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Canada

Renewal of the Vaccine Preventable Disease Reduction Targets for 2025-2030

National Immunization Strategy Summit
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Surveillance and Epidemiology Division
Centre for Emerging Respiratory Infections and Pandemic Preparedness

Overview

- Purpose
- Recap - Background
- Recap - Critical Path
- Review of Current Vaccine Preventable Disease Reduction Targets
  - Disease-specific Considerations
  - Overarching Considerations
- Next Steps
- Discussion

Purpose

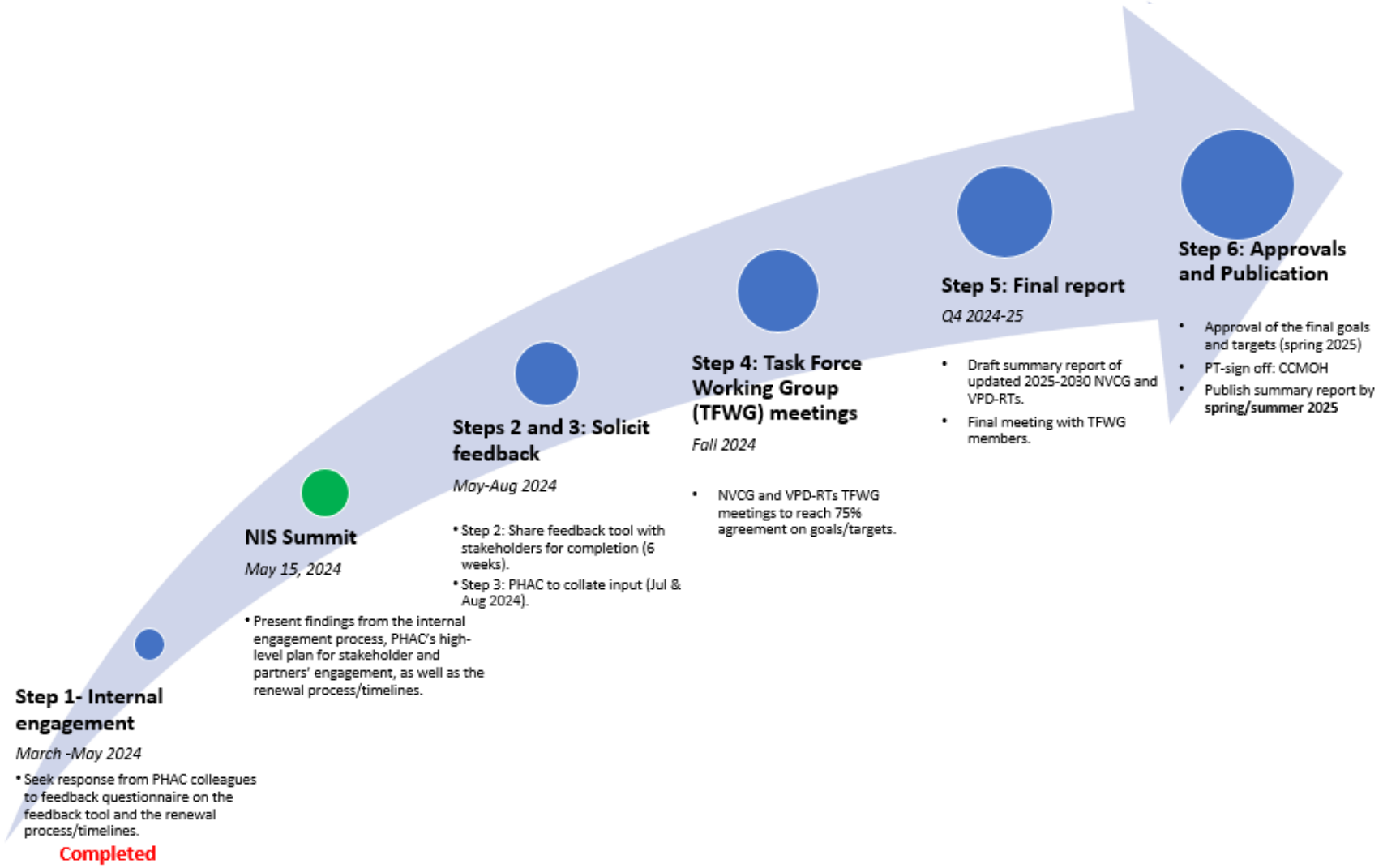
- The Centre for Emerging Respiratory Infections and Pandemic Preparedness (CERIPP) at PHAC is launching the renewal process of Vaccine Preventable Disease Reduction Targets for 2025-2030
- Information sharing
  - the renewal process
  - review of current Vaccine Preventable Disease Reduction Targets
  - the potential questions for the consultations

