

# **Pakistan Ebola Preparedness Assessment Mission Report**

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**World Health Organization  
Eastern Mediterranean Regional Office**

The Mission travelled to Pakistan from 24-28 November 2014 and was consisting of the following mission members from EMRO and from Pakistan WHO and UNICEF. Two members from the National Health services regulation and coordination (NHSR&C) ministry at federal level joined the mission in Islamabad and contributed on 2 main areas: Surveillance and coordination with Airports authorities.

Assessment Team was composed of the following:

Dr Michel Thieren; WHO Representative in Pakistan - Team leader  
Dr Rayana Bou Haka; Manager - Team coordinator  
Dr Humayun Asghar; Regional Advisor Public Health Laboratories, WHO/EMRO  
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Dr Musa Rahim; NPO WHO/PAK  
Mr Wasiq Khan; Technical Officer Pandemic and Epidemic Diseases WHO/EMRO  
Dr Sher Baz; Director Central Health Establishment  
Dr Muhammad Salman; NFP IHR, NIH  
Dr Tania Goldner; Chief Health UNICEF  
Dr Nashmia Mahmoud; Health Emergency Officer UNICEF  
Dr Rana Mushtaq; UNICEF Punjab

**The Terms of Reference of the Mission:**

- Assess level of preparedness and readiness measures for EVD outbreak using a standardized public health method and approach;
- Identify critical gaps or areas of concern for stepping up national preparedness for EVD
- Recommend urgent remedial measures to address critical gaps and strengthen capacities for mitigation of risk of spread and transmission of EVD
- Review the Country Preparedness and Response Plan for EVD

**Methodology:**

The following Assessment Methodology was adopted for the assessment:

Pre Mission Preparatory work consisted of reviewing key documents on Pakistan profile, disease burden surveillance aspects, health system and previous IHR assessments documents and action plans.

The assessment itself from 24-28 November included the following activities:

- Team up with the national teams comprising national representatives
- Apply quantitative and qualitative checklists developed by WHO and gather information

- Observe critically the procedures put in place and measures/structures devised for Ebola preparedness (airport, hospital, isolation units)
- Meet with key officials and stakeholders at federal level and in 2 provinces (Punjab and Sindh, the security situation prevented visits to the third province Khyber Pakhtunkhwa)
- Make field visits to airport, health facility and arrange interviews with key stakeholders
- Visit 3 key locations (the assessment team was divided into 2 teams)

The agenda is attached as annex along with the names of people met.

A review of the measures taken and the comparison with the WHO developed checklist on Ebola preparedness led to the identification of the gaps and needs after the team reviewed the information collected, synthesized the observations from the team members and the two provinces visited and analyzed the information by six critical functional areas in standard format. The team discussed the findings and come out with few selected and major areas of gaps (in the six functional areas) in terms of critical nature of the gaps, knowing that due to time in depth analysis in some domains remained to be conducted.

A first preliminary report was presented in Punjab and Islamabad regarding the major findings and observations and a debriefing held with provincial and federal level authorities on 27 and 28 November respectively.

Pakistan Ebola preparedness actions: Pakistan had taken several steps in this respect in establishing a coordination structure a national steering committee since October 2014 and developing Terms of Reference and several SOPs for subcommittees, for screening passengers at the airports, for response teams and for risk communications.

- The National Ebola coordination steering committee was formed under the chairmanship of Director General Ministry of National Health Services Regulation and Coordination (NHSR&C) with representation from Federal and Provincial Health departments (Provincial DGs Health), Medical Directorate Pak Army, partners and stakeholders
- Airport coordination committees on Ebola were formed at 5 International airports with representatives from Civil Aviation Authority (CAA), Immigration (FIA), Airport Health Authority, and Airport Security Force (ASF). Three International airports (Karachi, Lahore and Islamabad) prioritized for establishment of the coordination mechanism and preparations on priority basis
- Hospitals in all provincial capitals and Islamabad were identified for the establishment of Ebola treatment Center/isolation wards. Three major cities (Karachi, Lahore and Islamabad) prioritized for establishment of the facility on urgent basis
- SOPs for the Rapid Response Teams and Point of Entries were developed on the Ebola Virus Disease
- A multidisciplinary National Rapid Response Team was nominated and orientation training was done to deploy immediately upon receiving alert from any part of the country. Provincial RRT will be prepared in second phase

