Disclosure Statement

- I have no affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

CIC 2018 CCI | December 4-6 4 - 6 décembre OTTAWA

What's new with NACI?

Dr. Caroline Quach, NACI Chair
Dr. Matthew Tunis, NACI Executive Secretary
Canadian Immunization Conference
December 4–6, 2018

Learning objectives

- Describe new products and NACI recommendations since the 2016 Canadian Immunization Conference.
- Explore the current NACI work plan and key milestones.
- Identify key points for the future direction of NACI included the expanded mandate and additional analysis requirements.

Expanded mandate for NACI

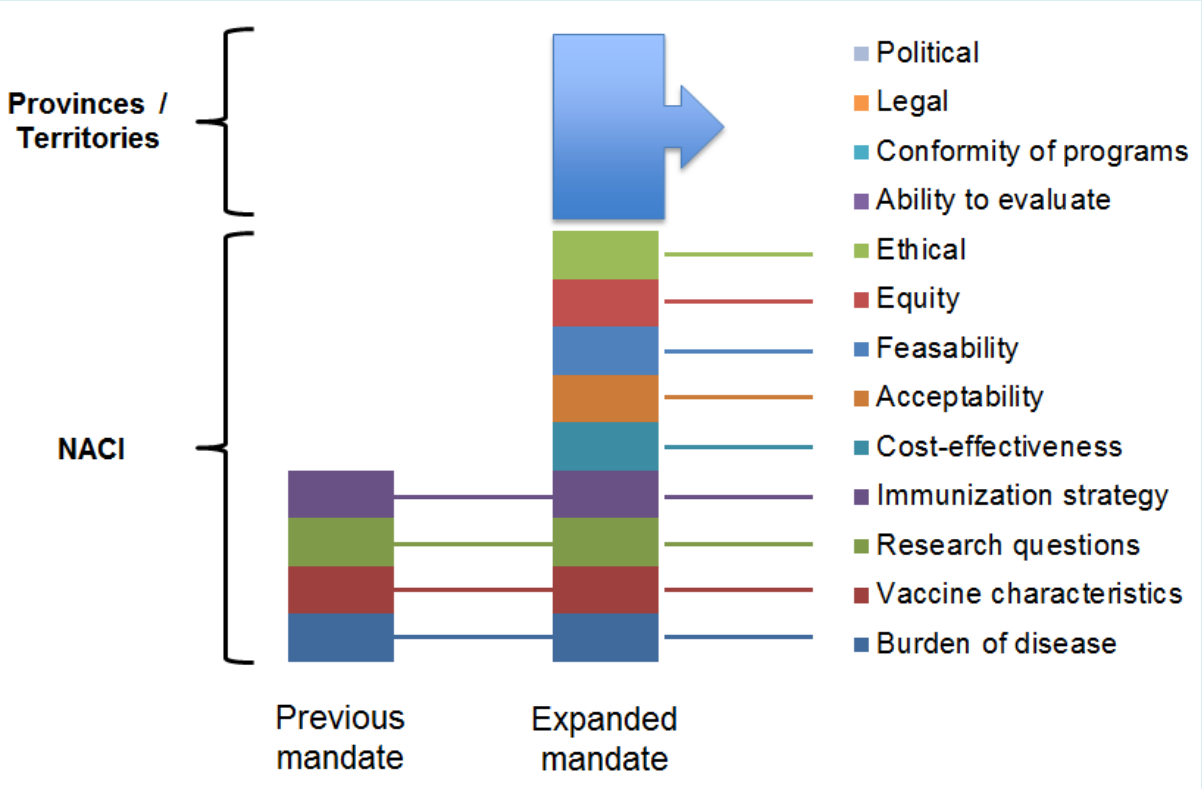
NACI's expanded mandate

- Following review and consideration at the federal, provincial, and territorial levels, a decision was made in June 2016 to expand NACI's mandate

- In addition to burden of disease and vaccine characteristics, NACI will also consider programmatic factors in developing evidence-based recommendations to facilitate timely decision-making for publicly funded vaccine programs at provincial and territorial levels

