addition to the human suffering NCDs impose, they exert a fierce economic toll due to a reduced and weakened workforce and the high costs of care for uncontrolled NCDs for all payers, including governments, insurance companies, and families. Governments and health systems in low- and middle-income settings face the formidable challenge of prioritizing, implementing, and scaling up best buy NCD interventions at population and individual levels. In many low- and middle-income countries, health systems that have historically focused on acute and infectious conditions are poorly prepared to implement high-impact, recurring NCD prevention, screening, and control interventions.

The assessment’s overarching objective was to describe the status of ambulatory high-impact prevention, screening, and care practices for high burden NCDs in women of reproductive age, including the status of essential cross-cutting health system functions necessary for delivery of these

services. High-burden NCDs were targeted based on their mortality and morbidity rank, including Disability Adjusted Life Years among all-cause mortality and morbidity for women of reproductive age in the E&E region. Prioritized NCDs include cardiovascular disease, chronic respiratory conditions (asthma/COPD [chronic obstructive pulmonary disease]), diabetes, breast and cervical cancer, and depression. The first three diseases share common modifiable risk factors, including behavioral risk factors (such as tobacco use and unhealthy diet) and physiologic risk factors (such as high blood pressure and high cholesterol). For each prioritized NCD, the study team undertook a review of the evidence to define high-impact and cost-effective prevention, screening, and treatment interventions for the NCD and its main risk factors. This facility-based assessment deliberately focuses on high-impact *individual* NCD prevention and control interventions, which in combination with *population* best buy NCD interventions, are considered by WHO and other experts to be the cornerstone of an effective global strategy to control NCDs (WHO, 2010).

Assessment methods, standardized across the countries, included semi-structured interviews with selected expert informants (at the national and regional level) and an assessment of NCD services in a representative sample of ambulatory health centers in each country. Sixty-eight expert informants were interviewed from a range of institutions, including Ministries of Health, in-service and post-service medical training institutions, health information officials, and partners. Facility-based quantitative data sources in ambulatory health centers included a chart review; structured questionnaires with clients, managers, and providers; and an inventory of health center inputs and organizational processes. The assessment was conducted in a total of 47 ambulatory centers (in all four countries), selected for a representative sample of urban, rural, primary care, and polyclinic health centers. The team reviewed 658 charts and interviewed 397 clients, 269 providers, and 47 managers. Key results for essential health system functions and NCD-specific practices, including provider and client knowledge and self-reported practice are summarized below and presented in detail in the body of the report.

Assessment results relative to the status of essential NCD health system functions demonstrated variable but generally weak performance. Areas of strength included the availability of a primary care provider recognized by providers and patients, moderately strong availability of essential NCD equipment and laboratory testing capacity, and the practice of regular provider supervision, which was reported by both providers and managers. However, the small proportion of managers (30%) who reported using data of any kind to assess provider performance raises questions about the effectiveness of supervision practices to improve delivery of best practices. Recent deregulation of mandatory continuing medical education for providers in two of the four countries (Armenia and Georgia), as part of health care reforms—combined with low availability of NCD guidelines in clinical care areas and low rates of provider self-reported access to evidence—reveals the weak status of provider support and regulatory functions essential to maintain a minimum level of provider performance.

As in most low- and middle-income countries, NCD health information systems were weak at both the national and service delivery levels in all four countries. National data regarding NCD service coverage and quality and NCD incidence and outcomes were generally limited and considered to be unreliable by most experts interviewed. Clinics evinced little to no use of data to track and improve NCD services. Medical chart organization to promote delivery and standardize recording of high-impact NCD screening and continuity of care was weak for most NCD screening interventions assessed in every country except Georgia.

Interviews with the experts suggested that national interest in NCDs was actively evolving at the time of the assessment in all four countries. However, substantive NCD policy and implementation strategies had yet to be adopted in any of them. Government funding for high-impact NCD services was limited in all countries. Most expert informants and clinic managers reported that government-funded services either did not cover many NCD services or did not cover the *full cost* of NCD services. Stakeholders

repeatedly emphasized lack of financing as a major barrier to provision of more resource-intensive NCD best practices (e.g., mammography screening for early detection of breast cancer).

Assessment results for NCD-specific interventions likewise demonstrated variable but generally weak delivery of high-impact prevention, screening, and treatment interventions for cardiovascular disease (CVD), diabetes, chronic respiratory conditions, high-burden cancers, and mental health. Assessment results highlight many missed opportunities to deliver low-cost NCD interventions that WHO has characterized as “best buys.” Both provider self-reported practice and chart results revealed low rates of screening and follow-up interventions for tobacco use, obesity, physical inactivity, and alcohol use. For example, only 24% of charts across the four countries documented any tobacco use screening (positive or negative), and only a quarter of providers reported to be very confident in providing tobacco cessation treatment. Among CVD risk factors, treatment of high blood pressure (an important CVD physiologic risk factor) demonstrated the strongest performance. However, only 83% of surveyed charts in the four countries documented a blood pressure value within the last 12 months, demonstrating missed opportunities to detect and treat high blood pressure in a fifth of a client sample known to actively use ambulatory health care services.

Chart results for cervical and breast cancer screening interventions were weak, with less than 12% of charts documenting any cervical cancer screening or prevention intervention in the past three years and only 11% of charts documenting a mammogram referral or result for eligible women. Documentation of a woman’s family breast cancer status to enable targeted screening for high-risk women in this resource-constrained setting was less than 5%. Screening, diagnosis, and follow-on interventions for tobacco use and alcohol abuse were generally low, with some intra- and inter-country variability. Despite high levels of client-reported depression, provider and chart results in all four countries demonstrated low provider confidence and low chart documentation of depression diagnosis and treatment interventions with little variation between countries.

For most interventions, low levels of provider self-reported confidence, access to evidence, and knowledge results correlated with low chart documentation of best practices. Not surprisingly, higher levels of provider self-reported confidence for specific interventions tended to correlate with stronger chart documentation of best practices. Providers reported lowest levels of confidence for screening and treating tobacco and alcohol use, diabetes, depression, and cervical and breast cancer, with higher confidence levels reported for treatment of high blood pressure and high cholesterol. Provider self-reported confidence levels to manage specific NCDs correlated to a high extent among all four countries, highlighting specific priority areas for future provider capacity building in the region. With some exceptions, chart, provider, client, and manager assessment results correlated to a high degree, suggesting the robustness of assessment findings. An important weakness identified in the assessment was the variable but generally low availability of NCD-specific evidence and guidelines in clinics (with the exception of hypertension) and the limited access that providers reported to up-to-date evidence sources. Most providers in all countries except Russia reported *no* access to facility-based resources, professional society guidelines, or peer-reviewed journal publications.

Client results demonstrated a solid understanding of tobacco risks among surveyed clients but a weaker understanding of CVD and diabetes risk factors. Only 55-65% of clients answered correctly that diabetes, physical inactivity, and high cholesterol each increase the risk for development of CVD. Client awareness of high-impact screening interventions—such as cholesterol and cervical and breast cancer screening—varied across countries. Clients identified depression as a common problem for women (81%) and self-reported high rates of current or prior depression (37%), but the charts revealed low levels of depression diagnosis and treatment and the providers self-reported low levels of confidence in diagnosing and treating depression. Client results suggest a poor understanding of the chronicity of NCDs such as high blood pressure, including the need for continuous services for their prevention and control. A third of clients across all four countries cited a source other than a provider as the single

most important influence on their medication selection, demonstrating the limits of provider influence on medication selection in a region where medications are generally freely available over the counter and minimally regulated.

Immediate and medium-term recommendations constitute the final section of the report. Many mirror essential elements of the action framework contained in the outcomes document of the 2011 United Nations High Level NCD Meeting. Immediate-term recommendations focus on rapid implementation of demonstrated, poorly performed, best buy, simple NCD interventions combined with client behavior change support. Mid-term recommendations focus on national and regional strengthening of essential NCD health system functions and implementation of more complex NCD interventions. In the short-term, many major gaps in the delivery of best buy interventions could be closed quickly by prioritizing and packaging low-performed, low-cost best buy NCD interventions for rapid implementation in established high-yield services (e.g., ambulatory care, reproductive and maternal health, and HIV and TB services). Implementation strategies for consistent delivery of high-impact NCD interventions for every client are likely to include:

- Redesign of services for maximum efficiency and continuity
- Improved medical record organization and support
- Continuous provider capacity-building and regulation, including focused training, performance-based supervision, and mandatory certification and recertification processes
- Dissemination of “actionable” guidelines and evidence in clinical care areas (e.g., job aids)
- Improved facility health information systems (generation, collection, analysis, and use of data) for continuous improvement
- More efficient use of mid-level providers (such as nurses) to strengthen patient counseling, behavior change communication, and support for patient self-management and engagement in care.

Complementary mid-term recommendations focus on strengthening essential NCD health system functions and implementing more complex NCD interventions (such as breast cancer screening and treatment) as part of a defined country operational plan such as that recommended in the WHO Country NCD Action Plan 2008-2013 framework (WHO, 2008b). Assessment results demonstrate very clearly the specific health system functions that need strengthening. Promising strategies for strengthening low-performing health system functions are described in the final section and include: national policy that prioritizes and finances a minimum package of best-buy NCD interventions tailored to individual country needs and packaged for delivery in specific high-yield service delivery types; a country NCD health information system capable of producing high-quality and meaningful data to guide evidence-based decision-making at local, regional, and national levels (e.g., regular data collection on NCD incidence and mortality, risk factor prevalence, and coverage and quality of priority NCD services); designated funding for NCD interventions prioritized in national policy; proactive provider regulation and continuous capacity-building to achieve and maintain provider competence and motivation; regulation of essential NCD medications, laboratory, and other technologies to ensure precious government and family resources are invested in the highest yield, most affordable medications and technologies; and promotion of client behavior change strategies to empower clients to adopt healthy lifestyles, modify NCD risk factors, and self-manage their NCDs in close partnership with the health system, other relevant sectors, and their communities and families.

I. INTRODUCTION

In the Europe and Eurasia (E&E) region, as in all world regions, non-communicable diseases (NCDs) now account for the highest proportion of disease burden, as infectious disease and maternal child mortality rates decline. Worldwide, NCDs cause 60% of mortality, 80% of which occurs in low- and middle-income countries (WHO, 2010) and are projected to cause 75% of mortality by 2020 (WHO, 2011). As the global burden of NCDs increases, governments and health systems worldwide face the formidable challenge of identifying, prioritizing, and scaling up cost-effective, evidence-based population and individual level interventions demonstrated to reduce the incidence and burden of leading NCDs.

In parallel with the need to prioritize cost-effective intervention packages is a need for sustainable delivery approaches to achieve wide coverage of best practices. Reliable delivery of best NCD practices at scale is hugely challenging in low- and middle-income health systems that have traditionally prioritized acute care and single disease services over health promotion and integrated primary care. The challenge is further compounded in former Soviet countries due to the inherited Soviet legacy of a medical model of highly specialized and hospital-based services. Depending on the specific health care need in the moment, all persons need access to *both* acute and chronic care services.

Most experts agree that effective NCD service delivery is best anchored in a strong primary care service delivery model that can consistently support health promotion, screening for early detection of disease, and evidence-based treatment to control and delay progression of established disease. Health systems that historically focused on acute care conditions and single diseases are ill-equipped to meet the escalating double burden of communicable and non-communicable diseases. Despite a plethora of research that describes NCD service delivery in high-resource countries, there is limited research on the status of NCD service delivery in low- and middle-income countries to guide implementation priorities and strategies. Indeed, there are very few standardized assessment tools to evaluate NCD service delivery in such countries. Nevertheless, understanding the context and specific realities of NCD service delivery in these countries is an essential first step for designing effective strategies to scale up best practices and achieve improved prevention and control of NCDs at country level.

At the request of the United States Agency for International Development (USAID) Europe & Eurasia (E&E) Bureau, the USAID Health Care Improvement Project (HCI) conducted this four-country assessment of NCD prevention, screening, and case management practices in women of reproductive age (WRA, ages 15-49) as part of an E&E regional USAID maternal and child health program design and learning activity.

The assessment's primary objectives were to:

1. Assess high-impact evidence-based NCD prevention, screening, and case management practices for WRA in ambulatory health centers,
2. Assess the status of essential health system functions for supporting effective NCD service delivery (prevention and case management), and
3. Describe provider, client, and manager knowledge, attitudes, and self-reported NCD care and/or practices/behaviors.

A. Epidemiology of NCDs in Women of Reproductive Age in Albania, Armenia, Georgia, and Russia

NCDs now surpass all other causes combined as the leading cause of mortality in every world region, including the E&E region, except sub-Saharan Africa.¹ The World Health Organization (WHO) projects

¹ In sub-Saharan Africa, NCDs are expected to surpass all other causes of mortality combined by 2025 (WHO, 2010).

that deaths from NCDs will increase by 50% by 2030, with the highest burden falling to citizens of low- and middle-income countries. In 2008, the NCD age-standardized death rate in low- and middle-income countries was 565 per 100,000 for females and 756 per 100,000 males—65% and 85% higher, respectively, than for citizens of high-income countries. Age-standardized NCD death rates for both women and men in the E&E region are markedly higher than for same-age counterparts in high-resource settings and are comparable to rates in many low-resource countries (WHO, 2010). The NCD age-standardized death rate for women in the assessment four countries ranges from 561.8 in the Russian Federation to 693 per 100,000 females in Armenia, comparable with rates in many sub-Saharan African countries. The age standardized NCD death rate for men in the four countries ranges from 755 in Albania to 1156 in Armenia, as contrasted with a rate of 419 in France and 458 in the United States (WHO, 2010).

Leading causes of NCD mortality and morbidity in the region include cardiovascular disease (CVD), cancer, chronic respiratory conditions, diabetes, and mental health conditions such as depression. Among women aged 15-44 years mental health or “neuropsychiatric” conditions cause the highest disease burden as calculated by Disability-adjusted Life Years (DALY) (WHO, 2004). In addition to their independent human and economic costs, untreated mental health conditions negatively affect control of NCDs.

Country-level morbidity and mortality data disaggregated by both gender and age are generally not available for the region. For women of all ages in the region, CVD is the leading cause of mortality, followed by breast and cervical cancer, chronic respiratory conditions, and diabetes. Stage of detection and case fatality rates for breast and cervical cancer are much higher for women in the region than in high-resource countries. For example, 51% of breast cancer in Georgia is diagnosed in Stage III/IV. Not surprisingly given the late stage of diagnosis and the low quality of oncology services, the five-year breast cancer survival rate for Georgian women is approximately 43%-53%, as compared with > 70% in European Union countries and > 80% in the United States (MoLHSA and WHO, 2007).

Contrary to popular assumption that NCDs are primarily inevitable diseases of “old age,” approximately one quarter of NCD deaths in women in the four countries occurs prior to age 70 (22% in Albania and Armenia, 26% in Georgia, and 25% in Russia). A full one third to over a half of all NCD deaths in men in the four countries occurs prior to age 70 years (36% in Armenia, 38% in Albania, 47% in Georgia, 55% in Russia), indicating a high burden of premature, preventable NCD mortality for both women and men in the region. In addition to imposing vast human suffering, NCDs impose a harsh economic toll due to increased health care costs, a reduced and weakened workforce, and the sometimes-catastrophic financial effect of out-of-pocket payments for families.

Many NCDs share common, modifiable physiologic and behavioral risk factors that can be targeted simultaneously to reduce the risk for multiple NCDs for maximum economy of effort (e.g., CVD, diabetes, lung cancer). Leading shared behavioral risk factors include tobacco use, physical inactivity, unhealthy eating, and alcohol abuse. Leading shared physiologic risk factors include hypertension, high cholesterol, and obesity. The World Health Organization (WHO) estimates that one third to one half of women in the four assessment countries have high blood pressure (50% of women in Georgia and Armenia, 38% of Albanian women, and 48% of Russian women); one half to two-thirds of women are overweight or obese (61% of Armenian women, 48% of Albanian women, and 63% of Russian women; Georgia data not available); and 2% of Armenian and Albanian women, 4% of Georgian women, and 20% of Russian women smoke (WHO, 2010). Smoking prevalence rates are much higher in men in all four countries, ranging from 38% in Albania to 65% in Russia. WHO estimates that 56% of Russian women and 45% of Albania women have elevated cholesterol (data not available for Armenia and Georgia). Data on prevalence of high blood sugar and diabetes in women specifically are not available in the WHO 2010 report, and data on NCD risk factor prevalence in women of reproductive age specifically are generally not available.

II. METHODS

A. Selection of Priority NCD Screening Practices

High-burden NCDs were selected based on their mortality and DALY morbidity rank among all-cause mortality and morbidity for WRA in the region. The highest burden diseases include CVD, breast and cervical cancer, chronic respiratory conditions (asthma/COPD), diabetes, and depression (WHO, 2009). For each prioritized NCD, evidence was reviewed to define cost-effective, high-impact, individual prevention and screening interventions for cross-cutting, modifiable NCD risk factors and high-impact treatment interventions for established NCDs (WHO, 2008a and 2010; Laxminarayan et al., 2006).

Table I summarizes the high-burden NCDs and high-impact interventions thus identified and evaluated in this four-country service-delivery assessment. Documents reviewed included WHO Burden of Disease (WHO 2008a), WHO Global Health Risks (2009), Europe and Eurasia Health Vulnerability Analysis (USAID, 2010), WHO/Europe European mortality data base (WHO European Mortality Database), U.S. Preventive Service Taskforce (USPSTF, 2009), country-level statistical reports, Demographic and Health and Reproductive Health Surveys, Global NCD Alliance documents, and articles from the three-issue Lancet NCD series, among many others. The Lancet article by Laxminarayan and colleagues (2006) was particularly helpful for prioritizing evidence-based, cost-effective interventions highly relevant for the region's middle-income countries, especially since most NCD literature is geared to high-income settings with less relevance for middle- and low-income settings.

When there was a question about the feasibility and cost-effectiveness of a specific NCD intervention for middle-income countries (e.g., mammography and pap), the intervention was included in the assessment. The 2010 WHO Global Status of NCDs report that prioritizes “best buy” NCD practices was published after the design and completion of the first three country assessments (WHO, 2010). Nevertheless, most best-buy NCD interventions prioritized in that report were included.

Health system functions essential for delivery of NCD best practices were assessed via expert stakeholder interviews and as part of on-site facility assessments. Assessment of health system functions was based on WHO health system building blocks and quality improvement principles. Specifically, the assessment examined the status of national NCD surveillance systems; the quality of medical records and local health information systems, including use of data for decision making at facility, regional, and national levels; provider regulation and support; financing of NCD interventions; availability and rational use of essential NCD medications and technology; and overall organization of NCD health service delivery in terms of efficiency and facilitating delivery of best practices, continuity of care, and patient self-management support.

B. Selection of Ambulatory Health Centers

Standardized sampling criteria were applied for selection of ambulatory health centers in each country with the goal of including as wide a regional representation as possible and a representative mix of urban and rural, private and public, primary and secondary, and partner- and non-partner-supported ambulatory health centers. Criteria for sampling ambulatory health centers in all countries included:

- Minimum of 10 total ambulatory care facilities;
- Maximum geographic representation possible;
- 75% urban and 25% rural;
- Mix of donor, government, and non-government intervention sites when possible;
- Mix of public and private sector sites representative of private-public service delivery mix in individual country; and
- Mix of primary- and secondary-level health care facilities, including primary health clinics and ambulatory care polyclinics.

Table 1. High-burden NCDs and High-impact Interventions

High burden NCDs in adults	Modifiable shared NCD risk factors	NCD prevention & screening interventions	NCD & NCD risk-factor treatment interventions
CVD: myocardial infarction (MI), stroke, heart failure	Tobacco use, alcohol abuse, physical inactivity, HTN, obesity, elevated lipids	Tobacco use Obesity Physical Inactivity High blood pressure Elevated lipids Alcohol abuse	Tobacco cessation HTN treatment CVD risk calculation and targeted CVD risk reduction in high-risk individuals (blood pressure & cholesterol medicine, aspirin) Secondary prevention: aspirin, beta blocker, statin, ACEI
Cancer: breast, cervix, colon, lung	Tobacco Occupational exposure HPV vaccine	Breast: clinical exam & mammography Cervical: VIA, Pap, HPV vaccine Colon: hemocult (+/- colonoscopy) Lung Cancer: tobacco use prevention/ cessation	Treatment of breast, lung & colon cancer with generic chemotherapy agents +/- radiology Treatment of abnormal cervical pathology and established cervical cancer
Diabetes	Obesity Physical inactivity	Obesity: physical inactivity, unhealthy diet Fasting/random blood sugar +/- A1C in at-risk patients	Dietary & exercise counseling HTN, hyperlipidemia Oral agent (metformin) Insulin (when indicated) ACEI (to delay diabetic kidney disease) Regular surveillance and treatment of microvascular complications (feet, eye, kidney)
Chronic respiratory diseases: (asthma/COPD)	Tobacco Obesity	Tobacco use COPD/asthma symptoms (chronic cough, dyspnea, wheezing) Spirometry	Tobacco use cessation Bronchodilator therapy Inhaled steroids for persistent asthma + moderate-severe COPD Environmental & allergic risk factor modification
Mental health: Depression (unipolar and bipolar), anxiety, schizophrenia	Social stressors Alcohol/drug abuse	Alcohol use (type, quantity, & frequency) Drug use (type, quantity, & frequency) Depression questionnaire if any + symptoms	Anti-depressant (SSRI or tricyclic; generic) or referral to psychiatrist Referral mental health counseling Referral substance abuse specialist/program

Note: ACEI: Angiotensin-converting Enzyme Inhibitor; A1C: glycosylated hemoglobin; HPV: human papilloma virus; HTN: hypertension; SSRI: selective serotonin re-uptake inhibitor; VIA: visual inspection with acetic acid; +: positive; -: negative.

A larger proportion of urban sites was intentionally selected so that the sample would be representative of facility services based on population density. In all four countries, urban sites provide care to a larger proportion of the country's population than do rural sites.

C. Data Sources, Collection, and Analysis

Assessment measurement methods in every country included semi-structured interviews with key informants (usually at the national level) and an assessment of NCD services in a representative sample of ambulatory health centers. Expert informants were selected in advance of each country assessment to represent a range of perspectives and in-country institutions, including Ministry of Health (MOH) officials, health information system and financing authorities, academic clinician experts and pre- and in-service educators, regional managers, partners, and other stakeholders. In general, these informants

were interviewed during the first week in each country in tandem with data collector training and pre-testing of tools for launch of the facility assessments in week two.

Data collection methods at the facility level were primarily quantitative, using a common set of data sources and standardized data collection tools across the four countries. Quantitative data sources included five distinct data sources, summarized in Table 2. Given the limitations to assessing service delivery best practices without resource- and time-intensive direct observation (the gold standard), a variety of data sources was deliberately included to capture as rich and accurate a picture as possible of NCD prevention, screening, and care practices in sampled facilities. In addition to quantitative data collection, semi-structured interviews were conducted with health center managers and providers when time allowed. This was not formalized due to time and cost constraints.

Table 2. Data Collection Tools and Sampling Criteria

Data collection tool	Minimum number per facility and other information
Inventory of essential inputs and service organization	1; completed by trained data collector, assisted by Manager and appropriate clinic staff (varied by center)
Chart review	Non-random selection of a minimum of 10 charts of WRA, including when possible of 1-2 cases each of HTN, diabetes, respiratory disease, mental health condition Clinic managers helped to pull charts from a range of facility providers (depending on size of facility).
Manager questionnaire	1; completed by Health Center Manager, assisted by trained data collector for clarification of questions and verification of completeness
Provider questionnaire	As many as possible; 3-4 minimum (except rural sites) - Provider cadres included generalist physicians, family physicians, and internal medicine physicians for the most part. Cardiology, pulmonary, and endocrinology specialists providing comprehensive care in polyclinics were also included as relevant. Providers independently completed questionnaire assisted by data collector when necessary.
Client questionnaire	As many as possible; 5 minimum (when possible) -Clients selected from WRA attending health clinic or accompanying a family member for a clinic visit; clients were typically identified, often with the help of a provider, while waiting to be seen or after a visit with the provider. -Pre-testing demonstrated that it was difficult for many clients to independently complete the written client questionnaire (especially in peripheral regional sites), so clients were directly interviewed by trained data collectors who recorded client responses onto hard copy tools.

The study team solicited feedback on the assessment protocol from each of the four country's USAID Mission staff prior to drafting a first version of assessment tools for pre-testing. All tools were translated and pre-tested in each country before to data collection. In every country, a trained and closely supervised team of content specialist data collectors travelled among selected health centers, spending on average one and a half to two days in each of a minimum 10 facilities. Data were collected onto hard paper tools, entered into an Excel database, then imported into STATA, and then analyzed in STATA. Standard quality assurance processes were implemented throughout all phases of data collection, entry, cleaning, and analysis, including a systematic review of completed tools at the end of each day of data collection and regular cross-checks during data entry, cleaning, and analysis. Individual country assessments were conducted in November 2010 in Georgia; in February 2011 in Armenia; in April 2011 in Armenia; and in July 2011 in Russia. Tables A37-A40 in the Annex list the key informants interviewed in each country, respectively.

D. Ethics Procedures

The study team requested and received Internal Review Board approval from URC prior to data collection in Georgia, the first country (application and approval available upon request). Key ethics procedures are listed below.

Potential risks and measures to minimize risks: The assessment posed minimal risk given that the formative and evaluative assessment components were non-invasive, consisting of anonymous written questionnaires by providers and clients and chart reviews without any identification of individual provider or client information. The risk to participants was minimal given that the questions and topics were within the realm of day-to-day health service delivery and utilization parameters.

Informed consent: All subjects completed a consent form, supported by verbal explanation, before completing any questionnaire or being interviewed. The purpose of the study, procedures involved in it, foreseeable risks and discomforts, benefits that might arise from it, commitment and actions to ensure confidentiality, voluntariness of the study, and persons to contact if the subject should have any future questions about the study were verbally reviewed with each client, manager, and provider asked to complete a questionnaire.

Voluntary participation, confidentiality and data security: As part of the informed consent process, potential study participants were verbally informed that the choice to participate was entirely voluntary. All data collected as part of the study were kept confidential and securely stored with the Senior Country Coordinator. To protect the subject(s) privacy and confidentiality, no data collection instruments (including notes) included the names of participants.

III. REGIONAL NCD HEALTH SYSTEM CONTEXT

Prior to presentation of quantitative facility assessment results in the next section, this section describes in general terms the regional and country NCD health system context. Information in this section is based for the most part on semi-structured interviews with expert informants and review of country- and region-level documents. The health system context discussion is organized around the six WHO health system building blocks: policies and governance, financing, health information systems, human resources, service delivery and infrastructure, and drugs and supplies. In all four countries substantial health reforms have been implemented in recent years and were continuing to be implemented at the time of the assessments. The overall direction and specific elements of health reform varied considerably among the four countries, and it remained unclear at the time of the assessment how the different country reform environments would ultimately influence coverage, quality, and access to high-impact NCD services.

A. Policies and Governance

National interest in NCDs was actively evolving in all four countries during the period of the assessments. However, substantive NCD policy linked to explicit implementation strategies and financing had yet to be realized in any of these countries. In Armenia the MOH with support from the World Bank was, during the March 2011 assessment, in the process of developing an NCD concept paper that emphasized three main areas: tobacco control; emergency care of NCD complications; and improved care for CVD, cancer, and diabetes. However, no implementation plan or financing scheme had been formally developed to support priority strategic directions outlined in the concept paper. Supported by the former USAID Primary Health Care Reform Project, Armenia has defined national guidelines for chest pain, high blood pressure, stroke, heart attack, and diabetes. However, there are limited comprehensive national guidelines for health promotion and prevention of modifiable NCD risk factors.

In 2008 the Ministry of Health and Social Development of the Russian Federation with support by the World Bank issued a “Strategy for Prevention and Control of NCDs and Injuries in the Russian Federation.” This federal level strategy outlines many population and individual interventions and supports specific health promotion and disease prevention interventions in ambulatory health centers, including polyclinics. There are several exciting examples of oblast-level NCD implementation demonstrating solid gains, especially for programs that have received donor support. However, many health system constraints persist that impede country-wide implementation of national NCD prevention and control policy and strategy recommendations, including inadequate financing, lack of empowerment of primary care doctors, general lack of incentives for providers to promote high-impact NCD interventions, and inefficient service delivery organization that often fails to integrate health promotion and disease prevention and treatment services at opportune moments of contact with patients.

The health care system in Georgia has undergone fundamental reforms in recent years focused on privatizing publicly owned health infrastructure and deregulating health care service delivery with the aim of improving the population’s health status by increasing financial and geographic access to high-quality ambulatory and hospital care. At the time of the 2010 assessment, the Ministry of Labor, Health and Social Affairs had recently released a National Health Promotion strategy and had plans to develop a national NCD strategy under the leadership of the National Center for Disease Control. The Ministry considers that the primary care provider should play a central role in screening for and modifying lifestyle risk factors and has developed clinical practice guidelines for routine well person, elderly person, and child health checks. However, despite significant investments in retraining programs and the development of national NCD screening guidelines, little attention has been given to the implementation of guidelines. Many informants expressed concern with the slow translation of national health promotion policy and standards into routine service delivery implementation, citing a lack of provider incentives, supervision and capacity-building mechanisms, and provider and private insurance regulation mechanisms for sustainable implementation of health promotion policy.

In Albania new health laws focused on strengthening coverage and access to high-quality primary health care services, including NCD services, were being enacted at the time of the assessment (February 2011) to codify recent major health care reforms. A basic package of health services mandated for all publicly purchased ambulatory and hospital services had been adopted in 2009. However, articulation of a coordinated national NCD strategy was in the early stages of discussion, including the optimal respective roles of MOH institutions and other stakeholders in defining and operationalizing an eventual national NCD strategy. Implementation of a national cancer strategy was articulated as a high priority by the MOH, and there was active discussion among MOH and stakeholders at the time of the assessment about how best to prioritize cost-effective prevention, early detection, and treatment services for common treatable cancers (e.g., cervical, colon, and breast cancer). The MOH was also considering adopting VIA, a low-cost cervical cancer screening and treatment intervention in lieu of a comprehensive cervical cancer screening strategy based on Papanicolaou smears (due to the lack of pathology capacity outside of the capital). Indeed, in all four countries cancer control policy was defined as a high priority by national experts and MOH representatives and also as a highly challenging policy and implementation area.

Regional providers and managers in all four countries identified access to cancer prevention and treatment services as a critical area of unmet need. Providers in large urban polyclinics and in small rural clinics complained of an inability to effectively screen for breast and cervical cancer due to lack of mammography and cervical pathology services at the regional level. One family physician in a small rural clinic in Albania cited the lack of cancer prevention and control services as the hardest part of her job, describing her sense of failure and pain over the years as she repeatedly witnessed the breast and cervical cancer deaths of mothers in their 40s and 50s—many of whom she knew could have been saved with the right screening and treatment services.

In all four countries, there was general MOH and stakeholder support for the principles of primary health care, considered a cornerstone of effective NCD policy by most global experts. However, despite widespread support for primary health care, including support for the central role of generalist and family physicians for promoting NCD prevention and control interventions, Generalist physicians in all four countries have limited ability to function independently to deliver such primary health care. The Soviet legacy of highly specialized medical care continues to prevail in most ambulatory health centers in the region, especially in multi-specialty clinics. For example, in all four countries a generalist or family physician may not make a diagnosis or begin treatment of many common NCDs (e.g., diabetes, asthma) without an initial diagnosis confirmation and ongoing consultation by a specialist—even for uncomplicated cases that in many countries are managed by mid-level providers. The constrained scope of work of many generalist and family physicians may be less constrained in rural areas where generalist physicians in some cases appear to function more independently to provide an expanded package of NCD prevention, screening, and treatment services. The strongest push-back to an expanded scope of work for generalists and family physicians often comes from specialists, especially in urban polyclinics. The general E&E regional oversupply of physicians, especially specialists, along with the surplus hospital infrastructure as a result of the Soviet era, continues to hamper the resources for and commitment to delivery of comprehensive primary health care as it is implemented in many countries.

For example, in Albania, where there has been a deliberate and gradual shift to promotion of primary health care services, an extensive oversupply of costly hospital infrastructure and surplus of specialists continues. The country's 42 hospitals generally have low occupancy and are not considered by the MOH to be cost-effective, but there is vigorous push-back by specialists and hospital staff to scaling back the number of hospitals. In addition to the oversupply of hospitals in the four countries, expert informants in all four countries highlighted the lack of effective linkages between primary care and hospital services, including the weak continuity of care and coordination between ambulatory and hospital levels of care. Continuity and coordination of care between different health system levels are especially important for improving long-term outcomes in patients with NCDs.

B. Financing

The transition to a market economy from a highly centralized Soviet health-financing model (“Semashko Model”) has challenged the health sector in the post-Soviet countries, further aggravated by the loss of traditional markets. From the Soviet model, in which the country's health care needs were provided by the state, annual per-capita public expenditures for health fell precipitously in all four countries after the collapse of the Soviet Union. While public spending on health has increased in recent years, out-of-pocket expenditures (both formal and informal) continue to represent a substantial percentage of total health expenditures in all four countries, with a negative effect on the use of and access to health care services. The negative impact on health promotion and prevention services is particularly pernicious.

