Biosafety/Biosecurity in Laboratories

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Biosafety is not new

New is the way people look at biosafety.
What is biosafety?
What is laboratory biosecurity?

Laboratory biosafety describes containment principles, technologies and practices implemented to prevent unintentional exposure to pathogens and toxins, or their accidental release.

'Protect people from pathogens'

Prevention of accidental or 'deliberate' release from labs

Laboratory biosecurity describes the protection, control and accountability for valuable biological materials (VBM) within laboratories, in order to prevent their unauthorized access, loss, theft, misuse, diversion or intentional release.

'Protect pathogens from people'
A sad trigger for safety awareness: Laboratory Acquired Infections (LAIs): the risk of sparking an epidemic…

The SARS outbreak was over, the Region was coming out of a huge economic crisis

The viruses were still available in laboratories…

SARS
• Singapore, 2003
• Taipei, 2003
• Beijing, 2004

It should not have happened, even in these extraordinary circumstances and it must not happen again

Strengthen BIOSAFETY!
Reduce RISKS of infection!

Hilary Benn
Environment Secretary
WHO’s public health mandate for biosafety and laboratory biosecurity

- **WHO Constitution of 1948**
  - "Attainment by all people of highest possible levels of health"

- **World Health Assembly resolution 55.16 (2002)**
  - "Global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radionuclear material that affect health"

- **International Health Regulations, resolution 58.3 (2005)**
  - "Prevention and control of the international spread of disease and public health risks"

- **World Health Assembly resolution 58.29 (2005)**
  - "Enhancement of laboratory biosafety"
International Health Regulations – IHR (2005)

- **Legally binding** for all 193 WHO Member States, international law

- **Purpose:** 
  "prevent, protect against, control and provide a public health response to the international spread of disease"

- Requires countries to **develop minimum core** national and international surveillance and reporting capacities

May 2005

Laboratory support to outbreak response – key messages

• **Laboratory services** are essential to identify and confirm the causes of outbreaks.

Optimal working conditions include:
- communication
- specimen collection and transport
- financial resources
- biorisk management
- trained staff
- suitable infrastructure
- functioning equipment
- appropriate reagents
- reliable results

**WHA 2006: 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…"

International Health Regulations Coordination
Enhancement of laboratory biosafety

May 2005

Member States to:
- review safety of labs, follow WHO guidance
- implement safety progs, follow WHO guidance
- enhance compliance with bs guidelines
- mobilize human and financial resources
- cooperate with other MS to facilitate access to PPE
- encourage dev of bs training progs and competency stds

WHO to:
- play an active role
- support other programmes and partners
- update relevant guidelines
- report to EB
Biosafety and Laboratory Biosecurity

CWA 15793:2008
Laboratory Biorisk Management Standard
16 points action plan

Implementation

WHO publications
Five years later: Where are we now?

Enhancement of laboratory biosafety

May 2005

Through engagement, communication, meetings, workshops, consultations, coordination of global efforts by various stakeholders:

2010:
1. development / revision of legislation (e.g. Singapore / China / Canada)
2. construction / renovation of laboratories (Brazil: 12 new BSL3)
3. growing commitment to implement BRM systems (CWA15793)
4. role of laboratory management for biosafety: shift in responsibilities
5. need for education and competency based training
How do biosafety and laboratory biosecurity translate into practice?
Strengthening biosafety and lab biosecurity programmes: 'CWA 15793: Laboratory Biorisk Management Standard'

Scope of CWA 15793:
To set requirements necessary to control risks associated with the handling or storage and disposal of biological agents and toxins in laboratories and facilities.
WHO's contributions to global biosafety, 2010

- **Regional Biosafety Awareness Raising Meetings**
  for animal health and public health communities 3 days
  develop regional action plan for follow up

- **Strengthen biosafety interface between animal and human health**
  (OIE/FAO/WHO)
  strengthen collaboration as biosafety is of mutual concern

- **CWA 15793 Laboratory Biorisk Management Awareness Training**
  2 days
  help countries adopt and implement the standard

- **WHO Biorisk Management Advanced Trainer Programme**
  10 days
  provide technical knowledge and techniques to change behaviours
WHO's contributions to global biosafety, 2010 (cont'd)

- **WHO Infectious Substances Shipping Training** 2 days (developed in collaboration with ICAO and IATA)
- *Biosafety training for disease-specific programmes* 5 days
- CEN CWA 53 Biosafety Professional Competence
- *Appropriate use, operation and maintenance of biosafety cabinets and other equipment* (planned)
- Extended Biosafety Advisory Group (BAG) meeting 3 days
  *'193 ways to implement biosafety'* …
2010-2015: a five-year strategic plan
'193 ways to implement biosafety' (cont'd)

There are many players, many initiatives, many projects and outreach activities, worldwide

Time is right for global coordination of efforts

WHO is developing a 5-year strategic collaborative plan:

Present the plan to:
- WHO Regional Offices, WHO biosafety CCs, OIE, FAO, International Biosafety Associations, partners, donor agencies

Prepare the discussions:
- Look at the past: what has been the impact of our initiatives
- Construct the future
Expected outcomes:

- Develop global/regional approaches to address identified priorities, gaps and needs

- Identify global/regional/local support, engage partners and donors in helping, develop long-term commitment to support WHO's efforts, set achievable expectations, assign clear roles and responsibilities to partners, limit duplication of efforts, connect projects and activities

- Set goals, develop assessment and review strategies

- Identify ways to regularly monitor and show progress

- Identify areas where investment (human and financial) can have huge impact

Contribute to the development of a global 'biosafety culture'
WHO Biosafety partners and networks

- 6 Regional Offices and HQ
- 5 Collaborating Centres, Biosafety Advisory Group
  Centers for Disease Control and Prevention (USA)
  National Institutes of Health (USA)
  Public Health Agency of Canada (CAN)
  Swedish Institute for Infectious Disease Control (SWE)
  Victorian Infectious Disease Reference Laboratory (AUS)
- Other partners
  ABSA, EBSA, A-PBA, ANBio, AfBSA…
Thank you

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