- These programmatic factors include:
  - Economics (e.g. cost-effectiveness)
  - Ethics
  - Equity
  - Feasibility
  - Acceptability

Erikson, De Wals, Farand framework for immunization programs in Canada



(Adapted from Erickson, De Wals, Farand, 2005, Vaccine) https://www.ncbi.nlm.nih.gov/pubmed/15752833

Current status of the NACI mandate expansion

- Since the announcement of NACI's mandate expansion at CIC 2016, the following statements with expanded mandate elements have been published:
  1. Update on immunization in pregnancy with Tdap vaccine (feasibility, acceptability)
  2. Updated recommendations on the use of herpes zoster vaccines (economics, feasibility, acceptability)
  3. Update on the use of pneumococcal vaccines in adults 65 years of age and older – A Public Health Perspective (economics)

- As NACI works towards full implementation of the expanded mandate, select statements will be piloted with expanded mandate factors to further refine the methodological approaches to the integration of these factors
  - Not all NACI statements will require in-depth analyses of all programmatic factors

The NACI recommendation format has changed to support the expanded mandate

- NACI recommendations are now worded as “should” (strong) or “may” (discretionary)
  - A **strong** recommendation applies to most populations/individuals and **should** be followed unless a clear and compelling rationale for an alternative approach is present.
  - A **discretionary** recommendation **may** be considered for some populations/individuals in some circumstances. Alternative approaches may be reasonable.

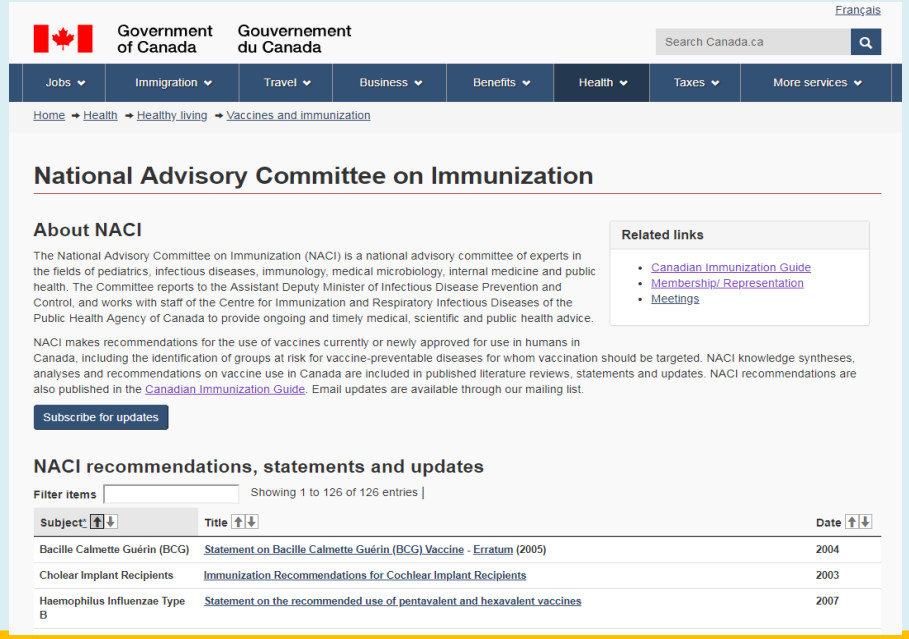
- Recommendations are made separately for individual level decision-making vs. public health program decision-making

- NACI is including management option tables in statements to help organise and compare competing factors (e.g. efficacy vs. feasibility vs. economics)

New NACI publications and recommendations since the 2016 Canadian Immunization Conference.

