



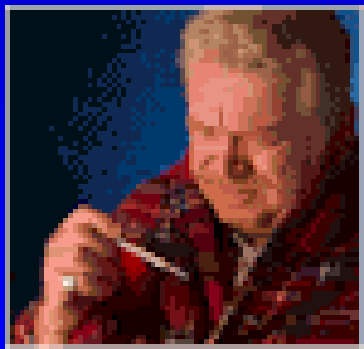
La vaccination universelle contre la grippe

Allison McGeer, MSc, MD

Mount Sinai Hospital, Toronto

6^{es} Journées annuelles de santé publique
Évaluation des technologies et
prise de décision en vaccination
Québec, 20 novembre 2002

www.inspq.qc.ca/jasp



Myth #1

We shouldn't consider universal vaccination because:

- Influenza is not a severe disease

*“Influenza is not by any means so severe or so rapidly fatal a disease as cholera, but the mortality which it has produced is greater, **as it affects almost every person in society**, while the ravages of cholera are comparatively limited.”*

Robert Graves, 1848

Influenza

Every year

5 million Canadians (1 in 6) will be infected

50,000 will be hospitalized (1:100 >65 yrs)

3,000 people will die

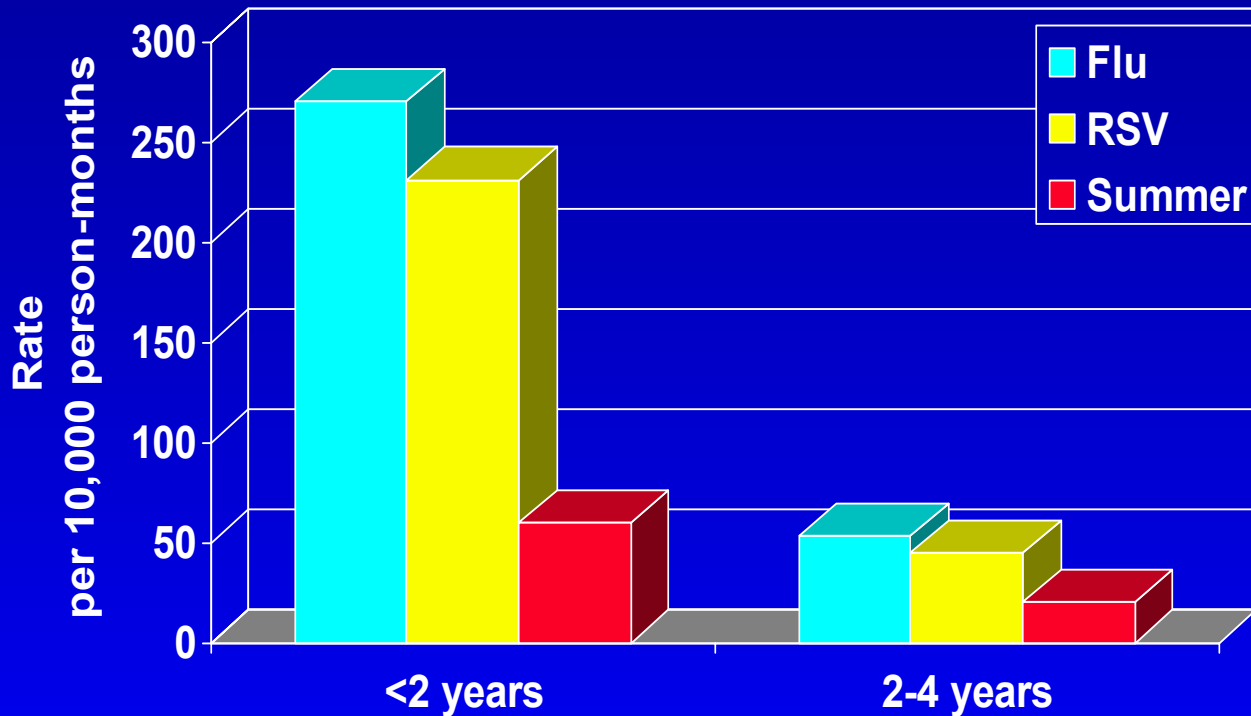
7% of 2-6 yr olds will have acute otitis media

1.5 million work-days will be lost

Excess rates of hospitalization due to influenza in children

	Age group	Admissions per 1000 children/ year
Neuzil et al.	0-1 yr	7.6
	1- 4 yr	1.9
	5- 15 yr	0.4
Izurieta et al	0-1 yr	2.1
	2-4 yr	0.44
	5-17 yr	0.07

