

Creation of data products from Panorama to inform local immunization program planning and service delivery

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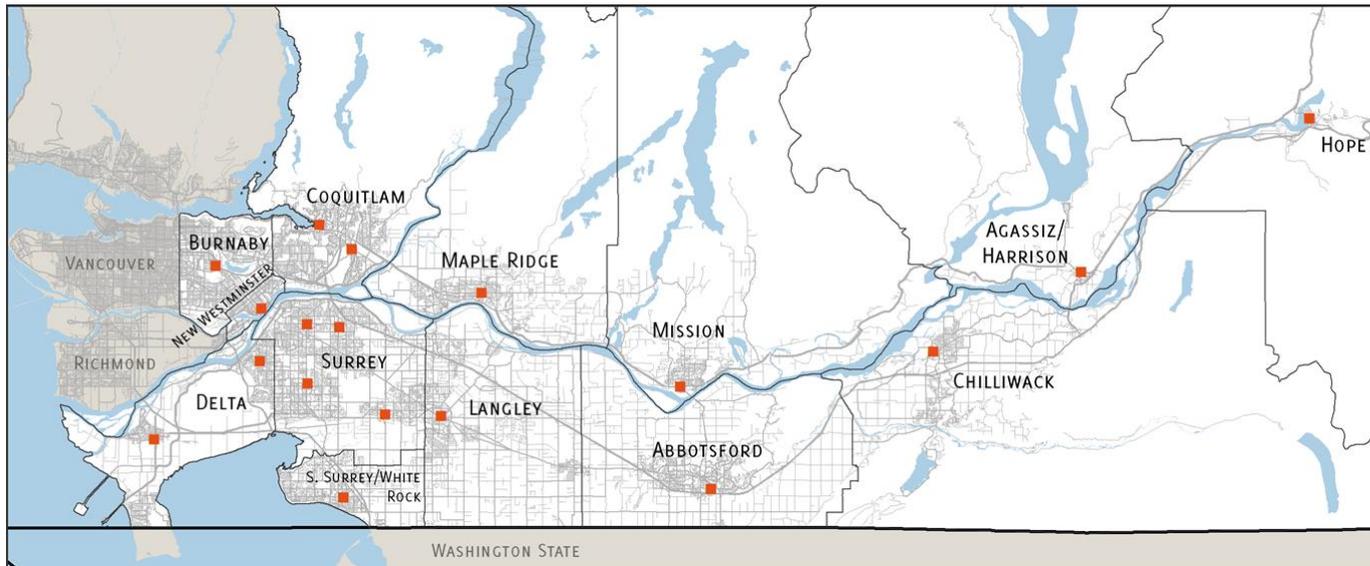
Canadian Immunization Conference
December 7, 2018

Disclosure Statement

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

Fraser Health Authority

- Provide health services to more than 1.8 million residents
- 17 public health units and 12 acute care hospitals
- Mixed model of immunization delivery



What is the challenge?

MEASLES OUTBREAK IN 2014



Highest number of cases in BC in over 30 years

PERTUSSIS IN 2016



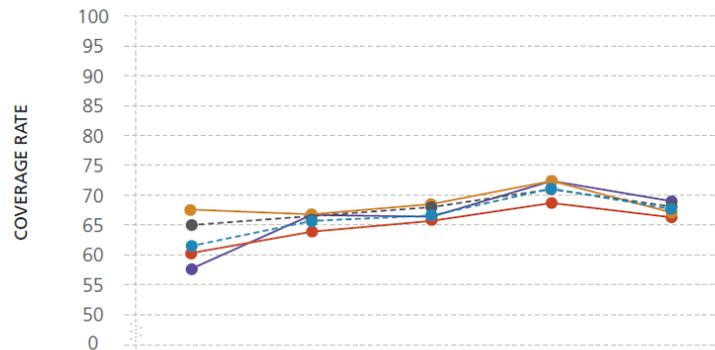
Infants (<1 year) and those aged 10 to 13 years were at the greatest risk for getting pertussis

MUMPS IN 2016



Highest number of cases reported in FHA since the Fraser Valley/Metro Vancouver outbreak in 2008

Figure 2-3 Percent of 2-year olds with up-to-date immunization, 2009 to 2013



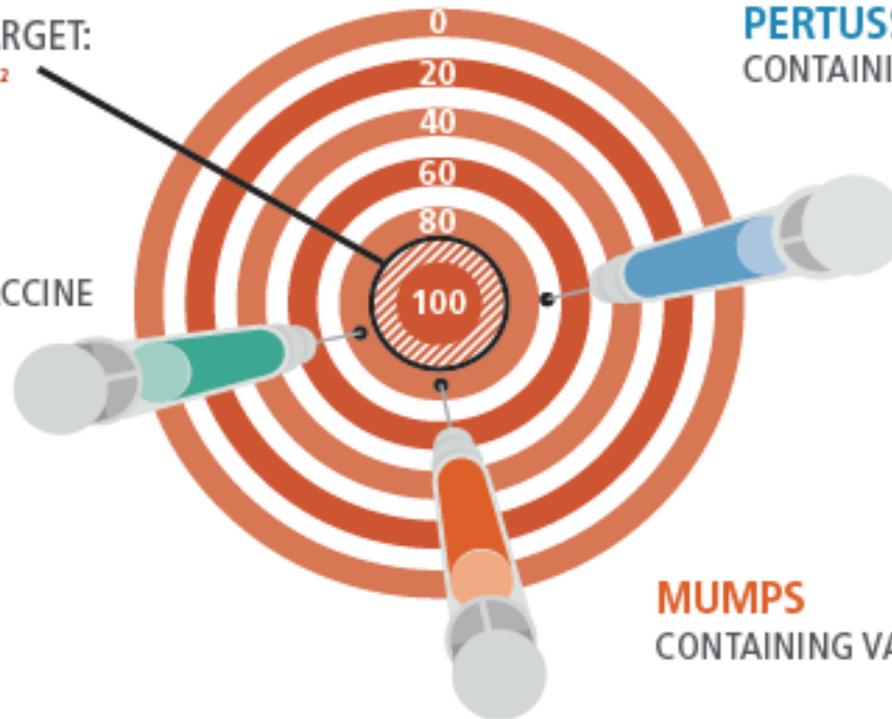
		2009	2010	2011	2012	2013
RATES	Fraser East	67.6	66.8	68.5	72.4	67.1
	Fraser North	60.3	63.9	65.7	68.7	66.3
	Fraser South	57.7	66.7	66.4	72.4	69.0
	Fraser Health	61.5	65.7	66.6	71.1	67.7
	BC Excluding VCH	65.0	66.0	68.0	71.0	68.1

Are we missing the mark?

