



**Sinai
Health
System**

Invasive pneumococcal disease (IPD)
burden after the introduction of
routine pediatric PCV13:
where do we go from here?

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The Toronto Invasive Bacterial Diseases Network

Disclosures

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Background

- PCVs introduced into routine pediatric vaccination programs have had a substantial impact on IPD in both children and adults
- We need an understanding of the residual burden in order to understand the potential value of PCV program for adult, and of extended spectrum PCV vaccines

TIBDN surveillance

- Population-based surveillance for IPD since 1995.
- Cases reported to central study office.
- One isolate/case serotyped at a central research lab.
- Clinical information and demographics are collected from:
 - Chart review, patient interview, family and attending physicians
- Demographic data from Statistics Canada:
 - Rates calculation adjusted for missing serology results



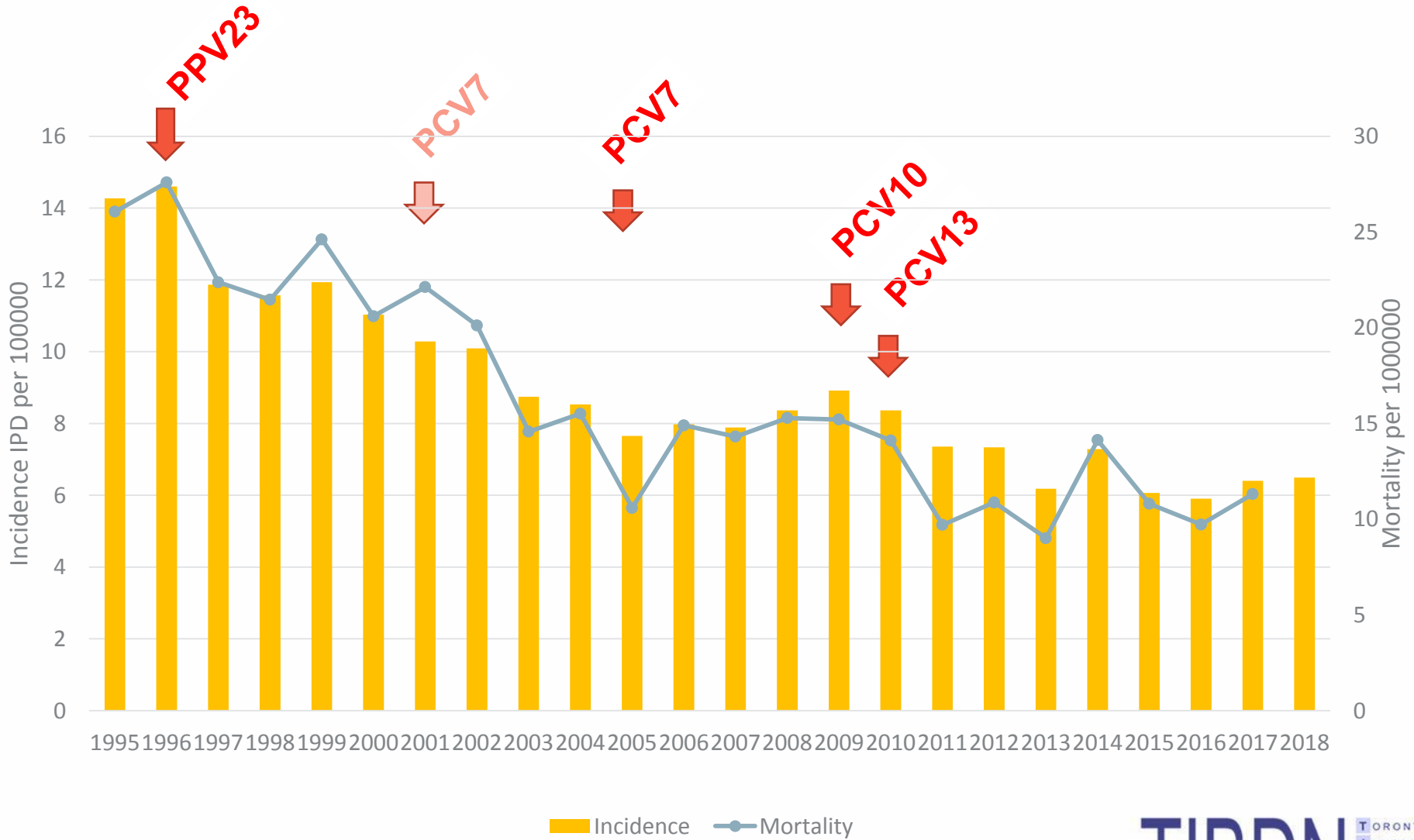
PCV programs in Ontario

Date	Vaccine/program change
June 2001	PCV7 authorized
Jan 2005	Publicly funded routine infant PCV7 (2,4,6,15 months)
Oct 2009	PCV10 replaces PCV7 in routine infant program <i>Children started on PCV7 continue on PCV7</i>
Nov 2010	PCV13 replaces PCV10 – schedule 2,4,12 months Catch-up PCV13 for 12-35 months olds

