

Understanding Pandemic Influenza

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Three types of influenza viruses

Seasonal influenza virus

- A contagious respiratory illness caused by influenza viruses
- Viruses circulating in the human population-
Influenza A (H3N2, H1N1 and B strains)



Avian influenza virus

- Animal influenza viruses infectious for humans under special circumstances.
- Current H5N1 infections



Pandemic influenza virus

- Flu that causes a global outbreaks and spread easily from human to human



Influenza pandemics in the 20th century



Credit: US National Museum of Health and Medicine



1918: “Spanish Flu”

20-40 million deaths

A(H1N1)

1957: “Asian Flu”

1-4 million deaths

A(H2N2)

1968: “Hong Kong Flu”

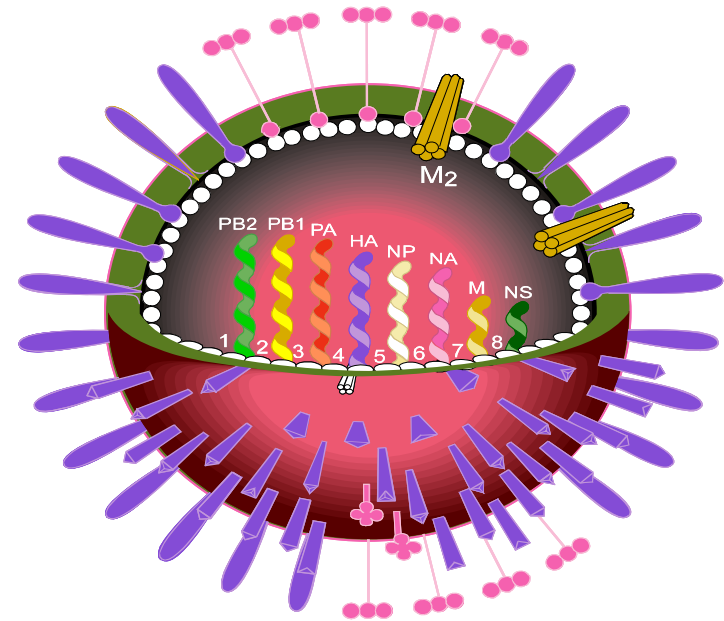
1-4 million deaths

A(H3N2)



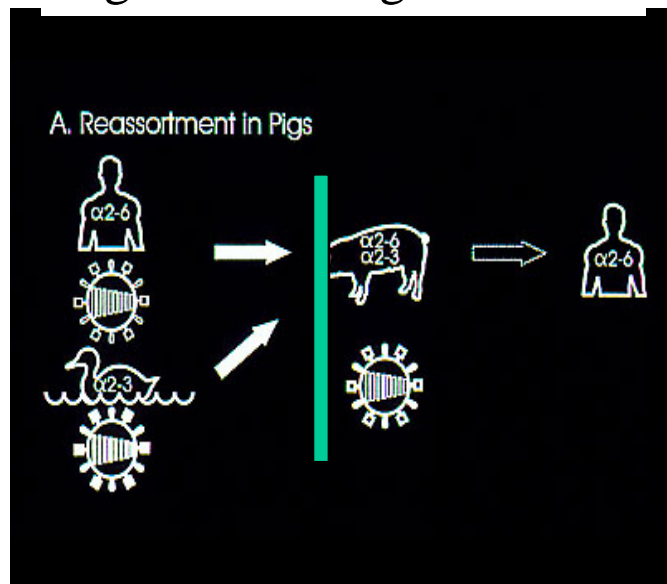
Threat related to the virus?

- Pandemic H1N1 2009 virus continues to evolve
- The widespread occurrence of the virus increases the chances of mutation and re-assort with other virus A influenza sub-types in case of dual infection



How do animal influenza viruses adapt to efficient human – human transmission ?

