



# **RITM Laboratory Response During the 2009 Influenza H1N1 Pandemic**

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# RITM Pre-Pandemic Preparedness Plan

- Ongoing surveillance of circulating influenza subtypes through a project funded by CDC, USA
- Building up laboratory capacity of the National Influenza Center (VI, HI, PCR)
- Laboratory capability to shift detection of subtypes from seasonal to pandemic

# National Influenza Center, RITM

Capacity of NIC-Molecular Biology Component Before the Pandemic

- Existing real-time PCR assay for detection of circulating H1, H3 and avian H5 subtypes
- Participant in the WHO EQAP

# Influenza External Quality Assessment

Participation in the WHO EQAP for PCR Diagnosis of Human-Avian Influenza

<b>Panel</b>	<b>Release Date</b>	<b>RITM Performance</b>	<b>% EQAP participants scoring 100%</b>
3	01/2008	10/10	
4	07/2008	10/10	77% (N=109)
5	02/2009	10/10	84% (N=109)
6	07/2009	10/10	79% (N=128)

# Testing Strategy

NIC, The Philippines



## **Countries able to perform PCR to diagnose influenza A (H1N1) virus infection in humans**

**5 May 2009 (Revision 3)**

*(first published on 2 May 2009)*

Based on performance in the WHO external quality assessment project (EQAP)<sup>1</sup>, National Influenza Centres (NICs) of the WHO Global Influenza Surveillance Network (GISN)<sup>2</sup> and national influenza reference laboratories (NIRLs) in countries without NICs, which fulfil the following criteria, have been identified as having PCR capacity, with the necessary laboratory facility and consumables, to detect the influenza A (H1N1) virus, which has recently emerged.

- Scoring 100% in the last two or more WHO external quality assurance programme panels (EQAP)
- **OR** Scoring 100% in the latest EQAP panel and a history of consistent correct results for earlier panels.

# Testing Strategy

NIC, The Philippines

Philippines	Muntinlupa City	National Influenza Center, Research Institute for Tropical Medicine (RITM)
Portugal	Lisboa	National Institute of Health, National Influenza Centre
Republic of Korea	Seoul	National Institute of Health, Korea CDC, Division of Influenza and Respiratory Viruses
Romania	Bucharest	Cantacuzino Institute



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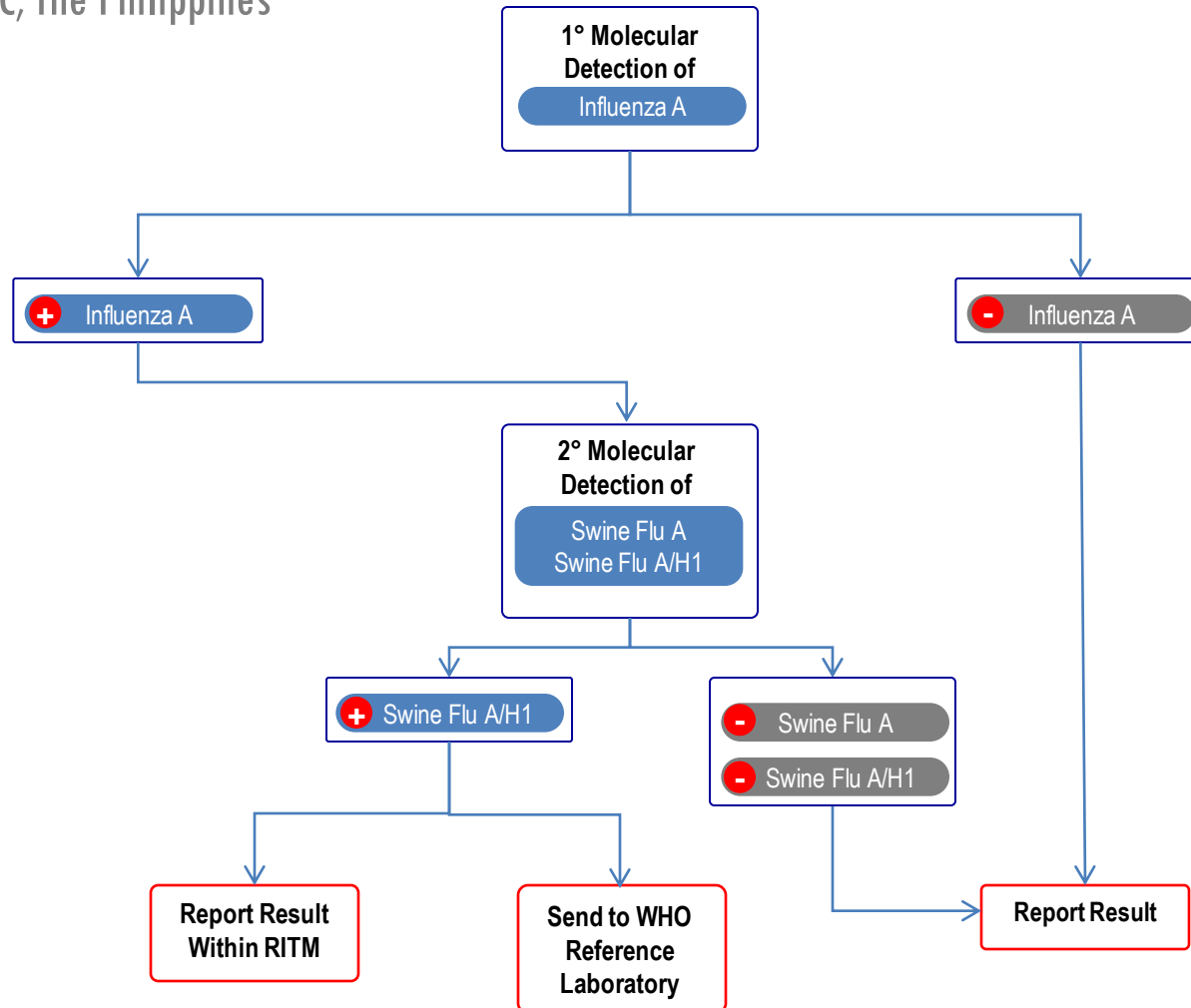
# Influenza A/(H1N1) Rapid Diagnosis

