DTRA/Cooperative Biological Engagement Program

Evaluation of Impact of CBEP Training Activities on the Performance of Targeted Laboratories in Iraq

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Developed by University Research Co., LLC

DISCLAIMER
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**Background**

The Defense Threat Reduction Agency’s Cooperative Biological Engagement Program (CBEP) was developed to assist partner nation governments in addressing obligations assumed by signing the United Nations National Security Council Resolution 1540 (2004), which binds States to adopt legislation to prevent the proliferation of nuclear, chemical, and biological weapons, and their means of delivery, and establish appropriate domestic controls over related materials to prevent their illicit trafficking; Resolution 1540 also encourages enhanced international cooperation on such efforts.

CBEP focuses on biological agents and seeks to enhance clinical, laboratory, and epidemiological safety and security by providing education and training, particularly on select agents (also referred to as especially dangerous pathogens (EDPs)). CBEP also considers member obligations under the World Health Organization’s International Health Regulations, which were designed to enhance national, regional, and global public health security and require State Parties to have or develop minimum core public health capacities to detect, assess, notify, and respond to public health threats.

A Baseline Assessment Report (BAR) conducted in Iraq indicates that all provincial stakeholders reported shortages in resources in addition to a need for strengthened lab services in order to achieve lab services and biosurveillance goals. All provincial stakeholders, lab managers, and staff members reported a great need for:

- BS&S profiles;
- Standard operating procedures;
- Guidelines;
- Laboratory management guidelines;
- Administrative guidelines; and
- Clinical standards and norms.

The BAR was conducted to assess the functionality of the existing system by employing open-source literature reviews and conducting facility-level surveys and interviews with stakeholders to identify the system’s strengths and weaknesses, classify priorities, and recognize interventions that will accomplish the objectives of CBEP.

Most stakeholders reported that there are biosurveillance mechanisms in place, but they are suffering from the lack of adequate mechanisms to react efficiently and effectively. Biosafety procedures are few in most of the assessed laboratories and the need for equipment and equipment maintenance is a complaint for most of the labs.

All provincial stakeholders and lab managers reported a lack of clear standards or standard operating procedures for specimen collection and transport (the same applies for specimen handling) and no quality assurance teams were found within the labs. Most of the private labs reported having no clinical guidelines, and shortages of human resources in all facilities were evident during the surveys.

To help address these gaps, over the course of 25 months (January 1, 2014 - January 31, 2016), CBEP assisted the Government of Iraq to address obligations assumed by signing United Nations National Security Council Resolution 1540 (2004).

CBEP focuses on biological agents and seeks to enhance clinical, laboratory, and epidemiological safety and security by providing education and training, particularly on EDPs.

The CBEP has three main objectives in Iraq:

- To identify and address gaps in the human and animal public health systems;
- Enhance biosafety and biosecurity (BS&S) standards and procedures;
- Strengthen the ability of human and animal public health laboratories to detect, diagnose, and report outbreaks of infectious disease, especially those associated with EDPs, in accordance with the World Health Organization's International Health Regulations and World Organization for Animal Health guidelines.

**Setting**

CBEP sponsored training activities in seven select provinces in central and southern Iraq: Baghdad, Diyala, Babil, Karbala, Najaf, Basra and Maysan. These were selected in coordination with the Iraqi National Monitoring Authority (INMA), the Ministry of Science and Technology (MoST), Ministry of Health (MOH) and Ministry of Agriculture (MOA).

CBEP-targeted labs included provincial labs, public and veterinary health facilities, and the CPHL and CVL in Baghdad.
The training activities started on November 23, 2014 with the aim of improving biosafety and biosecurity (BS&S) capacity among public health and veterinary laboratory workers. Specifically, by helping lab workers to gain awareness of infectious biological materials and associated hazards, as well as safe and secure methods of sample transportation and waste management.

