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# Manitoba First Nations Community Childhood Immunization Coverage Report 2008-2012



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# Manitoba First Nations Community Childhood Immunization Coverage Report

## Introduction

Immunization is the process whereby a person is made resistant to an infectious disease by the administration of a vaccine which stimulates the body's immune system to protect the person against subsequent infection or disease.<sup>1</sup> This remains one of the most cost-beneficial interventions in public health. The immunization program at the Manitoba Region of First Nations and Inuit Health Branch (FNIHB-MB) is part of a larger program to help prevent communicable diseases and promote health in Manitoba's First Nations communities.

The ability of a community to withstand an outbreak of a vaccine-preventable disease depends on high immunization coverage among residents of that community. The closer the community immunization coverage is to 100%, the lower the likelihood that a susceptible person (i.e., someone who has not received the vaccine or did not mount a sufficient immune response to a vaccine) will come into contact with an infected individual.<sup>2</sup>

This report provides information on immunization coverage using data from two sources: the *Community-Based Immunization Coverage Reports* and the provincial immunization registry, *Manitoba Immunization Monitoring System* (MIMS). For all Manitoba First Nations communities combined, the rates of children immunized have been calculated using both data sources, for each age milestone (ages 1, 2, 7, 11, and 17), unless otherwise specified. Immunization rates vary from community to community, therefore generalizations about Manitoba First Nations immunization coverage should be interpreted with caution. MIMS immunization num-

## Data Sources

Each year FNIHB-MB receives immunization numbers for children living in First Nations communities from two different data sources:

- Community-Based Immunization Reports are submitted by a nurse from each community
- MIMS data are provided to FNIHB-MB by MH

bers are further compared to overall rates for all Manitoba for 2008 to 2010. Immunization data for all Manitoba for 2011 and 2012 have not yet been published by Manitoba Health (MH) and are not included in this report.

Over time, new vaccines and booster shots are introduced to the provincial immunization schedule to cover different communicable diseases, to protect against additional strains or serotypes of a disease, or to boost immunity. New vaccines are those that have been introduced in the last five years. Generally, coverage for new vaccines is not assessed for at least three years because slow uptake would cause immunization rates at those age milestones to decrease compared to previous years.

In September 2008, the vaccine that protects against the Human Papillomavirus (HPV) was included in the immunization schedule for all grade six girls in the province. Further, in January 2009, eligibility for the Meningococcal Conjugate (Men-C) vaccine was expanded to include 12-month-olds. At this point, HPV uptake is not included in the age-specific immunization coverage calculations. However, starting in 2011, the complete-for-age (CFA) calculations include one dose of Men-C by age two and one dose of Varicella by age seven. This may influence cov-

<sup>1</sup> <http://www.who.int/topics/immunization/en/>

<sup>2</sup> John Last (Ed.), *Dictionary of Public Health*, (Oxford: University Press, 2007) 165.

erage rates. (For additional information on the immunization schedule, see: <http://www.gov.mb.ca/health/publichealth/cdc/schedule.html>).

Although vaccine refusals can be reported on the community reports, most communities do not record this information and MIMS does not consistently track refusals. Therefore, refusal numbers are not a part of this report. It is important to note that this report is not used as a measure of work performance, but rather a measure of a population's protection from vaccine-preventable diseases. Therefore, individuals who refuse immunization must be regarded as un- or under-immunized as they remain vulnerable to vaccine-preventable diseases and collectively decrease the immunity of the population. It is the aim of this report to provide health care practitioners and decision-makers with a tool to help make immunization program-related decisions, to identify current program limitations, and to encourage reporting and on-going communication with FNIHB.

### Data Limitations

There are a number of issues that may influence the reported immunization coverage rates of First Nations children:

- Identification of target populations and verification of population numbers
- Gaps between the number of immunizations administered and the actual numbers reported in MIMS
- Late-starters may follow a modified immunization schedule that cannot be incorporated into this analysis
- The Manitoba First Nations on-reserve population varies over time

### Excerpt from Manitoba Health's Recommended Immunization Schedule<sup>3</sup>

Vaccine	Age								
	2 mos	4 mos	6 mos	12 mos	18 mos	4-6 yrs	Grade 4	Grade 6	14-16 yrs
Diphtheria, Tetanus, Pertussis, Polio, Haemophilus influenzae type b (DTaP-IPV-Hib)	♦	♦	♦		♦				
Pneumococcal Conjugate 13 valent (Pneu-C-13) <sup>^</sup>	♦	♦	♦		♦				
Measles, Mumps, Rubella, Varicella (MMRV)				♦					
Measles, Mumps, Rubella (MMR)						♦			
Meningococcal C Conjugate (Men-C-C)				♦			♦		
Diphtheria, Tetanus, Pertussis, Polio (DTaP-IPV)						♦			
Hepatitis B (HB)							♦♦♦		
Human Papillomavirus (HPV)								♦♦♦ Girls only	
Tetanus, Diphtheria, Pertussis (Tdap)									♦

<sup>3</sup> <http://www.gov.mb.ca/health/publichealth/cdc/schedule.html>

<sup>^</sup>Children of First Nations ancestry follow a modified schedule. Doses at 2-, 4-, and 12-months of age are recommended for all other Manitoban children.

## Section One

# Community-Reported Immunization Coverage Summary

*Immunization surveillance allows for the determination of vaccine effectiveness among defined First Nations populations.*

### Key Points:

1. In 2012, immunization coverage rates for two-, 11-, and 17-year-olds increased by between 2.6% to 5.2% from 2011.
2. Immunization coverage rates for seven-year-olds decreased by 3.4% in 2012 compared to 2011.
3. The rate for one-year-olds did not change.

### Data

Each year, the nurse-in-charge (NIC) is asked to submit the Community-Based Immunization Coverage Report form to FNIHB-MB (See Appendix B for more information). Numbers reported are based on master immunization listings, manual file reviews, or other community-specific tracking methods.

The completeness of the information for this portion of the report depends on the availability and quality of the data reported. Consistent submission of these reports is important as calculations are based on the total population of reporting communities only. Nine of the 63 Manitoba First Nation communities are served by provincial or RHA health care providers and are not required to report to FNIHB. Since 2009, all remaining 54 communities that are required to report have submitted their immunization data.

### Coverage Assessment

Community-reported immunization coverage is assessed based on the number of children who have received all required doses of a vaccine by

the end of the calendar year in which the cohort attains the specified age milestone (See Table 1.1). This is what we refer to as up-to-date (UTD). For example, if a child born on Feb 15, 2011 received 3 doses of DaPT-IPV Hib by December 31, 2012, he or she would be considered UTD.

For the age milestones that require more than one vaccine, the vaccine with the lowest coverage is reported. For example, a community that had 15 children born in 2011: if 15 had all 3 doses of DaPT-IPV Hib by December 31, 2012, but only 13 had all 3 doses of Pneu-C-13, we would report 13/15 (86.7 per 100 children) as the coverage rate for one-year olds. See Appendix table C.1 and the following figures for these results.

### Changes

Over the years, as vaccines have been added to the Manitoba immunization schedule, the data collection form (see Appendix B) has been altered to collect the additional information.

In 2011, it was decided to remove Varicella and BCG for the seven-year-olds. However, MH

**Table 1.1** Number of doses of each vaccine required by each age milestone.

Vaccine	Number of Doses Required to be UTD				
	Age 1	Age 2	Age 7	Age 11	Age 17
<b>DTaP-IPV-Hib</b>	3	4	4		
<b>Pneu-C-13</b>	3	4			
<b>MMR</b>		1	2		
<b>Varicella</b>		1			
<b>Men-C</b>		1		1	
<b>DTaP-IPV</b>			1		
<b>HB</b>				3	
<b>Tdap</b>					1

opted to include Varicella in their calculations for this age group. Therefore, Varicella coverage at age seven has been reintroduced in this year's report. Also, traditionally, communities were asked to report on children in Grade 4, however, starting in 2012, communities were instead asked to report for the 11-year-olds which coincides with the MH age milestone.

## HPV

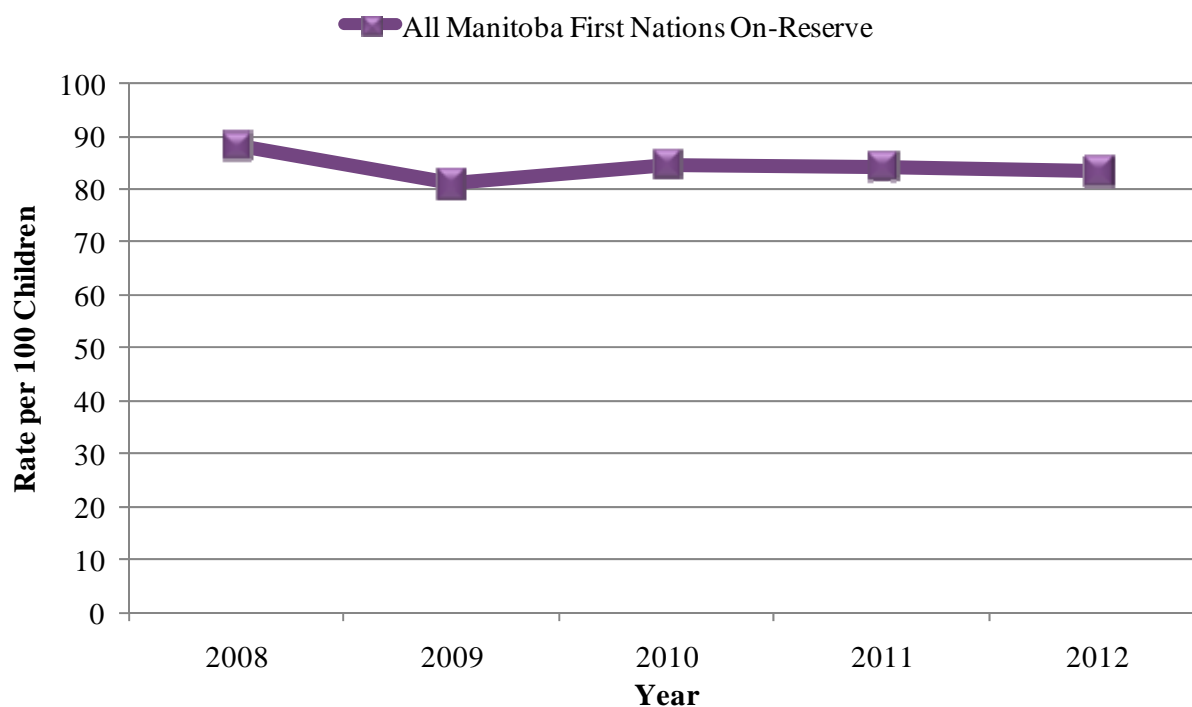
Although not included in the UTD calculations, uptake of the HPV vaccine, introduced for grade six girls in September 2008, is being monitored. Table 1.2 shows these results.

