

IFA



INTERNATIONAL FEDERATION ON AGEING  
Global Connections

 **VACCINES  
4LIFE**

# BARRIERS TO VACCINATION IN AT-RISK GROUPS



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**ADULT VACCINATION**   
*A Canadian Perspective*

# THE UNDERAPPRECIATED BURDEN OF INFLUENZA and PNEUMONIA AMONGST CANADA'S OLDER POPULATIONS... and What We Can Do About It!

**IFA Adult Vaccination Series**

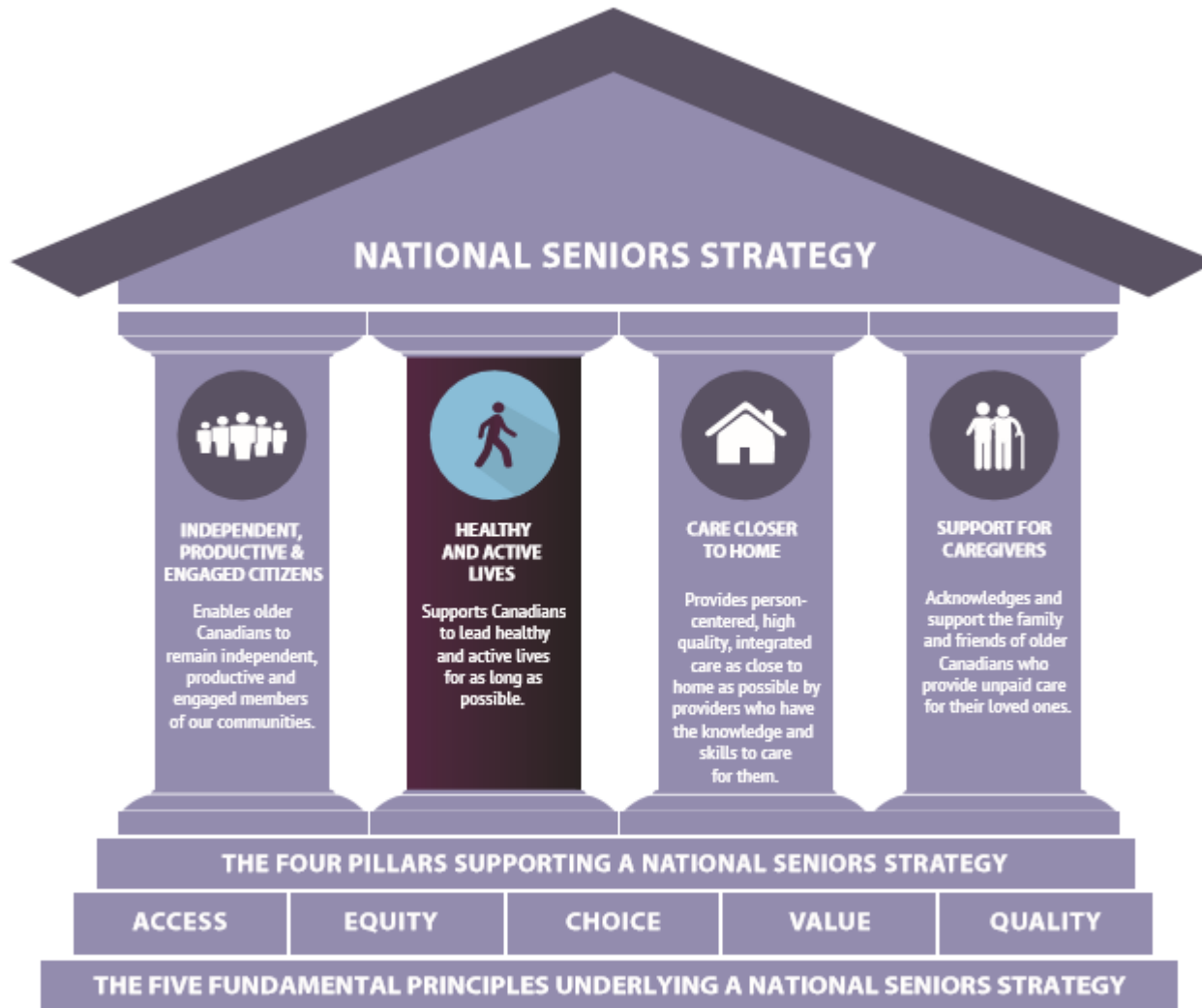
April 30<sup>th</sup>, 2019



# The National Institute on Ageing

- The NIA was established in 2016 at Ryerson University to provide evidence-based public policy innovation and advice and to promote best-practices for ageing well.
- It is Canada's first think-tank focused exclusively on cross-disciplinary research, thought leadership, innovative solutions, public education, and public policy on ageing.

# Immunization Represents a Key Tenet of Promoting “Healthy + Active Lives”



# NIA Influenza + Pneumonia Report Goals

With the support of an unrestricted educational grants from Sanofi Pasteur and Pfizer we wanted to:

- Characterize the actual burden of influenza and pneumococcal disease (including pneumonia) amongst older Canadians
- Explain the current state of evidence around and policies on influenza and pneumococcal immunization in Canada.
