



BC Centre for Disease Control

An agency of the Provincial Health Services Authority

Moving to Panorama: Immunization Coverage Assessment in British Columbia

Samara David, MHSc

Immunization Programs & Vaccine Preventable Diseases Service

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Disclosure Statement

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

Early Childhood Coverage Assessment, BC

- Milestones: 2 years & 7 years old
- Registry-based
- Valid doses only

<http://www.bccdc.ca/health-info/immunization-vaccines/immunization-coverage>

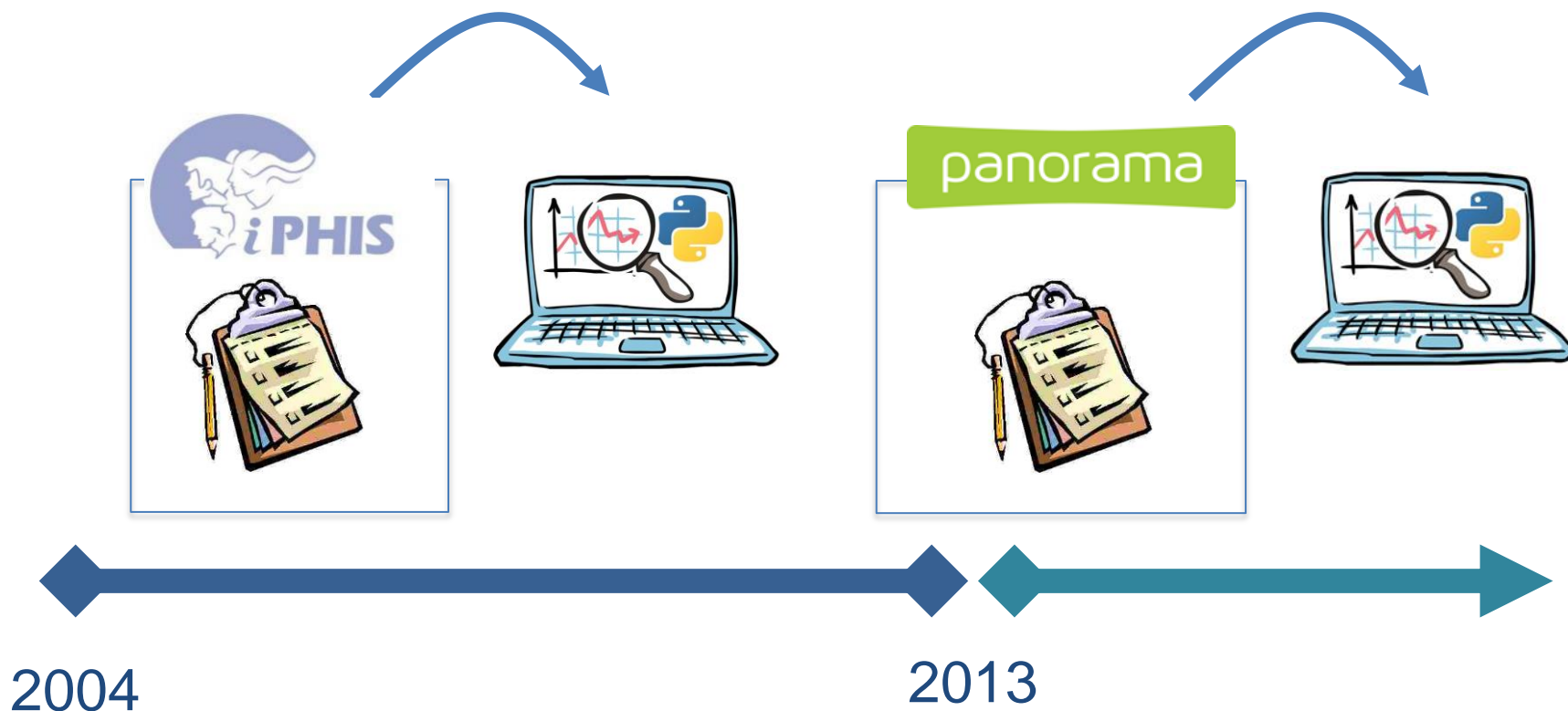
Example Age/Interval Criteria (2 year olds)

Vaccine	Minimum Age / Interval Between Doses			
	Dose 1	Dose 2	Dose 3	Dose 4
Diphtheria, Tetanus, Pertussis	42 days	28 days	28 days	6 months
Measles, Mumps, Rubella	12 months			
<i>Haemophilus influenzae</i> type b				
Age < 7 months at dose 1	42 days	28 days	28 days	8 weeks*
Age 7-11 months at dose 1	7-11 months	28 days	8 weeks*	
Age 12-14 months at dose 1	12-14 months	8 weeks*		
Age ≥ 15 months at dose 1	15 months			

