MERS-coV
One Health Platform

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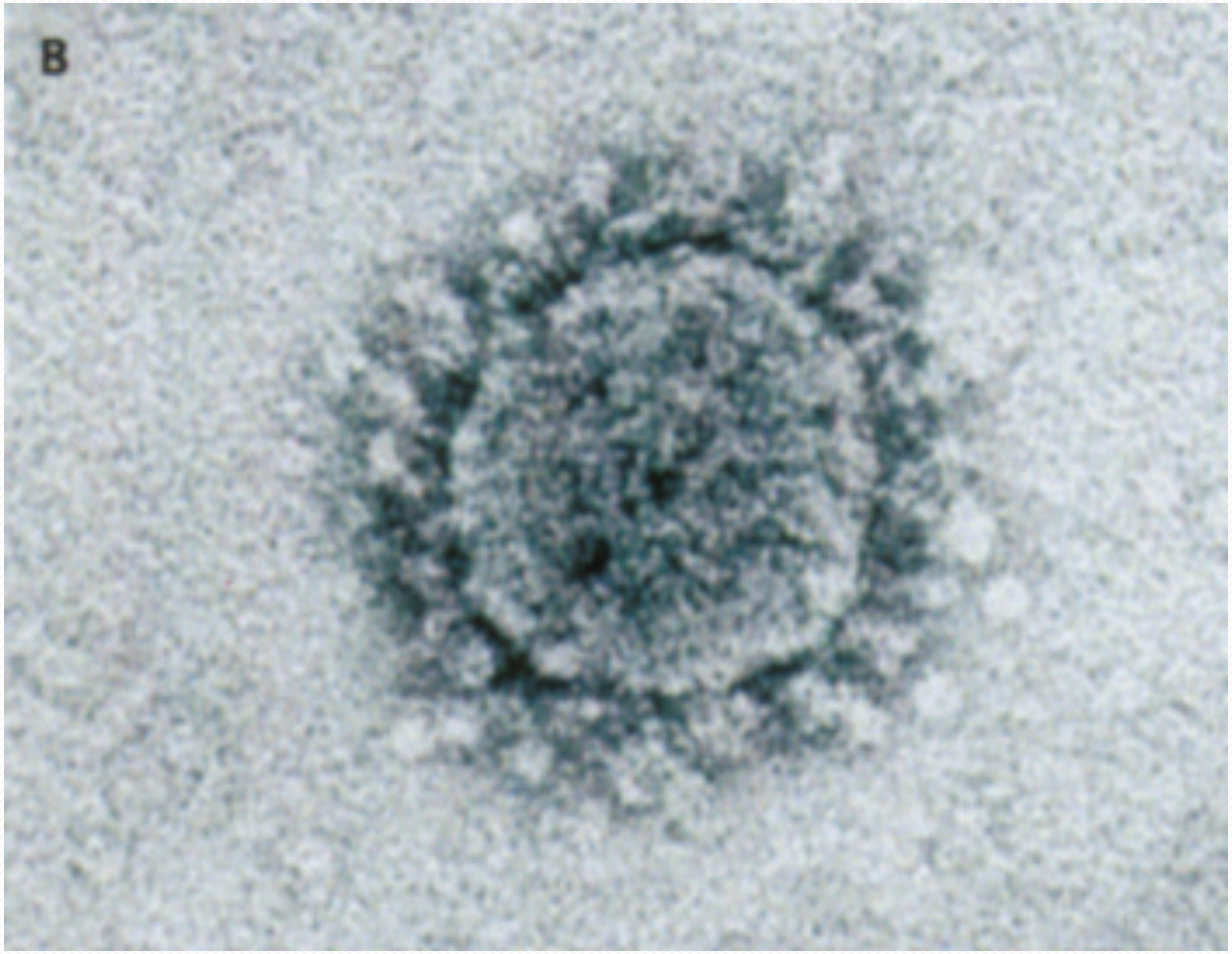
Get Ready Now!

Corona virus



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Coronaviruses

A large family of viruses that includes viruses that may cause a range of illnesses in humans:

from the common cold to SARS.

They are of ***many serotypes*** and their infection ***doesn't give lifelong immunity***.

Viruses of this family also cause a number of animal diseases.

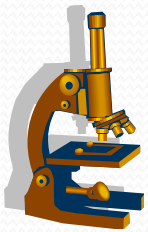
Global Alert and Response (GAR)

Coronavirus infections

Middle East respiratory syndrome coronavirus (MERS-CoV)

This particular strain of coronavirus has not been previously identified in humans.