Pigs: A “mixing vessel”



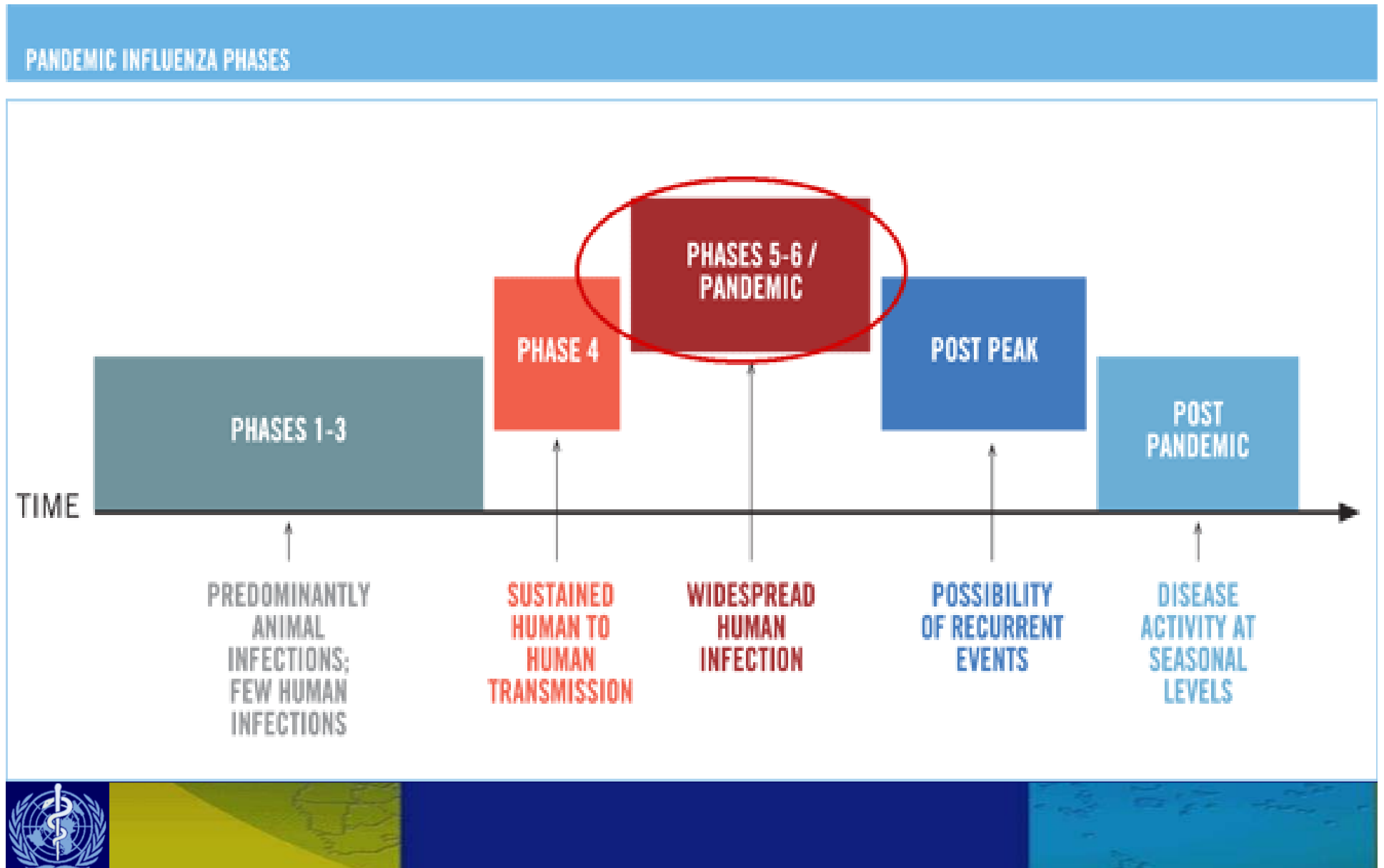
Virus crosses-species barrier; infect humans, adapts & acquires capacity for human to human transmission