Rapid Diagnosis by Real-Time Reverse Transcription — Polymerase Chain Reaction

- Adopted the CDC Protocol made available through WHO
- Viral marker regions specific for Swine Flu A and Swine H1 are amplified from cDNA by Real-Time RT-PCR

# Testing Strategy

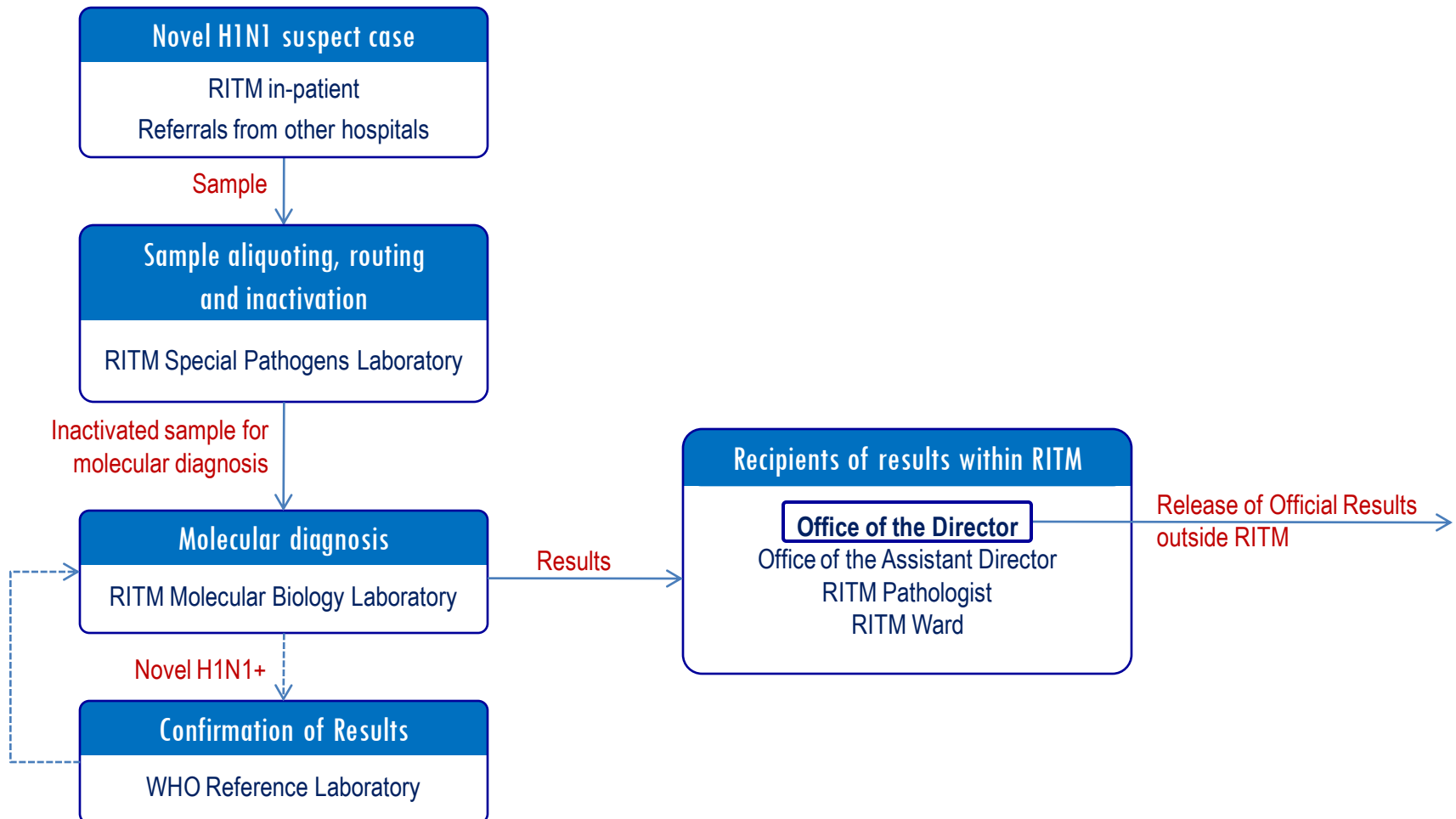
NIC, The Philippines





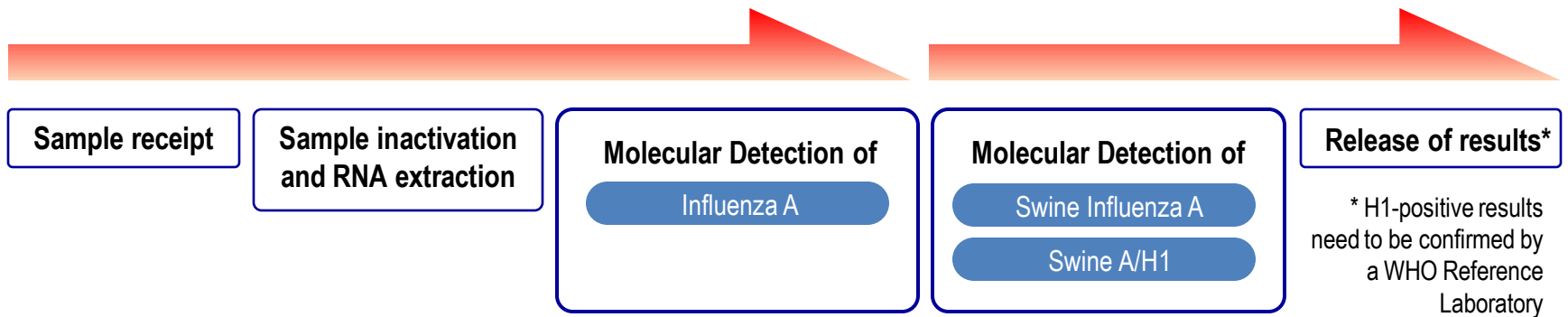
# Novel Influenza A/(H1N1) Rapid Diagnosis

Sample Receipt and Processing and Releasing of Results at RITM



# Turnaround Time

NIC, The Philippines



\* H1-positive results need to be confirmed by a WHO Reference Laboratory

# Original Surge Capacity

NIC, The Philippines

## Equipment



- RotorGene 6000 Real-Time PCR Machine (Corbett Research)
- 120 samples per day

## Manpower

- **Four staff** for Influenza molecular detection assays
- Molecular Biology Laboratory staff trained on Influenza genomics and bioinformatics