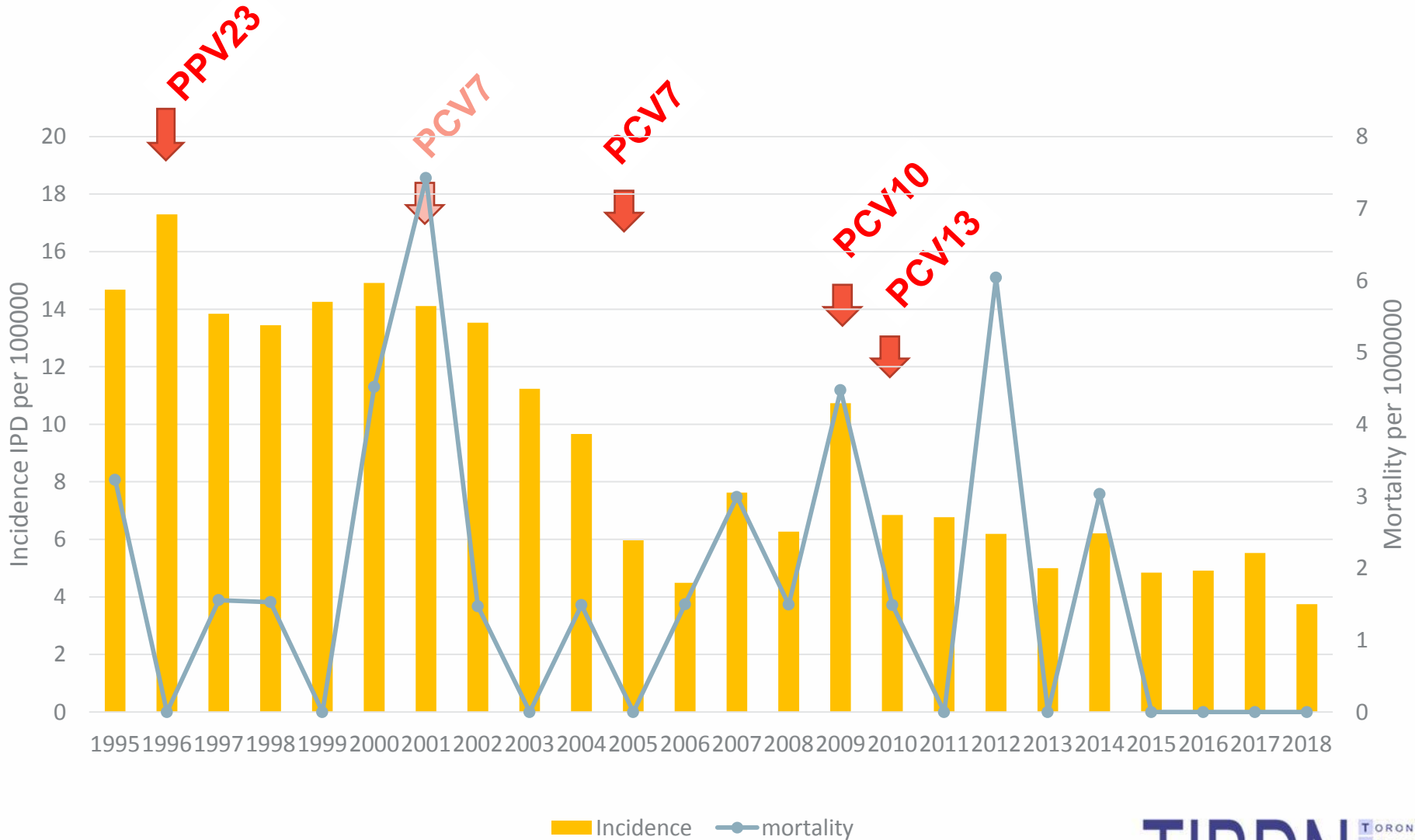
IPD case characteristics, 1995-2017

- 9933 cases
 - 9486 (95%) with clinical data
 - 9041 (91%) with serotype
 - 18% pediatric; 41% younger adult (15-64y); 41% older ($\geq 65y$)
- 5943 (63%) with chronic illness predisposing to IPD
- Presenting diagnoses:
 - 6311 (67%) pneumonia
 - 1670 (18%) bacteremia without focus
 - 605 (6%) meningitis
- Outcomes
 - 2476 (26%) ICU admission
 - 1721 (18%) died

