Global and National Trends in Vaccine Preventable Diseases

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Under-five mortality rate (probability of dying by age 5 per 1000 live births), 2015


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Causes of deaths among children under 5 years, 2015

Global Child Mortality

2000- deaths <5 years
   ~ 9.6 million

Immunisation
Clean Water and Sanitation
Better hygiene
Education

2015- deaths <5 years
   ~ 5.9 million
   (despite increase in number of children born)

Adapted from www.immunisation.ie
Global picture

25 vaccine preventable diseases
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

• 87% birth cohort in high income countries
• 2% birth cohort in low income countries

2015 PCV in immunisation schedules
129 countries

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

Cases per 100,000

Year


Overall  PCV7 type

PCV7 introduction

Moore, IDSA, 2009 & CDC Unpublished

www.immunisation.ie
Impact of PCV on the burden of IPD caused by PCV7 vaccine serotypes in <5 year olds

100% reduction in IPD cases, comparing Jan-Jun 2016 with the same period in 2008

Data source: IPD Typing Project
Diphtheria

Globally 2015

• 4778 cases

• 5-10% fatal
Diphtheria global annual reported cases and DTP3 coverage, 1980-2015

Source: WHO/IVB database, 2016
194 WHO Member States.
Data as of 15 July 2016
Immunization coverage with DTP3 vaccines in infants (from <50%), 2015

Date of slide: 28 July 2016
Measles - global

Since 2000 vaccination has
• led to 75% drop in deaths
• prevented 15.6 million deaths

Every year
• 20 million cases each year
• 146,000 deaths
• 16 deaths every hour
• 95% in low income countries

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Measles USA 2015

2015

117 cases linked to measles outbreak

74% of all cases reported in 2015

Index case
- unvaccinated 11 year old
- rash onset December 2014

24 million visitors annually

[Image of website article: US measles outbreak linked to low vaccine rate – study]

www.immunisation.ie
Measles Europe

EU 2015

- 3969 cases reported
- 30 countries
- Majority of cases not vaccinated (75%)
- 1 death and 6 cases of encephalitis

2016
- 2230 (1666 confirmed) cases
- UK outbreak in London March-Apr
- Italy 537 cases confirmed
- Romania 487 cases this year

EU Measles notification rate
1 March 2015 – 29 Feb 2016

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Measles - Ireland

49 cases to date in 2016

Source: HPSC

www.immunisation.ie
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
  or
  • Inspiratory ‘whoop’
  or
  • Vomiting post cough

www.immunisation.ie
Pertussis Ireland

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

2016
- 190 cases notified
- HSE East (70)
- 31 cases under 6 months
- Majority Mothers unvaccinated

Source: HPSC
Pertussis vaccination

Age appropriate vaccination

• 2, 4, 6 months (6 in 1)
• Junior infants (4 in 1)
• 1st year (Tdap)
  – given with HPV (for girls)
  – no interval required between previous tetanus containing vaccine

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Pertussis vaccination

- Pregnant women
  - between 27-36 weeks gestation
  - every pregnancy
  - can be given later or in 1st week post partum (may not be as effective)
  - 91% reduction in disease in first months of life compared with babies whose mothers had not been vaccinated.

Vaccine from HSE National Cold Chain Service


www.immunisation.ie
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

Private administration

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Pertussis vaccination

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

- **WHY**
  - documented pertussis transmission to patients
  - health care workers exposed to pertussis much more frequently than the number of diagnosed cases suggests

Vaccine from HSE National Cold Chain Service

www.immunisation.ie
Summary

✓ Vaccines available to prevent 25 vaccine preventable diseases

✓ 3.7 million deaths prevented from 2000-2015

✓ High vaccine coverage and surveillance essential to prevent outbreaks


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