

Pandemic Influenza Response –
*Impact on Provincial Vaccine and
Surveillance Programs*

TARRANT Annual Meeting
March 10, 2006

Karen Grimsrud, MD
Deputy Provincial Health Officer
Alberta Health and Wellness

Outline

- Background
- Alberta's plan for pandemic influenza
- Vaccine
 - Making vaccine available
 - Alberta's plan for delivery
- Surveillance
 - Pandemic influenza phases
 - Proposed surveillance activities

What Are We Preparing For?

- A public health emergency that is inevitable but unpredictable in timing and epidemiology
- Arrival of the pandemic virus in Canada within 3 months of its appearance elsewhere (may be much more rapid)
 - 1st peak in illness 2 to 4 months after the arrival of the virus in Canada

What Are We Preparing For?

- Outbreaks will occur simultaneously in multiple locations, although different areas of the country may experience peak activity at different times
- In a local community a pandemic wave will generally last 6-8 weeks but this can vary
- A pandemic may last 12 to 18 months and more than one wave may occur within a 12 month period

Health Impacts Of Pandemics

- The majority of the population (over 70%) will be infected
- 15-35% clinically ill over the course of the pandemic with:
 - 25% illness rate over 6 weeks in the first wave
 - up to 50% will seek outpatient care
 - 1% will be hospitalized
 - 0.4% will die

Health Impacts In Canada

Scenario for a pandemic of moderate severity with no vaccine or antivirals available:

- 11,000 to 58,000 deaths
- 34,000 to 138,000 hospitalizations
- 2 to 5 million outpatients
- 4.5 to 10.6 million clinically ill but no formal care

Economic costs:

- health care: \$330 million to \$1.4 billion
- societal (lost productivity): \$5 to \$38 billion

Health Impact In Alberta

- 0.5 - 1.3 million people will be clinically ill
- 264,000 - 617,000 outpatients (4 times a 'normal' influenza season)
- 5,600 - 13,000 hospitalized (4 times 'normal')
- 1,100 - 2,600 deaths (8 times 'normal')

Avian Influenza A (H5N1)

- Deadly strain of influenza in poultry that is currently sweeping through parts of Asia, Africa, Europe and the Middle East
- Widespread distribution, not controllable
- Since June 2005, confirmed in poultry outside of Asia
- Although primarily a poultry infection, a relatively small number of human cases have occurred
 - Contact with poultry
 - Very high fatality rate

Avian Influenza A (H5N1)

- Human cases in 7 countries: Viet Nam, Thailand, Cambodia, Indonesia, China, Turkey and Iraq
- 95 deaths in 175 reported cases (*Mar.6/06*)
- Expanding geographic range allows increasing opportunity for human cases to occur = increased opportunity for the virus to improve its transmissibility

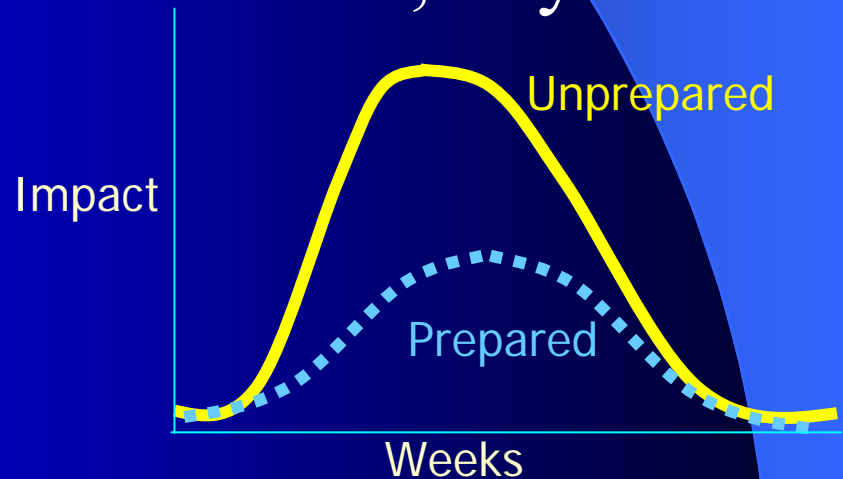
What Is The Pandemic Threat?