Population incidence of IPD, Toronto/Peel, 1995–2018

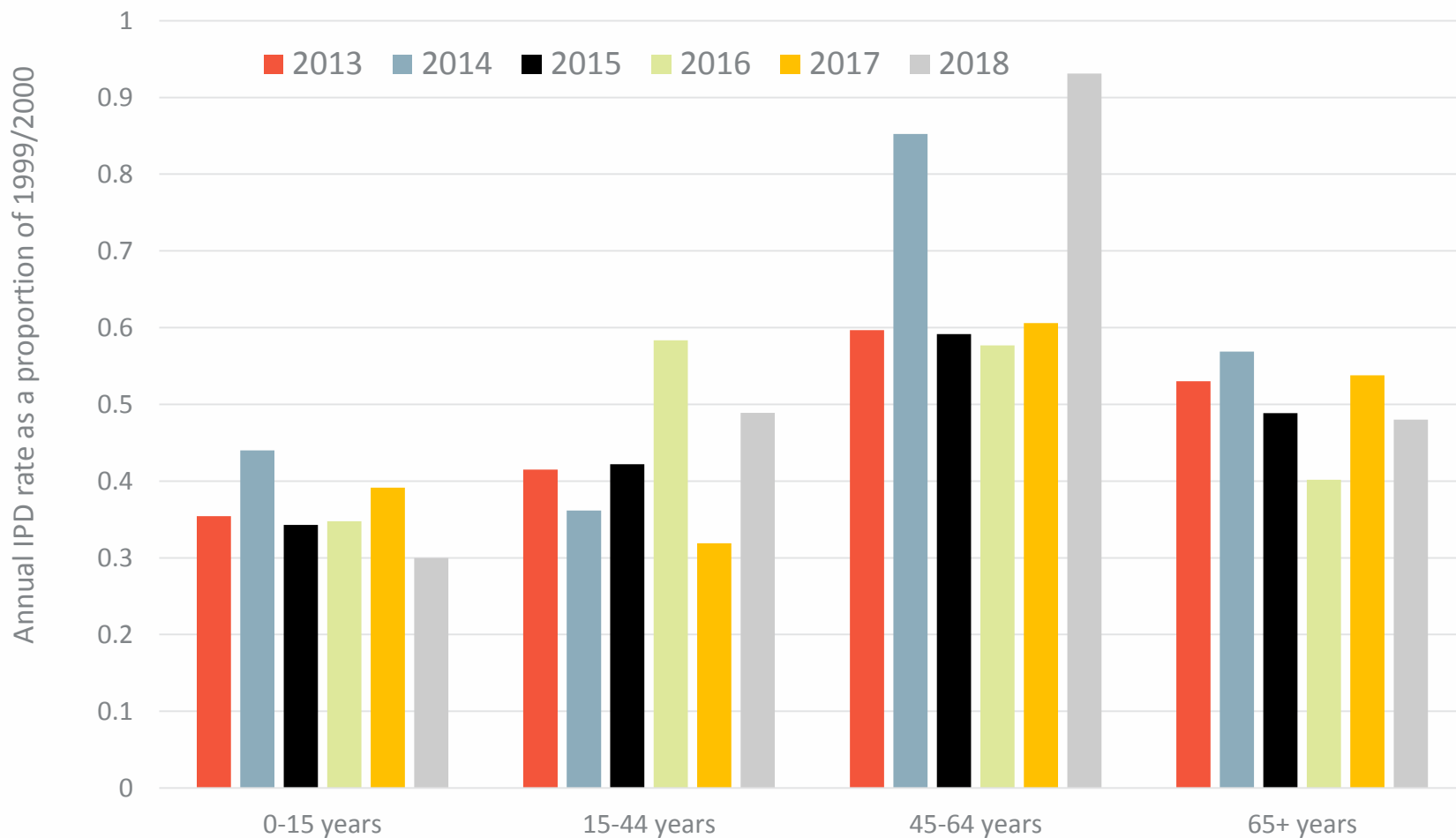