**Table 1.2** HPV Vaccine Immunization Coverage for Grade 6 Girls Living On-Reserve in Manitoba (Community-Based Immunization Coverage Report data).

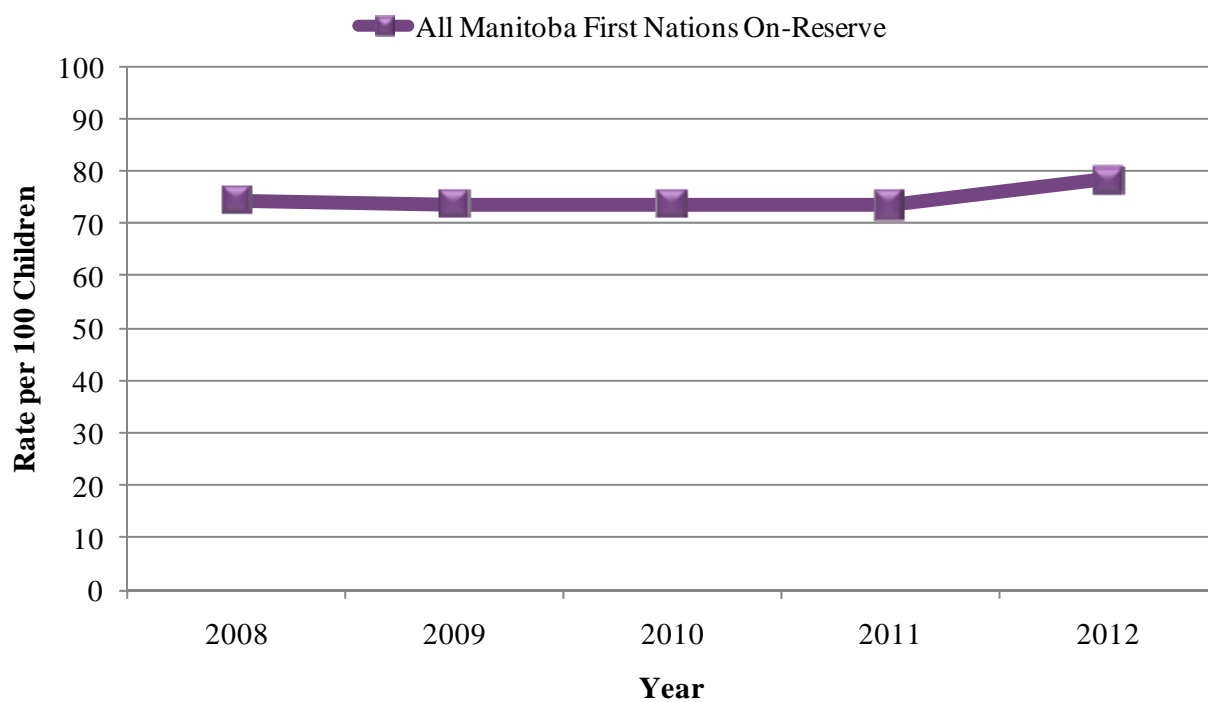
	2009		2010		2011		2012	
	POP	UTD	POP	UTD	POP	UTD	POP	UTD
<b>Grade 6 Girls</b>	689	372	692	393	729	457	648	449
<b>Rate Per 100 Girls</b>		<b>54.0</b>		<b>56.8</b>		<b>62.7</b>		<b>69.3</b>



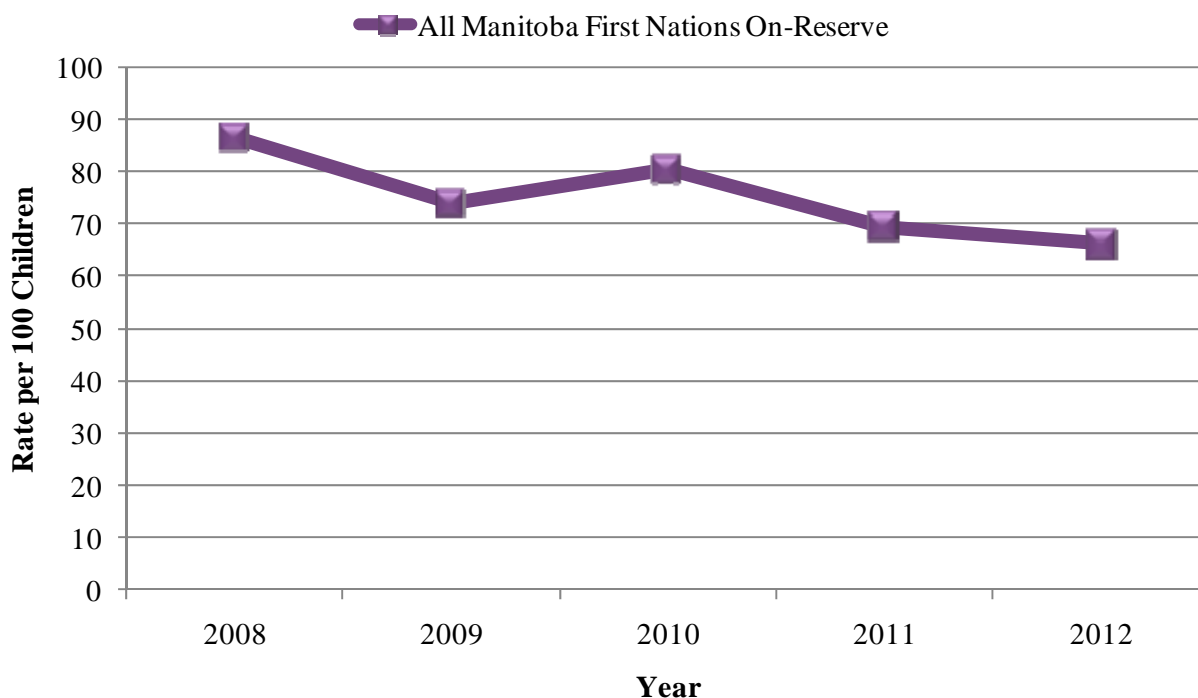
**Figure 1.1** One-year-old children with up-to-date immunizations, based on community-reported data, 2008 to 2012



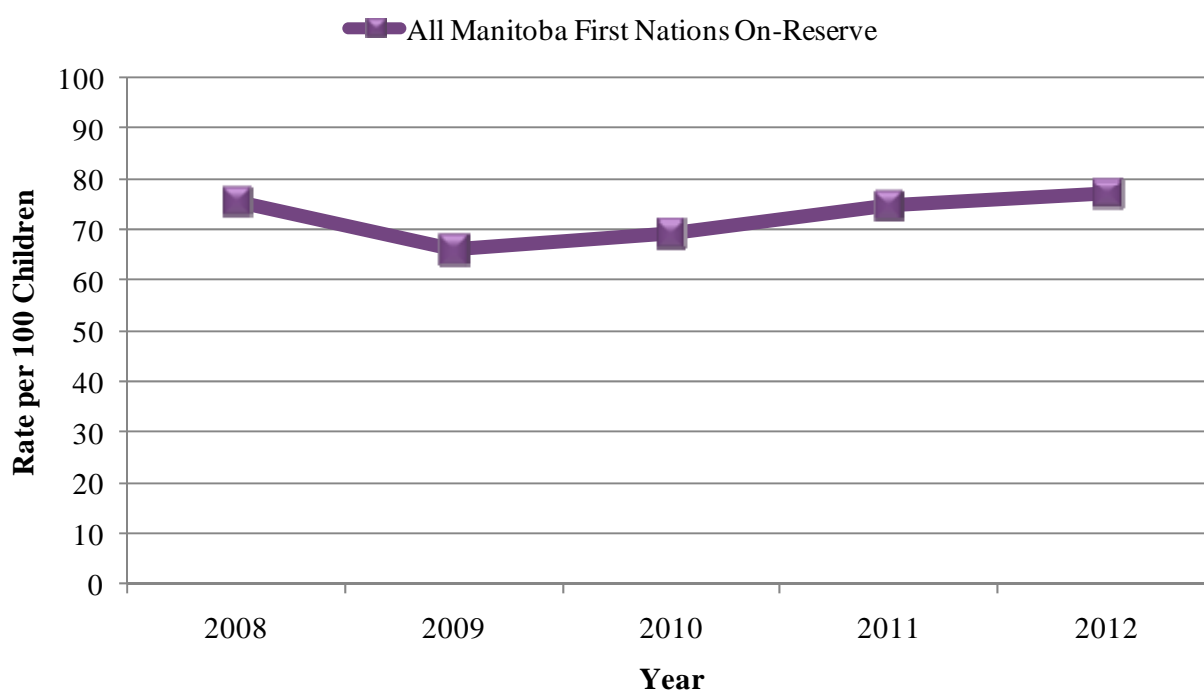
**Figure 1.2** Two-year-old children with up-to-date immunizations, based on community-reported data, 2008 to 2012



**Figure 1.3** Seven-year-old children with up-to-date immunizations, based on community-reported data, 2008 to 2012

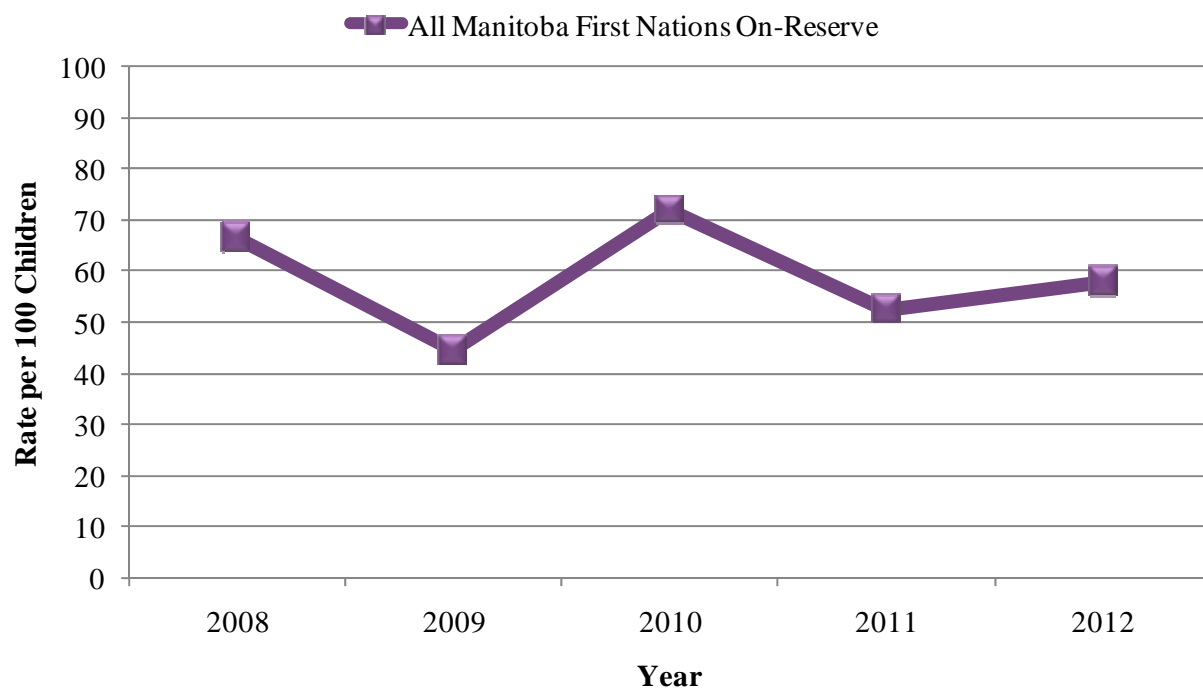


**Figure 1.4** 11-year-old children with up-to-date immunizations, based on community-reported data, 2008 to 2012\*



\*Prior to 2012 data were collected on 9-12 year old children to coincide with the Grade 4 immunization program