## Reagents and Supplies

- Stock reagents enough for **300 samples**

# Surge Capacity During the Pandemic

NIC, The Philippines

## Equipment



- RotorGene 6000 Real-Time PCR Machine (Corbett Research)
- Bio-Rad CFX Real-Time PCR Machine
- 250-500 samples per 24 hour period

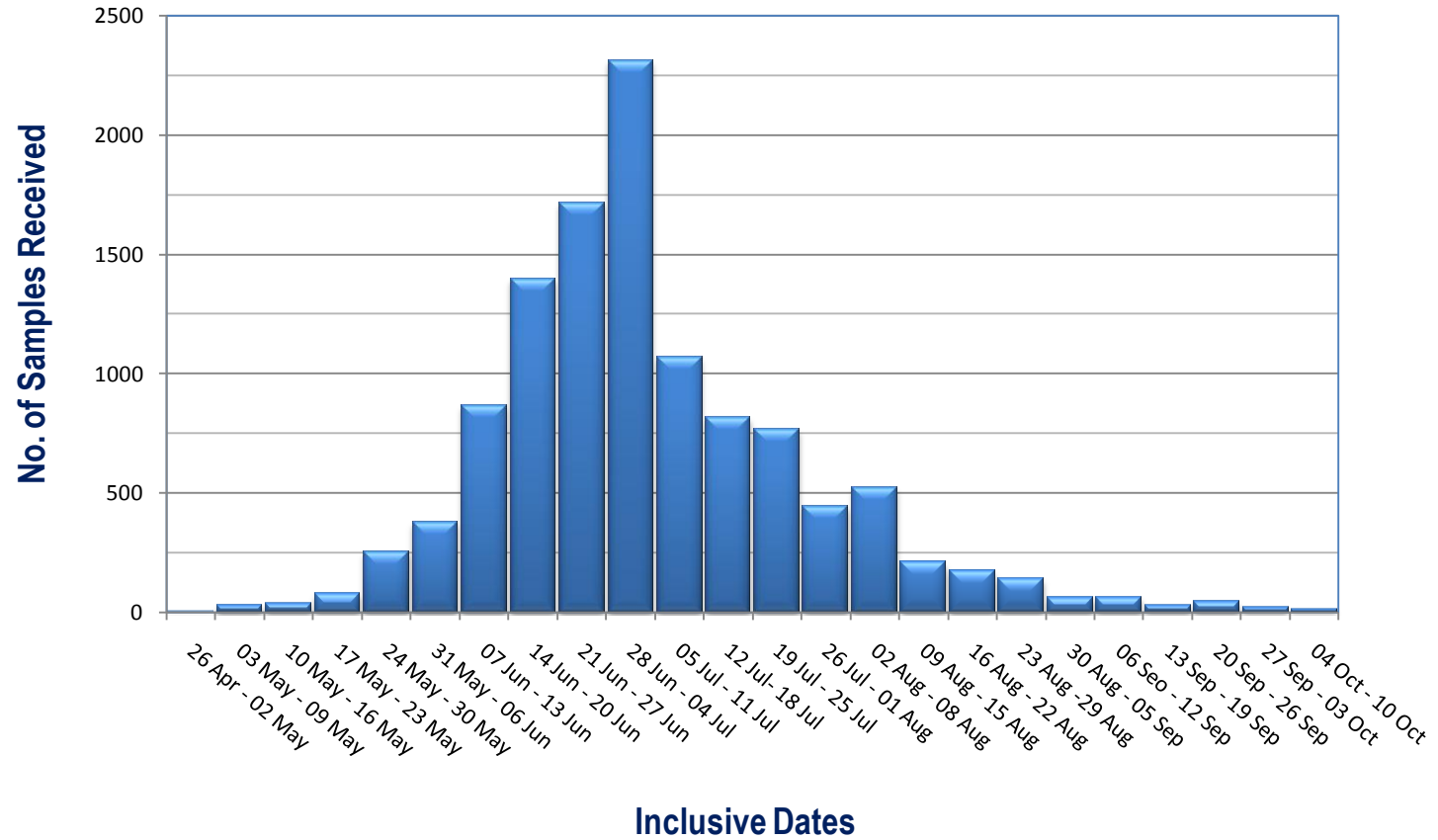
## Manpower

- **Seven staff** for Influenza molecular detection assays
- Molecular Biology Laboratory staff trained on Influenza genomics and bioinformatics