There is very limited information on transmission, severity and clinical impact with only a limited number of cases reported so far



Between 2012 and 21 July 2017, 2040 laboratory-confirmed cases of Middle East respiratory syndrome-coronavirus ***(MERS-CoV)*** infection were reported to WHO, 82% of whom were reported by the Kingdom of Saudi Arabia

In total, cases have been reported from 27 countries in the Middle East, North Africa, Europe, the United States of America, and Asia

Males above the age of 60 with underlying conditions, such as diabetes, hypertension and renal failure, are at a higher risk of severe disease, including death.

To date, at least 710 individuals have died.

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- **Most cases** are either found in or linked to the eastern provinces of Saudi Arabia.
- **Countries considered in or near the Arabian Peninsula**; Bahrain, Iraq, Iran, Jordan, Kuwait, Lebanon, Oman, Palestinian territories, Qatar, Saudi Arabia, Syria, the UAE and Yemen

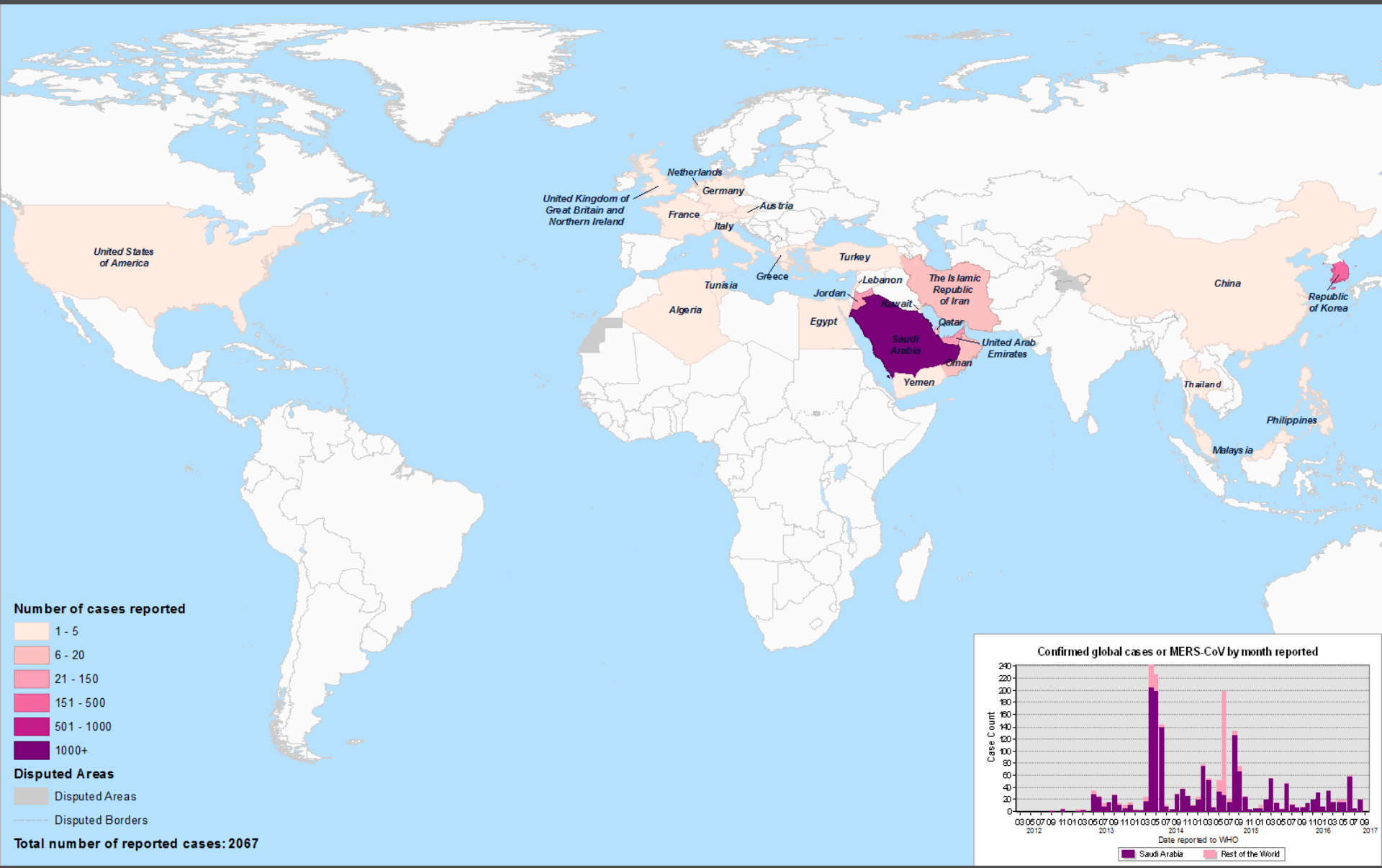
As of 5 February 2015

- 971 laboratory-confirmed cases of human infection with Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported to WHO
- Including at least 356 deaths
- Overall, 63.5% of cases reporting gender (n=949) are male and the median age is 48 years (range 9 months–99 years; n=964).

To date, the affected countries

- in the **Middle East** include Egypt, Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia (SAU), United Arab Emirates (UAE) and Yemen
- **in Africa**: Algeria, and Tunisia
- **in Europe**: Austria, France, Germany, Greece, Italy, the Netherlands, Turkey and the United Kingdom
- **in Asia**: Malaysia and Philippines
- and **in North America**: the United States of America (USA). The majority of cases (>85%) have been reported from SAU.
- **Since June 2014**, two new countries (Austria and Turkey) have been affected.

CONFIRMED GLOBAL CASES OF MERS-COV 2012 - 2017



Map Scale (A3): 1:1,109,175,783
1 cm = 11,092 km
Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization

Map date: 01/09/2017

World Health Organization

Case definition for reporting to WHO – Middle East respiratory syndrome coronavirus (MERS-CoV), July 2013

Clinical

A person with a febrile acute respiratory illness with clinical, radiological, or histopathological evidence of pulmonary parenchymal disease

(e.g. pneumonia or Acute Respiratory Distress Syndrome)

And (+)

Testing for MERS-CoV is unavailable or negative on a single inadequate specimen

Or

An inconclusive MERS-CoV laboratory test

(that is, a positive screening test without confirmation)