Hospitalizations for acute respiratory illness in children



Illness in childhood

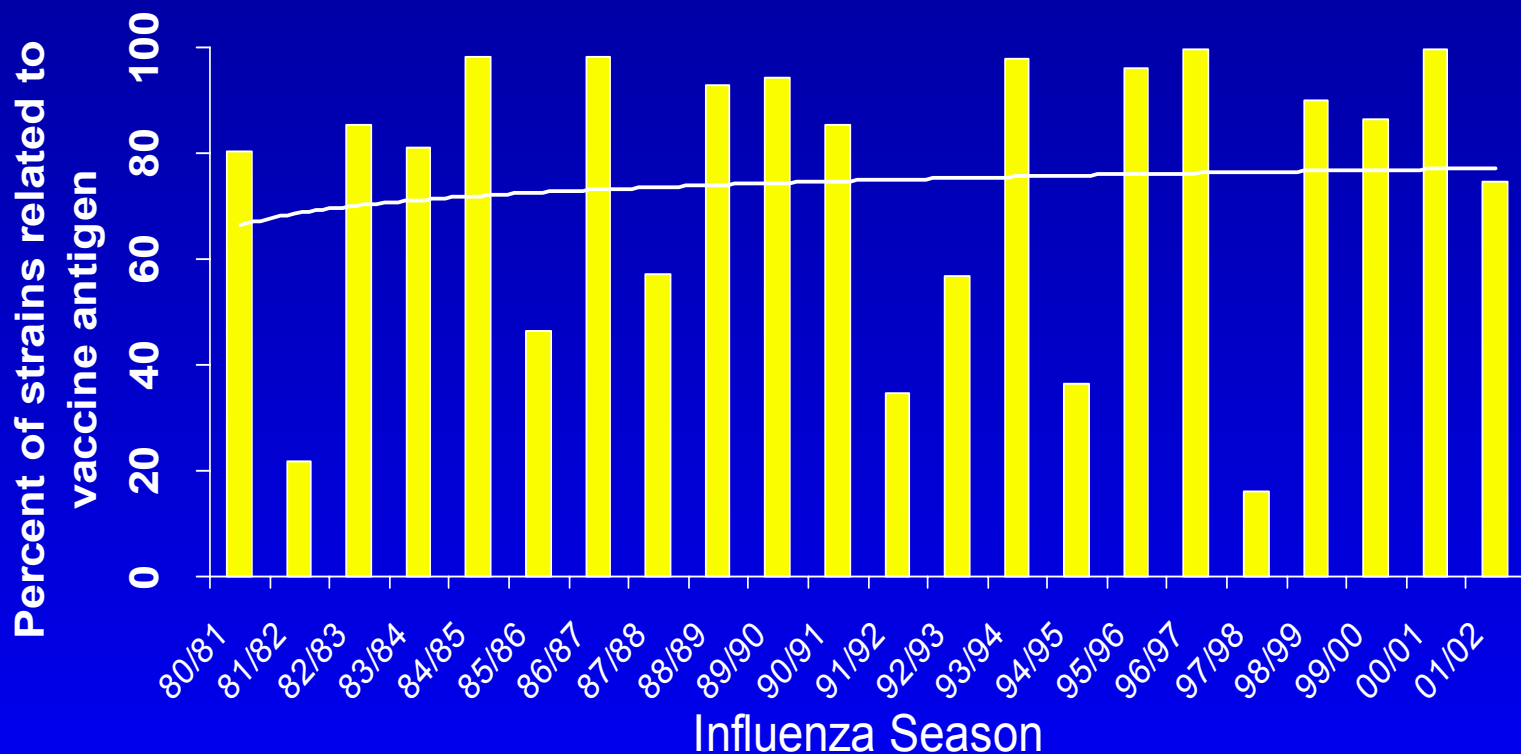
- HSC review of encephalitis
 - 94/5 - 2 cases of influenza A associated disease (both with late deficits)
 - 95-99 - 20 cases associated with influenza
- CHEO
 - 4 cases nosocomial influenza/yr, 95-99
 - 16% requiring ICU admission, median extension of LOS 5.5 days (range 2-16 days)

Myth #2

We shouldn't consider universal vaccination because:

- we're "guessing" every year about strains
- it prevents only a minority of influenza-like illness (ie. only that due to influenza)
- it doesn't prevent all influenza

Similarity of Laboratory Confirmed Influenza Infections with Vaccine Antigens, Canada



Solid line shows smoothed trend line for the overall percentage match between 1980/1 and 2001/2

- Does conjugate meningococcal vaccine protect against all meningitis?
all meningococcal meningitis?
- Does pertussis vaccine protect against all prolonged cough illness?