Population incidence of IPD, Toronto/Peel, 1995–2018

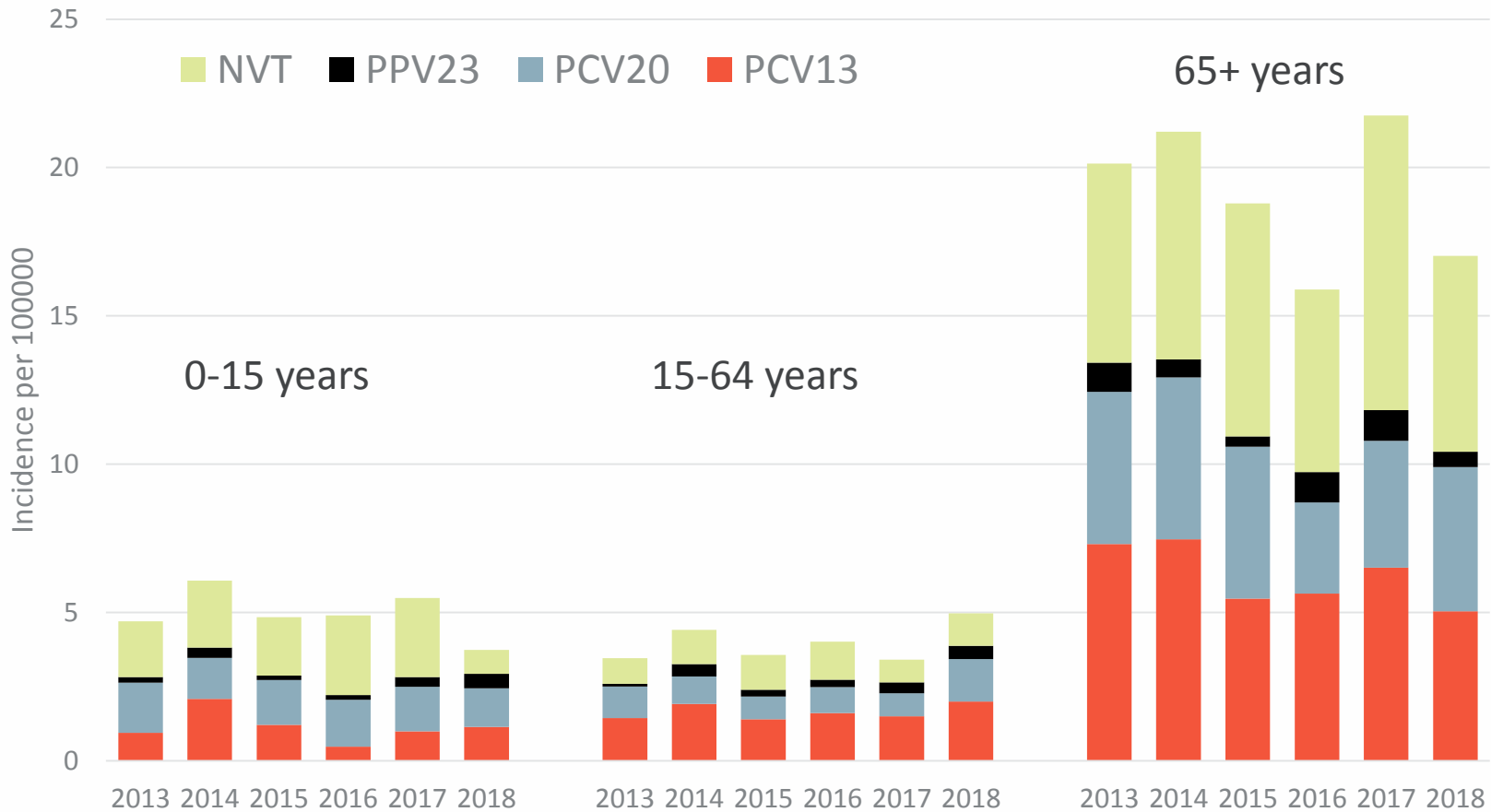


Incidence of IPD, Toronto/Peel, 2013–2018