**Figure 1.5** 17-year-old children with up-to-date immunizations, based on community-reported data, 2008 to 2012



## Section Two

# MIMS Immunization Coverage Summary

*Surveillance is important for identifying changes in the epidemiology of the disease.*

### Key Points:

1. Immunization coverage rates for two- and 17-year-olds increased slightly from 2011 to 2012.
2. The immunization coverage rate for seven-year-olds increased in 2012 after decreasing in 2011. The 2012 rate was lower than the rates in 2008, 2009, and 2010.
3. Immunization coverage rates for one- and 11-year-olds decreased in 2012 after an increase in previous years.

### Data

Within MH, First Nations classification is based on client self-identification at the time of registration for provincial health benefits. This creates an indicator, commonly referred to as the A-code. It is estimated that only 60 to 65% of First Nations residents are identified as such with MH. Therefore, the numbers for First Nations children in Appendix Table C.2 may not include all children in the community.

Each spring, FNIHB-MB submits a request for MIMS data for all A-code clients living on-reserve for the previous year. Once the data have been received, they are broken down and analyzed by First Nation community and by all Manitoba First Nations combined.

### Coverage Assessment

MIMS-reported immunization coverage is based on the number of children who have received all required doses of a vaccine recommended for his/her age (see Table 2.1) by the time he or she attains that age milestone (i.e., by

their birthday). This is what MH refers to as CFA.

At each age milestone, immunization status is assessed by comparing the number of children who have received all required doses of vaccine to the number of children eligible for the vaccines. See Table C.2 and the following figures for these results.

### Changes

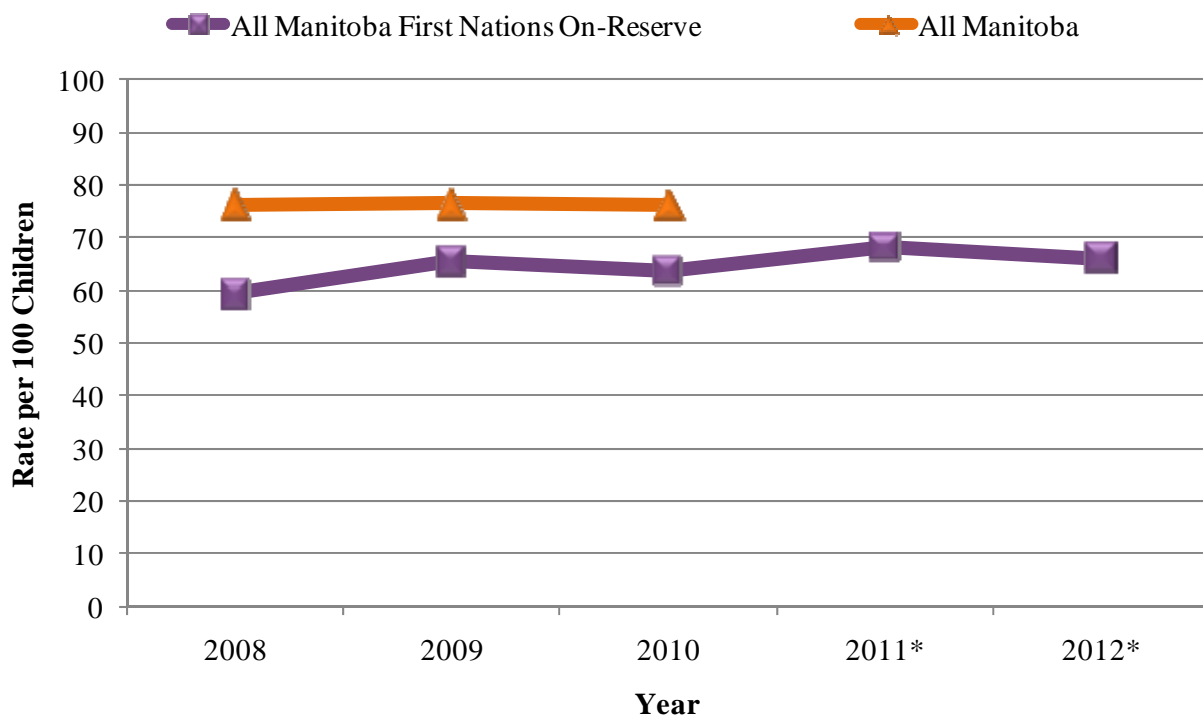
The following is a summary of changes from 2008 to 2012:

- In 2008, MH changed their CFA criteria to include:
  - ◊ Three, rather than four doses of Haemophilus influenza type b for seven-year-olds.
- In 2011, MH changed their CFA criteria to include:
  - ◊ One dose of Meningococcal Conjugate for two-year-olds.
  - ◊ One dose of Varicella for seven-year-olds.

**Table 2.1** Number of doses of each antigen required to be CFA by each age milestone.

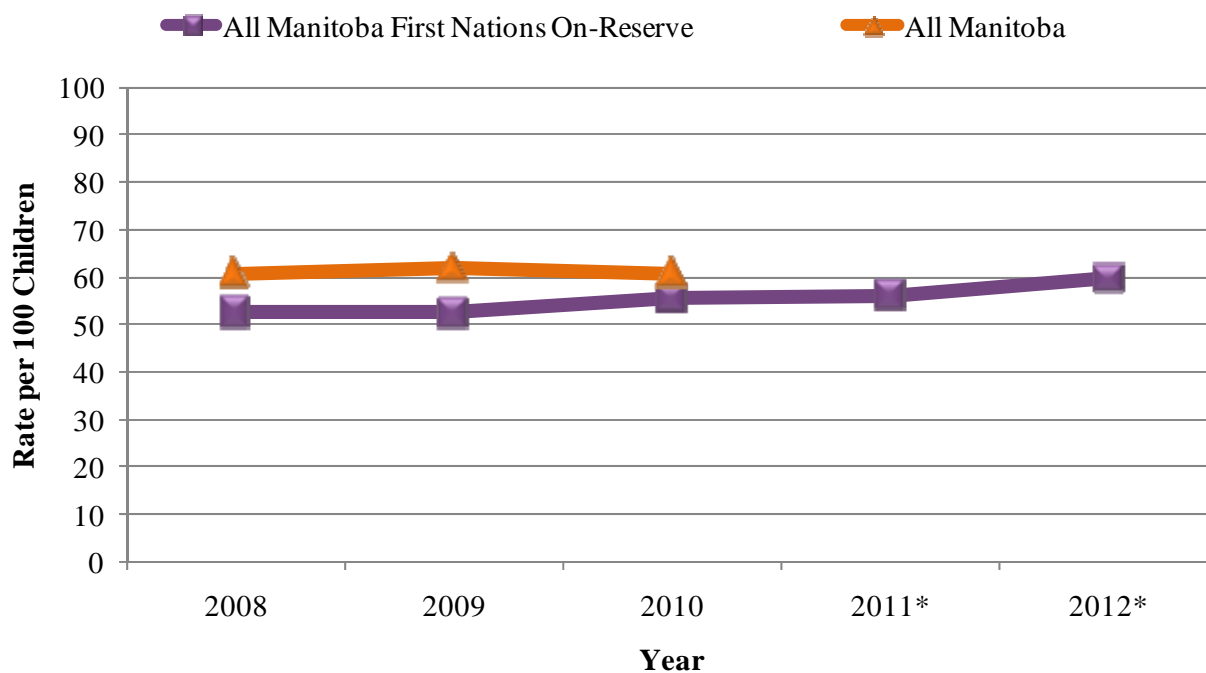
Vaccine	Number of Doses Required to be CFA				
	Age 1	Age 2	Age 7	Age 11	Age 17
<b>Diphtheria</b>	3	4	5	5	6
<b>Tetanus</b>	3	4	5	5	6
<b>Pertussis</b>	3	4	5	5	6
<b>Polio</b>	2	3	3	3	3
<b>Hib</b>	3	4	4		
<b>Pneu-C-13</b>	3	4			
<b>Measles</b>		1	2	2	2
<b>Mumps</b>		1	1	1	1
<b>Rubella</b>		1	1	1	1
<b>Varicella</b>		1	1		
<b>Men-C</b>		1		1	
<b>Hepatitis B</b>				3	3