Case definition for reporting to WHO – Middle East respiratory syndrome coronavirus (MERS-CoV), July 2013

A person with an acute febrile respiratory illness of any severity

AND (+)

An inconclusive MERS-CoV laboratory test

(that is, a positive screening test without confirmation)

AND (+)

The patient has a direct epidemiologic-link with a confirmed MERS-CoV case.

Notes

Serology: Patients with an inconclusive initial testing should undergo additional ***virologic and serologic testing*** to determine if the patient can be classified as a confirmed MERS-CoV case.

Respiratory specimens:

- It is strongly advised to be a lower respiratory specimens such as ***sputum, endotracheal aspirate, or bronchoalveolar lavage fluid as*** possible.

- **Nasopharyngeal and oropharyngeal swab specimens**:

1) No signs or symptoms of lower respiratory tract infection
2) Lower track specimens are not available

Until more is understood about MERS-CoV, people with diabetes, renal failure, chronic lung disease, and immunocompromised persons are considered to be at high risk of severe disease from MERS-CoV infection.

Transmission

1. Airborn and droplet (from infected cases)
2. From patient to patient
3. From patient to health care worker
4. From patient to visitor
5. **Not transplacental**

   (evidence: 32-year-old pregnant woman who died on 2 December 2013. Before her death, the woman gave birth to a healthy baby, who had no evidence of MERS-CoV infection)

People should **also** avoid close contact with animals, particularly camels, when visiting farms, markets,

or areas where the virus is known to be potentially circulating.

- **Absence of specific therapy**

Use of convalescent plasmas

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Efforts to develop highly neutralizing antibody preparations against

MERS-CoV (monoclonals, transgenic cow-derived human polyclonal antibodies) are moving forward and may offer additional therapeutic options in 2014.

"Infection prevention and control measures are critical to prevent the possible spread of MERS-CoV in health care facilities"

It is **not always possible to identify** patients with MERS-CoV early because like other respiratory infections

"The early symptoms of MERS-CoV are non-specific"

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General hygiene measures, such as regular hand washing before and after touching animals and avoiding contact with sick animals, should be adhered to.

Food hygiene practices should be observed. People should avoid drinking raw camel milk or camel urine, or eating meat that has not been properly cooked.

