

BC IMMUNISATION FORUM 2009

ONTARIO'S UNIVERSAL INFLUENZA IMMUNISATION PROGRAMME:

LESSONS LEARNED

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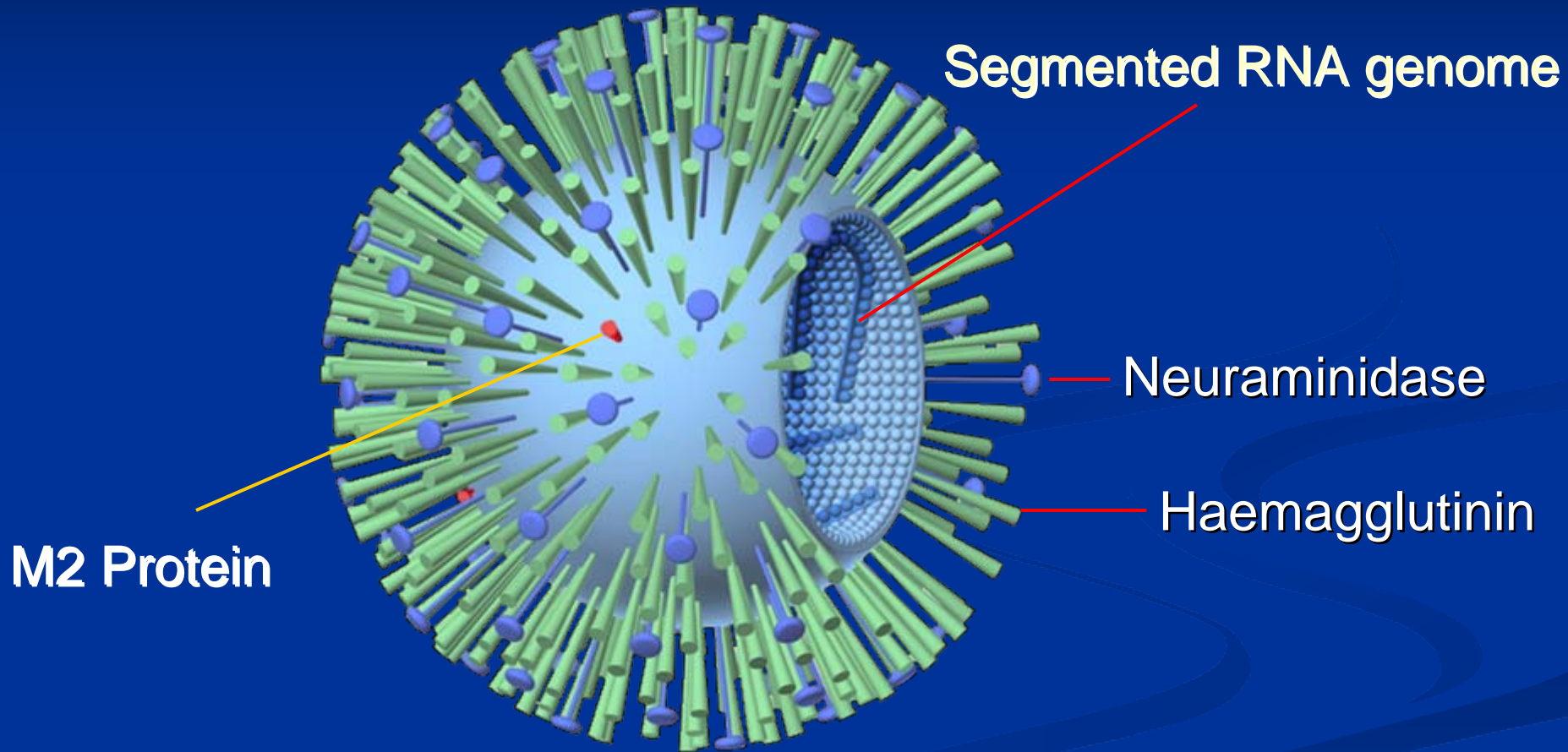
OUTLINE

- influenza
- why we need to control it?
- influenza vaccine – pros & cons
- rationale for the UIIP
- implementation issues
- evaluation
- has it been worth it?