Government and/or private insurance financing of even a basic package of best buy NCD interventions was inadequate in all four countries with respect to both coverage of specific interventions and full financial coverage for interventions that are funded by the government or a private insurer. The lack of adequate financing for NCD services was cited repeatedly by expert informants as a major barrier to achieving widespread coverage of high-impact NCD services.

In Albania, the Institute of Health Insurance (IHI), formed in 1993 to manage public purchasing of health care services, receives 75% of its funds from government and 25% from insured citizens. IHI contracts with 450 health centers throughout Albania to provide services and has recently introduced performance-based incentives for providers (discussed further below). The country has no national budget line item or publicly funded program for NCDs. Despite national screening programs for individual NCDs (e.g., cervical cancer), inadequate funding for most screening tests remains an important barrier to implementation (e.g., according to interviews with expert stakeholders at the time of the assessment the Government reimburses US\$ 2.5 for a pap test, only partially covering the US\$

15-17 cost). Furthermore, the national cervical cancer program primarily consists of “opportunistic” cervical cancer screening for women who visit health care facilities. The reimbursement scheme for most national screening programs does not incentivize or even reimburse providers to conduct more than a fixed number of monthly screening tests, deterring widespread implementation of screening interventions that may be prioritized at the policy level.

In Russia, financing of NCD services is complex and administered at multiple levels of the health system, creating challenges for efficient reimbursement of rendered services by the Russian Federation Public Health Insurance scheme. Despite broad theoretical financial coverage for NCD services under the scheme, interviews with many stakeholders confirmed that most NCD services are under-funded and that the complexity of reimbursement processes acts as a disincentive to provision of high-impact comprehensive NCD services at the local level.

In Georgia, private insurers are emerging as the key owners of health service infrastructure (both in- and outpatient) and as implementers of publicly funded health services for the poor and other target groups. The national Medical Assistance Program for the poor provides a benefit package (primary and specialty ambulatory and hospital services) that is purchased with public funds from private insurance companies. There is continuing uncertainty, however, about whether and how the government will regulate a minimal content and quality of health services in privately owned health care facilities (for example, through performance-based contracting mechanisms, internal/external quality control requirements, accreditation, and others).

Albania and Armenia, are in varying stages of implementing performance-based incentives for primary health services. In Albania, IHI, with the support of donors (including the recently ended USAID-funded primary health care Pro-Shendeti project) introduced performance-based incentives for individual providers. Each may earn up to a 20% bonus based on productivity (10%) and quality of care performance measures (10%). Quality of care measures include indicators related to coverage of high-impact services for specific populations (e.g., first trimester antenatal care visit and health promotion and preventive child care and immunizations for infants) as well as quality of care outcome indicators for high-prevalence NCDs, such as control of HTN and diabetes. Tracking of performance indicators has now been integrated into routine data collection and reporting systems in ambulatory health centers in Albania. However, IHI staff identified multiple obstacles to meeting performance incentive indicators, including weak provider competence, low availability of basic supplies (e.g., lack of HgA1C laboratory capacity to meet the diabetes quality of care indicator), and the inability of local providers and managers to invest MOH resources to improve infrastructure. Although MOH funds may be used for service delivery improvement, including the purchase of equipment and drugs by health care facilities, infrastructure maintenance is the responsibility of municipalities, and many clinics remain in very poor condition.

In Armenia, a national provider incentive-based remuneration plan was being introduced during the February 2011 assessment. The incentive program is based on provider-specific medical record indicators endorsed by the State Health Agency as part of a national pay-for-performance scheme. A review of preliminary selected performance indicators during the period of the assessment revealed that not all indicators were evidence-based (e.g., routine EKG for patients with high blood pressure), demonstrating the importance of careful selection of performance indicators to ensure maximum impact and cost-effectiveness and to prevent inadvertent introduction of *cost-ineffective* performance incentives that create waste and inefficient use of public resources in health care.

At the time of the Russia (July 2011) and Georgia (November 2010) assessments, there was no national performance-based remuneration scheme in place. There was, however, active discussion regarding possible introduction of performance incentives in both countries, including as part of private insurance payment schemes in Georgia.

C. NCD Health Information Systems

NCD health information systems are generally weak in most low- and middle-income countries and are identified as a high priority area for improvement in the outcomes document of the UN High Level Meeting on NCDs (United Nations, 2011). Expert informants in all four countries confirmed the poor quality and general lack of useful NCD data in their countries, including reliable data on NCD incidence, prevalence, and mortality; NCD risk factor prevalence; and coverage and quality of high-impact NCD services. It is hoped that the increasing global focus on and consensus around the need for meaningful NCD indicators will soon help individual countries strengthen NCD health information systems for more effective decision making at all levels. Indeed, WHO has been tasked with proposing a set of core NCD indicators and targets by the end of 2012 as an outcome of the meeting. The 2012 World Health Assembly is expected to review a WHO voluntary NCD monitoring framework, including 5-10 global NCD targets to be achieved by 2025 that would be tracked by WHO every 5 years beginning in 2015. Routine health statistics institutions like the National Center for Disease Control in Georgia and the National Information-Analytical Center of Armenia (within the IHI) offer important institutional capacity to rapidly improve NCD health information systems with appropriate technical leadership and support by global bodies like the WHO. USAID and the World Bank are continuing to provide substantial support for strengthening health information systems in the region as part of health system strengthening platforms. Comprehensive Health System Performance Assessments (HSPAs) have been implemented in many countries in the E&E region in recent years under WHO biennial collaborative agreements with country governments, often with donor support. Several of the country-level HSPAs have specifically examined NCD risk factor prevalence and services. For example, as part of the Armenia HSPA, a representative risk factor survey (including NCD risk factors) is conducted every two years. Georgia's Health Ministry is currently investing in the development of a national health management information system and unified electronic individual patient medical record that will presumably include NCD-specific indicators.

D. Human Resources for NCDs

Unlike most world regions, many E&E countries have a surplus of physicians, and especially specialist physicians, as a legacy of the Soviet era. Many expert informants identified a need for more rationale health workforce planning with regard to both total number and distribution of physician specialties. For example in Georgia, there are as many physicians as nurses due to the oversupply of physicians. In Armenia the ratio of primary care providers to specialists has been steadily decreasing from 0.77 in 2002 to 0.61 in 2008, despite government commitment to building a primary care workforce as a key component of health care reform. Poor stewardship, limited workforce planning and oversight, and a lack of incentives to encourage physicians to pursue primary care careers has contributed to the relatively low levels of primary care providers in most countries in the region.

In addition to a low proportion of generalists and family physicians relative to specialists, the content (and sometimes duration) of pre- and post-service training opportunities for these physicians may be inadequate to build the necessary competencies among physicians to provide high-impact health promotion, NCD prevention and early detection, and high-quality care for established NCDs. For example, in Albania most generalist physicians in ambulatory health centers practice medicine directly out of medical school and have not had a formal family medicine residency program that builds health promotion and disease prevention skills. Interested physicians may elect to pursue an additional post-graduate training in family medicine after a year of required practice as a generalist after graduation from medical school. However, the family medicine specialty is relatively new, and there are few incentives for a generalist physician to pursue further training in family medicine when compared to the more lucrative and prestigious specialties.

In Georgia and Armenia, a combination of family medicine training opportunities exists, including formal residency training for recent medical graduates and "re-training" options for established physicians. A six

to twelve month “Family Medicine” re-training program, focused on high-burden diseases and health promotion practices has been implemented in Albania and Georgia, with USAID and World Bank support. Armenia has two tracks for becoming certified as a family physician: a one-year retraining program and a two-year post-graduate residency. Combined, the two types of training implemented by IHI and the Yerevan Medical State University graduate approximately 10-20 family physicians per year. Both use a Unified Family Medicine curriculum (developed with USAID support in 2003), which includes modules on: cardio-vascular disorders, health promotion and disease prevention, rheumatic disorders, risk monitoring and professional responsibilities, patient health education, behavior change, and mental health, among other topics. In Georgia, recent physician graduates can pursue a state-administered postgraduate residency training in their chosen specialty, including family medicine. Doctors already practicing and certified in general adult medicine and pediatrics or in other medical specialties related to family medicine (gastroenterology, nephrology, pulmonology, cardiology, and rheumatology) can undertake a six-month re-training “mini-residency” to gain a second specialty in family medicine. A performance appraisal of primary care providers in multiple districts (conducted by the Georgian Family Medicine Association in 2008) found serious problems with regard to the quality of family medicine services and the competency of family physicians who had been re-trained as part of a six-month post-graduate training program. Interviews with expert stakeholders and “re-trained” family physicians in Armenia and Georgia, indicate that “re-trained” family physicians often do not feel confident functioning as family physicians and in many cases revert back to their original specialty in daily practice.

Regulation of physicians, including certification and continuing medical education (CME) requirements for physicians, varied across the four countries. Both Russia and Albania mandate CME for providers and support designated institutions to develop and provide such CME. At the time of the assessment, Georgia and Armenia had dissolved prior CME requirements for physicians as part of health care reforms. In Armenia, the only certification requirement was a one-time, “lifetime” certification of health care facilities; certification requirements for physicians had been dissolved. Despite the dissolution of CME requirements in Armenia, the National Institute of Health (NIH) continues to offer regular CME for physicians. As of 2009, the Yerevan State Medical University also recently gained approval by the MOH to offer and certify CME courses. General deregulation of the health sector in Georgia is leading to significant transition in traditional forms of provider regulation, including the dissolution of previous provider CME requirements at the time of the assessment.

In Russia, physicians must gain certification upon completion of medical and residency training and must maintain a minimum of 140 hours of in-service CME every five years. Regional institutes of post-graduate medical education provide CME and oversee provider certification and compliance with CME requirements. In general, a provider’s participation in CME is paid for by his/her employer institution (e.g., polyclinic).

In 2008, Albania formally institutionalized an accreditation and recertification system for providers, pharmacists, and dentists. The program is supported by a newly created MOH Center of Continuing Education charged with overseeing certification and CME for all physicians, including the provision of high-quality CME. In addition to mandating and tracking compliance with CME requirements by individual professionals, the center helps to regulate availability of and to strengthen the role of professional associations to be able to provide high-quality CME. Pharmaceutical-supported CME was recently outlawed in Albania, and the main sponsors of CME are the government and donors. A requirement of 150 hours of CME every five years was being grandfathered in at the time of the assessment, with a requirement for 50% of CME to be specialty-specific for doctors and dentists. CME was not required for nurses or other mid-level providers at the time of the assessment, although MOH officials reported a plan to develop CME requirements for them in the near future.

The role of mid-level providers was fairly circumscribed in all four countries. In ambulatory health centers, nurses tend to work alongside physicians, often sitting directly across the table from the

physician, documenting care in registers and performing other documentation tasks. For the most part they do not provide independent complementary services like patient education, counseling, case management, and self-management support.

The role of professional associations was reported to be fairly weak by expert informants in all four countries. Compared to counterparts in other countries, professional associations play a limited role in provider regulation and performance support, including updating and disseminating specialty guidelines and international evidence to front-line physicians.

E. Infrastructure, Drugs, and Supplies

Constructed during the Soviet era, many health care centers, especially polyclinics, in the region lacked basic, modern amenities such as efficient heating and plumbing systems. Polyclinics tend to be large cement block structures with high ceilings and long hallways punctuated by closed doors leading to rooms that usually co-function as a provider office and patient-care area (individual providers often see patients in a room permanently assigned to the doctor). Buildings are often in poor condition with little to no insulation against the cold. It was not uncommon in rural ambulatory health care centers to see groups of providers clustered around a small central portable heater during the winter.

As in most low- and middle-income countries, drugs (with some exceptions) are generally under-regulated: anyone can purchase almost any medication over the counter. Such lack of regulation makes it difficult to promote use of cost-effective, high-impact NCD medications, including generic medications. In general, infrastructure and supplies related to delivery of high-quality NCD services is fair to poor. For example, many ambulatory multi-specialty health centers lack the capacity to provide cervical cancer screening, to measure a cholesterol blood level, or to measure hemoglobin A1C (A1C), a blood test that measures diabetes control and that has been endorsed by WHO as a best buy diabetes control measure (including in low-resource settings). Assessment results describe the availability of specific NCD supplies and drugs in facilities assessed in each country.

F. Service Delivery

The facility assessment results, next below, describe in detail the specific context of ambulatory service delivery in the four countries. As in most former Soviet countries, ambulatory health services are provided via a combination of polyclinics usually staffed by multiple providers (including generalist and specialist physicians) and smaller primary health centers, often located in more rural areas, that are usually staffed by generalist physicians and sometimes by physician assistants. The results sections below describe assessment results related to delivery of prioritized high-impact NCD interventions and status of cross-cutting service delivery factors, including human resource distribution and support; NCD health information systems; quality improvement processes; financial coverage of NCD services; NCD essential supplies and overall distribution of NCD services, including patient-centered services such as self-management support and patient education.

IV. ASSESSMENT FINDINGS

Assessment findings are summarized in this section, including sample characteristics; findings of the chart review; and findings from the client, provider, and manager questionnaires. Synthesized results across all data sources are presented in Section V.

A. Sample Characteristics

A total of 47 ambulatory health care facilities participated in the assessment, selected according to standard sampling criteria to include a representative mix of rural, urban, public, private, primary, polyclinic, and hospital-based clinics. Table 3 lists facility types by sampling categories.

Table 3. Types of Facilities Sampled, Four Countries

Facility type	Number of facilities (n=47)
Primary health center	28% (13: <i>Albania and Armenia</i>)
Polyclinic (primary & specialty care)	57% (27)
Hospital-based ambulatory center	15% (7)
Rural	31% (11)
Urban	69% (24)
Public	80% (28)
Private	20% (7)

Table 4 summarizes the distribution of urban and rural facilities by facility type, and Table 5 summarizes the distribution of public and private facilities by facility type. Primary care clinics were assessed only in Albania and Armenia, mainly in rural areas, as contrasted to the many urban polyclinics assessed in all countries. Because polyclinics predominate in Georgia and Russia, except for individual practitioner village health doctors (Georgia) and Physician Assistants (Russia), primary care clinics were not assessed in either of these countries.

Table 4. Facility Types by Urban-Rural Category

Facility type	Albania		Armenia		Georgia		Russia	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Primary ambulatory health center	6	3	0	4	0	1	0	0
Ambulatory polyclinic	2	0	5	1	8	3	8	4
Ambulatory clinic in hospital	0	0	1	0	1	0	0	0
Total	8	3	6	5	9	4	8	4

Table 5. Facility Types by Public-Private Category

Facility type	Albania		Armenia		Georgia		Russia	
	Public	Private	Public	Private	Public	Private	Public	Private
Primary ambulatory health center	8	1	5	0	1	0	0	0
Ambulatory polyclinic	1	1	4	1	8	3	12	0
Ambulatory clinic in hospital	0	0	1	0	0	1	0	0
Total:	9	2	10	1	9	4	12	0

The largest proportion of private facilities was in Georgia, where health sector reform is rapidly transitioning state-owned clinics into private clinics, primarily by increasing the number of private facilities owned and administered by private insurance corporations. No private facilities were assessed

in Russia (due to the very small number of private facilities), and only one was assessed in each of Armenia and Albania, mirroring the proportional presence of private clinics in these two countries as compared to Georgia.

Table 6 summarizes sample sizes by data source. Across the four countries, 658 charts were reviewed: 397 clients, 269 providers, and 47 managers completed survey questionnaires; and 47 checklist inventories and structured surveys of facility and service delivery organization were completed by trained data collectors.

Table 6. Data Sources and Sample Sizes

Data source	Total	Albania	Armenia	Georgia	Russia
Facility Inputs & Service Organization Inventory	47	11	11	13	12
Chart review	658	165	166	147	180
Manager questionnaire	47	11	11	13	12
Provider questionnaire	269	61	53	71	84
Client questionnaire	397	72	88	130	107

B. Adherence with NCD Prevention and Care Best Practices: Chart Review Findings

This section describes results of the chart review in all four countries. A discussion of chart results within the broader context of all data source results is included in the results synthesis and discussion in Section V.

I. Chart Review Sample Characteristics

Figure 1 summarizes the age distribution of clients among the 659 charts. Per sampling criteria, only charts of women aged 15-49 were reviewed. Women aged 40-49 represented the largest age group of clients in reviewed charts, followed by women aged 30-39. Because charts were non-randomly selected in each facility to include one or two cases of diabetes, HTN, and asthma (to permit evaluation of quality of case management for these common NCDs), the average client age in the charts was skewed to the higher end of the age range.

Figure 1. Distribution of Client Ages in Chart Review

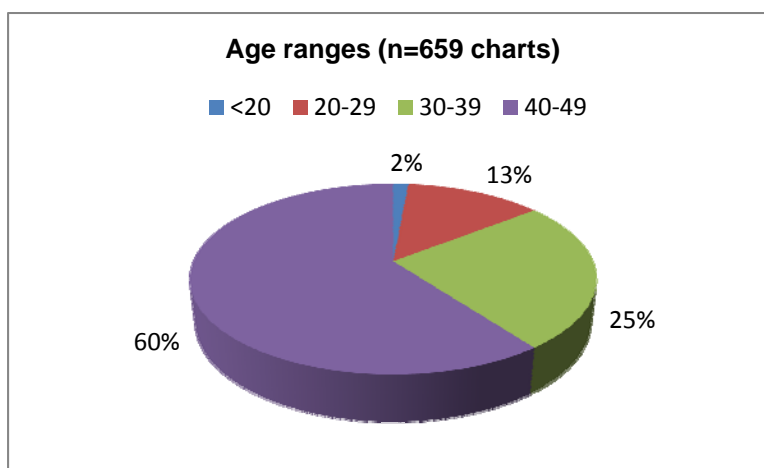
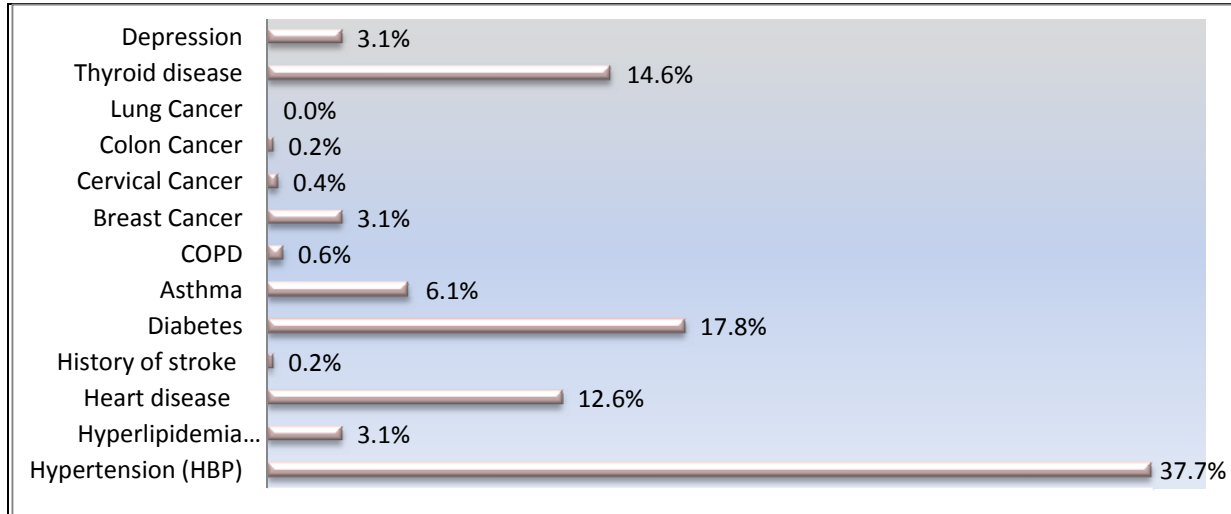


Figure 2 shows the frequency of documented NCDs among all the charts. The most common diagnoses recorded were high blood pressure (38%), diabetes (18%), thyroid disease (15%), and heart disease (13%). Because charts were not randomly selected and because the assessment evaluates women already enrolled in facility-based health care, the frequency of observed NCDs was likely higher than what would have been found in a random sample and was likely higher than would be expected in a population-based assessment. As demonstrated in the presentation of disease-specific results below, weak provider and laboratory diagnostic capacity likely distorted the accuracy of disease diagnosis in charts. Thus, it is unlikely that the disease distribution observed in the chart sample accurately reflects the true disease distribution among patients in assessed facilities.

Figure 2. Frequency of Chronic Diseases in Chart Review (n=658)



2. Standardization of Medical Record for Documentation of NCD Screening Interventions

Figure 3 summarizes the percentage of charts with a designated, standard place to record high-impact NCD screening interventions or information. Less than 30% of charts in Armenia, Albania, and Russia had such place to record alcohol and tobacco use status, mammogram, cholesterol, weight status, and blood sugar. Over 70% of charts in Georgia, Russia, and Armenia had a standard place to record pap results. In general, charts in Georgia were much more likely to have a standard place to record screening interventions than charts in the other countries: depending on the intervention, 60-75% of charts in Georgia had a standard place to record high-impact NCD screening interventions.

Figure 4 indicates the percentage of charts in which a value had been recorded if a designated place to record NCD screening values was provided. Having such place in the chart for a best screening practice appears to support documentation of the practice when it can be implemented with a minimum of inputs. Documentation in a standard place was highest (> 80%) for weight status, alcohol and tobacco use, and clinical breast exam, all of which are low-cost interventions that do not require external inputs. Documentation of cervical cancer screening with pap and of breast cancer screening with mammogram were the lowest of the practices, probably due to inaccessibility of mammography and cervical cancer pathology services in most regions of all four countries. Documentation of cholesterol and blood sugar (or A1C) levels was intermediate (40-70% range), likely due to the general availability of these lab tests in the clinics and their countervailing cost, which may preclude the test for many clients.

Figure 3. Percentage of Charts with a Standard Place to Record High-impact NCD Screening Interventions

(n=147 charts Georgia, 165 charts Albania, 166 charts Armenia, and 180 charts Russia)

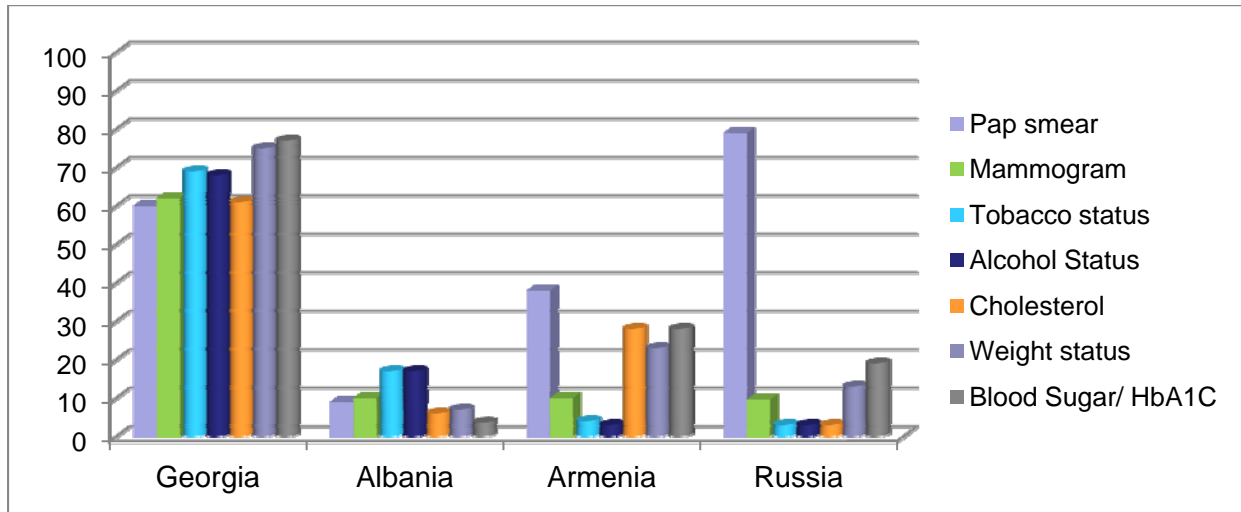


Figure 4. Percentage of Charts with a Standard Place in Which a Value for Screening Had Been Recorded (n=658)

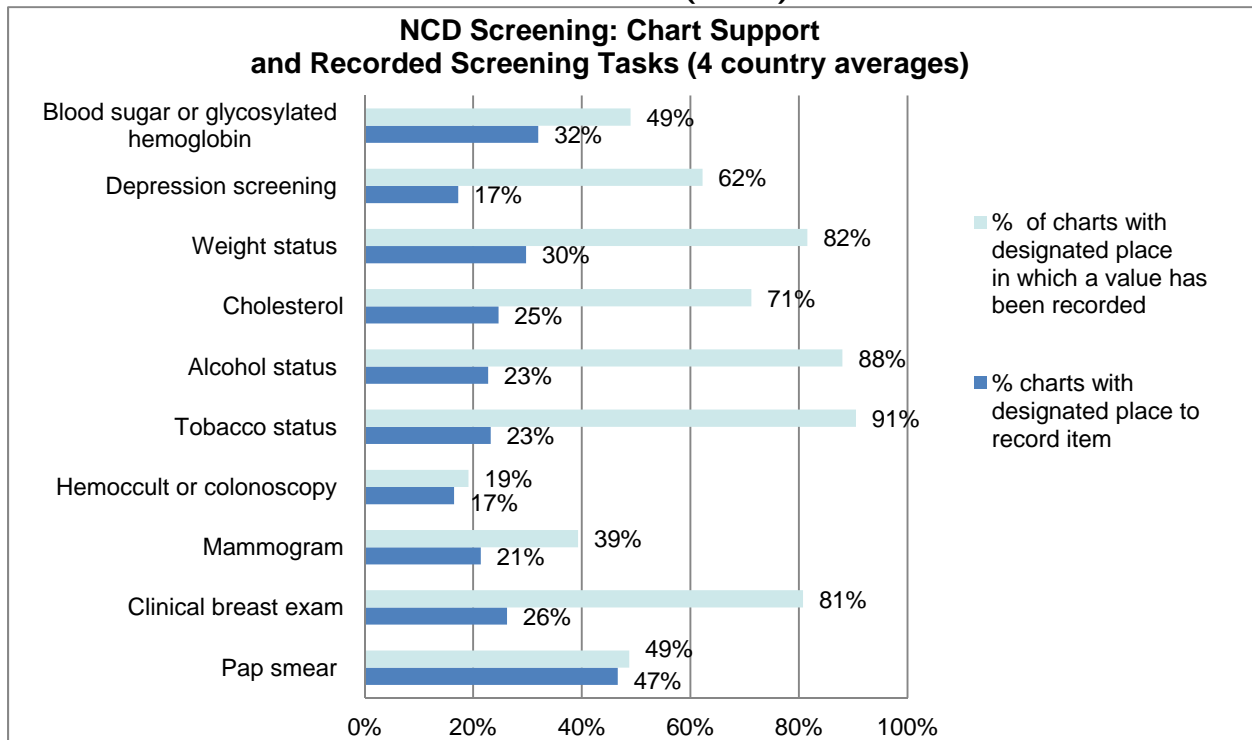
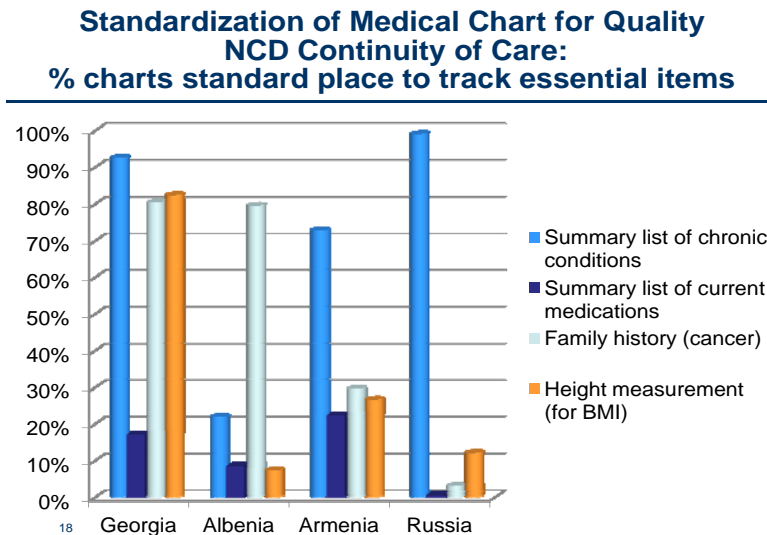


Figure 5 represents charts with a standard place to document selected essential items for high-quality continuity of NCD services. As it shows, over 70% of charts in Georgia, Armenia, and Russia but only 20% of charts in Albania had a designated place to record ongoing chronic conditions. However, in all four countries less than 20% of charts had a standard place to record current medications, an essential factor for providing high-quality NCD chronic care. Over 70% of charts in Georgia and Albania had a standard place to record pertinent family history, while less than 30% of charts in Armenia and less than

5% in Russia had a standard place to record pertinent family history. (See Table A6 in the Annex for sample sizes.)

Figure 5. Percentage of Charts with a Standard Place to Document Essential Items for Quality NCD Continuity of Care

(n=147 charts Georgia, 165 charts Albania, 166 charts Armenia, and 180 charts Russia)



3. NCD Screening and Treatment Chart Review Findings by Specific NCD Category

Nutrition, weight classification, and exercise: Table 7 summarizes chart review results for nutrition, weight and exercise screening and counseling interventions. The percentage of charts that documented best practices varied considerably among countries. Except in Russia (28%) less than 11% of charts in Georgia, Albania, and Armenia documented a weight classification, such as Body Mass Index (BMI) or a general weight classification (e.g., healthy weight, overweight) anywhere in the chart. Close to half of charts in Georgia recorded a weight in the past 12 months; a quarter of charts in Armenia and Russia did; and close to 10% in Albania did. The percentage of charts recording physical activity status was universally low at less than 5%; documentation of dietary and exercise counseling was likewise variable but did not exceed 50% of charts in any country. Table A7 in the Annex shows selected four-country chart documentation results stratified by charts located in rural versus urban clinics. Results were strikingly similar between rural and urban sites in the sample without any statistically significant difference in documentation of best practices between the two types of facilities. There was a trend toward improved chart documentation of weight classification in urban facilities (33%) as compared with rural ones (18%) and of tobacco screening in urban (30%) versus rural facilities (11%). Likewise, as can be seen in Annex Table A8, results were similar for most selected chart review measures when stratified by primary clinics versus polyclinics in both Armenia and Albania (primary clinics not included in sample in Georgia due to low quantities). There was a tendency for weight classification documentation to be stronger in polyclinics than in primary centers in both countries.

Table 7. Nutrition and Physical Activity Screening and Counseling Findings

Weight, nutrition & exercise: screening & counseling	Indicator	% (n) charts with best practice (n=658)				
		4-country Avg.	Albania	Armenia	Georgia	Russia
		Weight screening & nutrition counseling	Weight classification ever recorded (BMI or general classification)	12%	0.6% (1)	11% (18)
	Weight recorded in last 12 months	26%	9% (15)	21% (34)	48% (53)	28% (50)
Exercise screening & counseling	Physical activity status ever recorded	4%	0.6% (1)	0.6% (1)	11% (16)	5% (9)
	Dietary counseling ever recorded	25%	1% (2)	34% (57)	26% (38)	40% (73)
	Exercise counseling ever recorded	12%	0.6% (1)	14% (24)	15% (22)	17% (31)

Cardiovascular disease, including hypertension and hyperlipidemia: Table 8 summarizes chart review results for measurement and management of HTN. The four-country average for the recording of blood pressure (BP) within the past 12 months was 85% of charts. A third of charts documented an elevated BP at least once in the previous three years. The relatively high percentage of clients with elevated BP in this sample of WRA charts is likely due to non-random chart selection since the study team prioritized charts with established NCDs (population-level prevalence studies of high blood pressure in women of all ages in the region show rates of approximately 30-50% [WHO, 2010]; prevalence of HTN among WRA specifically is generally not available due to a lack of disaggregated data by gender and age). In almost 90% of charts (four-country average) with recorded BP > 140/90 and/or a recorded diagnosis of HTN, a BP medication was prescribed as recorded in the chart. Most prescribed agents met evidence-based standards for first-line treatment of HTN as recommended by WHO (WHO, 2007) and the Joint National Committee on the Prevention, Detection, Evaluation and Treatment of Hypertension of the U.S. Department of Health and Human Services (NHLBI 2004).

Table 8 also summarizes the frequencies of specific blood pressure medications documented in charts. Many charts documented prescription of two or three antihypertensive medications per client. The most common classes of prescribed antihypertensive medications were angiotensin converting blocker (ARB) and angiotensin-converting enzyme inhibitors (ACE-I) (41% combined) followed by beta blockers (35%), then diuretics (22.5%; combined thiazide and non-thiazide diuretics), and then calcium channel blockers (21%). In general, ARB and ACE-I are among the most expensive class of antihypertensive medications and require regular monitoring of kidney function (serum creatinine measurement), so it is noteworthy that this class was the most commonly prescribed class of medication observed in charts. Antihypertensive medication selection was not analyzed by co-morbid disease status given the relatively low age and low level of co-morbid medical conditions in this WRA chart sample. Because specific BP measures were not assessed over time in charts, it is not possible to comment on overall BP control. Likewise, it was beyond the scope of the assessment to evaluate correct dosing, laboratory monitoring of HTN treatment, or client adherence with treatment, and so it is not possible to comment on these important factors that influence the quality of HTN care and blood pressure control.