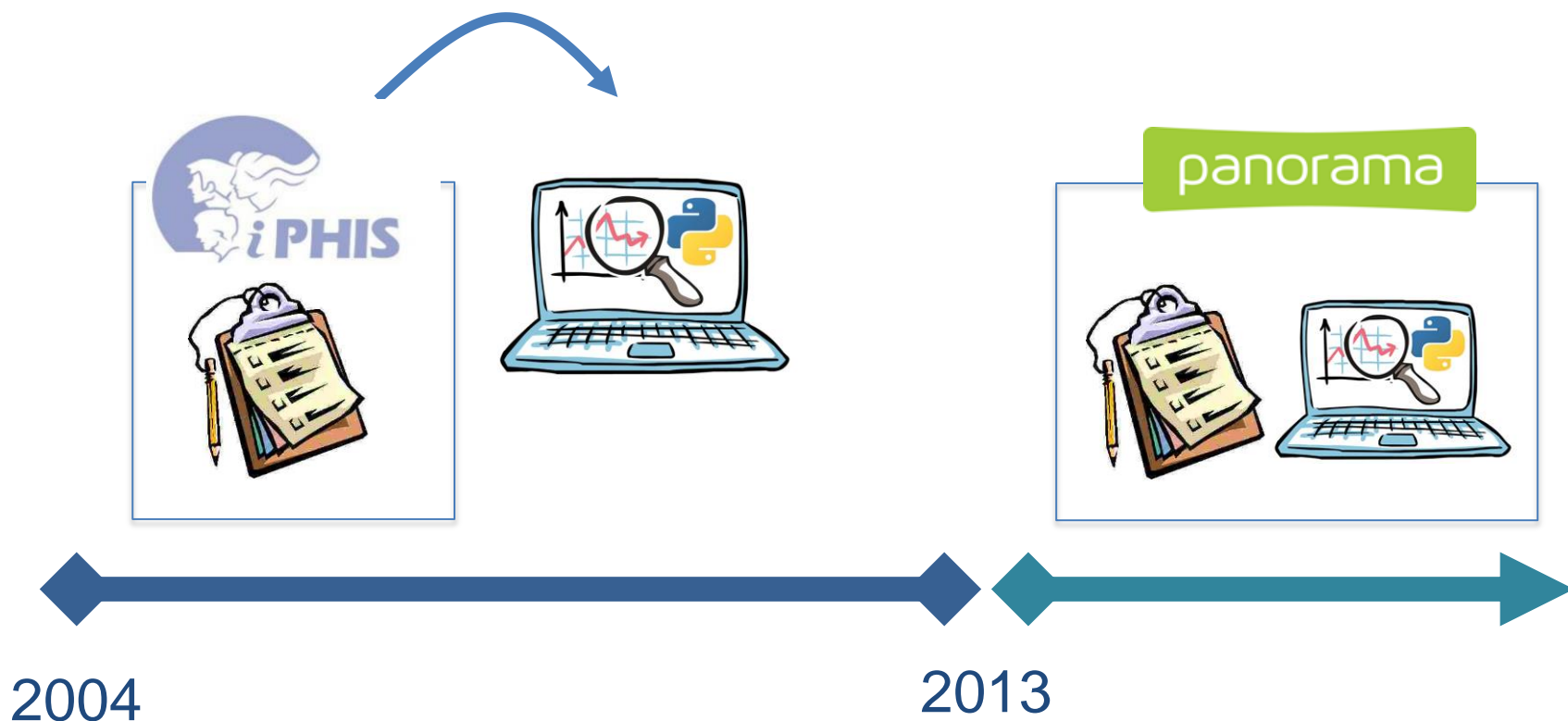
* The booster dose must be given on or after 15 months of age.



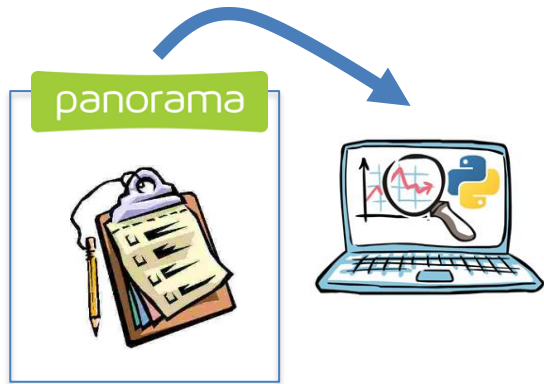
Registries and Analyses



Registries and Analyses



Known Differences



- Extract data: agent, date administered, date of birth
- Apply validation rules at antigen level
- Rely on calculations using dates recorded