**Figure 2.1** One-year-old children with an A-code identifier who are CFA, based on MIMS data, 2008 to 2012

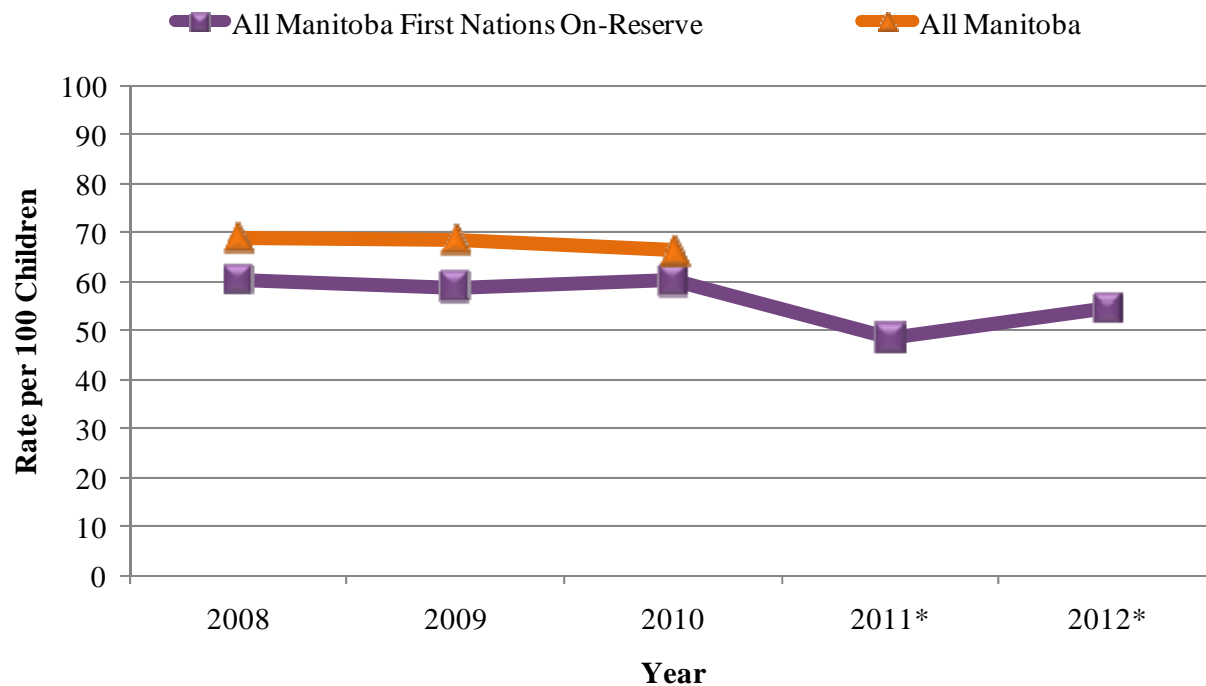


\*No data available for All Manitoba in 2011 and 2012

**Figure 2.2** Two-year-old children with an A-code identifier who are CFA, based on MIMS data, 2008 to 2012

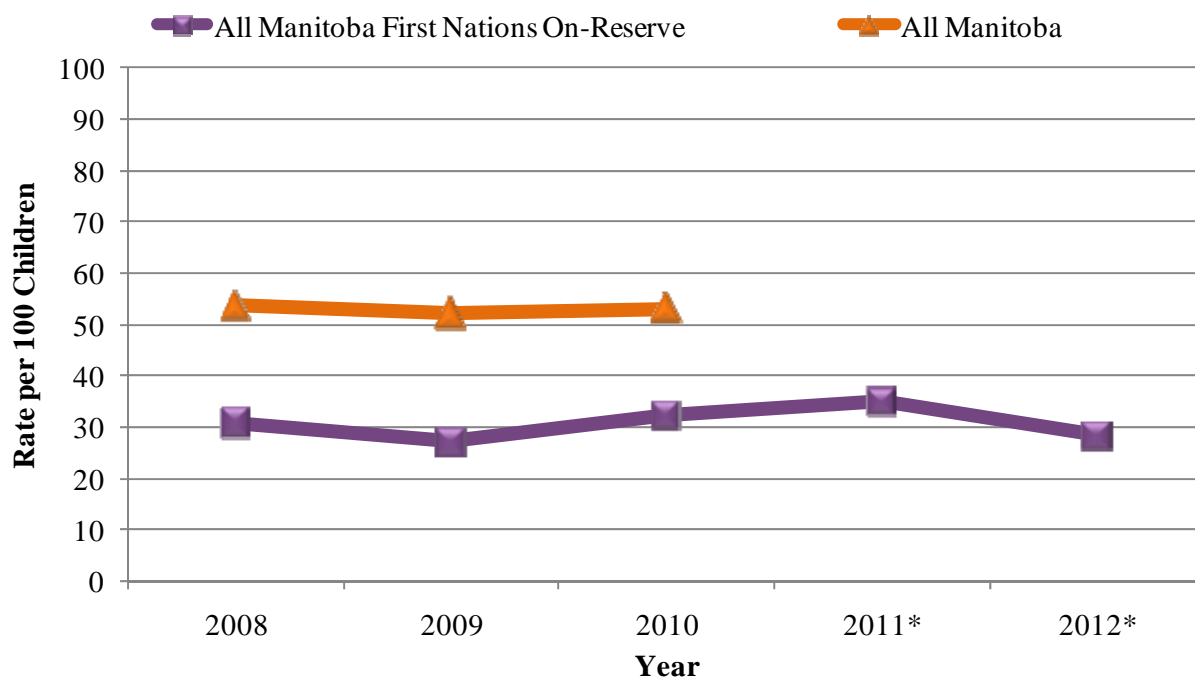


**Figure 2.3** Seven-year-old children with an A-code identifier who are CFA, based on MIMS data, 2008 to 2012

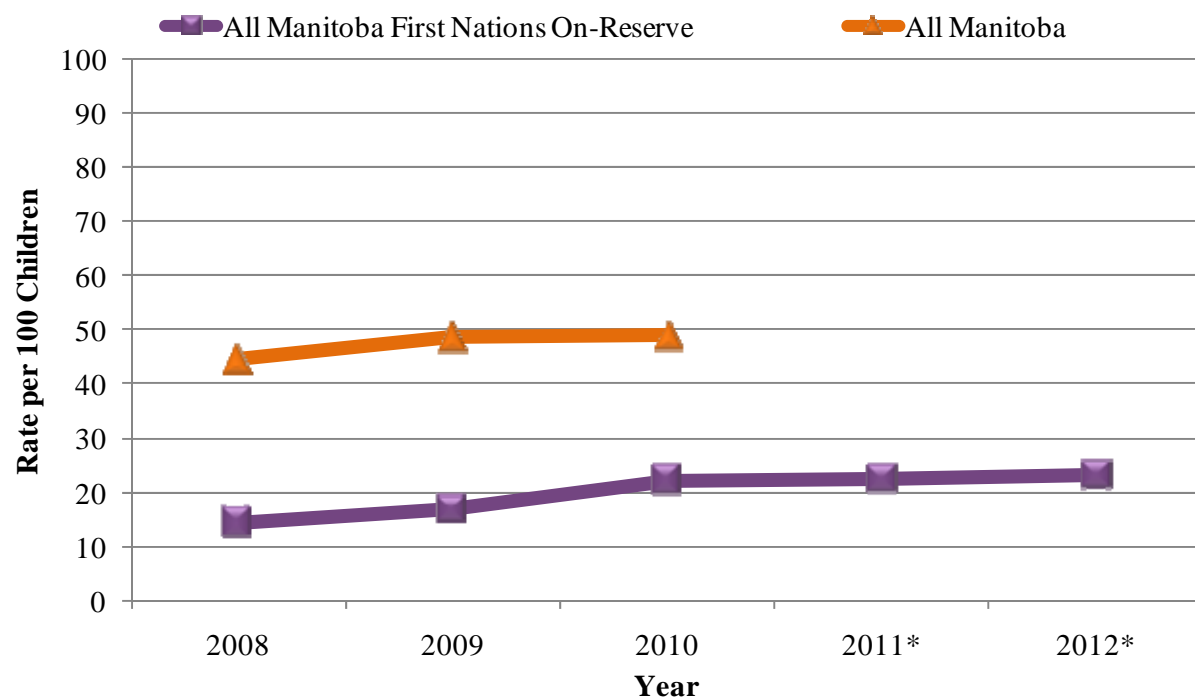


\*No data available for All Manitoba in 2011 and 2012

**Figure 2.4** 11-year-old children with an A-code identifier who are CFA, based on MIMS data, 2008 to 2012



**Figure 2.5** 17-year-old children with an A-code identifier who are CFA, based on MIMS data, 2008 to 2012



\*No data available for All Manitoba in 2011 and 2012

## Section Three

### Comparison of Community and MIMS Data

*Confidence in vaccinations is important in determining program success.*

#### Key Points:

1. In 2012, community-reported immunization rates were higher than the rates reported in MIMS for all age groups.
2. The discrepancy between community-reported and MIMS immunization rates for all age groups is decreasing over time.
3. The rates for the seven-year-olds are converging in part because of lower community-reported immunization rates in 2012.

Community-reported immunization rates have typically been higher than those calculated using MIMS data. Comparison of data from these two sources can be used to identify community-specific reporting issues and/or program gaps.

#### Age Milestones

This section includes a comparison of MIMS data and the community-reported data for one, two, and seven-year olds. Comparisons for the 11- and 17-year-olds are not possible because until 2012, the community-reported immunization forms collected data for all Grade 4 students (age 9 to 12) rather than 11-year-olds, and because community-reported rates for both age groups do not include historical vaccinations. (For example, community-reported rates for 11-year olds include only HB and Men-C, whereas MIMS counts those vaccines and all vaccines from previous age milestones).

#### Coverage Assessment

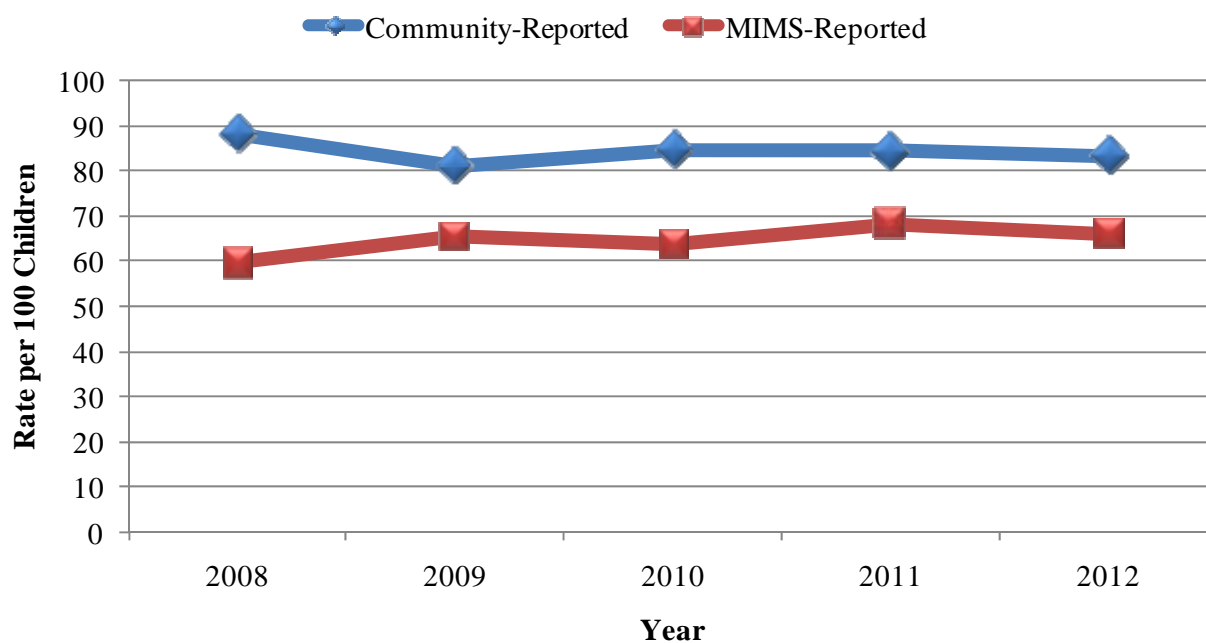
Appendix table C.3 and the following figures compare the community-reported immunization rates to the MIMS-reported coverage rates. In a community where both reporting systems work well, the coverage rates should be similar. Differences in rates may be a result of reporting/data entry errors or delays, or because a First Nations child is not accurately identified with an A-code or as a resident of a particular First Nations community in the MH client registry.