- A multidisciplinary group of health care providers (Physicians, Nurses, administrators, Lab technician) from the 7 hospitals identified for the establishment of Ebola treatment unit were trained on IPC, Ebola case management, surveillance and sample collection. 52 health care providers from identified hospitals from Karachi, Quetta, Lahore, Islamabad, Peshawar and Muzaffarabad attended the training sessions
- Advocacy and Orientation training for the officials of the 3 international airports (Islamabad, Lahore and Karachi) conducted. 103 officials from CAA, Immigration department, Airport Health authorities and Airport Security Force attended the sessions. SOPs on Ebola Virus Disease for point of entries introduced. WHO team conducted the sessions but the exposure to IPC concepts and principles was limited
- Orientation training of port health officers conducted on the Ebola Virus Disease. Their vigilance for the travelers from the Ebola affected countries and suspected cases emphasized. 15 health officers from main airports, ground crossings and Karachi Sea port attended the session. WHO team conducted the sessions but the exposure to IPC concepts and principles was limited
- National Institute of Health (NIH) issued advisories on the Ebola Virus Disease and shared with provinces and stakeholders
- NIH Lab equipped with arrangement for Lab Sample collection and procedures for shipment to the Reference Lab
- Screening/detection of travelers from the Ebola affected countries or suspected case at the international airports was activated
- National Ebola Preparedness and Response plan is being developed

#### Mission Findings:

- 1- **Coordination Structures:** Overall the assessment revealed a high national level of engagement and commitment, high awareness and a status of alertness.
  - a. The national level steering committee including stakeholders has been constituted and is functional. An Operational level of coordination exists and is functional among stakeholders involved. Documentation for different aspects of readiness is developed at national level.
  - b. The composition of the Steering committee includes health, airport officials and Pak army representatives. There seem to be at this stage no linkages to the National Disaster management body, National Disaster Management authority NDMA. The mission noticed also that Ebola preparedness plans and response measures are not included in the National disaster preparedness of Ebola preparedness aspects
  - c. The focus in the plan was mainly around the scenario of a suspect case presenting mainly through airport arrivals
  - d. Rescue 1122 and Edhi foundation for ambulance service who are the main first responders are neither included at federal nor provincial level coordination bodies
  - e. The translation at provincial level varied. The team visited Punjab found also provincial authorities on high alert following the media hype about a case that was suspected and



discarded later as suffering from dengue in Faisalabad. However the issues related to the screening and presentation of the deceased patient served as an alarm call, and presenting an opportunity to review gaps in the SOPs despite the fact that burial took place following WHO guidelines for suspected Ebola cases

- f. Coordination structure and operational level readiness are lacking in Sindh
- g. The documentation of all SOPs measures at national and provincial level into a dynamic plan is in process

#### Recommendations:

The National Steering Committee needs to be more inclusive, with broader representation. It should have detailed terms of reference to clarify roles and responsibilities. The SOPs and all measures should be compiled into the Ebola preparedness and response Plan. The Polio Control Center could be used as part of the response mechanism for a crisis cell.

WHO to identify consultant and support the development of detailed SOPs on response readiness, and simulation guidelines and plans.

- 2- Points of Entry:** There are 5 airports prioritized by the Pakistani authorities for enhancement of their level of preparedness. The mission visited 3 of them: Islamabad airport (Benazir Bhutto Airport), Lahore (Allama Iqbal Airport) and Karachi (Jinnah Int. Airport). The mission noticed that :
- a. Public Health Emergency Plan does not exist at the airports
  - b. National Preparedness and Response Plan for EVD does not exist but SOPs were developed
  - c. Airport health authorities are carrying initial screening but the same at immigration counters remains patchy
  - d. Coordination and communication system between the competent authority and the service provider e.g. airlines, health authorities and other stakeholders regarding the EVD is weak
  - e. At Islamabad airport there is no designated isolation area to interview suspected Ebola patients travelers and at Lahore airport inappropriate isolation area to interview the travelers suspected for EVD In Karachi the interview and isolation location are available and at the corner of the arrival terminal however an isolation facility is planned to be established very soon on the apron/tarmac using a pre-fab container
  - f. Human resources, ambulance/s, PPE including donning and doffing training, IPC, and waste management assets, capacities and trainings (including that for cleaning staff) inadequate or lacking, limited stock of PPEs at the airport
  - g. Absence of crew of airline operators during meetings to review the IATA procedures of management of travelers as suspected Ebola cases on board
  - h. Full and comprehensive SOPs for implementing screening measures at the airport are not in place

#### Recommendations:

- Establish a committee involving highest level leadership of all stakeholders at the airport to improve coordination and adherence to IATA WHO IHR 2005 Annex 8 and ICAO CAPASCA program at operational levels
- Establish standard isolation areas at Islamabad and Lahore airports; Karachi airport also to get a pre-fab container on the Apron as planned
- Conduct training for all stakeholders at the airport on public health contingencies, IPC measures, and waste disposal
- Establish/integrate public health emergency plan/ component that includes Ebola, within existing Airport Contingency Plan