PROVINCIAL TARGET:
90% BY 2023²

MEASLES
CONTAINING VACCINE

PERTUSSIS
CONTAINING VACCINE

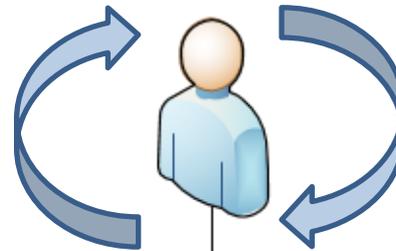


MUMPS
CONTAINING VACCINE

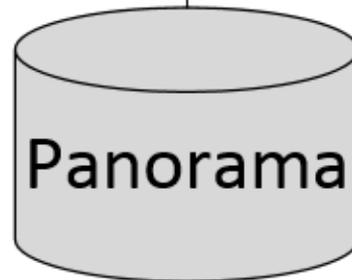
Panorama Coverage Assessment

- Panorama reports counts only valid doses
- Uses Panorama forecaster logic to validate/invalidate doses
- Counts manual validation and considers revised dose numbers
- Up-to-date (UTD) – requires documentation of every dose in Panorama
- No immunizations recorded – clients have zero immunizations in Panorama
- Refusal to all - Exemptions for “Client Refusal” or “Parent/Guardian Refusal” to ALL of the following antigens:
 - diphtheria, tetanus, pertussis, polio, hep B, measles, mumps, rubella, men-C, varicella, Hib, pneumococcal, rotavirus

Methods

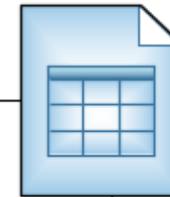


Data Cleaning!



Imm Coverage by Age

Imms Coverage by Postal Code



Routine Report

- Data extracted ~4 weeks
- Health Unit level
- UTD, UTD MB, No imms
- Automated using SAS 9.4
- Dashboard & Forecasting features

Mapping

- Data extracted annually
- Postal code level
- UTD, UTD MB, No Imms
- Mapped using ArcGIS 10.2
- Geocoded to HELP neighborhoods

Routine Reports



Population Health Observatory

TWO-YEAR-OLD UP-TO-DATE IMMUNIZATION COVERAGE RATES BY HEALTH UNIT – FISCAL PERIOD 09 (FP09), FY2015/16

FROM: Population Health Observatory
TO: Karen Dickenson-Smith, Shovita Padhi, Anup Samra, Corey Green, Steven Eng, FHA Prevention Managers, FHA Medical Health Officers, FHA Prevention Supervisors, FHA Prevention Admin Leadership
CC: Victoria Lee, Tim Shum, Kathleen Friesen, Oonagh Tyson
DATE: December 10, 2015

OVERALL SUMMARY

- In Fraser Health, the percentage of 2-year-olds with up-to-date immunizations increased from 72.3% in Q1 of FY2015/16 to 72.9% in Q2 of FY2015/16.
- For fiscal period 09 (FP09) of FY2015/16, 74.8% of 2-year-olds were up-to-date with their immunizations, slightly below the 75.6% of 2-year-olds who were up-to-date during the previous fiscal period (FP08).
- Six of the 17 health units met the 2015/16 target of 76% for the percentage of 2-year-olds with up-to-date immunizations for FP09

Dashboard: 2 year old up-to-date immunization coverage rates

Branch	FP07	FP08	FP09	YTD
Health Unit #1	▲ 78.9%	▲ 76.6%	▲ 81.5%	▲ 76.5%
Health Unit #2	▼ 62.5%	▼ 75.0%	▼ 62.5%	▼ 67.8%
Health Unit #3	▼ 63.6%	▼ 69.1%	▼ 74.5%	▼ 68.0%
Health Unit #4	▼ 73.9%	▼ 72.2%	▼ 58.0%	▼ 66.8%
Health Unit #5	▼ 75.5%	▲ 76.3%	▲ 80.0%	▲ 76.7%
Health Unit #6	▼ 75.3%	▲ 80.2%	▲ 81.1%	▼ 74.4%
Health Unit #7	▼ 66.7%	▲ 100.0%	▼ 75.0%	▼ 65.1%
Health Unit #8	▼ 75.7%	▲ 78.6%	▼ 69.8%	▼ 74.1%
Health Unit #9	▲ 81.4%	▲ 77.8%	▲ 79.1%	▼ 75.9%
Health Unit #10	▼ 70.2%	▼ 66.7%	▼ 64.9%	▼ 68.8%
Health Unit #11	▲ 87.9%	▼ 70.8%	▼ 68.4%	▼ 70.6%
Health Unit #12	▼ 69.3%	▲ 84.0%	▲ 82.4%	▼ 74.8%
Health Unit #13	▼ 69.1%	▼ 67.3%	▼ 74.5%	▼ 69.0%
Health Unit #14	▲ 76.0%	▼ 70.3%	▼ 70.5%	▼ 72.1%
Health Unit #15	▼ 71.4%	▼ 73.1%	▼ 66.7%	▼ 79.7%
Health Unit #16	▼ 72.3%	▲ 77.4%	▼ 75.2%	▼ 74.3%
Health Unit #17	▼ 79.2%	▲ 80.7%	▲ 80.0%	▼ 76.2%
Fraser Health Authority	▼ 73.9%	▼ 75.6%	▼ 74.8%	▼ 73.0%

