Rapid Operations to Contain the Initial Emergence of Pandemic Influenza: The WHO Interim Protocol

7 January version
Overview of the presentation

- Background and context
- Decision making process
- Containment strategy
- Key activities during containment
- Challenges
Rapid Containment:

Background and Context
Preparing for Pandemic Influenza: WHO Strategic Action Plan

- Timing and severity of the next pandemic cannot be predicted
- Countries and WHO need to prepare
- Objectives of WHO Strategic Action Plan
  - Prevent viruses with pandemic potential from initiating a pandemic (H5N1 most visible threat)
  - Ensure that capacity, research and planning measures are in place to reduce pandemic impact
- Rapid containment is one of the Plan’s 5 priority actions
What is the Rapid Containment Strategy?

- **STOP** the development of pandemic influenza
- When it is initially detected
- Before the virus spreads more widely
Rapid Response: Routine Public Health Action

- Relies on early detection of cases
- Initial local investigation
- Standard control measures to prevent further transmission
- Notification of national authorities and WHO
Rapid Containment: Extraordinary Public Health Action

Must be considered if investigation suggests that local outbreak may be the start of a pandemic

Activities designed to stop emerging pandemic
  – Joint risk assessment by WHO and country
  – Decision by national authorities in consultation with WHO
  – Large scale use of antivirals and non-pharmaceutical interventions
Rapid Response and Containment: Continuum of Activities

- Rapid response
- Situation worsening
- Rapid containment
IHR considerations for alerting WHO

- Early consultation with WHO is essential
  - for any suspicious event or early signal
  - as "Window of opportunity" to launch RC operation is narrow

- Must notify any human influenza cases caused by a new subtype
Could Containment Work?

- Never been tried; success cannot be guaranteed
- Few options to limit morbidity, mortality and social disruption associated with a pandemic
- SARS demonstrated it is possible to mobilize a complex public health operation
- Mathematical modelling studies suggest containment might be possible
Containment is Time Sensitive

- Mathematical modelling indicates “window of opportunity” to act is very short.
- May have ~ 3 weeks to start antivirals and non-pharmaceutical measures after Index Cluster is detected.
- Detection, investigation and reporting of first cases must happen quickly followed by timely assessment and decision-making.
Containment Protocol: Purpose and Scope

- Outline “what” should be done
- Provide some information about “how” to do it
- Serve as a foundation for WHO and countries to build more detailed operational plans
- Encourage integration of containment planning into national pandemic preparedness planning
Rapid Containment:
Decision-Making Process
Virological factors

- Laboratory evidence of a novel virus

Epidemiologic factors

- Efficient and sustained human-to-human transmission
- Clinical severity not important consideration
  - Early cases could be “mild”
  - Later cases could be “severe”
Operational and logistical factors

- Size of the Index Cluster
- Time since first cases became ill
- Geographical characteristics of the area (e.g. accessibility, natural boundaries)
- Ability to ensure basic infrastructure and essential services
- General security situation
- Willingness of the country to decide, lead and manage
- International resources and support
Key Questions to Address During Decision-Making

1. Is there compelling evidence to suggest that a novel influenza virus has gained the ability to spread easily from person to person and initiate and sustain outbreaks in the community?

2. If so, are there compelling reasons why a containment operation should not go forward?
**Decision-Making Process**

- Country reports or verifies outbreak to WHO according to IHR
- Country and WHO joint risk assessment determines if RC operation should be launched
- Additional field assessments if information is insufficient to make a decision
- Country makes ultimate decision to launch, lead and manage
- WHO continues to advise, assess, coordinate international assistance
- Declaration of a PHEIC is not necessary to launch a RC operation
When Containment Would Not Be Done

- Novel influenza virus could not be confirmed
- Not operationally feasible, including for security reasons, to rapidly implement at the necessary level
- National authorities do not support the operation
- Virus has already spread too far and containment no longer feasible
Containment Feasible? Location and Number of Cases

- One location
- Limited number of cases

- One location
- Large number of cases

- Multiple locations
- Large number of cases
Containment Feasible?

Setting and Population Density

• Rural area
• Low population density

• Urban area
• High population density

Photos provided by WHO
Rapid Containment:

How to implement
Geographic Containment: Index Cluster

- Identify an “Index Cluster” of cases as early as possible
- Implement routine control measures
- Use antivirals to treat cases and prophylax contacts
Geographic Containment: Containment Zone

- Create geographically-defined “Containment Zone” to include cases and contacts
- Implement perimeter controls
- Extensive use of pharmaceutical and non-pharmaceutical interventions
- Define a “Buffer Zone” around the Containment Zone
- Where new cases most likely to appear
- Implement active and complete surveillance
- No movement restriction

Perimeter controls
No perimeter controls
How to Determine Size and Shape of Containment and Buffer Zones

- Known movements and geographical distribution of cases and contacts
- Local or national administrative boundaries
- Natural boundaries
- Infrastructure and essential services (e.g. power, water, food)
- Location of healthcare facilities and laboratories
Rapid Containment:
Activities in the Containment Zone
Pharmaceutical Interventions in the Containment Zone