### **3- Surveillance and rapid response:**

- a. Pakistan is implementing the FELTP program with support from CDC for the past 6 years and under this program has trained an FELTP cohort of over 200 experts available at national and provincial levels
- b. The NIH hosts the Surveillance program. A bulletin on the communicable diseases under reporting is issued regularly, with information collected at provincial level and shared with NIH. The FELTP experts are not being adequately utilized and lack resources
- c. WHO had been supporting the analysis and dissemination of data collected through the Disease Early Warning System (DEWS) which was initiated initially after the 2005 earthquake, later expanded in other areas affected by the IDP crisis, floods 2010 and the subsequent disasters
- d. The data is collected through SMS and compiled at district level then analyzed at provincial and National level. A weekly epidemiological bulletin is prepared and distributed among stakeholders
- e. The DEWS as the routine surveillance program, flanked by vertical programs on Dengue, Malaria, and Polio collect mostly information from the public sector
- f. WHO support for DEWS being phased out
- g. In Punjab the dengue surveillance system is online and covers all hospitals including the private ones. Other Provinces have dengue daily report through fax
- h. It is worth noting that USAID issues a daily mortality and morbidity report of the drought affected areas and includes reported deaths as well as the consultations from health facilities
- i. The devolution of health being a provincial matter had not allowed for a single system at national level to be implemented. Thus fragmentation at this stage will weaken the Ebola preparedness
- j. The Case definition/management, and contact tracing training and assets for Ebola are limited, despite early “unplanned” drills with the follow up of contacts of the suspected case in Faisalabad
- k. Rapid Response Team (RRT) for Ebola are notified but only at Islamabad level
- l. The private sector is not fully integrated in the surveillance system. EVD on paper is required to be immediately reported but knowledge in private sector as to where and who to report is

lacking. Training on case definition, case management, RRT for contact tracing absent. No SOPs for contact tracing and burial in place

Recommendations:

- Accelerate proper handover of DEWS from WHO to public sector at national and provincial levels
- Integrate Ebola surveillance into existing surveillance systems including Dengue and AFP surveillance and training on Ebola case definition, contact tracing, reporting and response
- Improve coordination amongst different surveillance systems
- Include the private sectors in the reporting system of the EVD
- Increase the awareness of the health staff at the treatment facilities to detect and deal with the EVD suspected cases (distribution of the case definition posters at outpatients, conduct awareness sessions for the health facilities)
- Establish well trained and equipped rapid response teams at federal and provincial levels and assure contact tracing mechanism

**4- Infection Prevention and control:** Overall findings are here summarized and each facility has a dedicated section

- a. There are limited IPC materials available and limited training conducted for Health Workforce (doctors, nurses, paramedics, ambulance drivers, cleaners, etc.) across the board
- b. The Health care waste management capacities are lacking
- c. There is a visible shortage of PPEs at national, provincial and health facility levels
- d. Designated trained Burial teams and required equipment are absent
- e. Identified isolation facilities in airport and in designated hospitals are inadequate
- f. At NIH lab PPEs are available, bio safety practiced, doffing and donning training conducted

Recommendations:

- Review/update the national IPC program and guidelines to include EVD
- Expedite procurement of proper PPEs and other IPC Materials (such as alcohol handrub and appropriate disinfectants)
- Ensure effective training on IPC measures to all health workforce
- Implementation of Health Care Waste management guidelines and practices
- Activate the IPC committees in health care facilities
- Designate and equip Isolation facilities with trained staff and equipment (both for clinical management and basic lab testing)

**Assessment of Karachi designated hospitals:**

The two designated hospitals are Jinnah Post Graduate Medical Center (JPMC), a 1300 bed tertiary care teaching hospital previously run by the Federal govt., and Services Hospital (SH), a secondary care hospital for government employees. Both facilities lack an ID department and/or an ID specialist. Both hospitals do traditionally care for Dengue and other major CD outbreaks in the city/province. The medical ward at JPMC has managed 5 locally transmitted cases of CCHF with and no reports of HCW transmission.

- Coordination very weak as JPMC not formally notified
- Isolation facilities at both hospitals primarily for Dengue and CCHF, which could be equipped and minimally staffed for Ebola isolation. However access to both locations through common areas and wards with high population movement areas
- Currently the hospital faces a critical shortage in the workforce. Other Resources are also not sufficient for establishment of adequate and appropriate isolation rooms
- Basic training on IPC started and a cohort of 50 doctors and nurses trained from both hospitals
- Scarce hand rubs in different wards and significant shortage of PPEs
- IPC committee established at JPMC but non-functional; SH has none
- A system for reporting occupational incidents by health care providers at JPMC available but reporting and dissemination lacking in particular among none medical staff; none such system at SH. Awareness training for IPC surveillance initiated at JPMC
- No practice of standard IPC precautions in the ER, OPD and inpatient section at both hospitals
- No plans for health care waste safe disposal. At JPMC Sharp objects are collected, cut and buried in the hospital. The rest are mixed with non-health care waste and incinerated. Reportedly the plastics in recyclable waste are collected by scavenger for resale. SH has no system for waste differentiation and taken away in open containers, disposed of as regular commercial waste
- Hospitals have no designated ambulances for CD/IPC and small patient carriers run by private sector and charities move the patients from point-to-point
- There is no policy on handling the corpses properly. No body bags/guidelines/training for burial of Ebola cases available in any facility
- Both hospitals in densely populated, central part of town with serious potential for delays (if transportation from airport and/or peripheral parts of town), and RTA

