

Global and National Trends in Vaccine Preventable Diseases

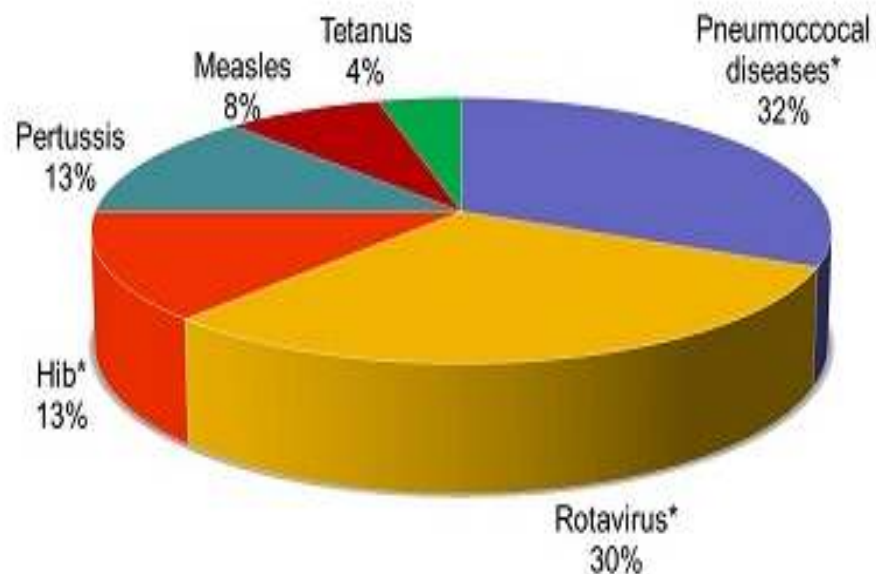
Dr Brenda Corcoran
National Immunisation Office



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



www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Global picture

Annual number of deaths in children <5 years
~ 9.6 million in 2000



Immunisation
+
Clean water and sanitation
Better hygiene
Education



7.6 million in 2010
(despite an increase in the number of children born each year)

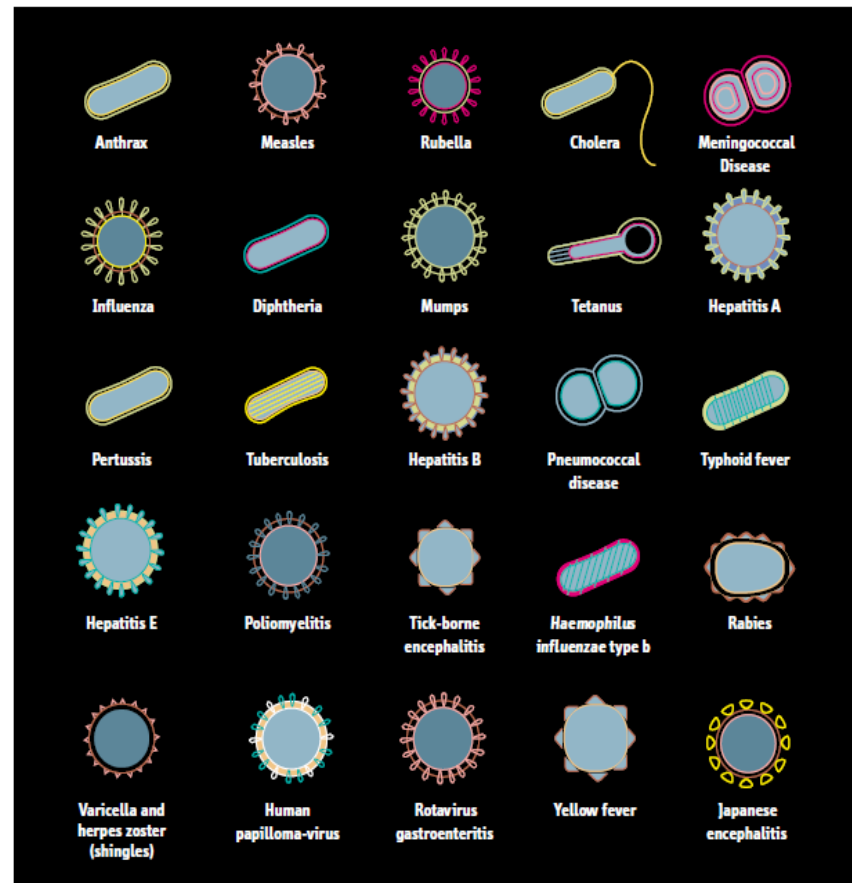


www.immunisation.ie

Global picture

25 vaccine preventable diseases

TABLE 1: VACCINE-PREVENTABLE INFECTIOUS AGENTS OR DISEASES



www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Pneumococcal disease - global