Many avian and human viruses replicate in pigs

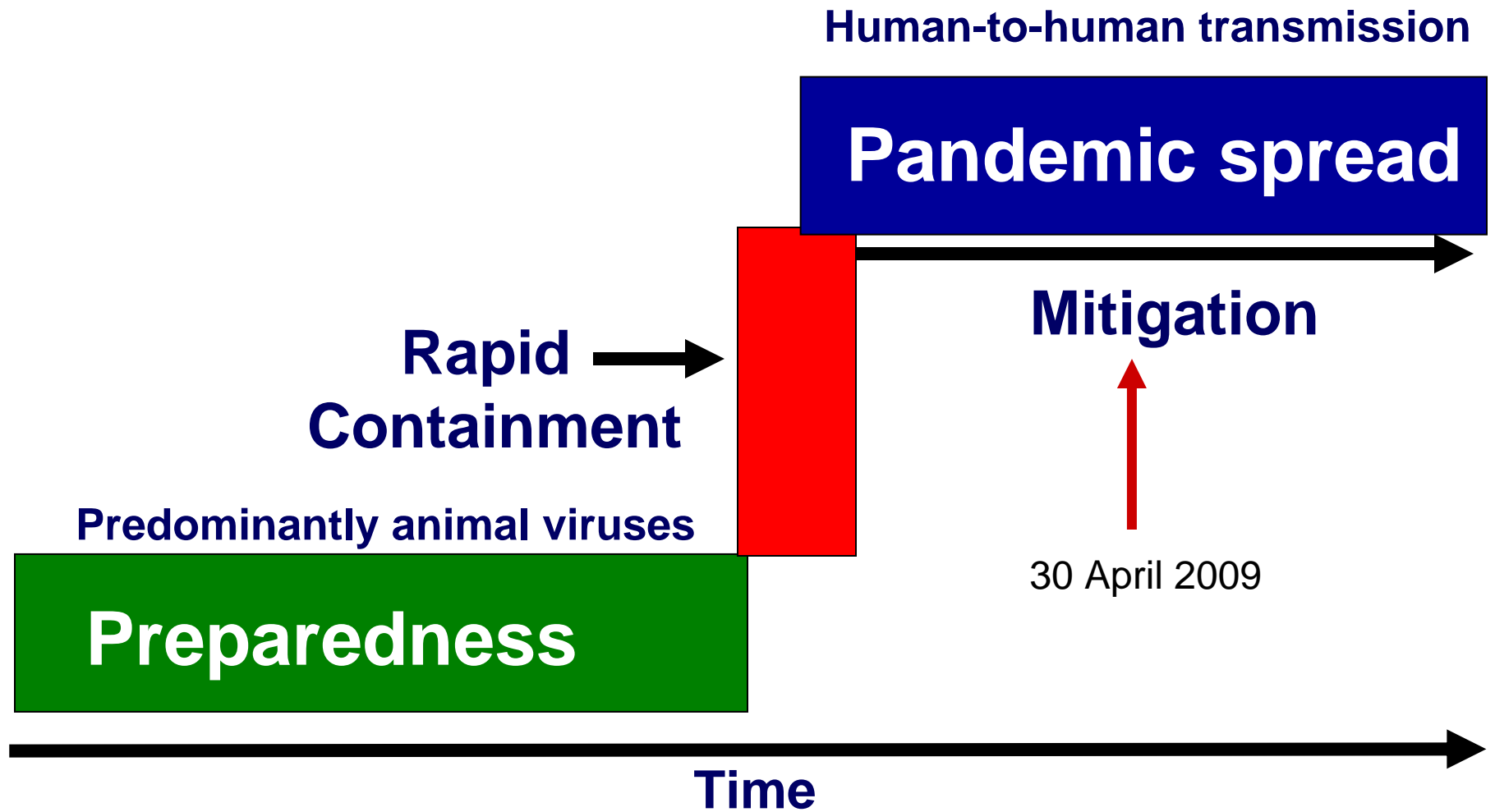
Kida et al J Gen Virol. 1994; 75: 2188-8



