

Influenza Pandemic: Overview of Ops Response

Ministry of Health
SINGAPORE





Photos from CBC News



Recent Human infections caused by avian influenza

Jan 2004 – Aug 05 (H5N1)

- Thailand - 17 cases (12 deaths)
- Vietnam - 90 cases (40 deaths)
- Cambodia - 4 cases (4 deaths)
- Indonesia - 1 confirmed cases + 2 probable (3 deaths)



Influenza Pandemic – Risk Assessment

- New sub-type of the influenza A virus, A/ H5N1 virus, to which humans have no immunity.
- Human cases experienced severe illness with a very high mortality rate. Both adults and children are susceptible to H5N1 infection
- Avian flu outbreaks continue to spread in surrounding region. Human case will occur and virus has high chance of mutation to be able to transmit from Human to Human



Scope

- Pandemic Planning Assumptions
- Pandemic Ops Response
- DORSCON – Flu Measures
- Conclusion



Pandemic Planning Assumptions

- Short warning period and infection could reach S'pore within days or weeks of emergence elsewhere
- Fast spread and high morbidity & mortality
- Several days to confirm new flu strain
- S'pore cases more likely to be imported; less likely to be direct Animal to Human transmission



Pandemic Planning Assumptions

- Attack in two or more waves in same year or in successive flu seasons
- Second wave may occur 3-9 mths later; may be more serious than first
- Each wave about 6 weeks



Pandemic Planning Assumptions

- Characteristics:
 - spreads mainly thru droplets i.e close contact
 - more infectious than SARS
 - short incubation 2 days (range 1-4 days)
 - infectious before onset of symptoms
 - asymptomatic/sub-clinical cases are infectious
 - Estimated 25% attack rate



Pandemic Planning Assumptions

- No pandemic vaccines initially – 4 to 6 mths later
- Vaccines – initially limited supply
- Anti-virals/Tamiflu – effective for both prevention and treatment (within 48 hours); but limited supplies



Pandemic Ops Response

- **CONCEPT**

- Establish an effective surveillance to prevent the importation of a novel influenza virus
- Sustain the nation through 1st wave by mitigating consequences through
 - infection control,
 - healthcare management,
 - chemoprophylaxis,
 - social distancing
- Race to achieve national immunity when a vaccine is available.



Pandemic Ops Response

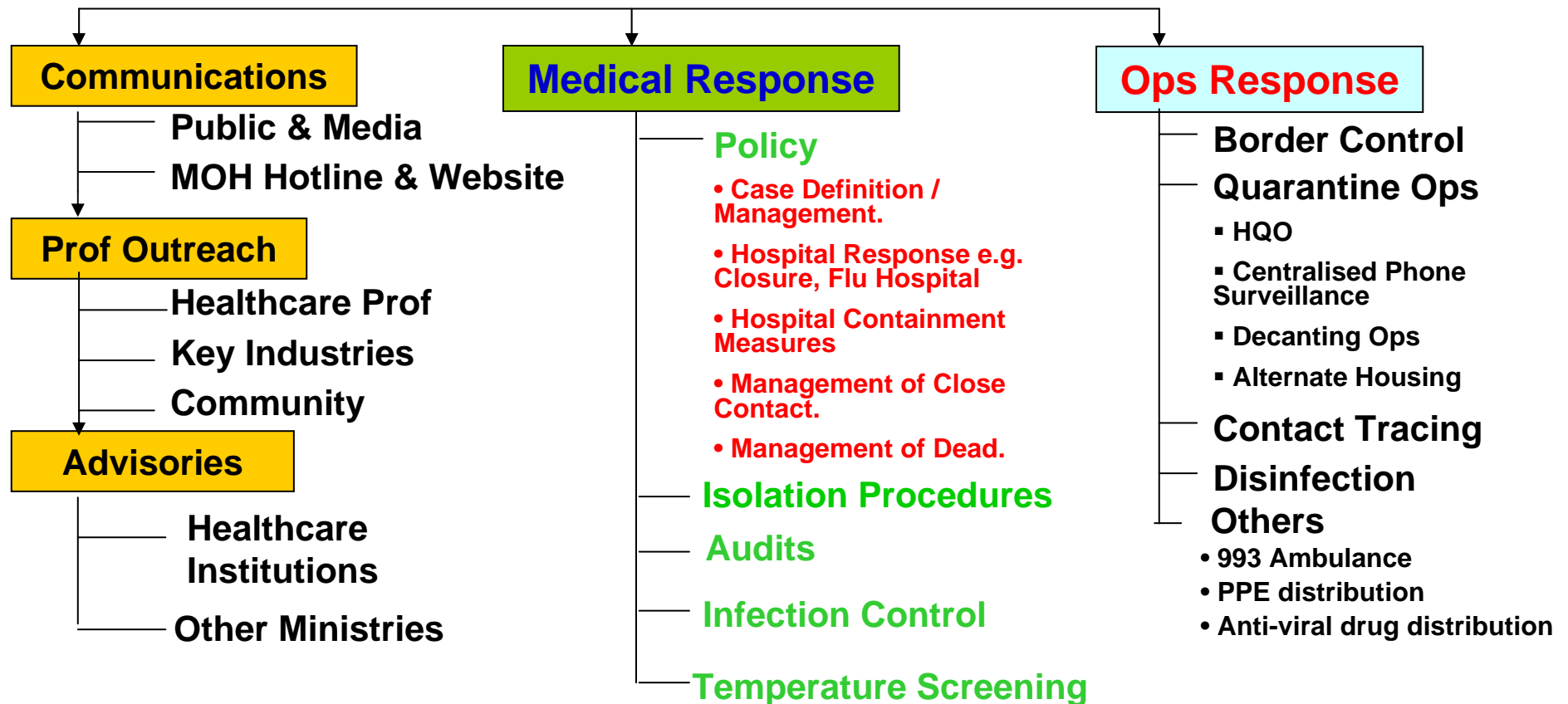
- **OUTCOMES**

- Maintain essential services in S'pore to limit social and economic disruptions (Prophylaxis)
- Reduce morbidity and mortality through treatment of all influenza-like cases
- Slow and limit the spread of influenza to reduce the surge on healthcare system

