Experiences on lab preparedness for H5N1 in 2003,Thailand

RPHL Network Video conferences on

lab preparedness for H5 outbreak

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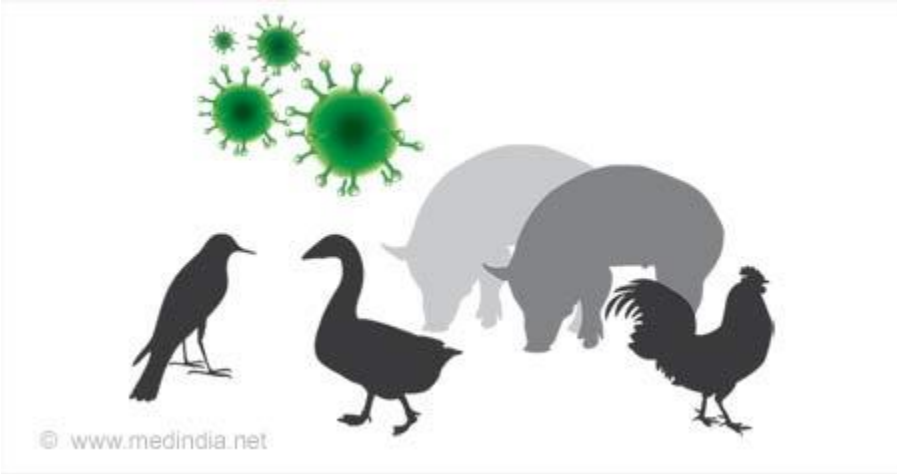
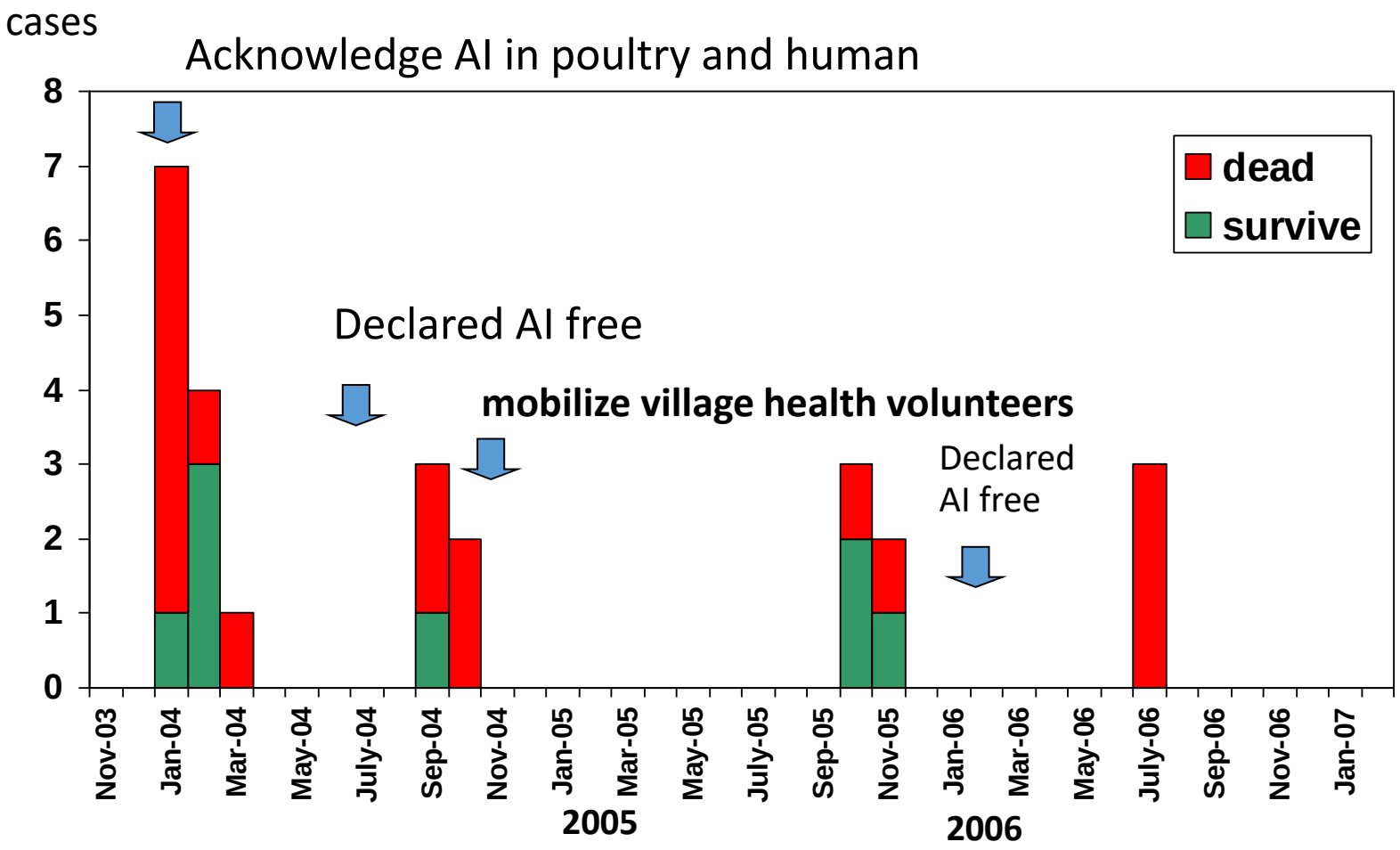
Malinee Chittaganpitch ,RPHL Network Lab Expert