The current WHO phase of pandemic alert is 6



Progression of Pandemic Influenza



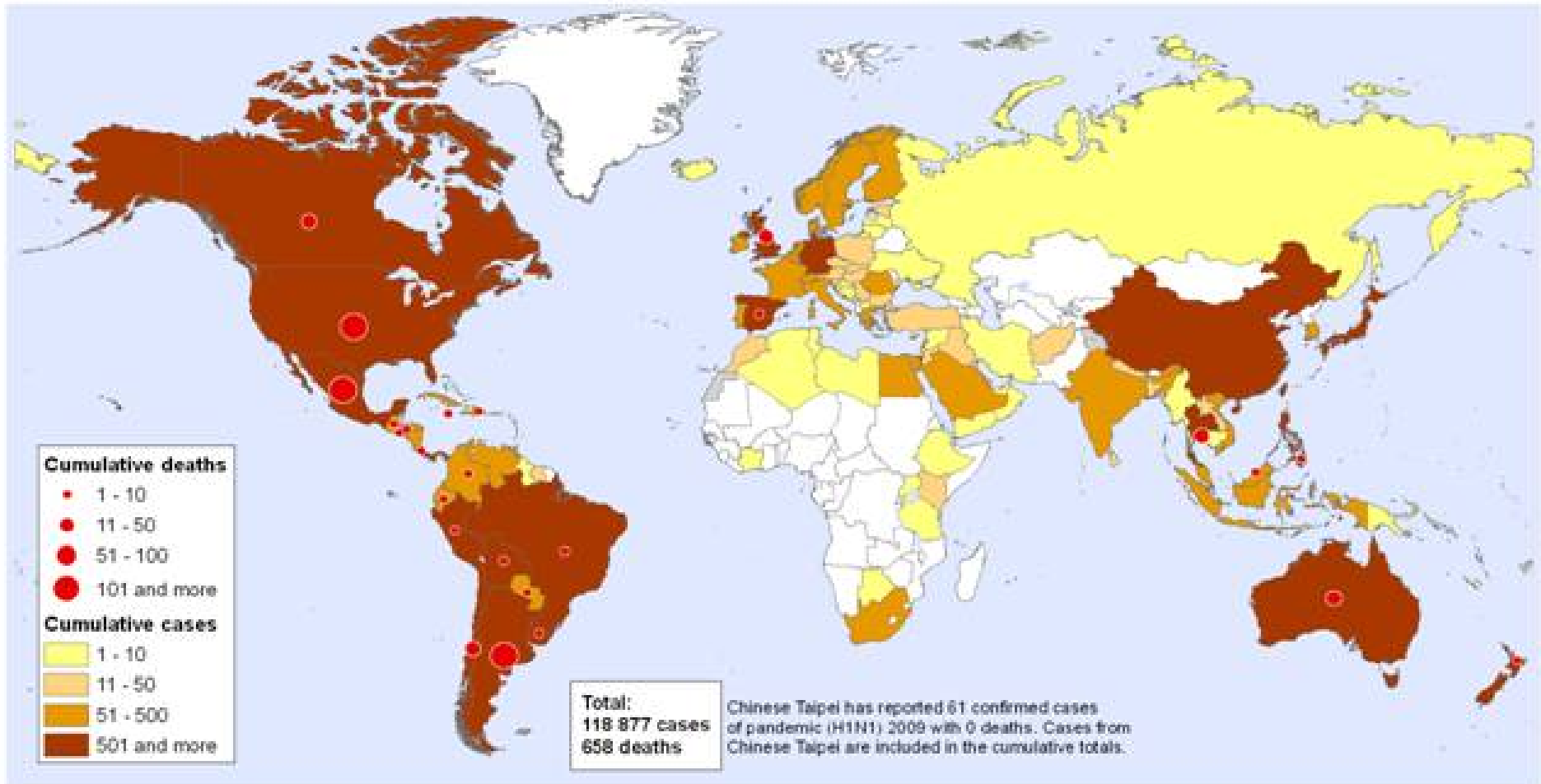
Regional distribution of reported human cases of Pandemic H1N1 2009 16.07.09 (07:00 GMT) – World Health Organization

WHO Region	Number of countries	Confirmed cases	Confirmed deaths
AFRO	13	168	0
AMRO	44	84,125	674
EURO	47	13,000	15
EMRO	19	859	1
SEARO	8	7,378	44
WPRO	21	19,628	26
Total	151	125,158	760



**Pandemic (H1N1) 2009,
Number of laboratory confirmed cases and deaths as reported to WHO**

**Status as of 16 July 2009
06:00 GMT**



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 lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization



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Map produced: 16 July 2009 06:40 GMT



Update cases in SEARO as of 22 July 2009

Bangladesh: 24 cases

[Bhutan: 2 cases]