Selection criteria for trainees:
- MOH: Health personnel holding a bachelor’s degree in medicine and lab science
- MOA: Veterinary doctors

Trainers and subject matter experts (SMEs) from government, national, private, and academic sectors in Iraq facilitated the training activities. The training plan included:
- Traditional trainings in both classroom and resident training settings;
- On-the-job training (OJT) and mentoring; and
- Training-of-trainers (TOT) training;
- Management of training materials and curricula (including configuration control, distribution of translated material, the quality of training materials, assessment of training proficiency, training effectiveness, individual and facility records management, and cost);
- Collecting, distributing, and acting upon feedback appropriately; and
- Coordination and scheduling of attendees and trainers with relevant Iraqi entities.

CBEP trained over 2,040 laboratory workers including 38 master trainers, staff capable of training additional trainers, from the seven provinces targeted by the project. The training targeted physicians and lab workers working at the targeted labs of MOH and MOA from the seven provinces.

Clinical medicine training focuses on improving health practitioners’ ability to detect and diagnose priority pathogens and phylogenetically-related species and subspecies in both the human and animal sectors. Priority for training is given to members of the outbreak Rapid Response Teams and practitioners in endemic and/or sporadic areas for priority pathogens.

Veterinary medicine training includes both field and response veterinarians and focuses on those veterinarians and technicians from the Central Veterinary Laboratory (CVL) and veterinary hospital labs, both public and private.

Epidemiology training includes basic epidemiology, outbreak investigations, analytic epidemiology, and study design for epidemiologists in the public and private healthcare systems in Iraq.

Laboratory diagnostics training includes bacteriology, serology, and molecular diagnostics of pathogen detection and also focuses on diagnostic development and quality control. Priority for training is given to those personnel from the MOH’s Central Public Health Laboratory (CPHL) and the National Communicable Disease Control Center (NCDCC).

BS&S training includes practical and theoretical aspects of internationally-accepted BS&S standards and procedures, including waste management and sample transport.

In addition to trainings, CBEP supported the Government of Iraq to improve sample transport through procuring triple package containers and providing training on use, development of BS&S SOPs and guidelines in coordination with the MOH, MOA, and INMA to improve Iraq’s Disease Surveillance System, and provide support to four key laboratories within the CPHL: Virology, Bacteriology, Parasitology and Food Safety.

**Aim of Assessment**

The purpose of this assessment is to measure the impact of CBEP activities on the performance of work of bio risk lab operations in targeted Iraqi labs (MOH and MOA) from July-December 2014 compared to July-December 2015.

**Methodology and Survey Design**

The assessment was designed to be conducted at two levels:
- The central level of public health and veterinary health labs;
- The provincial level of public health labs and veterinary hospital labs in the seven targeted provinces.

The assessment measured both quantitative and qualitative information, with quantitative information captured through facility documents and reports and qualitative information collected through interviews with health officials.

**Assessment Sampling**

CBEP, under the concept of One Health, chose several labs within...
the Ministry of Health (MOH), Ministry of Agriculture (MOA) and MoST as follows:

- MOH - provincial public health labs from the targeted provinces and the CPHL in Baghdad
- MOA - provincial hospital veterinary labs from the targeted provinces and the CVL in Baghdad

Assessment Tools
The assessment tools, developed in coordination with stakeholders, were based on CBEP activities and focused on:

- Improvement of technical capabilities and capacities of the lab as well as personnel;
- Progress achieved in assessing the existing BS&S protocols and programs; and
- Improvement of the biosurveillance system, procedures and guidelines applied.

Data Collection Methodology
CBEP conducted desk reviews, field/site visits, and key informant interviews (KII) with lab managers and ministry officials to collect data on the impact of CBEP training activities on the performance of targeted labs in Iraq.