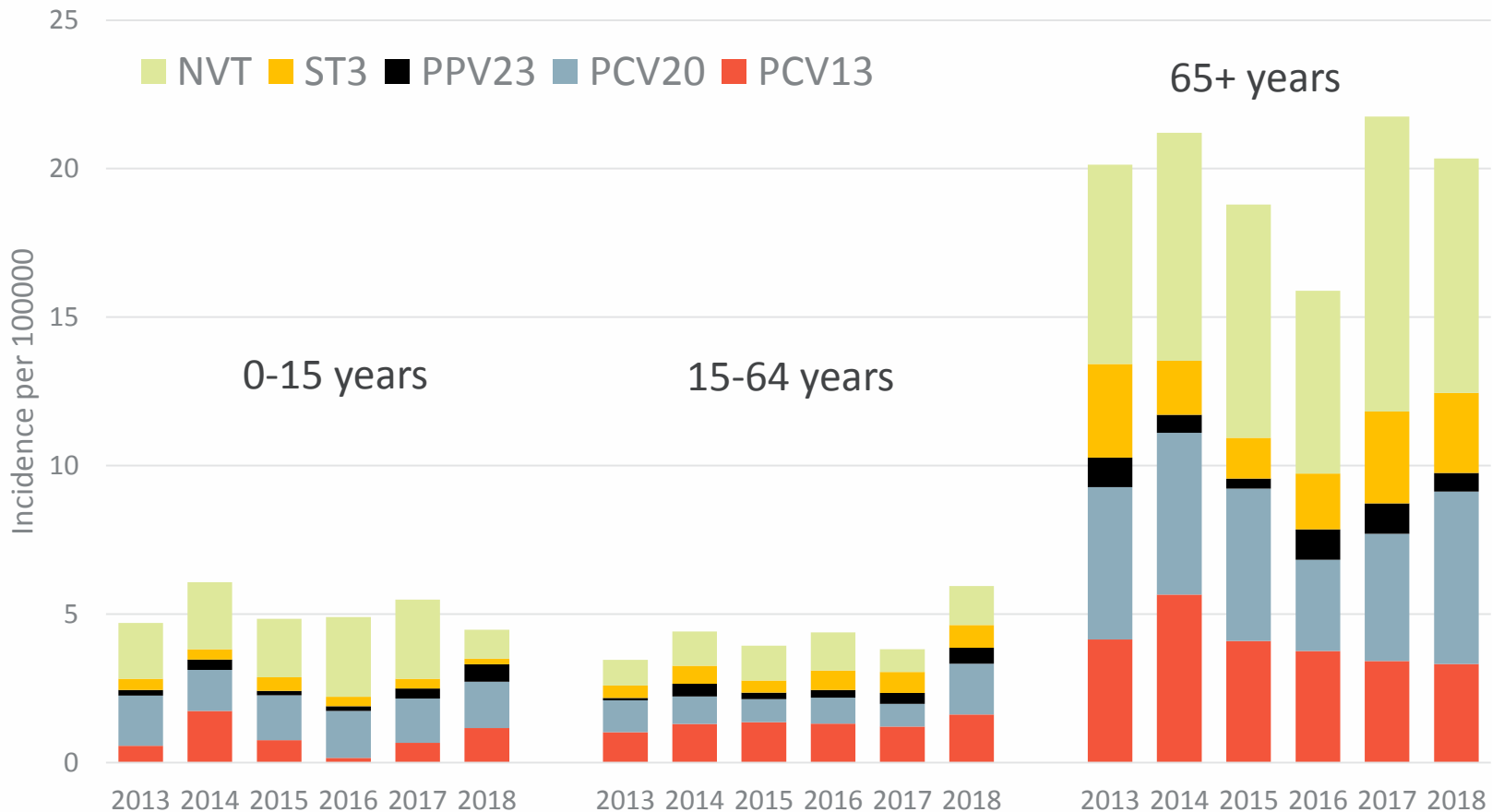
As a proportion of average annual incidence 1997-2000