INFLUENZA VIRUS

- An orthomyxovirus
- 3 antigenic types: A, B & C
- Epidemic disease is caused by types A & B
- Influenza A viruses are sub-classified by two surface antigens:
 - HAEMAGGLUTININ (HA)
 - NEURAMINIDASE (NA)

Influenza Virus Structure and Surface Proteins



INFLUENZA VIRUS

- Influenza virus is a one of the most confounding organisms that cause disease in humans
- Influenza is always a moving target
- Disease burden varies from year to year

IMPACT OF INFLUENZA

In 2007-08 (2006-2007), there were:

	<u>BC</u>	<u>Ontario</u>	<u>Canada</u>
A	589 (613)	2452 (2845)	7050 (7116)
B	477 (40)	1733 (47)	5199 (1017)

IMPACT OF INFLUENZA

Annually in Canada:

- 2000 to 6000 deaths
- 70 000 hospitalisations
- 1 000 000 bed days
- cost: over \$500 000 000

Influenza outbreaks cause significant morbidity even in healthy persons

INFLUENZA VACCINE: PROS

- safe:
 - common side effects are relatively trivial:
 - injection site pain
 - fever, malaise, myalgia
 - serious side effects are relatively rare:
 - GBS: 1 additional case per million doses
 - anaphylaxis
 - systemic vasculitis

INFLUENZA VACCINE: PROS

- effectiveness:

- 70-90% effective in healthy adults

- reduces: pneumonia
 hospitalisation
 death

in the elderly & medically compromised

INFLUENZA VACCINE: CONS

- Provides 70 to 90% protection against circulating strains in healthy persons²
- Protection may be less in the elderly and medically compromised
- only effective when there is a strain match
- has to be administered annually

RATIONALE FOR THE UIIP

- ↓ circulation of influenza (need ? 60-70% coverage)
- fewer cases → fewer deaths
- fewer ER visits → lower costs to the treatment system
- reduce workplace absenteeism