#### Changes

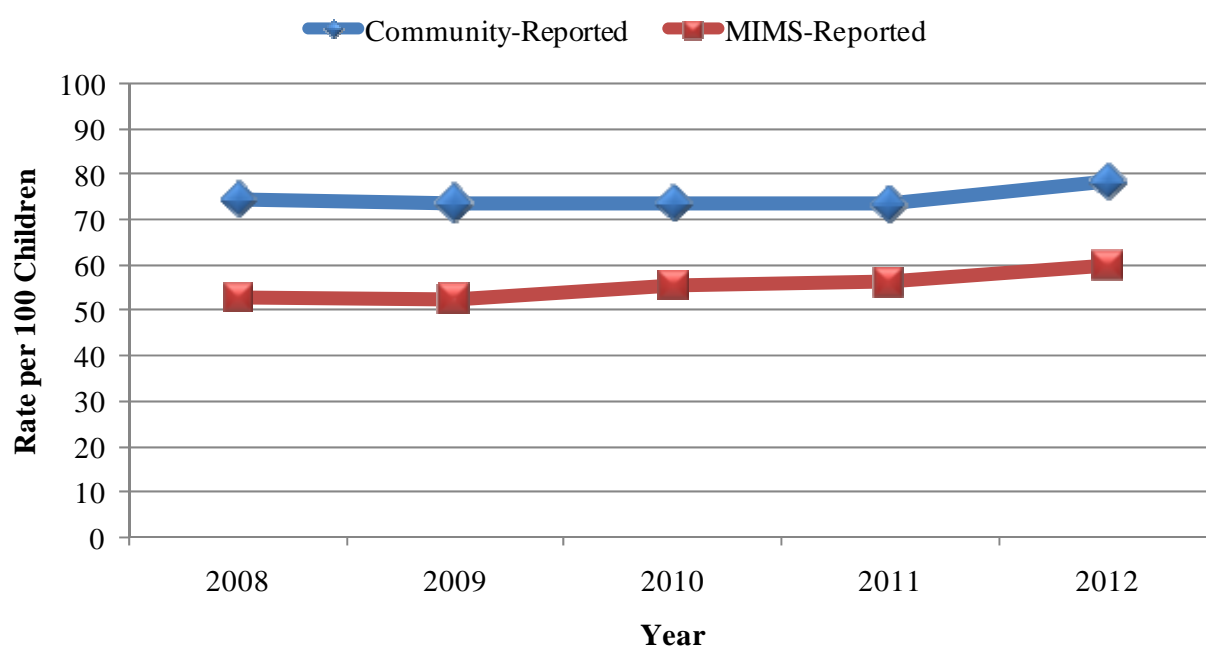
Because in 2011 MH included Varicella in the CFA criteria for seven-year-olds but FNIHBM did not request these data from communities, a direct comparison of the seven-year-old rates is not included for that year.



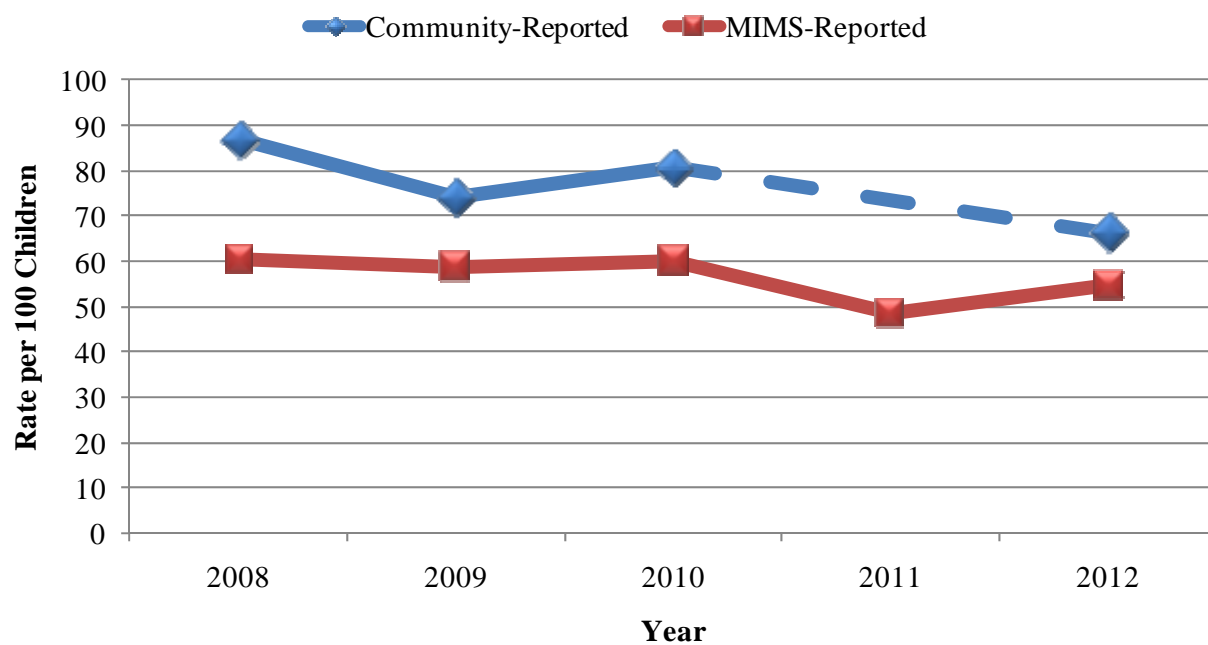
**Figure 3.1** Comparison of immunization rates reported by the community and those reported in MIMS for one-year-old children, 2008 to 2012



**Figure 3.2** Comparison of immunization rates reported by the community and those reported in MIMS for two-year-old children, 2008 to 2012



**Figure 3.3** Comparison of immunization rates reported by the community and those reported in MIMS for seven-year-old children, 2008 to 2012\*



\*Varicella was not included in the Community-Reported UTD calculation, therefore a comparison cannot be made for seven-year-olds in 2011

## Section Four

### MIMS Antigen Cluster Coverage Summary

*The success of immunization programs is crucial in preventing outbreaks of vaccine-preventable diseases.*

#### **Key Points:**

- 1. At the one-, and 17-year-old milestones no individual vaccine appears to be influencing overall immunization rates.**
- 2. For two-year-olds, PCV-7/13 and DTaP-IPV vaccines appeared to be decreasing the overall immunization rates.**
- 3. Lower DTaP immunization rates likely decreased the CFA rates for seven-year-olds.**
- 4. HB immunization for 11-year-olds appeared to have decreased this age group's CFA rates.**

In this report an antigen cluster refers to a combination vaccine, wherein the antigens are the individual components of that vaccine. For example, the MMR antigen cluster/vaccine is made up of measles, mumps and rubella antigens.

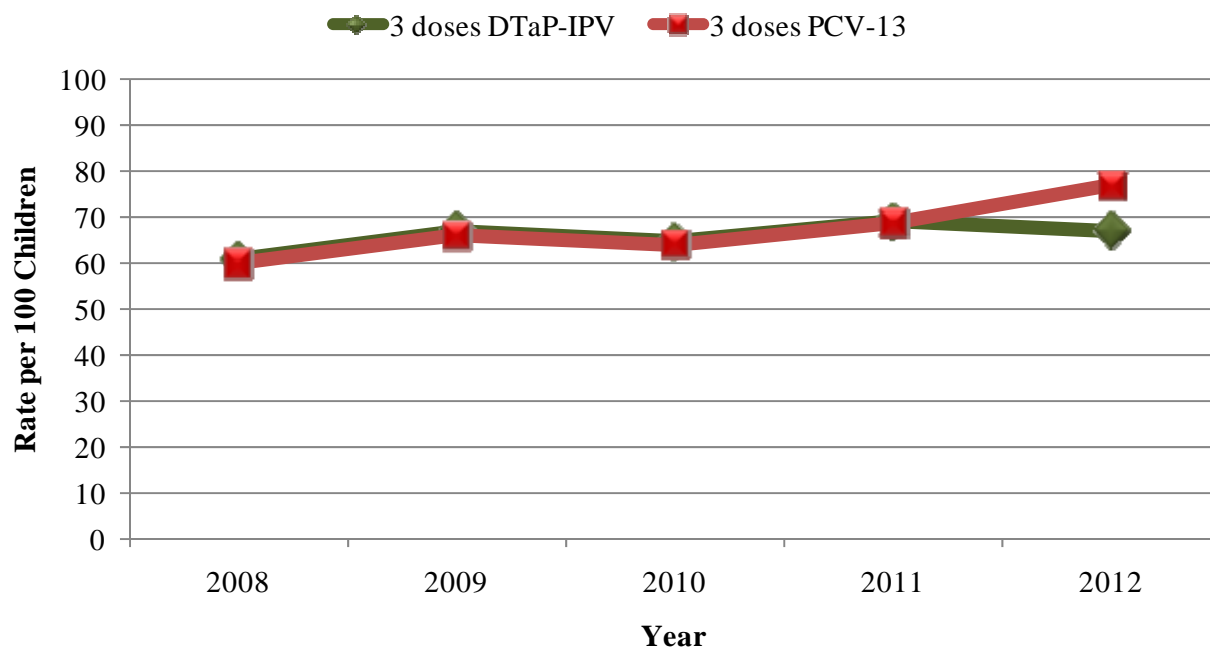
For this analysis (see the following figures), antigen clusters are used to represent individual vaccines. This allows us to break down immunization status for each age group by individual vaccine, which in turn allows us to determine if one vaccine is increasing or decreasing the overall immunization coverage rates as reported in Section 2.

Analyzing by antigen cluster is important when comparing immunization coverage over a period of time when Manitoba immunization schedule changes occur. Sometimes, such changes result in slower uptake as shown by initial decreases in coverage rates.