RESPONSE FRAMEWORK

Surveillance

- Community Surveillance
- Lab Surveillance
- Hospital Surveillance
- Veterinary Surveillance
- External Surveillance





DORSCON - FLU PANDEMIC

- **GREEN** : minimal threat to population
 - Level 0 (WHO 0/0)
 - No novel virus, HPAI outbreak in animals, no A to H
 - Level 1 (WHO 0/1-0/2)
 - WHO announces novel virus alert, ie has infected human(s)
 - Possibility of the virus to spread from H-to-H, leading to epidemics remains questionable

Maintain Situation Awareness, Build Capacity

- Baseline surveillance measures
- Normal protective measures in healthcare institutions
- Encourage seasonal flu vaccination for HCWs & high risk groups
- Preparedness activities e.g. contact tracing
- Build up stockpile of anti-virals, PPE, test kits etc.

Alert: Green 1

Step up surveillance, enhance vigilance and preparedness to meet the potential threat.

- Step up surveillance, liaise with WHO & affected country
- Alert National Labs and Communicable Disease Centre
- Infection Control:
 - Enhanced PPE in high risk areas
 - Isolate cases in CDC
 - Ring-fence (anti-viral prophylaxis) & phone surveillance contacts
- Review existing stockpiles
- Communication
 - Update HCWs
 - Educate public: good hygiene practices, encourage seasonal flu vaccination, travel advisories



DORSCON - FLU PANDEMIC

- **YELLOW** (WHO 0/3): inefficient H to H
 - WHO reports clear evidence of H to H in general population
 - Global pandemic potential high - elevated risk of import
 - Sporadic imported cases locally – but no sustain transmission

Alert: Yellow

Step up Surveillance, prevent import, prevent spreads and protect essential svcs

- Surveillance:
 - Active investigation of cases
 - Step up community, hospital & lab surveillance
- Infection Control (as in **GREEN 1** plus)
 - Ring fencing of close contacts including HCWs – HQO and prophylaxis
 - Treatment at Communicable Disease Centre (CDC)
 - Full PPE use in high risk areas at hospitals
 - Fever screening/triage of HCWs and visitors at hospitals
 - Restrict inter-hospital movement of HCWs & patients
 - Seasonal flu vaccinations for all HCWs & essential services

Alert: Yellow

Step up Surveillance, prevent import, prevent spreads and protect essential svcs

- Border health screening of passengers from affected areas
- Readiness measures:
 - Step up response readiness and capability: Lab, healthcare facilities, stockpiles, response systems
 - Purchase pandemic vaccine if available
- Encourage public to have seasonal flu vacc
- Open & transparent Crisis Communication
 - good hygiene practises



DORSCON - FLU PANDEMIC

- **ORANGE** (Pandemic) (WHO 1): Efficient H to H but low risk of community transmission
 - WHO confirms novel virus is causing several outbreaks in one country or more countries w high morbidity & mortality in one segment of popn or
 - Confirmation of novel virus infection case(s) in S'pore, but limited to certain settings, increase in novel virus isolates

Alert: Orange

Enhance vigilance, suppress & slow down spread

- Surveillance (as in **YELLOW** plus)
 - Daily ARI report
- Infection Control (as in **YELLOW** plus)
 - Designated hospital for treatment
 - No hospital visitor rule
 - **Set up Flu Clinics** at Polyclinics to administer Tamiflu to all cases with flu-like symptoms
 - Consider closure of schools & suspension of public events/gatherings
- **Anti-viral prophylaxis** for Essential Services



DORSCON - FLU PANDEMIC

- **RED** (WHO 2): pronounced risk of getting disease from community
 - wide-spread infection in local community
 - increasing trend of mortality and morbidity in cases

Alert: Red

Mitigate consequences of Pandemic

- Surveillance measures as in **ORANGE**
- Infection Control measures:
 - All public hospital to treat cases
 - Impose more stringent control over public activities including closing of school and stop selected event to prevent congregation of large group of people
- Crisis Communications
 - Advisory on social activities



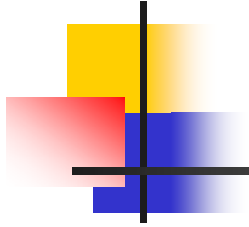
DORSCON - FLU PANDEMIC

- **BLACK** : local infection out of control
 - escalating mortality and morbidity rates
 - healthcare system is likely to be overwhelmed

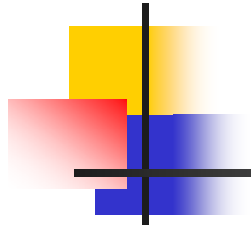
Alert: Black

Medical & public health measures take precedence over social & economic considerations

- Same measures as in **RED**
- Support Healthcare system
 - Muster national healthcare resources
 - Prioritize cases to max treatment outcome
- Suspend all public gatherings
- Prophylaxis for whole population if avail
- Crisis communication as in **RED**



Conclusion



Thank You



Pandemic Planning Assumptions

- Estimate of infected popn (FluAid)
 - attack rate of 25% (range 15-35%)
 - 550K infected in 1st Wave
 - mortality 1,872 (peak 945 @week 2)
 - hospitalizations 11,240 (peak 5730 @week 2)
 - ICU 1,685 (peak 860 @week 2)

NB Use of anti-virals can reduce the infected popn by about 50%.

