Life course vaccination - the UK perspective

Mary Ramsay
Head of Immunisation
Public Health England
Historically, most UK vaccines were targeted at small children.
Since 2000, the UK has introduced 12 new vaccine programmes:

- Of which, only three for infants
- One for primary school children
- Two for teenagers
- Two for pregnant women
- Three for older people
National Health Service Constitution (2009)

“You have the right to receive the vaccinations that the Joint Committee on Vaccination and Immunisation recommends that you should receive under an NHS-provided national immunisation programme.”

But JCVI

- must show programme to be cost-effective
Many diseases have a high burden in the elderly and those with underlying co-morbidity.

**Case fatality ratio by age, influenza (deaths/1000 admissions)**

- **Low risk**
- **High risk**
4.10.1. Vaccination rates for influenza, population aged 65 and over, 2012 (or nearest year)

Estimated incidence of shingles by age, those aged 60 years and over.

Estimated annual age-specific incidence of shingles per 100,000 people per year in immunocompetent population. (Data taken from Alum et al, 2009).

There’s now a vaccine to help protect you against shingles.
Success of UK adult vaccination - the role of general practice

- 99% of the UK population are registered with a general practice
  - providing basis for **coordination** and **continuity** of care
  - e.g. influenza vaccination as integrated part of chronic disease management

- Highly systematic use of information technology
  - Age / sex register, recording of underlying conditions
  - to support population health interventions (call/recall)
  - able to rapidly monitor vaccine uptake
Rapid monitoring of performance – weekly influenza uptake

- 65 and Over (2014/15)
- 65 and Over (2013/14)
- 65 and Over (2012/13)
- Under 65 - At Risk [excluding pregnant women without other risk factors] (2014/15)
- Under 65 - At Risk [excluding pregnant women without other risk factors] (2013/14)
- Under 65 - At Risk [excluding pregnant women without other risk factors] (2012/13)
- Pregnant women [healthy and at-risk] (2014/15)
- Pregnant women [healthy and at-risk] (2013/14)
- Pregnant women (2012/13)
Issues with vaccine policy for older people

• Apparent burden does not reflect the rate of infection
  – Transmission often fuelled by younger individuals
• Older people often respond less well to vaccines
• Coverage in older people may not reach the levels seen in children
• Large impact on adult disease from vaccinating children
  – E.g. Pneumococcal infection
Control of pneumococcal disease

• Pneumococcal polysaccharide vaccine (PPV23) introduced for over 65s in 2003
  – Coverage of PPV23 was 70.1% in 2015/16
  – Moderate effectiveness of relatively short duration
  – No discernible impact on disease rates

• Pneumococcal conjugate (PCV7) vaccine introduced for infants in October 2006, replaced with PCV13 in January 2010
  – High coverage in infants and toddlers
  – Major impact on disease rates in infants
Invasive pneumococcal disease in over 65 year olds by serotype, 2000-2015
Childhood Influenza Programme
Roll-out during 2013/14-2015/16

• Strategy to reduce transmission in school children
  • Protect younger and older people by indirect protection

• Gradual roll out to all children aged 2-11 years of age from 13/14 season

• Pilot phase in primary schools in some geographical areas
  • comparing influenza indicators with other areas
Impact of childhood influenza vaccination in primary schools

Reduction in indicators in pilot areas 2014-15

- 94% reduction in primary school aged children: GP influenza like illness consultation rates
- 74% reduction in primary school aged children: A&E respiratory attendances
- 93% reduction in primary school aged children: Hospital admissions due to confirmed influenza
- 59% reduction in adults: GP influenza like illness consultation rates

Public Health England
Summary

• UK has a comprehensive vaccination programme targeting the older population
  – Decisions based on demonstration of cost-effectiveness
  – Implementation is successful due to universal free access to general practice, supported by accurate information systems

• Protection of older people is best optimised through a whole population strategy
  – Protection of older people retained from childhood vaccination (eg. Diphtheria)
  – Indirect protection from vaccinating children may be more effective than direct vaccination of the age group

• Choice of appropriate strategy depends on knowledge of disease rates, supported by modelling of infection transmission

• Monitored by surveillance of vaccine coverage in the target age group and rates of disease across the whole population
<table>
<thead>
<tr>
<th>Year</th>
<th>Age Group</th>
<th>Vaccine</th>
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<tbody>
<tr>
<td>1942</td>
<td>Infants</td>
<td>Diphtheria</td>
</tr>
<tr>
<td>1956</td>
<td>Infants</td>
<td>Polio</td>
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<tr>
<td>1957</td>
<td>Infants</td>
<td>Pertussis (whooping cough)</td>
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<tr>
<td>1961</td>
<td>Infants</td>
<td>Tetanus</td>
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<tr>
<td>1992</td>
<td>Infants</td>
<td>Haemophilus <em>influenzae</em> type b (Hib)</td>
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<tr>
<td>1998</td>
<td>One year olds</td>
<td>Measles, mumps and rubella</td>
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<tr>
<td>1999</td>
<td>One year olds</td>
<td>Meningococcal group C (MenC)</td>
</tr>
<tr>
<td>2000</td>
<td>65 years old and older</td>
<td>Influenza (each year)</td>
</tr>
<tr>
<td>2003</td>
<td>65 years old and older</td>
<td>Pneumococcal disease (23 serotypes)</td>
</tr>
<tr>
<td>2006</td>
<td>Infants</td>
<td>Pneumococcal disease</td>
</tr>
<tr>
<td>2008</td>
<td>Girls aged 13 years</td>
<td>Human papillomavirus (HPV)</td>
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<tr>
<td>2009</td>
<td>Pregnant women</td>
<td>Influenza</td>
</tr>
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<td>2012</td>
<td>Pregnant women</td>
<td>Pertussis</td>
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<tr>
<td>2013</td>
<td>Infants</td>
<td>Rotavirus gastroenteritis</td>
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<tr>
<td>2013</td>
<td>Two to eight year olds</td>
<td>Influenza (each year)</td>
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<tr>
<td>2013</td>
<td>70 year olds</td>
<td>Shingles</td>
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<tr>
<td>2015</td>
<td>Infants</td>
<td>Meningococcal group B (MenB)</td>
</tr>
<tr>
<td>2015</td>
<td>Fourteen year olds</td>
<td>Meningococcal groups A, C, W and Y</td>
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