Selection criteria for KII from laboratories:

- MOH: A total of 6 interviews were conducted (one interview with each Public Laboratory Manager) were conducted.
- MOA: A total of 6 interviews (one interview with each Veterinary Hospital Director) were conducted.
Assessment Findings

This assessment was conducted in seven targeted provinces: Baghdad, Diyala, Babel, Karbala, Najaf, Maysan and Basra. Seven public health facilities were surveyed with significant improvements measured across all indicators.

One of the main indicators was the obvious increase in the number of samples transported from the major health facilities to the public health labs in each province as indicated in Figure 1, this increase is mainly attributed to the availability of triple package containers supplied by CBEP.

CBEP supplied 640 triple package containers to both the public and veterinary health facilities in Iraq. These packages will be used for the collection/transportation of infectious disease pathogen specimens collected in the health facilities and shipped to the main provincial labs and the central referral labs in Baghdad for further confirmation and diagnosis.

The provision of the triple package containers had positive and visible impact on the performance and activities of the health facilities, leading to improved BS&S measures and standards and safety of lab personnel.

The triple package containers will positively affect the process of disease sample transportation between provincial and central labs to the international referral labs in accordance with International Health Regulations IHR-2005 and IATA regulations.

As illustrated in Figure 1, the number of transported samples from the major public health labs to the provincial public health labs from of July-December 2015 increased by an average of 59 percent in 2015, compared to the same period in 2014. This increase is largely due to improved awareness of bio surveillance systems for health lab personnel, the application of the new guidelines and procedures for the detection and diagnosis of suspected infectious diseases, and the supply of the triple package containers.

Figure 1: Number of samples transported from the major public health facilities to the provincial public health labs
After successful implementation of the MoST Food and Water Pollution Lab Unit upgrades and activities in April 2015, CBEP started upgrading the four targeted lab units in the Central Public Health lab (CPHL), which are: Bacteriology, Virology, Parasitology, and Food Safety Lab Units to comply with CBEP objectives and goals in line with DTRA standards and regulations.

This rapid upgrade process included the supply of modern advanced equipment to help increase BS&S measures and standards. Figure 2 demonstrates an average increase of tests conducted across laboratories of 35 percent. Labs demonstrated improved capacity through an increase in number of lab tests carried out, compliance with newly implemented SOPs, and through revisions to lab records as provided during KII with the heads of the laboratory units.

**Figure 2: Increase in number of tests conducted by laboratory unit post-upgrade.**

CBEP continued to conduct a series of training workshops in the targeted provinces for public and veterinary health officials. From November 2014 to January 2016, **CBEP trained 872 MOH public health personnel** (public health physicians and lab personnel holding a BSc degree in lab science working in the public health facilities, specialized health centers, and major hospitals).

Additionally, **CBEP trained 1,143 veterinary doctors working in veterinary health facilities** (hospitals and veterinary clinics). Lab staff technical capabilities greatly improved, largely in the detection and reporting of disease outbreak events.

CBEP saw a noticeable increase in training activities from July-December 2015 (Figure 3) to ensure reach to the maximum number lab personnel and to increase experience, scientific knowledge, and strengthen technical capabilities.
Laboratory Directors stated that the number of incidental injuries decreased greatly during July-December 2015. This is due to improved technical awareness and scientific knowledge of BS&S measures and standards gained through CBEP workshops and the provision of personal protective equipment (PPEs).

CBEP, in close coordination with the MOH, MOA, MoST and INMA, finalized consolidated SOPs and procedures for bio-risk operations/strategies conducted in the bio health labs in Iraq. The SOPs minimized variation in operation procedures and promote quality through consistent implementation of a process or procedure within the organization. The standard procedures minimize guidelines, and regulations of bio-risk operations during daily routine laboratory work.

- Significant improvement in the performance of these labs was noticed by training facilitators, heads of laboratory departments, and through the field visits and interviews conducted by CBEP team members.

**Figure 3:** Impact of CBEP trainings on laboratory personnel and daily laboratory activities
opportunities for miscommunication and address safety concerns.

