

2012 Cohort Two-Year-Old Immunization Coverage Survey, Vancouver Coastal Health Authority

Description:

The objective of the survey was to obtain a valid representative estimate of 2-year old immunization coverage for children born in 2012 who reside within VCH. The survey design explored differences in coverage by geography, socio-demographic status and timeliness in delivery by vaccine provider. Sample size requirements were based on a 65% coverage rate estimate and the 2012 birth cohort (via BC Vital Statistics).

This is a summary of the 2012 birth cohort 2-yr old immunization coverage survey results. The results presented are based on the sample size required to report at the HSDA level (n=1,157).

Data source: Vancouver Coastal Health Authority and Fraser Health Authority, 2012 Cohort Two-Year-Old Immunization Coverage Survey.

Prepared by: VCH, Public Health Surveillance Unit, 2016.

If you have any questions/comments around the data herein, please contact:

Public Health Surveillance Unit

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Up-to-date definitions:

¹Four doses diphtheria/tetanus/pertussis, 3 doses polio, 1 dose of haemophilus influenzae type b after 15 months of age, 3 doses hepatitis B, 1 dose measles/mumps/rubella, 1 dose varicella, up-to-date for meningococcal C conjugate and pneumococcal conjugate (depending on age of first dose) as per schedule.

²Three doses diphtheria/tetanus/pertussis, 2 doses polio, 1-3 doses of haemophilus influenzae type b (depending on age of first dose), 3 doses hepatitis B, 1 dose measles/mumps/rubella, 1 dose varicella, up-to-date for meningococcal C conjugate and pneumococcal conjugate (depending on age of first dose) as per schedule.

Up-to-date definitions for individual antigens:

D/T/aP/IPV : 4 doses diphtheria/tetanus/pertussis, 3 doses polio.

D/T/aP/IPV/Hib : 4 doses diphtheria/tetanus/pertussis, 3 doses polio, at least 1 dose of Haemophilus influenzae type b after 15 months of age.

Hep B : 3 doses hepatitis B.

Hib : At least 1 dose Haemophilus influenzae type b after 15 months of age.

MMR : 1 dose measles, 1 dose mumps and 1 dose rubella.

Meningococcal C conjugate : At least 1 dose of Meningococcal C conjugate on or after 12 months of age.

Pneumococcal conjugate: As defined by age of first dose: 3 doses pneumococcal conjugate if dose 1 before 12 months of age; 2 doses pneumococcal conjugate if dose 1 between 12 and 23 months of age.

Polio : 3 doses polio.

Varicella : 1 dose of varicella.

Rotavirus : 2 doses of rotavirus where first dose is given at least 20 weeks less 1 day of age and second dose given at least 8 months less 1 day of age.

Not vaccinated definition:

Children who have not received any vaccine antigens up to 2 years of age.

Table 1. Two-year-old immunization coverage rates* and 95% confidence intervals by HSDA.

Vancouver Coastal Health Authority, 2012 birth cohort

	Richmond			Vancouver			Coastal Urban			Coastal Rural			VCH		
	Rate	95% CI		Rate	95% CI		Rate	95% CI		Rate	95% CI		Rate	95% CI	
Up-to-date for age ¹	72%	67%	77%	72%	67%	77%	69%	63%	74%	64%	58%	70%	69%	67%	72%
Up-to-date for age minus booster ²	72%	67%	77%	73%	68%	77%	70%	65%	75%	65%	59%	71%	70%	67%	73%
<u>Individual antigens:</u>															
D/T/aP/IPV	87%	83%	91%	84%	80%	88%	80%	75%	85%	71%	65%	77%	81%	79%	83%
D/T/aP/IPV/Hib	86%	83%	90%	83%	79%	87%	80%	75%	84%	71%	65%	77%	81%	78%	83%
Hep B	86%	82%	90%	85%	82%	89%	85%	81%	89%	82%	77%	87%	85%	83%	87%
Hib	89%	86%	93%	86%	82%	90%	85%	80%	89%	77%	71%	82%	85%	82%	87%
MMR (1 dose)	94%	91%	96%	95%	92%	97%	95%	93%	98%	87%	83%	92%	93%	92%	94%
Polio	89%	85%	92%	85%	82%	89%	84%	79%	88%	75%	70%	81%	84%	82%	86%
Meningococcal C conjugate	90%	86%	93%	90%	87%	94%	93%	90%	96%	88%	84%	92%	90%	89%	92%
Pneumococcal conjugate	87%	84%	91%	89%	86%	92%	88%	84%	92%	86%	82%	91%	88%	86%	90%
Varicella	92%	89%	95%	91%	88%	94%	92%	89%	95%	84%	80%	89%	90%	88%	92%
Rotavirus	88%	85%	92%	85%	82%	89%	85%	81%	89%	77%	72%	83%	84%	82%	87%
Not up-to-date	28%	23%	33%	28%	23%	33%	31%	26%	37%	36%	30%	42%	31%	28%	33%
Not vaccinated	^	^	^	^	^	^	^	^	^	6%	3%	10%	3%	2%	4%