There are potentials in two locations in the newly constructed building: preferably 4th floor transforming the current dermatology ward and on the ground floor by transforming the clinics wing into isolation and Ebola cases cohorting rooms.

**Recommendations:**

There is a high commitment and strong leadership in this tertiary care teaching hospital with over 3000 undergraduate and postgraduate clinical trainees on any given day, providing an excellent opportunity for



IPC awareness and training. At present the hospital is not ready to receive suspected Ebola cases. In order to ensure proper readiness of the hospital the following is recommended:

- Need for a consultant for two weeks to develop an IPC plan and engage IPC trained cohort in plan implementation
- Ideally consider establishing an isolation facility at Ojha Institute, a public sector specialized TB facility, away from the center of the city and closer to airport, with existing strong assets and capacities for isolation. Alternately assist in selection/transforming an existing ward at JPMC and SH into an isolation room in coordination with a hospital engineering team and develop and run a multi-sectorial multi-disciplinary, drill with clear indicators
- One consultant for one week to design the plan for safe disposal of health care waste with supervisory/monitoring schedule/tools and train relevant staff
- Include training on IPC training curriculum of medical and paramedical schools for all categories of health workforce
- Identify and allocate proper ambulances with trained staff for Ebola with IPC

**Assessment of Pakistan Institute of Medical Sciences (PIMS):**

These are some findings from Pakistan Institute of Medical Sciences Hospital visit. The hospital selected as one of the ETC. the hospital nominated focal person for EVD in the hospital (the director manager of the hospital). The main findings are as follow:

- Although there is identified isolation area, with ten single rooms (one room as store), there is no designated area for EVD cases
- The isolation area staff will treat the EVD patients in addition to other infectious admitted patient in the isolation area. All the staff were not trained on EVD case management, surveillance and IPC
- No triage for the suspected cases (common outpatient clinic and no way of transferring the case to the isolation area)
- There is specific surveillance system for the admitted cases of Dengue And sometimes including CCHF, but there is no report from the outpatient regarding the infectious patients of mild symptoms and no requirement of admission and also the admitted infectious disease cases to general wards for the reporting diseases
- No EVD case definition distributed to the health staff in the outpatient clinic or the designated isolation area
- The hospital regularly reports to the Capital Administration and Development Division (CAAD) and not directly to the National Institute of Health except the Dengue admitted cases
- Only two infectious control nurses participated on recent IPC training on EVD
- In the isolation area, there is one doctor, 3 nurses and one or two cleaners per shift. There is one additional team for weekly rotation
- There is limited number of PPEs available
- The hospital has IPC committee, identified

**Recommendation:**

- Build the capacity of the health staff in the Isolation area on Surveillance, Case management and IPC including proper waste management
- Identify separate Isolation area for EVD case management including PPES Donning and Doffing rooms
- Use the asset of Dengue Fever reporting to report EVD suspected cases immediately
- Arrange PPEs and disinfectants to run the isolation facility for one month
- Build the capacity of the health staff in the outpatient clinic to identify the EVD suspected cases earlier
- Designate pathway for the EVD cases so that not to be exposed to the other people in the hospital and spreading the disease
- Improve the coordination mechanism between NIH and CAAD

**Assessment of Isolation Facility in Services Hospital in Lahore, Punjab:**

Services hospital is a 1300 bed tertiary care public facility in the middle of Lahore and is a very crowded one. The hospital had established a committee and initial preparedness measures were taken though the clinical staff members are reluctant to receive any suspected Ebola cases due to limited human and material resources. They preferred that an isolation/quarantine area is established near the airport and that Ebola patients are not transferred to their facility.

The Isolation area had been visited by WHO environmental health team and their report is attached as an annex. The isolation area identified is in a separate small building, on its ground floor which is basically an open space for now but with external bathrooms. A design was put to establish two paths for suspect case and for confirmed, with specific entry and exit for staff and an area for donning and removing PPE. There is shortage of PPEs for the designated isolation Area. The facility is small, is not equipped yet with beds and physical work to ensure divisions into cubicles is planned. The measures for waste management, separate bathrooms for selected and confirmed cases still need to be put in place. The top floors are occupied by IT team on first floor and by a canteen on the second floor. Limited training has been conducted to staff and the medical staff reported shortage in medicines and supplies. No staff has been designated yet for the isolation facility.