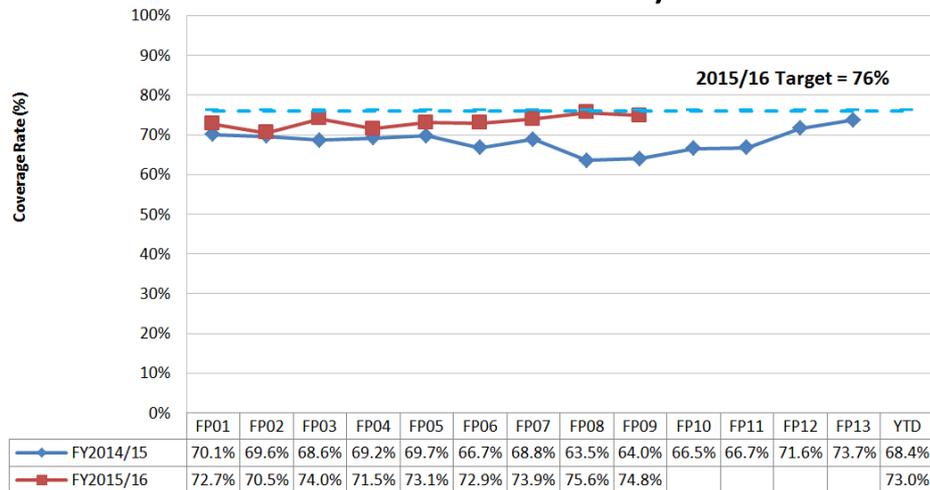
Note: ↑ or ↓ compared to target immunization coverage rate of 76% for 2015/16. YTD defined for fiscal year from Apr to Mar. Rates greater than or equal to 76.0% are highlighted with bold text.

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Fraser Health Authority

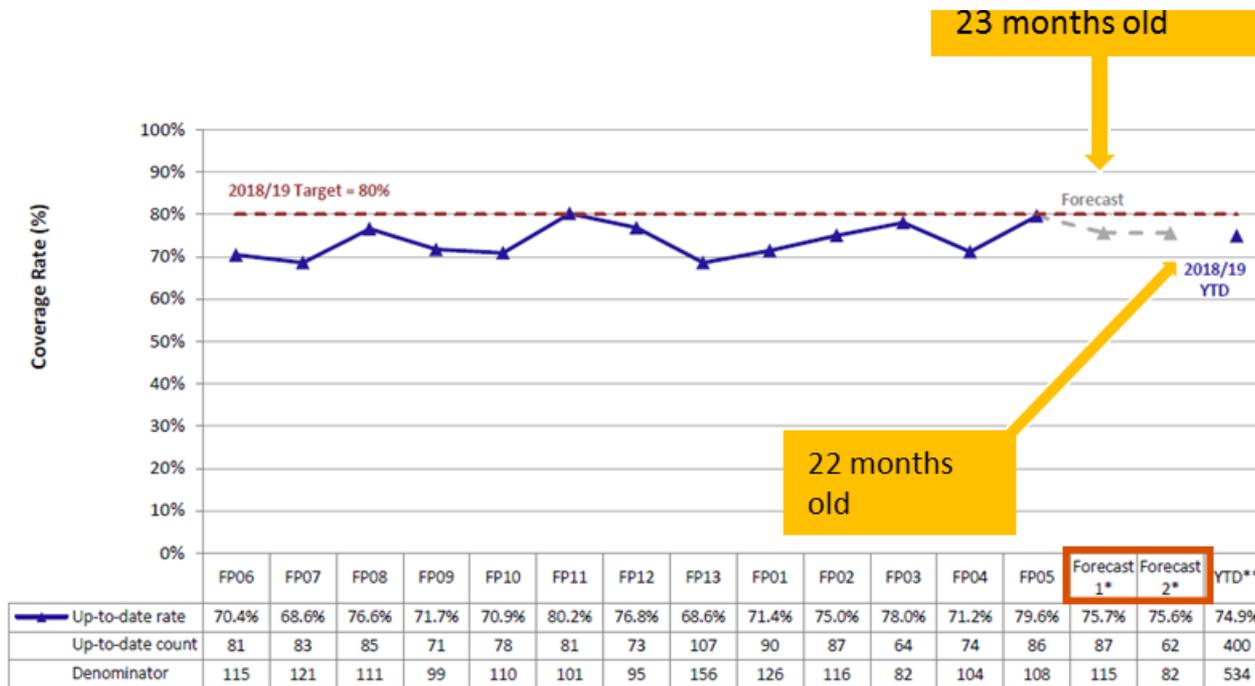


Appendix B Percentage of 2-year olds with up-to-date minus booster immunizations by health unit and fiscal period, FY2015/16.