- Focus attention on the challenge to achieve Canadian and WHO immunization targets for both older Canadians and Health Care Professionals.
- Establish clear recommendations to move the policy and practice agenda forward in Canada on immunizations.



# Our Policy Report Development Process

- Our NIA team led an environmental scan of the current literature and stakeholder interviews
- The following also served as Expert Contributors and Reviewers to the *Influenza* Policy Report:
  - Dr. Michael Gardam, Dr. Allison McGeer, Mr. Colin Busby, Dr. Janet McElhaney, Dr. Jacob Udell, and Dr. Jeff Kwong
- The following also served as Expert Contributors and Reviewers to the *Pneumonia* Policy Report:
  - Dr. David N. Fisman, Dr. Dawn Bowdish, Dr. Natasha Crowcroft, and Dr. Allison McGeer
- These report represents the first two of three planned reports on immunizations for older Canadians with Shingles to follow within the year.

# APPRECIATING THE BURDEN OF INFLUENZA IN CANADA

# Influenza is a LEADING Cause of Death in Canada





# The Annual Impact of Influenza



## In Canada

Influenza cases peak during our November to March 'flu' season.<sup>18</sup>

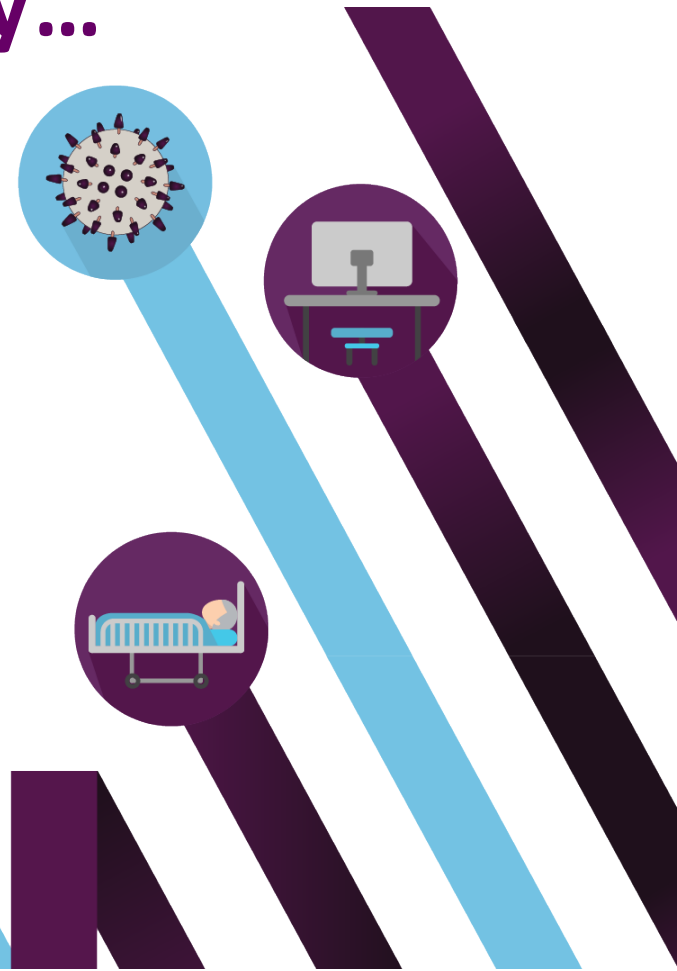
Influenza has been reported to cause an average of 12,200 hospitalizations annually.<sup>19</sup>