India: 342 cases

Indonesia: 172 cases

Myanmar: 4 cases

Nepal: 16 cases

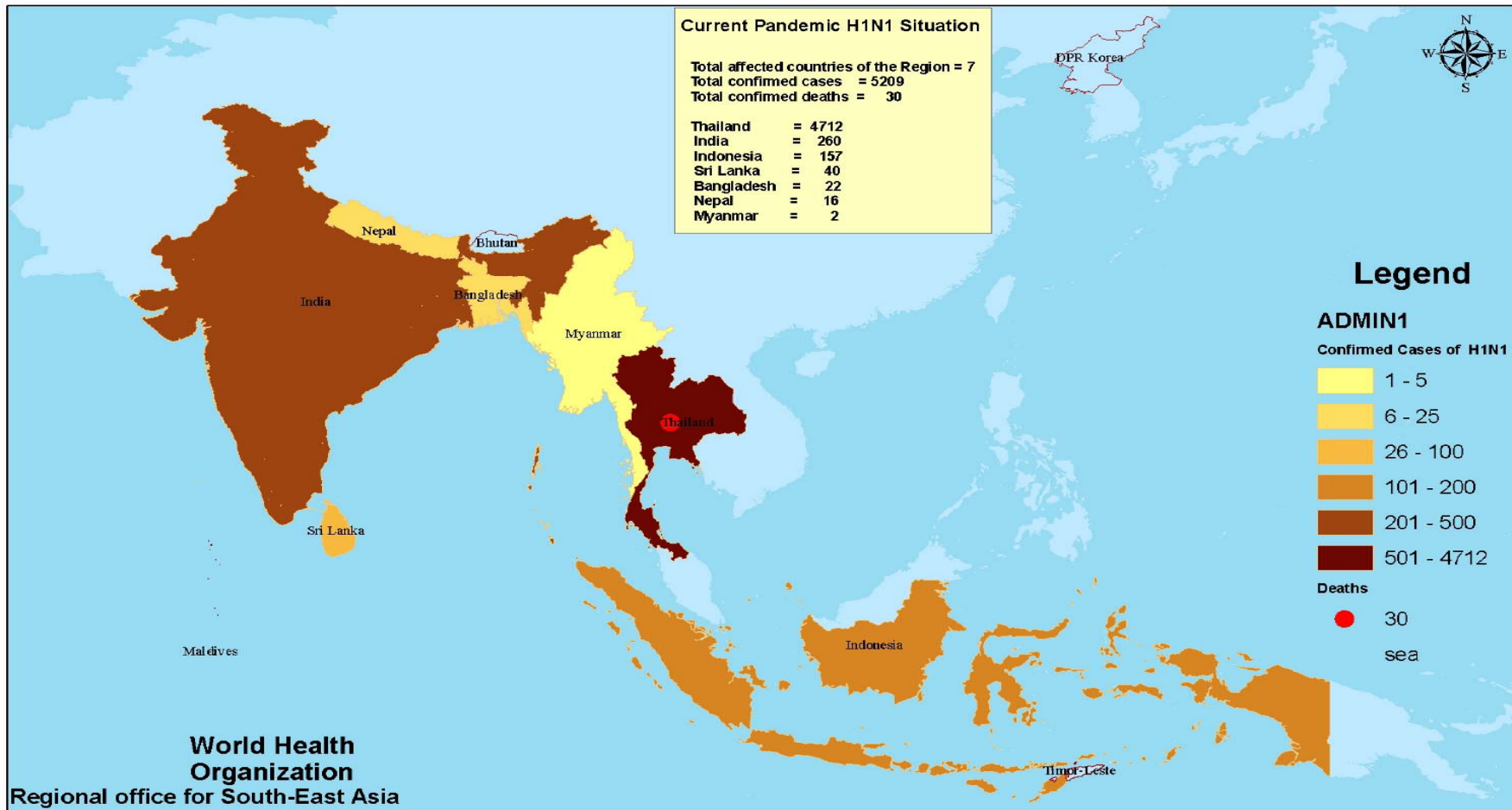
Sri Lanka: 42 cases

Thailand: 6,776 cases / 44 deaths

(case fatality rate 0.45%)