Branch	FP01	FP02	FP03	FP04	FP05	FP06	FP07	FP08	FP09	FP10	FP11	FP12	FP13	YTD
Health Unit #1	▲ 81.1%	▲ 81.3%	▲ 86.5%	▲ 83.3%	▲ 82.8%	▲ 87.2%	▲ 86.2%	▲ 83.2%	▲ 82.2%					▲ 83.6%
Health Unit #2	▼ 66.7%	▼ 50.0%	▲ 100.0%	▼ 71.4%	▼ 75.0%	▲ 83.3%	▼ 62.5%	▼ 75.0%	▼ 62.5%					▼ 71.2%
Health Unit #3	▼ 75.8%	▼ 69.5%	▼ 73.1%	▼ 74.5%	▼ 72.4%	▼ 71.9%	▼ 67.9%	▼ 75.9%	▼ 78.3%					▼ 72.7%
Health Unit #4	▲ 76.5%	▼ 75.6%	▼ 69.6%	▼ 74.7%	▼ 78.7%	▲ 80.4%	▲ 85.2%	▼ 77.2%	▼ 71.6%					▲ 76.7%
Health Unit #5	▲ 90.7%	▲ 79.3%	▲ 82.9%	▲ 86.3%	▲ 84.6%	▲ 80.8%	▲ 82.7%	▲ 86.8%	▲ 94.3%					▲ 85.1%
Health Unit #6	▲ 81.4%	▲ 81.2%	▼ 72.0%	▼ 74.6%	▼ 72.6%	▲ 80.5%	▲ 80.8%	▲ 86.0%	▲ 87.8%					▲ 79.8%
Health Unit #7	▲ 83.3%	▼ 50.0%	▲ 100.0%	▼ 66.7%	▼ 66.7%	▼ 66.7%	▼ 66.7%	▲ 100.0%	▲ 100.0%					▼ 74.4%
Health Unit #8	▲ 78.1%	▲ 83.0%	▲ 85.6%	▲ 79.5%	▲ 80.6%	▲ 80.0%	▲ 83.8%	▲ 83.5%	▲ 82.8%					▲ 81.8%
Health Unit #9	▲ 80.5%	▲ 84.1%	▲ 83.6%	▲ 84.3%	▲ 84.7%	▲ 76.0%	▲ 90.7%	▲ 87.7%	▲ 89.6%					▲ 84.2%
Health Unit #10	▲ 81.5%	▲ 83.7%	▲ 83.7%	▼ 74.4%	▼ 75.6%	▲ 76.7%	▲ 85.1%	▼ 72.7%	▼ 75.7%					▲ 78.9%
Health Unit #11	▲ 84.1%	▼ 75.5%	▼ 72.3%	▲ 79.7%	▼ 73.3%	▼ 68.9%	▲ 87.9%	▲ 85.4%	▼ 73.7%					▲ 77.2%
Health Unit #12	▼ 70.9%	▼ 78.4%	▼ 77.3%	▲ 83.9%	▲ 83.2%	▲ 78.9%	▼ 73.2%	▲ 89.1%	▲ 87.8%					▲ 80.6%
Health Unit #13	▼ 70.7%	▲ 82.4%	▼ 74.5%	▼ 74.6%	▼ 75.9%	▼ 68.5%	▲ 78.2%	▼ 73.5%	▲ 81.8%					▼ 75.3%
Health Unit #14	▲ 84.3%	▼ 75.7%	▲ 82.2%	▲ 80.0%	▼ 75.5%	▲ 81.3%	▲ 82.7%	▲ 77.2%	▲ 76.2%					▲ 79.0%
Health Unit #15	▲ 76.5%	▼ 69.7%	▲ 94.4%	▼ 71.4%	▲ 100.0%	▲ 90.5%	▲ 76.2%	▲ 84.6%	▼ 71.4%					▲ 82.4%
Health Unit #16	▲ 82.0%	▲ 79.1%	▲ 81.8%	▲ 77.3%	▲ 85.1%	▲ 78.9%	▼ 79.2%	▲ 80.6%	▲ 79.7%					▲ 80.1%
Health Unit #17	▲ 81.6%	▼ 69.2%	▲ 83.0%	▼ 79.2%	▲ 83.0%	▲ 87.5%	▲ 84.9%	▲ 89.5%	▲ 84.4%					▲ 82.0%
Fraser Health Authority	▲ 79.5%	▲ 77.7%	▲ 80.0%	▲ 79.0%	▲ 79.8%	▲ 79.0%	▲ 80.7%	▲ 82.2%	▲ 81.6%					▲ 79.7%

Forecasting

- Based on Pano data for children who are currently 22 months or 23 months of age and can be considered UTD by 2 years of age
- Allows HU to operationalize targets and reallocate resources as needed