Table 8. Blood Pressure Measurement and Hypertension Management Findings

HTN: Evidence-based screening & prevention practices	Indicator	% (n) charts with best practice (n=658)				
		4-country Avg.	Albania	Armenia	Georgia	Russia
		BP measurement and management	BP recorded within past 12 months	83%	95% (98)	94 % (108)
Treatment of elevated BP	Recorded BP > 140/90 x 2 in past 3 years (all charts reviewed)	32%	37% (61)	47% (78)	25% (36)	19% (34)
	Family history of HTN (positive or negative) ever recorded	16%	18% (29)	8% (13)	33% (48)	6% (10)
	BP medication prescribed if BP > 140/90 x 2 or documented diagnosis of HTN	89.6%	98.5 (64)	92.7 (76)	81.3 (35)	86% (31)
	Categories of anti-hypertensive prescribed (% of patients treated with specific agent)	Thiazide diuretic 10% Non-thiazide diuretic 12.5% CCB 21% Beta-blocker 35% ACE-I/ARB 41.5%	Thiazide diuretic 15.7% (26) Non-thiazide diuretic 4.8% (8) CCB 20.7% (34) Beta-blocker 35.7% (59) ACE-I/ARB 32.9% (54) Other 4.8% (8)	Thiazide diuretic 10.9% (9) Non-thiazide diuretic: 9.7% (8) CCB 39% (32) Beta-blocker 23.4% (19) ACE-I/ARB: 63.4% (52) Other 0% (0)	Thiazide diuretic 3.4% (5) Non-thiazide diuretic 3.4% (5) CCB 11.5% (17) Beta-blocker 13% (20) ACE-I/ARB 21% (31)	Thiazide diuretic 11 % (5) Non-thiazide diuretic 32% (15) CCB: 11% (5) Beta-blocker 68% (32) ACE-I/ARB 49% (23) Other 0% (0)

Note: CCB stands for Calcium Channel Blocker

Table 9 summarizes evidence-based primary and secondary preventions, screening, and treatment of cardiovascular disease (CVD). Less than 15% of charts on average in the four countries, ranging from 5% in Armenia and Russia to 31% in Georgia, recorded family history (+/-, that is, positive or negative) of CVD for targeting interventions to patients at higher risk of this disease due to positive family history. Notably, only a quarter of charts on average documented tobacco use, a primary risk factor for CVD; as for family history documentation, a substantially higher percentage of charts in Georgia documented tobacco use status (69%). With little inter-country variability, less than 5% of charts recorded family history of high cholesterol for targeted screening, and one fifth of charts on average recorded a cholesterol level, ranging from 8% in Georgia to 44% in Russia. Documented treatment (counseling and anti-cholesterol medication) for elevated cholesterol was more variable between countries, with Albania and Russia demonstrating treatment in roughly a third of charts and Georgia and Armenia documenting treatment for established hyperlipidemia in less than 10% of charts. Due to the small sample size documenting prior myocardial infarction (MI or heart attack)—two cases each in Georgia and Armenia—it is not possible to draw conclusions about quality of post-MI and secondary prevention care.

Table 9. Cardiovascular Disease Best Practices

Cardiovascular disease evidence-based screening & prevention	% (n) charts with best practice (n=658)					
	Indicator	Result				
		4-country Avg.	Albania	Armenia	Georgia	Russia
Family history screening Tobacco screening & cessation counseling: see separate Tobacco table	Family history of early coronary artery disease (+/-) ever recorded	15%	18.2% (30)	4.8 % (8)	31.3% (46)	5.5% (10)
	Tobacco use status ever recorded (+/-)	24.8%	17% (28)	1.2% (7)	69% (103)	12% (22)
Hyperlipidemia screening and management Secondary prevention of CVD	Family history of elevated lipids (+/-) ever recorded	4.6%	15.1% (25)	0% (0)	0% (0)	3.3% (6)
	Total cholesterol results ever recorded	22%	34.5% (57)	31.3% (52)	8.8% (13)	44% (80)
	Statin and dietary counseling if + hyperlipidemia documented	22%	43 % (6)	2.3 % (1)	8.3% (1)	33% (6)
	Prior MI ever documented	0.63%	0% (0)	1.2 (2)	1.35% (2)	0% (0)
	Beta blocker prescribed if + history of MI	50% (2/4)	No cases	50% (1/2)	50% (1/2)	No cases
	Aspirin prescribed if + history of MI	100% (4/4)	No cases	100% (2/2)	100% (2/2)	No cases
	ACE-I prescribed if positive history of MI	75% (3/4)	No cases	100% (2/2)	50% (1/2)	No cases

Breast, cervical, and colon cancer screening: Roughly a quarter of charts documented a clinical breast exam (ever) with highest rates observed in Russia (68%) and Armenia (25%) (Table 10). Nearly 10% of charts on average in the four countries documented a mammogram for eligible women over age 40 with highest rates observed in Russia where a fifth of eligible women documented a mammogram result. Documentation of family history of breast cancer to help target screening in a low resource environment was 5% or less in all countries except Albania (10%). Chart documentation of counseling for self-breast exam was observed only in Armenia (25%) and Georgia (14%).

Less than 10% of charts documented cervical cancer screening within the past three years, except in Russia where cervical cancer screening was documented in one third of charts (Table 11). Neither HPV vaccine nor VIA was observed in any country. Given the small sample size of abnormal pap results (due to small number of charts documenting cervical cancer screening), it is not possible to generalize about the quality of management of abnormal pap smears, although results are shown for the seven documented abnormal pap results.

Table 10. Breast Cancer Screening Findings

Breast Cancer Screening Practice	% (n) Charts with best practice (n=658)					
	Indicator	4-country Avg.	Albania	Armenia	Georgia	Russia
Family history assessed	Family history of early breast cancer (+/-) ever recorded	5%	9.6% (16)	5.4% (9)	5.4% (8)	1.1% (2)
Bi-annual clinical breast exam	Clinical breast exam ever recorded	29%	9.1% (15)	24.9% (40)	13.6% (20)	68% (122)
Mammogram (if available) every 1-2 years > age 40, earlier if + family history	Counseling for SBE ever recorded	9%	0.6% (1)	22.2% (37)	13.6% (20)	0% (0)
	Mammogram result in chart if + family history or > age 40	9.5%	0% (0)	0.6% (1)	17.6% (15)	20% (5)

Note: "SBE" stands for self-breast exam.

Table 11. Cervical Cancer Screening and Prevention Findings

Cervical cancer screening prevention practice	% (n) Charts with best practice (n=658)					
	Indicator	4-country avg.	Albania	Armenia	Georgia	Russia
Pap every 1-3 years after onset of sexual activity	Cervical cancer screening (pap) recorded within past 3 years	12%	2.4% (4)	9.0% (15)	5.4% (8)	33% (59)
Management of abnormal cervical cancer screening	Abnormal pap result recorded at any time	1%	0.6% n=1	1.8% (3)	2% (3)	0% (0)
	Colposcopy report in chart if abnormal pap ever recorded	18%	0% (0)	25% (1)	29% (2)	NA
HPV x 3 after age 11	HPV ever administered	0% (0)	0.6% (1)	0% (0)	0% (0)	0% (0)

Note: "NA" stands for not applicable, in this case due to no abnormal Pap.

Due to the reproductive age parameters of the chart sample, colon cancer screening best practices were not applicable (most evidence-based colon cancer screening recommendations begin at age 50). However, screening for a positive family history of colon cancer to identify individuals for targeted aggressive screening is considered a best practice in light of the highly elevated risk of colon cancer in individuals with a first degree relative with colon cancer (especially if diagnosed at a young age). In Albania, 14% of charts, and in Armenia, 9% of charts, documented family history of colon cancer status, whether positive or negative (Table 12). No more than 1% of charts in Russia and Georgia documented family history of colon cancer status (whether positive or negative.)

Table 12. Colon Cancer Screening Findings

Colon Cancer Evidence-based Screening Practices	% (n) Charts with Best Practice (n=658)					
	Indicator		Albania	Armenia	Georgia	Russia
Family history screening	Family history of early colon cancer ever recorded (+/-)	6%	13.9% (23)	9% (15)	1.3% (1)	0.5% (1)
Hemoccult > age 50 (earlier if + family history)	Hemoccult if > age 50	NA	NA	NA	NA	NA
Colonoscopy if > age 50 (earlier if + family history)	Sigmoidoscopy or colonoscopy referral if > age 50	NA	NA	NA	NA	NA

Note: NA in these cases due to no women above age 50.

Tobacco use and chronic lung disease (asthma and COPD): There was considerable variation of documentation of tobacco use status across the four countries, ranging from 2/3 of charts in Georgia to 1% in Russia (Table 13). Follow-on tobacco cessation interventions for smokers were documented in one third of charts in Russia and 12% of charts in Georgia. Documentation of nicotine replacement therapy (NRT), an evidence-based best practice for supporting tobacco cessation was documented in only one chart in Georgia.

Table 13. Tobacco Use Screening and Cessation Treatment Findings

Tobacco use screening & cessation interventions	% (n) Charts with Best Practice (n=658)					
	Indicator	4-country avg.	Albania	Armenia	Georgia	Russia
Tobacco use screening	Tobacco use screening (+/- ever recorded)	25%	16.9% (28)	1.2% (2)	68.7% (101)	12% (22)
Tobacco cessation counseling & treatment	Proportion charts with current positive smoking status	1.7%	0% (0)	0% (0)	3.4% (5)	4% (7)
	<i>Tobacco cessation interventions ever recorded for documented smoker</i>	15%	NA	NA	12.5%	33%
	<i>NRT ever prescribed for documented smoker</i>	3%	NA	NA	12.5%	0%
	Tobacco cessation ever attempted or achieved per chart notation	20%	NA	NA	12.5%	27%

In the total 658-chart non-randomly selected sample, 6% (41 charts) included documentation of a diagnosis of asthma, and 1% documented a diagnosis of COPD, not surprising given the chart sample client age. Preventive (controller) therapy, considered a best buy intervention for persistent asthma, was prescribed in 94% of charts with a diagnosis of asthma and a bronchodilator (rescue) inhaler was prescribed in 86% of charts with such diagnosis. The high rate of prior hospitalization for asthma is striking (46% of charts) and is discussed further in the synthesis results section with regard to possible reasons, including: financial incentives for hospitalization, poor asthma control due to lack of patient adherence with control medications, failure to identify and modify individual patient asthma triggers, and weak provider competence for outpatient management of acute asthma exacerbations. Assessment of environmental triggers, considered a best practice for achieving optimal asthma control, was documented in less than half of charts with asthma.

Table 14. Asthma and COPD Diagnosis and Management Findings

Asthma and COPD interventions	% (n) Charts with Best Practice (n=658)					
	Indicator	4-country avg.	Albania	Armenia	Georgia	Russia
Diagnosis of asthma	% charts with asthma diagnosis	6% (n=41)	7.3% (12)	1.2% (2)	10% (15)	7% (12)
Diagnosis of COPD	% charts with COPD diagnosis	1%	0.6% (1)	1.8% (3)	0% (0)	1.7% (3)
Testing for diagnosis and control evidence-based treatment & screening triggers	Spirometry documented	7%	4.4%	1.2%	9.6%	12% (21)
	Bronchodilator prescribed (+ asthma)	86%	75% (9)	100% (2)	100% (15)	67% (8)
Asthma control	Preventive treatment prescribed (e.g., inhaled Corticosteroid)	94%	83.3% (10)	100% (2)	100% (15)	92% (11)
	Environmental triggers ever assessed	49%	50% (6)	50% (1)	46.6% (7)	100% (12)
	Hospitalization for asthma ever recorded	46%	16.6% (2)	50% (1)	60% (9)	58% (7)

Diabetes: Because evidence does not support routine screening for diabetes except in the presence of symptoms (e.g., excessive thirst) and/or elevated blood pressure, the assessment primarily evaluated quality of diabetes case management as summarized in Table 15. In the absence of routine A1C monitoring in two-thirds of charts, it is difficult to assess overall control of diabetes in charts assessed. However, chart documentation of specific evidence-based care practices provides a general indication of adherence with best treatment practices as documented in charts. Over 90% of charts with a blood sugar value meeting international diagnostic criteria documented a diagnosis of diabetes, although the accuracy of diagnosis could not be confirmed in charts with a diagnosis of diabetes but no glucose measure value.

Almost two-thirds of charts documented administration of short- and long-acting insulin. However, less than half the charts documented the prescription of an oral diabetes medication (Metformin or a Sulfonylurea), a low-cost best treatment intervention for type II diabetes (especially in early stages). Two-thirds of charts documented quantification of urine protein and ophthalmologic assessment for assessment of microvascular diabetes complications (nephropathy and retinopathy). However, it was beyond the scope of this assessment to assess quality of follow-on interventions for diagnosed diabetic kidney and eye disease.

Mental health/depression and substance abuse: Less than 5% of charts in all four countries documented any screening interventions regarding a personal history of depression or current depression or anxiety symptoms including sadness, anxiety, and thoughts about suicide (Table 16). Of charts in all four countries, with a couple of individual country exceptions, 5% or less documented a mental health intervention, including referral to a counselor or psychiatrist, or prescription of an antidepressant. Results are discussed in detail in the synthesis section.

Table 15. Diabetes Screening and Treatment Findings

Diabetes Screening and Treatment Interventions	% (n) Charts with Best Practice (n=658)					
	Indicator	4-country avg.	Albania	Armenia	Georgia	Russia
Screening for diabetes	Family history diabetes status recorded (+/-)	12%	11% n=18	7% n=11	22% n=32	8% (14)
	Blood glucose ever recorded (random and fasting)	44%	45% n=74	36% n=59	31% n=46	64% (116)
	% charts with diabetes diagnosis recorded	16%	18% n=29	16% n=27	20% n=29	9.4% (17)
Diagnosis of diabetes	Diabetes diagnosis recorded in chart if diagnostic criteria met (fasting serum glucose > 126 or random glucose > 200)	92%	92% (22)	100%(24)	87% (13)	89% (17)
	Insulin short-acting ever prescribed if + diabetes mellitus (DM)	58%	54% (15)	33% (9)	64% (18)	82% (14)
Evidence-based treatment & disease control	Insulin long-acting ever prescribed if + DM	59%	54% (15)	37% (10)	64% (18)	82% (14)
	Oral diabetes medication prescribed if + DM	45%	41% (11)	59.2% (16)	44% (12)	37.5% (6)
	A1C result ever recorded if + DM	35%	61% (17)	7% (2)	12% (3)	59% (10)
	Urine protein ever quantified if + DM	63%	14.3% n=4	75% n=24	73% (19)	88% (15)
	Ophthalmology assessment or referral documented if + DM	62%	32% (9)	55.5% (15)	71.4% (20)	88% (15)

Documentation of screening for alcohol use varied among countries, ranging from 18% in Georgia to 0.5% in Russia (Table 17). Except in Albania (8%), less than 1% of charts documented screening for substance abuse (e.g., cocaine, heroin, marijuana). Only one chart in the 658-chart sample documented an alcohol reduction intervention (Georgia).

Table 16. Mental Health Screening and Treatment Findings

Mental Health: Depression, Anxiety Screening, and Treatment	% (n) Charts with Best Practice (n=658)					
	Indicator	4-country avg.	Albania	Armenia	Georgia	Russia
Screening for depression	% charts with diagnosis of depression recorded	2.5%	6% (10)	1% (1)	3% (4)	0% (0)
	Personal depression history recorded (+/-)	0.75%	1% (2)	1% (1)	1% (2)	0% (0)
Screening for anxiety	Documentation questioning re: "feeling sad with duration specified"	1.75%	2% (4)	2% (3)	3% (5)	0% (0)
	Documentation questioning re: anxiety symptoms	3.75%	4% (6)	4% (6)	7% (10)	0% (0)
Evidence-based treatment	Documentation re: suicidal ideation (thoughts or plan)	0%	0%	0%	0%	0%
	Documentation depression screening or diagnostic questions	3.8%	7% (12)	5% (8)	3% (5)	0.5% (1)
	Mental health consultation note or referral to mental health professional (counselor, psychologist, or social worker)	0.75%	1% (1)	1% (1)	1% (1)	0% (0)
	Referral to psychiatrist	5%	12.1% (20)	1.2% (2)	0% (0)	7.3% (13)
	Specified follow up with primary provider for mental health problem	5%	19% (31)	1% (1)	0% (0)	0.5% (1)
	SSRI prescribed	2%	5%	1%	2%	1%
	Tricyclic antidepressant prescribed	1.5%	2%	1%	2%	1%
	Anxiolytic or sedative prescribed (e.g., benzodiazepine)	4.75%	5% (8)	2% (3)	9% (13)	3.4% (6)
	Insomnia medication prescribed	2%	2% (3)	0% (0)	5% (8)	1% (2)
	Psychotropic medication prescribed (e.g., antipsychotic)	3%	12% (19)	0% (0)	0% (0)	0% (0)
	Non-tropic medication prescribed	3%	0% (0)	2% (3)	6.12% (9)	4.49% (8)
	Stimulant medication prescribed	13%	4% (6)	32% (53)	12% (18)	4% (7)

Table 17. Alcohol and Substance Abuse Screening and Treatment Findings

Alcohol & Substance Abuse Screening, Counseling & Treatment Interventions	% of Charts with Best Practice (n=658)					
	Indicator	4-country avg.	Albania	Armenia	Georgia	Russia
Screening for alcohol & substance abuse	Alcohol status ever recorded (+/-)	18%	15% (25)	1% (1)	57% (84)	0.5% (1)
	Positive alcohol use recorded	1.7%	0	0.6% (1)	6% (5)	0.5% (1)
	Substance abuse status ever recorded (+/-)	2%	8% (14)	0.06% (1)	0.06% (1)	0% (0)
Treatment alcohol and substance abuse	Positive alcohol use by screening with documentation of quantity or frequency alcohol use	<i>1 of 1 in Russia</i>	0% (0)	0% (0)	0% (0)	100% (1)
	Alcohol cessation intervention if + alcohol use (e.g., counseling or referral)	6.6%	N/A	0%	20% (1)	0%

4. Distribution of Selected Specialty and Patient Support Services and Availability of Selected Essential NCD Inputs

Table 18 summarizes the distribution of specialty services observed in the 47 clinics assessed in the four countries. Nearly all clinics had generalist physicians (family physician, generalist, internal medicine). Roughly two-thirds of clinics had neurology, cardiology, endocrinology and gynecology specialty services. In addition, 38% had pulmonary specialty services and 38% had oncology specialty services. Interestingly, a fifth of managers reported a psychiatry specialist service in their clinic. On average, 41% of managers reported individual nutrition counseling and education services ranging from a low of 31% in Georgia to 91% in Albania. Patient group education services were reported by 83% of managers in Russia, down to 9% in Armenia.

In general, availability of essential laboratory supplies was moderate with some variability between countries. Except for pap cytology services, A1C, and electrolytes, over two-thirds of clinics on average had availability of selected essential laboratory inputs (Table 19), including creatinine (measure of kidney function), cholesterol, and hemocult (test for blood in stool used as a screening intervention for colon cancer). Clinics in Albania and Armenia had less availability of hematocrit, cholesterol, creatinine, and hemocult than Georgia and Russia where availability of these laboratory tests was generally available in most clinics. Most clinics in all countries had a scale, a blood pressure cuff, and a bedside glucometer (for measuring blood sugar). However, availability of a pulseoximeter (to measure oxygen level and determine severity of conditions like asthma, COPD, heart disease, and pneumonia) was lower, ranging from 50% of clinics in Russia to 9% in Armenia.

Table 18. Percentage of Clinics with Selected Specialty and Client Support Services as Reported by Managers (n=47, Four Countries)

Indicator	4-country avg.	Albania	Armenia	Georgia	Russia
General care	98%	91% (10)	100% (11)	100% (13)	100% (12)
Neurology specialist services	64%	18% (2)	55% (6)	92% (12)	92% (11)
Psychiatry specialist services	21%	9% (1)	9% (1)	15% (2)	50% (6)
Cardiology specialty services	67%	36% (4)	55% (6)	100% (13)	75% (9)
Pulmonary specialist services	38%	18% (2)	36% (4)	54% (7)	42% (5)
Endocrinology specialist services	64%	18% (2)	55% (6)	100% (13)	83% (10)
Oncology specialty services	41%	18% (2)	27% (3)	69% (9)	50% (6)
Gynecology specialty services	76%	55% (6)	64% (7)	100% (13)	83% (10)
Individual nutrition education/counseling	65%	91% (10)	64% (7)	31% (4)	75% (9)
Patient group education/counseling	41%	55% (6)	9% (1)	15% (2)	83% (10)
Diabetes education group	25%	10% (1)	0% (0)	15% (2)	73% (8)

Availability of NCD clinical care guidelines in clinics varied considerably by both specific NCD and country. Availability of hypertension guidelines was observed in over three-fourths of countries, the exception being Albania. Clinical availability of tobacco cessation and treatment and depression guidelines was uniformly less than a third except for tobacco guidelines in Russia (58%). Availability of guidelines for asthma, cholesterol, and cervical cancer was more variable (Table 19). For all NCD categories, Russian clinics had the highest level of availability of guidelines of all countries.

C. Provider Knowledge, Attitudes, and Practices: Findings from the Provider Questionnaire

I. Provider Sample Characteristics

Figure 6 shows the age distribution of the 269 providers who completed questionnaires. Across all four countries, more than 40% of providers were over the age of 50 with the age range of 50-59 being the most common. Comparing the four countries, the distribution is relatively similar (Table A22), with the largest contrasts being that Georgia has no providers in the youngest group (20-29 years) and Russia has a significantly larger percentage of providers in the oldest group (19%, 60-70 years).

Table 19. Percentage of Clinics Having Selected Essential NCD Laboratory Services, Equipment, and Guidelines (n=47, Four Countries)

Essential NCD Input	4-country avg.	Albania	Armenia	Georgia	Russia
LABORATORY TESTING					
Hemoglobin or hematocrit	86%	45% (5)	100% (11)	100% (13)	100% (12)
Serum glucose (blood glucose)	86%	45% (5)	100% (11)	100 % (13)	100% (12)
A1C	40%	18% (2)	45% (5)	31% (4)	67% (8)
Total cholesterol	68%	27% (3)	82% (9)	62% (8)	100% (12)
Creatinine	71%	36 % (4)	55% (6)	92% (12)	100% (12)
Pap cytology	44%	18% (2)	45 % (5)	38% (5)	75% (9)
Hemocult (to check for blood in stool)	68%	45% (5)	36% (4)	100% (13)	92% (11)
Electrolytes (e.g., potassium)	55%	18% (2)	18% (2)	85% (11)	100% (12)
Urine protein	77%	18% (2)	91% (10)	100% (13)	100% (12)
EQUIPMENT					
Pulsoximeter	26%	20% (2)	9% (1)	23% (3)	50% (6)
Blood pressure cuff	100%	100% (11)	100 % (11)	100% (13)	100% (12)
Glucometer	89%	91% (10)	82% (9)	92% (12)	92% (11)
GUIDELINES					
Hypertension	72%	36% (4)	73% (8)	7% (10)	100% (12)
Management hyperlipidemia	37%	9% (1)	27% (3)	46% (6)	67% (8)
Tobacco use screening & treatment	28%	18% (2)	27% (3)	8% (1)	58% (7)
Cervical cancer	55%	27% (3)	64% (7)	38% (5)	92% (11)
Depression	17%	9% (1)	9% (1)	15% (2)	33% (4)
Asthma	50%	9% (1)	45% (5)	54% (7)	92% (11)

Figure 6. Provider Self-reported Age Distribution (n=269)

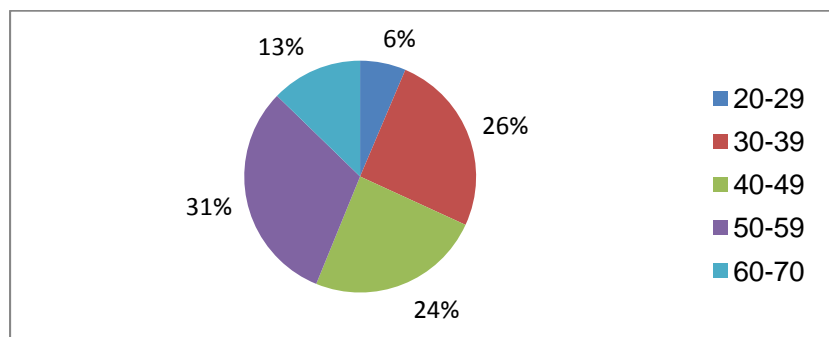


Figure 7 summarizes the specialty distribution of the 269 providers completing the questionnaire. Nearly a third were internal medicine physicians. Family medicine physicians made up just over a quarter of the sample and generalists just under a quarter. The four countries, however, differ significantly in their specialty distributions. Notably, in both Albania and Armenia generalist physicians make up nearly half of all providers, and only 2% are internal medicine physicians, compared to Georgia and Russia where only 6% of physicians are generalists, but more than half are internal medicine physicians.

Figure 7. Provider Specialty Distribution (n=269 Providers)

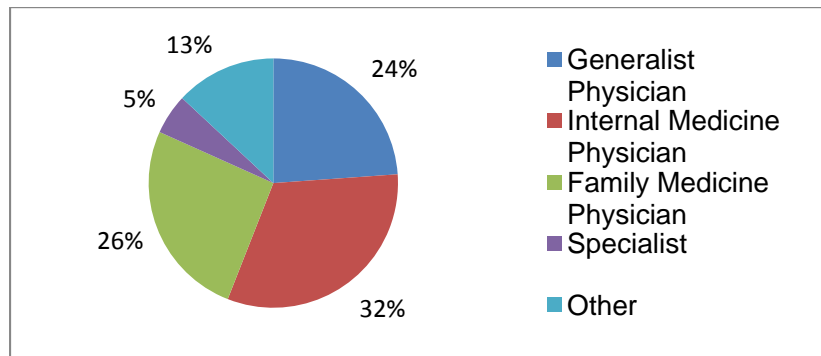
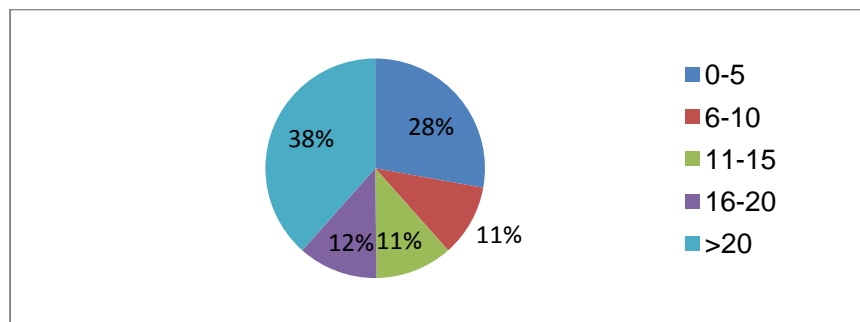


Figure 8 shows that more than a third (38%) of all providers across the four countries reported having completed their medical training more than 20 years ago, but at the other extreme, more than a quarter (28%) reported completing it within the last five years. A closer comparison reveals that Armenia has a very different distribution than the other three countries. While Albanian, Georgian, and Russian providers most frequently reported that they completed training more than 20 years ago, Armenia had zero providers in this category. In contrast, 89% of Armenian providers reported having completed training within the last five years.

Figure 8. Provider-reported Years since Completion of Clinical Training (n=269 Providers)



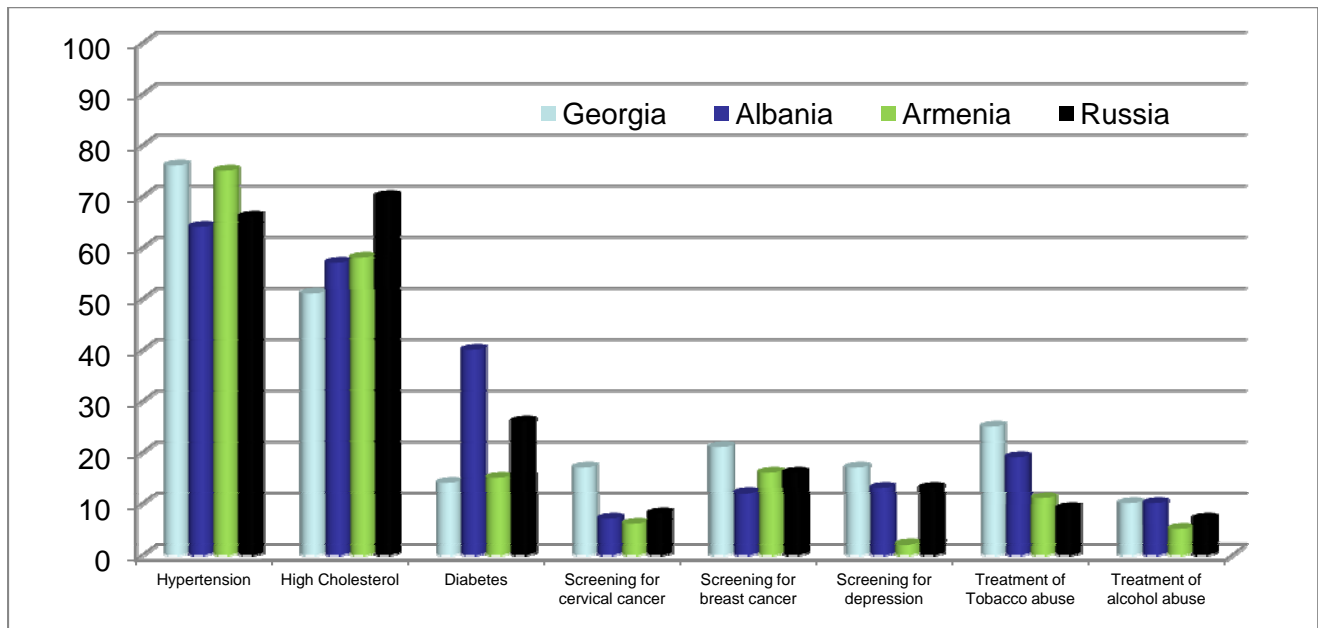
2. Provider Self-reported Confidence, Access to Evidence, and Participation in CME

Provider-reported CME in the past three years on average across all four countries was highest for HTN (74%), heart disease (65%), diabetes (55%), COPD (55%), and asthma (51%), but considerably lower for cancers, depression (30%), tobacco (32%), and alcohol use (26%) (Annex Table A25). On average, 13% of providers reported no CME in the last three years. Russia consistently stands out with considerably lower percentages than the other countries for each CME category.

In general, across all four countries average provider self-reported confidence in managing specific NCDs and average provider self-reported participation in recent NCD-specific CME courses was positively correlated in regard to specific NCDs. For example, the average percentage of providers highly confident in managing HTN (72%) is relatively high, as is recent participation in HTN CME (74%) (Annex Tables A25 and A26). Conversely, a very small percentage of providers (14%) on average

reported being highly confident in screening for cervical cancer, and participation in cervical cancer CME was quite low (29%). Figure 9 shows that provider self-reported confidence for managing specific NCDs correlates to a surprisingly high degree across the four countries with providers reporting most confidence for managing HTN and high cholesterol and lowest confidence (< 30% providers) for managing diabetes, depression, cervical and breast cancer screening, and alcohol and tobacco use screening and care.

Figure 9. Percentage of Providers Who Report Being Very Confident in Managing Specific NCDs (n=269)



Considering the four-country average reveals that providers reported that pre-service training (82%), national (81%), and CME guidelines had the most relative influence of all evidence sources. However, on average, more than half of providers reported having no access to facility-specific guidelines; more than a third reported no access to professional society guidelines; and roughly a fifth (18% and 21%, respectively) reported no access to international guidelines and journal articles. Providers in Russia consistently reported the most access to evidence sources, while in all but two categories Georgian providers reported the least access to evidence (Table A28 in the Annex).

3. Provider Knowledge Questions

Although provider knowledge is generally a weak measure of provider performance and the assessment was not designed to assess provider knowledge in depth, the provider questionnaire did include several knowledge questions. In the knowledge portion, a single multiple-choice question was posed for each major NCD category. For each country, an average percentage of questions answered correctly for each NCD category question was calculated. The four-country average for the percentage of providers who correctly answered a knowledge question ranges from a low of 39% for “cervical cancer screening guidelines” to a high of 64% for “management of myocardial infarction” (Annex Table A29). When stratified, there were generally not any statistically significant differences between urban and rural providers or specialists and primary care providers. Georgian providers had the highest percentage of correct answers in all but two of the NCD categories. However, except for one question, no more than two-thirds of Georgian providers answered any single question correctly. The fact that in general the average percentage of providers who answered NCD questions correctly hovers near 50% or less calls into question basic provider knowledge to diagnose and manage the NCDs for which knowledge questions were posed.

