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Influenza vaccination in Canadian children in the 2017-2018 season

Lindsey Sherrard, M.Sc.

A/ Senior Epidemiologist

Public Health Agency of Canada



PROTECTING AND EMPOWERING CANADIANS
TO IMPROVE THEIR HEALTH

Disclosure statement

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

Background (1)

- Influenza is an important cause of morbidity and mortality in Canada:
 - Annually, it is estimated to cause approximately 12,200 hospitalizations¹, of which approximately 830 occur in children aged 59 months or less²
 - Together, influenza and pneumonia are a top-10 leading cause of death in Canada³
- Children aged 59 months or less are at increased risk for influenza-related complications, and hospitalization
- Vaccination, the most effective way to protect against influenza, is recommended for those aged 6 months and older⁴

Background (2)

- Routine monitoring of vaccine coverage is required for:
 - Evaluating vaccination programs
 - Identifying sub-populations with lower vaccine coverage
 - Identifying factors associated with non-vaccination
- Gap in monitoring influenza vaccine coverage for children aged 6-59 months:
 - Not included in large-scale Canadian surveys (e.g. CCHS, 12 years and older)
 - PHAC's Seasonal Influenza Vaccine Coverage Survey (SIVCS) had small sample size and unreliable estimates for this group
- To address this gap, the 2017-2018 SIVCS included an oversample of households with children aged 59 months or less

Objectives

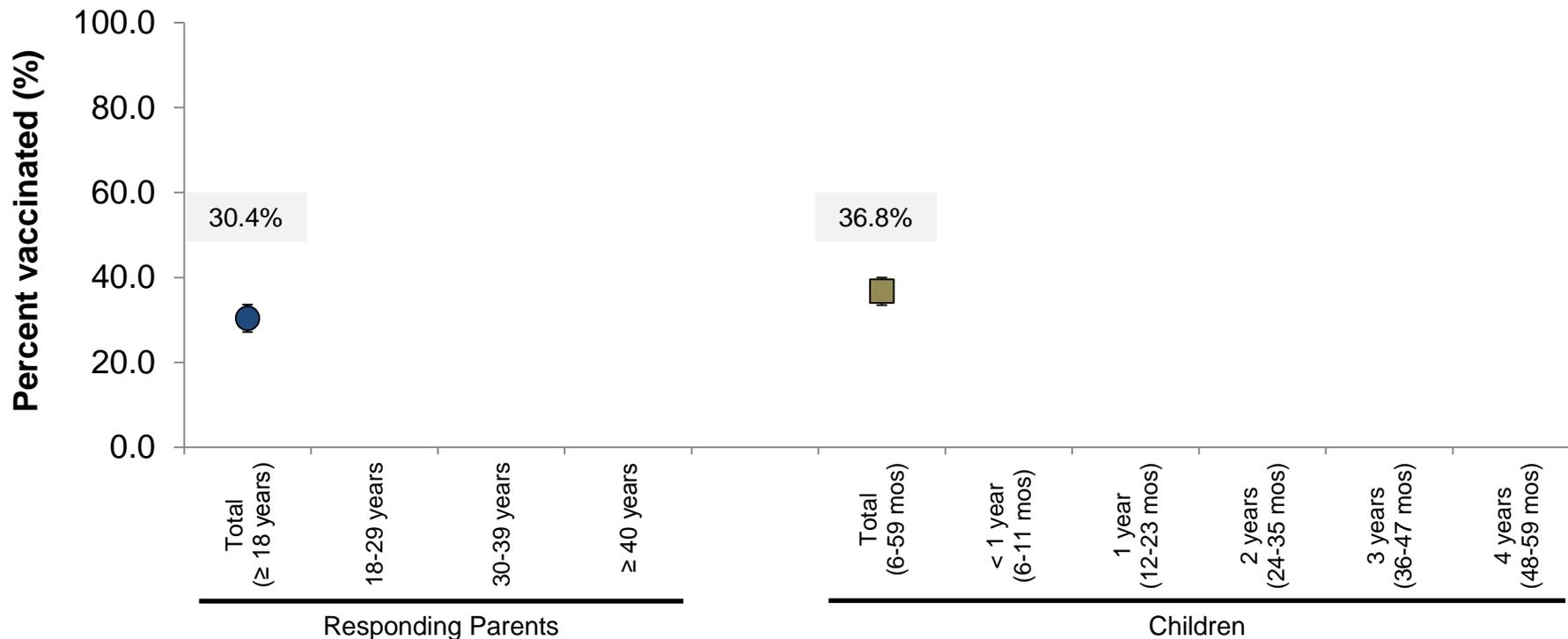
- Using data from the 2017-2018 SIVCS oversample of households with children aged 59 months or less:
 - Describe vaccination status
 - Characterize reasons for non-vaccination
 - Identify factors associated with non-vaccination