- Major cause of morbidity and mortality

2005

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



2010 PCV in immunisation schedules

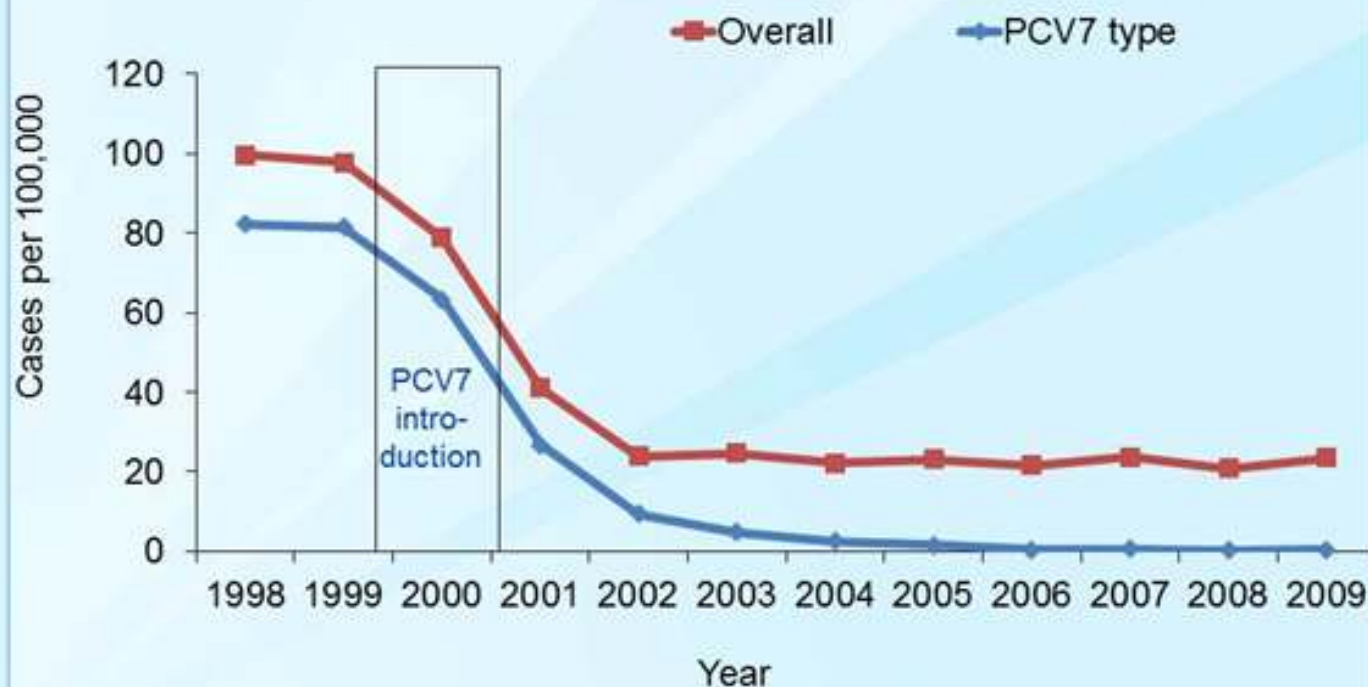
- ✗ 13% birth cohort in high income countries
- ✗ 98% birth cohort in low income countries



www.immunisation.ie

Pneumococcal disease USA

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



Moore, IDSA, 2009 & CDC Unpublished



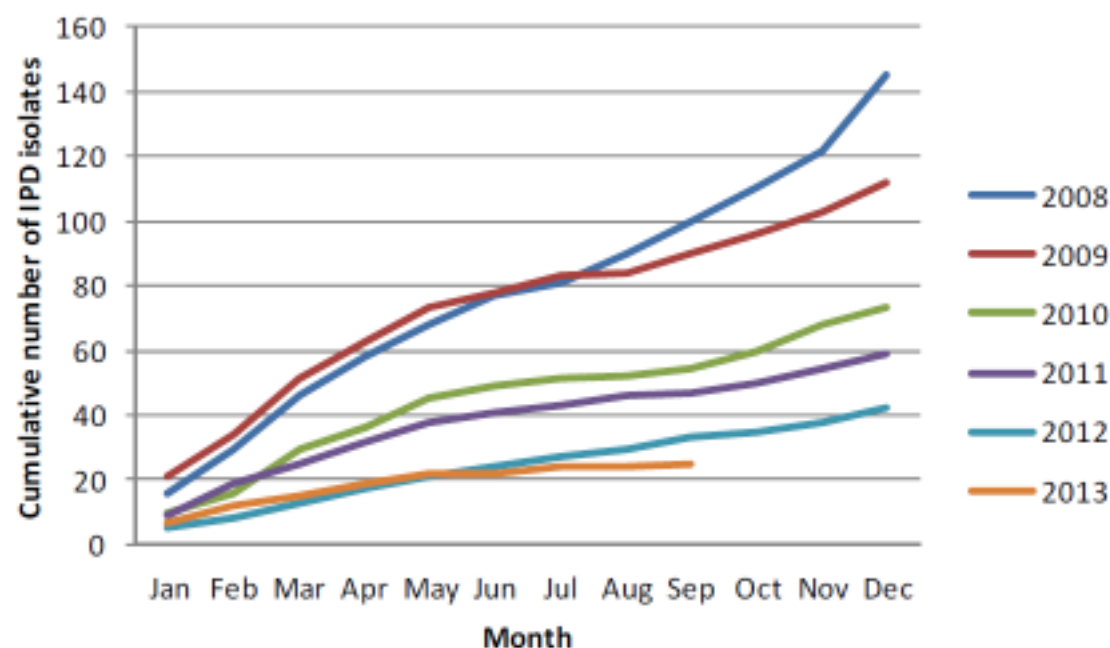
www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Pneumococcal disease Ireland

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



75% reduction in IPD when comparing the total number of cases from Jan to Sep 2013 with the equivalent period in 2008

Data source: IPD Typing Project



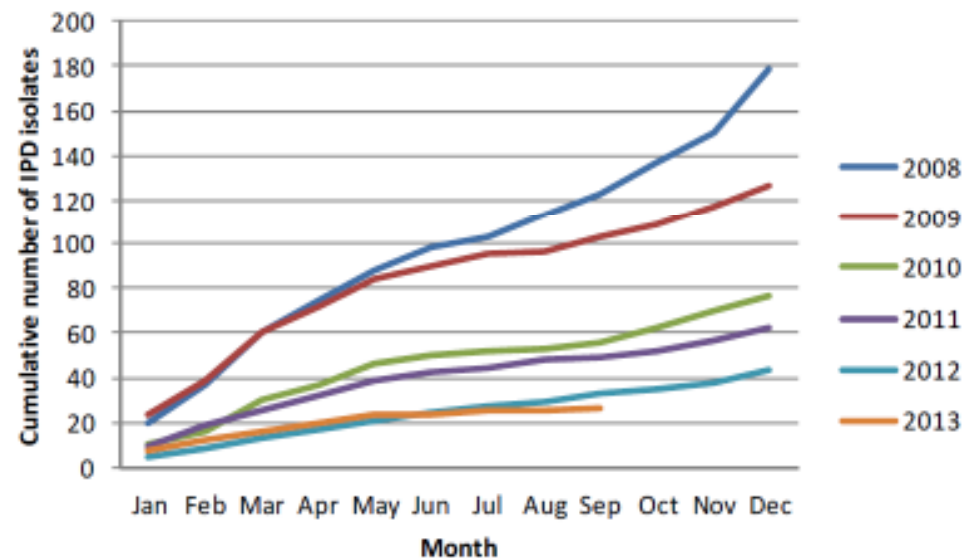
www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Pneumococcal disease Ireland

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



79% reduction in IPD when comparing the total number of cases from Jan to Sep 2013 with the equivalent period in 2008