The SOP process included printing and distribution of 1,000 booklets in addition to printing learning/educational materials (brochures) for the concerned health labs in the Iraqi Ministries. Figure 4 shows the distribution of CBEP-developed materials across targeted ministries.

CBEP involved KRG in discussions, development and roll-out of the SOPs. KRG requested to be included in dissemination of the SOPs even though they are in Arabic. Therefore, SOP coverage includes both Central Iraq and KRG.

This resulted in improved awareness and increased scientific knowledge leading to strengthened BS&S health measures and standards in the Iraqi health labs (Figure 5).

Figure 4: Distribution of CBEP-developed SOPs and brochures across targeted ministries

Figure 5: Impact on proper management of lab incidental injury cases in targeted MOH facilities post SOP distribution
Figure 5 shows an increase in the number of cases of cholera cases detected in the targeted provinces for the period July-December 2015 compared to the same period in 2014. Case detection increased by an average of 194 percent across all targeted provinces, with Baghdad increasing by 254 percent. This increase is mainly due to CBEP trainings activities which focused on lab technique operations and procedures applied in the public health labs. The figure shows the actual increase in the number of lab tests carried out from July-December 2015 compared to the number of lab tests performed with the same period of 2014 as provided by MOH-PHC reports-2016.

**Figure 5: Cases of cholera detected in MOH facilities**

<table>
<thead>
<tr>
<th>Province</th>
<th>July-December 2014</th>
<th>July-December 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baghdad</td>
<td>200</td>
<td>1200</td>
</tr>
<tr>
<td>Diyala</td>
<td>50</td>
<td>80</td>
</tr>
<tr>
<td>Babil</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Karbala</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>Najaf</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Maysan</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Basrah</td>
<td>10</td>
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</tbody>
</table>

**CBEP trained 872 public health laboratory personnel and 18 master trainers in the seven targeted provinces.**

The training materials include clinical medicine training focusing on improving health practitioners’ ability to detect and diagnose priority pathogens and phylogenetically-related species and subspecies in both the human and animal sectors. Priority for training is given to members of the outbreak Rapid Response Teams and practitioners in endemic and/or sporadic areas for priority pathogens.

Epidemiology training includes basic epidemiology, outbreak investigations, analytic epidemiology, and study design for epidemiologists in the public and private healthcare systems in Iraq.

Laboratory diagnostics training includes bacteriology, serology, and molecular diagnostics of pathogen detection and also focuses on diagnostic development and quality control. Priority for training is given to those personnel from MOH’s Central Public Health Laboratory (CPHL) and the National Communicable Disease Control Center.
BS&S training includes practical and theoretical aspects of internationally-accepted BS&S standards and procedures, including waste management and sample transport. MOH personnel trained by CBEP were physicians and specialist lab personnel holding a bachelors degree in medicine and laboratory science (Figure 6). Additionally, CBEP trained 18 Master Trainers from the MOH (Figure 7). Laboratory technicians and assistants were not targeted during this phase.

Figure 6: Number of MOH personnel trained by CBEP

Figure 7: Breakdown of CBEP-trained MOH Master Trainers by province
Assessment Findings

This survey was conducted in seven targeted provinces including: Baghdad, Diyala, Babil, Karbala, Al Najaf, Maysan and Basra. Seven veterinary hospitals were surveyed (the available information included all the details of the veterinary clinics in these provinces).

Initial findings indicated a significant impact on lab performance among all the surveyed veterinary lab hospitals for July-December 2015 compared to the same period in 2014.

As illustrated in Figure 1, the number of samples transported from the veterinary health facilities to the veterinary hospital labs increased by an average of 45 percent during July-December 2015 compared to the same period in 2014. This increase is attributed to improved bio surveillance awareness and the application of new guidelines and procedures for the detection and diagnosis of suspected infectious disease incidence. One of the main factors attributed to the increase is the provision of the triple package containers supplied by CBEP which help to ensure the biological agents are transported safely and securely in accordance with regional, national and international regulations.