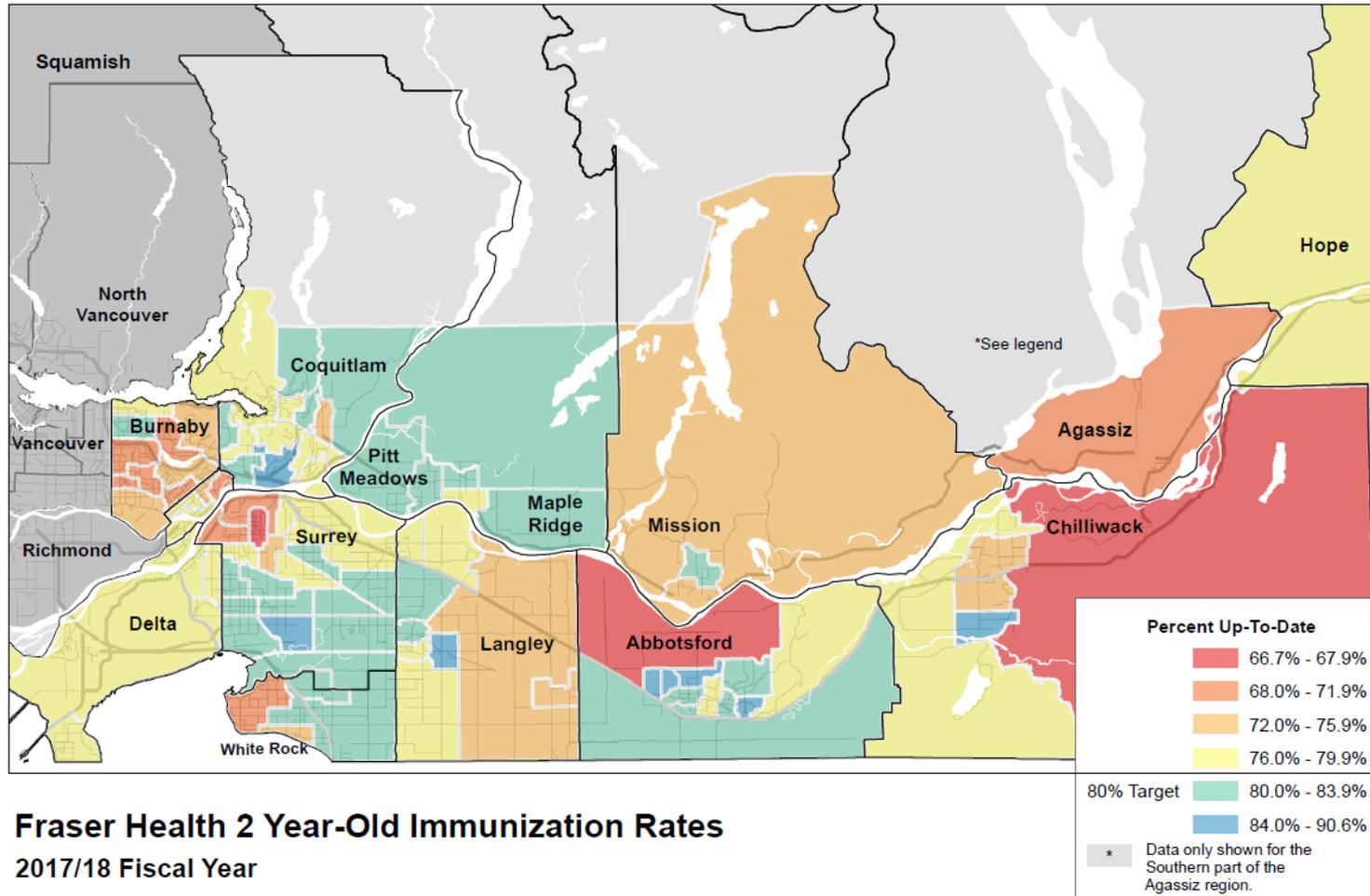
Not UTD
= 82-62 = 20

If we catch-up 5 more by FP07, HU rate
= (62+5)/82
= 81.7%

* Forecasted values for the upcoming two fiscal periods are based on Panorama data for children who are currently 22 months or 23 months of age and can be considered up-to-date by two years of age.

**YTD corresponds to the period from April 1st of the current fiscal year to the end of the current reporting period.

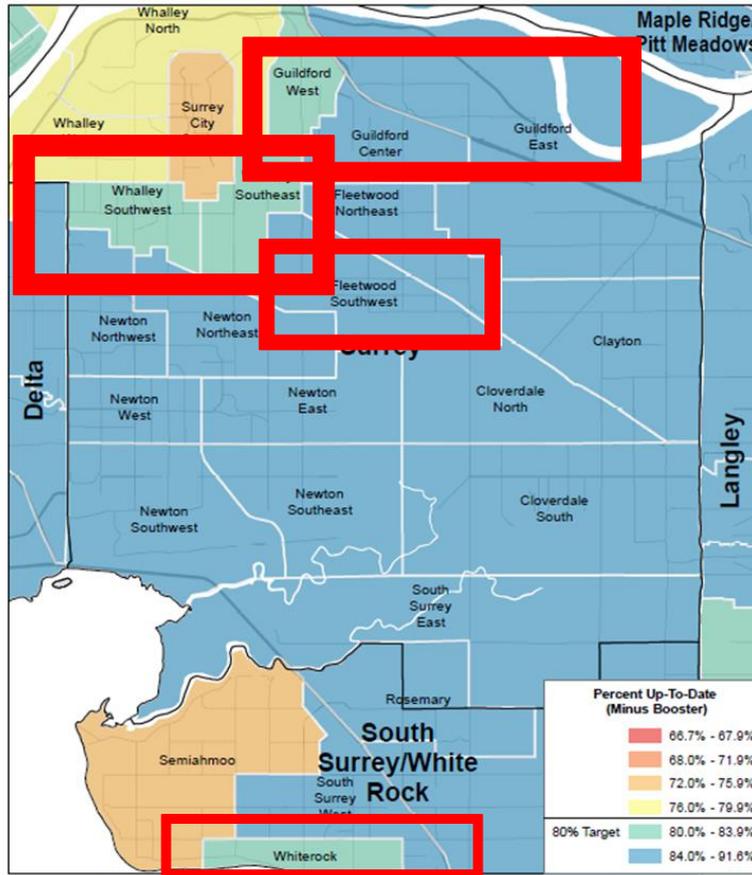
Mapping



Fraser Health 2 Year-Old Immunization Rates
2017/18 Fiscal Year

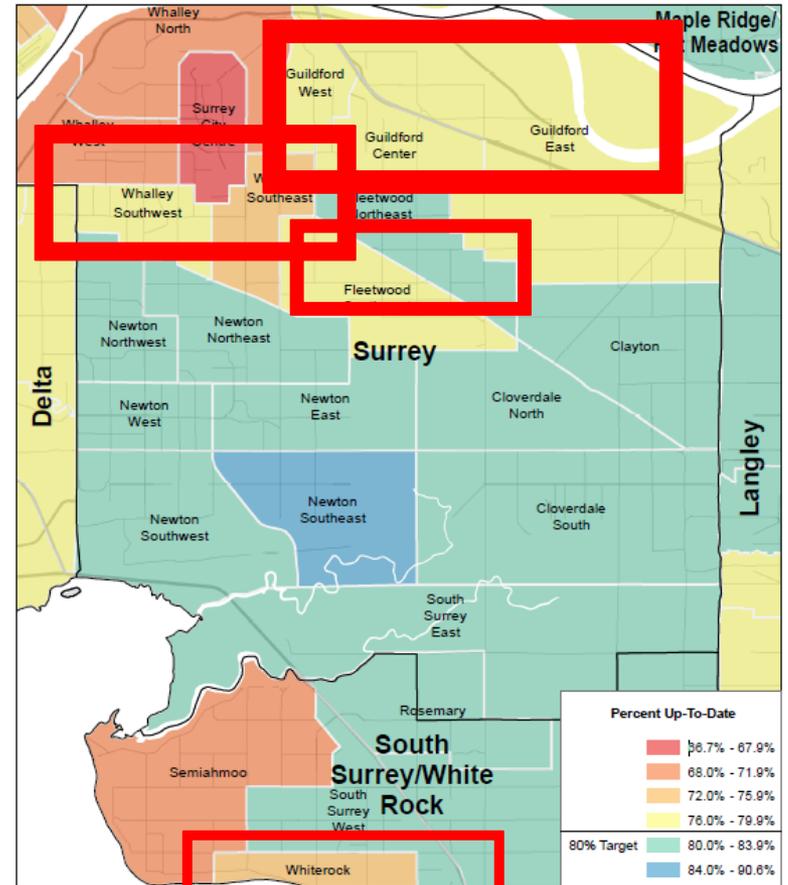
Data Sources: Panorama for 2 year old immunizations
Geographic unit is HELP neighborhoods from UBC
Projection: UTM Zone 10N
Prepared by: Population & Public Health Observatory,
Fraser Health Authority, May 2018