Data source: Vancouver Coastal Health Authority, 2012 Cohort Two-Year-Old Immunization Coverage Survey.

Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

*2012 coverage rates are based on a random sample from total surveys completed.

^Estimates with coefficients of variation greater than 33.3% are considered unreliable and therefore suppressed. CV is calculated to determine highly variable estimates due to a small sample size.

Table 2. Two-year-old immunization coverage rates* by HSDA.

Vancouver Coastal Health Authority, 2012 compared to 2003, 2006[†] and 2009 birth cohort

	Richmond				Vancouver				Coastal Urban				Coastal Rural				VCH			
	2003	2006	2009	2012	2003	2006	2009	2012	2003	2006	2009	2012	2003	2006	2009	2012	2003	2006	2009	2012
Up-to-date for age ¹	66%	85%	72%	72%	61%	70%	65%	72%	NA	82%	61%	69%	NA	79%	66%	64%	64%	77%	66%	69%
Up-to-date for age minus booster ²	NA	85%	77%	72%	NA	71%	70%	73%	NA	83%	70%	70%	NA	79%	74%	65%	NA	78%	72%	70%
<u>Individual antigens:</u>																				
D/T/aP/IPV	82%	93%	85%	87%	81%	80%	82%	84%	NA	92%	76%	80%	NA	88%	74%	71%	80%	87%	80%	81%
D/T/aP/IPV/HIB	80%	93%	85%	86%	78%	79%	82%	83%	NA	92%	76%	80%	NA	88%	74%	71%	78%	86%	80%	81%
Hep B	93%	96%	86%	86%	88%	91%	79%	85%	NA	94%	76%	85%	NA	88%	81%	82%	89%	93%	81%	85%
Hib	81%	95%	89%	89%	79%	85%	86%	86%	NA	93%	80%	85%	NA	89%	80%	77%	80%	90%	84%	85%
MMR (1 dose)	95%	98%	95%	94%	94%	96%	93%	95%	NA	97%	92%	95%	NA	92%	88%	87%	94%	96%	92%	93%
Polio	82%	94%	88%	89%	81%	83%	86%	85%	NA	93%	80%	84%	NA	88%	77%	75%	81%	89%	83%	84%
Meningococcal C conjugate	83%	94%	91%	90%	80%	92%	89%	90%	NA	94%	88%	93%	NA	90%	86%	88%	81%	93%	89%	90%
Pneumococcal conjugate	74%	90%	88%	87%	73%	85%	84%	89%	NA	91%	86%	88%	NA	88%	84%	86%	74%	88%	86%	88%
Varicella	NA	94%	91%	92%	NA	90%	87%	91%	NA	94%	86%	92%	NA	87%	83%	84%	NA	92%	87%	90%
Rotavirus	NA	NA	NA	88%	NA	NA	NA	85%	NA	NA	NA	85%	NA	NA	NA	77%	NA	NA	NA	84%
Not-up-to date	34%	15%	28%	28%	39%	30%	35%	28%	NA	18%	39%	31%	NA	21%	34%	36%	36%	23%	34%	31%

Data source: Vancouver Coastal Health Authority, 2009 & 2012 Cohort Two-Year-Old Immunization Coverage Surveys. Vancouver Coastal Health and Vaccine Evaluation Centre, 2003 & 2006 Cohort Two-Year-Old Immunization Coverage Surveys.