Methods

- 2017-2018 SIVCS sampling:
 - Stratified regional sampling approach, described in detail elsewhere⁵
 - Oversample of households with children aged 59 months or less:
 - n=881, after excluding those with children age-ineligible for vaccination, and/or incomplete information for key variables
- Data collection:
 - Computer assisted telephone interviews (CATI), from Jan 5 to Feb 22, 2018
- Analysis:
 - Vaccine coverage and categorical variables were assessed as simple and weighted proportions
 - Factors associated with non-vaccination were identified using simple and multiple logistic regression

Results – Vaccination status (1)

Figure 1. Influenza vaccine coverage estimates for responding parents and children (n=881), by age group, SIVCS, 2017-2018



Results – Reasons for non-vaccination (1)

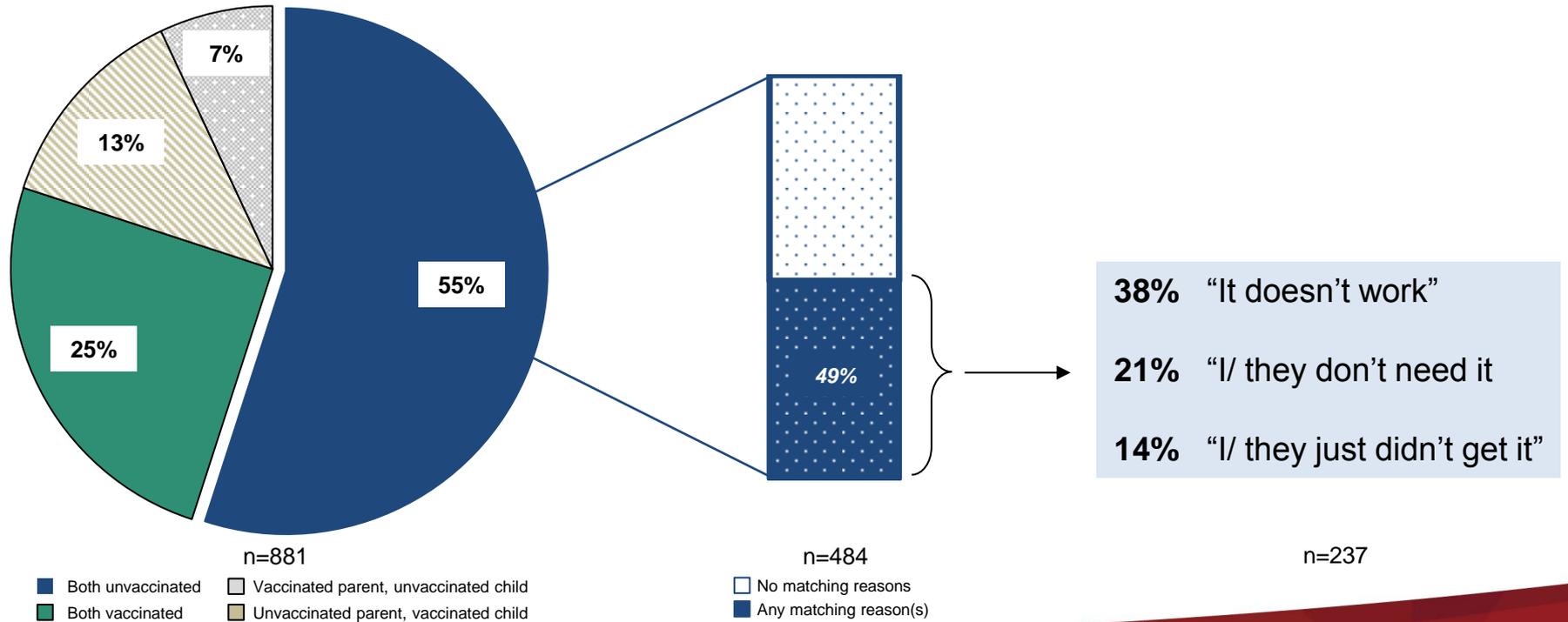
Table 1. Most frequently reported reasons for non-vaccination against influenza for responding parents (n=602) and children (n=545), SIVCS, 2017-2018