NACI website upgrade

- All NACI publications now available on the new **Canada.ca** website:
  - https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci.html



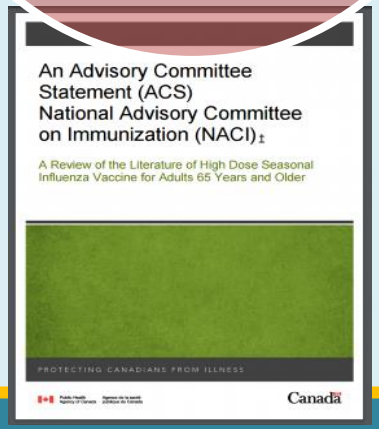
PHAC products based on NACI guidance

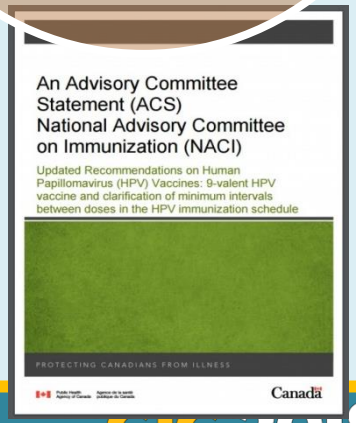
Literature Review

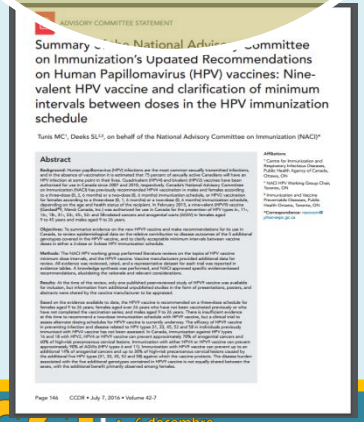
Statement

CCDR Summary (now in Pubmed!)

CIG







PHAC products based on NACI guidance

Detailed & Technical → **Summative & Translational**

Literature Review

- Detailed review of large body of evidence
- Includes primary literature
- ***No recommendations***

Target audience:
Jurisdictional policy makers, researchers, interested providers

Statement

- Presentation and analysis of evidence for decision-making
- Includes primary literature
- ***Topic-specific recommendations***

Target audience:
Jurisdictional policy makers

CCDR Summary

- Short abstract and summary of full Statement
- No primary literature
- ***Topic-specific recommendations***

Target audience:
Frontline immunization providers

CIG

- Comprehensive guide to support clinical decision-making
- No primary literature
- ***Integrated summary of all current recommendations***

Target audience:
Frontline immunization providers

NACI has been busy! NACI publications in 2017:

Vaccine preventable disease	Title of publication
Hepatitis	**Statement:** Update on the Recommended Use of Hepatitis B Vaccine
Human papillomavirus	**Statement:** Updated Recommendations on Human Papillomavirus (HPV) Vaccines: 9-valent HPV Vaccine 2-dose Immunization Schedule and the Use of HPV Vaccines in Immunocompromised Populations
	Literature review: HPV Immunization of Immunocompromised Populations
Influenza	**Statement:** Canadian Immunization Guide Chapter on Influenza and Statement on Seasonal Influenza Vaccine for 2017–2018
	Statement: Addendum – Influvac® Use in Children

NACI publications in 2018:

Vaccine preventable disease	Title of publication
Influenza	**Statement:** Canadian Immunization Guide Chapter on Influenza and Statement on Seasonal Influenza Vaccine for 2018-2019
	Literature review: Individuals with Neurologic or Neurodevelopment Conditions and Risk of Serious Influenza-Related Complications
	Literature review: Efficacy and Effectiveness of High-Dose (Fluzone® High-Dose) and MF59-Adjuvanted (Fluad®) Trivalent Inactivated Influenza Vaccines in Adults 65 Years of Age and Older
	Literature review: Comparative Effectiveness and Immunogenicity of Subunit and Split Virus Inactivated Influenza Vaccines in Adults 65 Years of Age

NACI publications in 2018 (continued)

Vaccine preventable disease	Title of publication
Measles	**Statement:** Updated NACI Recommendations for Measles Post-exposure Prophylaxis
Pertussis, tetanus and diphtheria	**Statement:** Update on Immunization in Pregnancy with Tetanus Toxoid, Reduced Diphtheria Toxoid and Reduced Acellular Pertussis (Tdap) Vaccine
	Literature review: Immunization in Pregnancy with Tetanus Toxoid, Reduced Diphtheria Toxoid and Reduced Acellular Pertussis (Tdap) Vaccine: Safety, Immunogenicity and Effectiveness
Varicella	**Statement:** Updated Recommendations on the Use of Herpes Zoster Vaccines

New NACI recommendations

Fun Quiz #1

- Is a 50 year old type 2 diabetic in a high risk group for HB vaccine?