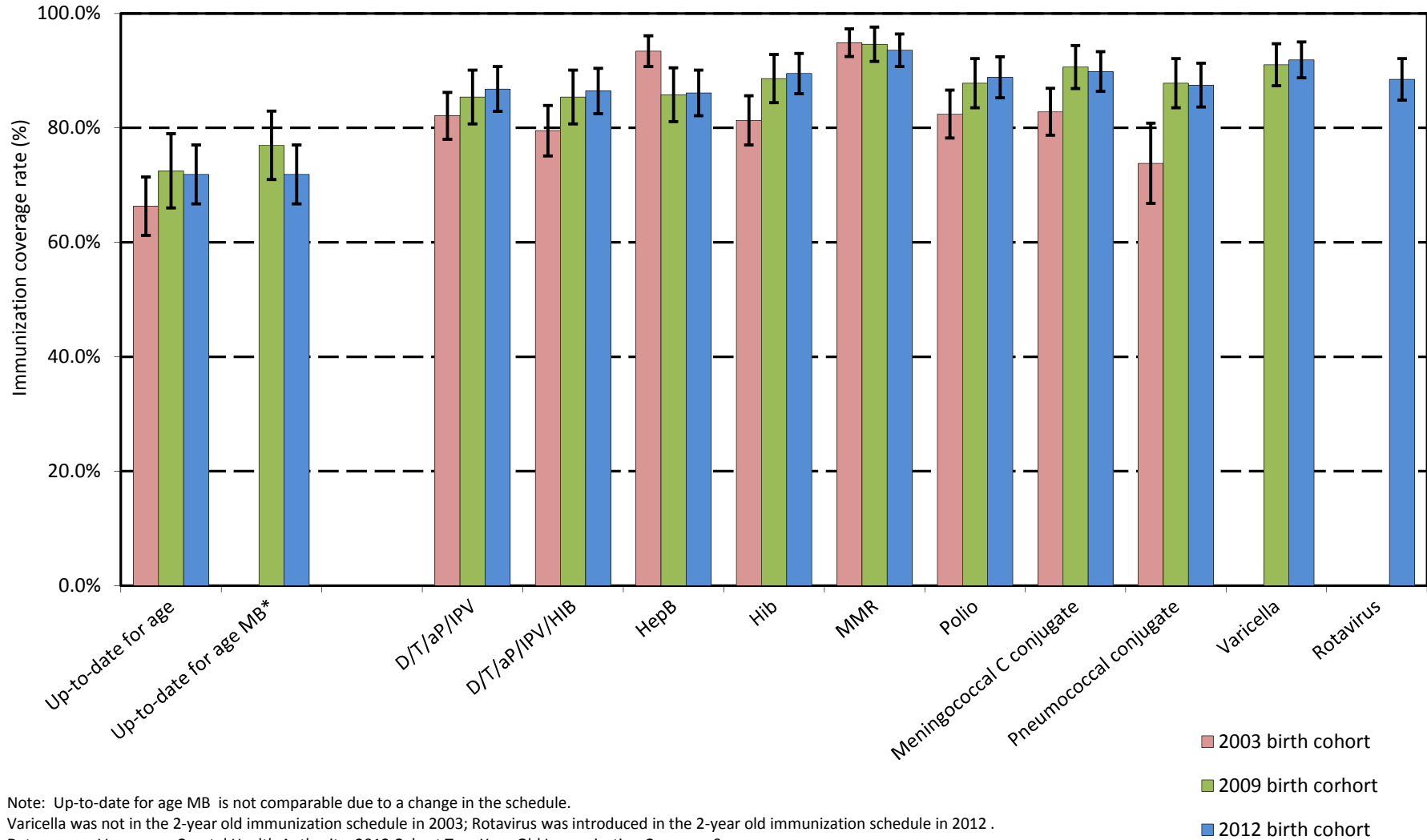
Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

*2012 coverage rates are based on a random sample from total surveys completed.