Incidence of IPD by serotype group and age TIBDN, 2013-2018



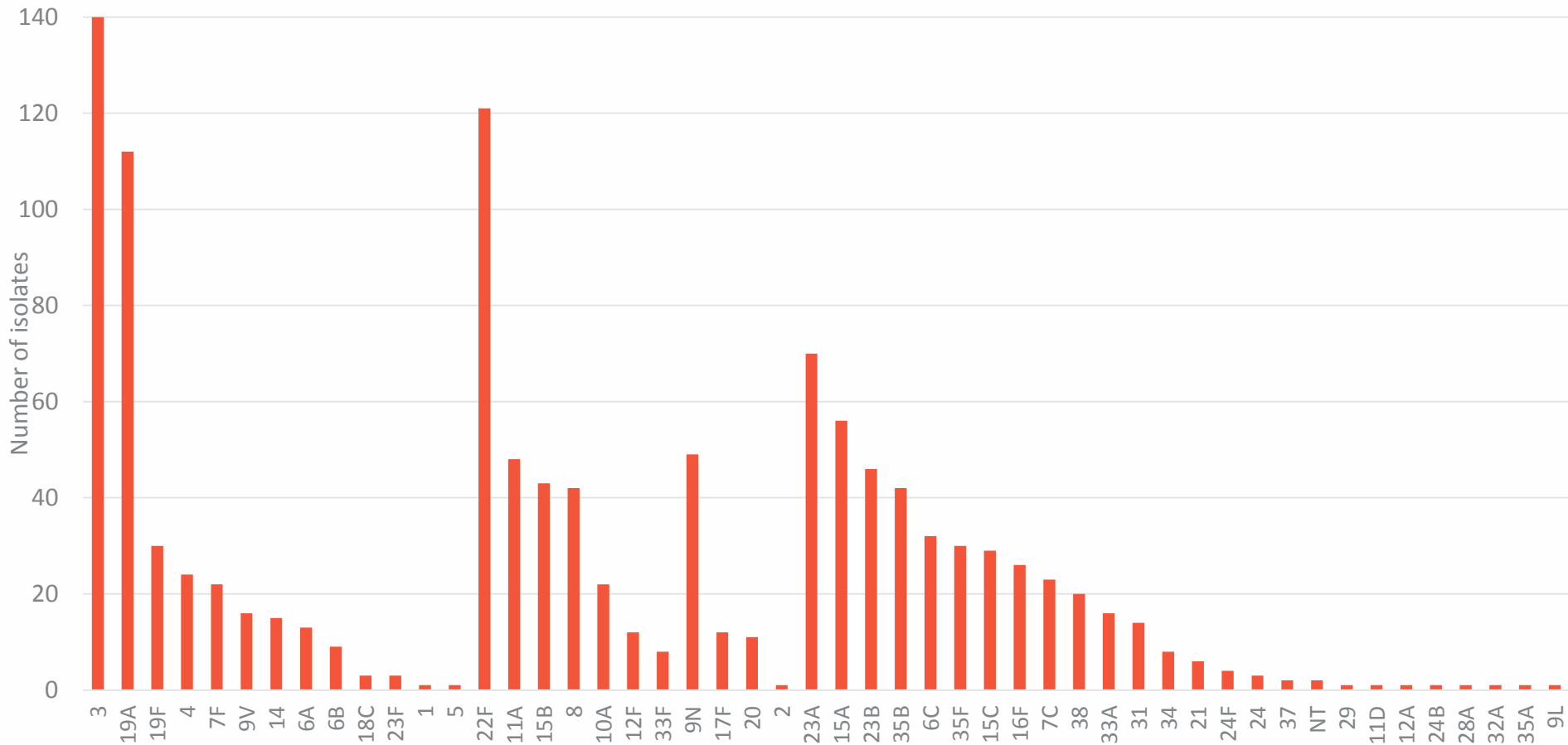
Incidence of IPD by serotype group and age TIBDN, 2013-2018



Proportion of disease due to different serotype groups, 2015-2018

	PCV13	PCV15/ not 13	PCV20/ not 15	PPV23/ not PCV	NVT
Children N=156	25%	13%	17%	5%	40%
Adults 15-64y N=493	38%	10%	14%	8%	30%
Older adults N=546	30%	11%	13%	5%	41%