- WHO – “present risk of a pandemic is great, but unpredictable in terms of timing and severity” – closest point since 1968
- Potential exists to ignite next pandemic - all conditions for a pandemic have been met except for one
 - √ Susceptible human host
 - √ Novel virus
 - √ Virus is infectious in humans
 - √ Virus is highly pathogenic
 - × Efficient person-to-person spread

What Can Be Done?

- Cannot prevent a pandemic, but...
- Can slow the arrival and lessen the impact through advanced planning at all levels
- Slow spread, decrease illness/deaths, buy time

- Good surveillance
- Antiviral treatment and vaccine when available
- Coordinated health services plan



4 Levels Of Health Planning

- 1 Global - World Health Organization
- 2 National - *Canadian Pandemic Contingency Plan*
- 3 Provincial - *Alberta Pandemic Influenza Plan*
- 4 Local – Regional Health Authority plans



Alberta Pandemic Influenza Contingency Plan

Alberta Pandemic Influenza Contingency Plan

Draft 2002

Overview Of The Alberta Plan

6 Key Areas

- **Surveillance** – arrival and extent/severity
- **Vaccine and antiviral medication** – for all Albertans, by priority groups
- **Health Services** - to provide the best care for the most people possible
- **Communications** – for the public and health care providers
- **Public Health Measures** - non-medical interventions
- **Municipal/emergency preparedness**

Role Of Vaccine

- Vaccine will be the primary means of decreasing morbidity and mortality
- Goal – vaccinate all Canadians
- Vaccine cannot be produced until after the pandemic influenza strain is identified (4-6 months)
- Supply will be limited initially, therefore the need for priority groups

Making Vaccine Available

- Reduce lag time between detection and production
- Address regulatory and marketing issues
- Maintain a state of production readiness
- Expand production of current (egg-based) vaccine
- Evaluate dose-sparing technology
(adjuvants, intramuscular vs. intradermal route)
- Accelerate development of modern (non-egg) vaccines

Vaccine Procurement

- Goal - ensure security of supply of vaccine to produce 100% of domestic need
- 10 year contract with ID Biomedical (GSK) to produce 8M doses/month for pandemic
 - Increase capacity for annual production
- Mock H5N1 vaccine trials to decrease time from production to delivery
 - To begin fall 2006

Vaccine - 'Who Does What'

- Federal government
 - Ensure vaccine production
 - Fund production?
- Provincial + Federal governments
 - Definition of priority groups
- Provincial government
 - Distribution plans – 100% through public health
 - Fund production?
- RHAs
 - Vaccine delivery

Provincial Plans For Vaccine Delivery

- Goal: immunize 75% of the Alberta population within 4 months
 - RHAs planning for 2-dose schedule of vaccine to be delivered in 4 months, with priority given to providing the 2nd dose one month after the first (as availability permits)
 - Use of mass immunization clinics
- Vaccine will be allotted to RHAs on a per capita basis as it becomes available

Provincial Plans For Vaccine Delivery

- Alberta will adopt the national recommendations for priority groups
- Providers – RHA plans will determine use of health care professionals beyond PHNs
 - May include physicians as per annual flu vaccine program
 - Must consider feasibility of physician delivery

Provincial Plans For Vaccine Delivery

- Reporting requirements have been developed to document vaccine utilization and adverse reactions
- Focus during this 4-month period will be delivery of pandemic influenza vaccine
 - No pneumococcal vaccine will be provided
 - All routine childhood immunization will be deferred for at least 4 months

Current Vaccine Priority Groups

1. Front-line health care providers, essential health care providers, public health responders and key health decision makers
2. Societal responders and key societal decision makers
3. Persons at high risk of complications*
 - Persons in nursing homes
 - Persons with medical conditions living in the community
 - Those >65 years old and 6-23 months of age
 - Pregnant women
4. Healthy adults (18 – 64 years)
5. Children 24 months to 17 years of age

Pandemic Phases - Drive Surveillance

- WHO; three “periods” and six global phases
 - Inter-pandemic
 - Pandemic Alert
 - Pandemic
- New emphasis on the prolonged existence of a virus with pandemic potential
- Canadian plan uses WHO phases + indicator of activity within Canada
 - 0 – no activity
 - 1 – sporadic activity
 - 2 – localized or widespread activity
- Alberta phases reflect indicator of activity in Alberta