The staff overall in the hospital especially in emergency and OPD have not received yet information on Ebola and on case definitions and the SOPs have not been circulated.

**Recommendations:**

1. Speed up the physical work as per the design distributed to ensure divisions and clear separations in paths and bathrooms
2. Build a fence around the building and ensure separate entrance and exit for the top floors
3. Consider identification of another area in the vicinity of the airport (quarantine building?)
4. Roll over the trainings to all staff categories and establish teams even if facility may change
5. Review SOPs and triage in emergency department and in OPD
6. Activate the infection control and prevention committee
7. Preposition a stock of essential medicines and supplies
8. Prepare for a dedicated/mobile lab, chemical analyzer and microscope for the isolation area
9. Review the IPC procedures and ensure need supplies of disinfectants and PPEs

## **5- Risk Communication for Public Awareness & Media Engagement:**

Risk communication is one of the key elements of operational readiness strategy for Ebola Virus Disease (EVD). During the assessment mission of 24-28 November, 2014 in Pakistan, joint WHO, partners and nationals team reviewed different aspects of risk communication to assess mechanisms, capacities, products and tools. A standardized checklist was used for this assessment. The assessment also included discussion with identified staff, observations during field and review of documents. Following is a summary of mission findings and recommendations.

### Overall findings:

Stakeholders recognize the importance of risk communication component in readiness and preparedness measures for EVD in Pakistan. However, limited work has been done in this area e.g. material development and dissemination is limited. Media interest is high in EVD, however, media engagement is ad hoc and is not structured. Capacity of the health care workers on risk communication is weak.

### Findings:

- Stakeholders recognize and acknowledge the importance of risk communication
- Government has requested technical support of UNICEF and WHO on development of risk communication products
- UNICEF, WHO focal points are working on development of risk communication products and tools
- UNICEF is focusing on a package of products that targets primarily public awareness and social mobilization
- WHO is translating a package of available information products including posters, leaflets and wall-charts. The products aim to create awareness and sensitization among public as well as health care providers
- UNICEF Pakistan is also supporting a communication training on media relations and communication in case of health emergencies, with a special focus on Ebola, to be delivered for health managers and health spokespersons from the NMHSR&C and Provincial Departments of Health in January 2015. The training program aims to sensitize the health managers on crisis communication and messages on Ebola using the latest technical protocols available followed by interview simulations
- WHO has also enhanced its engagement with media through media release and interviews of WHO Representative on EVD
- Limited number of awareness material was available (e.g. standees, banner) at health facilities and point of entry sites visited by the mission. However, products promoting public awareness such as leaflets, posters and other forms of easy to distribute items were not available. Authorities are expecting UNICEF and WHO to provide this

- UNICEF and WHO are coordinating on development of risk communication products. However, Government involvement and contribution is limited in this process
- The national or provincial level coordination committees on EVD readiness and response do not include sub committees on risk communication or define a specific role for risk communication in operational readiness activities
- Due to intense media interest, authorities frequently interact with media on EVD. However, governments, at national and provincial levels, are yet to notify official media contact persons or spokesperson. There were no existing standard operating procedures on media interaction. Media engagement is ad hoc and reactive
- Understanding the current epidemiological situation, community outreach activities have not been conducted so far, which is justifiable

#### Recommendations:

Enhanced public awareness, proactive media engagement and creation of coordination structures for risk communication are essential for effective EVD operational preparedness and response.

1. There should be sub committees at national and provincial levels on risk communication, as part of the main EVD readiness and preparedness structures such as steering committee
2. UNICEF and WHO should finalize the ongoing development of risk communication products as soon as possible with proactive involvement of Government counterparts. The material should be in local language and adapted in local context. Once ready, it should be made available at point of entry, designated treatment facilities and selected community outreach e.g. lady health workers
3. Government should immediately initiate awareness and orientation sessions for health care workers particularly at point of entry, designated treatment facilities and managers responsible for EVD. Available opportunities with experience in managing communication component during outbreaks such as Institute of Public Health (IPH) in Lahore should be optimally utilized
4. Government, at national and provincial level, should develop standard operating procedures on engagement with media
5. Government should notify official spokesperson on EVD who should be closely working with partners particularly WHO and UNICEF to address media concerns and queries well in time
6. Proactive engagement with media should be developed to avoid rumors, media speculations and dissemination of false information. Health journalists should be oriented on EVD and latest EVD information should be proactively shared with media, periodically



