

Adult Immunization

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- This lecture has received no external financial or in-kind support
- Potential for conflict of interest:
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 - GlaxoSmithKline
 - Merck
 - Pfizer
 - SanofiPasteur






“WHEN MEDITATING OVER A DISEASE, I NEVER THINK OF FINDING A REMEDY FOR IT,
BUT, INSTEAD, A MEANS OF PREVENTION.”

LOUIS PASTEUR

**VACCINES
CAUSE
ADULTS**

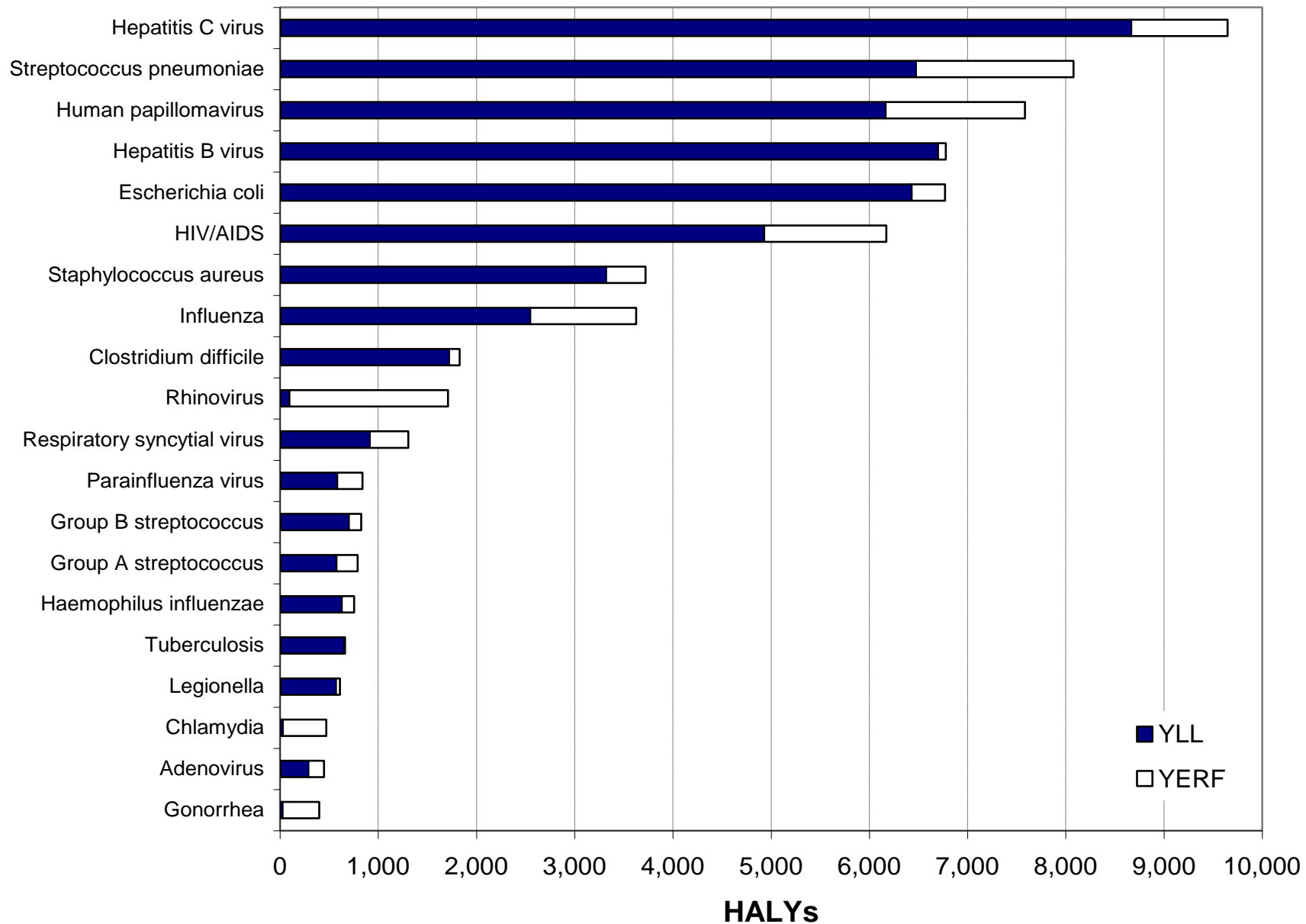
 CureGear

Vaccine/group	Percent vaccinated
Influenza vaccine, 65+	67%
Influenza vaccine, adult 18-64 years with chronic conditions	44%
Influenza vaccine, pregnant women	10%
Pneumonia vaccine, 65+	37%
Pneumonia vaccine, adults 18-64 years with chronic condition	17%
Hepatitis B vaccine, adults with liver or kidney disease	45%
HPV vaccine, women 16-24 years	45%
Pertussis vaccine, pregnant women	8%
Herpes zoster vaccine, 65+	??