Influenza has been reported to cause an average of 3,500 influenza-related deaths annually.<sup>20</sup>

**Influenza is Canada's LEADING cause of death amongst vaccine-preventable diseases.**

# Influenza Has A MASSIVE Impact on Our Economic Productivity...

Influenza leads to an estimated **1.5 million** lost work days each year.

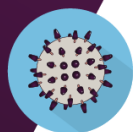


# Populations at Higher-Risk for Influenza...

- Those with the following chronic conditions:
  - Heart or lung conditions (i.e. CHF, Asthma/COPD)
  - Diabetes
  - Conditions that compromise the immune system
  - Kidney disease
  - Dementia
  - History of stroke
  - Blood disorders
  - Neurologic and neurodevelopmental conditions
  - Morbid obesity
- Other groups at increased risk:
  - People  $\geq 65$
  - Children  $\leq 5$
  - Pregnant Women
  - Indigenous Individuals
  - Nursing Home Residents

# Those $\geq 65$ Suffer A Disproportionate Influenza Burden...

For those hospitalized with influenza, **65%** had an underlying condition.



Influenza can lead to severe consequences especially for those at risk for its complications. Did you know?



For those who died from influenza complications, **85%** had underlying risk factors.

# Why Do Those $\geq 65$ Suffer A Disproportionate Influenza Burden?

Why Are Older Adults Particularly Vulnerable to Influenza? Introducing the Concept of Immunosenescence.

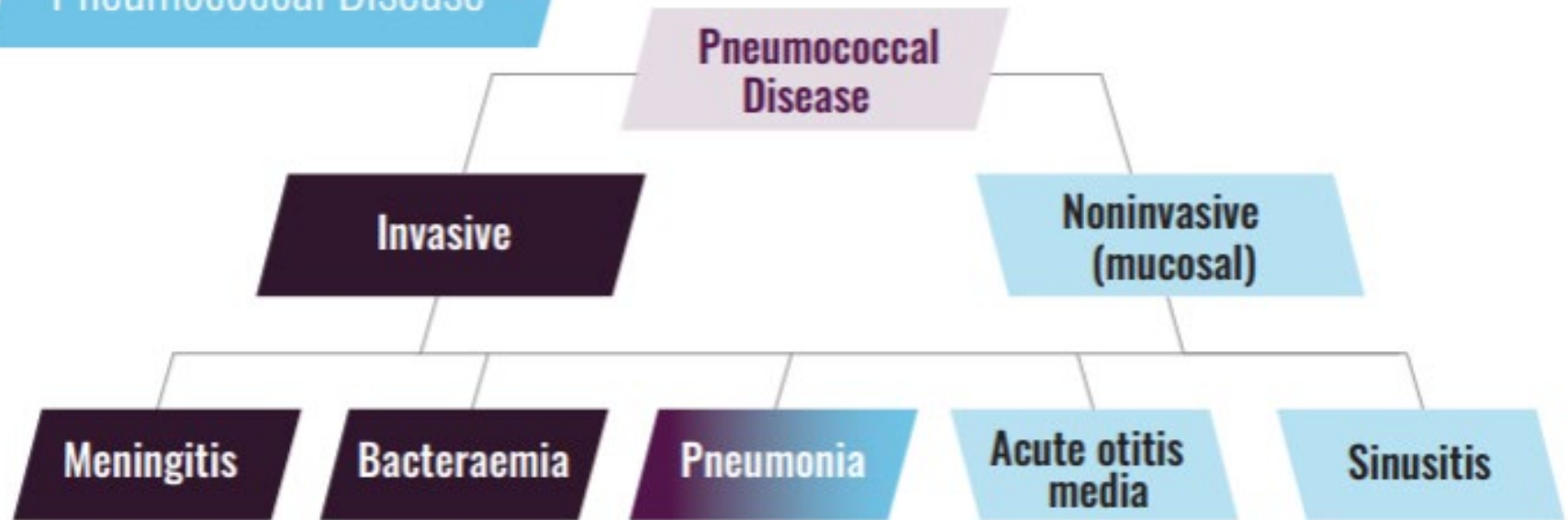
Older adults naturally have diminished immune system functioning as they age, and are more likely to contract influenza and less likely to respond well to the vaccine.<sup>51</sup>