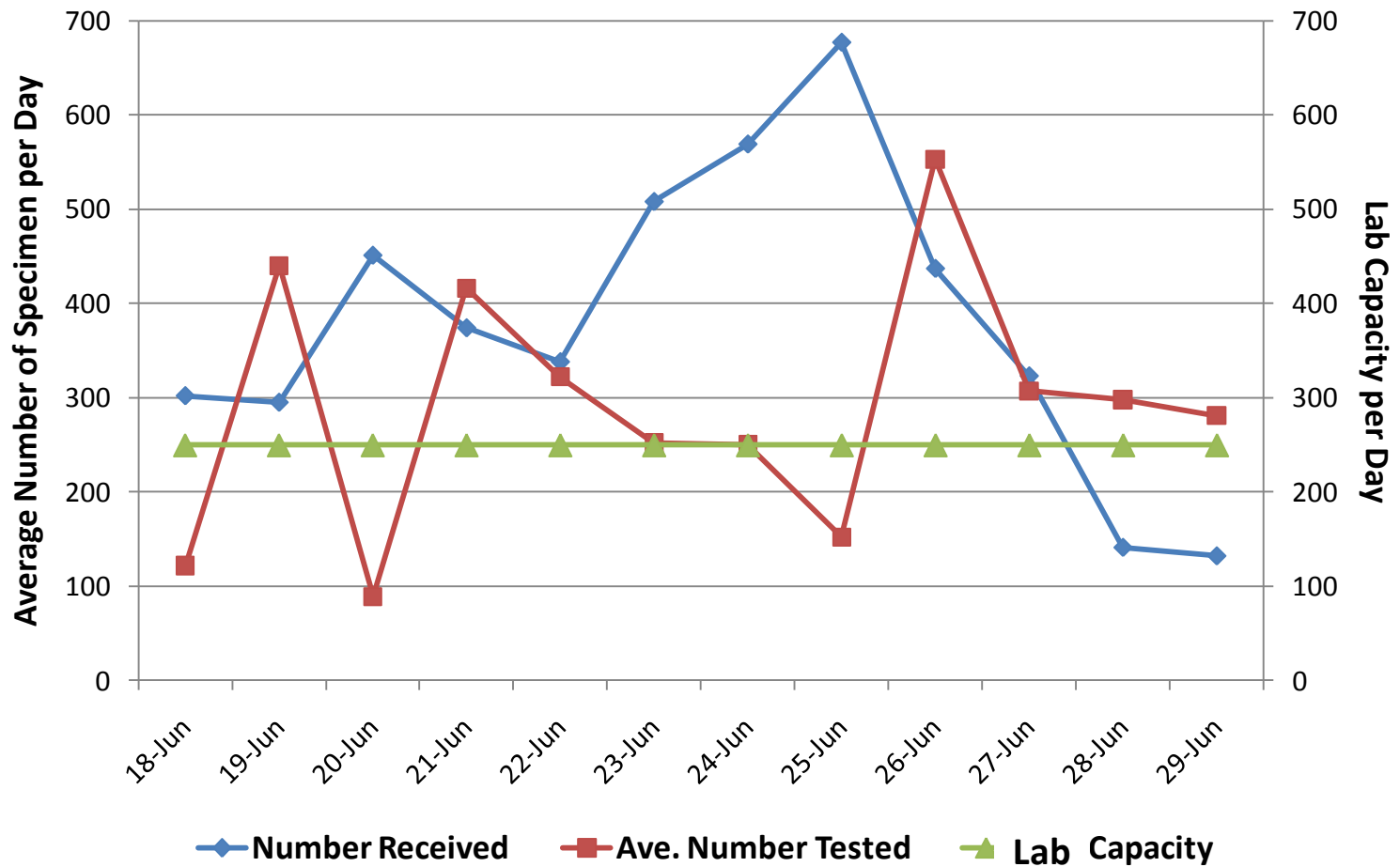
## Reagents and Supplies

- Stock reagents enough for **3000 samples**

# Samples Received by the NIC



# Ave Samples Received and Tested Per Day



# Prioritization of Samples for Testing

- High-risk groups
  - elderly
  - very young
  - pregnant women
  - those with co-morbid conditions
- Representative samples from clusters of cases

# Effect of RITM's Lab Capacity on Public Health

Rapid and accurate testing helped in:

- Characterization of the clinical profile of pandemic A/H1N1 patients
- Shifting of strategy from containment to mitigation
- Prioritization of samples for testing
- Monitoring pandemic trends



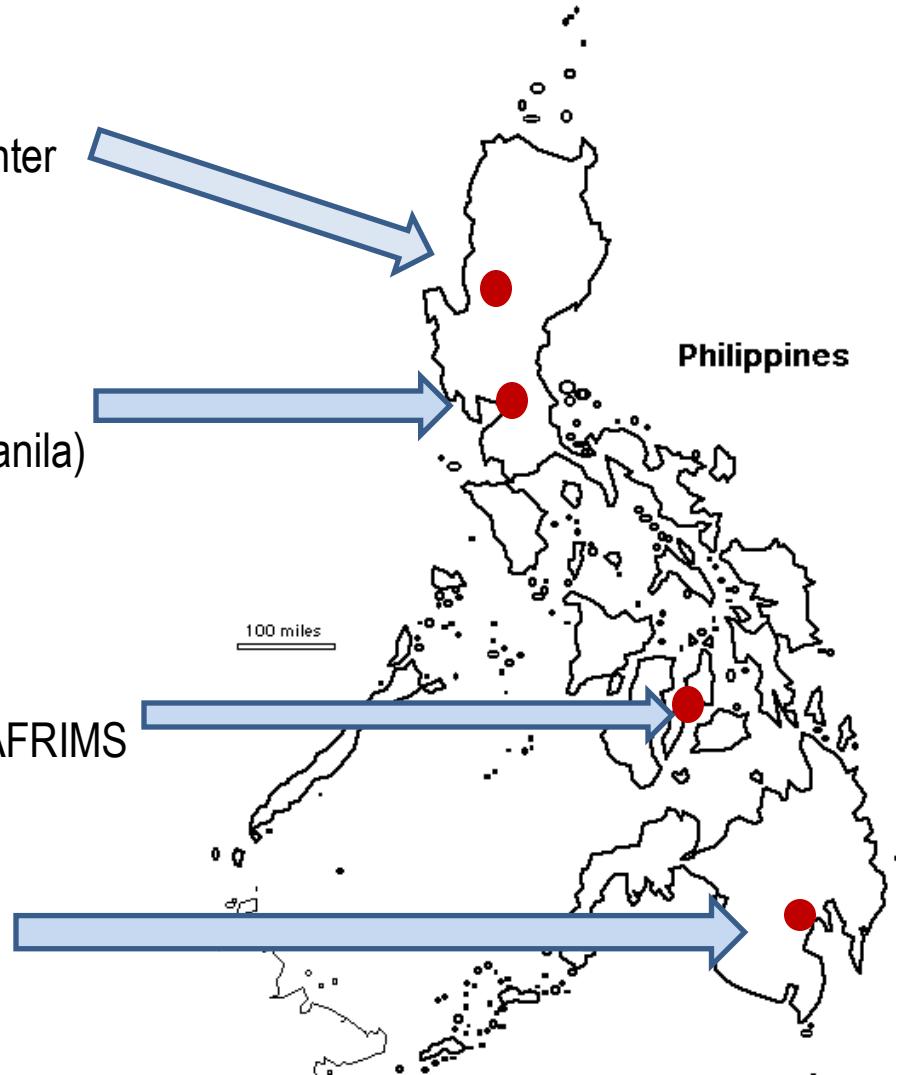
# Laboratory Capacity Building

Baguio General Hospital and Medical Center  
(Baguio City)

San Lazaro Hospital (Metro Manila)  
Lung Center of the Philippines (Metro Manila)

Vicente Sotto Memorial Medical Center-AFRIMS  
(Cebu City)

Davao Medical Center (Davao City)



# National Influenza Center's Role

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- Outbreak investigation
- Antiviral resistance studies
- Quality assurance of sub-national laboratories
- Detection of new strains

# Collaboration with Other Countries

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- RITM staff trained on Novel H1N1 detection in China
- The Government of Palau requested assistance in setting up their laboratory capability

# Rapid Development of Lab Testing Capacity

*Technology and infrastructure for modern laboratory methods have to be in place during the inter-pandemic stage so this can be easily adopted during pandemics.*



**Thank You**

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