4. Provider Attitudes

Provider responses to statements exploring provider attitude (and client attitudes and practices) are summarized in Tables A30 and A31 of the Annex. Overall, the four-country averages reveal that providers generally agreed with and had positive responses to specific NCD best practices. On average providers “agreed” that “clinical training prepared them to adequately manage chronic disease” (80%), that “doctors can influence whether a patient successfully quits smoking” (87%), that they are “able to spend time to provide good medical care for patients with chronic diseases” (79%), and that “patients receive better care for chronic medical conditions if they have a designated PCP [primary care provider]” (87%). In contrast, the four-country average for provider affirmation that “there are no effective depression treatments that can be provided by a primary care physician” was 37%.

D. Client Knowledge, Attitudes, and Practices: Findings of Client Questionnaire

This section summarizes results of the questionnaire administered to 397 clients in the 47 ambulatory health centers assessed.

I. Client Sample Characteristics

Figure 10 shows the age distribution of clients across all four countries. Only 4% were age 15-19, with the older groups each sharing roughly a third of the client sample. Comparing the four countries makes Georgia and Armenia stand out for having a significantly larger percentage of the client sample over age 40 (43% and 40%, respectively).

Figure 10. Client Self-reported Age Distribution (n=394 Clients, All Countries Combined)

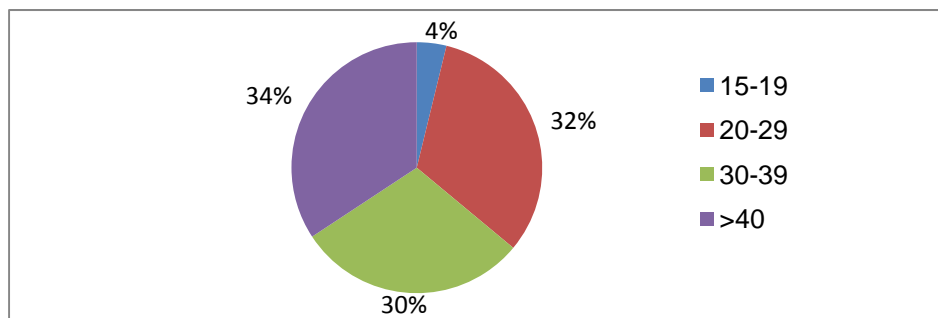


Figure 11 shows the distribution of clients’ highest level of education. More than 90% had at least a secondary education and two-thirds had greater than a secondary education. While this distribution is relatively consistent with individual countries’ distributions, Albania had a larger proportion of clients with only a primary education (26%) and a smaller portion with professional schooling (13%). Russia also differs with a smaller portion having only a secondary education (14%), but more that have professional schooling (44%).

Figure 11. Client Self-reported Highest Education Level (n=397 Clients, Four Countries Combined)

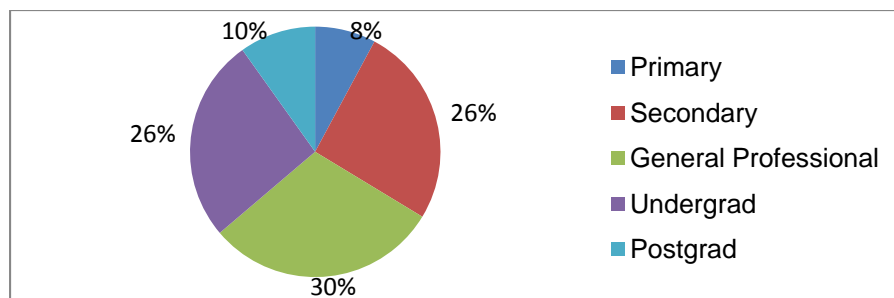


Figure 12 shows the employment status of clients across all four countries. More than half were unemployed, while a quarter worked in the public sector. Based on individual country data, Albania, Armenia, and Georgia had roughly similar distributions to the combined distribution. In contrast, Russia had significantly fewer clients unemployed (21%) and more were employed in the public sector (47%).

Figure 12. Client Self-reported Employment Status (n=397 Clients, Four Countries Combined)

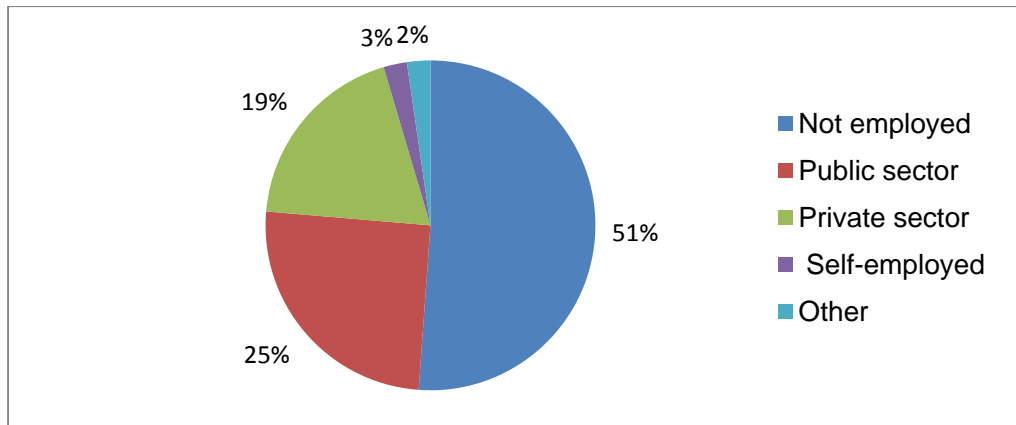
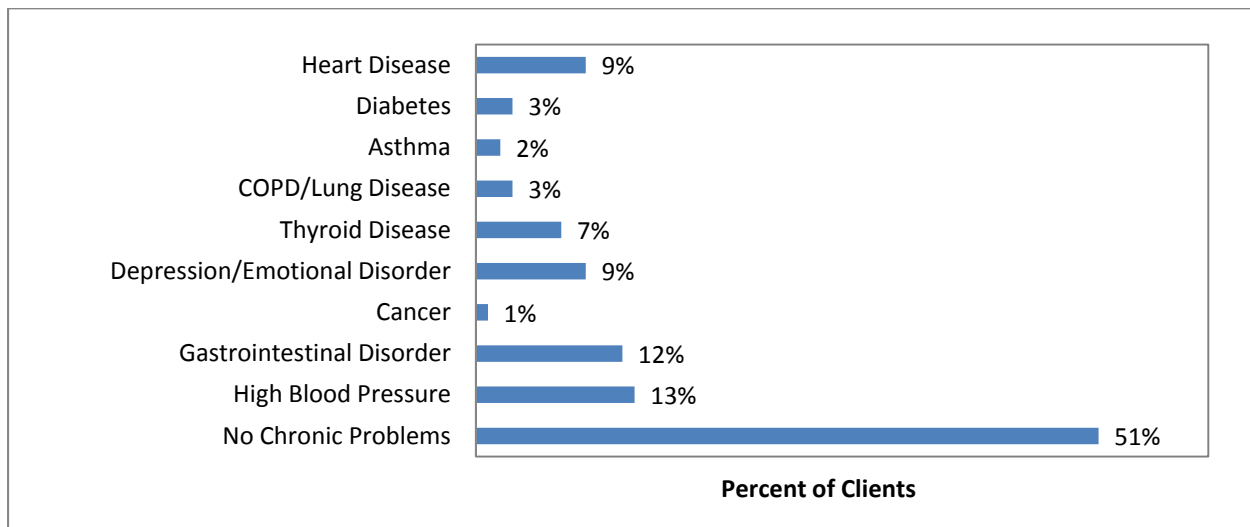


Figure 13 illustrates the prevalence of chronic conditions clients reported. More than half reported no long-term chronic condition. The most prevalent conditions were high blood pressure (13%) and gastrointestinal disorders (12%). In Albania, more than 70% of clients reported no chronic problems.

Figure 13. Client Self-reported Chronic Conditions (n=397 Clients, Four Countries Combined)



2. Client-reported NCD Risk Behaviors and Receipt of Prior NCD Services Categorized by NCD Category

Table A30 in the Annex summarizes client-reported practices and client-reported receipt of specific NCD services at any prior time and contrasts these with provider-reported practices. Key findings of client results are summarized below, highlighting common trends and differences observed among the four countries.

Nutrition and exercise: Based on four-country averages, 46% of clients reported exercising at least twice a week, 53% reported an attempt to increase physical activity in the past, and 51% reported having ever tried to lose weight.

Cervical and breast cancer screening: More than a third of clients reported never having heard of a pap smear, and only 35% had ever had one. This is consistent with the fact that 38% of providers reported not having been trained for cervical cancer testing. However, the client averages obscure a wide range across the countries. At one extreme, only 3% of clients in Russia reported never having heard of a pap smear, and accordingly a full 90% there reported having had one. At the other extreme, 68% of clients in Georgia reported never having heard of a pap smear, and only 14% of the 32% of clients who had ever heard of a pap test reported having had the test.

In terms of breast cancer screening, the average across all four countries for clients who had ever had a breast exam was only 44%, but 85% had heard of a mammogram. On average across all four countries, 18% of facilities had no access to mammogram equipment, with facilities in Albania and Georgia being less likely to have it at 36% and 27%, respectively.

Cholesterol screening: On average across the four countries, 31% of clients reported ever having a cholesterol test. However, it is important to note that based on provider reports in Georgia (76%), Albania (52%), and Armenia (90%), most clients are screened only if they are positive for risk factors. Russia was the exception where only a third of providers reported screening only when risk factors were present.

Tobacco use: Across all four countries the average percentage of clients that reported tobacco use was 10%, but the individual country statistics show that smoking prevalence is quite low in Albania (6%) and Armenia (2%), slightly higher in Georgia (12%), and highest in Russia (21%).

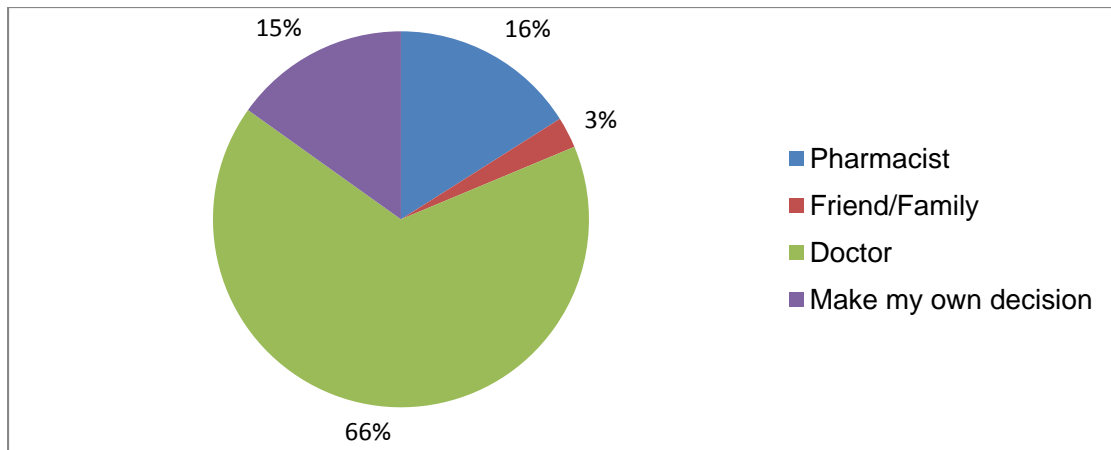
Depression screening and treatment: Depressive symptoms were fairly common among clients screened in all four countries. An average of 37% reported experiencing persistent sadness for more than two weeks (currently or previously), and similarly 37% reported positively for depressive symptoms at some point. Unfortunately, on average across the four countries, only 13% had ever received treatment for depression.

From the providers' side the average percentage across the countries that reported receiving no training for depression was quite low at 16%. Russia is an outlier on this indicator with 30% of providers reporting no training. Providers statistics also suggest that almost every locale has counseling services available (only 4% report none), but despite this, less than half of providers refer patients for counseling if they screen positive for depression.

Alcohol and drug use screening: The vast majority of clients surveyed in each country reported no or only sporadic use of alcohol (four-country average of 98%). Across the countries, on average 24% reported ever thinking about decreasing alcohol intake. Russia had the highest percentage on this question with 42% reporting that they had. In addition, on average across all countries, 58% of providers reported routine screening, and 41% were aware of local alcohol abuse treatment programs. Russia had the lowest percentage of providers who reported routine alcohol abuse screening (43%), while Georgia had the highest percentage (76%).

Client-reported medication use practices: As reported in Table A34 in the Annex and Figure 14, the most important influence patients reported on their medication selection was a doctor (69% across all four countries). The second most influence was a pharmacist. These results were generally consistent across all four countries.

Figure 14. Most Important Influence on Patient Medication Selection (No Prescription Requirement) (n=337, Four Countries Combined)



Client knowledge of NCD risk factors and best practices: The percentage of clients answering specific questions correctly are summarized in Table 20. Overall, client results reflected fairly strong understanding of tobacco risks, with 91% on average across all countries identifying smoking as the leading cause of lung cancer. Clients had weaker understanding of CVD risks. Only 54% and 53% recognized that inactivity and diabetes, respectively, increase the risk of heart disease. On average across all four countries only 15% correctly recognized the statement “HTN requires treatment for only a few months” as false, indicating low client understanding of the chronic nature of HTN. Furthermore, the fact that on average just over half realized that it is incorrect that “most BP medications have large side effects which make it difficult for patients to take these medications regularly,” suggests low client confidence in the safety of HTN treatment. Clients identified depression as a common problem for women (81%) and expressed relatively strong confidence in the possibility of effective treatments for depression (68%). Only 46% on average had ever heard of a colonoscopy.

Client-reported priorities for health care: As presented in Figure 15, on average for all four countries, clients reported that “feeling respected” (22%) was their foremost priority for medical services, followed closely by having a “regular doctor” and “seeing a doctor quickly” (both 19%). The results vary somewhat by country, as seen in Figure 16. For example, “feeling respected” is most important in both Armenia (46%) and Russia (33%), but was one of the least important factors in Georgia and Albania. In Georgia, the three most important priorities were related to affordability of care: being able to afford “prescriptions” (38%), “health care” (24%) and “diagnostic tests” (14%). In Albania, the number one client priority was “having a regular doctor” (39%).

Figure 15. Client-reported Priorities for Health Care (n=394, Four Countries Combined)

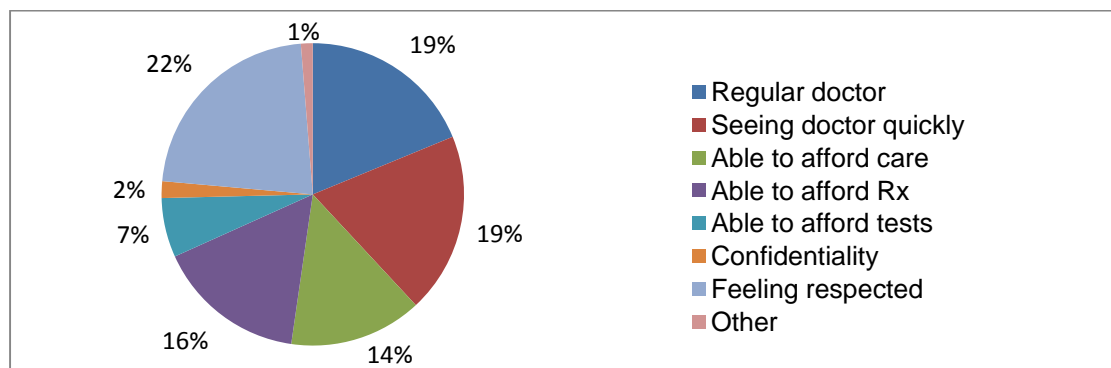
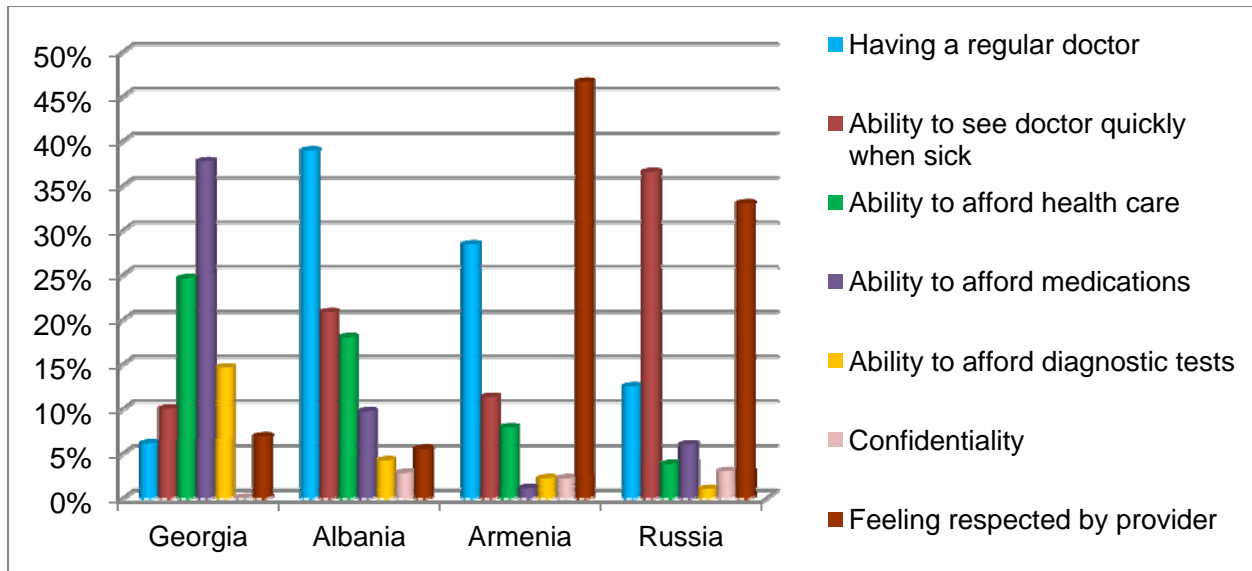


Table 20. Client Knowledge and Attitudes: Percentage of Clients Who Agree with Statements

Question	4- country avg. n=397	Albania n=72	Armenia n=88	Georgia n=130	Russia n=107
Smoking greatly increases risk for heart disease	85%	77% (55)	89% (78)	91% (119)	83% (86)
Smoking is the leading cause of lung cancer	91%	90% (65)	91% (80)	92% (119)	91% (96)
Effective treatments exist for smoking cessation	64%	76% (54)	69% (61)	59% (77)	51% (53)
Being overweight increases risk of heart disease	81%	81% (58)	84% (74)	82% (107)	78% (82)
Physical inactivity increases risk of heart disease	53%	53% (37)	64% (56)	54% (70)	41% (41)
High cholesterol increases risk of heart disease	66%	70% (49)	69% (61)	47% (61)	77% (78)
Diabetes increases risk of heart disease	54%	63% (44)	41% (36)	52% (67)	60% (59)
Weight loss and exercise can help lower blood pressure	66%	69% (50)	64% (56)	70% (91)	62% (63)
Consider false the statement that most blood pressure medications have large side effects making it difficult for patients to take regularly	15%	15% (11)	7% (6)	24% (31)	12% (12)
Consider false that most persons diagnosed with high blood pressure will only need to take medication for a few months	56%	51% (37)	59% (52)	46% (60)	67% (68)
There are many inexpensive and effective medications to treat blood pressure	70%	78% (56)	80% (70)	65% (84)	58% (59)
Depression is a common problem for many women	81%	71% (51)	92% (81)	78% (102)	83% (86)
There are effective ways to treat depression	68%	88% (63)	57% (50)	55% (72)	70% (72)
Ever heard of pap test?	65%	81% (56)	51% (45)	32% (41)	97% (102)
Ever heard of a blood test for lipids or cholesterol	73%	82% (58)	82% (72)	40% (52)	88% (93)
Ever heard of mammogram?	85%	89% (63)	86% (76)	78% (102)	87% (91)
Ever heard of screening for colon cancer (e.g., colonoscopy or checking stool for blood)?	46%	48% (34)	51% (45)	33% (43)	50% (53)

Figure 16. Client-reported Priorities for Health Care by Country



Patient access to services, including financial access: Across all four countries, a large majority of clients had public or government funded insurance (62%) while 17% had some form of private insurance and 21% were uninsured. Both Armenia and Russia had over 80% of clients report public or government-funded insurance and less than 1% were uninsured. In contrast, fewer clients in Georgia and Albania reported government-funded insurance, and a significant portion of clients in both countries was uninsured, 35% and 49%, respectively (see Figure 17).

Figure 17. Client Self-reported Insurance Status (Four Countries Combined)

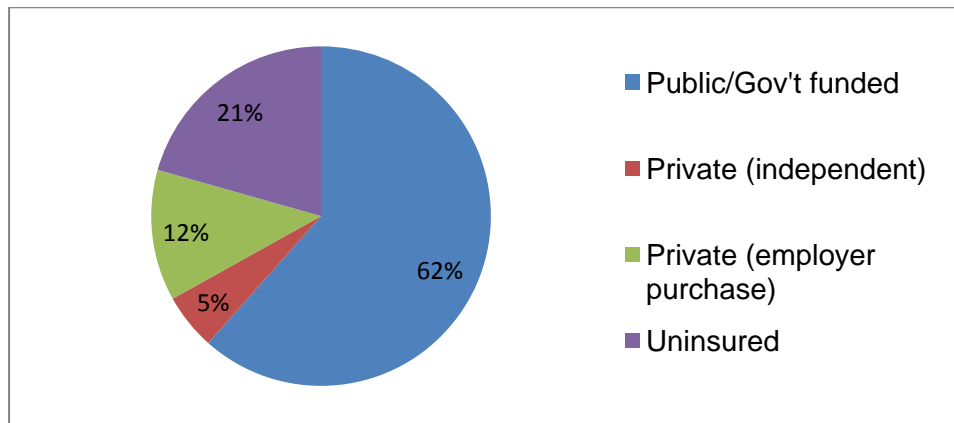


Table 21 shows client-reported access to health services. Based on four-country averages, only 60% of clients reported being able to access services and medications without difficult. While only a small percentage of clients could not afford services regardless of type of insurance, 20% on average could not afford doctor-recommended medications. In general, it appears that affordability is a much larger problem in Georgia than the other countries, and accordingly, Georgian clients are less likely to report that they have access without difficulty (37%). Clients self-reporting to be in lower economic quintiles (“poor” and “low middle”) reported the highest levels of difficulty accessing health services, including ability to purchase recommended medications and afford recommended laboratory tests (Annex Table A36). In contrast, clients self-reporting to be in the top two quintiles reported low levels of difficulty accessing care.

Table 21. Client-reported Financial and Physical Access to Health Services

Indicator	4- country avg. n=397	Albania n=72	Armenia n=88	Georgia n=130	Russia n=107
Able to access services and medications without difficulty	60%	72% (52)	67% (59)	37% (48)	65% (70)
Not able to afford services (uninsured)	12%	19% (44)	1% (1)	27% (35)	0% (0)
Not able to afford services (with government coverage)	11%	3% (2)	8% (7)	21% (27)	13% (14)
Not able to afford services (with private insurance coverage)	3%	0% (0)	0% (0)	9% (12)	4.7% (5)
Able to see doctor but unable to afford medications recommended by doctor	20%	6% (4)	17% (15)	52% (67)	6.5% (7)
Able to see doctor but unable to afford laboratory or diagnostic tests recommended by my doctor	17%	6% (4)	13% (11)	47% (61)	2.8% (3)
Able to see doctor but unable to get recommended specialist services because too expensive	11%	3% (2)	13% (11)	25% (33)	2.8% (3)
Unable to get services because services too far away	2%	0% (0)	5% (4)	3% (4)	0.9% (1)

Note: This facility-based sample cannot extrapolate for general population rates.

V. SYNTHESIS OF FINDINGS AND DISCUSSION

This section presents and discusses synthesized results across all data sources for specific health system functions and NCD types, highlighting inter-country differences and common trends.

A. Synthesized Findings and Discussion by Health System Category

I. Service Delivery

Service delivery organization for continuity of primary care services for effective prevention, screening, and management of NCDs was moderately strong across the four countries. Two-thirds of clients, providers, and managers on average reported a designated primary care provider for clinic patients, generally considered an important pre-requisite for quality primary care service delivery (Table 22). Indeed, in most facilities, an individual provider retains records for his/her patients in his/her consultation room, which generally co-functions as a provider office and clinical care area. Russia results were lowest for a designated primary care provider with only 42% of clients reporting a designated primary care provider and 58% and 50% of providers and managers, respectively, reporting a designated primary care provider. Of surveyed providers, 87% agreed with the statement that clients receive better care for chronic conditions if they have a designated primary care provider. The presence of a primary care provider for clients was reported by roughly two-thirds of providers, clients, and managers. Providers' agreement with the value of a designated primary care provider represents a strong service delivery platform from which to improve consistent provision of high-impact, best-buy NCD interventions.

Results were less strong for specification of a specific follow-up time at the time of a clinical encounter, an important factor for continuity of care. On average, only 32% of clients across the four countries

reported designation of a follow-up time communicated by the provider at the time of the visit (see Table 22). Of providers, 57% reported a designated follow-up, demonstrating a gap between provider and client perceptions; however, both sources confirmed generally low levels of designated follow-up, indicating an opportunity to improve continuity of NCD prevention and control services in all four countries.

Systematic outreach to patients who failed to follow up was reported by an average 61% of providers and 58% of clinic managers across the four countries, with reported levels highest in Armenia and Russia.

Table 22. Service Delivery Organization: Continuity of NCD Services and Client Self-management Support

NCD service delivery support category	Client-reported (n=397)	Provider-reported (n=269)	Manager-reported (n=47)
Designated primary care provider	Avg. 66% Geo. 75% (97) Alb. 65% (46) Arm. 81% (71) Rus. 42% (45)	Avg. 64% Geo. 79% (56) Alb. 72% (43) Arm. 45% (24) Rus. 58% (48)	Avg: 64% Geo. 77% (10) Alb. 64% (7) Arm. 64% (7) Rus. 50% (6)
Follow up specified at clinic visit:	Avg=32% Geo. 9% (12) Alb. 28% (18) Arm. 65% (57) Rus. 26% (24)	Avg. 57% Geo. 32% (23) Alb. 74% (43) Arm. 89% (47) Rus. 32% (23)	Avg: 88% (41) Geo. 69% (32) Alb. 91% (43) Arm. 100% (47) Rus. 92%(43)
Patient self-management support		<i>Designated case-manager for clients.</i> Avg. 29% Geo. 0% (0) Alb. 33% (20) Arm. 74% (39) Rus. 70% (57)	<i>Patient counseling/teaching services.</i> Avg. 43% Geo. 15% (2) Alb. 18% (2) Arm. 55% (6) Rus. 83% (10)
System to reach patients who do not follow up		Avg. 61% Geo. 63% (45) Alb. 39% (23) Arm. 73% (38) Rus. 67% (53)	Avg. 58% Geo. 54% (7) Alb. 50% (5) Arm. 64% (7) Rus. 64% (7)

Provider- and client-reported availability of client self-management support services for clients with chronic disease was generally weak in Georgia and Albania and stronger in Armenia and Russia. Less than a third of providers and managers in Albania and Georgia reported a designated staff person to provide client self-management support or patient teaching and counseling services. Results for client self-management services were strongest in Russia, where 70% of providers reported a designated staff member to provide client self-management services and 83% of managers reported counseling/teaching services. This was confirmed by the widespread availability of designated “preventive care departments” in many polyclinics in Russia.

Strengthening client-self management services for chronic disease and client-centered teaching and counseling services to promote behavior change for best practices—central pillars of high-quality NCD prevention and control—were demonstrated as needing improvement in all four countries. In general, physicians and nurses were observed to play fairly circumscribed roles, with limited use of nurses or other mid-level staff to provide client teaching and counseling services. Better use of nurses and improved coordination of physician-nurse teams could be an important first step for improving client teaching, self-management of chronic disease, and general adoption of healthy behaviors. Indeed, the availability of high-quality client teaching and counseling services and support materials for NCD

prevention and control remains a highly unmet need across most countries, in part due to the relative lack of historic global focus on NCDs.

2. Health Information Systems

Systematic classification and easy retrievability of charts for individual patients in health centers was generally strong across the four countries. Usually, charts could be easily retrieved by providers (or assistant nurses) as reported by an average 61% of clients, 81% of providers, and 59% of managers, with some in-country variability (see Table 23). However, standardized organization of the chart to support high-impact screening and continuous NCD care best practices was generally quite low. For example, across the four countries, only an average 23%, 23%, and 47% of charts, respectively, had a standard place to record tobacco use, alcohol use, and cervical cancer screening (Table 23).

Table 23. Health Information Systems: Chart Availability, Organization, Reporting, and Use of Data for Decision Making (n=658 Charts, n=269 Providers, n=47 Managers, n=397 Clients)

Indicator	4- country avg.	Albania	Armenia	Georgia	Russia
Chart easily available at time of patient visit					
Manager-reported	59%	73% (8)	82% (9)	38% (5)	42% (5)
Provider reported	81%	93% (5)	75% (40)	58% (41)	96% (79)
Client-reported	61%	66% (4)	81% (71)	48% (63)	47% (49)
Chart organization (<i>representative indicators</i>)					
NCD screening: % of charts with standard place to record tobacco and alcohol use	23%	17% (28)	4% (7)	69% (101)	3% (6)
NCD screening: % of charts with standard place to record alcohol use	23%	17% (28)	3% (5)	69% (101)	3% (6)
NCD screening: % of charts with standard place to record cervical cancer screening	47%	9% (15)	38% (63)	60% (89)	79% (142)
High-quality continuity care: % of charts with standard place to record summary list of chronic conditions	72%	22% (36)	73% (120)	93% (136)	99% (179)
High-quality continuity care: % of charts with standard place to record summary list of current medications	12%	8% (14)	22% (37)	17% (25)	0.6% (1)
Regular reporting of NCD data					
Regular reporting of NCD data to external authority as part of country-level health information system (e.g., regional or national MOH)	86%	82% (9)	100% (11)	62% (8)	100% (12)
Use of data for quality improvement					
Use of data for improving quality of NCD services	29%	28% (3)	28% (3)	0% (0)	58% (7)
Regular measurement of patient satisfaction	60%	55% (6)	55% (6)	46% (6)	83% (10)

Standardization and organization of charts for high-quality continuity of care for patients with established NCDs was variable but generally weak. Only an average 12% of charts had a standardized place to document current routine medications, essential for high-quality continuous NCD care. Virtually no charts included a standardized place to record all high-impact screening tests and essential elements for efficient high-quality continuity care, representing a missed low-cost opportunity for rapid improvement.

When charts did contain a standard place to record an important NCD screening item, the absence or presence of a recorded result often was associated with the cost of the screening intervention; high-cost interventions were less likely to be recorded than lower cost ones. For example, on average across the four countries only 48% and 39% of charts with a designated place for a pap smear or a mammogram, respectively, had a value recorded (four-country average results inflated by high performance in Russia), whereas 89%, 84%, and 81% of charts, respectively, with a standardized place for tobacco use, alcohol use, and weight status had a value recorded (Annex Table A6). This pattern is a strong argument for improving standardization of medical charts to improve delivery of high-impact interventions, especially low- or no-cost interventions such as tobacco use screening.

With regard to country-level health information systems, 86% of managers on average across the four countries described regular reporting of NCD data to regional or national authorities; however, interviews with expert informants and a review of national NCD statistics revealed generally low quality of standardized health service delivery and outcome indicators for meaningful tracking of country-level NCD service delivery.

On average, 60% of managers reported regular measurement of patient satisfaction with manager-reported levels lowest in Georgia (46%) and highest in Russia (83%) (see Table 23). However, only 29% of health center managers on average reported use of data to improve quality of NCD services, with lowest levels in Georgia (0%) and highest levels in Russia (58%). The low level of reported use of data for quality improvement at the service delivery level is likely due in part to the absence of meaningful standardized NCD service delivery and outcome indicators in these countries. Indeed the need for simple NCD service quality and coverage indicators and targets, in parallel with the strengthening of health information systems, was identified as high global, country, and local priority at the UN High Level Meeting on NCDs in 2011. The UN High Level Meeting outcomes document tasks WHO with defining global NCD targets by the end of 2012, which will hopefully guide country policy-makers to define meaningful NCD indicators and to strengthen NCD health information systems at the country level.

3. Human Resources: Provider Supervision, Regulation, Incentives, and Confidence

Assessment results demonstrate relatively high rates of regular provider supervision as reported by both managers and providers (see Table 24). The content of such supervision to influence improved provider performance to provide high-impact NCD prevention and care practices is less clear, however, given that less than one third of managers reported use of clinical data for provider performance assessment and supervision. National and facility-level adoption of simple high-impact NCD intervention quality of care measures, as discussed in the above section on health information strengthening, would be an important first step for supporting managers to provide data-oriented supervision to systematically enhance provider performance.

Both providers and managers reported generally low levels of performance-based incentives for providers, although there was variability among countries and between provider- and manager-reported data within individual countries. Provider-reported performance incentives was highest in Albania (73%) and lowest in Russia (32%), with provider and manager results matching closely in Albania in line with the performance-based financing scheme recently introduced there. Manager-reported use of performance-based incentives for providers was highest in Russia (100%) but contradicted the relatively low provider-reported receipt of performance-based incentives (32%). Both managers and providers reported low levels of performance-based financing in Armenia; Georgian providers reported higher levels of performance-based incentives (46%) than managers (15%), raising the question as to whether providers in Georgia understood the question correctly.