Data source: IPD Typing Project



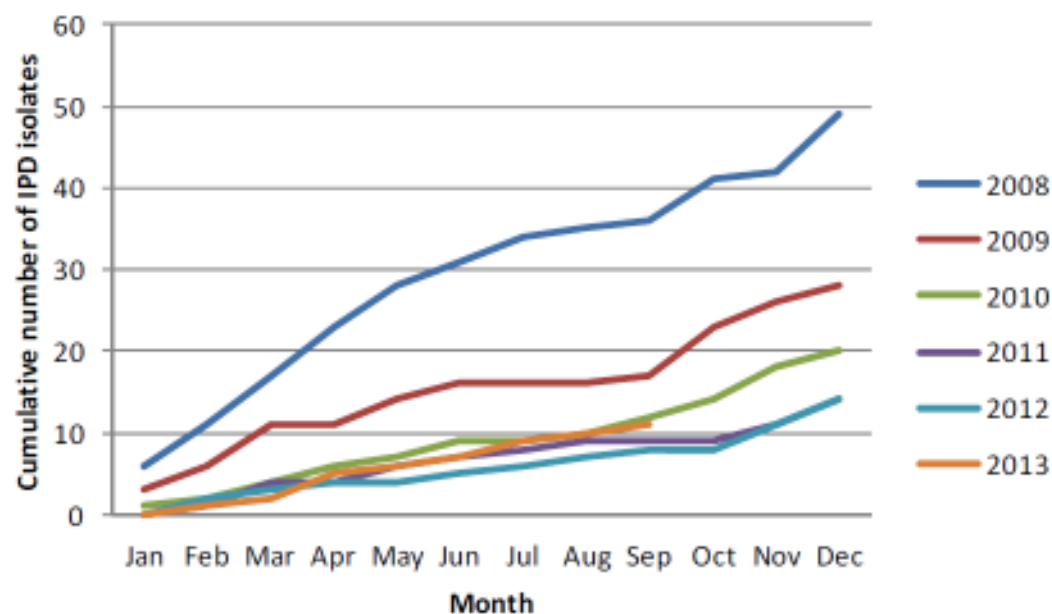
www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Pneumococcal disease Ireland

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



69% reduction in IPD when comparing the total number of cases from Jan to Sep 2013 with the equivalent period in 2008

Data source: IPD Typing Project



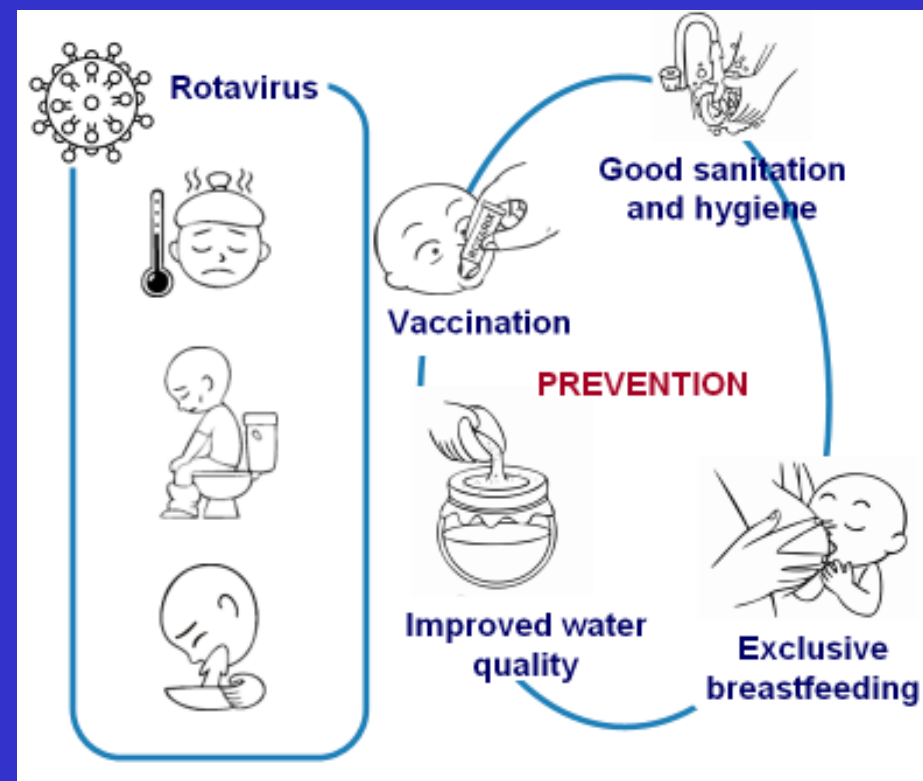
www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Rotavirus - global