[†]2006 coverage rates are not comparable to 2003, 2009 and 2012 due to varying methods of collection between cohorts.

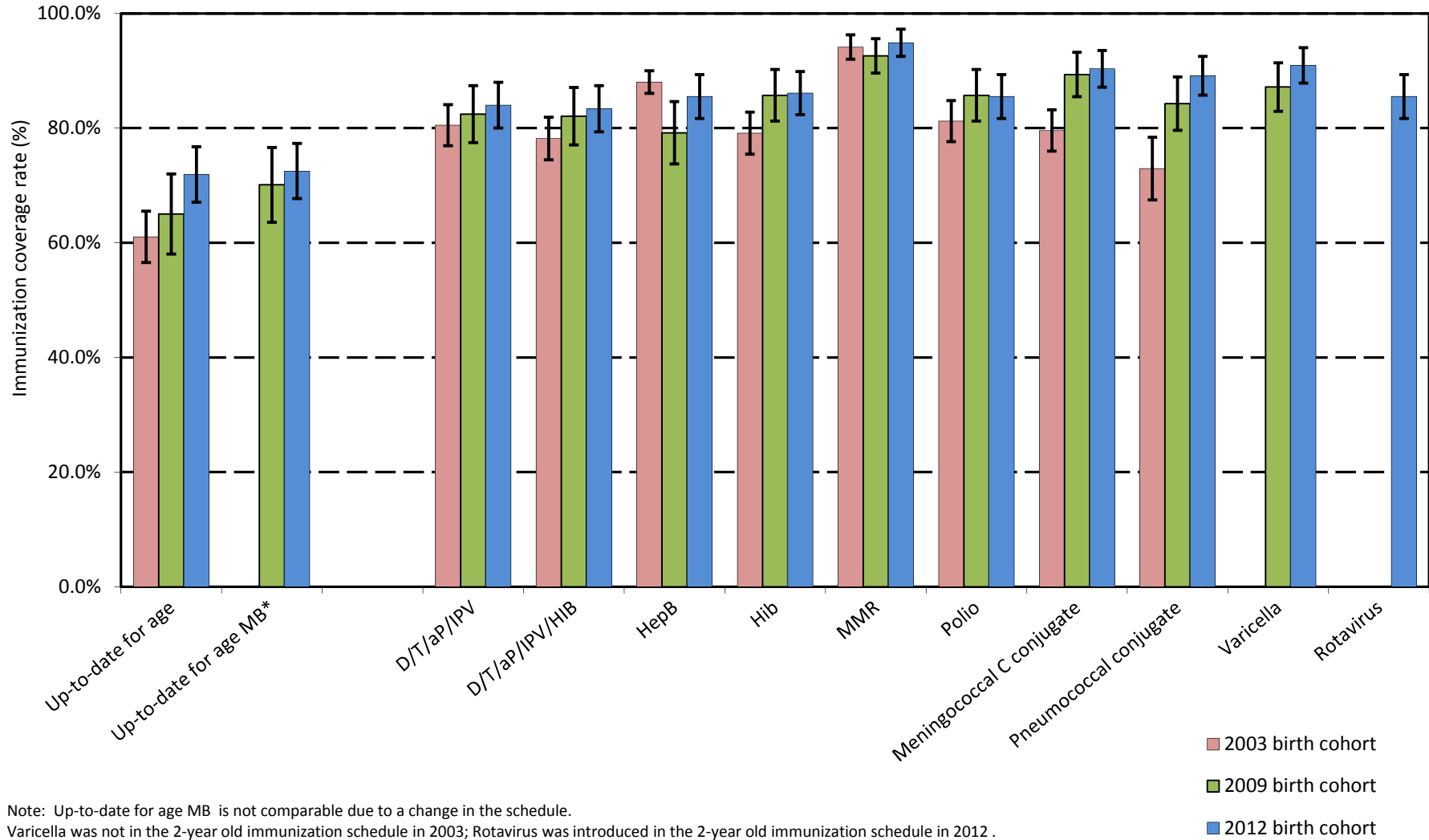
NA: Up-to-date for age MB is not comparable due to a change in the schedule. Varicella was not in the 2-year old immunization schedule in 2003; Rotavirus was introduced in the 2-year old immunization schedule in 2012 .