The variable provider-reported performance-based incentive results reflect the range of country approaches observed with respect to implementation of performance-based incentives. In Albania, with support of a USAID Health System Strengthening project, performance-based incentives were solidly in place with systematic collection of a standard set of productivity and quality measures taken at the facility level and reported to the central health care financing institution. Armenia was adopting a system of performance-based incentives at the time of the assessment, while neither Georgia nor Russia had formally instituted systematic performance-based incentives. The observed variation in implementation of supply side performance-based incentives in the region mirrors the variation observed worldwide as donors and country-level health stakeholders wrestle with the potential benefits and harms (and complex implementation challenges) of performance-based health incentives (Witter, 2012). Clearly, evidence will continue to emerge as individual countries in the E&E and other regions gain increasing experience with implementing performance-based incentives. Assessment results, however, reinforce the critical importance of aligning incentives with highly evidence-based quality of care measures and targets if performance-based financing is to incentivize delivery of high-impact NCD services with regard to both coverage and clinical content. Several performance measures being considered for incentives in Albania were not only *not* evidence-based, but in fact were *cost-ineffective*, raising the concern that wasteful poor quality of care was being incentivized.

Table 24. Cross-cutting Results: Provider Regulation, Supervision, and Incentives (n=269 Providers; n=47 Managers)

Indicators	4-country avg.	Albania	Armenia	Georgia	Russia
<i>Provider supervision: Manager-reported regular supervision of providers</i>	83%	91% (10)	100% (11)	39% (5)	100% (12)
Provider-reported known regular supervision	92%	89% (34)	98% (42)	84% (31)	97% (31)
<i>Supervision frequency: Manager-reported provider supervision frequency at least every 12 months</i>	66%	35% (5)	100% (11)	38% (5)	92% (11)
<i>Provider-reported supervision within prior 12 months</i>	72%	67% (38)	83% (44)	56% (40)	82% (32)
<i>Performance-based provider supervision: Manager-reported use of clinical data for provider supervision/performance assessment</i>	30%	37% (4)	18% (2)	8% (1)	58% (7)
<i>Provider bonuses and incentives: provider-reported general bonuses</i>	37%	58% (35)	6% (3)	32% (23)	52% (43)
<i>Provider-reported performance-based incentives or bonuses:</i>	46%	73% (27)	33% (3)	46% (12)	32% (14)
<i>Manager-reported performance-based incentives</i>	54%	73% (8)	27% (3)	15% (2)	100% (12)
<i>Provider regulation</i> Provider continuing education req.	Provider -reported	76%	79% (46)	94% (50)	76% (58)
	Manager-reported	86%	100% (11)	90% (9)	100% (12)
Financial coverage for or provision of provider Continuing Education by Facility	55%	55% (6)	27% (3)	54% (7)	83% (10)
Provider-reported certification exam within past 5 years	64%	32% (17)	73% (39)	60% (43)	89% (74)

Provider regulation with regard to CME and certification requirements was likewise variable across countries. Although 76% of providers on average reported CME requirements, the recent dissolution of such requirements in Georgia and Armenia and the generally low level of provider-reported financial support for CME provided by provider institutions (55%) suggest that regular provider participation in CME will decrease substantially in both countries unless the requirement is re-instated. In the absence of CME requirements or employer financial contribution to the cost of CME, it is unlikely that providers will be motivated to pursue, or in some cases be able to afford, CME, especially providers in remote areas. In contrast, both Russia and Albania had generally strong national and regional systems for supporting opportunities for CME in line with country requirements for provider CME. Although Armenia does not mandate CME, the Yerevan State Medical University and National Institute of Health continue to provide regular CME tailored to a broad range of specialties.

Provider reports of participation in specific NCD CME activities during past three years varied between the four countries and by specific NCD topic (Table A25, Annex). Interestingly, despite a strong national system of CME in Russia, provider-reported participation in specific NCD CME topics was generally lower than in the other three countries for virtually all NCD topics, with a higher proportion of providers in the Russia survey demonstrating no NCD CME within the past three years (27%). Russia's lower rates of provider-reported NCD CME may in part be due to the sheer numbers of providers in this vast country and the challenge of providing CME to so many; it may also be due to a relatively lower proportional availability of NCD-specific CME options available to providers in Russia. Not surprisingly, provider self-reported CME on average across the four countries was highest for NCDs demonstrating relatively stronger chart review performance, such as measurement and management of HTN (74%) and heart disease (65%), and lowest for NCDs with low chart review performance, such as depression (30%) and alcohol use screening (26%).

Provider self-reported confidence in managing specific NCDs correlated in general with chart review results for specific NCDs. For example, providers on average reported relatively low rates of confidence treating tobacco abuse (24%), providing cervical cancer screening (14%), and depression screening (16%) (Table A26, Annex) in line with weak chart documentation of these best NCD practices (22%, 12%, and 4%, respectively, Tables 13, 11, and 16).

Provider responses to questions about access to guidelines and evidence sources confirm a generally low level of provider access to up-to-date guidelines, as reinforced by the finding of low availability of clinical guidelines for many priority NCDs in patient care areas (Annex, Table A12). On average, 36% of providers reported no access to professional society guidelines; 21% of providers reported none to journal publications; and 54% of providers reported none to facility-specific guidelines. In general, Georgian providers reported the lowest levels of access to evidence sources, and Russian providers reported the highest levels of access to evidence sources of all kinds. Similarly, provider knowledge as measured by multiple-choice questions in the provider questionnaire was fairly low given that most surveyed providers were doctors. On average, less than half of the 269 providers could correctly define diabetes diagnostic criteria or evidence-based secondary prevention interventions for established CVD (aspirin and beta blocker after a heart attack).

With some exceptions, the generally weak assessment results related to provider regulation (supervision, CME, performance-based incentives), access to evidence, provider knowledge and self-reported confidence mirror the generally weak chart documentation of NCD best practices observed in the review of charts.

4. Essential NCD Inputs: Guidelines, Supplies, Laboratory, and Medications

Availability of essential NCD inputs such as essential laboratory equipment, medications, and clinical care guidelines in facilities varied by input and facility type: 49% of managers reported that basic laboratory supplies were “not usually available”; 53% reported that essential NCD service supplies were

“not usually available”; and 58% reported that essential NCD medications were “not usually available” (see Table 25 and Annex Table A17). Annex Tables A14, A15, and A16 present detailed data regarding availability of essential NCD medications, equipment, and laboratory supplies in surveyed facilities. In general, there was better availability of basic supplies than laboratory services or medications. Russian clinics had the highest inventory of available essential NCD medications, supplies and laboratory services; Georgia had the lowest facility stock of essential medications across the four countries. No facilities in Georgia, Armenia, and Albania and 45% of Russian facilities had nicotine-replacement therapy, considered by WHO to be a high-impact, cost-effective intervention for supporting tobacco cessation in established smokers (Table 25).

Hemoglobin A1C, a measure of overall diabetes control considered essential to effective control of diabetes, was present on average in 40% clinics across the four countries, with considerable variation across them (67% of Russian clinics, 45% of Armenian clinics, 31% of Georgian clinics, and 18% of Albanian clinics). Chart documentation of A1C levels for persons with known diabetes matched the availability of the laboratory test in Russian clinics only (59% of charts), as contrasted with low chart documentation of A1C in Georgia charts (12%) relative to the higher observed availability of the laboratory test in surveyed facilities (31%). By contrast, 61% of charts in Albania documented an A1C although the test was available in only 18% of clinics, suggesting that factors like cost and purchase availability in addition to overall availability have a large influence on which laboratory tests are ordered as part of routine diabetes care. The same was true of cholesterol, where generally high observed levels of laboratory availability did not match the lower levels of chart documentation observed for cholesterol testing.

As reported above, availability of NCD guidelines in clinical care areas was generally quite low according to provider interviews. By inventory check, an average of only 32% of facilities had guidelines available in clinical areas for obesity, 28% for tobacco screening and cessation treatment, 22 % for alcohol screening and treatment, and 37% for treatment of high cholesterol (Table A12, Annex). For many individual NCDs, the absence of guidelines in clinical care areas correlated with pockets of lowest performance by chart review. As described above, the general lack of reliable access to up-to-date evidence in clinical care is a major gap identified in the assessment.

In general, availability of essential supplies and laboratory tests did not vary significantly between rural and urban facilities, although some variability was observed between availability of essential inputs in primary care clinics as contrasted with polyclinics in Armenia and Albania (Table A18, Annex). Across the board, polyclinics in Armenia and Albania had higher rates of availability of essential NCD laboratory tests by a factor of three to five. Interestingly, the pattern was reversed for availability of NCD guidelines in Albania, with more clinics there having guidelines availability as compared to near 0% for most polyclinics visited.

The relative lack of formal medication regulation in all four countries means that many factors in addition to provider recommendation may influence which medicines a patient takes. Only 69% of clients on average reported that a doctor was the single greatest influence on their medication selection, while 80% of doctors agreed with the statement that doctors were the single greatest influence on patient medication selection (Table A34, Annex). The limited provider influence on medication selection among a third of interviewed clients raises questions about the likelihood of client adherence with provider-recommended treatment regimens, even when such regimens may be evidence-based. Results suggest strongly that medication regulation, provider capacity-building and client education for improved adherence with provider-recommended treatment regimens will be essential actions for improving patient NCD-related outcomes in the region.

Table 25. Essential NCD Inputs: Guidelines, Laboratory, Medications, and Provider and Client Variables

Indicators		4-country Avg.	Albania	Armenia	Georgia	Russia
NCD Supplies & Laboratory Services						
Manager-reported difficulty ensuring availability of essential laboratory supplies “most of the time” (See Annex Table A19)		30%	50% (4)	45% (5)	23% (3)	0% (0)
NCD Medication Regulation & Patient Decision-making						
No prescription requirement for NCD medications	Client-reported	66%	45% (29)	76% (67)	90% (117)	53% (55)
	Provider-reported	63%	41% (24)	51 (27)	90% (64)	68% (54)
Single greatest influence on Patient NCD medication decision making (client and provider reported)						
Doctor	Client reported	69%	87% (49)	67% (45)	55% (67)	67% (62)
	Provider-reported	80%	68% (32)	83% (39)	86% (60)	83% (53)
Client reported, “I decide independently.”		13%	0% (0)	16% (10)	26% (31)	11% (10)
Pharmacist	Client-reported:	15%	11% (6)	13% (9)	17% (21)	19% (18)
	Provider reported	7%	14% (8)	4% (2)	6% (4)	5% (3)
Family or friend:	Client reported	3%	2% (1)	4% (3)	1% (2)	3% (3)
	Provider-reported	7%	9% (4)	11% (5)	7% (5)	2% (1)
Accessibility NCD Care Guidelines in Patient Care Areas						
Average % availability priority NCD guidelines in clinical care areas		43%	27% (41/154)	37% (58/154)	34% (61/182)	72% (121/168)
Provider-reported no access to specific evidence/guideline sources						
National guidelines:		14%	18% (9)	11% (6)	21% (15)	4% (3)
Professional society guidelines		36%	50% (24)	30% (15)	58% (41)	5% (3)
International guidelines (e.g., WHO)		18%	18% (9)	14% (7)	39% (28)	0% (0/76)
Journal publications		21%	18% (9)	21% (11)	41% (29)	4% (3)

5. Financial Coverage

In all four countries at least some percentage of managers reported receipt of government, private insurance, and out-of-pocket payments; 100% of managers surveyed in Georgia reported private insurance funding for NCD services in contrast to only 8 or 9% in Albania, Armenia and Russia (Table 26).

Table 26. Financial Coverage for Priority NCD Services and Client Access

Indicators		4-country avg.	Albania	Armenia	Georgia	Russia
Financial Coverage with Priority NCD Services						
Manager-reported: Sources of payment for chronic care prevention and treatment services	Govt./public insurance	87%	72% (8)	91% (10)	85% (11)	100% (12)
	Private insurance	32%	9% (1)	9% (1)	100% (13)	8% (1)
	Client out of pocket	43%	27% (3)	18% (2)	92% (12)	33% (4)
Single greatest funding source for NCD services	Government	82%	82% (9)	82% (9)	62% (8)	100% (12)
	Private Insurance:	8%	0% (0)	18% (2)	15% (2)	0% (0)
	Out of pocket	10%	18% (2)	0% (0)	23% (3)	0% (0)
Funding does not cover many NCD screening/ treatment services	Private	39%	18% (2)	0% (0)	100% (13)	NA
	Government	54%	36% (4)	45% (5)	85% (11)	50% (6)
Funding does not cover full cost of many NCD services	Private	32%	18% (2)	0% (0)	77% (10)	Not applicable
	Government	37%	18% (2)	36% (4)	69% (9)	25% (3)
Patient-reported Financial access to health services						
Unable to afford services (<i>client-reported</i>)	Clients with public insurance:	11%	3% (2)	8% (7)	21% (27)	13% (14)
	Clients with private insurance	16%	0% (0)	0% (0)	9% (12)	55% (5)
	Clients with no insurance:	12%	19% (14)	1% (1)	27% (35)	0% (0)
Unable to afford recommended specialist services		11%	3% (2)	13% (11)	25% (33)	3% (3)
Unable to afford recommended laboratory testing		17%	6% (4)	13% (11)	47% (61)	3% (3)

Government or public insurance was identified as the single greatest source of funding for NCD services by an average 82% of managers across the four countries, followed by out-of-pocket funding by 10%, and private insurance by 8%. Only 15% and 18% of managers in Georgia and Armenia, respectively, identified private insurance as the single greatest source of funding (both from private ambulatory health centers); 0% of managers in Russia and Albania reported private insurance funding as the single greatest source of funding (this variation may be due in part to sample variability in each country).

Funding for NCD services was identified by managers as an area of difficulty across the board, with 54% of managers reporting that government-funded services do not cover many high impact NCD services and 37% reporting that government funding does not provide full coverage for NCD services it may partially fund (Table A19, Annex). In general, Georgian managers reported the highest rates of difficulty

with NCD service funding, a finding reinforced by client responses indicating that health care affordability was a number one priority in contrast to non-financial priorities identified by clients in the other countries. Interviews with expert informants in all four countries confirmed that many basic best buy NCD screening and treatment services were not included in the standard benefit packages for both government- and private insurance-funded health services. An average 43% of managers reported formal out-of-pocket payments by clients for NCD services; interviews with expert informants and published reports suggest that informal out-of-pocket payments constitute an important source of revenue for health care services in all four countries and strongly influence access to care and perhaps its quality.

Regardless of insurance type coverage (public, private or none), an average 11-16% of clients reported inability to afford health care services. Presumably this percentage would be substantially higher in a population sample. Client survey responses demonstrated uniformly low understanding of specific NCD services covered by government and private insurance across the four countries.

B. Synthesis of Findings and Discussion by NCD Category

I. Cardiovascular Disease: Obesity, Physical Inactivity, Hypertension, Elevated Lipids, Ischemic Heart Disease

Quality of chart results, availability of essential supplies, and provider and client knowledge of modifiable cross-cutting CVD risk factors varied depending on the specific risk factor and data source (Tables 27, 28, and 29). In general, chart results and provider-reported CVD risk factor screening practices correlated across the four countries (Table 27). However, although an average 90% of the 658 charts with documented high blood pressure recorded treatment with an evidence-based anti-hypertensive, only 83% of charts recorded a blood pressure measurement within the last 12 months, representing a missed opportunity to detect high blood pressure in 17% of charts. An average 87% of providers reported routinely checking blood pressure, although 100% of clinics had available sphygmomanometers for doing so. Since ongoing BP control was not addressed in this assessment, it is not possible to comment on overall BP control achieved in reviewed charts, the most important measure of quality of HTN care.

Although clients, in general, demonstrated a good understanding of lifestyle measures for reducing blood pressure and a good understanding of the risk of blood pressure for heart disease, 51% on average in the four countries reported that most BP medications have “serious side effects,” and 21% agreed that high BP requires only “short-term treatment,” reflecting a lack of trust in BP treatment and a lack of understanding of the chronicity of high blood pressure in one fifth of clients interviewed. Client knowledge results were comparable across the four countries.

Chart results for screening and counseling for obesity and physical inactivity (lack of exercise) were less favorable than for high blood pressure (Table 28). Although an average 60% of charts recorded a weight in the last 12 months, only 12% recorded a weight status classification (e.g., body mass index) to flag overweight and obesity. While 96% of facilities had a scale, only a third had guidelines for screening and management of obesity. Respectively, 25% and 12% of charts documented dietary or exercise counseling. On a more favorable note, almost two-thirds of clients reported exercising at least once per week (type and duration of exercise was not quantified).

Table 27. Hypertension: Summary Findings

Hypertension results	% charts with recorded best practice (n=659)	% providers who reported best practice (n=269)	% clients who reported best practice (n=387)	% facilities with essential input (n=47)
Practice	<p>BP recorded last 12 months: 83% Alb. 95% (98) Arm. 94% (108) Geo. 81% (114) Rus. 63% (98)</p> <p>BP medication prescribed if BP > 140/90: 90% Alb. 98% (64) Arm. 93 % (76) Geo. 81% (35) Rus: 86% (31)</p>	<p>Check BP routinely in all patients: 87% Alb. 85% (51) Arm. 85% (45) Geo. 89% (63) Rus. 89% (72)</p>		<p>BP measurement equipment (sphygmomanometer): 100% Alb. 100% (11) Arm. 100% (11) Geo. 100% (13) Rus. 100% (12)</p>
Knowledge		<p>Correctly answer single HTN management question: 53% Alb. 35% (21) Arm. 49% (26) Geo. 58 % (41) Rus. 68% (52)</p> <p>Report recent HTN CME (< 3 yrs): 74% Alb. 86% (52) Arm. 80% (42) Geo. 86% (61) Rus. 45% (38)</p>	<p>Correctly identify that exercise and weight loss helps control HTN: 66% Alb. 69% (50) Arm. 64% (56) Geo. 70% (91) Rus: 62% (63)</p> <p>Answer correctly that high BP increases risk for heart disease: 89% Alb. 89% (63) Arm. 92% (81) Geo. 83 % (108) Rus. 93% (97)</p>	<p>HTN treatment guidelines available: 72% Alb. 36% (4) Arm. 73% (8) Geo. 77% (10) Rus. 100% (12)</p>
Attitude		<p>Very confident in treating HTN: 71% Alb. 64% (34) Arm. 76% (40) Geo. 76% (54) Rus. 66% (51)</p> <p>-</p>	<p>Agree with statement that “most BP meds have serious side effects”. 51% Alb. 42% (30) Arm. 66% (58) Geo. 52% (68) Rus: 42% (43)</p> <p>Agree with statement that “persons with high blood pressure need only short-term treatment”: 21% Alb. 19% (14) Arm. 32% (28) Geo. 27% (35) Rus. 5% (5)</p>	

Table 28. Obesity and Physical Inactivity: Summary Findings

Obesity & physical inactivity	% charts recorded best practice (n=658)	% clients recorded best practice (n=397)	% facilities with essential Input (n=47)
Practice, knowledge & attitude	Weight classification ever recorded (e.g., BMI): Avg. 12% Alb. 0.6% (1) Arm. 11 % (18) Geo. 9% (13) Rus. 28 % (51)	Exercise 1x or more/wk: Avg. 62% Alb. 53% (38) Arm. 74% (65) Geo. 45% (58) Rus. 75% (104)	Scale: Avg. 96% Alb. 91% (10) Arm. 91% (10) Geo. 100% (13) Rus. 100% (12)
	Patient weight recorded last 12 mos: Avg. 60% Alb. 65% (15) Arm. 97% (34) Geo. 48% (53) Rus. 28% (50)	Prior weight loss attempt: Avg. 51% Alb. 56% (40) Arm. 47% (40) Geo. 48% (62) Rus. 54% (56)	Obesity and exercise guidelines: Avg. 32% Alb. 9% (1) Arm. 27% (3) Geo. 8% (1) Rus. 83% (10)
	Dietary counseling ever recorded: Avg. 25% Alb. 1.2% (2) Arm. 34% (57) Geo. 26 % (38) Rus. 40% (73)		
	Exercise counseling ever recorded: Avg. 12% Alb. 0.6% (1) Arm. 14% (24) Geo. 15% (22) Rus. 17% (31)		

As demonstrated in Table 29, approximately one third of charts on average across the four countries documented cholesterol screening at any time, and 25% of clients reported prior cholesterol testing, although there was considerable variation across the four countries. In general medical records in Russia documented higher levels of best practices for high cholesterol and ischemic disease as compared to the other countries. One third of providers on average reported to screen cholesterol routinely (60% in Russia) and two-thirds reported to screen cholesterol only if a patient has positive risk factors. However, given the lack of systematic screening for obesity and tobacco use observed in charts, it is unlikely that providers are systematically identifying clients at high risk for CVD who would be likely to benefit from cholesterol screening. It is unlikely that a lack of cholesterol laboratory capacity influenced the relatively low rate of cholesterol results in charts (30%), since 67% of facilities had laboratory capacity for cholesterol screening and only 6% of providers on average reported *not* to test cholesterol due to lack of laboratory capacity. Rather, the cost of a cholesterol laboratory test as well as provider factors are likely to be the most important influence on whether cholesterol is screened in a given patient. For charts in which an elevated cholesterol was recorded, only 22% documented any cholesterol-lowering intervention (medication or counseling), representing a missed opportunity to modify an established CVD risk factor in 78% of charts with elevated cholesterol. Medical records in Albania documented the highest level of treatment for measured high cholesterol (43%) as compared to 33% in Russia, 8% in Georgia, and 2% in Armenia.

Except in Georgia, most clients reported having heard of the cholesterol laboratory test (73%), and 77% on average correctly identified high cholesterol as an important risk factor for heart disease. With regard to chart and provider results for established CVD (i.e., women who had had a heart attack or

stroke), only 45% of providers on average could correctly identify the medications known to significantly lower risk of a subsequent heart attack after an initial heart attack, and only 33% of providers reported being “very confident” providing basic care after a heart attack, as contrasted with the 59% who reported to be “very confident” treating high cholesterol.

Table 29. Elevated Lipids and Ischemic Heart Disease: Summary Findings

Elevated Lipids & Ischemic Heart Disease	% charts with recorded best practice (n=659)	% providers reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
Practice	<p>Cholesterol results ever recorded: 30%</p> <p>Alb. 35% (57) Arm. 31 % (52) Geo. 9% (13) Rus. 44% (80)</p> <p>Treatment if + elevated lipids: 22%</p> <p>Alb. 43% (6) Arm. 2% (1) Geo. 8% (1) Rus. 33% (6)</p>	<p>Routinely screen cholesterol: 31%</p> <p>Alb. 46% (28) Arm. 13% (7) Geo. 4% (3) Rus. 60% (50)</p> <p>Screen cholesterol only if + risk factors: 63%</p> <p>Alb. 53% (32) Arm. 91% (48) Geo. 76% (54) Rus. 33% (28)</p> <p>Do not to test cholesterol because laboratory service unavailable: 6%</p> <p>Alb. 10% (6) Arm. 2% (1) Geo. 9% (6) Rus. 4% (3)</p>	<p>Any prior cholesterol test (among clients who have heard of test): 25%</p> <p>Alb. 33% (24) Arm. 26% (23) Geo. 5% (6) Rus. 36 % (38)</p>	<p>Laboratory testing for:</p> <p>-- Total Cholesterol: 68%</p> <p>Alb. 27% (3) Arm. 82% (9) Geo. 62% (8) Rus. 100% (12)</p> <p>-- Low-density lipoprotein cholesterol: 51%</p> <p>Alb. 18% (2) Arm. 46% (5) Geo. 46 % (6) Rus. 92% (11)</p> <p>-- High-density lipoprotein cholesterol: 30%</p> <p>Alb. 18% (2) Arm. 46% (5) Geo. 54% (7) Rus. 3% (10)</p> <p>% facilities with -- EKG capacity: 91%</p> <p>Alb. 73% (8) Arm, 91% (10) Geo. 100% (13) Rus. 100% (12)</p>
Knowledge		<p>Correctly identify medications known to lower risk of a repeat heart attack after a prior heart attack (knowledge test): 45%</p> <p>Alb. 26.7% n=16 Arm. 21.1% n=11 Geo. 59% n=41 Rus. 73% (52)</p>	<p>Answer correctly that smoking increases risk for heart disease: 94%</p> <p>Alb. 90% (64) Arm. 92% (80) Geo. 96% (119) Rus. 98% (103)</p> <p>Report to have heard of cholesterol test: 73%</p> <p>Alb. 82% (58) Arm. 82% (72) Geo. 40% (52) Rus. 88% (93)</p>	<p>Cholesterol screening guidelines available: 40%</p> <p>Alb. 9.1% (1) Arm. 45.4% (5) Geo. 38.5% (5) Rus. 67% (8)</p>

Elevated Lipids & Ischemic Heart Disease	% charts with recorded best practice (n=659)	% providers reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
			Answer correctly that high cholesterol increases risk heart disease: Avg. 77% Alb. 81% (57) Arm. 81% (71) Geo. 59% (77) Rus: 86% (87)	
Attitude		Very confident treating hyperlipidemia: Avg. 59% Alb. 57% (29) Geo. 51% (36) Arm. 59% (31) Rus. 70% (54) Very confident treating and managing heart disease: 33% Alb. 11.5% (6) Arm. 38% (20) Geo. 28% (20) Rus: 55% (40)		

2. Breast, Cervical, and Colon Cancer Screening

Less than a quarter of surveyed charts documented a mammogram result for women > age 40 in any country: 24% of charts in Russia, 18% in Georgia, and 0% in Armenia and Albania (Table 30). These low documentation rates for eligible women are consistent with expert informant and clinic manager reports of low rates of geographic and financial access to mammography services for most clients outside the capital city. In the absence of capacity for routine mammography, targeted screening of high-risk women and regular clinical breast exam (bi-annual to annual) are considered the best practice in resource-constrained settings. On average in the four countries, a quarter of charts documented a clinical breast exam at any time, ranging from 9% in Albania to 68% in Russia. Client reports of a prior breast exam by a provider were slightly higher, ranging from a third of clients in Albania to two-thirds in Russia and suggesting that women may be receiving clinical breast cancer screening exams in other service delivery areas (e.g., reproductive health, well woman, etc.) or that providers may not be documenting breast exams. Targeted screening to identify women with a family history of breast cancer who would benefit in particular from aggressive screening with mammography was low with less than 10% of charts across all countries identifying family history (+/-) for breast cancer. Half of providers could correctly identify evidence-based screening criteria (mammography and clinical breast exam beginning age 40-50). A third of providers on average reported breast cancer screening CME within the past three years, and only a quarter reported being very confident screening for breast cancer. Availability of breast cancer screening guidelines in clinics ranged from 27% in Albania to 100% in Russia.

Table 30. Breast Cancer: Summary Findings

Breast Cancer	% charts with recorded best practice (n=659)	% providers reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
Practice, knowledge & attitude	Clinical breast exam ever: Avg. 29% Alb. 9% (15) Arm. 25% (40) Geo. 14% (20) Rus. 68% (122)	Correctly identify breast cancer screening guidelines: Avg. 47% Alb. 41% (24) Arm. 38% (20) Geo. 55% (38) Rus. 54% (42)	Ever had a clinical breast exam: Avg. 44% Alb. 31% (22) Arm. 46% (40) Geo. 37(48) Rus. 63% (65)	Breast cancer screening guidelines available: Avg. 62% Alb. 27% (3) Arm. 81% (9) Geo. 39% (5) Rus. 100% (12)
	Mammogram in eligible women (age > 40 yrs or first degree relative): Avg. 11% Alb. 0% (0) Arm. 0.6% (1) Geo. 18% (15) Rus. 24% (6)	Breast cancer CME (< 3 yrs): Avg. 35% Alb. 43% (26) Arm. 40% (21) Geo. 45% (32) Rus. 12% (10)	Ever heard of mammogram: Avg. 85% Alb. 89% (63) Arm. 86% (76) Geo. 79% (102) Rus. 87% (91)	
	Family history breast cancer (+/-): Avg. 5% Alb. 10% (16) Arm. 5% (9) Geo. 5% (8) Rus. 1% (2)	Very confident screening for breast cancer: Avg. 24% Alb. 24% (12) Arm. 30% (16) Geo. 21% (15) Rus. 22% (16)		

On average in the four countries, 12% of charts documented a prior pap smear for cervical cancer screening (Table 31). Client reports of prior pap smear were approximately two to three times higher than for chart results in each country, suggesting that some women are likely receiving this screening outside ambulatory clinics with gynecologists. Rates of this screening were highest in Russia for both chart documentation in polyclinics (33%) and for client reports of a prior pap smear (88%). Indeed, the 88% of Russian women who reported a prior pap smear was significantly higher than in any of the other three countries, consistent with expert informant reports that Russian women, in general, receive cervical cancer screening in “women’s consultations” outside ambulatory clinics. In other countries, the routine division of gynecology and ambulatory services was less clear, as many polyclinics had a gynecologist on staff. A few women’s consultations were assessed in Russia as part of the assessment with data analysis pending at the time of this report. Approximately half of the ambulatory clinic providers reported that they refer women to gynecologists for cervical cancer screening, and 38% of providers reported that they had never been trained to do a pap smear. Availability of cervical cancer screening guidelines and supplies was generally highest in Russia (Table 31). No documentation of Human Papilloma Virus (HPV) vaccine administration was observed in the charts, although nearly two-thirds of providers correctly identified the virus as the main cause of cervical cancer.

Table 31. Cervical Cancer Screening: Summary Findings

Cervical Cancer	% charts with recorded best practice (n=658)	% providers reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
Practice, knowledge & attitude	<p>Pap recorded within past 3 years: Avg. 12% Alb. 2% (4) Arm. 9% (15) Geo. 5% (8) Rus. 33% (59)</p> <p>Recorded HPV vaccine (any #): Avg. 0% Alb. 0.6% (1) Arm. 0% (0) Geo. 0% (0) Rus. 0% (0)</p>	<p>Specific cervical cancer screening practices: – Routinely screen sexually active women (every 1-3 yrs): Avg. 6% Alb. 6.9% (4) Arm. 1.9% (1) Geo. 7% (5) Rus. 6% (5) – Screen only “high risk” women: Avg. 6% Alb. 13.8% (8) Arm. 1.9% (1) Geo. 8.4% (6) Rus. 1% (1) – Refer to gynecologist for cervical cancer screening: Avg. 47% Alb. 25.8% (15) Arm. 65.4% (34) Geo. 46.5% (33) Rus. 49% (38) – Never trained to do a pap smear: Avg. 38% Alb. 44.8% (26) Arm. 28.8% (15) Geo. 35.2% (25) Rus. 42% (33)</p> <p>Answer correctly cervical cancer screening guidelines: Avg. 39% Alb. 55.2% (32) Arm. 21.6% (11) Geo. 64.7% (44) Rus. 14% (10)</p> <p>Correctly identify HPV as primary causative agent in cervical cancer: Avg. 73% Alb. 75.9% (44) Arm. 67.3% (35) Geo. 84% (58) Rus. 64% (47)</p> <p>Recent cervical cancer screening CME (< 3 years): Avg. 29% Alb. 31% (19) Arm. 38% (20) Geo. 38% (27) Rus. 7% (6)</p>	<p>Have heard of pap test: Avg. 37% Alb. 21% (15) Arm. 15% (13) Geo. 14% (18) Rus. 97% (102)</p> <p>Prior pap test: Avg. 35% Alb. 21% (15) Arm. 15% (13) Geo. 14% (18) Rus. 88% (94)</p>	<p>Speculum (for gynecologic exam/specimen collection): Avg. 62% Alb. 36% (4) Arm. 64% (7) Geo. 85% (11) Rus. 92% (11)</p> <p>Pap specimen collection materials: Avg. 57% Alb. 27% (3) Arm. 55% (6) Geo. 54% (7) Rus. 92% (11)</p> <p>Cervical cancer screening guidelines available on site: Avg. 55% Alb. 27.3% (3) Arm. 63.6% (7) Geo. 38.5% (5) Rus. 92% (11)</p>

Colon cancer screening results were generally low for all data sources in the four countries for the pre-requisite elements for successful colon cancer screening with stool hemocult, considered the most cost-effective screening practice for colon cancer in resource-constrained settings (Table 32). Although no one in the chart or client sample qualified for colon screening due to age less than 50, provider results suggest that capacity for colon cancer screening, including targeting of high-risk individuals, is low. Only 6% of charts documented family history (+/-) for colon cancer that would permit targeted screening and monitoring of high-risk individuals. Less than 15% of providers reported recent CME or to be very confident in screening for colon cancer, and only 19% of facilities on average had colon cancer screening guidelines on site. Interestingly, nearly half of clients reported having heard of colon cancer screening with homocult.

Nearly 90% of clinics on average in the four countries had availability of hemocult testing for occult blood in the stool, representing an opportunity to improve colon cancer screening in clinics assessed. Although the assessment was not designed to examine cancer treatment capacity, expert informant interviews suggested that evidence-based, financially accessible treatment for colon, breast, and cervical cancer is in general very low. Any effort to improve cancer screening would clearly need to be linked to improving evidence-based care for identified cases.