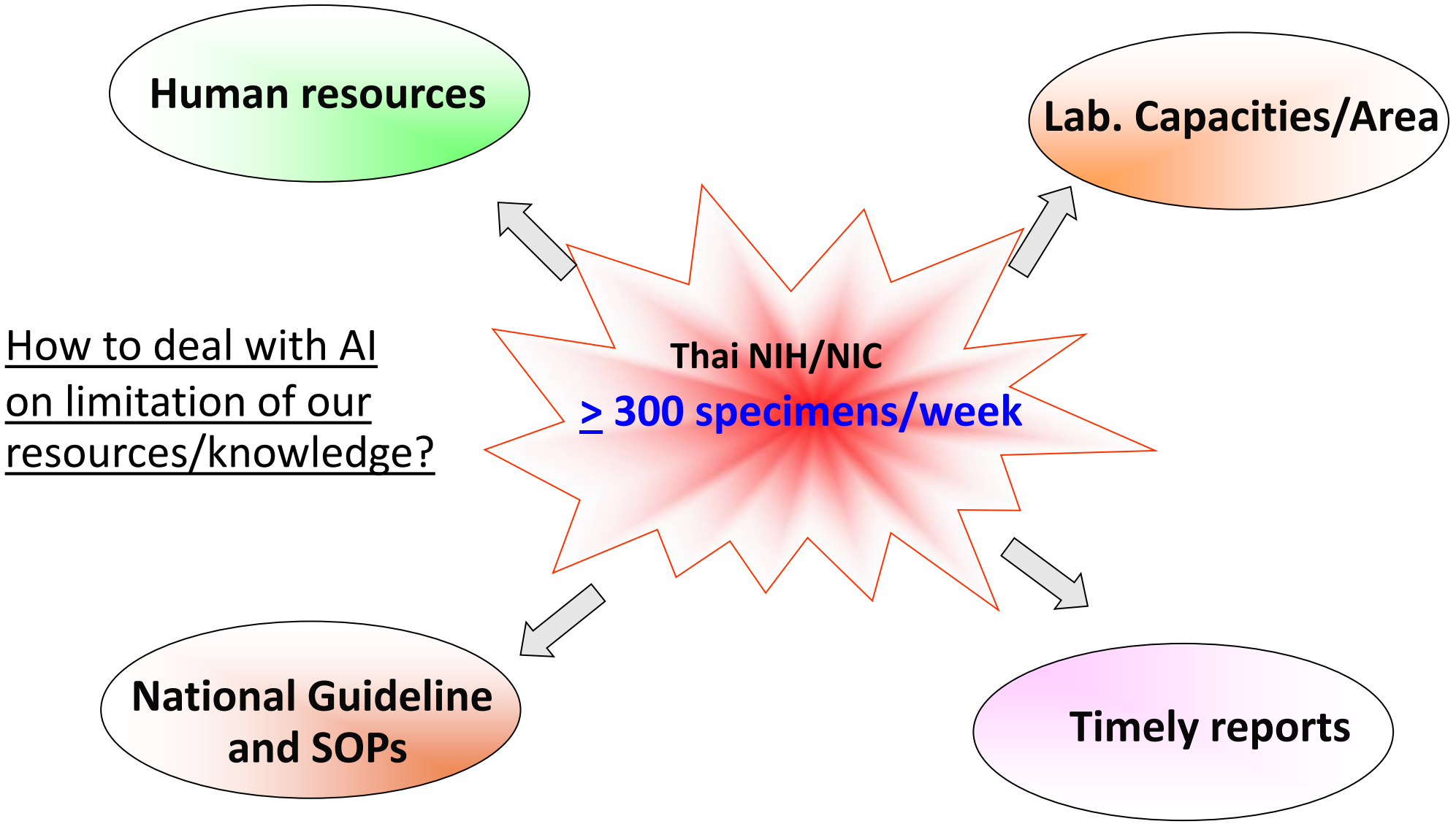
National Avian Influenza Surveillance
H5 laboratory-confirmed human cases report in Thailand, 2004-2009
(25 cases with 17 dead)