Does this mean these vaccines aren't important or useful?

Myth #3

We shouldn't consider universal vaccination because:

- it isn't feasible to deliver annual vaccine to that many people

Recommendations for influenza vaccination

Population group	Size	Cumulative proportion
>=65 yrs of age	3,989,169	13%
chronic illness: 15-64	2,593,927	22%
2-15	464,700	
Household contacts high risk	3,058,627	32%
Health care workers	1,268,380	36%
50-65 yr olds	5,221,126	53%
6mo-2 yr olds	511,594	54%

Ontario program

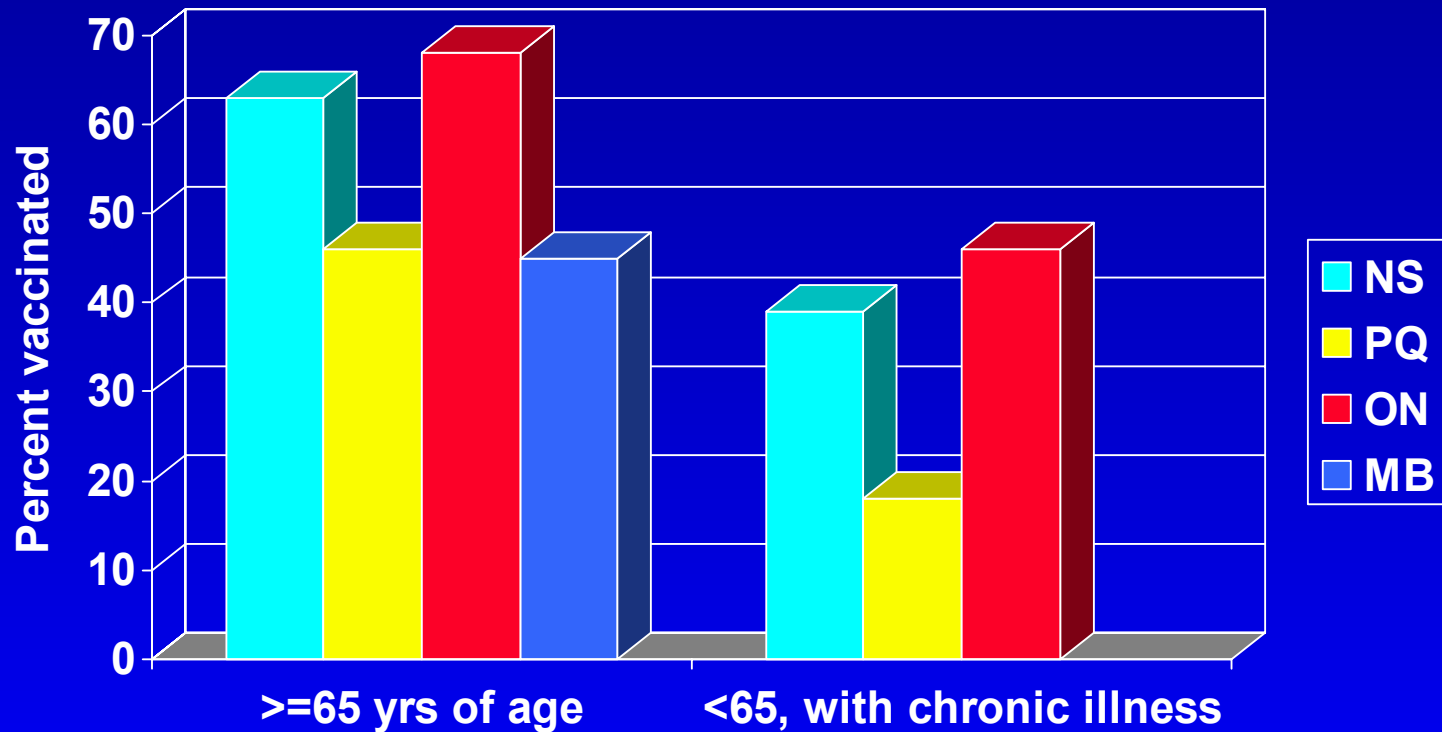
- Announced late July 2000
- Implemented October 2000
- Overall, 44% of Ontario population vaccinated in first year

Why universal vaccine?