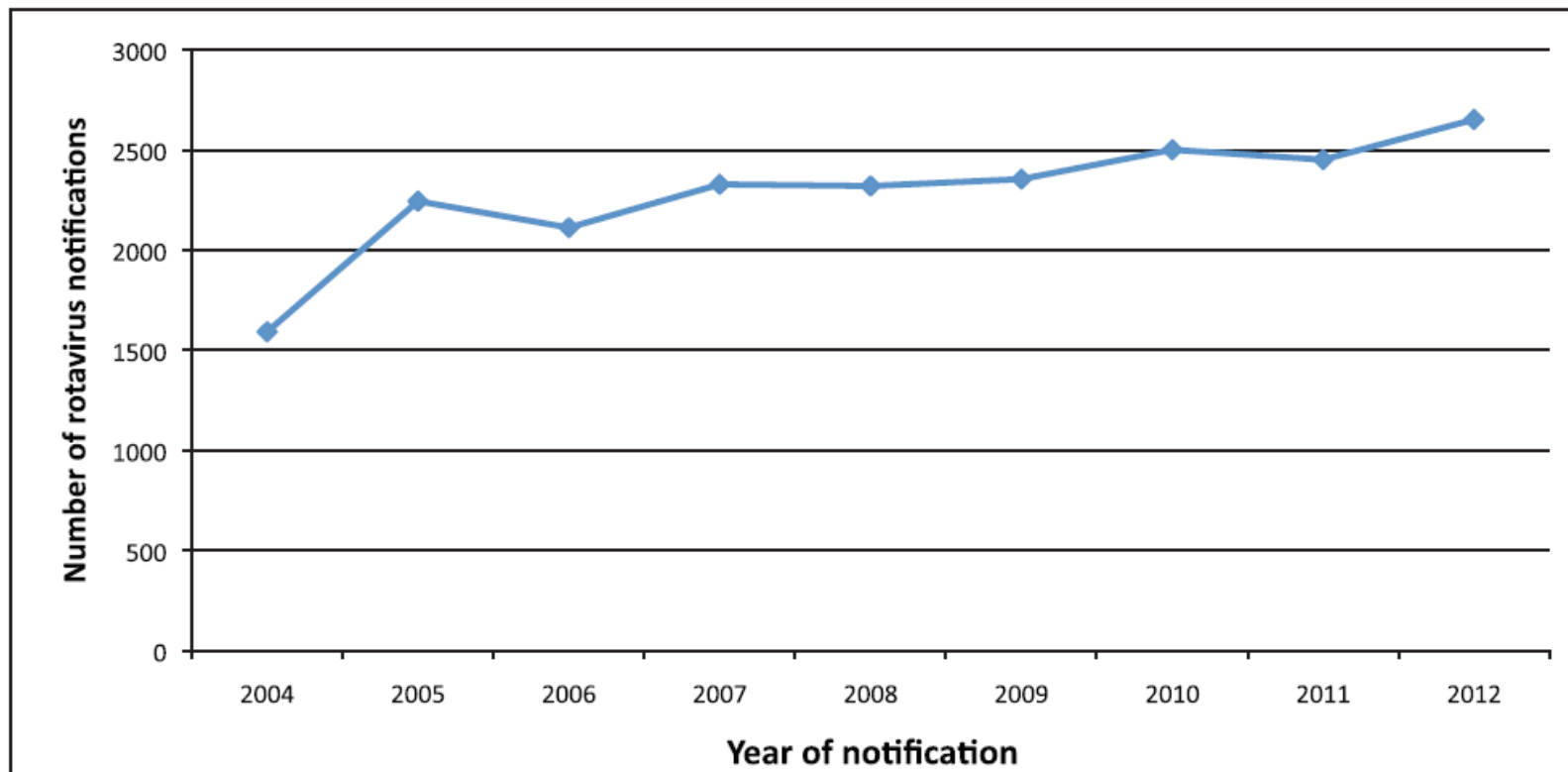
- Over 500,000 deaths /year
 - 85% in low income countries
- Over 2 million children hospitalised with dehydration
- 36% hospitalisations for diarrhoea in children <5 years



Rotavirus - Ireland

Figure 19.1. Number of cases of rotavirus by year, 2004 to 2012

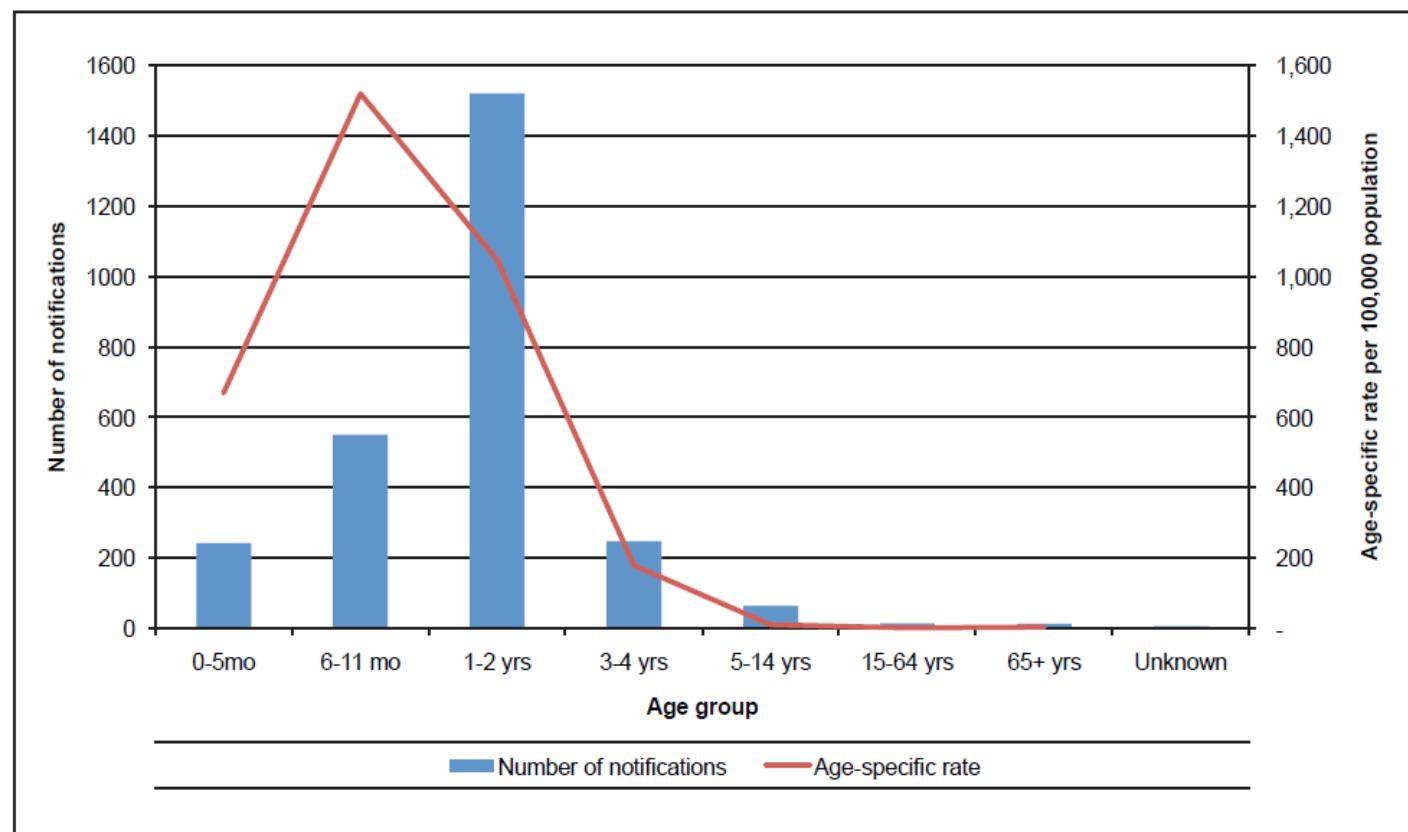
(Source:HPSC)