Remark: All Thai strains of HPAI H5N1 viruses belong to clade 1 and clade 2 (subclade 2.3.4) during 2004-2009

Laboratory surge capacity for avian influenza outbreak

Challenges in first outbreaks , Thailand,2004



Rapid response for Lab. Strategies in 1st AI outbreak

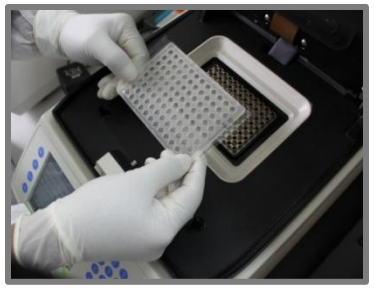
Problems	Emergency phase
Human resources	Pooled staffs - Skilled laboratory staffs - Specimens receiver
Lab. capacities	Pooled equipments Sharing laboratory spaces
Guideline & SOPs	Consultant committee for developing -Guideline for laboratory biosafety -Guideline for specimens collection and transportation -Applied Molecular tech. for rapid response
Timely reports	Developed Fast Track reporting system

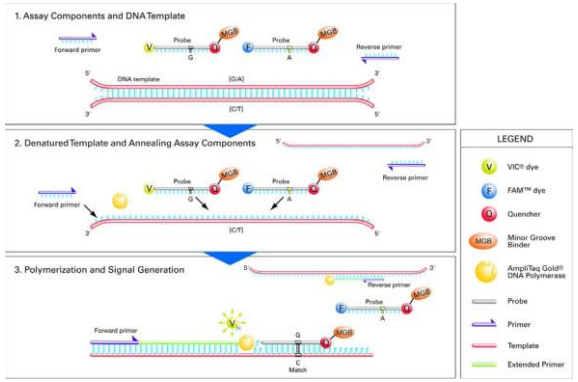
THE OPPORTUNITY FROM H5N1 CRISIS

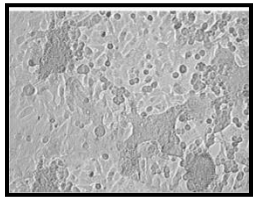
Strengthen lab capacity & network

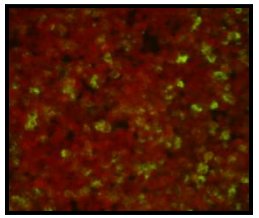
- Enhance laboratory capacity at Thai-NIC and 13 regional lab centers for influenza testing
- Set up mobile laboratories
- Enhance laboratory bio-safety and bio-security
- Enhance national influenza surveillance system