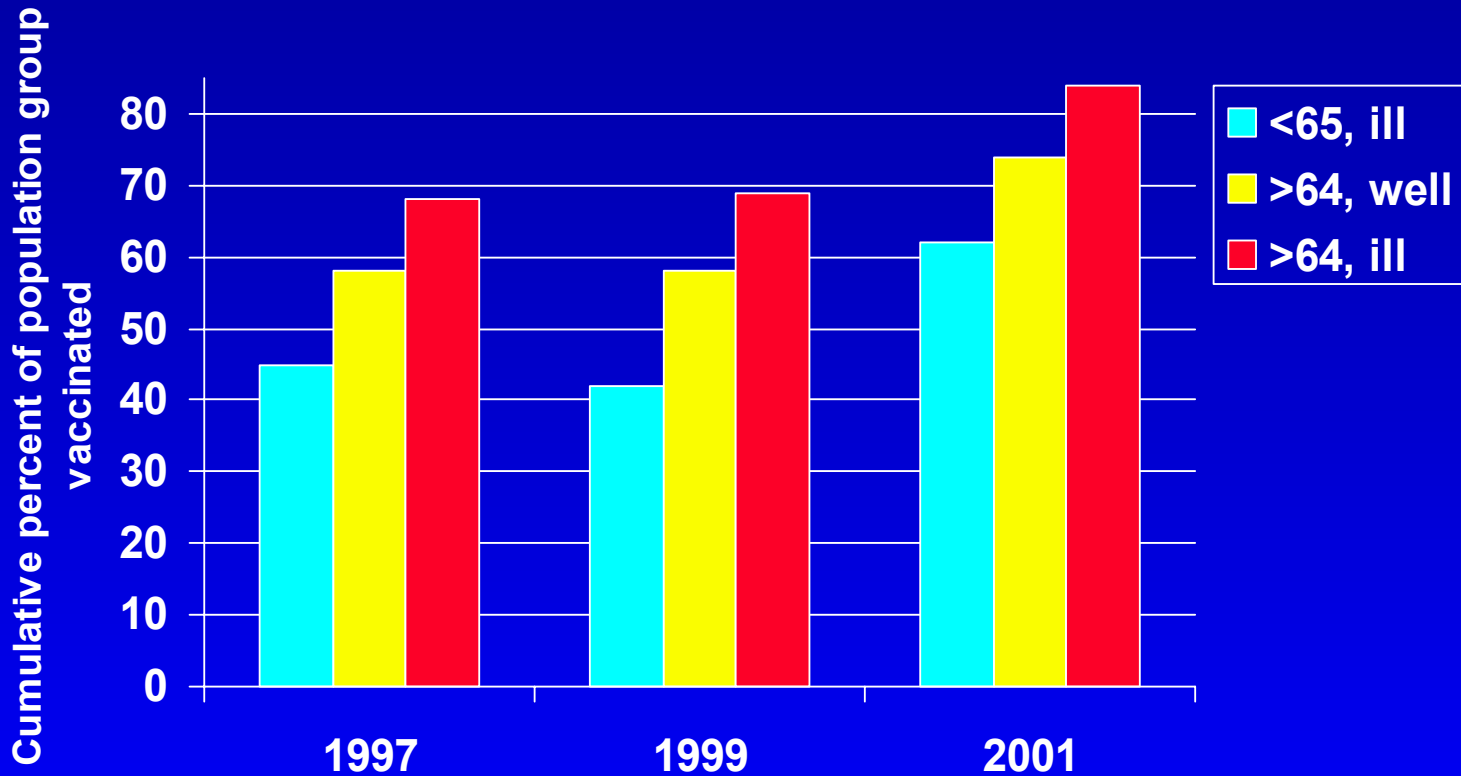
Reasons

- Achieve vaccine targets in high risk groups
- Reduce illness in healthy adults and children
- Provide herd immunity