**Figure 1. Two-year-old immunization coverage rates and 95% confidence intervals.
Richmond HSDA, 2012 compared to 2003 and 2009 birth cohorts**



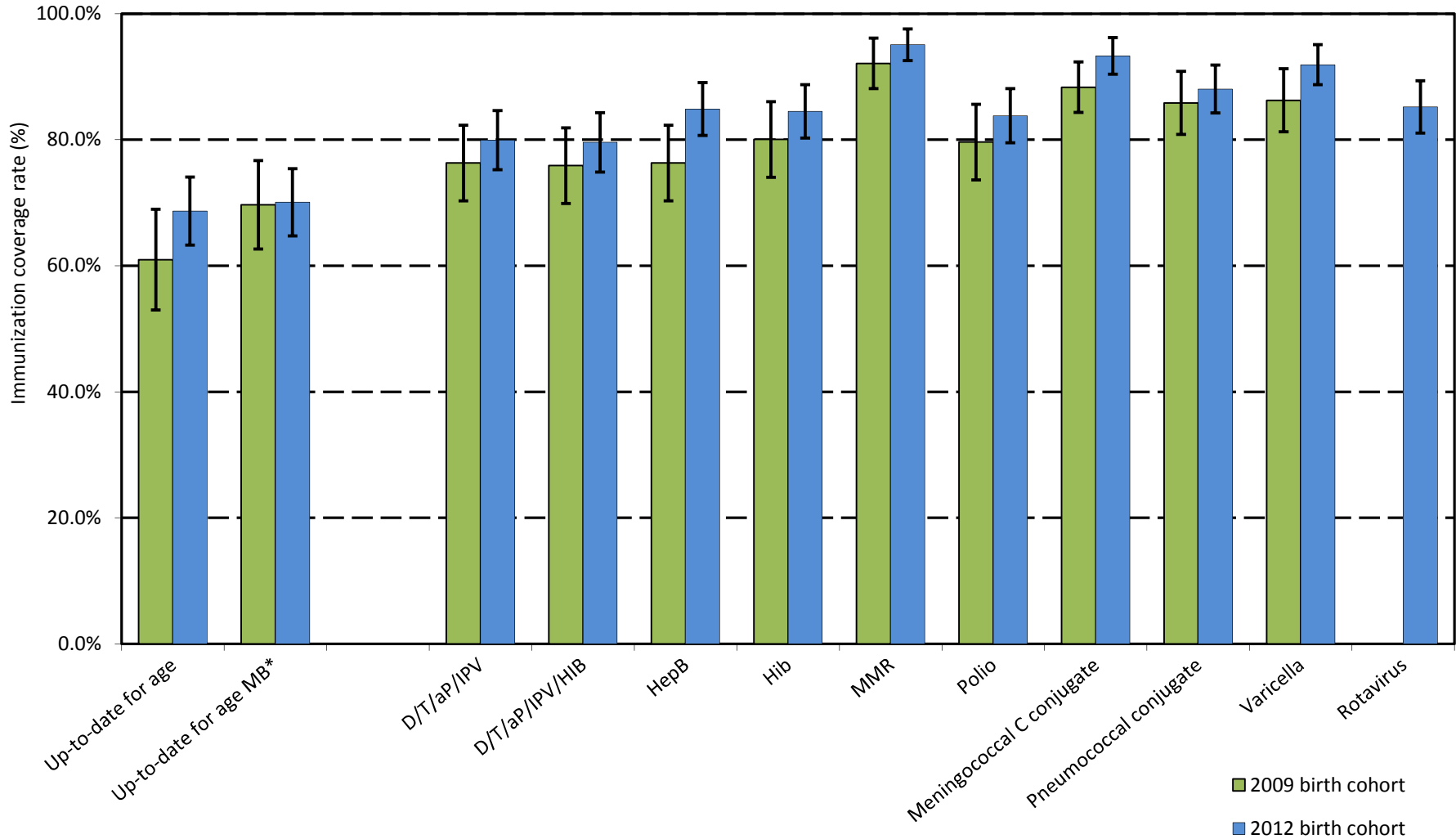
Note: Up-to-date for age MB is not comparable due to a change in the schedule.
 Varicella was not in the 2-year old immunization schedule in 2003; Rotavirus was introduced in the 2-year old immunization schedule in 2012.
 Data source: Vancouver Coastal Health Authority, 2012 Cohort Two-Year-Old Immunization Coverage Survey.
 Vancouver Coastal Health and Vaccine Evaluation Centre, 2003 Cohort Two-Year-Old Immunization Coverage Survey.
 Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