Testing Algorithm for Detection Influenza and Avian Influenza







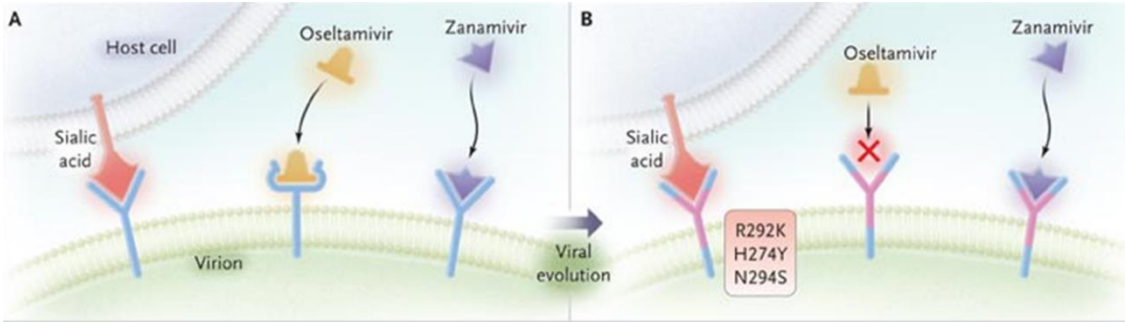


Influenza A and B screening by realtime RT-PCR

Influenza A positive
Subtying for H1pdm2009, H3 , H5 , H7, H9

Sampled specimens are subculture on MDCK cell line or Embryonic chicken eggs

Monitoring of drug resistant strains

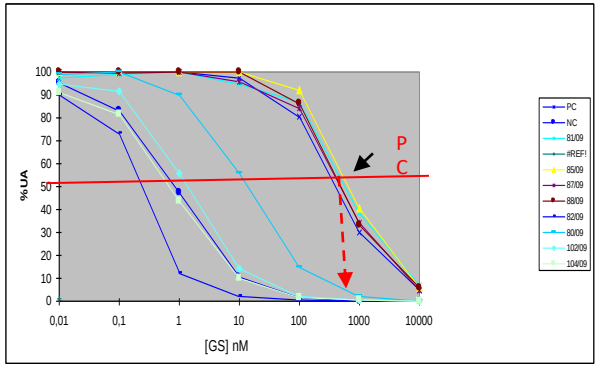


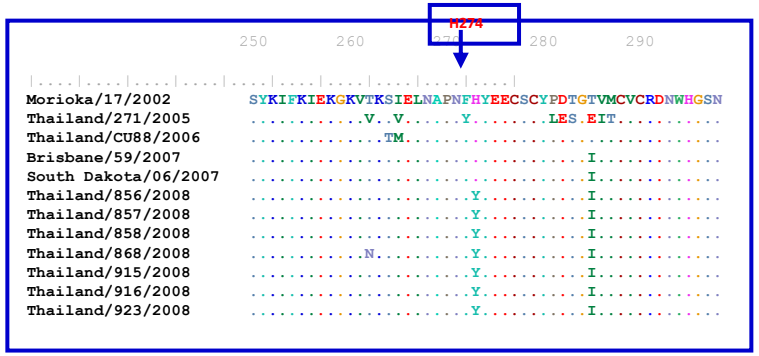
Detection of Drug resistant strains

Phenotypic

(Gold standard)

Genotypic





IC_{50} (50% Inhibition concentration)

Mutation point on NA gene

NIH, Thailand

Regional Laboratory Workshop on Avian Influenza Detection, NIH Thailand, 2006

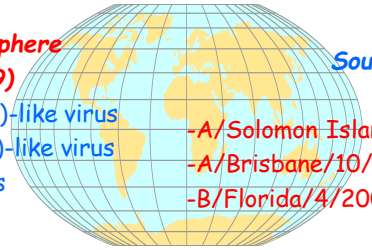
Pandemic preparedness during AI outbreak

Expand Laboratory influenza surveillance network

International collaboration

Northern hemisphere (2008-2009)

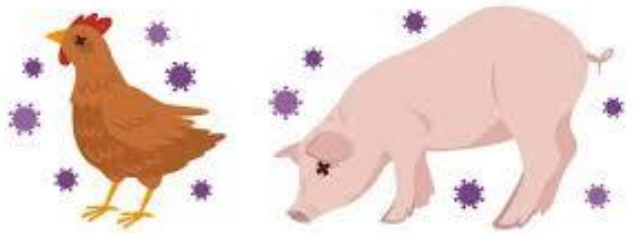
-A/Brisbane/59/2007 (H1N1)-like virus
-A/Brisbane/10/2007(H3N2)-like virus
-B/Florida/4/2006 -like virus



Sounthern hemisphere (2008)

-A/Solomon Islands/3/2006 (H1N1)-like virus
-A/Brisbane/10/2007 (H3N2)-like virus
-B/Florida/4/2006 -like virus