Rotavirus - Ireland

Figure 19.2. Number of Rotavirus Cases and Age specific rate by age group 2012

(Source:HPSC)



Rotavirus vaccine

- Recommended by WHO
- Implemented in USA, UK + 8 other EU countries
- Recommended by NIAC
- 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

2012

- 122,000 deaths, 14 deaths every hour
- 95% in low income countries

2000-2012

Vaccination

- led to 78% drop in deaths
- prevented 13.8 million deaths



Measles USA

Measles Cases and Outbreaks

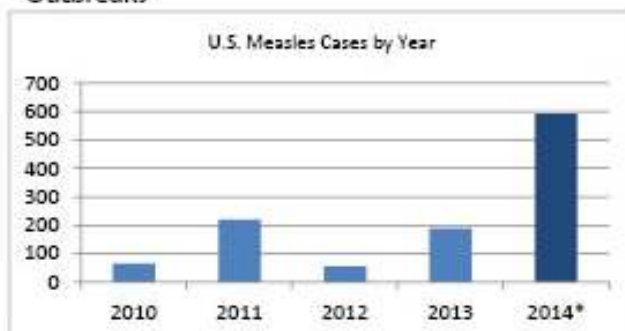
January 1 to August 15, 2014*

593
Cases

reported in 21 states: Alabama, California, Connecticut, Hawaii, Illinois, Indiana, Kansas, Massachusetts, Minnesota, Missouri, New Jersey, New York, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Washington, Wisconsin

18
Outbreaks

representing 89% of reported cases this year



*Provisional data reported to CDC's National Center for Immunization and Respiratory Diseases

Get Vaccinated: Prevent and Stop Measles Outbreaks

When measles happens anywhere in the world...



Majority unvaccinated and many imported



www.immunisation.ie

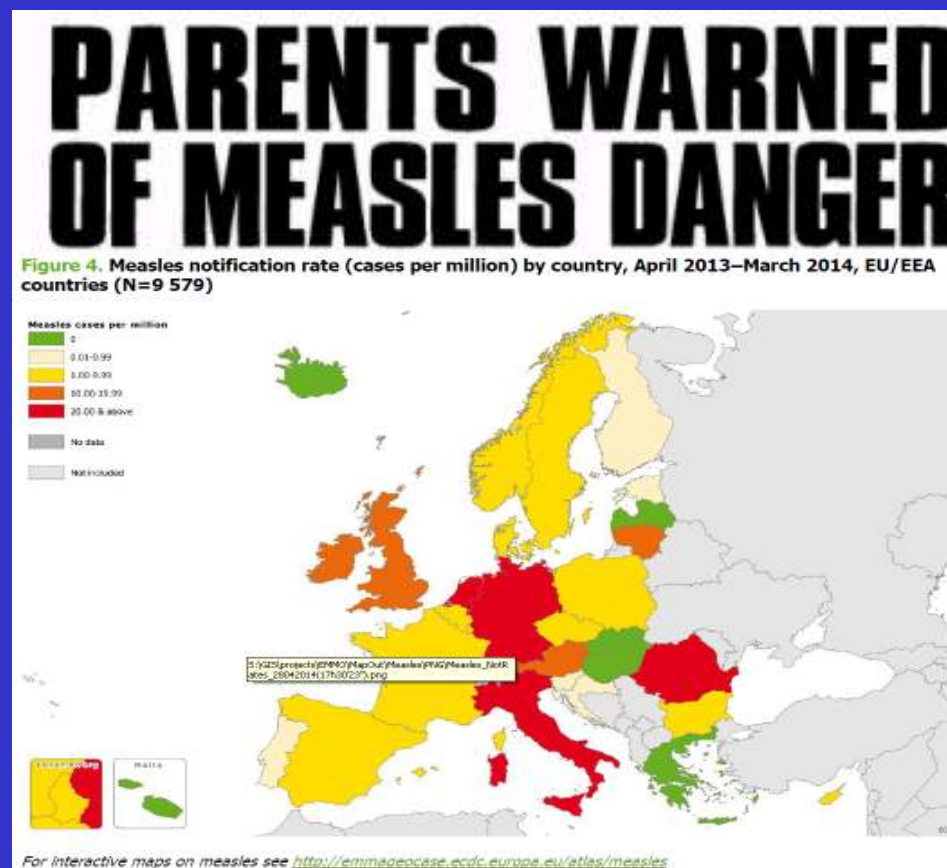


Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Measles Europe

April 2013 – March 2014

- 9579 cases reported
- Germany, Italy, Netherlands, Romania, & UK
- 95% of the total number of cases
- Majority of cases not vaccinated (88%)
- 5 cases of encephalitis
- 3 deaths