UIIP ANNOUNCEMENT

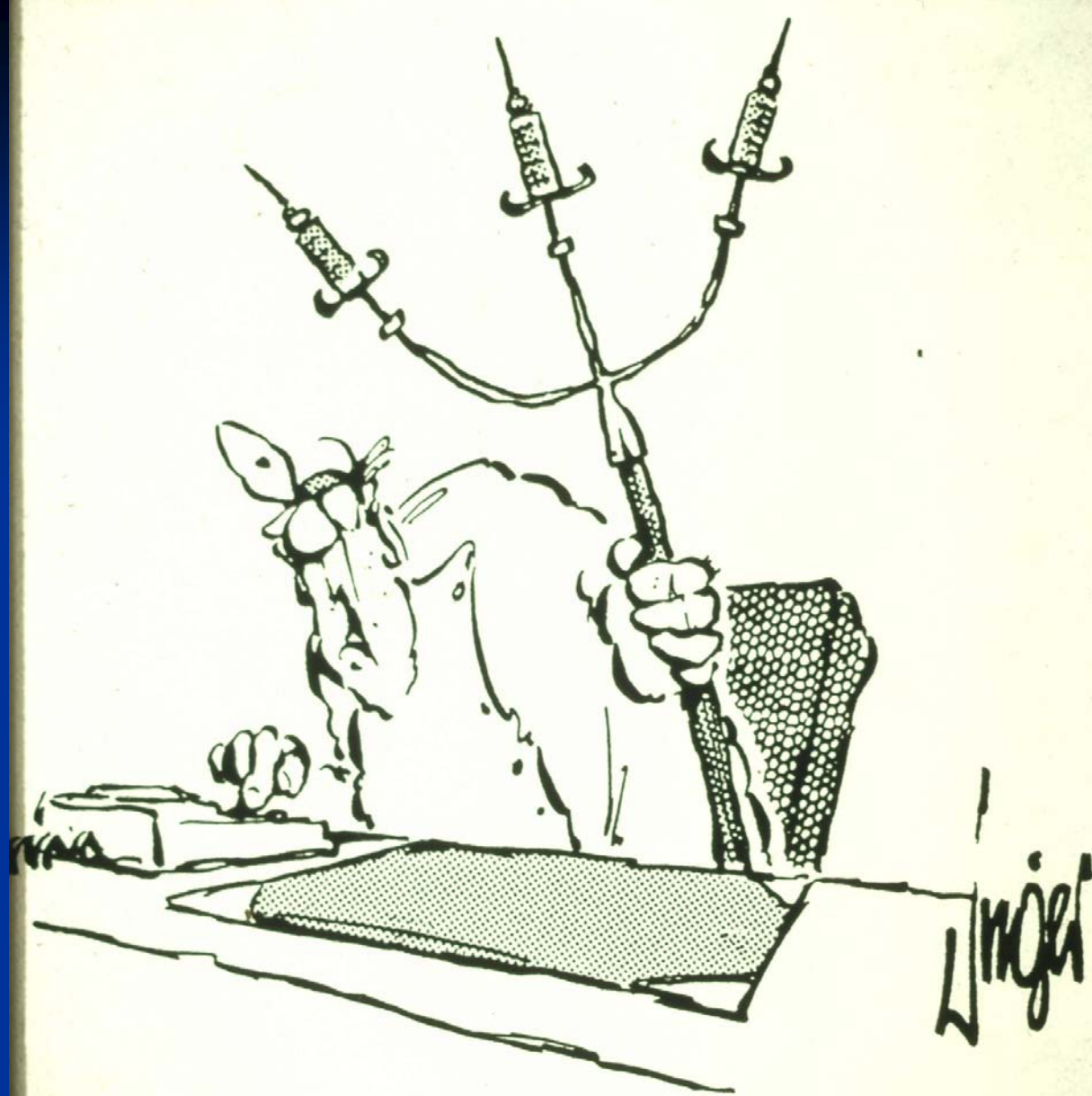
- July 2000
- press conference featuring the Minister, the CMOH and the president of the OHA at a hospital in Toronto
- no prior notification of the public health system

IMPLEMENTATION CONCERNS

- little lead time
- HBV vaccine was already given in October & November (now HPV vaccine)
- guessing how many would accept the vaccine and in which preferred venues

ESTIMATING NUMBERS

- next to impossible
- $N = 12\,000\,000$ potential vaccine recipient over 2-3 months
- people will do what they want:
 - too many staff: inefficient
 - too few staff: chaos