AI LAB-CAPACITY SUPPORT FOR H1N1PANDEMIC IN 2009



Keys improvement

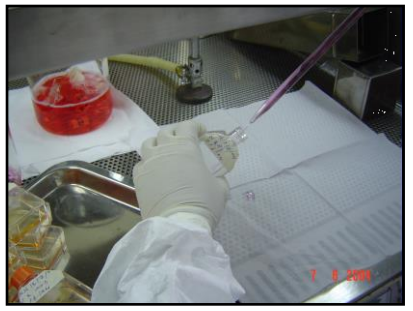
- Expand number of facilities with capability of PCR testing
- Establish national external quality assessment scheme (NEQAS) under ISO 17043
- Improve sentinel surveillance to sustainable with the support of Gov. budget and National strategic plan
- Strengthen the severe pneumonia/ pneumonia death surveillance system for early detection of AI or any unknown/new pathogens

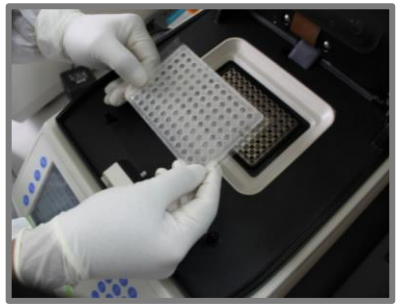
Initiate a national network for strengthening public health laboratories

- *Provide training course on PCR for 25 regional hospital labs.*
- *Prepare minimum requirement for set up PCR Lab.*
- *Follow up and providing PT samples.*

Laboratory-based Influenza Surveillance network partly supported by US-CDC & BOE

Phase I "Development of Influenza Surveillance Networks"
Five years : 15 Sep.2004 -14 Sep.2009-
ILI : 5 sample/week/site





Phase II "Strengtening Thailand's Influenza Surveillance Network to Support Influenza Control Policy and Improve Pandemic Preparedness "
Five years : 15 Sep.2009 -14 Sep.2014
ILI : 10 sample/week/site
SARI : 5 sample/week/site

Workshop on Molecular Techniques for Detection of Avian Influenza and MERS-CoV
Thai-NIH,
30 April -2 May 2014

Regional workshop on PCR base diagnosis of influenza A (H1N1) June 2009

Training workshop on PCR base diagnosis of influenza A (H1N1) 2009 for 14 RMSC and 25 Hosp.

Community of practice in One Health work shop in 2015 and 2016

The best practice of provincial One Health team

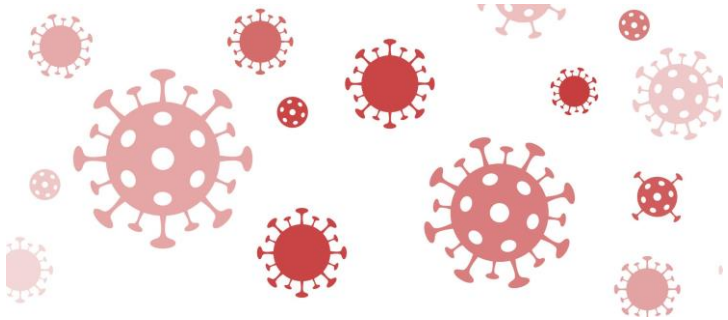
- With a successful program of Tak , Nan, Mukdaharn, Phayao, Bangkok One Health team, both teams could implement the One Health concept in their local communities.

- Those One Health teams are evolving to develop their own strategic plan to fit the problem in local contexts. This mechanism is through the process of sharing information and experiences with the group in the communities.

- It has been considered that this mechanism can sustain any activities under the One Health concept in the areas as a long run term.

Source: BoE, MoPH-Thailand

LEVERAGE COVID-19 LAB CAPACITY TO HANDLE AVIAN INFLUENZA OUTBREAK



Revitalizing influenza surveillance during COVID-19

Leveraging GISRS for COVID-19 surveillance

Using the well-established GISRS to monitor for COVID-19 is an efficient, cost-effective, and sustainable approach to support the response to COVID-19 and prepare countries through:

- Providing a routine surveillance platform to monitor trends, including seasonality, of community transmission of COVID-19, and characteristics of COVID-19 disease including disease severity and risk factors;
- Systematic monitoring of the genetic evolution of the COVID-19 virus.

Key messages

- **Activate AI laboratory networking**

  (information sharing, exercises)

- **Revise / verify**

  - Lab protocols VS Testing Algorithm

  - Specimens referral system

  - Flow of reporting system

- **Closed contact with networking and partners at national, regional and global level (information , sequences data , virus sharing etc.,)**
- **Sustain the laboratory network capability served for next pandemic and threat pathogens**

Thank you

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