**Figure 1:** Number of samples transported from the veterinary health facilities to the provincial veterinary hospital labs
CBEP completed the upgrade process in the Central Veterinary Lab Units in compliance with DTRA standards and objectives. The upgraded lab units are: Bacteriology, Virology, Brucellosis and Tuberculosis, and Specimen Reception Units.

The process included rehabilitation (changing benches, repairing floors, and painting) as well as the supply of equipment to enhance and reinforce lab operations. This contributed to a average 34 percent increase in tests conducted by these lab units (Figure 2).

Respondents, including heads of laboratory units, reported increased compliance with SOPs, improved diagnostics due to procured equipment, and improved sample transport.

Figure 2: Increase in number of tests conducted by laboratory unit post-upgrade.

Data collected regarding incidental injuries inside the veterinary labs showed a significant decrease in cases across all CBEP provinces in comparison with 2014 (Figure 3). Reasons for the decrease include: availability and provision of PPEs, efficient training and knowledge of appropriate lab techniques, and an increase in awareness and experience with the implemented guidelines and SOPs.

The preparation of a detailed booklet including procedures and guidelines for the Integrated Disease Surveillance System in Iraq will improve the technical capabilities of the health personnel working in the health facilities, mainly the Surveillance Units in both sectors, as shown in the Figure below. Cases of infectious diseases reported increased by an average of 40 percent across all targeted provinces.

Figure 3: Cases of infectious diseases reported by MOA facilities
The technical capabilities of the veterinary lab personnel improved in the area of detection, identification and reporting of infectious disease incidence. Such impact appears during the last outbreak of Lumpy Skin Disease and early detection and reporting from all levels. This increase can be attributed to CBEP training activities and the improvement of the technical capabilities of the lab personnel in bio surveillance disease operations. As seen in Figure 4, conducted lab tests increased by an overall average of 69 percent. Maysan province increased the most with an increase of 332 percent.

**Figure 4: Number of lab tests conducted in veterinary health facilities**
CBEP has trained 1,143 veterinary health laboratory workers and 20 master trainers in the seven targeted provinces (Figure 5).

CBEP training workshops conducted in the targeted provinces aimed to improve BS&S measures and standards. This influenced the safe disposal of waste, decreased lab injury cases, and enhanced the specimen transportation system (Figure 6).

The head of the CVL stated that pre-evaluation scores for MOA staff were on average between 5-8 percent, however, post-CBEP trainings, staff averaged 90 percent and above on examinations.

**Figure 5: Number of MOA personnel trained by CBEP**

**Figure 6: Laboratory compliance with national SOPs post CBEP trainings.**
The SOP process included printing and distribution of 350 booklets in addition to printing learning/educational materials (brochures) for the supported veterinary health facilities. Figure 7 shows the distribution of CBEP-developed materials across targeted ministries. This led to an increase in awareness and scientific knowledge improving BS&S health measures and standards in the Iraqi veterinary health labs (Figure 8).

CBEP involved KRG in discussions, development and roll-out of the SOPs. KRG requested to be included in dissemination of the SOPs even though they are in Arabic. Therefore, SOP coverage includes both Central Iraq and KRG.

Veterinary medicine training includes both field and response veterinarians and focuses on those veterinarians and technicians from the Central Veterinary Laboratory (CVL). Epidemiology training includes basic epidemiology, outbreak investigations, analytic epidemiology, and study design for epidemiologists in the public and private healthcare systems in Iraq.

Laboratory diagnostics training includes bacteriology, serology, and molecular diagnostics of pathogen detection and also focuses on diagnostic development and quality control. Priority for training is given to those personnel from the MOA’s CVL and the veterinary hospitals in the targeted provinces.

BS&S training includes practical and theoretical aspects of internationally-accepted BS&S standards and procedures, including waste management and sample transport system.