General Principles

- **IC measures should be applied for all Patients with acute respiratory diseases at the first point of contact of potentially infected person**

IC Precautions for ARS Inpatients

- Isolation wards
- Ventilation
- Limitation of patient contact
- Barrier precautions
- Medical procedures
- Environmental cleaning and disinfection
  - Respiratory care equipment
  - Linen and laundry
  - Dishes and eating utensils
- Waste disposal

Prevention and Control

1. **Ventilation**: Ensure that triage and waiting areas are adequately ventilated.
2. **Spacing:** Organize the space and process to permit spatial separation (at least 1 meter) between each patient with acute respiratory infections and other individuals not wearing PPE.
3. **Respiratory hygiene:** covering the mouth and nose during coughing or sneezing with a medical mask, cloth mask, tissue, sleeve or flexed elbow.
4. **Wearing N95 mask** (and surgical mask for the patient)
5. **Hand Hygiene**

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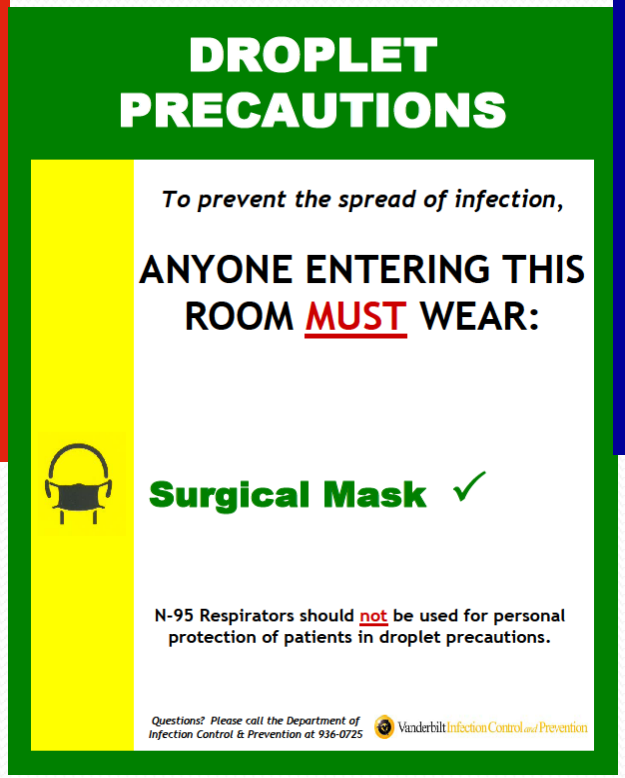
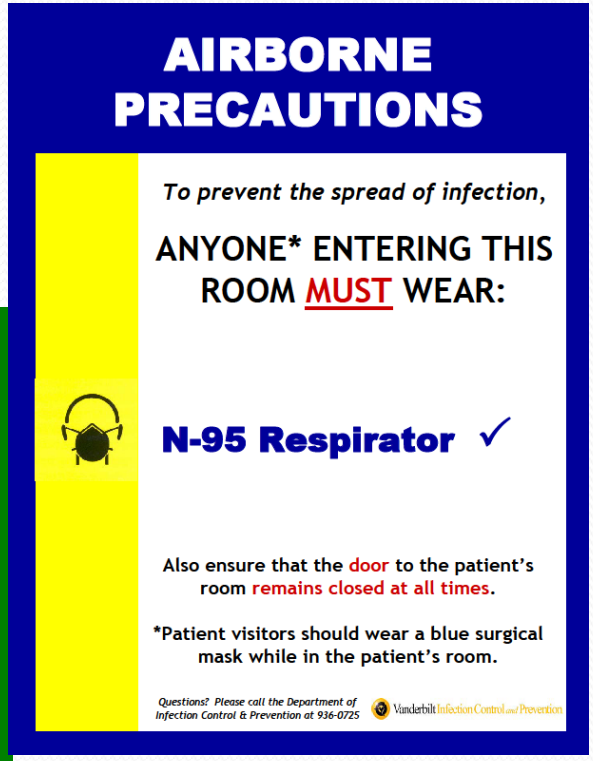
Health-care workers should always apply standard precautions consistently with all patients regardless of their diagnosis