## **6- Laboratory Services:**

### Introduction:

Virology Department (VD) is located in Public Health Division (PHL) of National Institute of Health (NIH), Islamabad. It is WHO Collaborating Centre (WHOCC) for Research and Training in Viral Diagnostics. It hosts a newly built, well equipped Biosafety Level 3 (BSL3) facility which was inaugurated in January 2014. The VD staff was trained in viral hemorrhagic fever (VHF) in South Africa. They have experience of working with Dengue and Crimean-Congo Hemorrhagic Fever (CCHF). The VD provides diagnostic, surveillance and research and training services at national level and serves as National and Regional Reference Laboratory (RRL) for Measles and Polio, and National Influenza Centre. It participates in External Quality Assurance (EQA) programme, and passed proficiency testing panels.

### Findings:

The VD was assessed for their capacity to handle and test specimen of suspected cases of Ebola Virus Disease (EVD) for shipment and diagnosis. Assessment was performed through interviews, review of documents and visit to BSL3 facility. The physical capacity and arrangements were assessed using the EVD laboratory preparedness checklist. Two laboratory staff was trained in South Africa for VHF.

Sample collection: WHO guidelines/protocol is available but not converted into Standard Operating Procedure (SOP) and adapted to local setting. The laboratory staff is fully aware of risk associated with handling suspected EVD clinical specimens. Laboratory has identified personnel who can collect specimen and IATA certified shipper is available who can package the sample to ship to WHO Collaborating Centre (WHOCC). Specimen will be collected by health care worker (HCW) in hospital for virological and clinical examination, author could not comment on the competency of them: infection prevention control assessor's comments may be obtained.

Storage of specimen: there is designated cold/freezing storage facility inside BSL3 laboratory and all clinical specimens will be discarded/destroyed according to existing policy after completion of test and results availability, observing requisite high biosafety protocols. Specimen collected for RT-PCR may be inactivated in glove box and test can be performed in Biosafety Level 2 (BSL2) cabinet. Inactivated sample could be stored in secure freezing place prior to shipment of sample for confirmation to WHO Collaborating Centre (WHOCC) for EVD diagnosis and destroy sample after completion of confirmatory testing under full biosafety measures.

Shipment of specimen: the laboratory can test samples safely in BSL3 laboratory, however, all positive samples should be sent to WHOCC for confirmation of diagnosis. WHO has already made contract with courier (World Courier (WC), Merken) to ship samples to WHOCC, upon request of the country. The list of WHOCC for diagnosis of EVD is available. Triple packaging material and IATA certified shipper and WHO guidelines are available in the laboratory.

Laboratory facilities: as mentioned above there is BSL3 facility which has designated areas for virus isolation, serology and molecular testing, and equipment to work with dangerous pathogens. Clinical laboratory test will be performed as mentioned above, however, a risk associated with such setup should be considered and all efforts should be made to comply with biosafety and biosecurity.

EVD diagnosis and clinical testing: there is no RT-PCR kit available at present; however, laboratory has BSL2 facilities to test the samples after inactivation in BSL-3. An inactivated sample reduces the risk to minimal if specimen is inactivated properly and vial's external surfaces are sterilized properly. Staff is fully competent and can work in BSL2 facility to test inactivated specimen of suspected case of EVD. Inactivation procedure and kit details were handed over to VD to develop Standard Operating Procedures (SOPs). No clinical laboratory was offered for assessment because clinical tests will be performed in hospitals in respective provinces, it is advised to perform clinical testing through point-of-care instrument (Automated) or setting up temporary small clinical laboratory facility inside the isolation ward.

Biorisk Management: laboratory has not performed risk assessment for Ebola, however, there is good knowledge of risk assessment, mitigation and performance. Draft manual of biosafety, waste management and WHO biosafety guidelines are available. Personnel protective protection equipment (PPEs) compliant to work with Ebola are available but in limited quantity.

Data management: there is no clear communication nexus but results will be transmitted to Ministry of Health (MoH) immediately as soon as ready/received.

Coordination: the virology department has not been directly involved in Ebola task force or committee meetings or development of national Ebola preparedness plan.

#### Summary:

The virology department in PHL-NIH, Islamabad is fully prepared to test specimen of suspected EVD for viral diagnosis, provided, kits are available. However, at present specimen should be referred to WHOCC. Testing of clinical samples for clinical chemistry/hematology or any other tests may be performed in designated facility within isolation ward or through point-of-care with the caveat that all efforts should be made to avoid breach in biosafety and biosecurity.