Figure 7: Distribution of CBEP SOPs and brochures across targeted ministries

![Distribution of CBEP SOPs and brochures across targeted ministries](image)

Figure 8: Improvement of proper waste disposal procedures in targeted MOA facilities post SOP distribution

![Improvement of proper waste disposal procedures in targeted MOA facilities post SOP distribution](image)
Discussion

MOH, public health facilities, CPHL

Samples transported from public health labs to the provincial public health labs increased in all governorates post CBEP training. Although the number of samples transported increased, the number of samples rejected decreased, showing great improvement in sample quality and transportation methods. Additionally, lab tests conducted as well as reported cases of infectious diseases increased in all provinces.

Most of the infectious disease cases reported included (immediately notifiable disease):

- Suspicion of Cholera
- Suspicion of Hemorrhagic fever
- Malaria
- Diphtheria
- Meningitis
- Neonatal Tetanus
- Fever and Maculopapular Rash
- Acute Polio
- Whooping cough
- Rabies
- Suspicions in EPI flue (HINI)
- Suspicion in Birds flue (H5NI)
- Anthrax
- Food poisoning
- Abnormal health accidents
- Leishmaniosis skin and visceral leishmaniosis.

In addition to increased samples transported to provincial public health labs, samples received by the CPHL in Baghdad increased as well, in some cases almost doubling.

This is due to the improvement of bio surveillance technical capabilities of the health personnel working in these labs, increased awareness and scientific knowledge of infectious disease outbreak events, and the provision of triple package containers. The impact was noticeable during the last Cholera outbreak in October 2015. During this time a high number of cases were transported to provincial public health labs as well as the CPHL-Baghdad for further confirmation and diagnostics.

MOA, veterinary labs, CVL

In all seven targeted provinces samples transported from the veterinary health facilities to the provincial veterinary hospitals increased, showing dramatic improvement in the collection, quality and transportation of samples.

All governorates increased cases of infectious diseases reported by 40 percent. Baghdad increased the least with a 23 percent increase while Maysan increased the most with a 62 percent increase.

For veterinary labs infectious disease cases reported included:

- Lymph skin disease
- FMD Foot and Mouth Disease
- PPR Petit Rum Rumawats pesti
- ND Newcastle
- IB Infectious Bronchitis

Additionally, the number of lab tests conducted increased across all provinces while Diyala, Karbala, Al-Najaf and Maysan more than doubled the number of tests.

During an interview with MOA staff, it was discovered that prior to CBEP training support, the MOA did not have a training plan or training unit. In addition to trained workers, the MOA now has a Continuing Medical Education Unit and is using CBEP-developed pre- and post-tests as a motive for staff improvement.

Gaps in Coverage

CBEP covered seven provinces targeting physicians, veterinarians, and specialized lab staff. While great impact was seen in CBEP-targeted facilities, gaps still remain among non-targeted provinces and laboratory personnel. To ensure continued improvement of national capacity in BS&S measures and progress towards One Health in Iraq. CBEP coverage must be increased to include all MOH and MOA facilities across Iraq and trainings expanded to include all levels of laboratory personnel.
Annex 1—Survey Tool

MOH Public Health Labs  CBEP Iraq

MOA Veterinary Health Labs

The Impact of the CBEP activities on the performance of work on Bio risk lab operations of the Iraqi labs (MOH and MOA) accomplished during the period of July-December 2014 compared with the period of July-December 2015.

Assessment Tools Evaluation

1. The Impact of the printing and distribution of the SoPs booklets and the educational and learning brochures to the health facilities

Such impact will be evaluated by the following tools:

- Significant progress and improvement actions achieved in the disposal process operation had been noticed? If yes, how?

  YES……………NO…………

- Proper implementation and application of the bio risk operations guidelines and procedures in line with the ministerial operation procedures SOPs had been noticed?