Rate of measles cases by country. Source ECDC

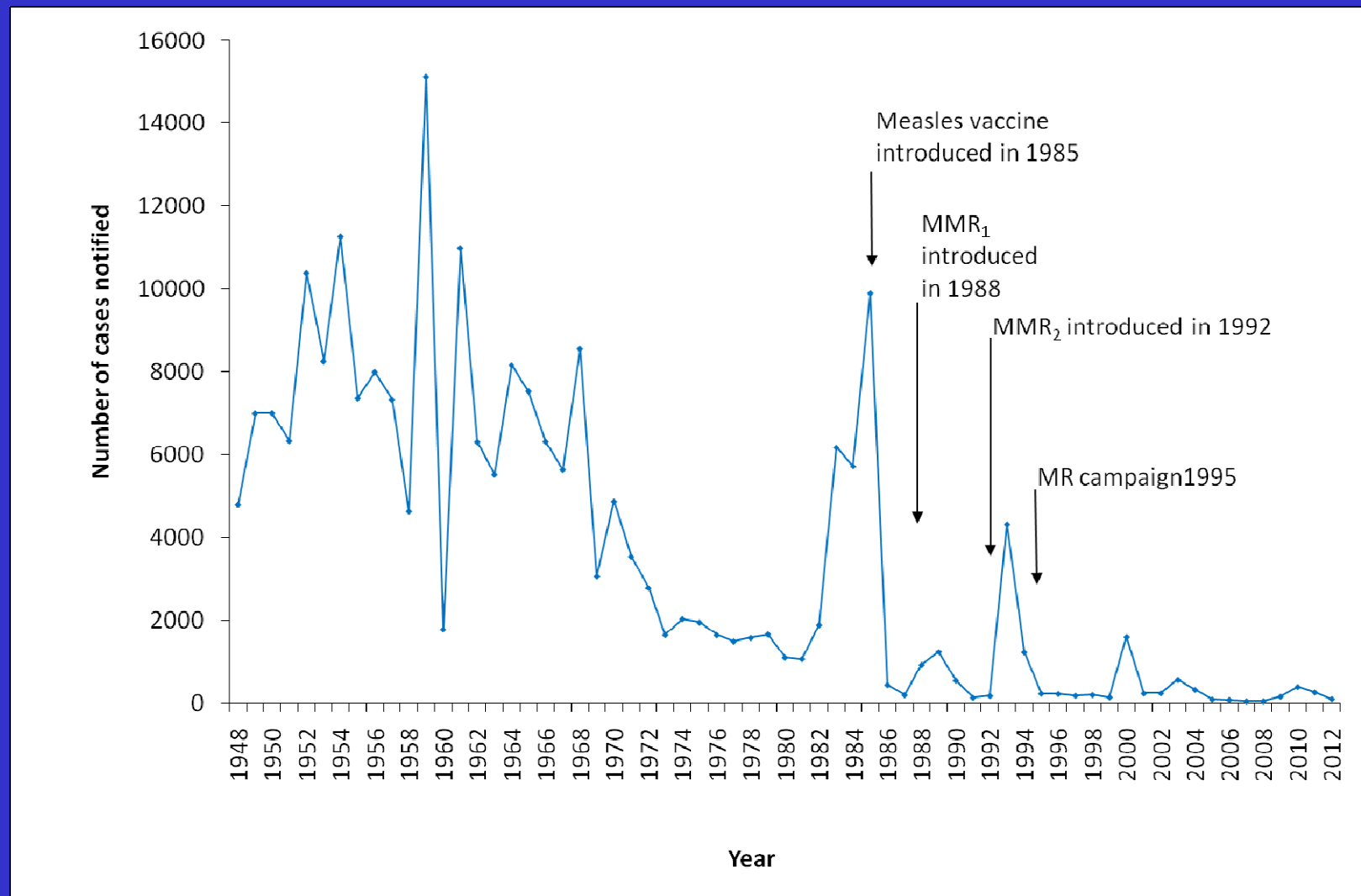


www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Measles - Ireland

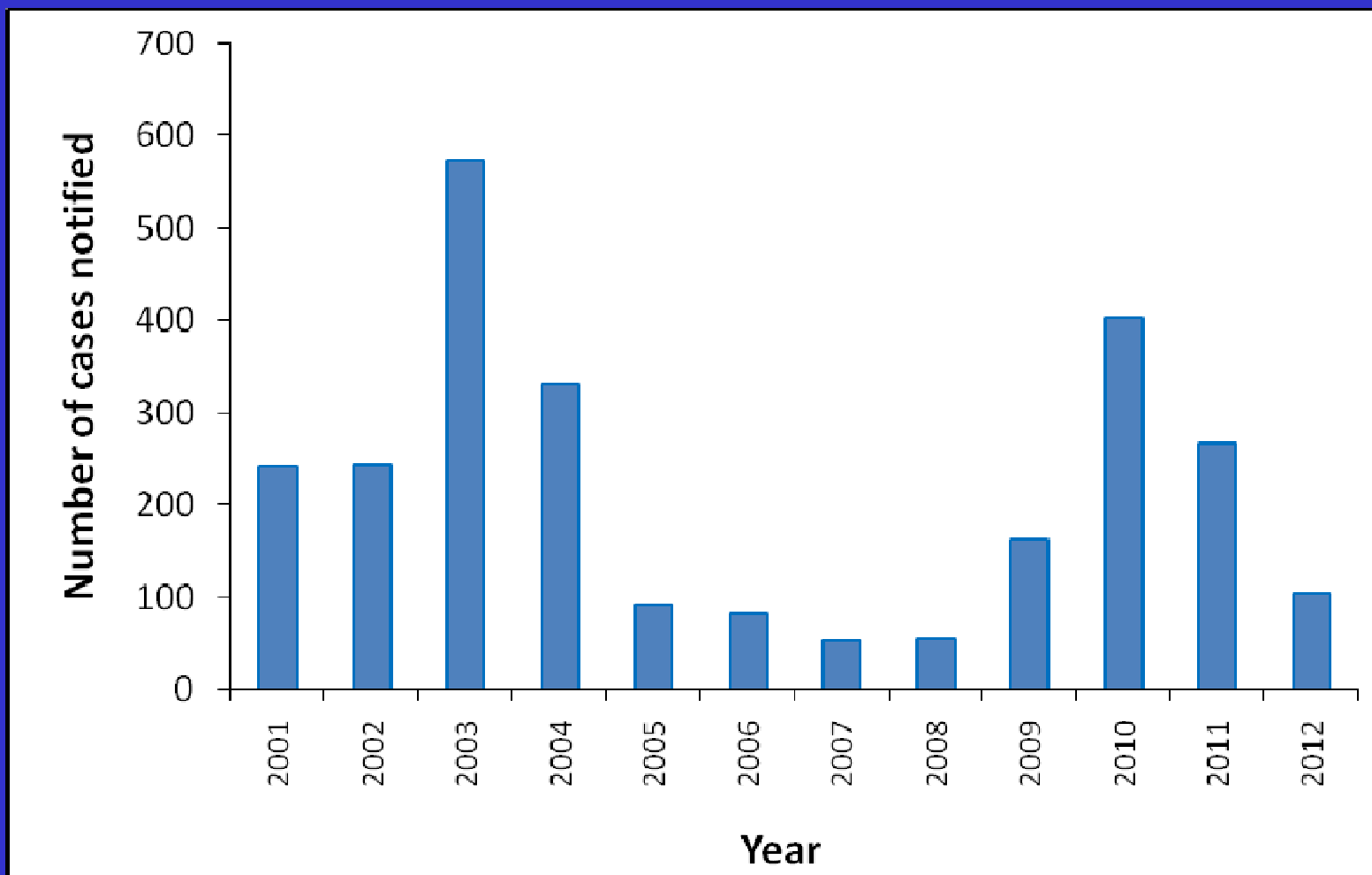


www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Measles - Ireland



www.immunisation.ie

Measles Ireland

- 30 cases to date in 2014
- MMR catch up campaign
 - for all those who have not had or who are not sure if they have had 2 dose of MMR vaccine
 - 2012/2013 completed in second level schools
 - 2013/2014 completed in primary schools