Table 32. Colon Cancer Screening: Summary Findings

Colon Cancer	% charts with recorded best practice (n=658)	% providers Reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
Practice, knowledge & attitude	Family History colon cancer (+/-) ever recorded: Avg. 6% Alb. 14% (23) Arm. 9% (15) Geo. 1% (1) Rus. 0.5% (1)	Recent colon cancer screening CME (< 3 yrs): Avg. 14% Alb. 8% (5) Arm. 26% (14) Geo. 17% (12) Rus. 5% (4) Very confident screening for colon cancer: Avg. 12% Alb. 8% (4) Arm. 11% (6) Geo. 10% (7) Rus. 19% (14)	Have heard of hemocult or colonoscopy for colon cancer screening: Avg. 46% Alb. 48% (34) Arm. 51% (45) Geo. 33% (43) Rus. 50% (53)	Colon cancer screening guidelines available: Avg. 19% Alb. 0% (0) Arm. 18.2% (2) Geo. 7.6% (1) Rus. 50% (6) Hemocult testing: Avg. 87% Alb. 46% (5) Arm. 36% (4) Geo. 100% (13) Rus. 92% (11)

Note: Client sample age precluded an indication for colon cancer screening.

3. Chronic Respiratory Diseases and Tobacco Use

Table 33 summarizes results of tobacco screening and cessation for the different data sources. On average 24% of charts in the four countries documented tobacco use status (+/-), with the highest rate in Georgia, where nearly two-thirds of charts documented tobacco use status as contrasted with less than 15% in the other countries. Tobacco cessation interventions for identified smokers in Georgia and Russia (no positive smokers screened in Armenia and Albania) were low, with less than one quarter of charts documenting a tobacco cessation intervention and only one chart, in Georgia, in the entire 658 sample of charts documenting a prescription for NRT. Provider results reinforce chart results. One third of providers reported to routinely screen for tobacco use, as contrasted with 46% of providers reporting high confidence for tobacco use screening. The reasons for the low rates of provider-reported and chart-documented low-cost tobacco use screening despite relatively high provider confidence merits further evaluation. The failure to systematically screen and intervene for tobacco use represents a major gap identified in this assessment. A third of providers reported tobacco-related

Table 33. Tobacco Use Screening and Cessation: Summary Findings

Tobacco Use Screening & Cessation	% charts with recorded best practice (n=658)	% providers reported best practice (n=269)	% clients report best practice (n=387)	% facilities with essential input (n=47)
Practice, knowledge & attitude	Tobacco use status (+/-): Avg. 24% Alb. 17% (28) Arm. 1% (2) Geo. 69% (101) Rus. 12% (22)	Routinely screen tobacco use: Avg. 31% Alb. 34% (21) Arm. 40% (21) Geo. 32% (23) Rus. 17% (14)	Currently smoke: Avg. 10% Alb. 6% (4) Arm. 2% (2) Geo. 12% (16) Rus. 21% (22)	NRT: Avg. 11% Alb. 0% (0) Arm. 0% (0) Geo. 0% (0) Rus. 45% (5)
	Tobacco cessation intervention if + tobacco use (counseling or NRT): Avg. 23% Alb. NA Arm. NA Geo. 12.5% (1) Rus. 33% (5)	Routinely counsel smokers on tobacco avoidance/cessation: Avg. 42% Alb. 52% (32) Arm. 53% (28) Geo. 44% (31) Rus. 17% (14)	- Ever been counseled by provider on tobacco avoidance or cessation: Avg. 27% Alb. 20% (1) Arm. 33.3% (1) Geo. 42.3% (11) Rus. 14% (14)	Other tobacco cessation medicines: Avg. 6% Alb. 0% (0) Arm. 0% (0) Geo. 8% (1) Rus. 17% (2)
	NRT prescribed if +: Avg. 3% Alb. NA Arm. NA Geo. 12.5% Rus. 0%	Prescribe NRT: Avg. 4% Alb. 3.2% (2) Arm. 7.5% (4) Geo. 4.2% (3) Rus. 2% (2)	Prior quit attempt (successful or not): Avg. 33% Alb. 50% (3) Arm. 3.4% (3) Geo. 18.5% (24) Rus. 59% (30)	Tobacco screening/treatment guidelines: Avg. 28% Alb. 18% (2) Arm. 27% (3) Geo. 8% (1) Rus. 58% (7)
		Recent tobacco CME (< 3 yrs): Avg. 32% Alb. 48% (29) Arm. 51% (27) Geo. 20% (14) Rus. 8% (7)	Correctly identify smoking as leading cause lung cancer: Avg. 91% Alb. 90% (65) Arm. 91% (80) Geo. 92% (119) Rus. 91% (96)	
		Very confident screening for tobacco use: Avg. 46% Alb. 51% (27) Arm. 54% (27) Geo. 47% (33) Rus. 31% (22)	Agree effective treatments for tobacco cessation: Avg. 37% Alb. 24% (54) Arm. 31% (61) Geo. 41% (77) Rus. 51% (53)	
		Very confident treating tobacco cessation: Avg. 24% Alb. 37% (19) Arm. 21% (11) Geo. 25% (18) Rus. 13% (9)		

CME within the past year, and a quarter reported to be very confident in treating tobacco cessation. Only 4% of the 269 providers reported prescribing or recommending NRT, an evidence-based, high-impact intervention. While only 10% of clients on average reported smoking at the time of the survey, the 33% of clients who reported prior tobacco cessation attempts suggests that tobacco use is a problem for more than the 10% of clients reporting to be active smokers. A large majority of clients in

all countries correctly answered that tobacco use is a leading cause of lung cancer, and 37% expressed confidence in effective tobacco cessation treatments. Nearly a third of clients reported prior tobacco avoidance or cessation counseling by a doctor, consistent with chart results.

Of facilities in Russia 45% had NRT available in clinics, but none of the clinics in the other countries did. One clinic in Georgia and two in Russia had an oral tobacco cessation medication (e.g., Bupropion) available in the clinic pharmacy. Over half of clinics in Russia had tobacco screening/cessation guidelines available, as contrasted with a third of clinics in the other countries.

In general, asthma results were mixed across the different data sources. Well over two-thirds and 90% of charts, respectively, documented bronchodilator and inhaled corticosteroid treatment for clients with established asthma, both considered best buy interventions for persistent asthma (Table 34). The quality of asthma diagnosis and severity classification, both important factors in optimum asthma care, could not be assessed based on limitations in the chart review methodology. However, the very high rates of documentation of at least one asthma-related hospitalization for clients with asthma (> 50% in all countries except Albania) raises important questions about quality of asthma care with regard to client adherence with treatment and self-management capacity, quality of care for asthma exacerbations, and decision-making for hospitalization (e.g., financial incentives). The relative lack of availability of a pulse oximeter in facilities (9-50%) may in part limit provider confidence in assessing the severity of asthma exacerbations. The low level of documentation of environmental asthma triggers in half of the charts in Georgia, Albania, and Armenia (as contrasted with 100% of charts in Russia) also raises concerns about quality of comprehensive asthma care in these three countries. The lack of documented spirometry results (7%) in charts of clients with diagnosed asthma (to assess lung function and asthma severity) as contrasted with the higher availability of spirometry in facilities (40%) suggests that financial and/or physician factors may hinder the use of this relatively low-cost technology (once on site) that can improve asthma and COPD care. The low level of provider self-reported confidence in treating asthma (31-42%) despite the presence of asthma guidelines in 50% of facilities and 50% of providers reporting asthma CME within past three years suggests a need to strengthen provider competence to control a condition that exerts high costs for families and the health system when uncontrolled.

4. Diabetes

Assessment results for diabetes best practices were mixed and varied considerably among and within countries.

Screening and diagnosis: Except in Russia, less than half of the charts had a recorded serum glucose level, despite availability of an on-site glucometer to measure serum glucose in > 80% of facilities in all countries (> 90% in Russia, Albania, and Georgia). The assessment methodology precluded assessment of the quality of diabetes diagnosis, but the finding that less than half of providers on average in the four countries could correctly identify standard diabetes diagnostic criteria raises serious concerns about the overall quality of diagnosis care. Documentation of a HgA1C value among charts of clients with established diabetes (high-impact blood test to measure and guide diabetes control), was variable across the four countries: less than 15% of charts in Georgia and Albania documented a HgA1C, despite availability of the test in a third of Georgia and almost half of Armenia facilities. Cost likely plays a role in the low utilization of HgA1C in these two countries.

Roughly two-thirds of charts in Albania and Russia had documentation of an A1C laboratory result for clients with diabetes. The lower availability of A1C found in Albanian facilities, as contrasted with documentation of the laboratory test in charts, suggests that clients may be going outside the clinic for blood work (charts with diabetes were distributed among most facilities in Albania).

Table 34. Asthma: Summary Findings

Asthma Care	% charts with recorded best practice (n=658)	% providers reported best practice (n=269)	% clients report best practice (n=387)	% facilities with essential input (n=47)
Practice, knowledge & attitude	<p>% charts with asthma: Avg. 6%</p> <p>Alb. 7% (12) Arm. 1% (2) Geo. 10% (15) Rus. 7% (12)</p> <p>Bronchodilator prescribed (+ asthma): Avg. 86%</p> <p>Alb. 75% (9) Arm. 100% (2) Geo. 100% (15) Rus. 67% (8)</p> <p>Controller (preventive) treatment recorded (+ asthma): Avg. 94%</p> <p>Alb. 83% (10) Arm. 100% (2) Geo. 100% (15) Rus. 92% (11)</p> <p>Spirometry documented (+ asthma): Avg. 7%</p> <p>Alb. 4% (7) Arm. 1% (2) Geo. 10% (15) Rus. 12% (21)</p> <p>Environmental triggers assessed (+ asthma): Avg. 62%</p> <p>Alb. 50% (6) Arm. 50% (1) Geo. 47% (7) Rus. 100% (12)</p> <p>Hospitalization for asthma recorded (+ asthma): Avg. 46%</p> <p>Alb. 17% (2) Arm. 50% (1) Geo. 60% (9) Rus. 58% (7)</p>	<p>Recent asthma CME (< 3 yrs): Avg. 51%</p> <p>Alb. 54% (33) Arm. 60% (32) Geo. 55% (39) Rus. 33% (28)</p> <p>Very confident managing asthma: Avg. 37%</p> <p>Alb. 42% (22) Arm. 38% (19) Geo. 38% (27) Rus. 31% (23)</p>	<p>Asthma diagnosis: Avg. 2%</p> <p>Alb. 1.4% (1) Arm. 0% (0) Geo. 3% (4) Rus. 3% (3)</p>	<p>Peak Flow Meter: Avg. 38%</p> <p>Alb. 18% (2) Arm. 27% (3) Geo. 39% (5) Rus. 67% (8)</p> <p>Pulsoximeter: Avg. 26%</p> <p>Alb. 20% (2) Arm. 9% (1) Geo. 23% (3) Rus. 50% (6)</p> <p>Spirometry available: Avg. 40%</p> <p>Alb. 27% (3) Arm. 27% (3) Geo. 23% (3) Rus. 83% (10)</p> <p>Asthma guidelines: Avg. 50%</p> <p>Alb. 9% n=1 Arm. 46% n=5 Geo. 54% n=7 Rus. 92% (11)</p>

Treatment: Documentation of low-cost, high-impact oral diabetes medication (Metformin or Sulfonyurea) prescribed in charts varied from 41% in Albania to 59% in Armenia. The low levels of such prescription documentation for people with diabetes, as contrasted with fair to good availability of oral medication in clinics (except Georgia), indicates an important missed opportunity, since these medications are low-cost and available as generics. Close to half of facilities had insulin available, and close to two-thirds of charts on average documented the prescription of long-acting insulin. Assessment methodology results

preclude an assessment of the quality of overall diabetes control including appropriateness of insulin use in terms of both initiation and augmentation in relation to disease status. Despite over half of providers reporting diabetes CME within the past three years, only one quarter on average reported to be very confident managing diabetes.

Early detection complications: On average in the four countries two-thirds of charts documented an ophthalmology evaluation and urine protein quantification to assess for microvascular complications of diabetes amenable to intervention if detected early (diabetic nephropathy and retinopathy). The assessment methodology did not permit assessment of high-impact follow-up interventions for identified diabetes complications.

Continuity of care and patient self-management support: Except in Georgia (50%) only 30% of providers reported seeing their patients with diabetes at least once per year, with almost half of providers on average reporting follow up “as-needed” for their patients with diabetes (Table 35) Although most managers reported availability of individual diabetes education, the low frequency of regular follow-up and low availability of general client self-management support services reported by managers and providers alike raises questions about the adequacy of continuity of care and client support services for diabetes control (Table 22). Except in Russia (73%) less than 15% of managers reported group diabetes education sessions, a potentially innovative and cost-effective strategy to strengthen client-self management skills that has been adopted in other countries.

Table 35. Diabetes Screening and Management: Summary Findings

Diabetes Care	% charts with recorded best practice (n=658)	% providers reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
Practice, knowledge & attitude	<p>Diabetes: Avg. 16% Alb. 18% (29) Arm. 16% (27) Geo. 20% (29) Rus. 9% (17)</p> <p>Serum blood glucose ever recorded: Avg. 44% Alb. 45% (74) Arm. 36% (59) Geo. 31% (46) Rus. 64% (116)</p> <p>A1C result ever recorded (+DM): Avg. 35% Alb. 61% (17) Arm. 7% (2) Geo. 12% (3) Rus. 59% (10)</p> <p>Oral medication ever prescribed (+DM): Avg. 46% Alb. 41% (11) Arm. 59% (16) Geo. 44% (12)</p>	<p>Specific follow-up time intervals if diabetes stable: –As needed: Avg. 46% Alb. 58% (n=29) Arm. 44% (n=20) Geo. 35% (n=24) Rus. 45% (33)</p> <p>–At least twice per year: Avg. 38% Alb. 30% (n=15) Arm. 33% (n=15) Geo. 51% (n=35) Rus. 36% (26)</p> <p>Providers who correctly identify diabetes diagnostic criteria (knowledge test): Avg. 46% Alb. 51% (31) Arm. 33% (17) Geo. 65% (45) Rus. 36% (27)</p> <p>Very confident managing diabetes:</p>	<p>Self-report DM diagnosis: Avg. 3% Alb. 1% (1) Arm. 6% (5) Geo. 2% (2) Rus. 2% (2)</p>	<p>Functioning glucometer: Avg. 89% Alb. 91% (10) Arm. 82% (9) Geo. 92% (12) Rus. 92% (11)</p> <p>A1C laboratory capacity: Avg. 41% Alb. 18% (2) Arm. 46% (5) Geo. 31% (4) Rus. 67% (8)</p> <p>Oral diabetes medication (Metformin or Sulfonyrea): Avg. 53% Alb. 40% (4) Arm. 82% (9) Geo. 8% (1) Rus. 83% (10)</p> <p>Long-acting insulin: Avg. 42% Alb. 20% (2) Arm. 64% (7) Geo. 8% (1) Rus. 75% (9)</p>

Diabetes Care	% charts with recorded best practice (n=658)	% providers reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
	<p>Rus. 38% (6)</p> <p>Long-acting insulin ever prescribed (+DM): Avg. 59% Alb. 54% (15) Arm. 37% (10) Geo. 64% (18) Rus. 82% (14)</p> <p>Urine protein (+DM): Avg. 62% Alb. 14% (4) Arm. 75% (24) Geo. 73% (19) Rus. 88% (15)</p> <p>Ophthalmology assessment (+DM): Avg. 62% Alb. 32% (9) Arm. 56% (15) Geo. 71% (20) Rus. 88% (15)</p>	<p>Avg.24% Alb. 40% (21) Arm. 15% (8) Geo. 14% (10) Rus. 26% (20)</p> <p>Recent DM CME (< 3 years): Avg. 55% Alb. 66% (40) Arm. 62% (33) Geo. 56% (40) Rus. 35% (29)</p>		<p>Short-acting insulin: Avg. 42% Alb. 20% (2) Arm. 64% (7) Geo. 8% (1) Rus-75% (9)</p> <p>Urine protein testing capacity: Avg. 77% Alb. 18% (2) Arm. 91% (10) Geo. 100% (13) Rus. 100% (12)</p> <p>Manager-reported individual diabetes education: Avg. 81% Alb. 80% (8) Arm. 91% (10) Geo. 62% (8) Rus. 92% (10)</p> <p>Manager-reported group-diabetes education: Avg 25% Alb. 10% (1) Arm. 0% (0) Geo. 15%(2) Rus. 73% (8)</p>

5. Mental Health and Substance Abuse

Assessment results for mental health and alcohol and substance abuse best practices were uniformly weak in all four countries. The assessment focused in particular on depression, since it is widely prevalent, exerts significant costs for clients and families in human and economic terms, negatively impacts NCD self-management, and is amenable to relatively low-cost treatment if detected. One half to 80% of clients agreed with the statement that “depression is a common problem for women” (Table 36). Roughly one-third of clients reported current or past depression symptoms, ranging from 28% in Albania to nearly half of clients in Georgia (45%); only 13% of clients reported prior treatment for depression (Table 36), ranging from 8% in Russia to 22% in Armenia. Chart results demonstrate very low levels of detection and treatment of depression. Among the 658 charts only 4% documented any depression diagnostic questions (e.g., sadness, insomnia, loss of pleasure in usual activities). Only 11% of providers reported asking about depression symptoms, and even in the presence of symptoms suggesting depression, only 34% on average in the four countries reported asking about it. With little variation among countries, less than 3% of charts documented any mental health intervention, including treatment with an anti-depressant—despite availability of tricyclic and SSRI antidepressant medications in a third to half of clinics in Armenia, Albania, and Russia (0-8% in Georgia—or referral to a mental health counselor, psychologist or psychiatrist, While the low level of observed best depression

Table 36. Depression/Mental Health Screening and Treatment: Summary Findings

Depression & Mental Health	% charts with recorded best practice (n=658)	% providers reported best practice (n=269)	% clients reported best practice (n=387)	% facilities with essential input (n=47)
Practice, knowledge & attitude	<p>Any depression diagnostic items: Avg. 4% Alb. 7% (12) Arm. 5% (8) Geo. 3% (5) Rus. 0% (0)</p> <p>Mental health consultation or referral: Avg. 1% Alb. 1% (1) Arm. 1% (1) Geo. 1% (1) Rus. 0% (0)</p> <p>Psychiatry referral: Avg. 5% Alb. 12% (20) Arm. 1% (2) Geo. 0% (0) Rus. 7% (13)</p> <p>SSRI anti-depressant ever prescribed: Avg. 2% Alb. 5% (8) Arm. 0.6% (1) Geo. 2% (3) Rus. 0.5% (1)</p> <p>Tricyclic antidepressant ever prescribed: Avg. 1% Alb. 2% (4) Arm. 1% (2) Geo. 2% (3) Rus. 0.5% (1)</p>	<p>Routinely ask about depression: Avg. 11% Alb. 5% (3) Arm. 23% (12) Geo. 14% (10) Rus. 1% (1)</p> <p>Routinely ask about depression if + or suggestive symptoms: Avg. 34% Alb. 52% (32) Arm. 28% (15) Geo. 39% (28) Rus. 18% (15)</p> <p>NO accessible counseling services near facility: Avg. 4% Alb. 3% (2) Arm. 2% (1) Geo. 4% (3) Rus. 5% (4)</p> <p>Never trained to treat depression: Avg. 30% Alb. 7% (4) Arm. 11% (6) Geo. 14% (11) Rus. 89% (47)</p> <p>Recent depression CME (< 3 yrs): 30% Alb. 54% (33) Arm. 28% (15) Geo. 28% (20) Rus. 11% (9)</p> <p>Very confident screening depression: Avg. 12% Alb. 26% (13) Arm. 4% (2) Geo. 17% (12) Rus. 18% (13)</p> <p>Very confident treating depression: Avg. 12% Alb. 22% (11) Arm. 4% (2) Geo. 7% (5) Rus. 13% (9)</p> <p>Agree with statement "there are no effective treatments for depression": Avg. 33% Alb. 32% (17) Arm. 45% (24) Geo. 41% (29) Rus. 12% (9)</p>	<p>Depression symptoms (current/prior): Avg. 37% Alb. 28% (20) Arm. 36% (32) Geo. 45% (59) Rus. 39% (39)</p> <p>Ever treated for depression: Avg. 13% Alb. 10% (7) Arm. 22% (19) Geo. 10% (12) Rus. 8% (8)</p> <p>Agree with statement "depression is a common problem for women": Avg. 71% Alb. 57% (50) Arm. 88% (63) Geo. 55% (72) Rus. 83% (86)</p> <p>Agree there are effective depression treatments: Avg. 68% Alb. 88% (63) Arm. 57% (50) Geo. 55% (72) Rus. 70% (72)</p>	<p>Specific anti-depressants: --SSRI: Avg. 26% Alb. 30% (3) Arm. 30% (3) Geo. 0% (0) Rus.-42% (5)</p> <p>--Tricyclic antidepressants: Avg. 37% Alb. 50% (5) Arm. 30% (3) Geo. 8% (1) Rus.-58% (7)</p> <p>Depression screening/treatment guidelines: Avg. 17% Alb. 9% (1) Arm. 9% (1) Geo. 15% (2) Rus.-33% (4)</p>

practices may be in part due to the stigma associated with it and provider discomfort asking patients, provider results suggest that low provider competence and confidence in treatment plays an important role. Although one third of providers reported depression CME within the past years, only 12% reported a high level of confidence screening and treating depression. Only 17% of clinics had depression diagnosis and treatment guidelines. Despite the two-thirds of clients who reported confidence in availability of effective anti-depression treatments, a full third of trained doctors agreed with the statement “there are no effective treatments for depression.” Thus, results poignantly paint a picture of relatively “optimistic depressed” patients and “pessimistic” doctors regarding effective treatment for this debilitating yet treatable mental health condition reported by a third of clients.

Like that for depression, assessment findings show weakness across all four countries for alcohol and substance abuse screening and treatment. With the exception of Georgia (57%) less than 15% of charts documented alcohol status, whether positive or negative (Table 37). And even in Georgia, where 57% of charts reported alcohol use status, 0% of charts documented quantification of alcohol use (frequency, quantity, and type of alcohol) for clients who reported positive alcohol use. Less than 15% of providers—except in Georgia (35%)—reported routinely screening for alcohol use. A quarter of providers on average reported prior alcohol CME within the past three years and a third reported high confidence in screening for alcohol abuse. However, only 12% reported a high degree of confidence in treating it.

Table 37. Alcohol and Substance Abuse: Summary Findings

Alcohol and Substance Abuse	% charts with recorded best practice (n=658)	% providers reported best practice (n=269)	% clients reported best practice (n=387)
Practice, knowledge & attitude	% charts with any alcohol use screening: Avg. 18% Alb. 15% (25) Arm. 0.6% (1) Geo. 57% (84) Rus. 0.5% (1) Quantification alcohol use : NA Alb. 0% (0) Arm. 0% (0) Geo. 0% (0) Rus. 100% (1) Substance abuse screening questions recorded: Avg. 2% Alb. 8% (14) Arm. 0.6 % (1) Geo. 0.6% (1) Rus. 0% (0)	Report to routinely screen for alcohol: Avg. 18% Alb. 7.5% (4) Arm. 16% (10) Geo. 35% (25) Rus. 12 % (10) Report recent alcohol abuse screening/ treatment CME (< 3 yrs): Avg. 26% Alb. 38% (23) Arm. 45% (24) Geo. 16% (11) Rus. 5%(4) Report very confident <i>screening</i> alcohol abuse: Avg. 33% Alb. 41% (21) Arm. 30% (16) Geo. 35% (25) Rus. 26% (18) Report very confident <i>treating</i> alcohol abuse: Avg. 12% Alb. 20% (10) Arm. 9% (5) Geo. 10% (7) Rus. 10% (7) Report knowledge of local drug rehabilitation program: Avg. 42% Alb. 42% (22) Arm. 38% (21) Geo. 58% (41) Rus. 28% (23)	Report alcohol use 1-2x/wk: Avg. 1.75% Alb. 0% (0) Arm. 3% (3) Geo. 0% (0) Rus. 4% (4) Report alcohol use 3 or more per week: Avg. 0.5% Alb. 0% (0) Arm. 1% (1) Geo. 1% (1) Rus. 0% (0) Report prior effort to decrease alcohol intake: Avg. 19% Alb. 34% (22) Arm. 2% (2) Geo. 4% (6) Rus. 36% (28)

While few clients reported alcohol use of more than once or twice a week (<4%, all countries), the observed low-rate of self-report likely underestimates women's alcohol use based on prior prevalence studies. Indeed, the fact that over one third of clients in Georgia and Russia report prior attempts to "cut down" on their alcohol intake suggests that alcohol may well be a significant problem for the women in the client sample, at least in those two countries. Several focused, validated alcohol screening approaches used in other countries ask clients whether they have ever tried to "cut down" on their alcohol consumption given the common underreporting of alcohol intake. The percentage of charts documenting any substance abuse (e.g., cocaine, heroin, marijuana) was even less than for alcohol. Eight charts in Albania, none in Russia, and one each in Georgia and Armenia documented substance abuse (+/-). Interestingly, however, a quarter to half of providers reported knowing about local drug rehabilitation services. A follow-on assessment would be needed to explore detailed practices, constraints, and opportunities for strengthening alcohol and drug abuse screening and follow on interventions.

VI. CONCLUSIONS AND RECOMMENDATIONS

With some variability among countries, results of this assessment of NCD prevention, screening, and care services for women of reproductive age in Albania, Armenia, Georgia, and Russia demonstrate several strengths but also many significant gaps in quality of best practices, including client and provider practice and knowledge. Comprehensive findings were presented in Section V, highlighting variability between and within countries as well as each country's areas of strength and weakness and common trends observed across all four. Across the countries client understanding of NCD risk factors, self-reported practice, and receipt of specific NCD services was moderate to low and revealed specific areas where improved client understanding and behavior change support could produce significant benefits for women and their families (e.g., improved understanding of CVD risk factors, lifestyle changes, and utilization of health services to modify CVD risk factors). The low chart documentation of alcohol abuse screening (18%), tobacco use screening (24%), and tobacco cessation interventions (3%), confirmed by provider and client survey results, highlights the need to strengthen screening and follow-on interventions for these two common, modifiable behavioral risk factors. The relative lack of systematic screening and follow-on interventions for CVD risk factors (e.g., obesity, physical inactivity, high cholesterol) shows an important screening gap. Quality of care for diagnosed NCDs, including diabetes, asthma and CVD, varied between and within countries but overall demonstrated many quality gaps, as measured by chart documentation and provider survey results. Despite relatively high rates of client-reported depression in all these countries, assessment results demonstrate weak delivery of general mental health and depression-specific detection and treatment best practices.

Many assessment-identified quality of care gaps, such as tobacco and CVD risk factor screening, could be closed fairly quickly by prioritizing rapid implementation of low-performed, low-cost best buy NCD interventions in ambulatory health care services. Many disease-specific prevention and control interventions overlap across the four major NCDs (CVD, diabetes, cancer and chronic respiratory disease); "packaging" them to address shared risk factors and targeting prioritized packages for implementation and integration in high-yield services could yield significant impact and efficiencies (e.g., in maternal and reproductive health, HIV/TB, and ambulatory adult services). High-income countries are increasingly making important strides in controlling NCDs through deliberate packaging of best practices supported by policy, financing, health information, technology, and service delivery systems. For example, despite an increasingly obese and inactive population, combined deaths from CVD declined by 34% in the U.S. between 1997 and 2007 (Roger et al., 2011) and also significantly in the United Kingdom since 1981 (Unal, Critchley, and Capewell, 2004). These reductions were achieved through a combination of population-level (e.g., tobacco control) and individual best buy CVD prevention and control interventions. Most experts estimate that individual and population level interventions each contributed approximately half to the observed reduction. Most low- and middle- income countries

have limited experience packaging high-impact individual interventions (and repackaging them as new evidence emerges); instead, they rely on extremely detailed and often out-dated “national guidelines” that are hard to keep-up-to date and even harder to implement and scale up in “real life,” complex clinical settings.

In parallel with immediate opportunities to improve the delivery and quality of high-impact interventions, many opportunities for mid-term improvement are identified for strengthening more complex NCD interventions and the health system functions essential for supporting them at scale. Assessment results demonstrate low levels of screening for cervical and breast cancer, the two leading causes of cancer mortality for women. In the absence of immediate capacity to implement routine cancer screening in these countries, targeted screening that would identify high-risk individuals for more aggressive screening may make sense for cancers with a strong genetic component such as these two cancers. Assessment results, however, demonstrate low levels of targeted screening (<10%) to identify women at increased risk for breast cancer due to a positive family history. Similarly, for colon cancer less than 6% of charts on average documented a family history of colon cancer, despite generally good availability of a low-cost, evidence-based colon cancer screening intervention (hemoccult) in clinics. Targeted screening for early detection of cancers with a strong genetic component in high-risk individuals combined with improved basic cancer treatment may be an important first step toward controlling certain high-burden cancers in this middle-income region.

Assessment results highlight the need to strengthen essential health system functions for scale-up of NCD best practices. Areas of health system weakness include: NCD health information systems that cannot, currently, reliably measure NCD incidence, mortality, and coverage of services for evidence-based decision making; lack of prioritization and adequate financing for even a basic package of prioritized NCD interventions; inefficient service delivery organization for routine integrated health promotion, screening, and treatment services linked to strong patient counseling and self-management services; lack of regulation to promote utilization and affordability of cost-effective generic NCD medications; and relatively low provider knowledge and confidence to deliver even low-cost, high-impact interventions such as screening and targeted risk factor reduction for individuals at elevated risk for CVD and diabetes. The deregulation of provider CME requirements in Armenia and Georgia is identified as a health system gap in these two countries with respect to sustaining provider competence.

Specific short- and mid-term recommendations appear below and emphasize priority actions to: implement and scale up low-performed, high-impact NCD interventions; strengthen essential cross-cutting NCD health system functions (including provider capacity-building); and promote community awareness and client behavior change, including consumer demand for and increased utilization of high-impact NCD services. In general, short-term recommendations focus on packaging and rapidly implementing low-performed, best-buy NCD intervention packages in high-yield services while mid-term recommendations focus on national and regional health system strengthening and implementation of more complex NCD intervention packages, such as breast cancer screening and treatment in the appropriate service delivery context.

Determining best strategies for implementing specific recommendations will need to be made at country level by opinion leaders with the influence to effect real change. The historic organization of health care in the E&E region that generally constrains an independent role for generalists and favors specialized parallel treatment of multiple diseases in each client presents unique challenges for scaling up integrated health promotion and NCD prevention and treatment services. On the other hand the assessment finding that most providers and clients recognize a single provider who provides care most of the time for an individual client represents a strong platform from which to introduce best practices. Whether the primary care model adopted in many countries and endorsed by WHO as a central pillar of effective NCD service delivery can or should be implemented in the region remains an open question. Regardless of the specific strategies that may work best for individual countries, they will have no choice

but to tackle the gaps identified here if they are to control the growing NCD crisis, constrain health care costs, achieve economic growth, and secure the political stability that depends on a minimum threshold of basic health for their citizens. The distinct and sometimes overlapping paths being pursued by Georgia, Armenia, Albania, and Russia will undoubtedly yield many lessons in the years ahead.

A. Recommendations for Immediate Improvement: Low-cost Actions at Service Delivery Level

I. Cross-cutting Health System Recommendations for Implementation in High-yield Services

- Improve provider access to up-to-date evidence/guidelines and practical job-aids in clinics.
- Improve chart organization to promote and track high-impact services.
- Promote routine delivery of prioritized, low-cost, best buy “intervention packages” (consider checklists).
- Strengthen client communications, counseling, and concrete behavior change support for improved client understanding of NCD risk factors, negative health effects, and the importance of continuous NCD screening and care services (designated staff, service delivery organization, counseling materials, etc.).
- Choose and measure simple NCD indicators to track progress and generate useful data for local decision making in individual health centers (ultimately can be aligned with national level NCD health information system).
- Promote increased use of trained mid-level staff (e.g., nurses and expert patients) and collaborative teamwork (providers, nurses, nutritionists, case managers, expert patients, etc.) to accelerate coverage of high-impact NCD interventions closely aligned with client behavior change support for modification of NCD behavioral risk factors and improved self-management capacity of clients living with NCDs.

2. NCD Disease-specific Recommendations

Use quality improvement methods to package and implement infrequently performed NCD interventions; tailor them to individual country results:

- **Tobacco:** Promote universal screening and tobacco cessation treatment for every individual at every encounter in the clinic (nurse/patient educator plus physician) supported by client-centered counseling materials.
- **Weight and physical activity:** Promote universal weight measurement and classification of exercise and weight status, with targeted lifestyle change support for at-risk individuals (nurse/patient educator plus physician).
- **Asthma:** Promote routine assessment of and intervention for asthma triggers in all patients with asthma, and promote systematic use of controller (inhaled corticosteroids) inhalers for all patients with persistent asthma (whether mild, moderate, or severe persistent).
- **CVD:** Promote routine screening for and treatment of at-risk individuals (> 20-30% risk of 10-year cardiovascular event) via lifestyle change support and combination treatment with an anti-hypertensive, anti-cholesterol medication (Statin) and aspirin (a low-cost drug combination considered a best buy for at-risk individuals).
- **Diabetes:** Improve early detection, modification of risk factors and evidence-based treatment of established disease (e.g., low-cost, best buy oral diabetes drug,) including interventions proven to slow progression of disease; consider routine use of HgA1C to track and guide diabetes control (where affordable); promote comprehensive diabetes control packages such as Blood Pressure, Cholesterol, Diet, Exercise and Mental Health (“ABCDE”) to aggressively modify micro- and macro-vascular complications in persons with diabetes (“ABCDE” = HbA1C, Blood Pressure, Cholesterol, Diet, Exercise and Mental Health).