Recap: Background - NVCGs and VPD-RTs

- Establishing national vaccination coverage goals (NVCGs) and Vaccine Preventable Disease Reduction Targets (VPD-RTs) is one of five key objectives of the National Immunization Strategy (NIS).
- Most of Canada's NVCGs and VPD-RTs were developed between 1994 and 2005 and then renewed in 2016 based on international standards and best practices.
- In 2016, a five-step approach was undertaken to develop the NVCGs and VPD-RTs.
- In 2024, The Centre for Immunization Surveillance (CIS) and the Centre for Emerging Respiratory Infections and Pandemic Preparedness (CERIPP) at PHAC are launching the renewal process for the Canada's NVCGs and VPD-RTs for 2025-2030

The current slide is repurposed from VCES's NVCG Renewal Presentation.

Recap: Critical Path – Renewal of NVCGs and VPD-RTs



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VPD-RTs by 2025

Part 1: Diseases Under Elimination: Maintain Elimination Status	Part 2: Endemic Diseases with Low-level Incidence: Maintain Low Levels	Part 3: Endemic Diseases with Moderate Levels of Incidence: Reduce Levels
• Maintain zero cases of polio in Canada • Maintain the elimination of endemic measles in Canada • Maintain the elimination of endemic rubella in Canada • Maintain zero cases of Congenital Rubella Syndrome/Congenital Rubella Infection in Canada	• Achieve zero annual cases of respiratory diphtheria resulting from exposure in Canada • Maintain less than five cases of tetanus annually in Canada • Maintain zero cases of maternal/neonatal tetanus in Canada • Maintain less than five cases of preventable Haemophilus Influenzae type B annually in children less than five years of age • Maintain an average of less than 100 mumps cases annually in Canada • Maintain less than five cases of invasive meningococcal disease serogroup C in children less than 18 years of age	• Reduce incidence of IPD by 5% in adults aged 65 years and older • Maintain less than 50 hospitalizations annually for varicella in vaccine-eligible children less than 18 years of age • Maintain an average of less than three deaths annually that are due to pertussis in infants less than six months of age

Part 1.1: Polio

Current: Maintain zero cases of polio in Canada

Rationale: Polio is expected to be globally eradicated by 2025 as a WHO requirement

Status: Met

Considerations for the renewal:

- Eradication of wild poliomyelitis virus type 1 remains a global priority.
- Current WHO elimination criteria includes only wild polioviruses. Review under way to include all types of paralysis-causing poliovirus .
- Wild poliovirus only, or include paralytic caused by wild-type or vaccine-derived?

Part 1.2: Measles

Current: Maintain the elimination status of endemic measles in Canada

Rationale: Endemic measles has been eliminated from Canada since 1998 as a PAHO requirement

Status: Met

Considerations for the renewal:

- PAHO priority to maintain measles elimination in the Americas, and WHO priority to eradicate measles globally.
- Should an additional disease reduction target be added for a measles outbreak? We cannot stop importation but can catch them early to stop transmission.
- Project low resources required to update this target.

Part 1.3: Rubella

Current: Maintain the elimination status of endemic rubella in Canada

Rationale: Endemic rubella has been eliminated from Canada since 2005 as a PAHO requirement

Status: Met

Considerations for the renewal:

- PAHO priority to maintain rubella elimination in the Americas, and WHO priority to eradicate rubella globally.
- Project low resources required to update this target.

Part 1.4: Congenital Rubella Infection (CRI) / Syndrome (CRS)

Current: Maintain zero cases of CRS/CRI in Canada

Rationale: Endemic rubella has been eliminated in Canada since 2005 as a PAHO requirement

Status: Met

Considerations for the renewal:

- PAHO priority to maintain rubella elimination in the Americas, and WHO priority to eradicate rubella globally.
- Project low resources required to update this target.

Part 2.1: Diphtheria

Current: Achieve zero annual cases of respiratory diphtheria resulting from exposure in Canada

Rationale: Respiratory diphtheria is reportable to the WHO

Status: N/A

Considerations for the renewal:

- Respiratory diphtheria carries a high risk of mortality and remains reportable by the WHO.
- Data source: CNDSS is insufficient to measure the current target as respiratory vs. cutaneous and travel history are not collected. CIHI can be used until updated disease definition.
- Should respiratory and cutaneous diphtheria be grouped together in the newly worded target?
- If focused on respiratory diphtheria, what would be an appropriate case threshold? Should we maintain cases or frame as hospitalizations?
- Is it worth the enhanced investigation to maintain the "exposed in Canada" piece?
- Project high resources required to update this target.

