How well is the 23vPPV working in the non-Indigenous Elderly?

Rob Menzies
Background

Effectiveness against IPD

- ~50% in elderly
- Higher in younger adults
- Lower in those with immunosuppression and chronic disease
23vPPV in Australia

- **1983:**
  - Licensed

- **1997:**
  - Recommended by NHMRC for all ≥65 years
  - Available on PBS

- **1998:**
  - Funded in Victoria for ≥65 years

- **1999:**
  - Funded nationally for Indigenous adults ≥50 years and 15-49 with risk factors

- **2005:**
  - Funded nationally for ≥65 years
  - Concurrent with national 7vPCV program
Methods

- Impact on IPD notifications
  - 2002-2007
  - Aged ≥65 years
  - Excluding Victoria
  - Excluding Indigenous
  - Other published data

- Vaccination coverage
  - National CATI surveys 2004, 2006
  - “Have you been vaccinated for pneumonia in the previous five years?”
  - By jurisdiction

- Vaccine Effectiveness
  - Screening method
  - Indirect Cohort method
IPD notification rates*, aged 65+ years, and self-reported pneumococcal vaccination coverage

* Adjusted for untyped cases. Cases recorded as Indigenous or from Victoria are excluded.
IPD notification rates*, aged 65+ years, and self-reported pneumococcal vaccination coverage

* Adjusted for untyped cases. Cases recorded as Indigenous or from Victoria are excluded.
Impact of 23vPPV in the US

- Incremental increases in coverage 1989-2003
- Concurrent increases in influenza vaccine coverage
- 7vPCV introduced 2000-01

- All-age pneumococcal deaths declined 3% 1989-1998
  - Pneumo, flu vaccines or something else?

- IPD hospitalisations in elderly decreased 2001/02
  - Associated with 7vPCV, not 23vPPV

- IPD in elderly decreased in 2002-03 vs 1998-99
  - In 7vPCV serotypes
  - Not in 23v-non7v serotypes
Settings without 7vPCV use:
Victoria

Settings without 7vPCV use: Sweden

Source: Spindler et al, Vaccine 2008
VE estimation

- Indirect cohort method
- Screening method
The Screening method – Vaccination coverage in cases versus the population
Indirect Cohort Method: using IPD notifications only

- 23vPPV serotype IPD: 89.8%
- 23vPPV-like serotype IPD: 6.7%
- non 23vPPV serotype IPD: 3.5%

'Cases':
- Eg. 15B: 89.8%
- Eg. 15C: 6.7%
- Eg. 35: 3.5%

'Controls':
- Eg. 15B: 100%
### 23vPPV estimates of effectiveness against vaccine-type IPD

<table>
<thead>
<tr>
<th>Country</th>
<th>Method</th>
<th>Age group</th>
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<tr>
<td></td>
<td></td>
<td>62-73</td>
<td>74-79</td>
<td>80+</td>
<td>65-74</td>
<td>75+</td>
<td>All</td>
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<tr>
<td>England &amp;</td>
<td>Screening†</td>
<td>24% (14-24)</td>
<td>37% (28-45)</td>
<td>38% (32-44)</td>
<td>34% (29-38)</td>
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<tr>
<td>Wales*</td>
<td>Indirect Cohort†</td>
<td>40% (13-59)</td>
<td>25% (-12-49)</td>
<td>8% (-21-30)</td>
<td>23% (6-36)</td>
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<td></td>
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<td>65-74</td>
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<td>51% (-278 – 94)</td>
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<td>Scotland</td>
<td>Screening†</td>
<td>54 (20-74)</td>
<td>69 (52-80)</td>
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<td>62 (45-73)</td>
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<tr>
<td></td>
<td>Indirect Cohort†</td>
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<tr>
<td>Australia</td>
<td>Screening‡</td>
<td>45% (28-58)</td>
<td>66% (58-73)</td>
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<td>57% (42-68)</td>
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<td>Indirect Cohort‡</td>
<td>67% (7-88)</td>
<td>4% (-97-53)</td>
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<td>33% (-20 – 62)</td>
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<td>Indirect Cohort†</td>
<td>58% (-17 – 85)</td>
<td>0% (-99-49)</td>
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<td></td>
<td>24% (-33 – 57)</td>
</tr>
</tbody>
</table>

* Unpublished data provided by E. Miller and N. Andrews, Health Protection Agency, United Kingdom.
† Ever vaccinated
‡ Fully vaccinated, according to handbook recommendations
Conclusions

- Limited evidence of impact of 23vPPV on IPD in Australia
  - Swamped by effect of 7vPCV?
  - Incremental increase in coverage
- Some evidence of population impact when 7vPCV not used
- VE estimates >0
Acknowledgements

- Enhanced IPD Surveillance Working Group
- Nick Andrews, UK Health Protection Agency