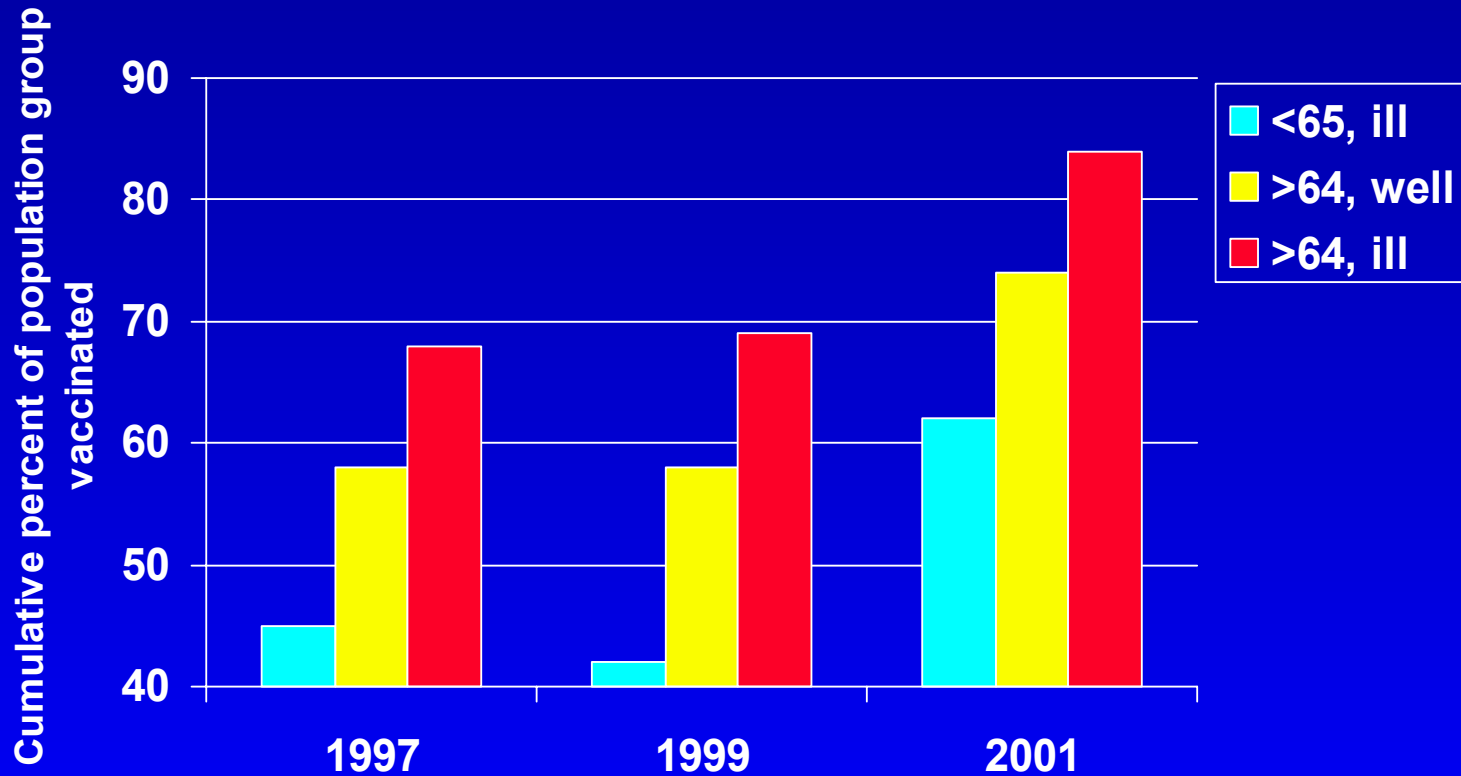
Influenza Vaccination Rates, Community



Influenza vaccination rates, by risk group, Toronto



Influenza vaccination rates, by risk group, Toronto



Reasons

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Effectiveness of influenza vaccine in healthy adults

	Reductions associated with vaccine	
	Inactivated	Cold-passaged
Episodes URI	25%	24%
Days missed work	43%	29%
Provider visits	44%	41%
Antibiotic days	-	46%

During the Canadian Consensus conference on pertussis, participants agreed that the goal of pertussis control strategy is to decrease the morbidity and mortality of pertussis across the entire lifespan. **It was further agreed that protection of adolescents and adults is a worthy goal for the benefit of these cohorts themselves and whatever the collateral benefit of protection to infants.** These goals are fully endorsed by NACI.

From the Canadian Consensus Conference Statement on Pertussis Vaccine, 2002

Morbidity in healthy adolescents/adults

Per 1000 persons/yr	Pertussis	Influenza
Incidence	3.4	60
Days missed work	17	100
Days symptomatic	142	210

Benefit/cost ratio, vaccination of healthy adults

Study	All benefit/cost ratio	Medical care benefit/cost rat
Kumpulainen,1997	.07	.02
Bridges, 2000	.55	.35
Riddiough, 1983	.68	.35
Nichol, 2001	1.8	.38
Campbell, 1997	2.0	.72
Burkel, 1999	2.5	.40
Smith, 1979	2.7	-
Levy, 1996	2.7	.15
Yassi, 1991	2.9	-
Nichol,1995	3.5	1.6
Leighton, 1996	3.6	-
Muennig, 2001	-	1.2