  YES……………NO…………

- Lab incidental injury cases are managed appropriately according to the SOP guidelines?

  YES……………NO…………

- Significant request and needs of the lab staff for the provision of PPEs during bio risk operation had resulted in a noticeable decrease lab injuries?

  YES……………NO…………

- Application of the SoPs guidelines and operations had resulted in a proper achievement of the autoclave and BSC maintenance.

  YES……………NO…………
2 - The Impact of the CBEP-training workshops activities:

Such impact will be evaluated by the following tools:

- Significant awareness and responsiveness to the concept of BIO SAFETY and SECURITY in regard to the bio risk lab operations and procedures of the Iraqi labs had been noticed?

  YES...........NO...........

- Technical capabilities of the lab personnel had been strengthen in the area of detection, reporting of the communicable disease incidence?

  YES........... NO...........

- Increase influence of the workshops in the experience and knowledge of the lab personnel in line with ministerial guidelines of the Bio risk operations procedures?

  YES...........NO...........

3 - The Impact of the upgrade process of CBEP that was achieved in the targeted Iraqi bio health labs in the concerned ministers

This rapid upgrade process include the rehabilitation upgrade activities in the central veterinary labs and supply of modern advance equipment.

The impact of these processes can be assessed through the following tools:

 ..........The number of lab test performed in the upgraded lab units carried during the period of July-December 2014.

 ..........The number of lab tests performed in the upgraded lab units carried during the period of July-December 2015.

The biosafety and biosecurity of the bio risk operations measures and standards are noticeably improved after the upgrade process in the concerned lab units inside CVL.

  YES...........NO............
4- The Impact of the CBEP activities in the procurement process of the lab Supplies and consumables requested by CVL and CPHL

- The provision of the newly supplied equipment will have clear improvement on the quality of lab test performed which lead to increase number in the detected cases of infectious disease

YES.............NO..........

- These newly supplied lab consumables and diagnostic kits have a direct impact on the lab performance and can be evaluated through:

Significant increase in the number of detected cases of infectious diseases? If yes please clarify?

YES.............NO..........

Clarify...............................................................................................................................  

Significant improvement in the quality of lab test performed? If yes please clarify

YES............., NO.............

Clarify .................................................................................................................................

5- The Impact of the CBEP activities in the procurement process of the lab Supplies requested by CPHL

The biological specimen are transported in a safely and securely manner in accordance with reginal, national and international regulations and WHO-IHR guidelines?

YES............. NO.............

Number of samples transported from the major public health or the veterinary health facilities to the public health lab and the veterinary hospital lab of the province.

.........Cases were transported during the period of July-December 2014

.........Cases were transported during the period of July-December 2015
• Number of samples transported from the main public or the veterinary health facilities and had been rejected by the public health lab or the veterinary hospital lab of the province.

..........Cases were rejected during the period of July-December 2014
 ..........Cases were rejected during the period of July-December 2015

The status of the specimen received from the public or the veterinary health facilities in the province by the public health lab or the veterinary hospital labs.

Received in good and appropriate condition

YES.......... NO.............

6- The Impact of CBEP activity by achieving the task of the establishment of the Technical Advisory Group (TAG) to review and update the Integrated Disease Surveillance System guidelines and procedures applied in the health facilities of MOH and MOA in Iraq.

Such activities and efforts had been resulted in preparing an efficient and productive guidelines and procedures which will improve the technical capabilities of the health personnel working in the health facilities and mainly the surveillance units in both sectors.

It will be assessed through the following tools:

• Technical capabilities and scientific experience of the lab trained personnel

..........number of cases of infectious diseases detected during the period of July-December 2014
 ..........number of cases of infectious diseases detected during the period of July-December 2015

• Improvement in the technical capabilities and the scientific experience of the lab personnel in the area of detection, diagnosis and reporting of the infectious disease incidents had been noticed? If yes, please clarify

YES.......... NO.......... 

Clarify ............................................