

00724 Comorbidity and risk of invasive pneumococcal disease in adults, Toronto, Canada

Allison Mcgeer*¹, Agron Plevneshi¹, Karen Green¹, Sarah Nayani¹, Jeff Kwong², Hannah Chung², Brenda Coleman¹, Wayne Gold¹, Jennie Johnstone¹, Kevin Katz¹, Irene Martin³, Matthew Muller¹, Jeff Powis¹, David Richardson¹, Wallis Rudnick¹, Alicia Sarabia¹, Andrew E. Simor¹

¹ Toronto Invasive Bacterial Diseases Network, ² ICES, Toronto, Canada, ³ National Microbiology Laboratory, Winnipeg, Canada

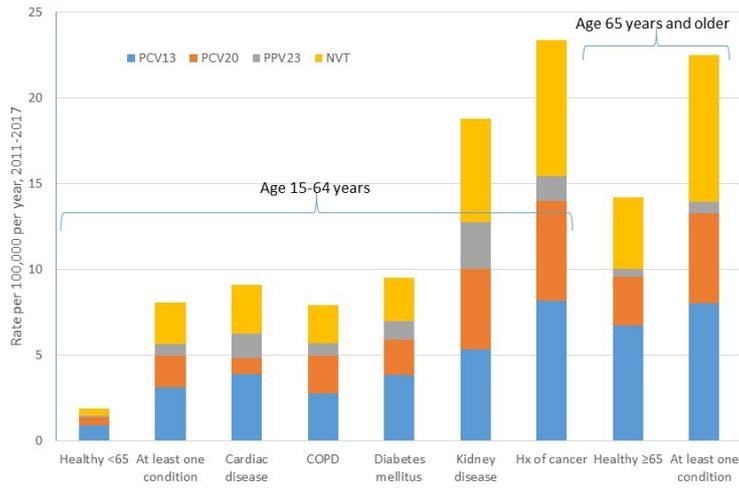
Background: Pediatric pneumococcal conjugate vaccination (PCV) programs have reduced the burden of invasive pneumococcal disease (IPD) in adults. However, a substantial burden remains. We assessed the incidence of IPD in different population subgroups after PCV13 replaced PCV7 in the Ontario pediatric PCV program in 2010.

Materials/methods: Toronto Invasive Bacterial Diseases Network performs population-based surveillance for IPD in Toronto/Peel (pop 4.3M). Sterile site isolates of *S. pneumoniae* are reported to a central study laboratory, isolates are serotyped, and clinical and vaccination data are collected via patient/physician interview and chart review. Population data are obtained from Statistics Canada, and population subgroup data from ICES.

Results: From 2011-2017, 1616 cases of IPD were identified in adults (≥ 15 y). Clinical data were available for 1528 (95%); serotype for 1466 (90%). 588 (40%) isolates were serotypes (STs) included in PCV13, 366 (23%) STs in PCV20/not13, 72 (5%) STs in PPV23/notPCV20, and 470 (32%) were non-vaccine type. IPD incidence declined from 7.1 to 6.3/10⁶/yr from 2011 to 2013; there was no significant change in incidence from 2013-2017 (overall 6.2/10⁶/yr). The Figure displays incidence of IPD in risk groups by age and serotype group. IPD incidence in younger adults (15-64y) is highest immunosuppressed persons (152/10⁶/yr), and with a history of cancer (21) or kidney disease (18). In older adults (65y+), incidence is highest in immunosuppressed persons (91), those with kidney disease (30) or a history of cancer (26). The proportion of disease due to PCV13-type strains is highest in healthy adults (55% younger and 50% older adults). In older adults the proportion of strains included in PCV13 is lowest in those with cancer or immunosuppression (23%, 26%); in younger adults, this proportion is lowest in those with immunosuppression or kidney disease (29%, 30%) (all $P < .001$ compared to healthy adults)

Conclusions: There is a substantial persisting burden of IPD due to PCV13 STs in adults in our population. The most common chronic underlying conditions increases the incidence of IPD by 3-4 fold in younger adults, and about 2 fold in older adults; kidney disease, cancer and immunosuppression are associated with greater risk.

Figure: Average annual incidence of IPD due to different serotype groups, 2013-2017



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