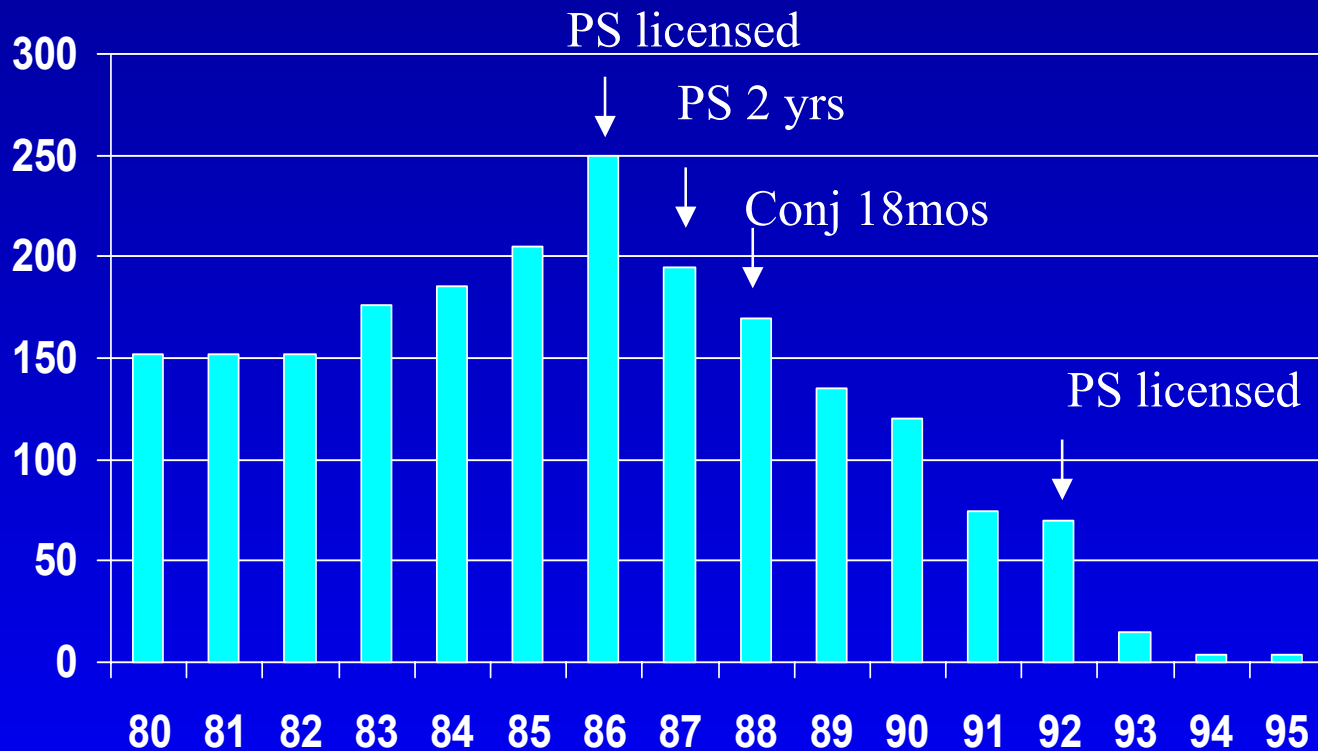
Intranasal influenza vaccine in children (*Belshe, NEJM, 1998*)

	Placebo	Vaccine	Protective efficacy
Influenza	18%	1.3%	93%
Influenza with fever	15%	0.7%	>95%
Febrile otitis media	20%	14%	30%