Students told
to get MMR jab
as campus hit
with measles



www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

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
 - US 2010 – 2012
 - UK 2011- 2012
 - New Zealand 2012 - 2013

*Why killer
infection
whooping
cough
is back*



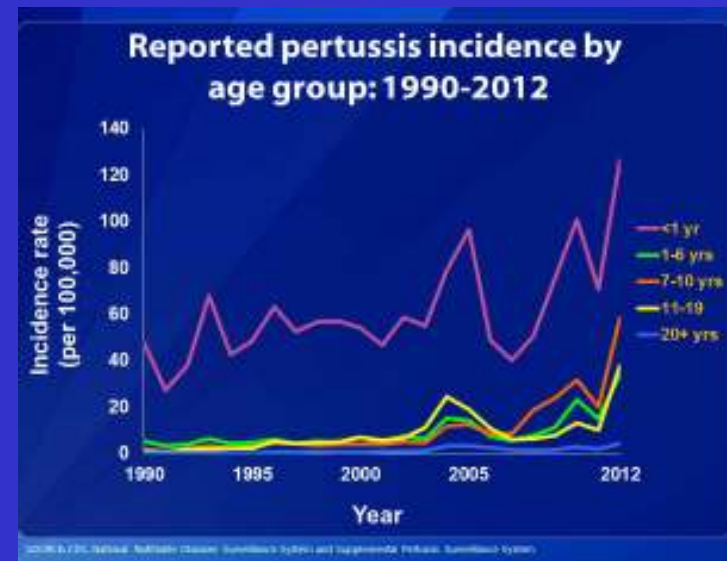
www.immunisation.ie



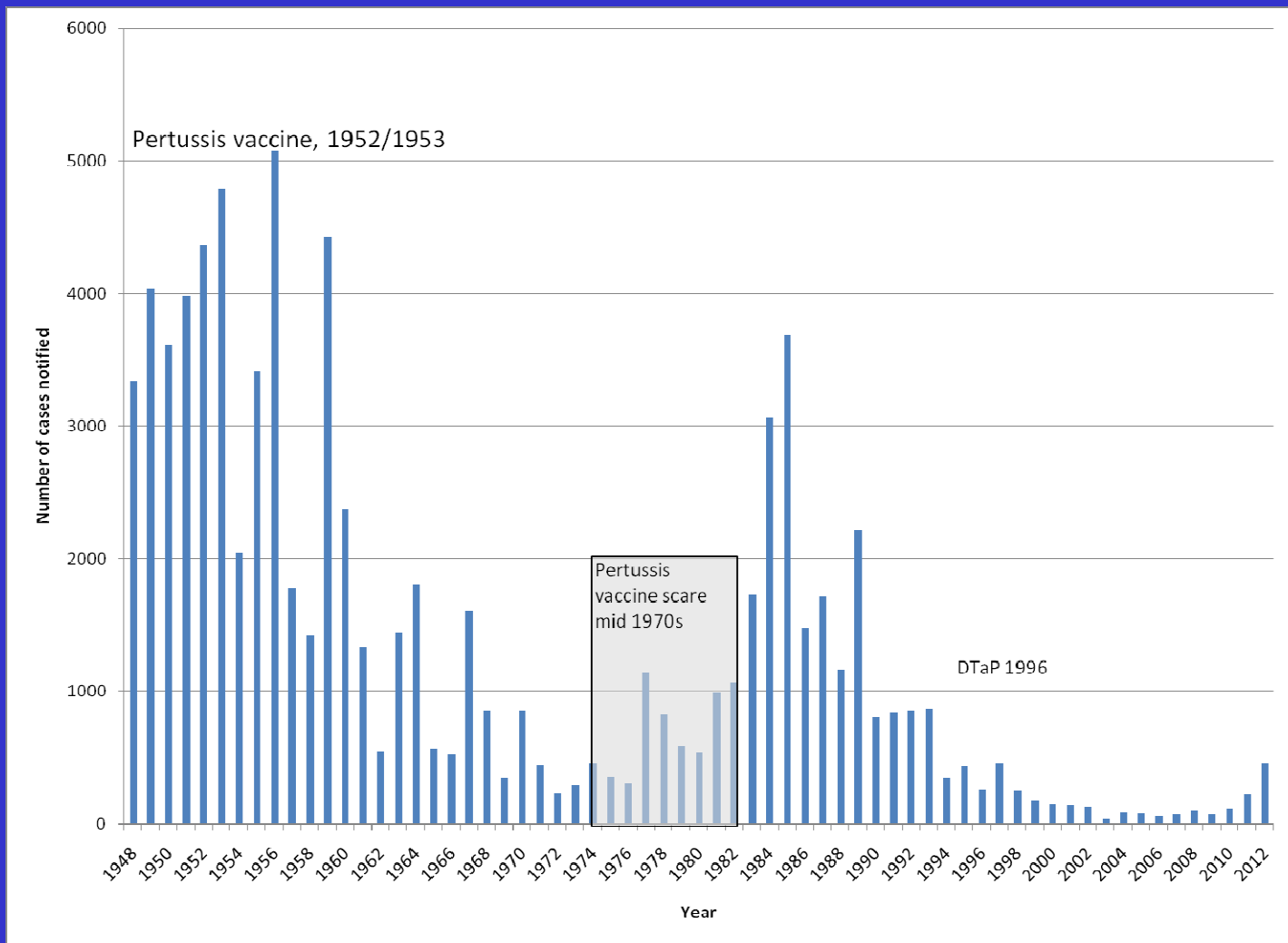
Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Pertussis

- Cough lasting at least 2 weeks
 - No other cause
- +
- Paroxysms of coughing or
 - Inspiratory 'whoop' or
 - Vomiting post cough