**Figure 2. Two-year-old immunization coverage rates and 95% confidence intervals.
Vancouver HSDA, 2012 compared to 2003 and 2009 birth cohorts**



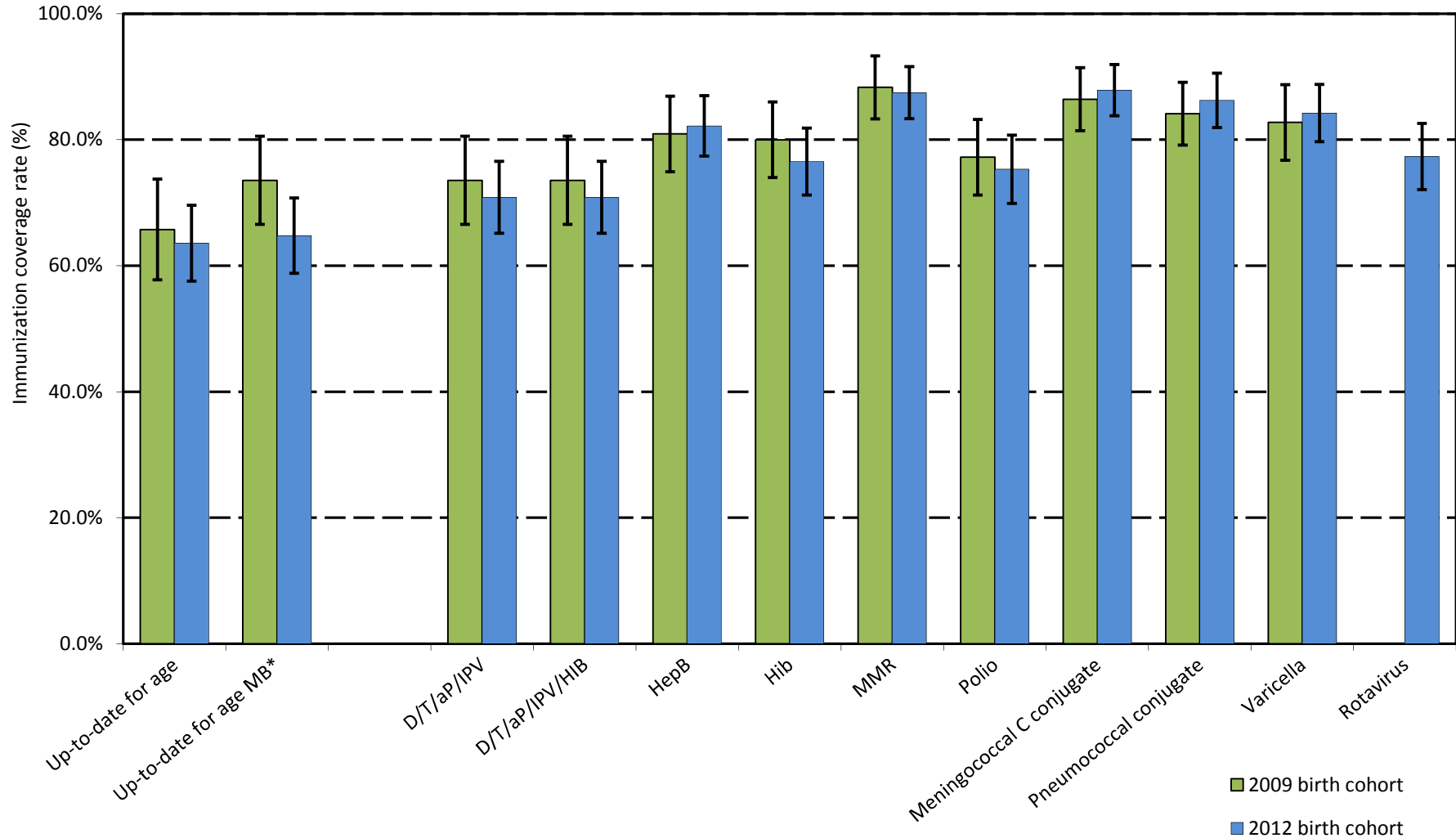
Note: Up-to-date for age MB is not comparable due to a change in the schedule.
 Varicella was not in the 2-year old immunization schedule in 2003; Rotavirus was introduced in the 2-year old immunization schedule in 2012.
 Data source: Vancouver Coastal Health Authority, 2012 Cohort Two-Year-Old Immunization Coverage Survey.
 Vancouver Coastal Health and Vaccine Evaluation Centre, 2003 Cohort Two-Year-Old Immunization Coverage Survey.
 Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