Drop off at 18 month visit



Surrey 2 year-Old Immunization Rates
2017/18 Fiscal Year (Minus Booster)

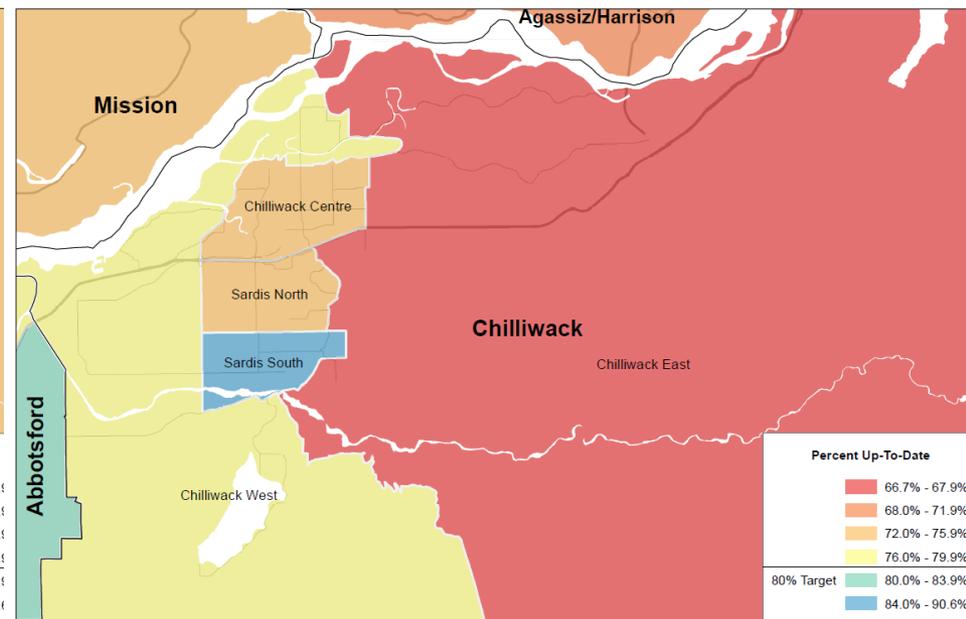
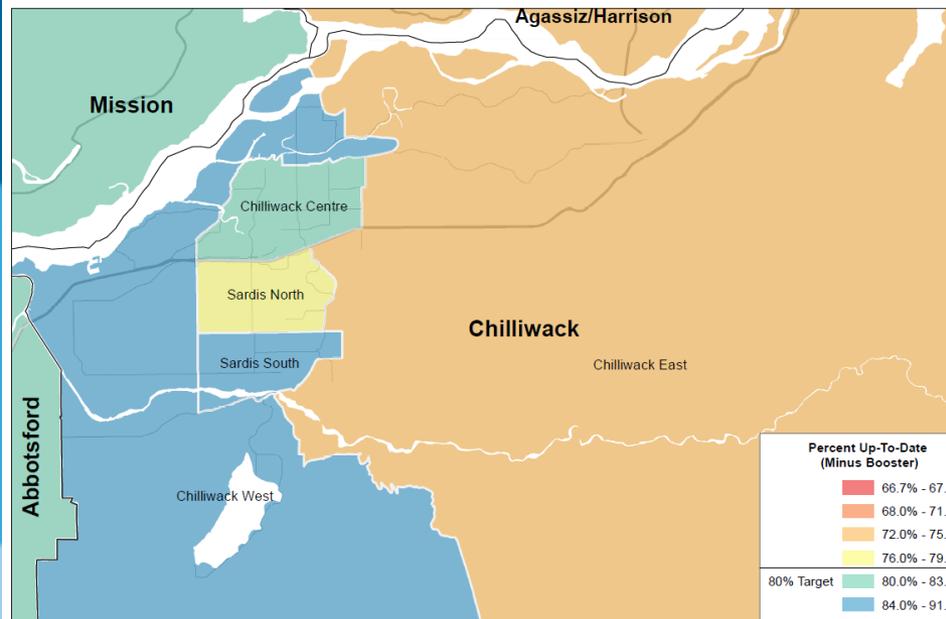
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Surrey 2 year-Old Immunization Rates
2017/18 Fiscal Year

Data Sources: Panorama for 2 year old immunizations
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Story of Chilliwack