Pendemic H1N1-2009 Influenza Situation in SEA Region, as of 16 Jul 2009



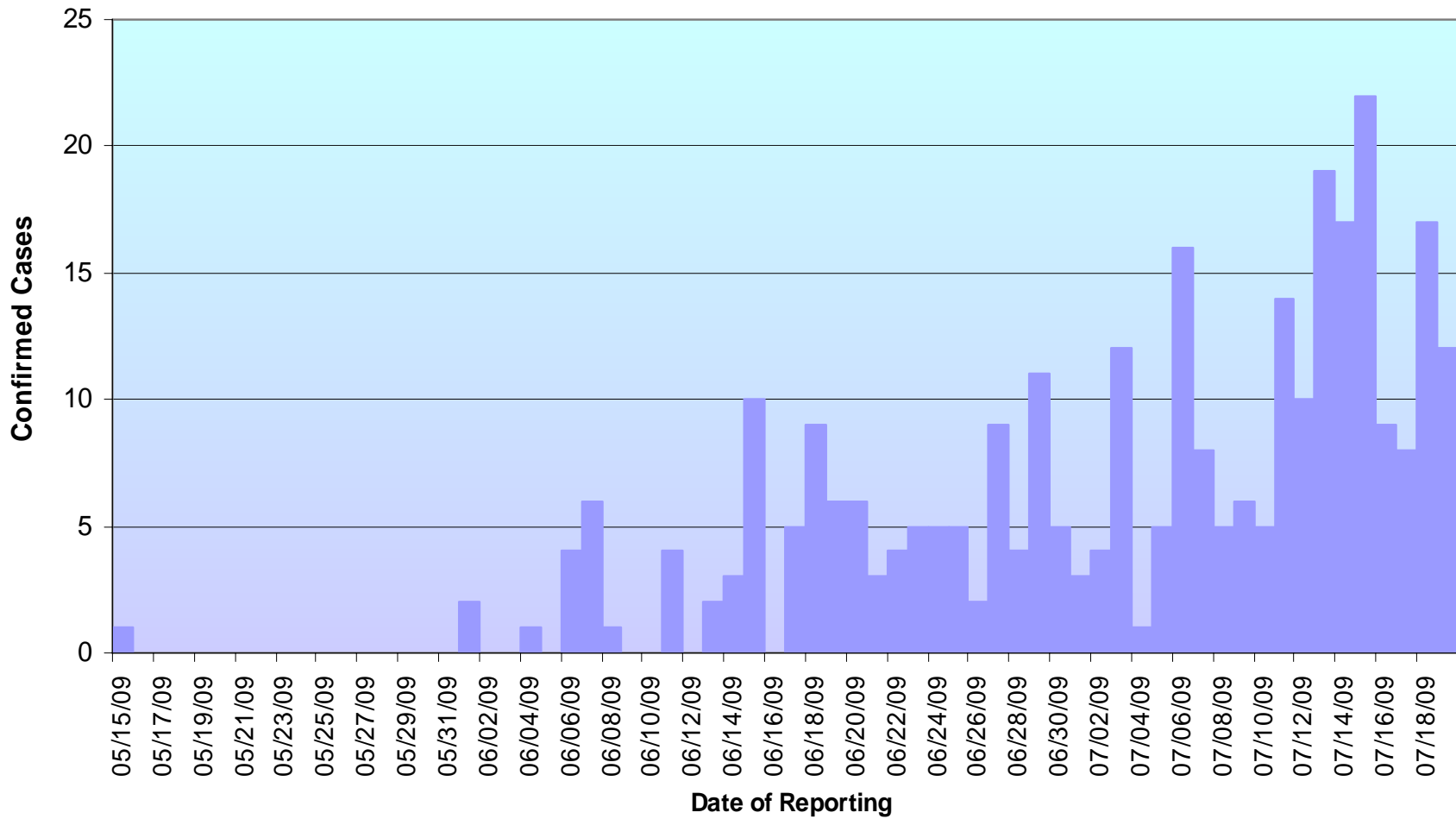
Source: -
Country IHR Focal Points &
Media Reports

Prepared By:-
Outbreak Alert and Response Team,
Disease Surveillance and Epidemiology Unit,
WHO / SEARO