Pandemic Phases

Inter-pandemic Period

- **Phase 1** – No new influenza virus subtypes detected in humans, subtype that has caused human infection may be present in animals, risk of human infection is low
 - 1.0 In animals outside Canada
 - 1.1 In animals inside Canada
- **Phase 2** – Circulating animal influenza virus subtype poses a substantial risk of human disease

Pandemic Alert Period

- **Phase 3** – Human infection(s) with a new subtype, but no H-H spread or, at most, rare instances of spread to a close contact
 - **3.0 Human infections outside of Canada
- **Phase 4** – Small cluster(s) with limited H-H transmission but spread is highly localized, suggesting virus is not well adapted to humans
 - 4.0 Small clusters outside Canada
 - 4.1 Single case(s) but no clusters inside Canada
 - 4.2 Small localized clusters in Canada

Pandemic Alert Period

- **Phase 5** - Larger cluster(s) but H-H spread still localized, suggesting that virus is becoming increasingly better adapted to humans but may not yet be fully transmissible (substantial pandemic risk)
 - 5.0 Large clusters outside Canada
 - 5.1 Sporadic infections but no clusters inside Canada
 - 5.2 Localized large clusters inside Canada

Pandemic Period

- **Phase 6** – Increased and sustained transmission in general population
 - 6.0 No cases detected in Canada
 - 6.1 Single case(s) detected in Canada
 - 6.1.0 Outside Alberta
 - 6.1.1 Inside Alberta
 - 6.2 Localized or widespread pandemic activity in Canada
 - 6.2.0 Outside Alberta
 - 6.2.1 Inside Alberta - sporadic cases
 - 6.2.2 Inside Alberta – localized/widespread activity

Surveillance Activities In Alberta - General

- Phases 1-4: Continue as per annual surveillance
 - Must ensure surveillance capacity is optimal in the inter-pandemic period, eg. number of sentinel physicians
- Phase 5: Increased surveillance activities
 - To ensure early detection (and therefore response)
- Phase 6: As resources permit
 - To determine impact on Albertans

Surveillance Activities In Alberta - Laboratory

- Phases 1-4: Continue specimen submission as per annual surveillance (sentinel physicians, community physicians and public health)
- Phase 5: Add antiviral resistance testing
 - Strain identification and monitoring for resistance
- Phase 6: Stop swabbing except for sentinel physicians in triage centers?

Surveillance Activities In Alberta - Epidemiologic

- **Outbreaks** (in schools, LTC and hospitals)
 - Phases 1-4: Continue as per annual programs
 - Phase 5: Stop surveillance activities at phase 5.2.2
 - Phase 6: Nil
- **Acute Care Surveillance** (number of ER visits, hospital and ICU admissions)
 - Phases 1-4: Continue as per annual programs
 - Phase 5: Increase surveillance
 - Phase 6: As per phases 1-4, at triage sites only (?)

Surveillance Activities In Alberta - Epidemiologic

- **Physician visits** (sentinel physicians % ILI, GP billing for ILI)
 - Continue throughout
- **Absenteeism** (AHW employees)
 - Continue throughout
- **School closures** (through Alberta Education)
 - Start in phase 4.2.2 and continue
- **Mortality** (all causes, pneumonia, etc)
 - Phase 4: Continue on weekly basis for all causes
 - Phase 5: Increase through daily manual counts at Vital Statistics
 - Phase 6: To be determined

Priority Data Requirements In Phase 6

- Deaths/week
- Admissions to ICU
- Hospital admissions/week
- Triage centre use
- Absenteeism rates

Use sentinel hospitals to obtain data on admissions to ICU and hospitals??

Role of Sentinel Physicians

- As regular reporting becomes less robust, sentinel physician reporting will become *more* important
- Sentinel physician surveillance will provide the main source of information for impact on the general public
- Proposed changes in Phase 6
 - Switch to reporting % ILI only from office practices?
 - Swabbing only in triage centers?

Acknowledgements

- Vaccine - Elaine Sartison
- Surveillance - Larry Svenson and Kim Simmonds