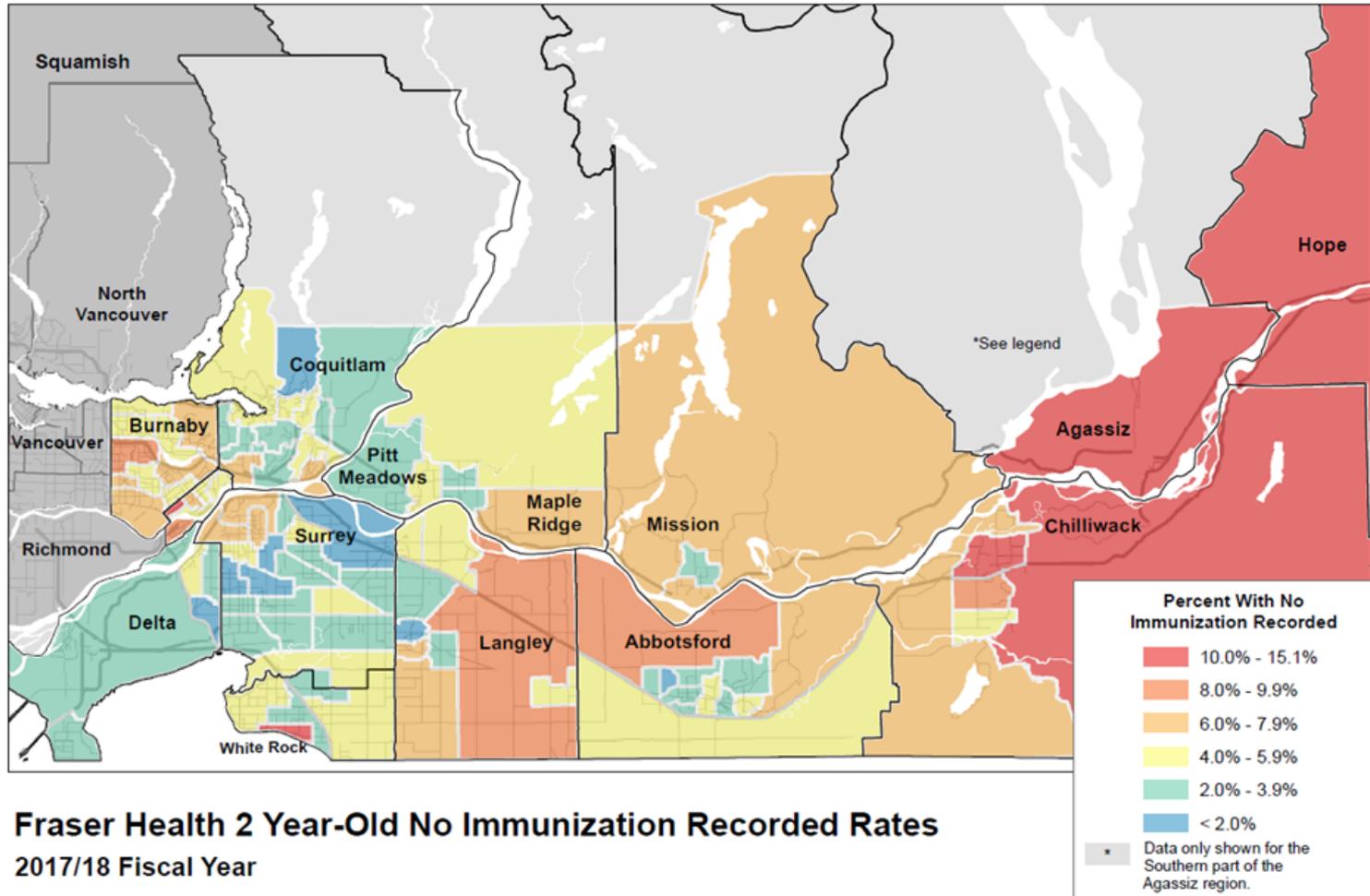
Chilliwack 2 year-Old Immunization Rates (Minus Booster)
2017/18 Fiscal Year

Data Sources: Panorama for 2 year old immunizations
Geographic unit is HELP neighborhoods from UBC
Projection: UTM Zone 10N
Prepared by: Population & Public Health Observatory
Fraser Health Authority, May 2018

Chilliwack 2 year-Old Immunization Rates
2017/18 Fiscal Year

Data Sources: Panorama for 2 year old immunizations
Geographic unit is HELP neighborhoods from UBC
Projection: UTM Zone 10N
Prepared by: Population & Public Health Observatory,
Fraser Health Authority, May 2018

No immunizations



Resources

VACCINE PREVENTABLE DISEASES AND IMMUNIZATION PROFILE

BURNABY

RECENT ACTIVITY IN FRASER HEALTH¹

MEASLES OUTBREAK IN 2014

422 CASES IN FHA

Highest number of cases in BC in over 30 years

PERTUSSIS IN 2016

275 CASES IN FHA

Infants (<1 year) and those aged 10 to 13 years were at the greatest risk for getting pertussis

MUMPS IN 2016

45 CASES IN FHA

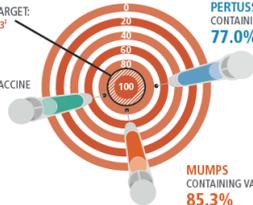
Highest number of cases reported in FHA since the Fraser Valley/Metro Vancouver outbreak in 2008

ARE CHILDREN IN YOUR COMMUNITY ADEQUATELY PROTECTED?

Disease specific 2-year old immunization rates in Burnaby, 2016¹

PROVINCIAL TARGET: 90% BY 2023²

MEASLES CONTAINING VACCINE 85.3%



PERTUSSIS CONTAINING VACCINE 77.0%

MUMPS CONTAINING VACCINE 85.3%

UP-TO-DATE 2-YEAR OLD IMMUNIZATION RATES¹

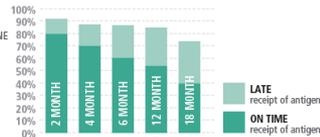
YEAR ¹	BURNABY	FRASER HEALTH
2016	70.1%	76.5%
2011-2015 5 year average	62.9%	69.9%

IMMUNIZATION COVERAGE RATES AMONG SCHOOL-AGE CHILDREN 2016/17 school year³

GRADE	ANTIGEN	BURNABY	FRASER HEALTH
GRADE 6	HEPATITIS B	90.9%	91.8%
	VARICELLA	86.5%	83.4%
	HPV	71.0%	70.1%
	PERTUSSIS	78.0%	79.4%
GRADE 9	TETANUS/DIPHTHERIA	79.3%	80.8%
	MENINGOCOCCAL	78.1%	76.2%

MOST KIDS BEGIN THEIR IMMUNIZATIONS BUT FALL BEHIND SCHEDULE

94% OF 2 YEAR OLDS in Fraser Health receive at least some immunizations⁴. With each scheduled visit, the number of children receiving their vaccines on time decreases. By 18 months of age, only 40% of Fraser Health children get their vaccines on time, leaving most children under-protected against many diseases⁴.