Hepatitis B (HB) – February 2017

Public health trigger: Provincial/territorial concerns about duration of protection

- Routine booster vaccination not recommended for immunocompetent individuals following completion of infant HB schedule
- Adults with diabetes not considered a separate high-risk group for HB vaccination
- Timing of re-vaccination for immunocompromised individuals:
  - Initial annual monitoring of anti-HBs may be considered following HB vaccination
  - Optimal timing and frequency of anti-HBs testing should be based on the severity of the immunocompromised state and ongoing risk of HB infection
  - Booster vaccination required if anti-HBs fall below 10 IU/L

Fun Quiz #2

- Should a 13 year old immunocompetent male receive 2 or 3 doses of 9-valent HPV vaccine?

Human papillomavirus (HPV) – May 2017

Public health trigger: New trial evidence for a 2-dose schedule with 9-valent HPV vaccine

- 2-dose or 3-dose schedule for 9-valent HPV vaccine now recommended for immunocompetent individuals 9–14 years of age (similar to 2-valent or 4-valent HPV vaccines)

- 3-dose schedule for 9-valent HPV vaccine remains recommended for (as with 2-valent or 4-valent HPV vaccines):
  - Immunocompetent individuals 15–26 years of age
  - Immunocompromised individuals

Human papillomavirus (HPV)

RECOMMENDED GROUPS	RECOMMENDED IMMUNIZATION SCHEDULE	HPV VACCINES AND NACI EVIDENCE GRADE
Healthy (immunocompetent, non-HIV infected) Females 9-14 years of age (and healthy females ≥15 years of age in whom the first dose was administered between 9-14 years of age)	2- or 3-dose schedule	HPV2 or HPV4 (Grade A); HPV9 (Grade B)
Healthy (immunocompetent, non-HIV infected) Females ≥15 years of age	3-dose schedule	HPV2 or HPV4 (Grade A) or HPV9 (Grade B)
Healthy (immunocompetent, non-HIV infected) Males 9-14 years of age (and healthy males ≥15 years of age in whom the first dose was administered between 9-14 years of age)	2- or 3-dose schedule	HPV4 or HPV9 (Grade B)
Healthy (immunocompetent, non-HIV infected) Males ≥15 years of age	3-dose schedule	HPV4 or HPV9 (Grade B)
Immunocompromised individuals and immunocompetent HIV-infected individuals	3-dose schedule	HPV2 or HPV4 in females (Grade B); HPV4 in males (Grade B); HPV9 in females or males (Grade I)

Fun Quiz #3

- A 32-week pregnant patient is in your clinic, should you provide Tdap vaccine today or when she is back in 4 weeks?

Pertussis (whooping cough) – February 2018

- **Public health trigger: epidemiology and cyclical pertussis activity in Canada**

- Tdap (tetanus toxoid, reduced diphtheria toxoid, and reduced acellular pertussis) vaccine should be offered in every pregnancy, irrespective of previous Tdap vaccination history, to protect newborn infants from severe outcomes of pertussis infection

- Vaccination should ideally be offered at 27–32 weeks of gestation

- Vaccination may be considered between 13–26 weeks of gestation in some situations (e.g., pregnancies with an increased risk of pre-term delivery), and up until delivery

Expanded mandate considerations

- Feasibility/acceptability
  - Clinical opportunities to pair vaccination with a routine prenatal visit

Fun Quiz #4

- A 54 year old patient tells you they received LZV 18 months ago, can they receive RZV today?