Part 2.2: Tetanus (All)

Current: Maintain less than five cases of tetanus annually in Canada

Rationale: Target is sufficient to show success of vaccination program

Status: Met (4 cases/year)

Considerations for the renewal:

- Spores are ubiquitous and are impossible to eliminate from the environment. As tetanus is not a communicable disease, herd immunity is not applicable.
- Data source: CNDSS. Current case definition includes both maternal/neonatal tetanus and general tetanus.
- The threshold of 5 cases should be explored. Exceeding the tetanus threshold would likely indicate limitations of the vaccine program (vaccine breakthrough, low coverage, etc.).
- Project moderate resources required to update this target.
- Given the disease is not communicable and case counts only reflect vaccination program, should we consider only having a vaccination coverage goal and not a reduction target for tetanus?

Part 2.3: Maternal/Neonatal Tetanus (MNT)

Current: Maintain zero cases of MNT in Canada

Rationale: Eliminated in the Regions of the Americas in 2017

Status: N/A

Considerations for the renewal:

- Remains a global WHO priority to achieve worldwide elimination of MNT.
- Data source: CNDSS, cannot be used to measure MNT alone. CIHI data can be used to verify 0 cases but must be verified with PTs (coding errors occur).
- Hospitalization is a good proxy for cases given all cases of MNT would require hospitalization.
- Should the target be aligned to "Maintain elimination“? (<1 case/1000 live births in every district in the country per year)
- Can MNT be moved into the first category "Diseases under elimination: Maintain elimination status"?
- Is changing the case definition worth the resources?

Part 2.4: Haemophilus Influenzae Type B (Hib)

Current: Maintain less than five cases of preventable Hib annually in children less than five years of age.

Rationale: Target is sufficient to show success of vaccination program

Status: Met

Considerations for the renewal:

- Data source: Canada's Immunization Monitoring Program ACTive (IMPACT), but cases may be under-representative as the source only includes 90% of all tertiary care paediatric beds in Canada.
- Should we only measure preventable? Preventable Hib cases are those who were either vaccine-eligible but did not receive the vaccine or are under-vaccinated for their age-appropriate vaccination schedule. Vaccine failures are not considered to be preventable.

Part 2.5: Mumps

Current: Maintain an average of less than 100 mumps cases annually in Canada (based on 5-year rolling average)

Rationale: Target is based on a rolling average as outbreaks are cyclical

Status: Unmet (2016-2017: 565 cases; 2018-2019: 734 cases)

Considerations for the renewal:

- Mumps is not severe and case counts may be futile to measure as most fully recover. There is limited public health action when a case surfaces.
- Should we change the case count threshold, or can we measure mumps in another way (e.g., outbreaks, severity)?
- Vaccine effectiveness seems to be relatively poor, which challenges the notion that mumps is greatly affected by changes in vaccination coverage.

Part 2.6: Invasive Meningococcal Disease (IMD)

Current: Maintain less than five cases of IMD serogroup C in children less than 18 years of age

Rationale: Target is sufficient to show success of vaccination program

Status: Met

Considerations for the renewal:

- The low incidences in baseline years (2011-2015) are indicative of an effective vaccine and adequate vaccination programs. This level of success should be sustained.
- Serogroup C is no longer relevant. New quadrivalent vaccine will be used routinely, therefore these serogroups will be affected by vaccination coverage. Should we target all preventable serogroups?

Part 3.1: Invasive Pneumococcal Disease (IPD)

Current: Reduce incidence of IPD by 5% in adults aged 65 years and older

Rationale: Target is sufficient to show success of vaccination program

Status: Unmet (incidence unchanged)

Considerations for the renewal:

- IPD vaccine, PPV23, is funded in all PTs. NACI recommends one dose for ages ≥65 years. The vaccine coverage for 2020, 2018 and 2016 is 55%, 58% and 42%, respectively. ~61% of isolates from cases aged 65+ were potentially preventable by the PPV23 vaccine.
- The overall vaccination rate has increased from 2017 to 2021, from 41% to 55% however, we still see high incidence rates of IPD in those aged 65 and older.
- Should the target pertain to older adults 65 and older only or should it be expanded to create a new target including other age groups (e.g., those under the age of 2)?

Part 3.2: Varicella

Current: Maintain less than 50 hospitalizations annually for varicella in vaccine-eligible children less than 18 years of age

Rationale: Target is sufficient to show success of vaccination program

Status: Met

Considerations for the renewal:

- What is the appropriate threshold for hospitalizations? The currently cutoff is high given preventable varicella hospitalizations were 9, 5, 4 and 8 in 2017, 2018, 2019 and 2022, respectively.
- Data source: IMPACT, only 90% of paediatric beds in Canada and data is not valid for 17- and 18-year-olds.