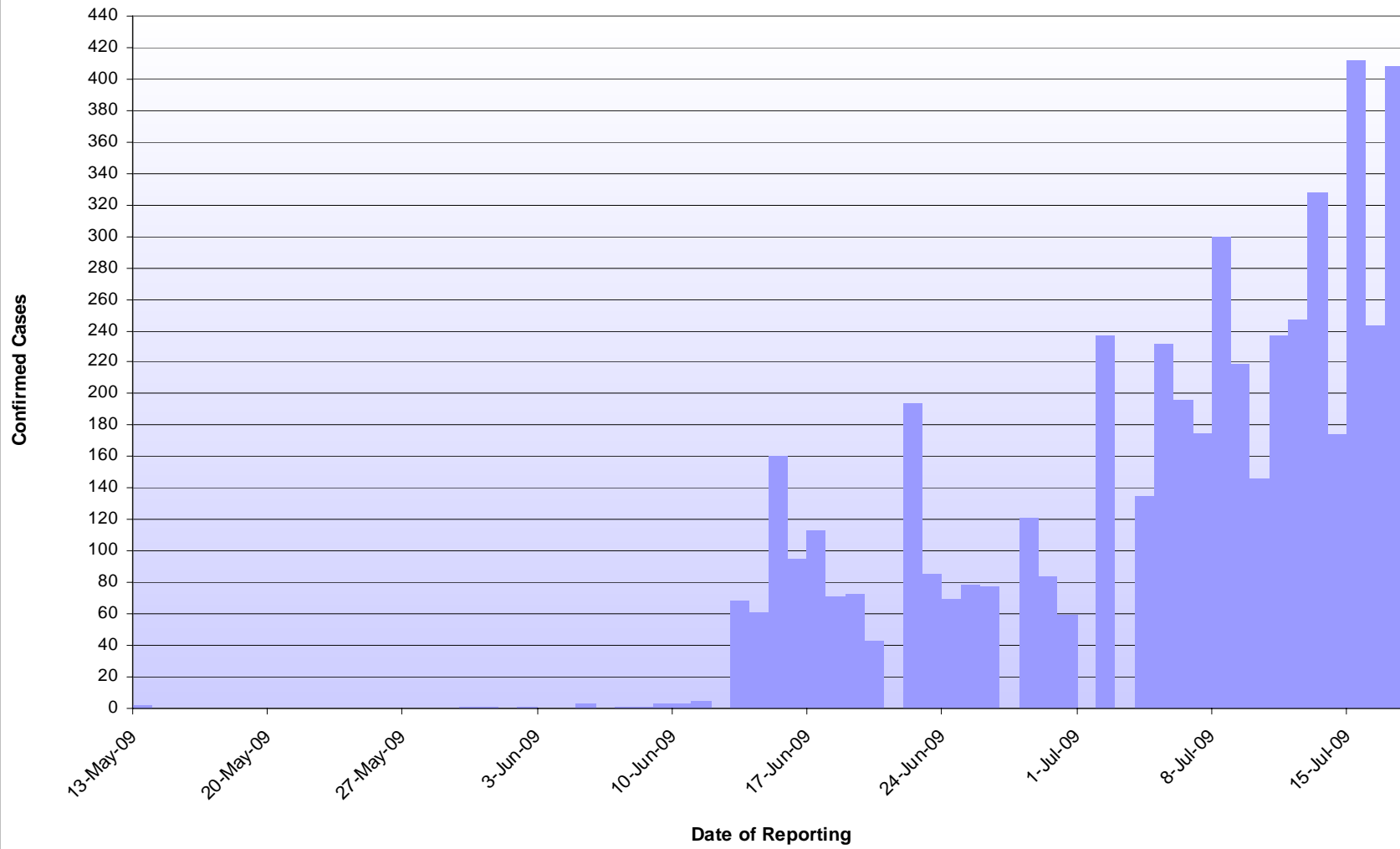
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Epicurve of Confirmed Cases of A(H1N1) in India, 15 May- 19 Jul, 2009



Epicurve of Pandemic H1N1 in Thailand, 13 May- 17 Jul, 2009



Presentation

- ❑ Mostly among healthy young adults between the age of 4 and 45 years
- ❑ Spreads in the same way as seasonal influenza: through direct contact (being within one meter of an infected person) or indirect contact (touching a contaminated surface)
- ❑ Presents with high fever, cough, and sore throat, body aches; some patients experience diarrhoea and vomiting.
- ❑ Can rapidly progress to severe and unusual pneumonia.



Current features of pandemic (H1N1) 2009

- **The spread of the pandemic virus is considered unstoppable**
In past pandemics, influenza viruses have needed more than six months to spread as widely as the new H1N1 virus has spread in less than six weeks.
- **The severity of the pandemic is currently considered to be moderate; most patients experiencing**
 - ✓ *uncomplicated*
 - ✓ *self-limited illness*
- **Some groups at increased risk for severe disease and death from infection;**
 - ✓ *pregnant women*
 - ✓ *persons with other chronic conditions, e.g., asthma, cardiovascular diseases, obesity, diabetes, renal disease*



Monitoring still needed

How the pandemic is evolving globally, not only in their own country, but also in neighbouring countries and continents.