**Figure 3. Two-year-old immunization coverage rates and 95% confidence intervals.
Coastal Urban HSDA, 2012 compared to 2009 birth cohort**



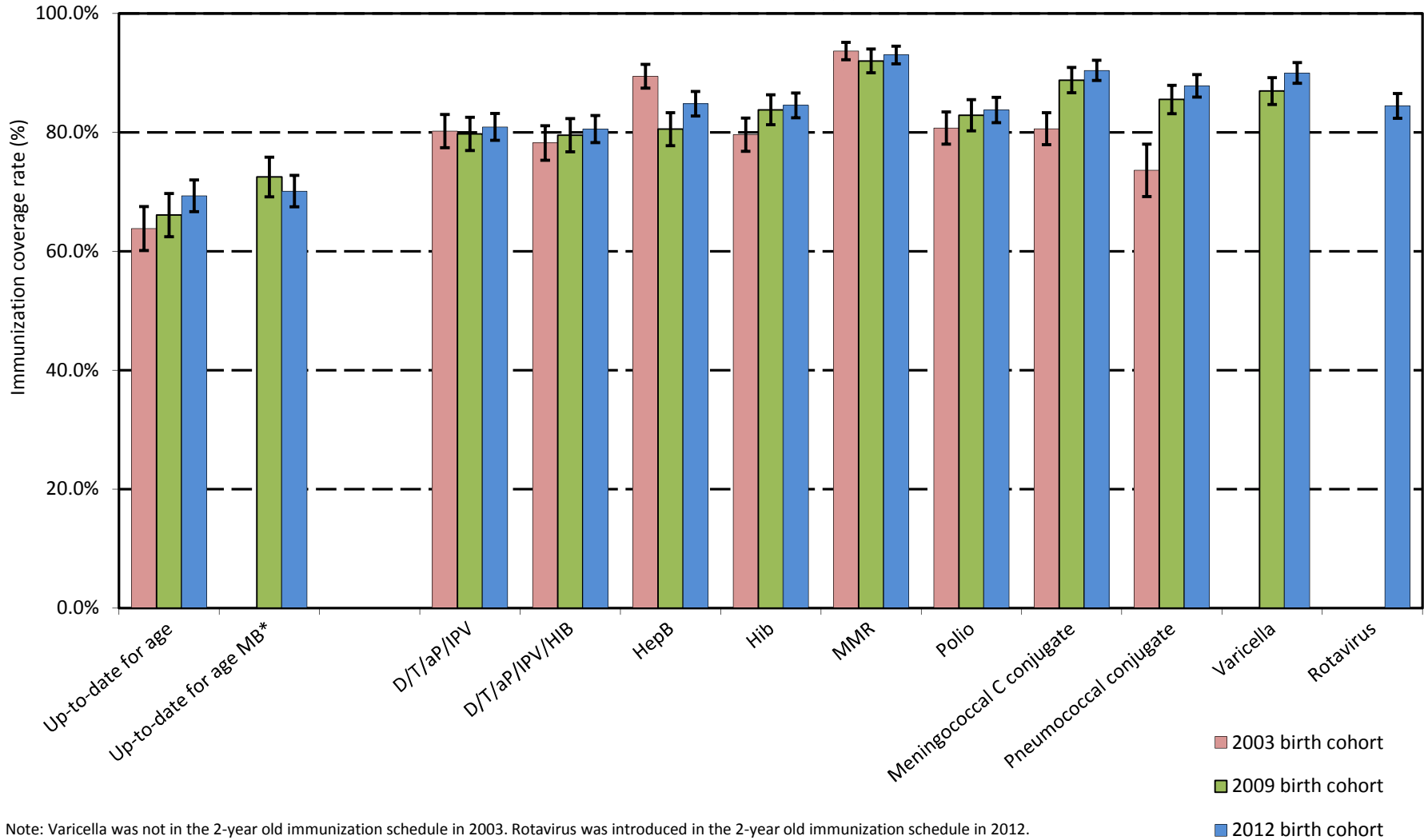
Note: Rotavirus was introduced in the 2-year old immunization schedule in 2012 .
 Data source: Vancouver Coastal Health Authority, 2012 Cohort Two-Year-Old Immunization Coverage Survey.
 Vancouver Coastal Health and Vaccine Evaluation Centre, 2003 Cohort Two-Year-Old Immunization Coverage Survey.
 Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