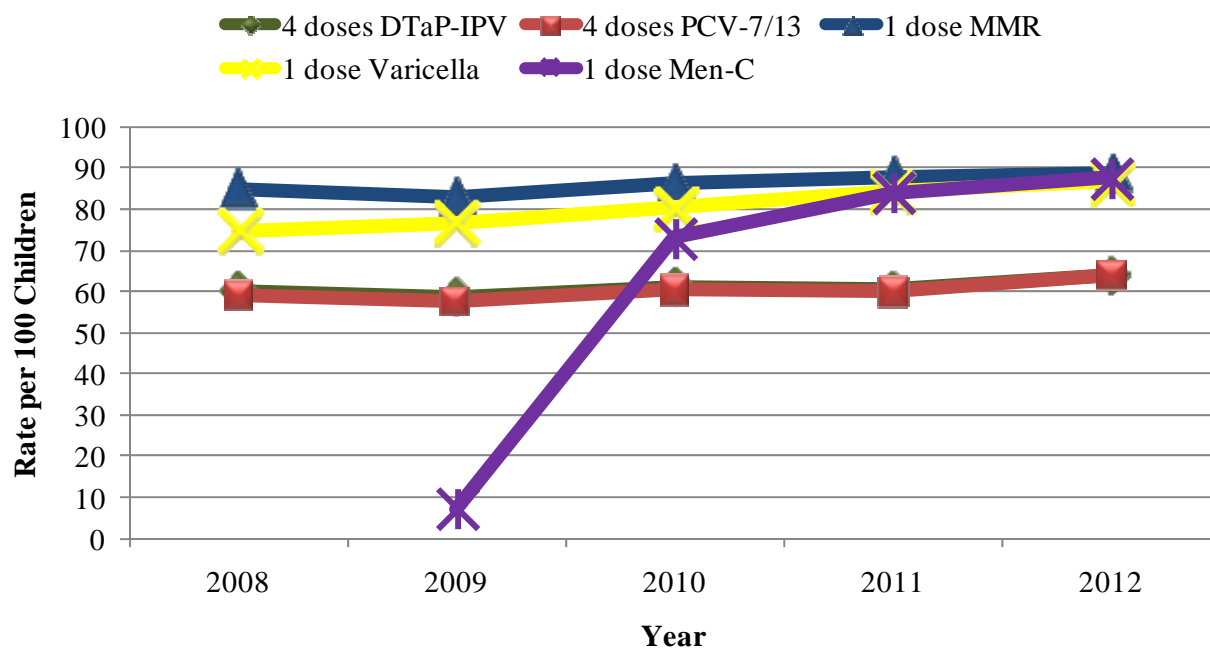
For example, with the addition of the Men-C vaccine to the CFA requirements for two-year-

olds in 2009, this analysis is especially helpful for explaining possible decreases in calculated coverage rates for this age milestone.

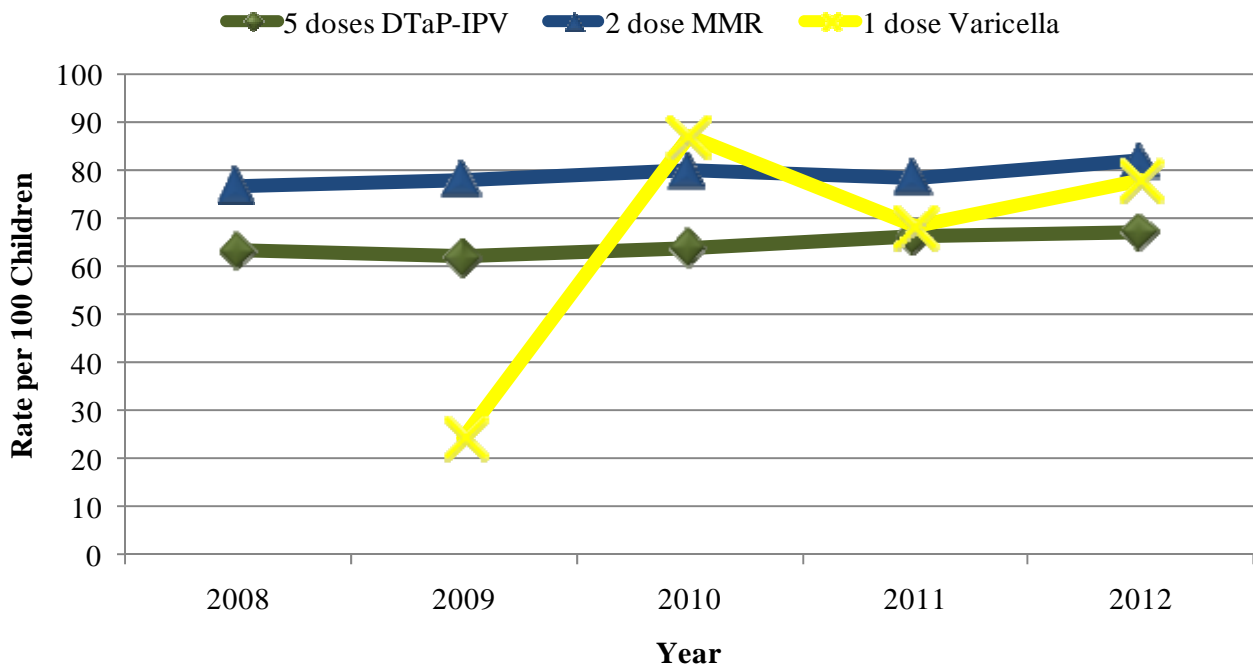
**Figure 4.1** CFA breakdown by vaccine for one-year-olds who have received all required doses of DTaP-IPV (3) and Pneu-C-7/13 (3), 2008 to 2012



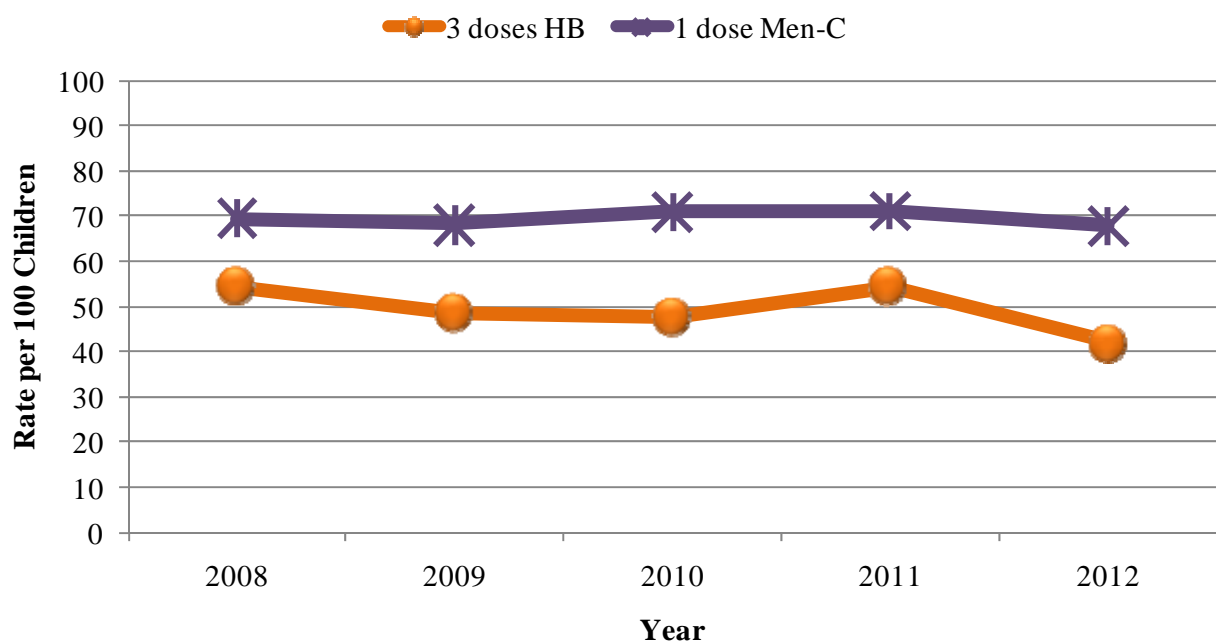
**Figure 4.2** CFA breakdown by vaccine for two-year-olds who have received all required doses of DTaP-IPV (4), Pneu-C-7/13 (4), MMR (1), Var (1), and Men-C (1), 2008 to 2012



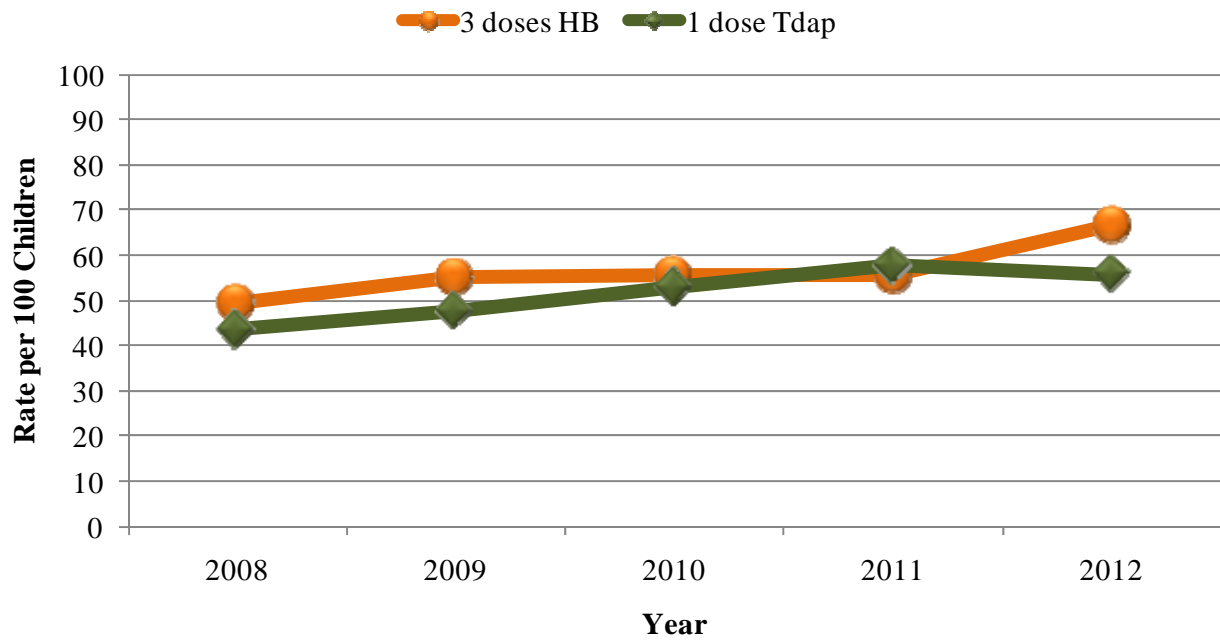
**Figure 4.3** CFA breakdown by vaccine for seven-year-olds who have received all required doses of DTaP-IPV (5) and MMR (2), 2008 to 2012



**Figure 4.4** CFA breakdown by vaccine for 11-year-olds who have received all required doses of HB (3) and Men-C (1), 2008 to 2012



**Figure 4.5** CFA breakdown by vaccine for 17-year-olds who have received all required doses of HB (3) and Tdap (1), 2008 to 2012



## Section Five

### On-Time Versus Late Vaccinations

Public health experts use current local, national, and international scientific data to create an optimal vaccination schedule. Skipping or delaying vaccines leaves children vulnerable to vaccine-preventable diseases for a longer period of time. This is a brief look at the difference between immunizations that are delivered on-time versus those that are given late (off-schedule).

