IHR Core capacity requirements for surveillance and response: What is expected from public health laboratories?
Fig. 1 Monthly incidence of poliomyelitis and supplementary immunization rounds of activities, India, January 2002–September 2007
Fig. 1 Incidence mensuelle de la poliomyélite et tournées d’activités de vaccination supplémentaires, Inde, janvier 2002-septembre 2007

Detection | Investigation | Trends monitoring

Weekly Epidemiological Record No. 46, 2007, 82, 401–408
International Health Regulations (2005) and laboratory

“Laboratory” or “specimens” is quoted 7 times in the text

1. Detection → laboratory data to be reported (annex 1)
2. Assessment of events → insufficient laboratory capacity = serious event (annex 2)
3. Public health response supported through the laboratory analysis of samples, domestically or through collaborating centres (annex 1)
4. Notification to WHO → continuous communication of laboratory results (art. 6)
5. Information sharing → links with …laboratories for the dissemination of information and recommendations (annex 1)
6. Recommendations by WHO with respect to the persons may include the review of laboratory analysis (art. 18)
7. Facilitating the transport and handling of biological substances, reagents and materials for diagnostic purposes (art. 46)
Challenges from the IHR(2005) text

- No clear instructions on laboratory requirements in terms of organization or regulations
- Large flexibility between domestic and outsourced capacity
Laboratory capacities for IHR

194 possibilities

Increase in test Complexity

Country A
Country B
Country C
Country D

Peripheral
National
Supranational

Laboratory capacities for IHR
“The national public health system should establish the laboratory capacity to identify, monitor and report to the health authorities on agents that may cause epidemics and emergencies, including those of international importance, in a safe, timely and reliable manner.”

“Every national public health laboratory system should institute a national quality assurance programme which must include all laboratories participating in disease surveillance, detection and identification of diseases of public health importance. A quality management system related to the IHR requirements must be part of the laboratory policy in each country, and include standards, quality control, audits, external quality assessment, biosafety/ biosecurity and maintenance.”
2006 WHA resolution relative to the immediate and voluntary compliance with IHR (2005)

WHO is requested to… « expand and accelerate training efforts in the areas of…laboratory capacity, including regional networking of laboratories, biosafety, and quality control… »

2008 WHA resolution on IHR:

the WHA requests the WHO DG “…to provide support to Member States with the most vulnerable health systems in strengthening core capacity requirements for surveillance and response at airports, ports and ground crossings, paying special attention to the sub-Saharan Africa laboratory network… »
Laboratory core capacities: key elements

1. Laboratory capacity mapping
2. Specimen collection and transport
3. Biosafety
4. Laboratory based investigation
5. Quality assurance
6. Reporting / communications
Laboratory core capacities: key elements

1. Laboratory capacity mapping

2. Specimen collection and transport

3. Biosafety

4. Laboratory based investigation

5. Quality assurance

6. Reporting / communications

- All hazards approach
- Licensure/registration
- International partnerships
Laboratory core capacities: key elements

1. Laboratory capacity mapping
2. Specimen collection and transport
3. Biosafety
4. Laboratory based investigation
5. Quality assurance
6. Reporting / communication

- Laboratory’s responsibility
- Compliance with national and international regulations
- Pre-positioned materials
Laboratory core capacities: key elements

1. Laboratory capacity mapping
2. Specimen collection and transport
3. Biosafety
4. Laboratory based investigation
5. Quality assurance
6. Reporting / communications

- Risk assessment
- Personal protective equipment, infrastructure and equipments
- Dangerous pathogens containment and storage
Laboratory core capacities: key elements

1. Laboratory capacity mapping
2. Specimen collection and transport
3. Biosafety
4. Laboratory based investigation
5. Quality assurance
6. Reporting / communication

- Standardized operating procedures & algorithms
- Deployable solutions
- Simulation exercises

Ebola virus detection; PCR workstation in Mbomo, Congo (from Bull Soc Pathol Exot, 2005, 98, 3, 205-209)
Laboratory core capacities: key elements

1. Laboratory capacity mapping
2. Specimen collection and transport
3. Biosafety
4. Laboratory based investigation
5. Quality assurance
6. Reporting / communications

- National norms and standards
- Inspection, certification, accreditation
- External Quality Assessment (proficiency-testing / rechecking)
Laboratory core capacities: key elements

1. Laboratory capacity mapping
2. Specimen collection and transport
3. Biosafety
4. Laboratory based investigation
5. Quality assurance
6. Reporting / communications

- Data management (Laboratory Information Systems)
- Reporting procedures to the public health authorities
- Ethics
- Risk communication
Building laboratory core capacities

Timeline

"As soon as possible but no later than five years from entry into force"
2 years + 3 + (2) + (up to 2)

15 June 2007
Planning
2009
Implementation
2012
2014
2016

- Country responsibility / WHO support
- Building on existing capacities
- Cross-sectoral issues
- Coordination NFP ↔ laboratory structures
Examples of WHO activities aiming at strengthening laboratory capacities

- Development of assessment tools/checklists
- IHR Awareness and training workshops for laboratory specialists
- Assistance to on-site evaluation and planning
- Twinning projects between resource-limited and specialized laboratories
- Accreditation, reagents distribution, External Quality Assessment