Global and National Trends in Vaccine Preventable Diseases

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www.immunisation.ie
Global mortality 2008
Children under 5 years of age

1.5 million deaths due to vaccine preventable diseases

17% of global total mortality in children under 5 years of age
Global picture

Immunisation

+ 

Clean water and sanitation

Better hygiene

Education

Annual number of deaths in children <5 years

~ 9.6 million in 2000

7.6 million in 2010

(despite an increase in the number of children born each year)

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Global picture

25 vaccine preventable diseases

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Pneumococcal disease - global

- Major cause of morbidity and mortality

2005
- 1.6 million deaths
- 0.7 – 1 million in children < 5 years
- developing countries
- children <2 years

2010 PCV in immunisation schedules
- 13% birth cohort in high income countries
- 98% birth cohort in low income countries

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Impact of 7-valent pneumococcal conjugate vaccine on invasive pneumococcal disease among children <5 years old, 1998-2009

Moore, IDSA, 2009 & CDC Unpublished
Pneumococcal disease Ireland

Impact of PCV on the burden of IPD caused by PCV7 vaccine serotypes in ≥2 year olds

71% reduction in IPD when cumulative number of cases between Jan – Jun 2008 and 2013 are compared

Data source: IPD Typing Project

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Pneumococcal disease Ireland

Impact of PCV on the burden of IPD caused by PCV7 vaccine serotypes in all age groups

Cumulative number of IPD isolates

Month

76% reduction in IPD when cumulative number of cases between Jan – Jun 2008 and 2013 are compared

Data source: IPD Typing Project

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Pneumococcal disease Ireland

Impact of PCV on the burden of IPD caused by all serotypes in <2 year olds

77% reduction in IPD when cumulative number of cases between Jan - Jun 2008 and 2013 are compared

Data source: IPD Typing Project

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Pneumococcal disease Ireland

Impact of PCV on the burden of IPD caused by all serotypes in ≥2 year olds

19% reduction in IPD when cumulative number of cases between Jan – Jun 2008 and 2013 are compared.

Data source: IPD Typing Project

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Rotavirus - global

- Over 500,000 deaths /year
  - 85% in low income countries
- Over 2 million children hospitalised with dehydration
- 36% hospitalisations for diarrhoea in children <5 years
Rotavirus vaccine

- Recommended by WHO
- UK, USA, Austria, Belgium, Finland
- Live oral vaccine
- 2-3 doses at 2, 4 or 2, 4 6 months
- Can be given at same time as other vaccines
- All doses by 8 months of age
- Small increase in intussusception
  (benefits >>> risks)
Measles - global

2011
• 158,000 deaths, 18 deaths every hour
• 95% in low income countries

2000-2011
Vaccination led to 71% drop in deaths
Measles USA

January 1–August 24, 2013

159 cases
146 (92%) unvaccinated
42 (26%) imported.
Measles Europe
May 2012 – April 2013

- 8586 cases reported
- France, Germany, Italy, Romania, Spain & UK
- 95% of the total number of cases
- Majority of cases not vaccinated (81%)
- 5 cases of encephalitis
- 1 death

Rate of measles cases by country. Source ECDC

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Measles Ireland

- 51 cases to date in 2013 (102 to date in 2012)
- MMR catch up campaign
  - for all those who have not had or who are not sure if they have had 2 doses of MMR vaccine
  - 2012/2013 completed in second level schools
  - 2013/2014 ongoing in primary schools
Pertussis - global

Every year

- 16 million pertussis cases
- 195,000 pertussis deaths in children
  - Most in unvaccinated or incompletely vaccinated young infants.
- Recent increases in many developed countries
  - Australia 2009-2011
  - UK 2011- 2012
  - New Zealand 2012 - 2013
Pertussis

- Cough lasting at least 2 weeks
- No other cause
- Paroxysms of coughing
- Inspiratory ‘whoop’
- Vomiting post cough
Pertussis - Ireland

- Pertussis vaccine, 1952/1953
- Pertussis vaccine scare mid 1970s
- DTaP 1996
Pertussis Ireland

161 cases to date in 2013
(404 to date in 2012)

2012
• Most < 5 years of age
• 48% unvaccinated

Number of pertussis cases notified by week 2009-2012 (up to week 29), Ireland

Vaccination status (where known) by age group

Source: HPSC

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Pertussis vaccination

Age appropriate vaccination

• 2, 4, 6 months (6 in 1)
• Junior infants (4 in 1)
• 1st year (Tdap)
  – introduced 2012/2013
  – given with 3rd dose of HPV (for girls)
  – no interval required between previous tetanus containing vaccine
Pertussis vaccination

- **HCWs** in contact with
  - infants
  - pregnant women
  - immunocompromised

- **Pregnant women**
  - between 27-36 weeks gestation
  - can be given later or in 1st week post partum (may not be as effective)

*Vaccine from HSE National Cold Chain Service*

*Private administration*
Pertussis vaccination

Cocooning

• for close contacts of infants born before 32 weeks gestation
  – age appropriate vaccinations
  – older adolescents and adults ideally 2 weeks before beginning contact with the infant

• consider for close contacts in community outbreaks
  2 weeks before contact
Polio

Goals of the Decade of Vaccines (2011–2020)

5th November 2013

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Summary

✓ Vaccines available to prevent 25 vaccine preventable diseases

✓ 2 million deaths prevented from 2000-2010

✓ High vaccine coverage and surveillance essential to prevent outbreaks


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