- Rely on Panorama forecaster for validation
 - Manually override validation
 - Revise dose number
 - Interactions between agents
- Assess whether have a final dose (e.g., MMR recorded as dose 2 or higher by age 7)

Purpose



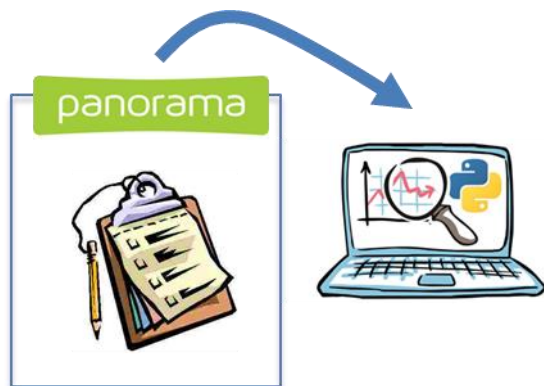
... in order to determine the reliability of the Panorama coverage reports for immunization coverage surveillance in BC.

Methods

- Cohorts
 - 2 year old: Apr. 1-Jun. 30, 2013 (N=8,645)
 - 7 year old: Jan. 1-Dec. 31, 2007 (N=38,540)
- Compared individual-level results
- Rectified validation logic discrepancies
- Compared again



Improvements Made

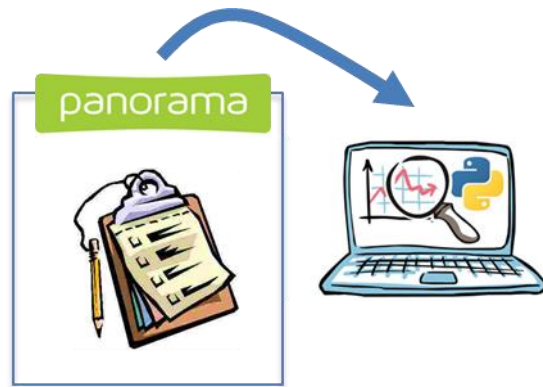


- **Exclude doses marked as invalid**
- Exemption dates considered
- Tdap in <4 years old
- Min age/intervals to correct cohort
- Consider lab evidence of immunity as up-to-date for varicella
- Hib and PCV off-schedule scenarios



- Exemption dates considered
- Tdap in <4 years old
- Min age/intervals to correct cohort
- Fixed incorrect interactions
- Men-C <56 days after previous invalid dose not counted

Results – Up-to-date by 2nd Birthday



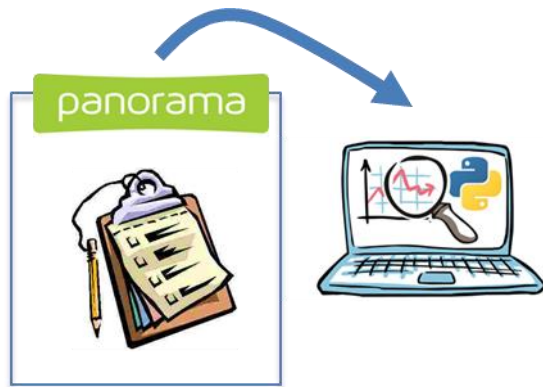
69.9%



70.1%*

***0.18%** increase in coverage result
15 more children out of 8,645

Results – Up-to-date by 7th Birthday



57.6%



57.6%*

***0.03%** increase in coverage result
13 more children out of 38,540

Results by Antigen(s) / Agent

Measure	2 Year Olds			7 Year Olds		
	Extract	Pano.	Δ	Extract	Pano.	Δ
D/T/aP/IPV	75.0%	75.1%	0.09%	71.8%	71.8%	0.01%
Hep B	84.2%	84.5%	0.22%	83.0%	83.0%	0.02%
Hib	78.7%	78.7%	0.01%	-	-	-
Men-C-C	86.1%	86.1%	0.01%	87.7%	87.7%	-0.02%
MMR / Measles	86.2%	86.2%	0.02%	84.8%	84.8%	-0.01%
PCV	83.6%	83.8%	0.17%	-	-	-
Rotavirus	74.6%	74.7%	0.09%	-	-	-
Varicella	83.5%	83.5%	0.02%	63.9%	64.0%	0.07%



Conclusions

- Comparison led to overall improvements
- Two methods → very similar results
- Panorama reports do not meet BC surveillance definitions
 - Manual override to valid
 - Revised dose number
- External analyses for provincial surveillance
- In-Panorama reports allow regional users to reliably monitor trends



Co-authors and Acknowledgements

Co-authors

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