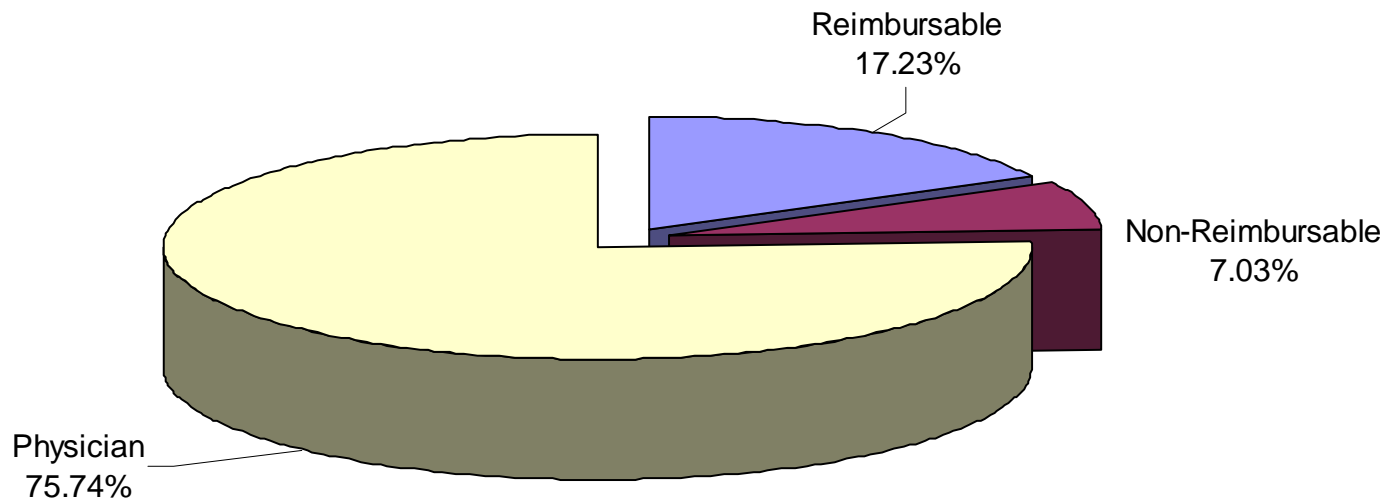


"Send in the next three patients."

ESTIMATING NUMBERS

- the public is unpredictable
- there were orders of magnitude more people to immunise
- the Public Health system has to depend on family physicians for this programme
- impact on other public health programmes can be significant

Proportion of UIIP vaccine administered in physician offices



Source: UIIP Database, MOHLTC

FINDING LOCATIONS

- comfortable, reasonable waiting areas
- parking
- privacy
- churches, malls, large supermarkets worked well

FINDING LOCATIONS

- What did not work well:
 - schools
 - seniors' residences

PICKING TIMES AND NUMBERS OF VACCINE CLINICS

- largely unpredictable
- seniors like mornings
- families prefer evenings and weekends
- geographic and temporal spread
 - different times of day
 - over a period of several weeks

PICKING TIMES AND NUMBERS OF VACCINE CLINICS

- people who really want the vaccine all show up on the first day (e.g. snowbirds)
- consider crowd control
- ensure that the facility can manage the demand
- hope that vaccine is available when promised
- hope that the weather co-operates

STAFFING

- programme co-ordinator is a sine qua non
- does one use:
 - regular vaccine programme staff
 - regular public health staff
 - casual staff
- training
- immunise all staff

BUDGET

- there needs to be remuneration for vaccine administration for all immunisers
- per dose fee should be the same as FPs receive
- consider the effect of hiring casuals versus paying overtime to regular staff

BUDGET

- other cost considerations:
 - facility fees
 - supplies
 - mileage
 - meals?

PROGRAMME COSTS

- 40 000 000\$ for the vaccine
- 4 000 000\$ for promotion provincially
- 5\$ per dose for PH, 8.50\$ per dose for FPs
- 5 000 000\$ for PH, 35 000 000\$ for FPs

PROGRAMME PROMOTION

- provincial ads
- local promotion of influenza vaccine
- advertising times and locations

OTHER PROGRAMME ISSUES

- informed consent:
 - active discussion
 - passive: paper or video

- supplies:
 - 5 year supply with stock rotation

OTHER PROGRAMME ISSUES

- cold chain

- wastage: over 250 000 doses per year

- record-keeping:
 - a consistent system used province wide is best
 - automated, unique identifier if at all possible
 - absolutely needed for evaluation, AEFI follow up

EVALUATION OF THE UIIP

- important, essential for a 40 000 00\$ programme
- not initially part of the UIIP
- initially led to publications critical of the programme
- finally PHAC facilitated and funded evaluation



Can a Universal Influenza Immunisation Programme Reduce ED Volume? ¹

D. L. Groll and B. Henry, Queen's University

- Looked at ER visits in Kingston, Ottawa & London
- Found that only 0.34% of ER visits were owing to influenza
- Concluded that a UIIP is unlikely to affect ER volume

Incidence of Influenza in Ontario following the Universal Influenza Immunisation Campaign¹

Dianne L. Groll and David J. Thomson, Queen's University

- Purpose: to determine whether the incidence of influenza in Ontario has decreased following the introduction of the Universal Influenza Immunization Campaign (UIIC) in 2000.
- Methods: all laboratory-confirmed influenza cases in Ontario, from January 1990 to August 2005 were analyzed using multitaper time series analysis.
- Findings: no decrease in the mean monthly influenza rate following the introduction of the UIIC (109.5 (S.D. 20) versus 160 (S.D. 50.3) $p > 0.1$)
- Conclusions: Despite increased vaccine distribution and financial resources towards promotion, the incidence of influenza in Ontario has not decreased following the introduction of the UIIC.