Burden of communicable diseases, Canada

- 5% of all deaths/disability
- 9% of all costs (\$8.3Billion)

Burden of communicable diseases, Ontario



What is our problem?

- We don't invest in vaccines – individually or collectively
- We don't have a system built for adult vaccines
- We have double standards for vaccines and other interventions

Harvey Fineberg: Why prevention is a hard sell

<http://bcooltv.mcgill.ca/ListRecordings.aspx?CourseID=6485>

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“The flu shot doesn’t work well enough to warrant vaccination”

- Influenza vaccine reduces your chances of influenza and of hospitalization due to influenza by 25-60%
- Statins reduce your risk of a heart attack, or of dying from coronary artery disease by 28%
- Lowering blood pressure reduces risk of MI by 20%-25%, and of stroke by 35%-40%
- Blood thinners for atrial fibrillation reduce the risk of stroke by 50-60%
- Bisphosphonates reduce the risk of osteoporotic hip fractures by 40-50%

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Vaccines to incorporate

- Influenza
 - High dose for adults >65 years of age
 - Vaccination in pregnancy
- Pertussis in pregnancy
- Pneumococcal vaccines
- Shingles

High dose influenza vaccine for over 65 year olds

- What and why?
 - Same vaccine with 4x the concentration of antigen
 - Trivalent (missing second B strain)
 - 24% more effective against 3 strains in trivalent vaccine
 - Versus quadrivalent: lose 10% efficacy against 4th strain (15% of total)
 - Increased risk of sore arm (36% vs 24%); 1-4% excess of usually mild systemic side effects (malaise, fatigue)
- Who should get it?
 - Anyone over 65 years of age
- Who pays for it? MOHLTC (this year, anyway)

Influenza vaccine for pregnant women

- What and why?
 - Any influenza vaccine is acceptable
 - Evidence from multiple randomized controlled trials that influenza vaccination during pregnancy
 - Reduces the risk of LBW and SGA in infants
 - Reduces the risk of influenza in infants <6 months old
 - Reduces the risk of influenza in pregnant women
- Who should get it?
 - All pregnant women (and others who will be in close contact with infants)
- Who pays? MOHLTC

Pertussis vaccine for pregnant women

- What and why?
 - Pertussis vaccination given as combination dTaP
 - Burden of severe disease and mortality is in infants (due to physical characteristics of airways)
 - Protection of infants requires high antibody levels, and these levels decline rapidly after vaccination
- Who should be vaccinated?
 - Pregnant women – EVERY pregnancy – at 27-32 weeks (but 13 weeks to delivery ok if that is what is feasible)
- Who pays?
 - MOHLTC pays for 1 dose per adult

Pneumococcal vaccine

- What and why?
 - Two vaccines available - conjugate and polysaccharide
 - Conjugate vaccine (Pevnar13, PCV13) includes fewer serotypes (N=13), but has better data supporting it, likely lasts longer, and can be boosted
 - Polysaccharide vaccine (Pneumovax) includes more serotypes (N=23), but has no RCT data to support it, loses efficacy over time, and cannot be boosted
 - Best recommendation:
 - conjugate vaccine followed 8 or more weeks later by polysaccharide
- Who should be vaccinated?
 - Everyone 65 years of age and over, those 15-64 with underlying organ system disease or immunosuppression
- Who pays?
 - MOHLTC for polysaccharide vaccine, and PCV13 for 50+ with immunosuppression
 - Some insurance companies for conjugate vaccine

Shingles vaccine

- What and why?
 - 2 different vaccines
 - Zostavax™ – live attenuated vaccine (14x concentration of varivax)
 - Shingrix™ – inactivated, adjuvanted subunit vaccine, 2 doses
 - Shingrix more effective (>90% vs 67%), but more reactogenic (16% of persons with interference with ADL)
- Who should be vaccinated?
 - Adults 60 years and older
- Who pays?
 - MOHLTC for Zostavax for 65-70 year olds
 - Some insurance companies for Zostavax and/or Shingrix

Interventions to increase adult immunization

Intervention	Odds ratio
Organizational change (e.g. standing orders, separate clinics devoted to prevention)	16.0
Provider reminder	3.8
Provider education	3.2
Patient financial incentive	3.4
Patient reminder	2.5
Patient education	2.3

Resources

- Public Health Agency of Canada – guide to adult immunization
 - <https://www.canada.ca/en/public-health/services/publications/healthy-living/just-kids-adult-guide-vaccination.html>
- Immunize Canada – resources
 - <https://immunize.ca/resources>
- CDC standards for immunization practices
 - <https://www.cdc.gov/vaccines/hcp/adults/for-practice/standards/index.html>
- CDC strategies for increasing immunization uptake
 - <https://www.cdc.gov/vaccines/hcp/adults/for-practice/increasing-vacc-rates.html>
- US Immunization Action Coalition – Vaccinating Adults, A Step-by-Step Guide
 - <http://www.immunize.org/guide/>