Herpes zoster (HZ) – June 2018

Public health trigger: New highly efficacious vaccine for a prevalent disease

- Two HZ vaccines authorized for immunocompetent individuals ≥50 years of age:
  - Shingrix® (recombinant zoster vaccine, RZV), since October 2017
  - Zostavax® (live zoster vaccine, LZV), since 2008

Recommendations for individuals and immunization programs

- RZV should be offered to individuals ≥50 years of age without contraindications, including those who have previously received LZV or had an episode of HZ
  - Vaccination with RZV may be considered at least one year after LZV or episode of HZ

Herpes zoster (HZ) (continued)

- LZV may be considered when RZV is contraindicated, unavailable, or inaccessible
- RZV (not LZV) may be considered for immunocompromised individuals ≥50 years of age on a case-by-case basis

Expanded mandate considerations

- Economics
  - Both HZ vaccines cost-effective compared to no vaccination
  - RZV more cost-effective than LZV under model assumptions
- Feasibility/acceptability
  - 2-dose schedule for RZV vs. 1-dose schedule for LZV
  - Less experience and more unknowns with RZV

Fun Quiz #5

- A susceptible pregnant woman was sitting in a taxi 4 days ago next to a confirmed measles case, what dose of IVIg would be recommended for measles PEP?
  - 400mg/kg?
  - 200mg/kg?

- What about IMIg?
  - 0.5mg/mL?
  - 0.25mg/mL?

Measles post-exposure prophylaxis (PEP) – August 2018

Public health trigger: Declining potency of Ig products and ongoing measles activity in Canada

- Intramuscular Ig (IMIg) dosage increased to 0.5 mL/kg (up to 15 mL) when injection volume is not a major concern
  - Infants 0–6 months of age, immunocompromised individuals, and pregnant women: IMIg or IVIg up to 6 days post-exposure
  - Immunocompetent infants 6–12 months of age: MMR vaccine up to 72 hours; IMIg or IVIg between 73 hours and 6 days post-exposure
  - Immunocompetent individuals ≥12 months of age: MMR vaccine series
- Intravenous Ig (IVIg) may be considered at a dose of 400 mg/kg when injection volume is a major concern, or for individuals ≥30 kg (IMIg may only provide partial protection)
- Measles immune globulin (Ig) PEP no longer recommended for susceptible immunocompetent individuals ≥12 months of age

Summary of updated measles post-exposure prophylaxis recommendations for susceptible contacts

Population	Time since exposure to measles[a]	
	≤ 72 hours	73 hours–six days
Susceptible infants 0-6 months of age[b]	IMIg (0.5 mL/kg)[c]	
Susceptible immunocompetent infants 6-12 months of age	MMR vaccine[d]	IMIg (0.5 mL/kg)[b,e]
Susceptible immunocompetent individuals 12 months of age and older	MMR vaccine series[e]	
Susceptible pregnant individuals[f]	IVIg (400 mg/kg) or IMIg (0.5 mL/kg), limited protection[g]	
Immunocompromised individuals six months of age and older	IVIg (400 mg/kg) or IMIg (0.5 mL/kg), limited protection if 30 kg or more[g]	
Individuals with confirmed measles immunity	Not applicable	

Abbreviations: IMIg, intramuscular immunoglobulin; IVIg, intravenous immunoglobulin; MMR, measles-mumps-rubella

[a] Ig should only be provided within six days of measles exposure. Individuals already receiving replacement IVIg (400 mg/kg of body weight or higher) are considered protected against measles and do not require Ig if the last dose of IVIg was received within three weeks prior to measles exposure.

[b] Two doses of measles-containing vaccine are still required after the first birthday for long-term protection.

[c] If injection volume is a major concern, IVIg can be provided at a concentration of 400 mg/kg.

[d] Two additional doses of MMR vaccine provided after 12 months of age are required for long term protection.

[e] MMR vaccine will not provide PEP protection after 72 hours of exposure, however, starting and completing a two dose series should not be delayed to provide long term protection.

[f] Provide two doses of MMR vaccine postpartum for long-term protection.

[g] For individuals weighing 30 kg or more, IMIg will not provide complete protection but may provide partial protection.