#### Recommendations:

1. The Virology Department should perform biorisk assessment for Ebola Virus and ensure risk mitigation control measures that will ultimately reduce the threat of infectious disease in local laboratory environments
2. At present specimen collected from suspected EVD cases should be packed and shipped according to IATA regulations to WHO Collaborating Centre. WHO should be informed immediately for necessary support to ship the specimen

3. Upon receipt of Ebola diagnostic kits, specimen should be tested in BSL3 facility under strict biosafety, however, according to WHO recommendations, all positive samples must be sent to a WHO Collaborating Centre for confirmation
4. Temporary laboratory facility for clinical tests (hematological, chemistry, Malaria etc) should be arranged in isolation ward with restricted access to trained staff for on-site testing, necessary support should be provided to procure or place designated equipment
5. All necessary SOPs should be revised and updated as required and new SOPs may be added in accordance with needs
6. The Virology Department staff should be actively engaged in all Ebola preparedness and readiness meetings and planning activities
7. Biosafety level 3 (BSL3) facility is big asset to deal with dangerous pathogens; it should be supported with designated funds to sustain its operation and functions

## **CONCLUSION**

The Federal and Provincial governments are aware and sensitive to the need for Ebola Preparedness and Response and have established coordination committees.

Basic measures in all key areas have been initiated though with varying levels of quality and comprehensiveness, and there should be acceleration of implementations of essential measures in all components.

Technical support and guidance is warranted in most of the areas to meet standards, WHO Country Office in Pakistan is already providing excellent support.

Annex 1:

## Draft program of the Ebola Virus Disease Preparedness Assessment Mission to Pakistan (24-28 Nov-2014)

### The Assessment Mission Team arrive Pakistan on 23 November 2014

The Assessment mission team will split in two groups "A" and "B" and visit the provinces as follows

Time	Meeting	Topics
<b>Day 1 (24 November 2014)</b>		
0930-1030	WR Briefing	<ul style="list-style-type: none"> <li>• <b>Briefing on:</b></li> <li>• Mission details and expected outcomes</li> <li>• Health systems situation in the country</li> <li>• Ebola outbreak preparedness plan</li> <li>• Meeting s and travel plan</li> <li>• Security and Logistic arrangements</li> </ul>
1030-1230	Security briefing for team  Team Meeting with National mission participants WHO office	<ul style="list-style-type: none"> <li>• Introduce to and meet with the national members of the mission</li> <li>• groups for field visit (already formed)</li> <li>• Review and finalize the field visit plan</li> <li>• Workout the assessment modalities</li> </ul>
<b>1230-1330</b>	Lunch Break	
1330	Depart to Ministry of National Health Service Regulation and Coordination	
1400-1500	Meeting with DG Health, ED-NIH, officials of MO NHR&C, FELTP and Director CHE	<ol style="list-style-type: none"> <li><b>1. Mission lead:</b> <ol style="list-style-type: none"> <li>a. Brief on Ebola Global updates</li> <li>b. TORs of the mission</li> <li>c. Working modalities and provincial visits</li> </ol> </li> <li><b>2. DG Health/NFP IHR:</b> Current status of the preparedness in six critical areas</li> </ol>
	Closing the day	
<b>Field visit plan for group "A" Islamabad and Karachi</b>		
<b>Day 2 (25 November 2014) Group "A" in Islamabad</b>		
0900-1500	Field assessment visits	<ol style="list-style-type: none"> <li><b>1. National Institute of Health (NIH)</b> <ul style="list-style-type: none"> <li>• Meeting with ED –NIH</li> <li>• FE&amp;DSD (EIC)-NIH (surveillance)</li> </ul> </li> <li><b>2. Benazir Bhutto International Airport</b></li> <li><b>3. Pakistan Institute of Medical Sciences (PIMS) for ETU/ward</b></li> </ol>
1500	Closing of field assessment and checkout from hotel	
1700	Depart for Islamabad airport	
1900-2055	Travel from Islamabad to Karachi by air	