When providing care to patients with symptoms of acute respiratory infection





When caring for probable or confirmed cases

When performing aerosol generating procedures

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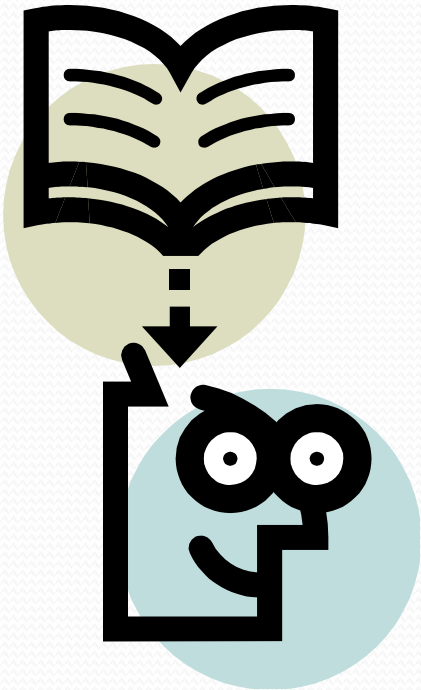
Remember



Covering sneezes and coughs

- Cover your nose or mouth with your hand or a tissue or another item
when coughing or sneezing
- Dispose of used tissue into the nearest garbage bin

Regular and frequent handwash

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- **Remember to wash your hands with water and soap**
- **Alcohol based hand rub**


Wear masks
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Cough Etiquette and Respiratory Hygiene

Cough etiquette and respiratory hygiene protocols for staff, patients and visitors have

become a key component in the prevention of respiratory illness

Patient transport within healthcare facility

- **Limit patient movement**

Disinfection of respiratory equipments

- Considered semi-critical items
  → high level disinfection

- **Heat Disinfection**
  - Autoclave
  - Hot water (> 70°C >30 min.)

- **Chemical disinfection**
  - Gluteraldehyde 2%
  - Hydrogen peroxide 6%
  - Peracetic acid
  - Chlorine solution 1000 ppm

Managing Linens and Laundry

- Avoid sorting in patient care areas
- Place soiled laundry into bag in patient room
- Wash in hospital laundry according to routine standards (70 °C for > 25min.)

WHO advice

Based on the current situation and available information, WHO encourages all Member States to continue their surveillance for acute respiratory infections and to carefully review any unusual patterns.

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WHO advise

No special screening at points of entry

No travel restrictions.

What is new??

One Health concept

The most recent approach to EZD like

- Ebola
- MERS-coV
- Zika
- Rabies

And others

One Health IAEA meeting

IAEA TC PROJECT RAF/0/042: "Promoting the Sustainability and Networking of National Nuclear Institutions for Development"; Component on:

"Strengthening Authorities to Respond to Emergencies"

Regional Workshop on Strengthening Capacities for **Surveillance, Management and Reporting of Emerging or Re-emerging Zoonotic Diseases (EZDs)**

Vienna International Centre; 21-25 August 201

CDC's One Health Office Achieving Optimal Health Outcomes for People and Animals

- Focus on zoonotic/emerging diseases, influenza and pandemic preparedness and other health threats
- Leverage vast expertise to tackle One Health issues in U.S. and around world
- Providing technical assistance to >20 countries
- Leading CDC's One Health Zoonotic Disease Prioritization process
- Partnering with key global organizations on projects and providing technical expertise
- Hosting CDC Loaned Experts, FAO and OIE
- Serving as head of OIE Collaborating Center for Emerging and Reemerging Zoonotic Disease

OIE sets international standards for

- Surveillance, detection, notification and control
- Trade in animals and animal products
- Laboratories, vaccine manufacture, medicines
- Quality and governance of Veterinary Services
- Legislation

Biosafety training

In future the trainings should be carried out on national basis to allow the expansion of national capacities to the different payers in the one health concept

Biosafety in Laboratories

- A review of the biosafety situation in the laboratories should be carried out by experts and recommendations to the set up and biosecurity should be communicated to the IAEA for further action
- IAEA will review the possibility to upgrade the laboratories

Diagnostic capacity

- Focus will remain on the molecular detection of the emerging zoonotic pathogens agreed upon
- The training courses will target the selected priority diseases
- The list of diseases and techniques will be compiled by IAEA in coordination with the cooperating expert
- The Agency is requested to supply reference materials for the relevant diseases

Harmonization and accreditation

- A road map for veterinary laboratories has been developed
- IAEA will review the possibility to support the steps recommended in the road map
- These steps include coordination meetings with the veterinary authorities as well as the QM teams of the national labs to lead towards the full accreditation

Road to OH

- Develop a framework for the implementation of a national OH approach using existing structures and available tools and procedures
- This document should outline how the high level commitment of the Government be sought

One Health Network

Request to provide the Agency with a statement on their national One-Health structure

(**responsible entities and contact details of the Focal points**)

to allow efficient targeting of further technical assistance

So,

Stay Alert, Stay Safe

Thank You