- 1 **Clusters of cases of severe or fatal pandemic (H1N1) 2009 virus infection**
- 2 **Clusters of respiratory illness requiring hospitalization**
- 3 **Unexplained or unusual clinical patterns associated with serious or fatal cases**
- 4 **Unexpected, unusual or notable changes in patterns of transmission**



The current situation in the SEARO region regarding possible production of vaccine

- **Three countries in the region – India, Indonesia and Thailand have potential capacity for production of pandemic influenza vaccine at the pilot plant scale**
- **WHO has already provided contracts to three vaccine manufacturers to develop a vaccine against H1N1**
- **There are manufacturers in the countries of the region which, within four to six months, produce H1N1 vaccine in quantities of 100 million doses a month**



Viruses resistant to oseltamivir (Tamiflu) identified

- ❑ 8 JULY 2009 -Denmark, Japan and Hong Kong, China informed WHO of the appearance of H1N1 viruses resistant to the antiviral drug oseltamivir (known as Tamiflu) based on laboratory testing
- ❑ These viruses were found in three patients who did not have severe disease and all have recovered. Investigations have not found the resistant virus in the close contacts of these three people. The viruses, while resistant to oseltamivir, remain sensitive to zanamivir.
- ❑ WHO and its partners continue to conduct ongoing monitoring of influenza viruses for antiviral drug resistance.
- ❑ These instances of drug resistance represent sporadic cases of resistance. There is **no evidence to indicate the development of widespread antiviral resistance** among pandemic H1N1 viruses.
- ❑ Risk assessment: **no changes in WHO's clinical treatment guidance**



Recommendations from SEARO to countries

- **Encourage countries to convene high level meeting**
- **Enhanced surveillance**
- **Countries to assess laboratory capacity for H1N1 diagnosis**
- **Clinical management and Infection Control**
- **IEC – media reports, encourage mass campaigns reminding the public of the importance of hand washing, cough etiquette. Countries are encouraged to establish hotline number**
- **Stockpile - Countries need to update the inventory of current stock of oseltamivir, face masks, antibiotics and ventilators**



Selected interventions: experiences and lessons

Strategies	Practice/Experiences	Remarks
School closure	7-14 days closure (US, UK, Canada, Japan) (Spain-military school)	Limited impact on spread of disease Issue: closure vs dismissal Need to keep children at home Legal issues/public health act
Suspension of mass gatherings	Churches, malls, theaters (Mexico-two weeks)	Disruptive, difficult to enforce Need for public messages Issues: ethical issues, continuity; access to services; economic implicat
Passenger screening	Symptomatic travelers asked to delay their journeys and referred for medical evaluation (Mexico, US, Canada)	SEA: 2.5 million incoming passengers (quarter from affected areas) Approx: screen 1 million to identify one positive Issues: asymptomatic, incubating not detected; cost-effectiveness
Contact tracing and prophylaxis	Chemoprophylaxis for immediate contacts (UK for schools with case)	Often late from possible exposure Repeated exposure if cases continue; side effects, compliance, cost



Summary: Elements for successful control

Health systems- preparedness, surge capacity for early detection, case management

Coordination, command and control- for assessment of risk, scaling-up of effective and timely interventions; INTER-Sectoral Collaboration

Communication- transparency and timely information dissemination- media, healthcare providers, public, etc

Choice of intervention- proven, applicable and less disruptive public health measures

- Ex: travelers information on simple, proven practices
- Class dismissal in affected localities with health education

Community mobilization and Community-based action approach

Adaptation of measures- based on context and need

- Restriction of mass gatherings in crowded cities vs intensive IEC



Conclusion

Consider ramifications of actions to families and the economy in adapting strategies, and plan to make them easier to implement

- **Flexibility in implementation...national & local considerations**
- **Focus on evidence-based, practical, acceptable measures**
- **Mitigation strategies need to be updated and realistic**

“Communication was key, including.....to say what we did not know, or foreshadowing [forewarning] possible changes in policy, and being clear at the outset that what we learned about both severity and transmissibility would determine our response.”

DAVID FLEMING, MD, DIRECTOR OF PUBLIC HEALTH, SEATTLE & KING COUNTY WASHINGTON

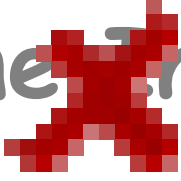
Source: Pandemic Flu Preparedness: Lessons from the Frontlines; June 2009



Websites:-

Regional Office <http://www.searo.who.int>

HQ-Geneva <http://www.who.int/csr/disease/swineflu>

Swine nfluenza

Pandemic Influenza

Pandemic H1N1 2009

Thank you