Pneumococcal vaccines – November 2018

Public health trigger: Changing epidemiology in Canada

Recommendations for individuals (2016)

- PNEU-P-23 vaccine (Pneumovax® 23) recommended for immunocompetent adults ≥65 years of age, and PNEU-C-13 vaccine (Prevnar® 13) for individuals desiring additional protection against the strains contained in the vaccine

Recommendations for immunization programs (new)

- PNEU-C-13 vaccine not recommended for inclusion in routine, publicly funded immunization programs for immunocompetent adults ≥65 years of age (based on circulating serotypes, changing incidence, and cost-effectiveness)

- One dose of PNEU-P-23 vaccine recommended for routine immunization of all adults ≥65 years of age, regardless of risk factors or previous pneumococcal vaccination

Pneumococcal vaccines (continued)

Expanded mandate considerations

- Economics
  - Based on the epidemiology of circulating serotypes causing IPD and CAP in Canada and the evidence of changing incidence of pneumococcal disease following the implementation of childhood PNEU C vaccination programs, a publicly funded program was found to not significantly decrease the disease burden in a cost- effective manner.

Fun Quiz #6

- A parent wants to give intranasal quadrivalent live attenuated influenza vaccine to their 4 year old child. Is this recommended, or should they be getting an inactivated quadrivalent vaccine instead?
  - LAIV yes or no?

Seasonal influenza

Public health trigger: Seasonal epidemics

- Two new quadrivalent inactivated influenza vaccines authorized for use:
  - Influvac® Tetra (≥18 years)
  - Afluria® Tetra (≥5 years)
- Alternatives to egg-based vaccines not yet available in Canada
- Live attenuated influenza vaccine (FluMist® Quadrivalent) remains recommended as one of the choices for children 2–17 years of age

Canadian Immunization Guide
updates since last Canadian Immunization Conference (Dec 2016)

CIG updates not related to a NACI statement

Cholera and enterotoxigenic *E. coli* (travellers' diarrhea)

- Cholera vaccine not routinely recommended except for high-risk travellers

Hepatitis A

- IMIg dosage increased to reflect new product monograph indications for hepatitis A pre- and post-exposure prophylaxis

Hepatitis B

- Full dose (0.5 mL) of Recombivax HB® recommended for children of HB negative mothers who are ≤10 years of age

Yellow fever

- Yellow fever vaccine booster doses no longer recommended as protection is considered lifelong, but remains recommended for high-risk individuals

CIG updates not related to a NACI statement (continued)

- Vaccine administration practices, including tables for needle selection and immunization and pain management strategies by age groups
- Immunization of immunocompromised persons, with revisions for those with primary and secondary immunodeficiency
- Immunization during pregnancy and breastfeeding, incorporating immunization in pregnancy with Tdap and a summary table of recommendations for inactivated vaccines
- Dissolution of Part 5: Passive Immunization (ongoing work)

CIG website upgrades

1. Clearly articulated the target population is health professionals
2. Increasing accessibility: introduced acronym mouse-overs to display full text
3. Improving page titles to be more reflective of contents
4. Embedding “Table of Updates” at top of chapter, displaying recent changes
5. Consolidating of information to minimize duplication
6. Reducing hyperlinks within text, keeping reader’s attention

Future CIG website upgrades

- Search bar for CIG content with improved search capacity
- Enhanced visibility for search engines
- Mobile-friendly improvements

What’s next from NACI?

What's next from NACI?

- Recommendations on use of **meningococcal group B** vaccines, including the new Trumenba® vaccine
- Updated guidance on palivizumab prophylaxis for respiratory syncitial virus (**RSV**)
- Guidance on a potential additional dose of **mumps**-containing vaccine in outbreak settings
- Recommendations on repeated seasonal **influenza** vaccination
- The NACI 2019-2020 annual workplan will be finalised over the winter

Vaccine readiness

- In 2015, PHAC engaged stakeholder groups to identify priorities for vaccine research and development
  - https://www.canada.ca/en/public-health/services/vaccine-research-development-priorities.html

- PHAC is now working to map activities in two areas of high public health interest that were on that list, both are expected to enter the vaccine market in coming years:
  - **Respiratory syncitial virus (RSV) vaccines**
  - ***C. difficile* infection (CDI) vaccines**

- PHAC will be seeking to identify evidence and surveillance needs in order for NACI to develop timely comprehensive guidance on these vaccines when they arrive.

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Questions?