**Figure 4. Two-year-old immunization coverage rates and 95% confidence intervals.
Coastal Rural HSDA, 2012 compared to 2009 birth cohort**



Note: Rotavirus was introduced in the 2-year old immunization schedule in 2012 .
 Data source: Vancouver Coastal Health Authority, 2012 Cohort Two-Year-Old Immunization Coverage Survey.
 Vancouver Coastal Health and Vaccine Evaluation Centre, 2003 Cohort Two-Year-Old Immunization Coverage Survey.
 Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

**Figure 5. Two-year-old immunization coverage rates and 95% confidence intervals.
Vancouver Coastal Health Authority, 2012 compared to 2003 and 2009 birth cohorts**



Note: Varicella was not in the 2-year old immunization schedule in 2003. Rotavirus was introduced in the 2-year old immunization schedule in 2012.
 Data source: Vancouver Coastal Health Authority, 2012 Cohort Two-Year-Old Immunization Coverage Survey.
 Vancouver Coastal Health and Vaccine Evaluation Centre, 2003 Cohort Two-Year-Old Immunization Coverage Survey.
 Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

Table 3. Two-year-old immunization coverage rates* by HSDA.

Vancouver Coastal Health Authority compared to the rest of British Columbia, 2012 cohort

	VCH			IHA	FHA	VIHA	NHA	BC [†]
	Rate	95% CI						
Up-to-date for age ¹	69%	67%	72%	68%	68%	65%	65%	67%
Up-to-date for age minus booster ²	70%	67%	73%	77%	76%	76%	75%	76%
<u>Individual antigens</u>								
D/T/aP/IPV	81%	79%	83%	73%	74%	70%	70%	73%
D/T/aP/IPV/Hib	81%	78%	83%	73%	74%	70%	70%	72%
Hep B	85%	83%	87%	84%	83%	84%	84%	84%
Hib	85%	82%	87%	76%	77%	75%	74%	76%
MMR (1 dose)	93%	92%	94%	85%	85%	85%	84%	85%
Polio	84%	82%	86%	75%	76%	74%	73%	82%
Meningococcal C conjugate	90%	89%	92%	85%	84%	85%	84%	84%
Pneumococcal conjugate	88%	86%	90%	83%	82%	83%	81%	82%
Varicella	90%	88%	92%	81%	83%	82%	80%	82%
Rotavirus	84%	82%	87%	69%	69%	70%	71%	70%

Data source: VCH coverage rate from VCH, 2012 Cohort Two-Year-Old Immunization Coverage Survey. Rest of health authorities coverage rates from BC Centre for Disease Control, Immunization Coverage Rates for Children Under 2 (2007-2014), February 2015.

Prepared by: Vancouver Coastal Health, Public Health Surveillance Unit, September 2015.

*2012 coverage rates are based on a random sample from total surveys completed.

[†]BC coverage rate excluding VCH.