When using the age milestones set out by MH, catch-up immunizations may not always be reflected in the CFA calculations. For example, if a child turned one in March 2012, but didn't get his or her 6-month vaccines until April 2012, that child would not be considered CFA for 2012.

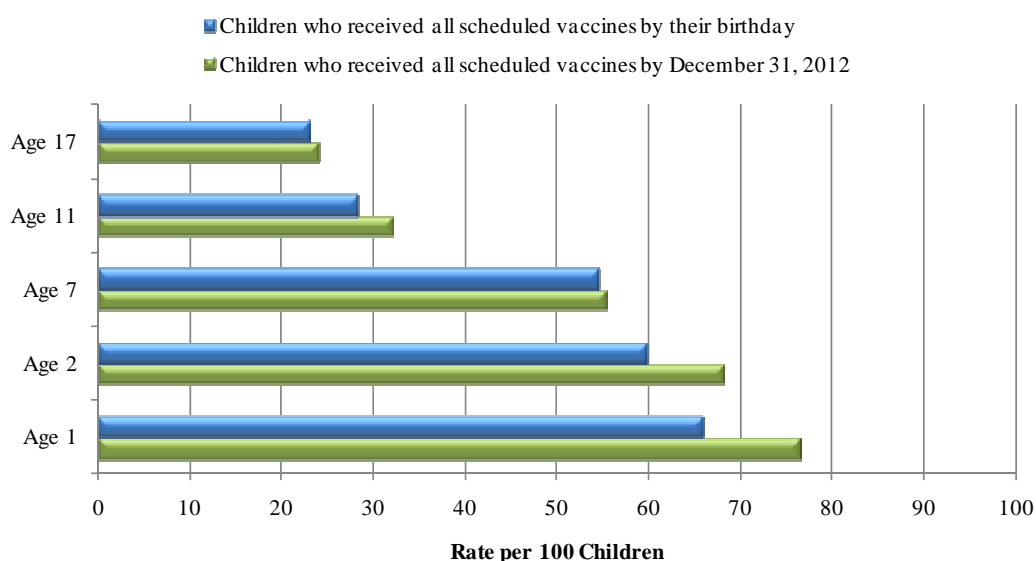
Although this analysis cannot capture children who are caught-up using a modified schedule, it more closely reflects the herd immunity for that particular age group. If all children who received their vaccines received them on-time,

immunization rates would be between 0.8 and 10.5% higher. This is especially evident at ages one and two.

**Table B.1** Comparison of on-time and late vaccine delivery, 2012 - All Manitoba On-Reserve First Nations, based on MIMS data

	Age 1	Age 2	Age 7	Age 11	Age 17
<b>All Manitoba On-Reserve Population</b>	<b>1,354</b>	<b>1,361</b>	<b>1,162</b>	<b>1,039</b>	<b>1,065</b>
Children who received all scheduled vaccines by their birthday	895	815	635	296	247
Rate per 100 Children	<b>66.1</b>	<b>59.9</b>	<b>54.6</b>	<b>28.5</b>	<b>23.2</b>
Children who received all scheduled vaccines by December 31, 2012	1,037	927	644	335	257
Rate per 100 Children	<b>76.6</b>	<b>68.1</b>	<b>55.4</b>	<b>32.2</b>	<b>24.1</b>

**Figure 1.1** Immunization coverage rates for vaccines delivered on-time compared to all vaccines delivered



## Appendix A

### Abbreviations

#### Antigens

aP	Pertussis
D	Diphtheria
HB	Hepatitis B
Hib	Haemophilus influenzae type B
Men-C	Meningococcal Conjugate
Meas	Measles
Mu	Mumps
Pneu-C-7/13	Pneumococcal Conjugate
Rub	Rubella
T	Tetanus
Var	Varicella (Chickenpox)

#### Vaccines

DTaP-IPV-Hib	Diphtheria, Tetanus, Pertussis, Polio, Hib
DTaP-IPV	Diphtheria, Tetanus, Pertussis, Polio
MMR	Measles, Mumps, Rubella
Tdap	Tetanus, diphtheria, acellular pertussis

#### Other Abbreviations

CFA	Complete for Age
FNIHB-MB	First Nations and Inuit Health Branch - Manitoba Region
MH	Manitoba Health
POP	Population
RHA	Regional Health Authority
NIC	Nurse In Charge
UTD	Up to Date



# Appendix B

## Community Immunization Report Form and Summary



### COMMUNITY-BASED IMMUNIZATION COVERAGE REPORT FOR THE PERIOD OF JANUARY 1 TO DECEMBER 31, 2012

Community: \_\_\_\_\_ NIC: \_\_\_\_\_

Form completed by: \_\_\_\_\_ Title: \_\_\_\_\_  
(Please print name)

Phone: \_\_\_\_\_

*A refusal is defined as verbal or written communication between the client and the health care provider that an immunization is not to be given and should be*

#### **PART A**

ONE (1) YEAR OLD POPULATION (children born January 1, 2011 to December 31, 2011)

Vaccine (Number of doses required)	Individuals Immunized		
	# Eligible	Received all required doses	# of refusals
BCG (1)			
DTaP-IPV-Hib (3)			
Pneu-C-7/13 (3)			

**# Eligible:** Please count the total number of children who had their 1st birthday between January 1, 2012 & December 31, 2012 AND who were living in the community on December 31, 2012.

#### **PART B**

TWO (2) YEAR OLD POPULATION (children born January 1, 2010 to December 31, 2010)

Vaccine (Number of doses required)	Individuals Immunized		
	# Eligible	Received all required doses	# of refusals
MMR (1)			
DTaP-IPV-Hib (4)			
Pneu-C-7/13 (4)			
Men-C (1)			
Var* (1)			

\* Please note: it is understood that there may be fewer children requiring this vaccine due to naturally acquired immunity.

**# Eligible:** Please count the total number of children who had their 2nd birthday between January 1, 2012 & December 31, 2012 AND who were living in the community on December 31, 2012.



### **PART C**

SEVEN (7) YEAR OLD POPULATION (children born January 1, 2005 to December 31, 2005)

<i>Vaccine (Number of doses required)</i>	<b><i>Individuals Immunized</i></b>		
	<i># Eligible</i>	<i>Received all required doses</i>	<i># of refusals</i>
DTaP-IPV-Hib (4)			
DTaP-IPV (1)			
MMR (2)			
Var* (1)			

\* Please note: it is understood that there may be fewer children requiring this vaccine due to naturally acquired immunity.

**# Eligible:** Please count the total number of children who had their 7th birthday between January 1, 2012 & December 31, 2012 AND who were living in the community on December 31, 2012.

### **PART D**

ELEVEN (11) YEAR OLD POPULATION (children born January 1, 2001 to December 31, 2001)

<i>Vaccine (Number of doses required)</i>	<b><i>Individuals Immunized</i></b>		
	<i># Eligible</i>	<i>Received all required doses</i>	<i># of refusals</i>
Hepatitis B (3)			
Men-C (1)			

**# Eligible:** Please count the total number of children who had their 11th birthday between January 1, 2012 & December 31, 2012 AND who were living in the community on December 31, 2012.

### **PART E**

GRADE 6 POPULATION (2011/2012 - School Year Completed June 2012)

<i>Vaccine (Number of doses required)</i>	<b><i>Individuals Immunized</i></b>		
	<i># Eligible</i>	<i>Received all required doses</i>	<i># of refusals</i>
HPV (3)			

**# Eligible:** Please count the total number of female children in Grade 6 from September 1, 2011 to June 30, 2012 AND who were living in the community on December 31, 2012.

### **PART F**

SEVENTEEN (17) YEAR OLD POPULATION (children born January 1, 1994 to December 31, 1994)

<i>Vaccine (Number of doses required)</i>	<b><i>Individuals Immunized</i></b>		
	<i># Eligible</i>	<i>Received all required doses</i>	<i># of refusals</i>
Hepatitis B (3)			
Tdap** (1)			

\*\* Please report all 17-year-olds who received a Tdap dose at any point in high school after 14 years of age.

**# Eligible:** Please count the total number of children who had their 17th birthday between January 1, 2012 & December 31, 2012 AND who were living in the community on December 31, 2012.

## 2012 Manitoba Immunization Report

		<b>ONE (1) YEAR</b>						
		(children born Jan 1 to Dec 31, 2011)						
	Population	BCC (1)	DaPTP Hib (3) (Pentacel)	Pneu-C-7/13 (3)				
Count	1885	1465	1582	1580				
Percentage		78%	84%	84%				

		<b>TWO (2) YEARS</b>						
		(children born Jan 1 to Dec 31, 2010)						
	Population	DaPTP Hib (4) (Pentacel)	Men-C (1)	MMR (1)	Pneu-C-7/13 (4)	Var (1)		
Count	1884	1527	1673	1741	1523	1701		
Percentage		81%	89%	92%	81%	90%		

		<b>SEVEN (7) YEARS</b>						
		(children born Jan 1 to Dec 31, 2005)						
	Population	DaPTP (1) (Quadracel)	DaPTP Hib (4) (Pentacel)	MMR (2)	Var (1)			
Count	1683	1436	1485	1425	1196			
Percentage		85%	88%	85%	75%			

		<b>ELEVEN (11) YEARS</b>						
		(children born Jan 1 to Dec 31, 2001)						
	Population	HB (3)	Men-C (1)					
Count	1383	1074	1143					
Percentage		78%	83%					

		<b>GRADE 6</b>						
		(2011/12 school year completed in Jun 2012)						
	Population	HPV (3)						
Count	657	458						
Percentage		70%						

		<b>SEVENTEEN (17) YEARS</b>						
		(children born Jan 1 to Dec 31, 1995)						
	Population	HB (3)	Tdap (1)					
Count	1365	925	907					
Percentage		68%	66%					

## Appendix C

### Immunization Coverage Tables, 2008-2012

**Table C.1** Community-Reported Immunization Coverage, 2008 to 2012

Age Group for Coverage Report	2008		2009		2010		2011		2012	
	POP	UTD	POP	UTD	POP	UTD	POP	UTD	POP	UTD
<b>Age 1</b>	1,499	1,322	2,089	1,694	1,961	1,660	1,949	1,643	1,885	1,572
<b>All Manitoba</b> On-Reserve Rate per 100 Children		<b>88.2</b>		<b>81.1</b>		<b>84.7</b>		<b>84.3</b>		<b>83.4</b>
<b>Age 2</b>	1,479	1,101	2,043	1,503	2,080	1,529	2,088	1,533	1,884	1,476
<b>All Manitoba</b> On-Reserve Rate per 100 Children		<b>74.4</b>		<b>73.6</b>		<b>73.5</b>		<b>73.4</b>		<b>78.3</b>
<b>Age 7</b>	1,195	1,036	1,726	1,278	1,582	1,274	1,759	1,223	1,683	1,113
<b>All Manitoba</b> On-Reserve Rate per 100 Children		<b>86.7</b>		<b>74.0</b>		<b>80.5</b>		<b>69.5</b>		<b>66.1</b>
<b>Age 11*</b>	1,131	853	1,570	1,039	1,425	987	1,405	1,048	1,383	1,067
<b>All Manitoba</b> On-Reserve Rate per 100 Children		<b>75.4</b>		<b>66.2</b>		<b>69.3</b>		<b>74.6</b>		<b>77.2</b>
<b>Age 17</b>	1,080	717	1,462	654	1,357	974	1,481	778	1,365	788
<b>All Manitoba</b> On-Reserve Rate per 100 Children		<b>66.4</b>		<b>44.7</b>		<b>71.8</b>		<b>52.5</b>		<b>57.7</b>