- Breast and cervical cancer: Implement routine clinical breast exam by provider at least once per year; consider universal or risk-based breast cancer screening with mammography. Consider visual imaging with acetic acid as a low-cost best buy cervical cancer screening and treatment intervention.
- Depression detection: Improve provider capacity to recognize and diagnose individuals at high risk for or suffering from depression, and strengthen provider confidence and competence to diagnose depression and anxiety and to treat or refer for mental health care.

B. Recommendations for Mid-term Improvement: Actions at National, Regional, and Service Delivery Levels

I. Cross-cutting Health System Recommendations

- Promote NCDs as a national health priority; actively integrate NCD prevention and control into national development policies and implementation strategies across all relevant sectors (finance, health, education, environment, transportation, and other).
- Promote operational NCD plan guided by WHO 2008-2013 country NCD Action Plan (WHO, 2008b).
- Promote national policy that defines minimum package best buy NCD interventions tailored to individual country context and adequately funded.
- Integrate NCD services into established specialty services when possible with a special emphasis on reproductive health, maternal antenatal and post-partum, and HIV/TB care.
- Promote standardized NCD surveillance systems (national, regional, and local levels) focused on reliable tracking of NCD incidence and mortality, population prevalence of NCD risk factors, and utilization of and coverage of prioritized high-impact NCD services.
- Align country NCD health information system and surveillance with WHO global and voluntary country monitoring framework for NCDs (in progress) (WHO 2012).
- Designate financing to adequately fund targeted coverage of prioritized NCD intervention packages for high-risk individuals.
- Strengthen provider regulation and support to improve provider competence and motivation to deliver best practices; consider role that professional societies can play to improve provider performance and increase provider access to up-to-date evidence in the local language.
- Promote a rational health workforce balance of specialist and primary care provider cadres, including pre-service training strategies that promote primary care and generalist physicians
- Define and regulate essential NCD generic medication lists and basic technologies and promote access to essential medications for individuals at highest risk for and with established NCDs.
- Consider pay-for-performance provider incentive schemes linked to evidence-based performance measures carefully vetted by experts; when possible link to international measures (e.g., WHO indicators).
- Support service delivery redesign for comprehensive integrated health promotion and NCD prevention and treatment at every client encounter with health system.
- Build quality improvement capacity at national/regional and service delivery levels to achieve and sustain reliable delivery of and coordination of prioritized best practices.
- Consider promotion of an independent, empowered primary care provider role in which the provider assumes responsibility for health promotion, prevention, screening, and treatment interventions for her or his clients; if adopted, deliberately support this role in policy, medical training (pre- and in-service), and service delivery implementation (especially important in Soviet-style polyclinics).

2. NCD Disease-specific Recommendations

- **Breast and Cervical Cancer:** Develop a comprehensive national breast and cervical cancer early detection and treatment operational plan focused on universal access to screening and follow-up care, including coordination of primary and specialist services. For cervical cancer, weigh costs and benefits of different prevention and early detection/treatment strategies (HPV vaccine vs. VIA vs. pap testing) to decide on a national implementation strategy.

C. Conclusion

Assessment results illuminate critical gaps in current coverage and quality of NCD health services for women of reproductive age and most citizens in the Europe and Eurasia region. Results underline the pressing imperative to scale up high impact NCD interventions to reduce premature NCD death and disability in the region. Most importantly, assessment results demonstrate what actions are needed to close critical gaps.

Achieving coverage of high-impact NCD prevention and control services will ultimately depend on global and country-level political commitment and leadership. In a world of limited resources, countries cannot afford *not* to prioritize NCD control. In addition to reducing vast human suffering, NCD control yields huge economic gains for governments and citizens by reducing health care costs for all payers and increasing national economic productivity and overall political and economic stability.

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VIII. ANNEX

Table A1. Facility Assessment Sites by Sampling Categories: Albania (n=11 Facilities)

Facility #	Facility Type	Rural	Urban	Public	Private
1	Ambulatory polyclinic		x	x	
2	Primary ambulatory health center		x	x	
3	Primary ambulatory health center	x		x	
4	Primary ambulatory health center		x	x	
5	Primary ambulatory health center	x		x	
6	Primary ambulatory health center		x		x
7	Primary ambulatory health center		x	x	
8	Ambulatory polyclinic		x		x
9	Primary ambulatory health center		x	x	
10	Primary ambulatory health center		x	x	
11	Primary ambulatory health center	x		x	

Table A2. Facility Assessment Sites by Sampling Categories: Armenia (n=11 Facilities)

Facility#	Facility Type	Urban	Rural	Public	Private
1	Primary ambulatory health center		x	x	
2	Ambulatory polyclinic	x		x	
3	Ambulatory clinic in hospital	x		x	
4	Ambulatory polyclinic	x		x	
5	Ambulatory polyclinic	x			x
6	Ambulatory polyclinic	x		x	
7	Primary ambulatory health center		x	x	
8	Primary ambulatory health center		x	x	
9	Ambulatory polyclinic	x		x	
10	Primary ambulatory health center		x	x	
11	Ambulatory polyclinic		x	x	

Table A3. Facility Assessment Sites by Sampling Categories: Georgia (n=13 Facilities)

Facility#	Facility Type	Urban	Rural	Public	Private
1	Ambulatory clinic in hospital	x			x
2	Ambulatory polyclinic		x	x	
3	Ambulatory polyclinic		x	x	
4	Primary ambulatory health center	x		x	
5	Ambulatory polyclinic		x	x	
6	Ambulatory polyclinic	x		x	
7	Ambulatory polyclinic	x		x	
8	Ambulatory polyclinic	x		x	
9	Ambulatory polyclinic	x		x	
10	Ambulatory polyclinic	x		x	
11	Ambulatory polyclinic	x			x
12	Ambulatory polyclinic	x			x
13	Ambulatory polyclinic	x			x

Table A4. Facility Assessment Sites by Sampling Categories: Russia (n=12 Facilities)

Facility#	Facility Type	Rural	Urban	Women's consultation
1	Ambulatory polyclinic		X	
2	Ambulatory polyclinic	X		
3	Ambulatory polyclinic		X	
4	Ambulatory polyclinic in hospital		x	X
5	Ambulatory polyclinic		X	
6	Ambulatory polyclinic	X		
7	Ambulatory polyclinic		x	X
8	Ambulatory polyclinic in hospital	X	X	
9	Ambulatory polyclinic in hospital	X		X
10	Ambulatory polyclinic in hospital		X	
11	Primary ambulatory health center	X		
12	Ambulatory polyclinic in hospital		x	

Table A5. Frequency of Specific NCDs as Proportion of Total Chart Sample (n=658 Charts, Four Countries)

Disease	Albania		Armenia		Georgia		Russia	
	N	%	N	%	N	%	N	%
Hypertension (high blood pressure)	69	42	71	42	40	27	30	17%
Hyperlipidemia (high cholesterol)	9	5	1	1	5	3	8	4%
Heart Disease (heart failure or coronary artery disease)	18	12	15	9	27	18	5	3%
History of Stroke	1	1	0	0	0	0	0	0%
Diabetes	29	18	27	16	29	20	17	9%
Asthma	12	7	2	1.2	15	10	12	7%
COPD	0	0	3	2	0	0	3	2%
Breast Cancer	9	5	1	1	5	3	0	0%
Cervical Cancer	1	1	0	0	1	1	0	0%
Colon Cancer	1	1	0	0	0	0	0	0%
Lung Cancer	0	0	0	0	0	0	0	0%
Thyroid Disease	10	6	23	14	37	25	18	10%
Depression	10	6	1	1	4	3	0	0%
Total # of Charts	165	100%	166	100%	147	100%	180	100%

Table A6. Percentage of Charts with a Designated Place to Record NCD Screening Best Practice and Percentage with Value Recorded in Designated Place (n=658 Charts)

Screening Test	4 Country Avg.	% (#) charts with designated place to record item				4 Country Avg.	% (#) charts with designated place in which a value has been recorded			
		ALB	ARM	GEO	RUS		ALB	ARM	GEO	RUS
Countries										
Pap smear	47%	9.1% (15)	37.9% (63)	60.5% (89)	79% (142)	49%	73% (11)	24% (15)	8% (7)	90% (128)
Clinical Breast Exam by provider recorded in chart	26%	10.9% (28)	39.2% (65)	12.9% (19)	42% (75)	81%	78% (14)	48% (31)	100% (19)	97% (73)
Mammogram	21%	10% (17)	9.6% (16)	62% (91)	4% (7)	39%	77% (13)	6.3% (1)	17% (15)	57% (7)
Hemoccult or colonoscopy for colon cancer	17%	10% (17)	0.0 (0)	56% (82)	0% (0)	19%	76.5% (13)	0.0% (0)	0.0% (0)	0% (0)
Tobacco status	23%	17% (28)	4.2% (7)	68.7% (101)	3% (6)	91%	100% (28)	71% (5)	91% (92)	100% (6)
Alcohol Status	23%	17% (28)	3.0% (5)	68.0% (101)	3% (6)	88%	100% (28)	80% (4)	72% (73)	100% (6)
Cholesterol	25%	6% (10)	28.5 (47)	61.2 (90)	3% (6)	71%	90% (9)	81% (38)	14% (13)	100% (6)
Weight status (e.g., Body Mass Index)	30%	7% (12)	23% (3)	76% (111)	13% (24)	82%	75% (9)	65.7% (25)	85.5% (95)	100% (24)
Depression screening	2%	6% (9)	0.6 (1)	3% (5)	0% (0)	62%	89% (8)	100% (1)	60% (3)	0% (0)
Blood Sugar or Hemoglobin A1C	32%	4% (6)	28% (47)	77% (114)	19% (35)	49%	83% (5)	64% (30)	26% (30)	23% (8)

Table A7. Four-Country Medical Record Results for Selected Indicators Stratified by Urban vs. Rural Facilities (n=659 Charts)

Indicator	4-country average	Rural	Urban
Weight classification ever recorded	28%	18%	33%
BP measured within past 12 month	77%	76%	77%
BP medication prescribed if BP > 140/90	34%	37%	33%
Clinical breast exam ever recorded	30%	26%	32%
Mammogram in chart if + family history or > age 40	6%	3%	8%
Cervical cancer screening within past 3 years	13%	14%	13%
Tobacco screening ever recorded	23%	11%	30%
Tobacco cessation intervention ever recorded	1%	2%	1%
% clients with asthma prescribed controller therapy	93%	89%	94%
% charts with blood glucose ever recorded	45%	42%	47%
Oral diabetes medication ever prescribed if + DM	46%	48%	46%
A1C result ever recorded if + diabetes	33%	37%	31%
% charts with documented questioning re: feeling sad with duration specified	2%	1%	2%
% charts with treatment with SSRI	2%	0%	3%
Alcohol status ever recorded in chart	1%	0%	1%

Table A8. Selected Medical Record Results Stratified by Primary versus Polyclinic in Albania and Armenia (n=165 Charts in Albania; 166 Charts in Armenia)

Indicator	Primary	Polyclinic
Weight classification ever recorded	ALB - 0% ARM - 15%	ALB - 52% ARM - 27%
BP measured within past 12 month	ALB - 64% ARM - 63%	ALB - 54% ARM - 67%
BP medication prescribed if BP > 140/90	ALB - 40% ARM - 55%	ALB - 35% ARM - 46%
Clinical breast exam ever recorded	ALB - 9% ARM - 17%	ALB - 9% ARM - 28%
Mammogram in chart if + family history or > age 40	ALB - 0% ARM - 0%	ALB - 0% ARM - 1%
Cervical cancer screening within past 3 years	ALB - 3% ARM - 0%	ALB - 0% ARM - 14%
Tobacco screening ever recorded	ALB - 11% ARM - 2%	ALB - 57% ARM - 1%
Tobacco cessation intervention ever recorded	ALB - 0% ARM - 0%	ALB - 0% ARM - 1%
% clients with asthma prescribed controller therapy	ALB - 80% ARM - -	ALB - 100% ARM - 100%
% charts with blood glucose ever recorded	ALB - 46% ARM - 42%	ALB - 39% ARM - 32%
Oral diabetes medication ever prescribed if + DM	ALB - 50% ARM - 73%	ALB - 0% ARM - 50%
A1C result ever recorded if + DM	ALB - 74% ARM - 0%	ALB - 0% ARM - 13%
% charts with documented questioning re: feeling sad with duration specified	ALB - 2% ARM - 11%	ALB - 4% ARM - 57%
% charts with treatment with SSRI	ALB - 6% ARM - 2%	ALB - 0% ARM - 2%
Alcohol status ever recorded in chart	ALB - 0% ARM - 2%	ALB - 1% ARM - 0%

Table A9. Manager- and Provider-reported Professional Development and Supervision of Physicians (n=47 Managers; n=269 Physicians in Four Countries)

Support Service	Manager reported (n=13)	Provider reported (n=71)
Regular supervision of clinical staff	ALB-91% n=10 ARM-100% n=11 GEO-38% n=5 RUS-100% n=12	Known Supervisor ALB-62% n=36 ARM-85% n=45 GEO-65% n=46 RUS-44% n=37
Frequency of supervision	Usual frequency supervision No supervision: ALB-36% n=4 ARM-0% n=0 GEO-62% n=8 Rus_8% n=1 Every 6 months:% ALB-36% n=4 ARM-91% n=10 GEO-31% n=4 Rus_92% n=11 Every 12 months: % ALB-9% n=1 ARM-9% n=1 GEO-8% n=1 Rus_0% n=0 >12 months: % ALB-18% n=2 ARM-0% n=0 GEO-0% n=0 RUS-0% n=0	Time since last supervision: ALB <3 mos: 60% n=34 4-6 mos:7% n=4 7-12 mos: 0% n=0 >one year: 2% n=1 Never or no designated supervisor 32 % n=17 ARM <3 mos: 79% n=42 4-6 mos:2% n=1 7-12 mos: 2% n=1 >one year: 2% n=1 Never or no designated supervisor 15 % n=8 GEO <3 mos: 44% n=31 4-6 mos:8% n=6 7-12 mos: 4% n=3 >one year: 8% n=6 Never or no designated supervisor 35 % n=25 RUS <3 mos: 40% n=31 4-6 mos: 1% n=1 7-12 mos: 1% n=1 >one year: 0% n=0 Never or no designated supervisor 57% n=44
Required Continuing Medical Education (CME)	ALB-100% (11) ARM-90% (9) GEO- 54% (7) RUS-100% (12)	ALB_79% n=46 ARM_94% n=50 GEO_59% n=42 RUS_72.5% n=58
Provider participation in clinical training	Rarely: % ALB-27% n=3 ARM-36% n=4 GEO-15% n=2 RUS-8% n=1 Yearly: % ALB-9% n=1 ARM-36% n=4 GEO-31% n=4 RUS-25% n=3 2-3 X/year: % ALB-18% n=2 ARM-0% n=0 GEO-23% n=3 RUS-25% n=3	See detailed results in section IV.D. (provider questionnaire results)

Support Service	Manager reported (n=13)	Provider reported (n=71)
	>3 x/yr: % ALB-45% n=5 ARM-27% n=3 GEO-15% n=2 RUS-42% n=5 Unsure: % ALB-0% n=0 ARM-0% n=0 GEO-15% n=2 RUS-0% n=0	
CME provided or reimbursed by facility	ALB-55% n=6 ARM-27% n=3 GEO-54% n=7 RUS-83% n=10	Not asked
Years since last certification or licensure exam	NA	< 5 yrs: ALB-32% n=17 ARM-73% n=39 GEO-61% n=43 RUS: 89% n=74 > 5 yrs ALB-32% n=17 ARM- 23%n=12 GEO-39% n=28 RUS: 2.4% n=2 Never ALB-36% n=19 ARM- 4%n=2 GEO-0% n=0 RUS: 8% n=7

Table A10. Provider- and Manager-reported Provider Incentives (n=269 Providers; 47 Managers)

Data Source	Manager Reported (n=47)	Provider Reported (N=269)
General Bonus	Not included Manager questionnaire	ALB_ 58% (35) ARM_ 6% (3) GEO_ 32%(23) RUS_ 52% (43)
Financial Incentive or Reward for Performance	ALB-73% (8) ARM-27% (3) GEO-15% (2) RUS-100% (12)	ALB_ 49% (27) ARM_ 6% (3) GEO_ 17% (12) RUS_ 17.5% (14)

Table A11. Manager-reported Use of Clinical Data for Decision Making (n=47 Manager Questionnaires)

Use of Clinical Data for Decision Making	Result			
	ALB	ARM	GEO	RUS
No routine use of data for decision making	18% (2)	9% (1)	69% (9)	0% (0)
Strategic Planning	27% (3)	27% (3)	23% (3)	42% (5)
Operational Planning (incl. budget/finances)	45% (5)	64% (7)	15% (2)	50% (6)
Design/Implementation NCD Services	9% (1)	18% (2)	15% (2)	42% (5)
Evaluation of financial performance	18% (2)	54% (6)	31% (4)	33% (4)
Tracking quality of clinical services for chronic conditions	18% (2)	27% (3)	15% (2)	58% (7)
Quality Improvement to strengthen chronic care services (preventive, screening and case management)	27% (3)	27% (3)	0% (0)	58% (7)
Assessment of individual staff performance	36% (4)	18% (2)	8% (1)	58% (7)

Table A12. Percentage of Facilities with Availability of Clinical Guidelines in Patient Care Areas (n=47 Facilities)

Service area	ALB	ARM	GEO	RUS
Screening & management of	36% n=4	73% n=8	77% n=10	100% n=12
Screening for high cholesterol	9% n=1	45% n=5	38% n=5	67% n=8
Management of Hyperlipidemia	9% n=1	27% n=3	46% n=6	67% n=8
Screening for & management of Coronary Artery Disease	9% n=1	45% n=5	77% n=10	92% n=11
Screening for obesity	9% n=1	27% n=3	8% n=1	83% n=10
Screening and Tobacco abuse cessation counseling & treatment	18% n=2	27% n=3	8% n=1	58% n=7
Screening and Alcohol abuse cessation counseling & treatment	9% n=1	27% n=3	8% n=1	42% n=5
Prevention & management of stroke	9% n=1	27% n=3	23% n=3	100% n=10
Screening for cervical cancer	27% n=3	64% n=7	38% n=5	92% n=11
Screening for breast cancer	27% n=3	82% n=9	38% n=5	100% n=12
Screening for colon cancer	0% n=0	18% n=2	8% n=1	50% n=6
Screening & management of depression	9% n=1	9% n=1	15% n=2	33% n=4
Diagnosis & management of Asthma	9% n=1	45% n=5	54% n=7	92% n=11
Diagnosis & management of COPD	18% n=2	45% n=5	54% n=7	92% n=11

Table A13. Manager-reported Availability of Chronic Care Patient Support Services (n=47 Manager Questionnaires)

Specific Support Service	ALB	ARM	GEO	RUS
Individual nutrition education/counseling	91% n=10	64% n=7	31% n=4	75% n=9
Group education/counseling	55% n=6	9% n=1	15% n=2	83% n=10
Home visits	82% n=9	100% n=11	92% n=12	100% n=12
Palliative care	36% n=4	36% n=4	69% n=9	67% n=8
Individual diabetes education	80% n=8	91% n=10	62% n=8	92% n=11
Group diabetes education	10% n=1	0% n=0	15% n=2	73% n=8
Case manager to support patient self-management skills and assist coordination of services	0% n=0	64% n=7	0% n=0	8% n=1

Table A14. Percentage of Facilities with Availability of Essential NCD Laboratory Services (n=47 Facilities)

Laboratory Service	ALB	ARM	GEO	RUS
Hemoglobin or hematocrit	45% N=5	100% N=11	100% N=13	100% (12)
Serum glucose (blood glucose)	45% N=5	100% N=11	100% N=13	100% (12)
Creatinine	36% N=4	55% N=6	92% N=12	100% (12)
A1C	18% N=2	45% N=5	31% N=4	67% (8)
Total cholesterol	27% N=3	82% N=9	62% N=8	100% (12)
Low-density lipoprotein cholesterol	18% N=2	45% N=5	46% N=6	92% (11)
High-density lipoprotein cholesterol	18% N=2	45% N=5	54% N=7	83% (10)
Triglycerides	27% N=3	45% N=5	54% N=7	92% (11)
Pap cytology	18% N=2	45% N=5	38% N=5	75% (9)
Hemoccult (for checking blood in stool)	45% N=5	36% N=4	100% N=13	92% (11)
Electrolytes (e.g., potassium)	18% N=2	18% N=2	85% N=11	100% (12)
Liver transaminases (liver function tests)	27% N=3	45% N=5	77% N=10	100% (12)
Urinalysis for protein	18% N=2	91% N=10	100% N=13	100% (12)
Urinalysis for glucose	33% N=3	90% N=9	100% N=13	100% (12)

Table A15. Percentage of Facilities with Availability of Essential NCD Supplies/Equipment: Facility Inventory Reviews (n=47 Facilities)

Supply/Equipment	ALB	ARM	GEO	RUS
Running water	100% N=11	55% N=6	77% N=10	100% N=12
Soap	100% N=11	100% N=11	100% N=13	100% N=12
Electricity	100% N=11	100% N=11	100% N=13	100% N=12
Blood pressure measurement equipment (sphygmomanometer)	100% N=11	100% N=11	100% N=13	100% N=12
Scale for weight	91% N=10	91% N=10	100% N=13	100% N=12
Thermometer	100% N=11	100% N=11	100% N=13	100% N=12
Hemoccult (for checking blood in stool)	36% N=4	27% N=3	23% N=3	82% N=9
Pulsoximeter	20% N=2	9% N=1	23% N=3	50% N=6
Speculum for pap	36% N=4	64% N=7	85% N=11	92% N=11
Pap brush and specimen collection tube	27% N=3	54% N=6	54% N=7	92% N=11
Provider gloves	100% N=11	100% N=10	100% N=13	100% N=12
Glucometer	91% N=10	82% N=9	92% N=12	92% N=11
Spirometry (Pulmonary Function Testing for asthma/COPD)	27% N=3	27% N=3	23% N=3	83% N=10
Sterilization equipment	100% N=11	91% N=10	100% N=13	100% N=12
Height measure	100% N=11	91% N=10	100% N=13	100% N=12
Peak Flow Meter	18% N=2	27% N=3	38% N=5	67% N=8
EKG	73% N=8	91% N=10	100% N=13	100% N=12
Ophthalmoscope	91% N=10	82% N=9	85% N=11	83% N=10
Otoscope	91% N=10	82% N=9	85% N=11	92% N=11

Table A16. Percentage of Facilities with Availability of Essential NCD Medications in Facility: Facility Inventory Reviews (n=47 Facilities)

Medications	ALB	ARM	GEO	RUS
Blood pressure: Thiazide diuretic	80% N=8	100% N=11	23% N=3	100% N=12
Loop Diuretic	100% N=10	100% N=11	15% N=2	100% N=12
Beta blocker	100% N=10	100% N=10	15% N=2	100% N=12
Angiotensin Converting Enzyme Inhibitor	75% N=6	72% N=8	15% N=2	100% N=12
Catapressin	20% N=2	9% N=1	15% N=2	75% N=9
Cholesterol lowering medication: Statin	30% N=3	82% N=9	8% N=1	83% N=10
Asthma/COPD Medication: Bronchodilator	80% N=8	73% N=8	15% N=2	100% N=12
Inhaled corticosteroid	60% N=6	70% N=7	15% N=2	92% N=11
Oral prednisone	80% N=8	73% N=8	15% N=2	75% N=9
Depression: Serotonin Re-uptake Inhibitor antidepressant (SSRI)	30% N=3	30% N=3	0% N=0	42% N=5
Tricyclic antidepressant (older class)	50% N=5	30% N=3	8% N=1	58% N=7
Diabetes: Oral diabetes agents: Metformin (Glucophage)	40% N=4	82% N=9	8% N=1	83% N=10
Oral diabetes agents : Sulfonurea	20% N=2	64% N=7	8% N=1	75% N=9
Insulin (long-acting)	20% N=2	64% N=7	8% N=1	75% N=9
Insulin (short acting)	20% N=2	64% N=7	8% N=1	75% N=9
Tobacco cessation: Nicotine replacement therapy	0% N=0	0% N=0	0% N=0	45% N=5
Bupropion	0% N=0	0% N=0	8% N=1	17% N=2

Table A17. Percentage of Managers Reporting General Availability of Essential Supplies, Medications, and Ancillary Services (n=47 Managers)

Essential Input	Available Most of the time	Available Infrequently	Not usually Available
Laboratory Services	ALB-50% n=4 ARM-45% n=5 GEO-23% n=3 RUS-0% n=0	ALB-25% n=2 ARM-27% n=3 GEO-8% n=1 RUS-27% n=3	ALB-25% n=2 ARM-27% n=3 GEO-69% n=9 RUS-73% n=8
Supplies (e.g., blood pressure cuffs)	ALB-27% n=3 ARM-36% n=4 GEO-15% n=2 RUS-8% n=1	ALB-18% n=2 ARM-9% n=1 GEO-31% n=4 RUS-42% n=5	ALB-54% n=6 ARM-54% n=6 GEO-54% n=7 RUS-50% n=6
Essential Medications (e.g., BP and diabetes medication)	ALB-18% n=2 ARM-45% n=5 GEO-46% n=6 RUS-17% n=2	ALB-9% n=1 ARM-0% n=0 GEO-15% n=2 RUS-17% n=2	ALB-73% n=8 ARM-55% n=6 GEO-38% n=5 RUS-66% n=8

Table A18. Percentage Availability of Selected Essential Inputs Stratified by Primary Clinic vs. Polyclinic in Albania and Armenia

Indicator	ALBANIA CLINIC TYPE		ARMENIA CLINIC TYPE	
	Primary (n=9)	Polyclinic (n=2)	Primary (n=4)	Polyclinic (n=7)
LABORATORY				
Hemoglobin or hematocrit	33% (3)	100% (2)	100% (4)	100% (7)
Blood glucose	33% (3)	100% (2)	100% (4)	100% (7)
A1C	11% (1)	50% (1)	-50% (2)	43% (3)
Total cholesterol	-11% (1)	100% (2)	75% (3)	86% (6)
Creatinine	22% (2)	100% (2)	-0% (0)	86% (6)
Pap cytology	11% (1)	50% (1)	0% (0)	71% (5)
Hemoccult (colon cancer screening)	33% (3)	100% (2)	0% (0)	57% (4)
Electrolytes	11% (1)	50% (1)	0% (0)	29% (2)
Urine protein	11% (1)	50% (1)	75% (3)	100% (7)
EQUIPMENT				
Pulsoximeter	11% (1)	100% (1)	-0% (0)	14% (1)
Blood pressure Cuff	100% (9)	100% (2)	100% (4)	100% (7)
Glucometer	89% (8)	100% (2)	100% (4)	71% (5)
GUIDELINES				
Hypertension	44% (4)	0% (0)	75% (3)	71% (5)
High Cholesterol	11% (1)	0% (0)	25% (1)	29% (2)
Tobacco Screening & Cessation	22% (2)	0% (0)	50% (2)	14% (1)
Cervical cancer Screening	33% (3)	0% (0)	50% (2)	71% (5)
Depression	11% (1)	0% (0)	0% (0)	14% (1)
Asthma Treatment	11% (1)	0% (0)	75% (3)	29% (2)

Table A19. Manager-reported Barriers to Provision of Government-funded NCD Services (n=47 Manager Questionnaires)

Specific Barrier	ALB	ARM	GEO	RUS
No important barriers	36% (4)	18% (2)	0% (0)	17% (2)
Recruitment of chronic care program managers/implementers	27% (3)	0% (0)	0% (0)	83% (10)
Government-funded chronic care programs do not cover many chronic care screening and treatment services	36% (4)	45% (5)	85% (11)	50% (6)
Government-funded chronic care programs do not cover <i>full</i> cost of many chronic care screening and treatment services	18% (2)	36% (4)	69% (9)	25% (3)
Government sets monthly/annual limits on coverage	9% (1)	55% (6)	38% (5)	17% (2)
Delayed reimbursement of billed services	9% (1)	18% (2)	15% (2)	0% (0)
Lack of financial incentives for good clinical outcomes	9% (1)	45% (5)	54% (7)	67% (8)
Labor-intensive reporting requirements	27% (3)	36% (4)	15% (2)	50% (6)
Lack of facility health information system necessary to meet reporting requirements	18% (2)	55% (6)	38% (5)	17% (2)

Table A20. Manager-reported Barriers to Provision of Private Insurance-funded NCD Services (n=47 Manager Questionnaires)

Russia not included due to insufficient sample size (only one facility in sample accepted private insurance)

Specific barrier	ALB	ARM	GEO
No important barriers	18% (2)	18% (2)	8% (1)
Private insurance does not cover many chronic care screening and treatment services	18% (2)	0% (0)	100% (13)
Private insurance does not cover full costs of chronic care screening and treatment services	18% (2)	0% (0)	77% (10)
Delayed reimbursement of billed services	18% (2)	0% (0)	38% (5)
Lack of financial incentives for good clinical outcomes	9% (1)	0% (0)	54% (7)
Labor-intensive reporting requirements	0% (0)	0% (0)	23% (3)
Lack of facility health information system necessary to meet reporting requirements	0% (0)	0% (0)	0% (0)

Table A21. Manager-reported Barriers to Provision of NCD Services Paid Out-of-Pocket by Patient (n=47 Manager Questionnaires)

Specific Barriers	Total	Public N=9	Private N=4	Rural N=3	Urban N=10
No important barriers	15% (2)	11% (1)	25% (1)	0	20% (2)
Inability to obtain payment for services already provided	77% (10)	89% (8)	50% (2)	100% (3)	70% (7)
Facility does not provide services for patients unable to pay	15% (2) (both private insurance sites)	0	50% (2)	0	20% (2)

Table A22. Provider Self-reported Age Distribution (n=269 Providers)

Age range in years	ALB (n=61)	ARM (n=53)	GEO (n=71)	RUS (n=84)
20-29	11% (n=7)	4% (n=2)	0% (n=0)	10% (n=8)
30-39	33% (n=20)	19% (n=10)	25% (n=18)	24% (n=20)
40-49	21% (n=13)	29% (n=15)	31% (n=22)	18% (n=15)
50-59	29% (n=18)	35% (n=18)	32% (n=23)	29% (n=24)
E-60-70	5% (n=3)	13% (n=7)	11% (n=8)	19% (n=16)

Table A23. Provider Self-reported Specialty Distribution (n=269 Providers)

Provider Cadre	ALB (n=61)	ARM (n=53)	GEO (n=71)	RUS (n=84)
Generalist Physician	47% (29)	49% (26)	6% (4)	6% (5)
Internal Medicine Physician	2% (1)	2% (1)	53% (38)	55% (46)
Family Medicine Physician	36% (22)	43% (23)	34% (24)	0% (0)
Cardiologist specialist	5% (3)	6% (3)	6% (4)	2% (2)
Pulmonary specialist	2% (1)	0% (0)	0% (0)	1% (1)
Nurse	2% (1)	0% (0)	0% (0)	1% (1)
Physician in training	0% (0)	0% (0)	0% (0)	1% (1)
Nurse in training	7% (4)	0% (0)	0% (0)	0% (0)
Other	0% (0)	0% (0)	1% (1)	32% (27) (mostly specialists)

Table A24. Selected Provider Knowledge and Provider-reported Practice Results Stratified by Generalist vs. Specialist, Provider Cadres, and Urban vs. Rural Facilities

NCD Question or Practice Category	4 country Average Non-stratified Data	Generalist Providers	Specialist Providers	Providers Based in Urban Facilities	Providers based in Rural Facilities
Knowledge: % Providers who answer question correctly					
Management HTN	41% (107)	40% (79)	47% (14)	31% (17)	44% (90)
Diabetes Diagnostic Criteria	47% (120)	47% (93)	55% (16)	44% (23)	47% (97)
Most Common Cause of Cervical Cancer (HPV)	73% (184)	73% (143)	79% (23)	73% (38)	73% (184)
Breast Cancer Screening Best Practice	48% (124)	47% (94)	48% (14)	48%(26)	48% (98)
Secondary Prevention Cardiovascular Disease	47% (120)	47% (94)	45% (13)	47% (24)	48% (96)
Management after Myocardial Infarction	84% (216)	84% (168)	93% (28)	82% (42)	85% (174)
Provider Self-reported Practice					
Routinely screen patients for tobacco use	29% (79)	33% (67)	37% (11)	29% (17)	30% (79)
Check BP at every visit	81% (215)	84% (169)	79% (23)	89% (51)	79% (164)
See my patients with well-controlled diabetes at least twice per year	35% (91)	36% (71)	36% (82)	28% (16)	37% (75)
Routinely Check Cholesterol	33% (88)	32% (64)	40% (12)	25% (15)	35% (73)
Check Cholesterol only if patient has risk factors	60% (162)	64% (130)	57% (17)	61% (36)	30% (64)
Ask about depression if patient has suggestive symptoms	33% (90)	36% (72)	30% (9)	44% (26)	30% (64)
Routinely ask about alcohol intake	57% (154)	60% (122)	70% (21)	46% (27)	60% (127)
Ask about Alcohol if patient considered at risk due to medical or social situation	45% (122)	47% (95)	33%(10)	66% (39)	40% (83)