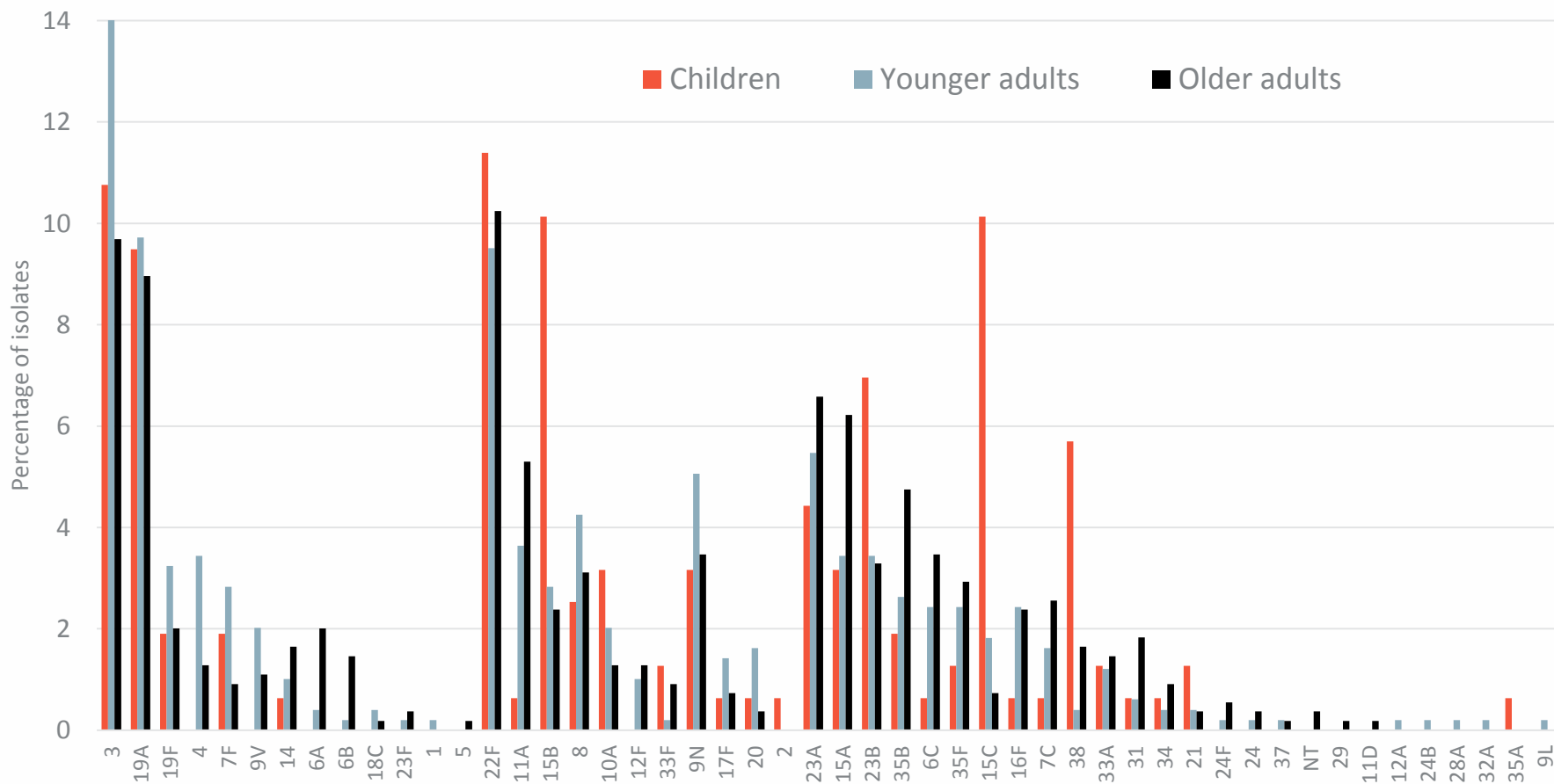
Distribution of serotypes causing IPD TIBDN, 2015-2018



Distribution of serotypes

TIBDN, 2015-2018

By age group



In sum

- There is a significant residual burden of IPD in Canadian children and adults
- The cost-effectiveness of PCV13 for adults may need to be re-calculated if disease persists at its current rate
- Extended spectrum vaccines have the potential to significantly reduce residual burden

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A word cloud of thank-you expressions in various languages and scripts, including: Thank You, Takk, Grazie, Merci, Spasibo, and many others.