\*Prior to 2012 data were collected on 9-12 year old children to coincide with the Grade 4 immunization program

† All Manitoba On-Reserve population includes only the 54 communities that reported to FNIHB-MB

**Table C.2** MIMS Immunization Coverage, 2008 to 2012

Age Group for Coverage Report	2008		2009		2010		2011*		2012*	
	POP†	CFA	POP†	CFA	POP†	CFA	POP†	CFA	POP†	CFA
<b>Age 1</b>	1,435	854	1,522	995	1,449	922	1,412	965	1,354	895
<b>All Manitoba</b> On-Reserve Rate per 100 Children		59.5		65.4		63.6		68.3		66.1
<b>All Manitoba</b> Rate per 100 Children		76.2		76.5		76.1				
<b>Age 2</b>	1,273	672	1,414	743	1,496	831	1,426	801	1,361	815
<b>All Manitoba</b> On-Reserve Rate per 100 Children		52.8		52.5		55.5		56.2		59.9
<b>All Manitoba</b> Rate per 100 Children		60.8		62.0		60.8				
<b>Age 7</b>	1,085	655	1,109	652	1,047	629	1,132	550	1,162	635
<b>All Manitoba</b> On-Reserve Rate per 100 Children		60.4		58.8		60.1		48.6		54.6
<b>All Manitoba</b> Rate per 100 Children		68.9		68.3		66.2				
<b>Age 11</b>	1,013	313	1,055	288	1,044	336	1,052	370	1,039	296
<b>All Manitoba</b> On-Reserve Rate per 100 Children		30.9		27.3		32.2		35.2		28.5
<b>All Manitoba</b> Rate per 100 Children		53.7		52.2		53.1				
<b>Age 17</b>	1,123	163	1,182	199	1,133	252	1,051	236	1,065	247
<b>All Manitoba</b> On-Reserve Rate per 100 Children		14.5		16.8		22.2		22.5		23.2
<b>All Manitoba</b> Rate per 100 Children		44.6		48.6		48.9				

\*The 2011 and 2012 All Manitoba numbers from MIMS are not yet available

† All Manitoba On-Reserve population includes only the children with A-code identifiers

**Table C.3** Comparison of Community and MIMS Immunization Coverage, 2008 to 2012

<i>Age Group for Coverage Report</i>	<i>2008</i>		<i>2009</i>		<i>2010</i>		<i>2011*</i>		<i>2012</i>	
	POP	UTD/ CFA	POP	UTD/ CFA	POP	UTD/ CFA	POP	UTD/ CFA	POP	UTD/ CFA
<b>Age 1</b>										
<b>Community</b>	1,499	1,322	2,089	1,694	1,961	1,660	1,949	1,643	1,885	1,572
Rate per 100 Children		<b>88.2</b>		<b>81.1</b>		<b>84.7</b>		<b>84.3</b>		<b>83.4</b>
<b>MIMS</b>	1,435	854	1,522	995	1,449	922	1,412	965	1,354	895
Rate per 100 Children		<b>59.5</b>		<b>65.4</b>		<b>63.6</b>		<b>68.3</b>		<b>66.1</b>
<b>Age 2</b>										
<b>Community</b>	1,479	1,101	2,043	1,503	2,080	1,529	2,088	1,533	1,884	1,476
Rate per 100 Children		<b>74.4</b>		<b>73.6</b>		<b>73.5</b>		<b>73.4</b>		<b>78.3</b>
<b>MIMS</b>	1,273	672	1,414	743	1,496	831	1,426	801	1,361	815
Rate per 100 Children		<b>52.8</b>		<b>52.5</b>		<b>55.5</b>		<b>56.2</b>		<b>59.9</b>
<b>Age 7</b>										
<b>Community</b>	1,195	1,036	1,726	1,278	1,582	1,274			1,683	1,113
Rate per 100 Children		<b>86.7</b>		<b>74.0</b>		<b>80.5</b>				<b>66.1</b>
<b>MIMS</b>	1,085	655	1,109	652	1,047	629	1,132	550	1,162	635
Rate per 100 Children		<b>60.4</b>		<b>58.8</b>		<b>60.1</b>		<b>48.6</b>		<b>54.6</b>

\*Varicella was not included in the UTD calculation, therefore a comparison cannot be made for seven-year-olds in 2011

## Appendix D

### Reference Tables Comparison Numbers and Rates

**Table D.1** MIMS Immunization Coverage, 2008 to 2012 - All Manitoba First Nations.

<i>Age Group for Coverage Report</i>	<i>2008</i>		<i>2009</i>		<i>2010</i>		<i>2011</i>		<i>2012</i>	
	POP	UTD	POP	UTD	POP	UTD	POP	UTD	POP	UTD
<b>Age 1</b>	2,572	1,640	2,673	1,687	2,717	1,778	2,612	1,773	2,509	1,658
All Manitoba First Nations Rate Per 100 Children		<b>63.8</b>		<b>63.1</b>		<b>65.4</b>		<b>67.9</b>		<b>66.1</b>
<b>Age 2</b>	2,346	1,205	2,575	1,332	2,681	1,413	2,705	1,446	2,605	1,472
All Manitoba First Nations Rate Per 100 Children		<b>51.4</b>		<b>51.7</b>		<b>52.7</b>		<b>53.5</b>		<b>56.5</b>
<b>Age 7</b>	1,923	1,118	1,965	1,183	1,998	1,169	2,062	1,002	2,171	1,153
All Manitoba First Nations Rate Per 100 Children		<b>58.1</b>		<b>60.2</b>		<b>58.5</b>		<b>48.6</b>		<b>53.1</b>
<b>Age 11</b>	1,850	592	1,865	576	1,951	663	1,948	684	1,933	633
All Manitoba First Nations Rate Per 100 Children		<b>32.0</b>		<b>30.9</b>		<b>34.0</b>		<b>35.1</b>		<b>32.7</b>
<b>Age 17</b>	1,919	348	1,995	415	2,021	499	1,958	489	1,945	499
All Manitoba First Nations Rate Per 100 Children		<b>18.1</b>		<b>20.8</b>		<b>24.7</b>		<b>25.0</b>		<b>25.7</b>

Includes only A-code population

**Table D.2** MIMS Immunization Coverage, 2008 to 2012 - All Manitoba.

<i>Age Group for Coverage Report</i>	<i>2008</i>		<i>2009</i>		<i>2010</i>		<i>2011*</i>		<i>2012*</i>	
	POP	UTD	POP	UTD	POP	UTD	POP	UTD	POP	UTD
<b>Age 1</b>	15,544	11,841	15,695	12,002	16,051	12,215				
All Manitoba Rate Per 100 Children		<b>76.2</b>		<b>76.5</b>		<b>76.1</b>				
<b>Age 2</b>	15,012	9,129	15,752	9,765	15,964	9,711				
All Manitoba Rate Per 100 Children		<b>60.8</b>		<b>62.0</b>		<b>60.8</b>				
<b>Age 7</b>	14,911	10,079	14,834	10,733	14,953	9,892				
All Manitoba Rate Per 100 Children		<b>67.6</b>		<b>72.4</b>		<b>66.2</b>				
<b>Age 11</b>	15,534	8,345	15,547	8,111	15,639	8,297				
All Manitoba Rate Per 100 Children		<b>53.7</b>		<b>52.2</b>		<b>53.1</b>				
<b>Age 17</b>	17,847	7,957	17,206	8,354	17,632	8,616				
All Manitoba Rate Per 100 Children		<b>44.6</b>		<b>48.6</b>		<b>48.9</b>				

\*2011 and 2012 numbers for All Manitoba are not yet available

**Table D.3** MIMS Immunization Coverage by Antigen, 2012 - All On-Reserve Manitoba First Nations.

<i>Age Group</i>	POP*	D	T	aP	Polio	Hib	PCV7	Meas.	Mum.	Rub.	Var	HB	Men-C	CFA
<b>Age 1</b>	1,354	905	905	905	1,186	904	1,039	21	21	21	25	3	25	895
Rate per 100 Children		<b>66.8</b>	<b>66.8</b>	<b>66.8</b>	<b>87.6</b>	<b>66.8</b>	<b>76.7</b>	<b>1.6</b>	<b>1.6</b>	<b>1.6</b>	<b>1.8</b>	<b>0.2</b>	<b>1.8</b>	<b>66.1</b>
<b>Age 2</b>	1,361	873	873	872	1,214	872	869	1,208	1,208	1,208	1,178	9	1,191	815
Rate per 100 Children		<b>64.1</b>	<b>64.1</b>	<b>64.1</b>	<b>89.2</b>	<b>64.1</b>	<b>63.9</b>	<b>88.8</b>	<b>88.8</b>	<b>88.8</b>	<b>86.6</b>	<b>0.7</b>	<b>87.5</b>	<b>59.9</b>
<b>Age 7</b>	1,162	782	782	781	1,047	883	793	952	1,141	1,141	905	10	54	635
Rate per 100 Children		<b>67.3</b>	<b>67.3</b>	<b>67.2</b>	<b>90.1</b>	<b>76.0</b>	<b>68.2</b>	<b>81.9</b>	<b>98.2</b>	<b>98.2</b>	<b>77.9</b>	<b>0.9</b>	<b>4.6</b>	<b>54.6</b>
<b>Age 11</b>	1,039	713	713	709	944	758	0	873	1,015	1,015	329	439	705	296
Rate per 100 Children		<b>68.6</b>	<b>68.6</b>	<b>68.2</b>	<b>90.9</b>	<b>73.0</b>	<b>0.0</b>	<b>84.0</b>	<b>97.7</b>	<b>97.7</b>	<b>31.7</b>	<b>42.3</b>	<b>67.9</b>	<b>28.5</b>
<b>Age 17</b>	1,065	432	432	397	695	697	0	868	1,046	1,046	147	708	741	247
Rate per 100 Children		<b>40.6</b>	<b>40.6</b>	<b>37.3</b>	<b>65.3</b>	<b>65.4</b>	<b>0.0</b>	<b>81.5</b>	<b>98.2</b>	<b>98.2</b>	<b>13.8</b>	<b>66.5</b>	<b>69.6</b>	<b>23.2</b>

\*Includes only A-code population