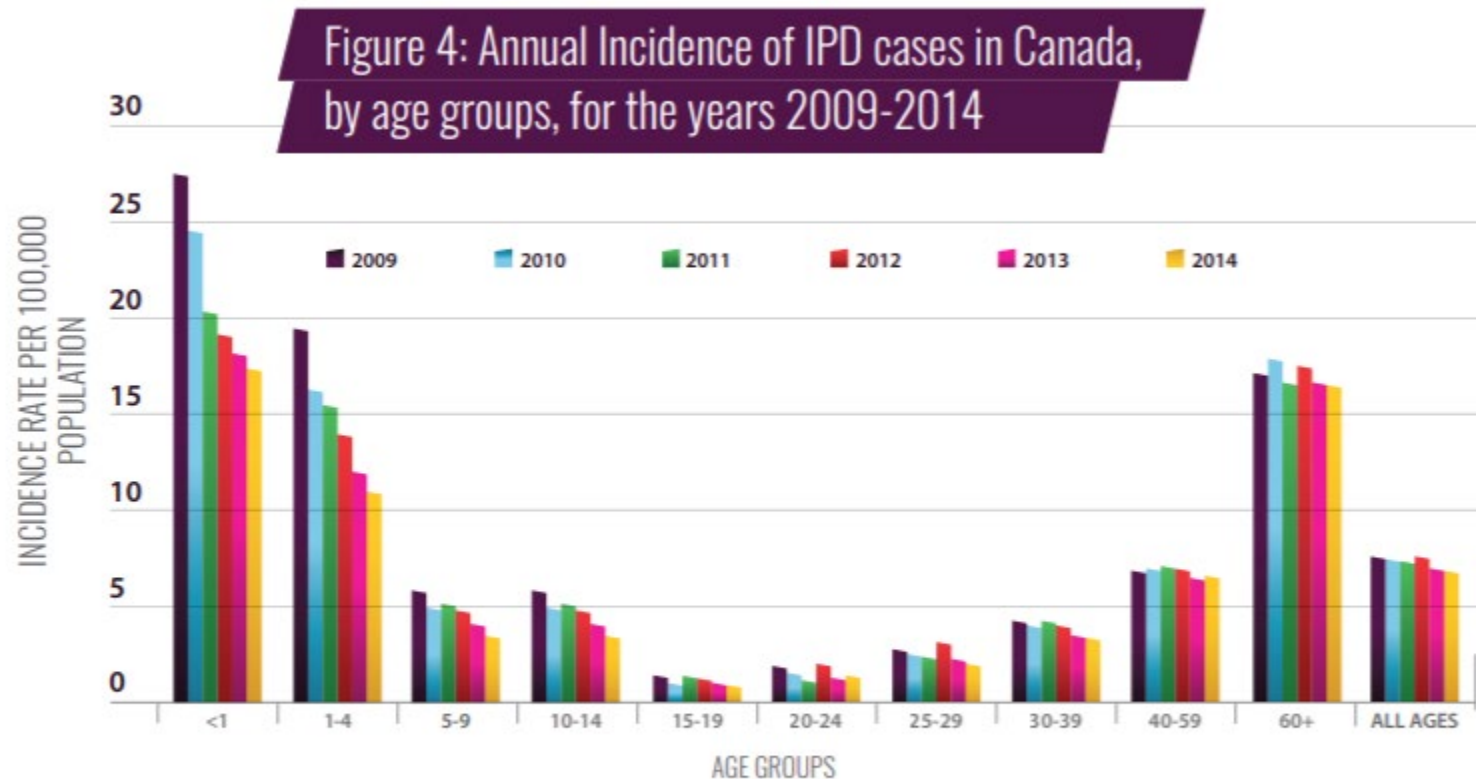
# APPRECIATING THE BURDEN OF PNEUMOCOCCAL DISEASE IN CANADA

# What is Pneumococcal Disease?

Figure 1:  
Pneumococcal Disease<sup>12</sup>



# Annual Incidence of Invasive Pneumococcal Disease in Canada



Source: Demczuk, W.H.B., Griffith, A., Singh, R., Montes, K., Sawatzky, P., Martin, I., & Mulvey, M. (2015). National Laboratory Surveillance of Invasive Streptococcal Disease in Canada – Annual Summary 2014. Retrieved from: <http://www.healthycanadians.gc.ca/publications/drugs-products-medicaments-produits/2014-streptococcus/alt/surveillance-streptococca-eng.pdf>



# People Living with Chronic Conditions are at Increased Risk of Pneumococcal Disease

According to Canada's National Advisory Committee on Immunization (NACI) the following conditions put people at increased risk of both becoming infected and experiencing worse outcomes:

1. chronic heart, kidney or lung disease
2. chronic liver disease, including cirrhosis
3. diabetes mellitus
4. conditions that affect the immune system, such as HIV
5. having your spleen removed or a spleen that does not work properly
6. sickle cell disease
7. organ or stem cell transplant
8. cochlear implants
9. neurologic conditions that may impair clearance of oral secretions<sup>15</sup>