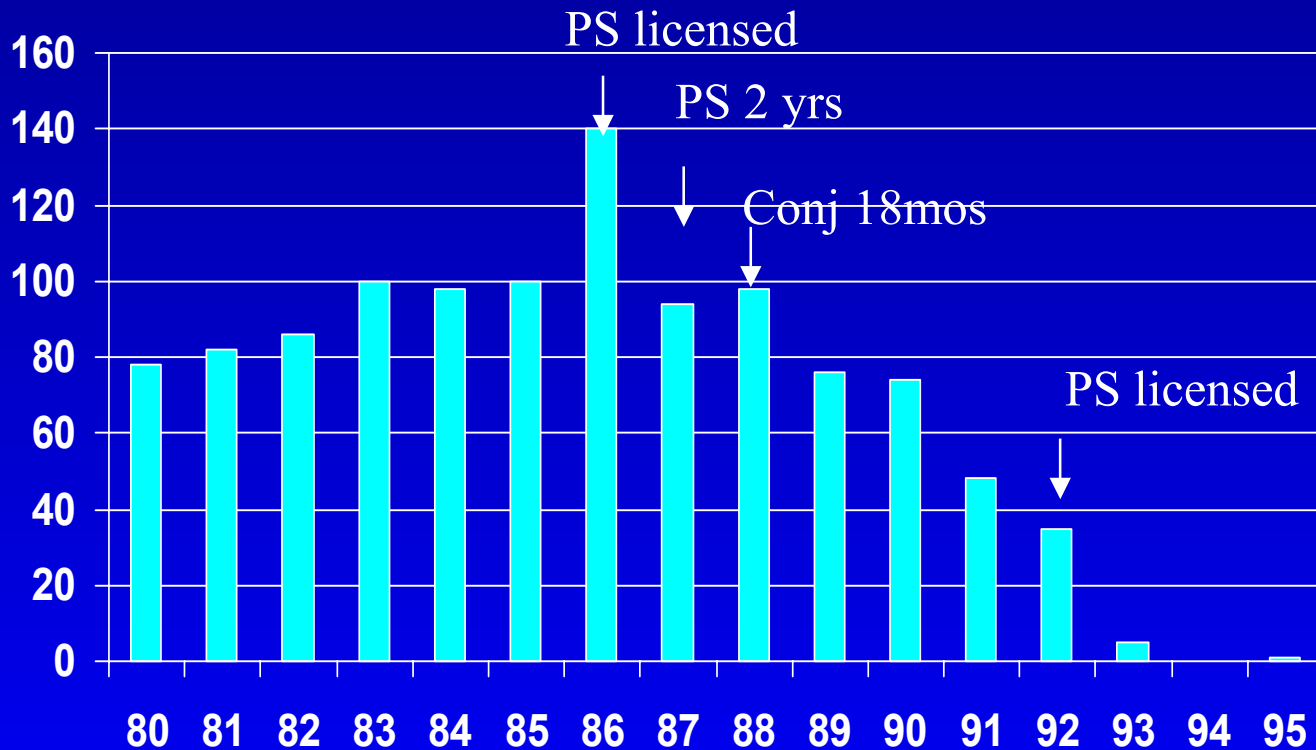
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Haemophilus influenzae, type b, Ontario, 1980-1996



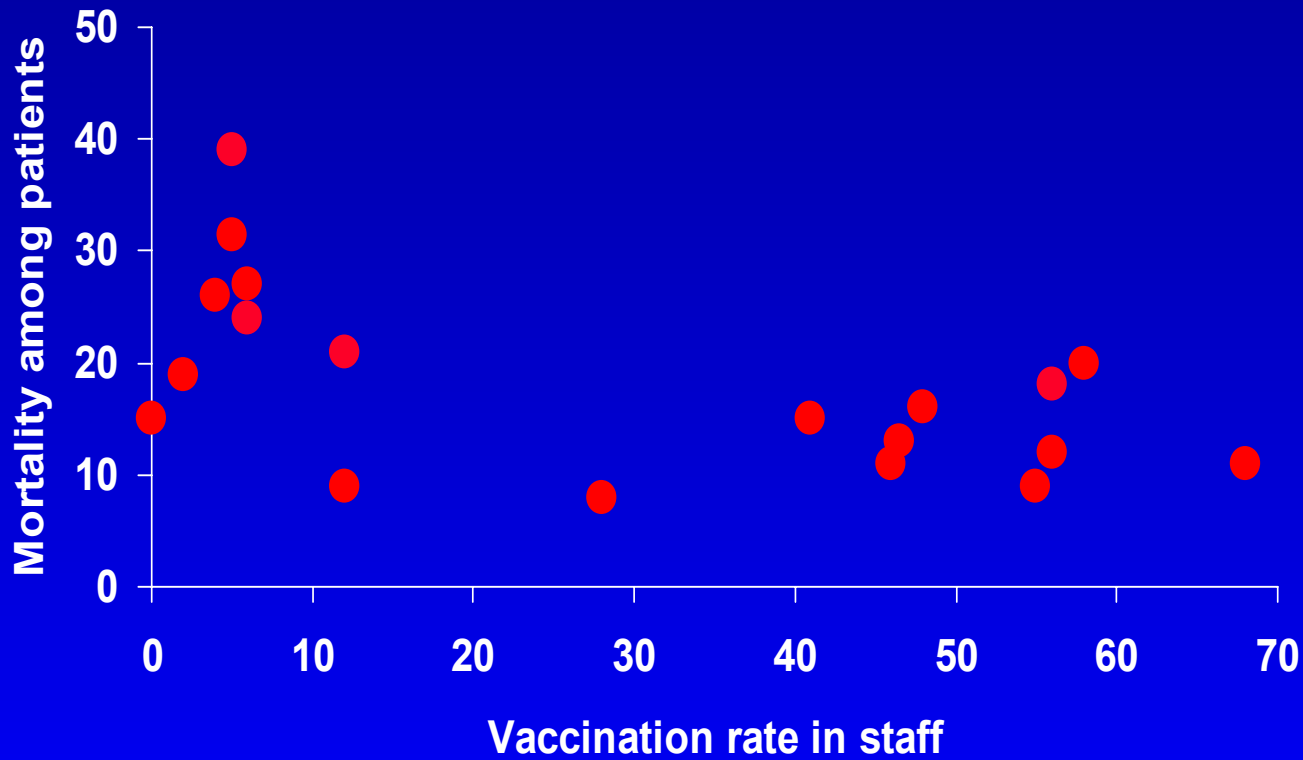
Haemophilus influenzae, type b, Ontario, 1980-1996