Appropriate measures of influenza immunisation programme effectiveness¹

Jeffrey C. Kwong, Thérèse A. Stukel, Allison J. McGeer and Douglas G. Manuel,

- Groll and Thomson used per capita cases of laboratory-confirmed influenza.
- argue that these data are susceptible to biases and should not be used as an outcome measure.
- laboratory data are traditionally used to identify the presence of influenza activity rather than to identify levels of influenza activity.
- better measure of viral activity is the proportion of influenza tests positive; whereas the weekly proportion of tests positive was relatively consistent, a marked increase over time in the numbers of laboratory-confirmed cases paralleled an increase in the number of tests performed.
- for evaluating universal influenza immunization program effectiveness, other established and available measures employed in previous studies describing the epidemiology of influenza should be used instead of laboratory data.

The Effect of Universal Influenza Immunization on Mortality and Health Care Use¹

Jeffrey C. Kwong, Thérèse A. Stukel, Jenny Lim, Allison J. McGeer, Ross E. G. Upshur, Helen Johansen, Christie Sambell, William W. Thompson, Deva Thiruchelvam, Fawziah Marra, Lawrence W. Svenson, Douglas G. Manuel

Conclusions:

Compared to targeted programs in other provinces, ... universal vaccination in Ontario in 2000 was associated with relative reductions in influenza-associated mortality and health care use. The results of this large-scale natural experiment suggest that universal vaccination may be an effective public health measure for reducing the annual burden of influenza.

■ The vaccine works and can improve the health of Ontarians

Program Strengths

- UIIP evaluations have been conducted both internally and externally
- The vaccine and program has been effective in reaching 'target' groups
- The UIIP is recognizable by Ontarians = branding has been consistent over time

Program Strengths

- The pre-allocation process for first two shipments of vaccine streamlines the distribution process
- The decision to secure two vaccine suppliers mitigates possible supply and quality risks
- A recently introduced process of weekly teleconferences with health units, CIB and OGPMS has served to strengthen the relationships and communications across stakeholders

Program Weaknesses

- Delays in communication, promotional materials, information package; planning is too late every year
- There are policy and practice inconsistencies across immunization programs across health units
- Wastage is not recorded and thus is unknown (estimated)
- Consistent start-date each year cannot be achieved
- Reimbursable clinics have resulted in a complex delivery system that is time-consuming to manage

Program Weaknesses

- Local public health agencies may call upon other program resources to assist with influenza immunisation clinics, which are frequently difficult to staff and schedule, thus creating challenges for other local public health programs
- There is an inconsistency in vaccine distribution system in which physicians in the City of Toronto receive direct shipments and those outside the City of Toronto go through their local public health agency
- Clinic estimates of vaccine usage are not always reflective of utilization; concerns about wastage, returns and cold chain management
- Vaccine delivery requires that destinations have staff available for accepting the shipment – office closures create operational logistics for shipping and delivery schedules

HAS IT BEEN WORTH IT?

- need better uptake
- need more evaluation
- need a better vaccine
- consider opportunity costs

HAS IT BEEN WORTH IT?

- part of regular programming
- increases the visibility of PH
- younger medically compromised came out of the woodwork
- makes it easier for employers e.g. health sectors

HAS IT BEEN WORTH IT?

- may ↓ circulation & illness if coverage is high enough
- has the potential to reduce the impact of influenza
- prepares a PH infrastructure for mass influenza immunisation

Thank you.

Questions?