# Pneumonia Hospitalization Rates

## Hospitalization rates of Pneumonia - Over 75 Years Old<sup>8</sup>

Females	1,003 per 100,000
Males	1,303 per 100,000

## Hospitalization rates of Pneumonia - 70-74 Years Old<sup>8</sup>

Females	331 per 100,000
Males	450 per 100,000

## Hospitalization rates of Pneumonia - 65-69 Years Old<sup>8</sup>

Females	226 per 100,000
Males	280 per 100,000

# Pneumonia is A Leading Cause of Death

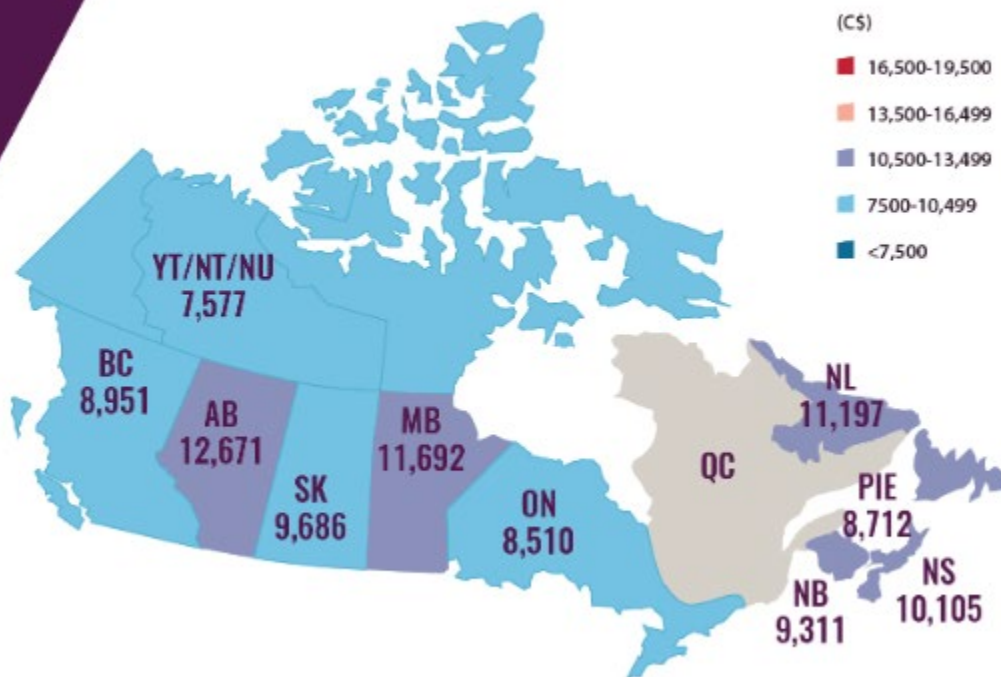
Together with influenza, pneumonia was the **8th leading cause of death in Canada** in 2016.



In 2016, influenza and pneumonia led to **6,235 deaths**, of which **5,491 deaths** were for those over the age of 65.

# Average Cost of Pneumonia per Case by Province, 2015

Pneumonia  
Average Cost  
per Case by  
Province,  
2015



# INFLUENZA AND PNEUMOCOCCAL VACCINATION POLICIES AND OUTCOMES IN CANADA

# Influenza and Pneumonia in Older Adults

- Those who have influenza and later contract pneumonia have worse outcomes and increased incidence of hospitalization
- Due to the combined effects of pneumonia and influenza, it is recommend that individuals over age 65 are vaccinated against both infections



# Influenza Vaccination Policies in Canada

- It is recommended for all Canadians over 6 months of age
  - *Particular focus on: groups at high-risk including those  $\geq 65$ , pregnant women, and those with chronic conditions*
- 7 provinces and all territories provide universal funding
  - *Those that don't provide universal funding are: British Columbia, Quebec, and New Brunswick*
- Pharmacists can now offer the Influenza Vaccine in 9 provinces across Canada including Ontario.

# Pneumococcal Vaccination Policies in Canada

- All provinces and territories cover the PPV23 vaccine for adults over 65
- All provinces and territories cover the PCV vaccine for children,
  - *The age of eligibility for coverage varies*
- All provinces and territories have some coverage for those living with chronic conditions
  - *The recommended schedules and conditions covered vary*



# Different Types of Pneumococcal Vaccines

- Pneumococcal Polysaccharide 23-Valent Vaccine (PPV23)
  - Made up of long chains of sugar molecules that make up the surface ‘polysaccharide’ capsule of certain bacteria
  - Also known as “Pneumovax23”
- Pneumococcal Conjugate Vaccine (PCV)
  - Polysaccharide is combined with a protein molecule, allowing for a better immune response in infants and immunocompromised populations
  - 2 types in Canada: PCV10 or “Synflorix” (used routinely in Quebec) and PCV13 or Prevnar-13