Effectiveness of vaccination of daycare children in reducing illness among household contacts

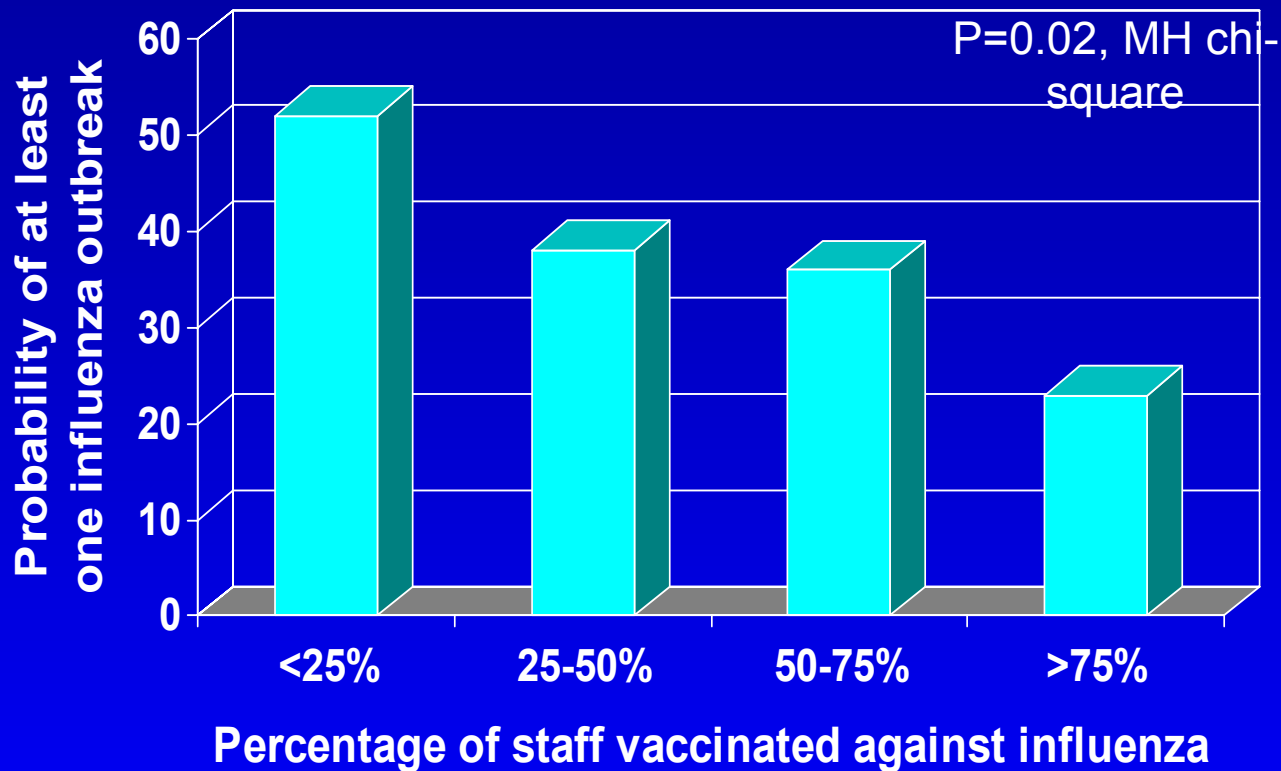
	Reduction in disease in:	
	Unvaccinated contacts	Vaccinated contacts
All respiratory disease	16% (P=.10)	22% (P=0.04)
Febrile respiratory disease	47% (P=.04)	22% (P=.38)

Vaccination uptake and mortality among patients in long term care



Carman et al. Lancet 2000;355:93

Relationship between LTCF staff vaccination rates and number of influenza outbreaks, Canada, 1998/9



Why universal vaccine?

- It will increase protection in at risk persons by increasing vaccination rates
- It will reduce morbidity in healthy adults and children
- It is cost-saving for the former, and cost-effective for the latter (without considering the impact on antibiotic use)
- There is likely a degree of herd immunity

No. viral isolates per 1000 population, by province and year