- All well persons given 20 days of antiviral prophylaxis

- Why 20 days?
  - Increase the time most persons on prophylaxis or treatment at the same time
  - Uncertainty about the emerging virus; e.g. possibility of longer incubation period than seasonal influenza
  - Packaging considerations – blister pack of 10 tablets

- WHO global stockpile of oseltamivir can be used; countries must be ready to receive and distribute

- Possible role for vaccine if available
Getting Antivirals Where They Need to Go In-Country

- Who will guarantee expedited clearance through customs
- Who will provide security at the airport, during transit or storage
- How will antivirals be moved to the site of the outbreak
- Who will move them
- How will they be distributed and monitored

World Health Organization
Perimeter Controls in the Containment Zone

*Discourage all non-essential movement of persons as this is where persons are most likely to be infected or exposed*

- Post signs and other reminders
- Establish clear entry and exit points
- Perform exit screening (e.g. question travellers, measure temperature, issue certificate)
- Ideally, close major air, land and sea transit points in CZ
- Allow entry of essential goods and services; provide antiviral prophylaxis for persons who must enter
Non-pharmaceutical Interventions in the Containment Zone

Necessary to reduce the possibility that a non-infected person will come into contact with someone who has influenza and is infectious

- Community-wide practice of hand and respiratory hygiene
- Use of multiple measures
  - Isolation of ill persons
  - Voluntary quarantine of exposed persons
  - Social distancing measures (e.g. close schools, cancel mass gatherings)
  - Other ways to minimize person density (e.g. staggered work and market hours)
- Support needed to reduce impacts (e.g. social, economic)
Surveillance in the Containment Zone

- Objectives
  - Identify and laboratory confirm suspect cases
  - Monitor the evolution of the outbreak
  - Evaluate effectiveness of containment operation
  - Guide decisions to modify, continue or end operation

- Strategy
  - If large number of suspect cases, do active and passive surveillance and lab confirm only a sample of cases
  - After antiviral prophylaxis completed, do active and complete surveillance and lab confirm all cases
Assess Key Characteristics of the Novel Virus

- Population-level
  - Reproductive number (Ro)
  - Intergeneration time

- Patient-level
  - Efficacy of antiviral agents for treatment and prophylaxis
  - Vaccine effectiveness (if used)
  - Disease severity (e.g. CFR, hospitalization rates)
  - Spectrum of disease (e.g. asymptomatic cases)
  - Incubation period

- Virus
  - Resistance to antiviral agents

Photos provided by CDC
Rapid Containment:

Activities in the Buffer Zone
Surveillance in the Buffer Zone

Objectives

- Identify new cases – “leakage” from CZ
- Assess if measures in CZ working
- Guide decisions to modify (e.g. extend border of CZ), continue, or end operation

Strategy

- Active and complete surveillance to detect all possible cases
- Lab confirmation of ill suspect cases essential
Management of Suspect Cases and Contacts in the Buffer Zone

- Prompt and aggressive action to eliminate any possible focus of pandemic influenza
- Isolate suspect cases and start antiviral therapy (pending viral test results)
- Identify household and other close contacts
  - Place in voluntary home quarantine
  - Start antiviral prophylaxis
Perimeter Controls in the Buffer Zone

- No access into Containment Zone
- No restrictions on transit out of Buffer Zone
Rapid Containment:

Other Key Activities
Where does communications fit in to containment?

- Supports and integrates all aspects of rapid containment
- Organizes and guides information dissemination to persons inside and outside the Containment and Buffer Zones
Rapid Containment Communications: Objectives

- Provide information that is timely and easily understood
- Instill public confidence about containment operation
- Convey realistic expectations about stopping a pandemic
- Promote compliance with containment measures using culturally-sensitive approaches
- Identify and address inaccuracies, rumours
- Reduce stigmatization of affected groups
- Prepare for possible pandemic if containment does not succeed
Situation Assessment and Monitoring: What Types of Data Are Needed?

- Surveillance/epidemiologic data
- Virological data
- Compliance with containment measures
- Healthcare utilization and capacity
- Essential infra-structure needs
## Duration of Containment

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<thead>
<tr>
<th>Time</th>
<th>Containment Activities</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Surveillance in CZ and BZ</td>
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<td>Week 2</td>
<td>Perimeter controls and NPIs in CZ</td>
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<td>Week 3</td>
<td>Antiviral prophylaxis in CZ</td>
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<td>Week 4</td>
<td>Continue for few months</td>
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<td>Week 5</td>
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**World Health Organization**
Challenges of Rapid Containment

- Extraordinary advance planning and coordination by WHO and countries to implement rapidly

- Global response to provide necessary human, financial, technical and logistical resources

- Clear organizational structure at global and national levels with well-defined roles, responsibilities, chains of communication and the authority

- Adherence to ethical principles within a framework of international human rights.