KEEPING ON TRACK

Coverage rates decrease with each successive routine visit between 2 months and 18 months of age. The greatest drop-off occurs between the 12 month and 18 month visits.



94% of infants in Fraser Health had their first dose of pertussis containing vaccine at 2 months. This decreases to 76% of infants who had completed their routine 4th dose at 18 months.⁴

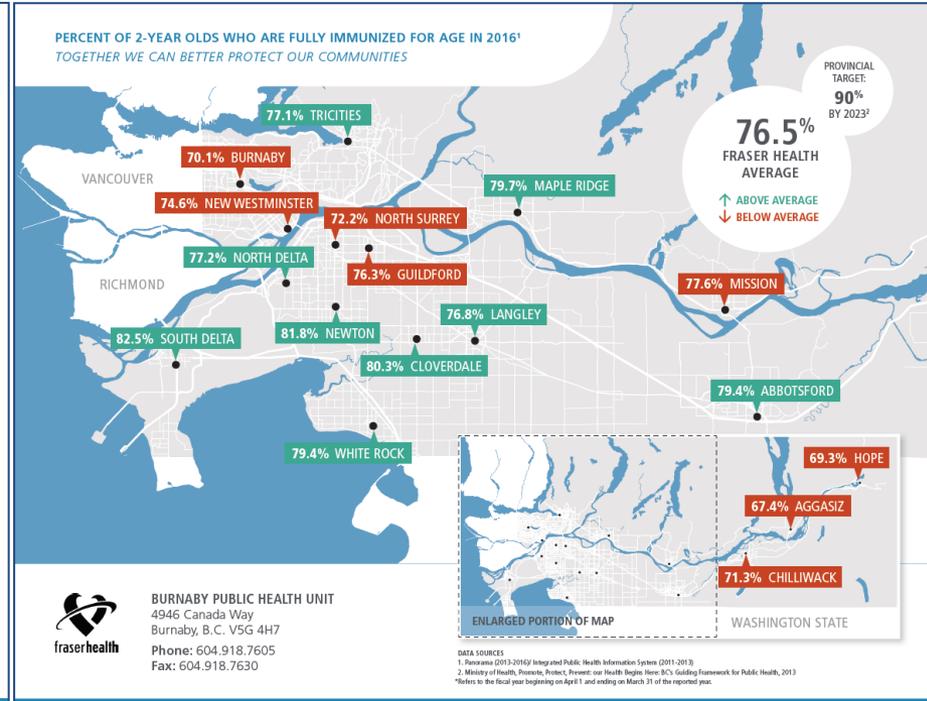
DATA SOURCES

1. Proximus (2013-2016) Integrated Public Health Information System (2011-2018)
 2. Ministry of Health, Protect, Prevent, our Health Begins Here: BC's Guiding Framework for Public Health, 2013
 3. Fraser Health School Immunization Data, 2016/17
 4. Fraser Health Report, Immunizations and Vaccine Preventable Diseases 2014-2015
- ¹Refers to the fiscal year beginning on April 1 and ending on March 31 of the reported year.
Prepared by: Fraser Health Population Health Observatory



PERCENT OF 2-YEAR OLDS WHO ARE FULLY IMMUNIZED FOR AGE IN 2016¹

TOGETHER WE CAN BETTER PROTECT OUR COMMUNITIES



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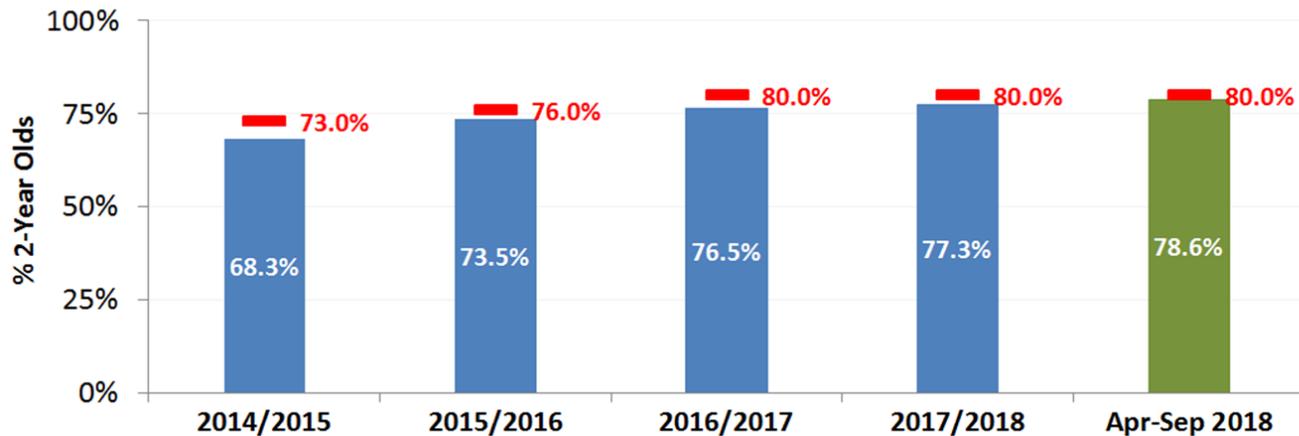
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 2. Ministry of Health, Protect, Prevent, our Health Begins Here: BC's Guiding Framework for Public Health, 2013
- ¹Refers to the fiscal year beginning on April 1 and ending on March 31 of the reported year.

Long road but it's worth it!

- Address underlying data quality/entry issues
- Regularly review and communicate data
- Engage staff to utilize new report tools to make evidence-based informed decisions

FHA Percent of 2-Year Olds with Up-to-date Immunizations
Annual Performance Trend Vs Target



Acknowledgements

- Loretta Bogert-Obrien, GIS analyst
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- Amrit Rai, Director
- Anup Samra, Immunization Manager
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Questions?

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