# Summary of Funded Schedules for Canadians

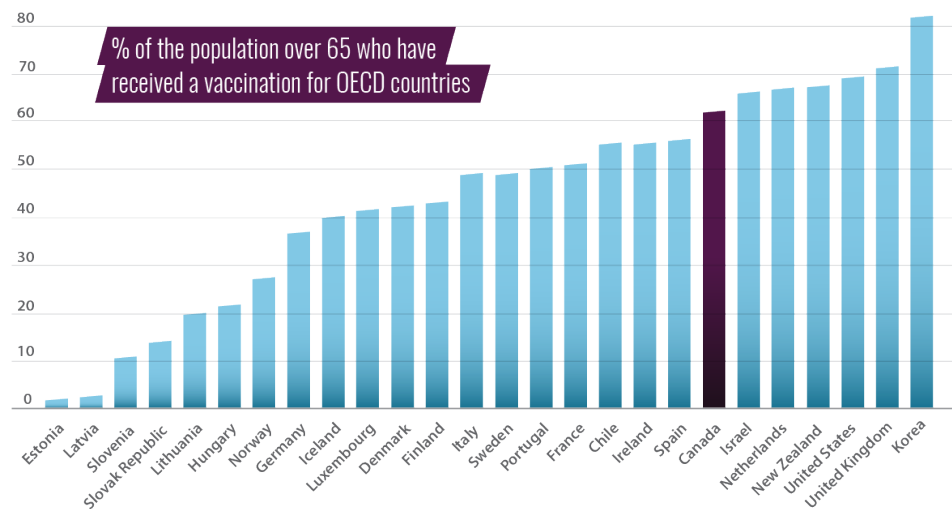
Summary of Funded Recommended Schedules for Canadians <sup>15</sup>		
AGE/CONDITION	Pneu-P-23	Pneu-C-13
Healthy Children (2 months - 5 years)		✓
Children at high risk of IPD (2 months - less than 18 years)	✓	✓
Adults 18-64 with chronic health conditions	✓	
Adults 18-64 in long-term care homes, or who are smokers, living with alcoholism, or homeless persons	✓	
All adults over age 65- with or without risk factors	✓	
Adults with a compromised immune system	✓	✓

<sup>15</sup>Please note: there may be exceptions to the above table, please refer to <https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci.html> for all up-to-date recommendations from NACI



# Our Influenza Vaccination Rates are Below Target

Despite making some progress in promoting vaccination uptake, Canada still lags behind many other countries like the United States and Britain.



# Influenza Vaccination Rates in Canada

- Only 29% of Canadians aged  $\geq 12$  and 62% aged  $\geq 65$  were vaccinated against influenza
  - *This is much lower than the Public Health Agency of Canada's target of 80%*
- Nova Scotia achieves the current **highest** overall rate of coverage
- Quebec has the current **lowest** rate of coverage
- Ontario's rates **decreased** from 2006/2007 to 2013/2014

# Influenza Vaccination Rates in Canada

- Older Canadians  $\geq 85$  having the highest rate of coverage at 74%
- Vaccination Rates however have decreased for those  $\geq 85$  by 11% and those  $\geq 65$  by 9% from 69 to 60% between 2006-07 and 2013-14.
- In one study all ethnic groups (except Black Canadians) were more likely to have received the influenza vaccination than Caucasian Canadians.



Research has found that in provinces where pharmacists are able to administer the influenza vaccine, more people are vaccinated.<sup>149</sup>

# Vaccination Rates for Health Care Providers

- Only 50% of health care providers are vaccinated against influenza

Influenza immunization rates among health care personnel, by occupation

Occupation	Flu shot in last 12 months, % (95% CI)
Specialist physician	59 (51-67)
Family physician or general practitioner	72 (65-79)
Dentist	44 (31-57)
Optometrist	32 (17-47)†
Chiropractor, midwife or practitioner of natural healing	4 (1-7)†
Pharmacist	50 (43-58)
Dietitian or nutritionist	61 (50-72)
Physiotherapist	44 (36-51)
Occupational therapist	51 (39-62)
Nurse	57 (55-60)
◦ Head nurse or supervisor	53 (45-62)
◦ Registered nurse	58 (55-60)
◦ Licensed practical nurse	59 (54-64)

# Pneumococcal Vaccination Rates in Canada

- Only 80% of Canadians aged <2 and 42% aged ≥ 65 were vaccinated against pneumococcal disease
  - *This is much lower than the Public Health Agency of Canada's target of 80% for older adults and 95% for those under the age of two*
- Only 17% of Canadians aged between 18 and 64 and living with a chronic condition were vaccinated against pneumococcal disease



# Canadians Do Not Known Enough About Vaccines

In 2016, **88%** of Canadians responding to a PHAC survey reported that they were up-to-date on their vaccinations, but only **3%** were found to be actually up-to-date according to Canadian recommended standards.



