Childhood and Adolescent Immunisation in the UK

March 15th 2007

Dr Roger Harrington
Edward Jenner

• 1749 – 1823.

• Born Berkeley, Gloucestershire.

• Apprenticed to John Hunter FRCS at St George’s Hospital, London, in 1770.
St George’s Hospital
Edward Jenner and smallpox

- Became impressed by the fact that someone who had suffered from cowpox could not become infected, either by accidental or intentional exposure to smallpox.
• He concluded that cowpox not only protected against smallpox but could be transmitted from one person to another as a mechanism of protection.
In 1796, he took the material from the fresh cowpox lesions on the hand of a dairymaid and inoculated an 8 year old boy.

The boy became slightly ill over the next 9 days but was well by the 10th day.
• 6 weeks later, he inoculated the boy again, this time with smallpox matter.

• No disease developed and protection was complete.
• In 1798 he published all his research in “An Inquiry into the Causes and Effects of the Variolae Vaccinae; a Disease Discovered in some of the Western Counties of England, particularly Gloucestershire, and Known by the Name of The Cow Pox”.
Routine childhood immunisation programme in the UK

- Diphtheria
- Tetanus
- Pertussis
- *H. influenzae* type b (Hib)
- Polio
- Meningococcal serogroup C (MenC)
- Measles
- Mumps
- Rubella
- Pneumococcus
Schedule

- Two months
  - Dip / tet / pert / polio / Hib
  - Pneumococcal (PCV)
- Three months
  - Dip / tet / pert / polio / Hib
  - MenC
• Four months
  • Dip / tet / pert / polio / Hib
  • MenC
  • PCV

• Twelve months
  • Hib / MenC
• ~ 13 months

• Three years four months – five years

• MMR
• PCV
• Dip / tet / pert / polio
• MMR
• 13 – 18 years

• Tet / dip / polio
Reaching children and adolescents

• Child is born > registered on local child health system.
• Health visitor discusses immunisation with parent(s).
• Consent obtained.
• Child brought to the Primary Health Care Team for immunisations.
Other routes to reach children and adolescents

• Some child health clinics are run – especially in inner cities.

• Staffed by nurses and clinical medical officers.
Other routes to reach children and adolescents

• School-leaving immunisation carried out by school nurses in schools – state (93% of children) or private (7%).

• If a child has had a serious reaction to an earlier vaccination, the procedure may be done in a hospital with full resuscitation facilities.
Targeted BCG vaccination programme

• Introduced in 2005.

• Targeted at risk groups: -
  (i) Infants living in an area where the incidence of TB is 40/100,000 or greater.
Targeted BCG vaccination programme

(ii) Infants whose parents / grandparents were born in a country where the incidence of TB is 40/100,000 or greater.

(iii) Previously unvaccinated new immigrants from high prevalence countries for TB.
Vaccinators

- Could be any health care professional (doctor/nurse) who has been trained.

- Health visitor.

- School nurse.
Vaccinators

• Practice nurse.

• GP.

• Community paediatrician.

• Clinical medical officer.
Training of vaccinators

- Responsibility of the employer – PCT / GP practice.
- Lecture / observation of the practical skills required.
- Training in resuscitation.
Training of vaccinators

• Then supervised by trainer in carrying out immunisation procedures.

• NO national requirement for certificate of competence / updating – except 12-18 months update in BLS.
Financial considerations

• Under the new GP Contract of April 2004, childhood immunisation became a “directed enhanced service”.
• GP practices required to maintain a register of all children up to age 5 years.
• To liaise with and inform parents.
• To undertake to immunise children with relevant immunisations.
• To ensure all staff have necessary skills and training.
• To provide appropriate resuscitation equipment on site.
• To audit the rates of immunisation.
• To record the current immunisation status of every child.
• To record any adverse reactions
For primary immunisations and pre-school boosters, there are lower (70%) and higher (90%) targets – with payments accordingly.
• Two year olds *Lower / Higher target* – £2,829 / £8,487.03
  (€4166 / €12500)
• Five year olds *Lower / Higher target* – £875.87 / £2,626.56
  (€1289 / €3867)
Costs of vaccines

- DTaP/IPV/Hib: £19.94 (€30)
- MMR: £4.00 (€6)
- PCV: £34.50 (€51)
- MenC: £15.00 (€22) - £19.00 (€28)
- Hib + MenC: £39.87 (€59)
Total cost of the UK immunisation programme
Decisions on the introduction of new vaccines

• Joint Committee on Vaccination and Immunisation – JCVI – advises the UK’s Health Departments.
• Meets 3 times a year.
• Provides independent scientific advice for whole programme.
Uptake rates


- Overall coverage ~ 93%.

- Exception is MMR - 81%
Uptake rates – percentage of children immunised by their 2\textsuperscript{nd} birthday in England

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<th>Dip</th>
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Uptake rates – percentage of children immunised by their 2\textsuperscript{nd} birthday in the UK

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Tuberculin skin tests and BCG vaccinations, England 2004-5 (thousands)

<table>
<thead>
<tr>
<th>Total number of skin tests</th>
<th>Positive</th>
<th>Negative</th>
<th>Vaccinations</th>
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<tr>
<td>540.4</td>
<td>44.7 (8%)</td>
<td>495.7 (92%)</td>
<td>628.3</td>
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Strengths of the UK child and adolescent immunisation programme

• Based on primary care.

• Works well for most children.
Strengths of the UK child and adolescent immunisation programme

• “Incentive / bonus” payment for GPs.

• Good herd immunity achieved - (although coverage not quite at 95%) – evidenced by the MMR problems and mumps illness.
Challenges to the immunisation programme

• Low vaccination levels in poorer areas:
  - deprivation
  - ethnic diversity
  - high levels of mobility

• Immunisations not compulsory.
Challenges to the immunisation programme

• “Incentive / bonus” payment for GPs – may cause a reverse effect.
• Some GPs in deprived areas have stopped offering vaccinations because they know they will not achieve the targets.
Challenges to the immunisation programme

• UK media.

• MMR controversy / single vaccines.

• Pressure groups – “JABS”
Challenges to the immunisation programme

• Hepatitis A and B not included in the programme currently.

• However, UK now looking at a targeted hepatitis B vaccination programme.

• ? Include annual influenza vaccination for under-twos.
• ? Vaccination against cervical cancer – “Gardasil”.

• Whooping cough cases still prevalent – despite vaccination.

• Where should the current programme stop?
Conclusions

• Protection against lethal infections has come a long way since Edward Jenner’s original work.

• UK now has a comprehensive programme with, overall, good coverage rates comparable to other countries.
Conclusions

- However, there is still controversy.
- Who to target and how.
- Engaging ethnic minorities and the socially deprived.
- Cost issues in a system funded directly from taxation.