Part 3.3: Pertussis

Current: Maintain an average of less than three deaths annually that are due to pertussis in infants less than six months of age (based on a three-year rolling average)

Rationale: Most deaths are in infants <6 months. Target is based on a rolling average as outbreaks are cyclical

Status: Met

Considerations for the renewal:

- Vaccination reduces hospitalizations and mortality in the <1 age group.
- In 2018, Canada made a recommendation for pregnant individuals to obtain a pertussis vaccine.
- Data source: IMPACT, 90% of paediatric beds in Canada.
- What is the appropriate case threshold?
- Should we continue with a rolling average?
- Given the cyclic pattern of this disease, is it necessary and feasible to have targets (incidence) for other age-groups?

What is your Score?

Out of 13 DRTs…

9 

2 

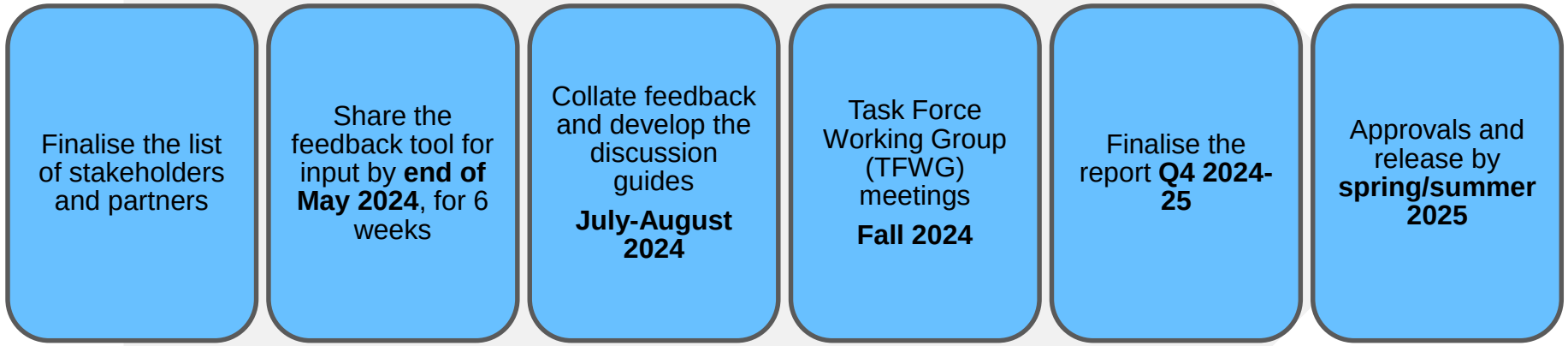
2 

How many did you get correctly? /13

VPD Reduction Targets – Overarching Considerations

- **Do we need set a target for each VPD covered by a routine childhood vaccine program? (e.g., do we still need mumps?)**
- **Regrouping the targets into “Diseases Under Elimination" and “Other"?**
  - Subjectivity of low and moderate incidence
  - Moving the maternal/neonatal tetanus to “Diseases Under Elimination”
- **Standardizing the targets to either “maintain the elimination of…” or “achieve zero cases of disease X acquired in Canada”?**
  - Losing elimination status is a much higher bar (e.g., typically requires endemic circulation for over 12 months) compared to zero cases
  - Language around "Maintain the elimination" would align with the Healthy People 2030 (US CDC) strategy as well as WHO targets

Next Steps



WG 1: Routine childhood vaccines.
WG 5: Pneumococcal vaccine among adults and children (current and proposed goals)

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Questions?

Discussion

- Are there missing key elements from the planned approach?
- Is the planned approach for PT engagement and approval adequate?
- Is the list of stakeholders comprehensive enough?
  - CIC – all WG members
  - Indigenous Services Canada (ISC) (List TBC)
  - NACI Secretariat, WG members, and ID specialists (list TBC).
  - PHAC's medical advisors
  - Groups leading VPDs at PHAC (VPD, STBBI, flu watch)
  - Centre for Surveillance and Applied Research, Health Promotion and Chronic Disease Prevention Branch
  - Centre for Immunization Programs
  - Vaccination Behaviour and Confidence Unit from Immunization Programming and Partner Engagement Division (IPPE)
  - External stakeholders (e.g. Canadian Partnership against Cancer (CPAC), Immunization experts) (list TBC)
  - NML (list TBC)