# Vaccine Hesitancy...AKA Why We Don't

*The World Health Organization (WHO) characterizes vaccine hesitancy through its 3Cs:*

- **Complacency**

- Risk of illness seems low and vaccination is not prioritized

- **Convenience**

- Accessibility and Affordability

- **Confidence**

- Addresses Trust in the Vaccine, Health System, and Policy-makers

# Canadian Confidence and Knowledge in Vaccinations

- In 2015 , 97% of parents surveyed believe that childhood vaccinations are safe and effective.
- From 2011 to 2015, the amount of parents that were concerned about the side effects of the pneumococcal vaccine reportedly decreased from 74% to 66%.
- 43% of adults surveyed agreed that pneumonia could be prevented by a vaccine compared with 60% saying yes to influenza being vaccine preventable.

# EVIDENCE-INFORMED POLICY RECOMMENDATIONS

# Key Policy Recommendations (1)

1. Improve Influenza Prevention Practices More Generally
2. Promote a Life-Course Vaccination Schedule that includes Older Adults
3. Continue Working Towards Developing Better Influenza and Pneumococcal Vaccines
4. Include Influenza and Pneumococcal Vaccination in Clinical Guidelines for Older Adults and for Treating Chronic Conditions
5. Recommend the Administration of Pneumococcal Vaccine in Conjunction with the Influenza Vaccination

# A Missed Opportunity...

## Adult vaccines. What to get, when.

### 18-64 Years

- Tetanus, Diphtheria & Pertussis  
(once at 24-26 Years)
- Tetanus & Diphtheria  
(every 10 years after dose above)

[ontario.ca/vaccines](http://ontario.ca/vaccines)

### 65 Years & Older

- Pneumococcal  
(once at 65 years)
- Shingles  
(once at 65-70 years)
- Tetanus & Diphtheria  
(every 10 years)



## What About the Flu?

## Key Policy Recommendations (2)

5. Provide Clinical Education and Support for Primary Care Providers and Pharmacists to Deliver Vaccinations
6. Universal Funding for Influenza and Pneumococcal Vaccinations Needs to Be in Place to Ensure it is Accessible to All Eligible Canadians
7. Highly Recommend the Influenza Vaccine for all Health Care Providers and Mandate it for Providers and Residents (along with the Pneumococcal Vaccine for residents) in Long-Term Care Homes
8. Develop Better and Mandatory Reporting of Influenza and Pneumococcal Vaccination Rates

# Where to Find More Information

Please visit us at <https://www.ryerson.ca/nia/> and [www.nationalseniorsstrategy.ca](http://www.nationalseniorsstrategy.ca)

Follow Us on Twitter at [@RyersonNIA](https://twitter.com/RyersonNIA) and [@NSSNow](https://twitter.com/NSSNow)

All NIA White Papers can be found at:  
<https://www.ryerson.ca/nia/research-and-advocacy/white-papers/>



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# Q&A Session

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# Thank You

Questions? Contact: Stephanie Sebastian - [ssebastian@ifa-fiv.org](mailto:ssebastian@ifa-fiv.org)



# INTERNATIONAL FEDERATION ON AGEING 15TH GLOBAL CONFERENCE

NIAGARA FALLS, CANADA | 1-3 NOVEMBER 2020

## Pre-Conference Summit | 31 October 2020

Informing the global agenda for a life course approach to adult vaccination through a one-day Vaccines4Life Summit with a focus on:

- Understanding the public impact of vaccine preventable diseases
- Inspiring change through examples of good practice from around the world
- Galvanising action through targeted communication strategies

Register for the conference at [ifa2020.org](https://ifa2020.org)