Special note	The assessment of NIH Laboratory for Ebola preparedness will be conducted by Dr Humayun Asghar <u>on 27 November 2014</u>	
Day3 (26 November, 2014)		
0900-0930	• Meet the Provincial Secretary Sindh	
0930-1100	Meeting with DOH team Sindh (special secretary, Secretary Technical health DG health, Director CDC and other senior Health officials, WHO team	<ul style="list-style-type: none"><li>• <b>Mission lead:</b></li><li>• Brief on Ebola Global updates</li><li>• Working modalities and visits to different locations for assessments</li><li>• <b>Secretary/DG health:</b> Current status of the provincial Ebola preparedness</li></ul>
1100 -1630	Meetings and field visit	<ul style="list-style-type: none"><li>• <b>Meeting with Director CDC and team (DG-H team from Hyderabad will join the team in Karachi) to discuss</b><ul style="list-style-type: none"><li>○ Provincial Epidemiological disease surveillance system</li><li>○ Risk assessment and communication</li></ul></li><li>• <b>Visit Quaid-e-Azam International Airport and Quarantine hospital at the airport</b></li></ul>
1630	Close field visit and return to hotel	<ul style="list-style-type: none"><li>•</li></ul>
1800	Team meeting	<ul style="list-style-type: none"><li>• Discussion and drafting the day findings listed by each team, assessed different areas</li></ul>
Day 4 (27 November 2014)		
0900-1400	Field visits	<ul style="list-style-type: none"><li>• <b>Visit Services hospital Karachi</b></li><li>• <b>Visit Jinnah Post Graduate Medical college (JPMC) Hospital Karachi for ETU/Isolation Ward</b></li></ul>
1430	Depart for Airport	<ul style="list-style-type: none"><li>•</li></ul>
1600-1755	<ul style="list-style-type: none"><li>• Travel from Karachi to Islamabad by air</li></ul>	
	<ul style="list-style-type: none"><li>• Team meeting?</li></ul>	
Visit plan team “B” to Islamabad and Lahore		
Day 2 (25 November 2014) Group “B”		
		<ul style="list-style-type: none"><li>•</li></ul>
0900-1500	Field assessment visits	<ul style="list-style-type: none"><li>4. <b>National Institute of Health (NIH)</b><ul style="list-style-type: none"><li>• Meeting with ED –NIH</li><li>• FE&amp;DSD (EIC)-NIH (surveillance)</li></ul></li><li>5. <b>Benazir Bhutto International Airport</b></li><li>6. <b>Pakistan Institute of Medical Sciences (PIMS) for ETU/ward</b></li></ul>



1500	• Closing of field assessment and checkout from hotel	
1700	• Depart for Islamabad airport	
2015-2110	• Travel from Islamabad to Lahore by air	
Day 3: (26 November 2014)		
1000-1030	Meet with Secretary Health Punjab	
1100-1230	Meeting with the Provincial DOH (Secretary Technical /DG health , Director CDC, Punjab Health department, WHO Team	<ul style="list-style-type: none"><li>• <b>Mission lead brief:</b></li><li>• brief on the objective of the mission and Ebola Global updates</li><li>• Working modalities and visits to different locations for assessments</li><li>• <b>DOH Punjab brief on:</b> Current status of the provincial Ebola preparedness</li></ul>
1230-1330	Break	
1330-1630		<ul style="list-style-type: none"><li>• <b>Visit Institute of Public Health (IPH)- Lahore:</b><ul style="list-style-type: none"><li>○ Meeting with Dean IPH</li><li>○ Visit Public Health lab</li><li>○ Epidemiology cell and risk communication</li></ul></li><li>• <b>Provincial Communicable Disease Surveillance (DG- H office)</b></li><li>•</li></ul>
1630	Closing field visits	•
1830-1930	Team meeting	• <b>Compilation of visit findings</b>
• Day 4 (27 November 2014)		
0900-1430	Field visit	<ul style="list-style-type: none"><li>• <b>Visit Services Hospital Lahore for ETU/isolation ward</b></li><li>• <b>Visit Allama Iqbal International Airport Lahore</b></li></ul>
1530	Depart for Lahore airport	
1700-1755	Travel from Lahore to Islamabad by air	
1930-	Team meeting	<ul style="list-style-type: none"><li>• Discussion and drafting the day findings listed by each team, assessed different areas</li></ul>
Day 5 (28 November, 2014) both team A and team B in Islamabad		
0830- 1030	Team meeting	<ul style="list-style-type: none"><li>• Compiling the overall assessment findings for level of preparedness, list of critical gaps their underlying factors and formulating recommendations</li><li>• <b>Preparing debrief for WR</b></li></ul>

		<ul style="list-style-type: none"> <li>• Prepare debriefing presentation for the M/O NHR&amp;C; developmental partners and donors.</li> </ul>
<b>1100-1200</b>	<b>Debriefing with WR</b>	
<b>1200-1330</b>	<b>Lunch break</b>	
1330	<ul style="list-style-type: none"> <li>• Depart for Ministry of NHR&amp;C</li> </ul>	
1400-1500	Debriefing meeting with Minister , Secretary MO NHR&C	<ul style="list-style-type: none"> <li>• <b>Mission lead and Team:</b></li> </ul>
1500-1630	Joint meeting with National Health Authorities and Development partners (Secretary, DG health, ED-NIH, EIC, NFP- IHR, CHE, Directorate Medical Service Army, UN Agencies, FELTP, donors /developmental partners )	<ul style="list-style-type: none"> <li>• <b>Mission lead:</b></li> <li>• Brief on assessment results, gaps, underlying factors and recommendation</li> </ul>
1630-1645	<b>Media briefing (At Ministry/WHO)</b>	
<b>29 November 2014:</b> Departure of Mission members		