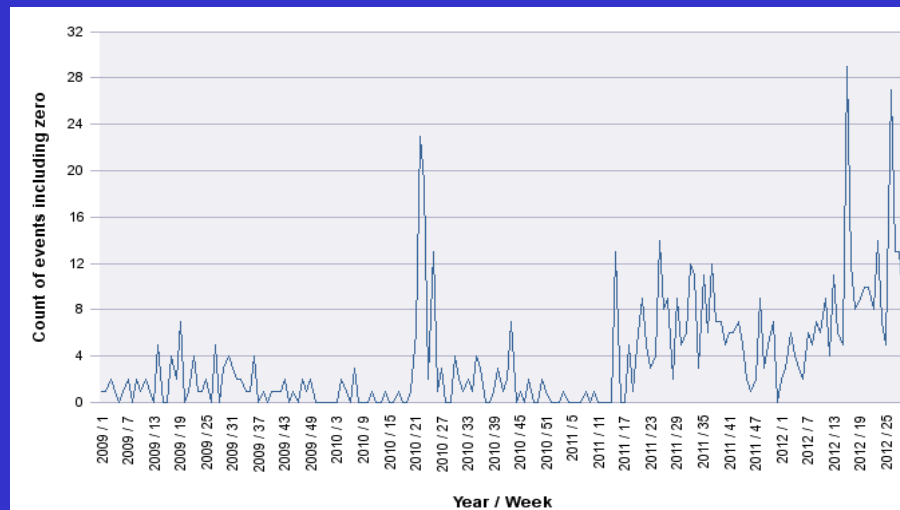


Pertussis - Ireland



www.immunisation.ie

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



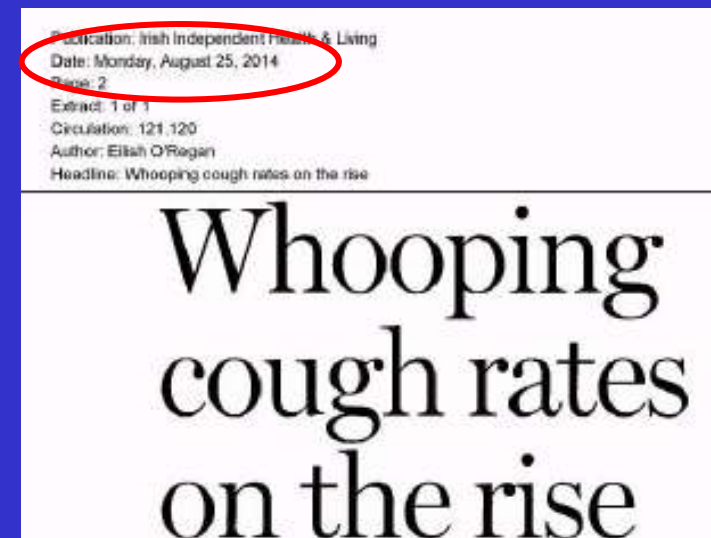
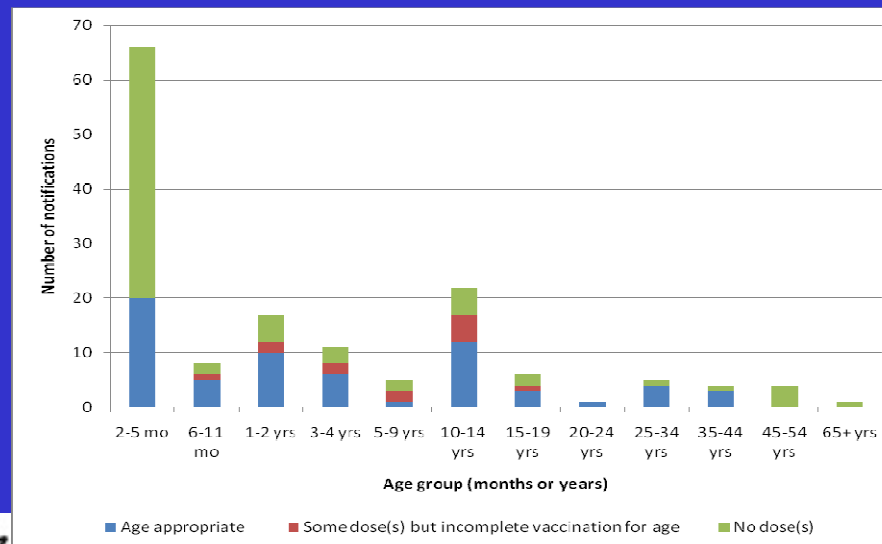
Pertussis Ireland

41 cases to date in 2014
(404 to date in 2012)

2012

- Most < 5 years of age
- 48% unvaccinated

Vaccination status (where known) by age group



www.immunisation.ie

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



Primary Childhood Immunisation Schedule

AGE	WHERE	VACCINATION
2 months	GP or Health Centre	BCG
3 months	GP or Health Centre	6 in 1 + PCV
4 months	GP or Health Centre	6 in 1 + Men C
5 months	GP or Health Centre	6 in 1 + PCV + Men C
1 year	GP or Health Centre	MMR + PCV
1 year 6 months	GP or Health Centre	Men C + Hib

What to expect for your child's next visit?

Next appointment



www.immunisation.ie

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)

Achieve a world free of poliomyelitis



Meet global elimination targets



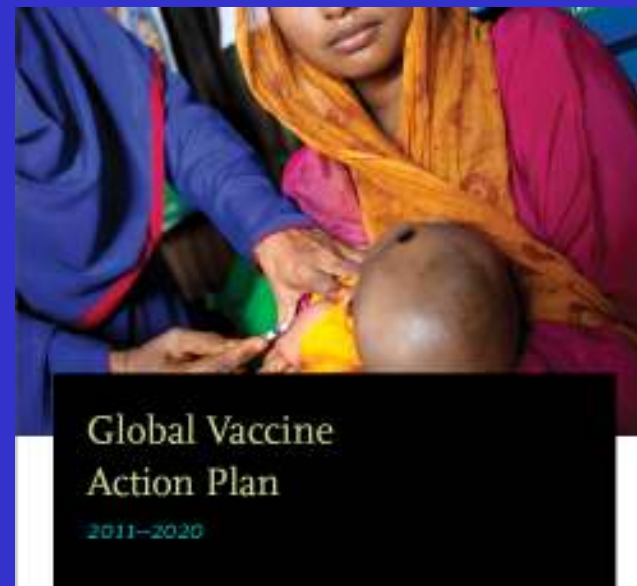
www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive

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



http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en



www.immunisation.ie



Reidhmeannacht na Seirbhíse Sláinte
Health Service Executive