	Responding parents (n=602)	Children (n=545)
Response:	Weighted % (95% CI)	Weighted % (95% CI)
“It doesn’t work”	23.1% (19.6-26.6)	24.1% (20.1-27.5)
“I/ they don’t need it”	20.6% (17.2-24.1)	23.8% (20.3-27.8)
“I/ they just didn’t get it”	15.3% (12.3-18.3)	18.2% (14.8-21.6)
“I am/ they are healthy”	12.7% (9.7-15.6)	7.4% (5.2-9.7)
“I didn’t have time”	11.8% (9.1-14.4)	E

E - Coefficient of variation $\geq 16\%$; suppressed

Results – Reasons for non-vaccination (2)

Figure 2. Reported vaccination status and reasons for non-vaccination against influenza within households, for responding parents and children (n=881), SIVCS, 2017-2018



Results - Factors associated with non-vaccination

Table 2. Factors associated with child non-vaccination, without and with stratification for parental vaccination status (n=881), SIVCS, 2017-2018

		Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Vaccination status of responding parent:			
	Not vaccinated	14.4 (10.0 – 20.7)	N/A
	Vaccinated	<i>Reference</i>	<i>N/A</i>

Limitations (1)

- Self-reported vaccination status, without validation against secondary source
 - Survey timing minimizes recall bias; evidence validating this approach for influenza⁶
- Low response rate (20%) compared to US survey (46-50%)⁷; possibility of non-response bias
- Reasons for non-vaccination was open-ended – allows themes to emerge naturally, but may create inconsistency across interviewers
- Data quality assessment:
 - Couldn't screen for most knowledgeable parent / guardian
 - Logical errors identified, including vaccination among age-ineligible children

Conclusion / Next steps

- Overall, too few young children are vaccinated against influenza in Canada
- Reported reasons for non-vaccination for parents and children were similar overall, but not necessarily within a household
- Parental non-vaccination was the most important factor associated with non-vaccination in children, suggesting opportunity for intervention
- Lessons learned applied to 2018-2019 survey, which is currently in pilot testing, and will be in the field Jan and Feb 2019

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- Survey Participants

THANK YOU

References

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Appendix 1

Table A.1. General characteristics of responding parents and children (n=881), SIVCS, 2017-2018

		Canadian population (2017)	Responding parents and children (n=881)	
		%	n	Weighted %
Responding parents, aged 18 years or older			881	
Age groups:	18-29 years	20.0%	156	20.7%
	30-39 years	17.1%	534	60.8%
	≥40 years	62.9%	191	18.4%
Sex:	Males	49.2%	368	42.2%
	Females	50.8%	513	57.8%
Children, aged 6 to 59 months			881	
Age groups:	< 6 mos **	9.6%	[Excluded]	-
	<1 year (6-11mos)**	9.9%	91	10.6%
	1 year (12-23 mos)	19.9%	198	21.7%
	2 years (24-35 mos)	20.0%	200	22.2%
	3 years (36-47 mos)	20.0%	198	22.6%
	4 years (48-59 mos)	20.2%	194	23.0%
Sex:	Males	51.5%	475	51.2 %
	Females	49.1%	398	48.8%

Canadian population – preliminary Canadian Population Estimates, Statistics Canada (2017).

** - Special tabulation, children aged <1 year by age in months, Statistics Canada (2014).