Table A25. Provider-reported Continuing Medical Education for Specific NCDs, Past Three Years (n= 269 Providers)

Specific CME within past 3 years	4 Country Avg	ALB	ARM	GEO	RUS
Prevention/Management HTN	74%	85% (52)	79% (42)	86% (61)	45% (38)
Prevention/Management Diabetes Management	55%	66% (40)	62% (33)	56% (40)	34% (29)
Prevention/Management Heart Disease	65%	79% (48)	75% (40)	73% (52)	34% (29)
Screening Breast Cancer	35%	43% (26)	40% (21)	45% (32)	12% (10)
Screening Cervical Cancer	29%	31% (19)	38% (20)	38% (27)	7% (6)
Screening for Colon cancer	14%	8% (5)	26% (14)	17% (12)	5% (4)
Diagnosis & Management of Asthma	51%	54% (33)	60% (32)	55% (39)	33% (28)
Diagnosis & management COPD (chronic obstructive pulmonary disease)	55%	64% (39)	58% (31)	62% (44)	34% (29)
Screening, diagnosis & management Depression	30%	54% (33)	28% (15)	28% (20)	11% (9)
Screening/management Tobacco abuse	32%	48% (29)	51% (27)	20% (14)	8% (7)
Screening/management Alcohol use	26%	38% (23)	45% (24)	15% (11)	5% (4)
No CME within past 3 years	13%	1.6% (1)	13% (7)	10% (7)	27% (23)

Table A26. Provider Self-reported Confidence Managing Specific NCD Services (n=269 Providers)

Specific NCD Intervention	Confident	Somewhat Confident	Not Confident
Hypertension	ALB % 64 (34) ARM 75% (40) GEO 76% (54) RUS 66% (51)	ALB26 % (14) ARM 25% (13) GEO 23%(16) RUS 23% (18)	ALB 9% (5) ARM 0% (0) GEO 1% (1) RUS 10% (8)
High Cholesterol	ALB 57% (29) ARM 58% (31) GEO 51 % (36) RUS 70% (54)	ALB 35% (18) ARM 38% (20) GEO 29% (21) RUS 16% (13)	ALB 8% (4) ARM 4% (2) GEO 20% (14) RUS 13% (10)
Heart disease (heart failure or coronary heart disease)	ALB 12% (6) ARM 38% (20) GEO 28% (20) RUS 55% (40)	ALB 56% (29) ARM60 % (32) GEO 30% (21) RUS 27% (20)	ALB 33% (17) ARM 2% (1) GEO 42% (30) RUS 18% (13)
Stroke (cerebrovascular attack)	ALB 8% (4) ARM 2% (1) GEO 8% (6) RUS 32% (23)	ALB 54% (27) ARM 49% (26) GEO 30% (21) RUS 27% (20)	ALB 38% (19) ARM 49% (26) GEO 62% (44) RUS 41% (30)
Diabetes	ALB 40% (21) ARM 15% (8) GEO 14% (10) RUS 26% (20)	ALB 44% (23) ARM 53% (28) GEO 52% (37) RUS 29% (22)	ALB 15% (8) ARM32 % (17) GEO 34% (24) RUS 45% (35)
Asthma	ALB 42% (22) ARM 38% (19) GEO 38% (27) RUS 31% (23)	ALB 44% (23) ARM 50% (25) GEO 46% (33) RUS 43% (32)	ALB 13% (7) ARM 12 % (6) GEO 15% (11) RUS 26% (19)

Specific NCD Intervention	Confident	Somewhat Confident	Not Confident
Screening for cervical cancer	ALB 14% (7) ARM 11% (6) GEO 17% (12) RUS 12% (8)	ALB 18% (9) ARM 19% (10) GEO 15% (11) RUS 22% (15)	ALB 67% (33) ARM 70% (37) GEO 68% (48) RUS 67% (46)
Screening for breast cancer	ALB 24% (12) ARM 30% (16) GEO 21% (15) RUS 22% (16)	ALB 34% (17) ARM 40% (21) GEO 24% (17) RUS 25% (18)	ALB 42% (21) ARM 30% (16) GEO -55 % (39) RUS 53% (39)
Screening for colon cancer	ALB 7% (4) ARM 11% (6) GEO 10% (7) RUS 19 % (14)	ALB 20% (10) ARM 30% (16) GEO 20 % (14) RUS 24% (14)	ALB 73% (37) ARM 58% (31) GEO 70% (50) RUS 57% (41)
Screening for depression	ALB 25% (13) ARM 4% (2) GEO 17 % (12) RUS 18% (13)	ALB 37% (19) ARM 45% (24) GEO 27% (19) RUS 31% (22)	ALB 37 % (19) ARM 51% (27) GEO 56% (40) RUS 51% (36)
NCD#4 Q52 Treatment of Depression	ALB 22% (11) ARM 4 % (2) GEO 7% (5) RUS 13 % (9)	ALB 43% (22) ARM 25% (13) GEO 35% (25) RUS 13% (9)	ALB 35% (18) ARM 72% (38) GEO 58% (41) RUS 73% (49)
Screening for tobacco abuse	ALB 51% (27) ARM 54 % (27) GEO 46% (33) RUS 31% (22)	ALB 23% (12) ARM 30% (15) GEO 37% (26) RUS 26% (18)	ALB 26% (14) ARM 16% (8) GEO 17% (12) RUS 43% (30)
Treatment of Tobacco abuse	ALB 37% (19) ARM 21% (11) GEO 25% (18) RUS 13% (9)	ALB 29% (15) ARM 35% (18) GEO 24% (17) RUS 17% (12)	ALB 33% (17) ARM 44% (23) GEO 51% (36) RUS 70% (49)
Screening for alcohol abuse	ALB 41% (21) ARM 30% (16) GEO 35% (25) RUS 26% (18)	ALB 27% (14) ARM 38% (20) GEO 30% (21) RUS 19% (13)	ALB 31% (16) ARM 32% (17) GEO 35% (25) RUS 56% (39)
Treatment of alcohol abuse	ALB 20% (10) ARM 9% (5) GEO 10% (7) RUS 10% (7)	ALB 33% (17) ARM 28% (15) GEO 23 % (16) RUS 15% (11)	ALB 47% (24) ARM 62% (33) GEO 68% (48) RUS 75% (53)

Table A27. Provider-reported Relative Influence of Specific Evidence Sources (n=269 Providers)

Evidence sources	ALB	ARM	GEO	RUS
Pre-service training guidelines:	88% n=44	82.7% n=43	64.8% n=46	91% (68)
National guidelines:	76.5% n=39	79.2% n=42	76% n=54	94% (69)
National guidelines adopted by and specific for my facility	24% n=12	62% n=32	45% n=32	87% (62)
Facility-specific guidelines	22.4% n=11	32% n=16	19.7% n=14	88% (58)
Professional Society guidelines	33.3% n=16	62% n=31	38% n=27	80% (49)
CME	90.4% n=47	80.8% n=42	53.5% n= 38	96% (20)
International guidelines (e.g., WHO)	71.4% n=35	73.5% n=36	54.9% n=39	96% (17)
Journal publications (latest published evidence)	64% n=32	65.4% n=34	42.2% n=30	79% (57)

Table A28. Provider-reported No Access to Specific Evidence Sources (n=269)

Evidence sources	4 Country Avg.	ALB	ARM	GEO	RUS
Pre-service training guidelines:	11%	6.0% n=3	3.85% n=2	32.4% n=23	3% n=2
National guidelines:	14%	17.6% n=9	11.3% n=6	21.1% n=15	4% n=3
Facility-specific guidelines	54%	71.4% n=35	64% n=32	77.5% n=55	3% n=2
Professional Society guidelines	36%	50% n=24	30% n=15	57.7% n=41	5% n=3
CME	17%	7.7% n=4	13.4% n=7	42.2% n=30	3% n=2
International guidelines (e.g., WHO)	18%	18.4% n=9	14.3% n=7	39.4% n=28	0% n=0
Journal publications (latest published evidence)	21%	18% n=9	21.1% n=11	40.8% n=29	4% n=3

Table A29. Percentage of Questions² Answered Correctly by Providers (N=269 Providers)

Question Category	4 Country Avg.	ALB	ARM	GEO	RUS
Management HTN	52%	35% (21)	49% (26)	58% (41)	67% (52)
Diabetes Diagnostic Criteria	46%	51% (31)	33% (17)	65% (45)	35% (27)
Cervical Cancer Screening Guidelines	39%	55% (32)	22% (11)	65% (44)	14% (10)
Most Common Cause of Cervical Cancer (HPV)	58%	76% (44)	67% (35)	84% (58)	3% (2)
Breast Cancer Screening	47%	41% (24)	38% (20)	55% (38)	54% (42)
Secondary Prevention Cardiovascular Disease	45%	27% (16)	21% (11)	59% (41)	73% (52)
Management after Myocardial Infarction	64%	72% (43)	85% (45)	91% (65)	8.57% (63)

Table A30. NCD-specific Services, Practices, and Behaviors: Provider- and Client-reported (n=269 Providers; n=658 Clients)

Specific NCD Practice	Provider-reported and Chart review (See also Section IV.B Chart Review)	Client self-reported practice and behavior
Nutrition & Exercise	<p><i>Chart Review Results:</i></p> <p>weight classification ever recorded: ALB: 0.6% (1) ARM: 11% (18) GEO: 9% (13) RUS: 28% (51)</p> <p>Weight noted < 12 mos: ALB: 9% (15) ARM: 21% (34) GEO: 48% (53) RUS: 28% (50)</p> <p>Physical activity status ever recorded: ALB: 0.6% (1) ARM: 0.6% (1) GEO: 11% (16) RUS: 5% (9)</p> <p>Dietary Counseling ever recorded: ALB: 1.2% (2) ARM: 34% (57) GEO: 26% (38) RUS: 40% (73)</p>	<p>Exercise at least 2x/wk: ALB-32% n=23 ARM-64% n=56 GEO-36% n=47 RUS 52% n=55</p> <p>Have ever attempted increase in physical activity in past: ALB-40% n=35 ARM-48% n=62 GEO-58% n=42 RUS 66% n=66</p> <p>Have ever tried to lose weight: (22% not successful) ALB-56% n=40 ARM-47% n=40 GEO-48% n=62 RUS 54% n=56</p>

² The tool posed a single multiple-choice question for most NCD priority areas.

Specific NCD Practice	Provider-reported and Chart review (See also Section IV.B Chart Review)	Client self-reported practice and behavior
	Exercise counseling ever recorded: ALB: 0.6% (1) ARM: 14% (24) GEO: 15% (22) RUS:17% (31)	
Frequency BP check	Every visit: 87% (provider) ALB_82% (n=49) ARM_60% (n=32) GEO_87% (n=62) RUS 89% (n=72)	<i>Not asked</i>
Cervical cancer screening	Refer Gynecology: ALB_26% (n=15) ARM_65% (n=34) GEO_46% (n=33) RUS 49% (n=38) --Have not been trained: ALB_45% (n=26) ARM_29% (n=15) GEO_35% (n=25) RUS 42% (n=33)	Never heard of pap test: ALB-19% n=13 ARM-49% n=43 GEO-68% n=89 RUS 3% n=3 --Ever had pap test among all clients: ALB-21% n=15 ARM-15% n=13 GEO-14% n=18 RUS 90% n=27
Ask about tobacco use	Almost always screen: ALB_79% (n=48) ARM_77% (n=41) GEO_96% (n=68) RUS 62% (n=52)	Currently smoke: ALB-6% n=4 ARM-2% n=2 GEO-12% n=16 RUS 21% n=22
Tobacco cessation counseling/treatment	Routinely provide tobacco cessation counseling: ALB_34% (n=21) ARM_40% (n=21) GEO_32% (n=23) RUS 17% (n=14) Prescribe NRT: ALB_3% (n=2) ARM_7% (n=4) GEO_4% (n=3) RUS 2% (n=2) No training for tobacco cessation: ALB_13% (n=8) ARM_11% (n=6) GEO_14% (n=10) RUS 28% (n=24)	Doctor ever recommended quitting: ALB-20% n=1 ARM-33% n=3 GEO-42% n=11 RUS 44% n=14 --Ever tried to quit ALB-75% (3/4) ARM-100% (2/2) GEO-92% (24/26) RUS -83% (30/36) Quit successfully (among those who tries to quit): ALB-0% n=0 ARM-100% n=3 GEO-58% n=14 RUS -43% n=13 Tried to quit unsuccessfully: ALB-100% n=3 ARM-0% n=0 GEO-42% n=10 RUS -57% n=17
<i>Frequency diabetic visits if patient's diabetes well-controlled</i>	At least twice per year: ALB_30% (n=15) ARM_33% (n=15) GEO_51% (n=35) RUS 48% (n=26)	<i>Not asked</i>

Specific NCD Practice	Provider-reported and Chart review (See also Section IV.B Chart Review)	Client self-reported practice and behavior
	--As needed: ALB_ 58% (n=29) ARM_ 44% (n=20) GEO_ 35% (n=24) RUS 31% (n=26)	
Cholesterol screening	Only screen if + risk factors: ALB_ 52% (n=32) ARM_ 90% (n=48) GEO_ 76 % (n=54) RUS 33% (n=28)	Ever had cholesterol test (among women who know test): ALB-38% n=24 ARM-32% n=23 GEO-12% n=6 RUS -42% n=38
Breast cancer screening	Clinical breast exam at least once per year: ALB_ 13% (n=8) ARM_ 55% (n=29) GEO_ 7% (n=5) RUS 56% (n=47) --SBE counseling: 45% ALB_ 34% (n=21) ARM_ 70% (n=37) GEO_ 45% (n=32) RUS 38% (n=32) --Mammogram result in chart if +family history/age 40: 10% ALB_ 0% (n=0) ARM_ 0.6% (n=1) GEO_ 17.6% (n=15) RUS 20% (n=5) --No access mammography in facility: 27% ALB_ 36% (n=22) ARM_ 2% (n=1) GEO_ 27% (n=19) RUS 8 % (n=7)	Ever had breast exam by provider: ALB-31% n=22 ARM-46% n=40 GEO-37% n=48 RUS -63% n=65 --Ever heard of mammogram: 78% ALB-89% n=63 ARM-86% n=76 GEO-78% n=102 RUS -87% n=91 --Doctor ordered I but could not afford: ALB-12% n=9 ARM-19% n=13 GEO-7% n=4 RUS 3% n=2
Depression screening and treatment	--Do not routinely screen: 16% ALB_ 2% (n=1) ARM_ 0% (n=0) GEO_ 15% (n=11) RUS-7 % (n=6) --Routine referral psychiatry if + depression: 39% ALB_ 46% (n=28) ARM_ 26% (n=14) GEO_ 39% (n=28) RUS 23% (n=19) --Psychiatry referral (chart): 0% ALB_ 12% (20) ARM_ 1.2% (2) GEO_ 0% (0) RUS: 7.3% (13)	--Ever been persistently sad > 2 weeks: GEO-45% n=59 ALB-28% n=20 ARM-36% n=32 RUS 39% n=39 -Positive depression symptoms current/prior: ALB_ 27.8% n=20 ARM - 36.4% n=32 GEO_ 45.4% n=59 RUS 39% n=39 -Ever treated: ALB_ 9.8% n=7 ARM - 21.6% n=19 GEO_ 9.6% n=12 RUS 8% n=8

Specific NCD Practice	Provider-reported and Chart review (See also Section IV.B Chart Review)	Client self-reported practice and behavior
	<p>--Not authorized to prescribe anti-depression tx: 13%</p> <p>ALB_ 8% (n=5) ARM_ 11% (n=6) GEO_ 13 % (n=9) RUS 14% (n=12)</p> <p>--No training: ALB_ 6% (n=4) ARM_ 11% (n=6) GEO_ 16 % (n=11) RUS 30% (n=25)</p> <p>--Refer for counseling if + depression: 48%</p> <p>ALB_ 36% (n=22) ARM_ 43% (n=23) GEO_ 48% (n=34) RUS 44% (n=37)</p> <p>--No availability local counseling services: 4%</p> <p>ALB_ 3% (n=2) ARM_ 2% (n=1) GEO_ 4% (n=3) RUS- 5 % (n=4)</p>	<p>--Believe there are effective depression treatments:</p> <p>ALB_ 87.5% n=63 ARM – 56.8% n=50 GEO_ 55.4% n=72 RUS 70% n=72</p>
Alcohol screening	<p>--Routinely screen: 76%</p> <p>ALB_ 59% (n=36) ARM_ 53% (n=28) GEO_ 76% (n=54) RUS 43% (n=36)</p> <p>--Screen if medical or social situation: ALB_ 31% (n=19) ARM_ 55% (n=29) GEO_ 34% (n=24) RUS - 59% (n=50)</p> <p>--No routine screening: ALB_ 10% (n=6) ARM_ 2% (n=1) GEO_ 3% (n=2) RUS 1% (n=1)</p> <p>--Aware of local alcohol abuse treatment programs: ALB_ 34% (n=20) ARM_ 58% (n=30) GEO_ 44 % (n=31) RUS_ 29% (n=24)</p>	<p>--Alcohol use 1-2 x/week: 80%</p> <p>ALB-0% n=0 ARM-3% n=3 GEO-0% n=0 RUS 4% n=4</p> <p>--Alcohol use: none or only social occasions: ALB-100% n=71 ARM-95% n=84 GEO-99% n=129 RUS 96% n=99</p> <p>--Ever <i>thought</i> about decreasing alcohol intake (current or past drinkers): ALB-10% n=2 ARM-37% n=16 GEO-6% n=5 RUS 42% n=30</p> <p>Tried to cut down alcohol, but was unsuccessful (current and past drinkers): ALB-0% (0/22) ARM-50% (1/2) GEO-0% (0/6) RUS 21% (6/28)</p> <p>Tried to cut down alcohol and was successful (cut back or discontinued alcohol among current or past drinkers): ALB-100% (22) ARM-0% (0/2) GEO-100% (6) RUS 78% (22/28)</p>

Specific NCD Practice	Provider-reported and Chart review (See also Section IV.B Chart Review)	Client self-reported practice and behavior
Drug abuse screening	Routinely screen: ALB_ 16% (n=10) ARM_ 7% (n=4) GEO_ 35% (n=25) RUS_ 12% (n=10) Screen if medical or social situation: ALB_ 46% (n=28) ARM_ 60% (n=32) GEO_ 44% (n=31) RUS_ 63% (n=53) No routine screening: ALB_ 38% (n=23) ARM_ 23% (n=12) GEO_ 13% (n=9) RUS_ 10% (n=8) Aware of local drug abuse treatment programs: ALB_ 38% (n=21) ARM_ 41% (n=22) GEO_ 58% (n=41) RUS_ 28% (n=23)	<i>Not asked</i>

Table A31. Provider Attitudes: Percentage of Providers Agreeing With Specific Statements (n=269 Providers)

Statement	Agree	No Opinion	Disagree
No effective depression treatments that can be provided by a primary care physician	ALB 32% (17) ARM 45% (24) GEO 41% (29) RUS 31% (24)	ALB 32% (17) ARM 38% (20) GEO 44% (31) RUS 7% (44)	ALB 36% (19) ARM 17% (9) GEO 15% (11) RUS 12% (9)
My clinical training prepared me adequately to manage chronic diseases	ALB 93% (52) ARM 88% (46) GEO 61% (43) RUS 78% (59)	ALB 7% (4) ARM 0% (0) GEO 25% (18) RUS 18% (14)	ALB 0% (0) ARM 11% (6) GEO 14% (10) RUS 4% (3)
A doctor can influence whether a patient successfully quits smoking	ALB 96% (52) ARM 85% (45) GEO 86% (61) RUS 73% (56)	ALB 4% (2) ARM 7.5% (4) GEO 11% (8) RUS 22% (17)	ALB 0% (0) ARM 7.5% (4) GEO 3% (2) RUS 5% (4)
I am able to spend time I need to provide good medical care for my patients with chronic diseases	ALB 95% (54) ARM 71% (37) GEO 73% (52) RUS 77% (60)	ALB 2% (1) ARM 4% (2) GEO 20% (14) RUS 14% (11)	ALB 4% (2) ARM 25% (13) GEO 7% (5) RUS 9% (7)
Patients receive better care for chronic medical conditions if they have a designated primary care provider	ALB 90% (51) ARM 88% (46) GEO 85% (60) RUS 85% (60)	ALB 5% (3) ARM 8% (4) GEO 4% (3) RUS 4% (3)	ALB 5% (3) ARM 6% (3) GEO 11% (8) RUS 11% (8)

Table A32. Provider-reported Years since Completion of Medical Training (n=269 Providers)

Years since completion of medical training self-reported by providers	Albania % Providers (n=47)	Armenia % Providers (n=53)	Georgia % Providers (n=71)	Russia % Providers (n=84)
0-5 years:	25.53 % (n=12)	88.68% (n=47)	2.82% (n=2)	12%
6-10 years:	17.02% (n=8)	9.43% (n=5)	9.86% (n=7)	8%
11-15 years:	14.89% (n=7)	1.89% (n=1)	14.08 % (n=10)	14%
16-20 years:	8.51 % (n=4)		18.31 % (n=13)	14%
> 20 years:	34.04 % (n=16)		54.93 % (n=39)	51%

Table A33. Patient-reported Top Health Care Priority Stratified by Rural vs. Urban Facilities (n=397 Clients)

Patient-reported top priority when seeking health care (among menu of 7 options)	Albania	Armenia	Georgia	Russia
Having a regular doctor:	38.9% n=28	28.4% n=25	6.1% n=8	12.5% n=13
Ability to see doctor quickly when I am sick:	20.8% n=15	11.3% n=10	10% n=13	36.5% n=38
Being able to afford health care:	18% n=13	7.9% n=7	24.6% n=32	3.8% n=4
Being able to afford medications:	9.7% n=7	1.1% n=1	37.7% n=49	6% n=6
Being able to afford diagnostic tests my doctor orders:	4.2% n=3	2.2% n=2	14.6% n=19	1% n=1
Knowing that my personal information is confidential	2.8% n=2	2.2% n=2	0% n=0	2.8% n=3
Feeling respected and cared for by my provider	5.5% n=4	46.6% n=41	6.9% n=9	33% n=34
Other:	0% n=0	0% n=0	0% n=0	4.8% n=5

Table A34. Client- and Provider-reported Single Greatest Influence on Patient Medication Selection (n= 397 Clients; n= 269 Providers)

Patient and Provider Responses	Pharmacist	Friend/Family	Doctor	"I decide on my own"
Patient-reported	4 Country Avg. 15% ALB_ 11% (6) ARM_ 13 % (9) GEO_ 17% (21) RUS_ 19%(18)	4 Country Avg. 3% ALB_ 2% (1) ARM_ 4% (3) GEO_ 1% (2) RUS_ 3%(3)	4 Country Avg. 69% ALB_ 87% (49) ARM_ 67 % (45) GEO_ 55% (67) RUS_ 67% (62)	4 Country Avg. 13% ALB_ 0% (0) ARM_ 16 % (10) GEO_ 26% (31) RUS_ 11%(10)
Provider-reported	4 Country Avg. 7% ALB_ 14% (8) ARM_ 4 % (2) GEO_ 6% (4) RUS 5% (3)	4 Country Avg. 27% ALB_ 7% (4) ARM_ 9% (5) GEO_ 7 % (5) RUS 2% (1)	4 Country Avg. 54% ALB_ 55% (32) ARM_ 74 % (39) GEO_ 85 % (60) RUS 83% (53)	NA

Table A35. Patient-reported Top Health Care Priority, Stratified by Rural vs. Urban Facilities (n=397 Clients)

Patient-reported top priority when seeking health care (<i>among menu of 7 options</i>)	Total	Rural (n=69% Clinics)	Urban (n=11 Clinics)
Having a regular doctor who I can see for most problems	19% (74)	31% (32)	14% (42)
The ability to see a doctor quickly when I feel sick	19% (76)	24% (25)	17% (51)
Being able to afford care when I need health care.	14% (56)	6% (6)	17% (50)
Being able to afford medications when I need them	16% (63)	5% (5)	20% (58)
Being able to afford any diagnostic tests my doctor recommends	6%(25)	2% (2)	8% (23)
Knowing that my personal information is kept confidential	2% (7)	4% (4)	1 (3)
Feeling respected and well cared for by my provider	1% (5)	3% (3)	1% (2)

Table A36. Client Self-reported Access to Services, Stratified by Client Self-reported Wealth Quintile

Indicator	Non-Stratified result	Poor	Low middle	Middle	Upper middle	Well off
NO difficulty accessing or paying for services	58% (229)	34% (16)	42% (34)	65% (153)	80% (20)	75% (3)
Unable to obtain health care services due to cost (no insurance coverage, public or private)	13% (50)	9% (4)	18% (14)	12% (28)	8% (2)	0% (0)
Unable to obtain NCD services due to cost, even with public services or government coverage	13% (50)	32% (15)	19% (15)	8% (20)	0% (0)	0% (0)
Unable to obtain NCD services due to cost, even with private insurance.	4% (17)	2% (1)	5% (4)	5% (12)	0% (0)	0% (0)
Able to see health provider but inability to purchase medications	23% (93)	47% (22)	32% (26)	18% (43)	8% (2)	0% (0)
Able to see health care provider but unable to afford recommended laboratory or diagnostic tests.	20% (79)	32% (15)	31% (25)	16% (37)	8% (2)	0% (0)

Table A37. Expert Informants Interviewed in Albania

USAID Mission representatives	<ul style="list-style-type: none"> • Dr. Zhaneta Shatri • Dr. Agim Kociraj
Institute of Health Insurance (IHI)	<ul style="list-style-type: none"> • Dr. Gament Koduzi, Director Primary Health Care
MOH Directory of Public Health and Directory of Hospitals	<ul style="list-style-type: none"> • Dr. Gazmend Bejita, Head of Dept. Public Health, Chief Sanitary Inspector, MOH • Dr. Silvana Novi, Chief of Hospital Standards' Sector, MOH • Dr. Erol Como, Chief of Primary Health Care Sector, MOH
National Center for Quality and Safety Standards:	<ul style="list-style-type: none"> • Prof. Isuf Kalo, Director • Prof. Asoc. Vladimir Gusmari, Chief of Quality & Accreditation Unit • Dr. Ines Cullaj (Argjiri), Quality & Accreditation Unit
USAID-funded Enabling Equitable Health Reforms in Albania (Abt. Project)	<ul style="list-style-type: none"> • Zamira Sinoimeri, Senior Policy Adviser (formerly with WHO); sinoimeriz@yahoo.fr • Dorina Tocaj, Leadership Development and Communication Adviser, dtocaj@yahoo.com
Meet with National Center of Continuing Education	<ul style="list-style-type: none"> • Ms. Entela Shehu, Director
Meet with Institute of Public Health and Faculty of Medicine	<ul style="list-style-type: none"> • Prof. Enver Roshi, Director of Institute of Public Health • Dr. Alban Ylli, Head of Department of Epidemiology & Health Indicators • Dr. Genc Burazeri, Lecturer, Faculty of Medicine & Public Health, University of Tirana • Genar Hajdini, Specialist, Unit of Research, Innovation & Partnership, Department of Epidemiology & Health Indicators
Korca policlinic	<ul style="list-style-type: none"> • Manager
Korca Health Care Center Region 3	<ul style="list-style-type: none"> • Manager

Table A38. Expert Informants Interviewed in Armenia

Institute of Perinatology, Obstetrics and Gynecology	<ul style="list-style-type: none"> • Dr. Razmik Abrahamyan, Director of Institute of Perinatology, Obstetrics and Gynecology and Head Obstetrician Gynecologist in Armenia
WHO/Armenia Country Office Representatives	<ul style="list-style-type: none"> • Dr. Henrik Khachatryan (Program Coordinator Family and Community Health) • Dr. Irina Papieva (Program Coordinator for Health Systems, Disaster Preparedness and Response)
Yerevan State Medical University	<ul style="list-style-type: none"> • Dr. Mikhayil Narimanyan, Vice-rector, Dean, Department of Family Medicine • Dr. Gevorg Yaghjian, Director of the Continuous Education Department
National Institute of Health	<ul style="list-style-type: none"> • Dr. Vladimir Davidyants, Director, National Information-Analytical center (NHIAC) of Armenia • Dr. Diana Andreyan, Head of the Department of HSPA • Dr. Samvel Hovhannisyan, Dean of the Family Medicine Department, President of the Association of Family Doctors of Armenia
USAID HS-STAR Project (implemented by Abt. Associates)	<ul style="list-style-type: none"> • Dr. Mark McEuen, Interim Director
Yerevan Polyclinic #16 of "Kanakaner-Zeyton" Medical Union	<ul style="list-style-type: none"> • Manager
Gyumri Polyclinic #2	<ul style="list-style-type: none"> • Manager
Ashtarak Medical Center, Aragatsotn Marz	<ul style="list-style-type: none"> • Manager

Table A39. Expert Informants Interviewed in Georgia

USAID Georgia Mission	<ul style="list-style-type: none"> • Ms. Jeri Dible, Deputy Director Office of Health and Social Development • Dr. Tamar Sirbiladze, Senior Medical & Infectious Diseases Advisor • Dr. George Khechinashvili, Health Program Management Specialist • Ms. Gilian Kimura, Health Behavior Change Specialist
USAID SUSTAIN MNH /FP/RH project (JSI)	<ul style="list-style-type: none"> • Dr. Kartlos Kankadze, Deputy COP • Dr. Ekaterine Pestvenidze, Maternal and Child Health Technical Expert • Dr Joan Robertson, Senior technical Advisor
Georgia Association of Family Medicine	<ul style="list-style-type: none"> • Dr. Irina Karosanidze, Director, GP • Dr. Tamar Gabunia, Health Consultant
National Center of Disease Control (NCDC), Ministry of Labor, Health and Social Affairs	<ul style="list-style-type: none"> • Dr. Levan Baramidze, Public Health Division Director • Dr. Lela Sturua, Deputy Head of the Public Health Division • Dr. Manana Tsintsadze, Head of medical Statistics Division
Ministry of Labor, Health and Social Affairs	<ul style="list-style-type: none"> • Dr. Rusudan Rukhadze, Director of Health Department • Dr. Eka Paatashvili, Head of Regulation Division, Health Dept. • Dr. Nino Mirzikashvili, Head of Donor Coordination Department. • Dr. Tea Giorgadze, Head of Health Policy Division, Health Dept. • Dr. Eka Adamia, Chief Specialist of the Health Programms Division, Health Dept
USAID Health Systems Strengthening (HSSP) Project (Abt Associates)	<ul style="list-style-type: none"> • Mr. Julian Simidjiyski, Chief of Party • Ms. Katie Tatoshvili, Provider Capacity and QI Program officer • Ms. Nino Giguashvili, Health Finance/Insurance Officer • Ms. Lali Beitrishvili, Project Consultant, Consumer Empowerment • Mr. Alexander Turdziladze, Government Capacity Officer
Lung Medical Association	<ul style="list-style-type: none"> • Revaz Tataradze, Vice President
Tbilisi State Medical University	<ul style="list-style-type: none"> • Zaza Bokhua, , director of Postgraduate Medical Education • Givi Javashvili, Associate Professor, Family Medicine

Table A40. Expert Informants Interviewed in Russia

Federal Research Institute	<ul style="list-style-type: none"> • Dr. Anna Korotkova, Deputy Director on international Affairs • Dr. Farit Kadyrov, Health Economist • Dr. Olga Obuhova, Health Economist • Dr. Elena Varavikova, Researcher • Dr. Aleftina Kalininskaya • Dr. Olga Goncharova, Head of mother and child department • Dr. Yuliya Mikhailova, First Deputy Director
State Research Center for Preventive Medicine, MHSD, Russian Federation	<ul style="list-style-type: none"> • Dr. Yekaterina Vitalyevna Usova,
Consultant WHO	<ul style="list-style-type: none"> • Dr. Elena Potaphchik, Health Economist
USAID Russia Mission	<ul style="list-style-type: none"> • Bill Slater, Director, Office of Health • Lara Petrossyan, Project Management Specialist, Maternal and Child Health Program, Office of Health
St. Petersburg Polyclinic No 117 and No 116	<ul style="list-style-type: none"> • Managers (requested anonymity)
Vzevolozhsky District Hospital Polyclinic	<ul style="list-style-type: none"> • Manager (requested anonymity)
Romanavo polyclinic, Leningradskaya oblast	<ul style="list-style-type: none"> • Manager (requested anonymity)

USAID HEALTH CARE IMPROVEMENT PROJECT

University Research Co., LLC
5404 Wisconsin Ave., Suite 800
Chevy Chase, MD 20815

Tel: (301) 654-8338

Fax: (301) 941-8427

www.hciproject.org