

# Global and National Trends in Vaccine Preventable Diseases

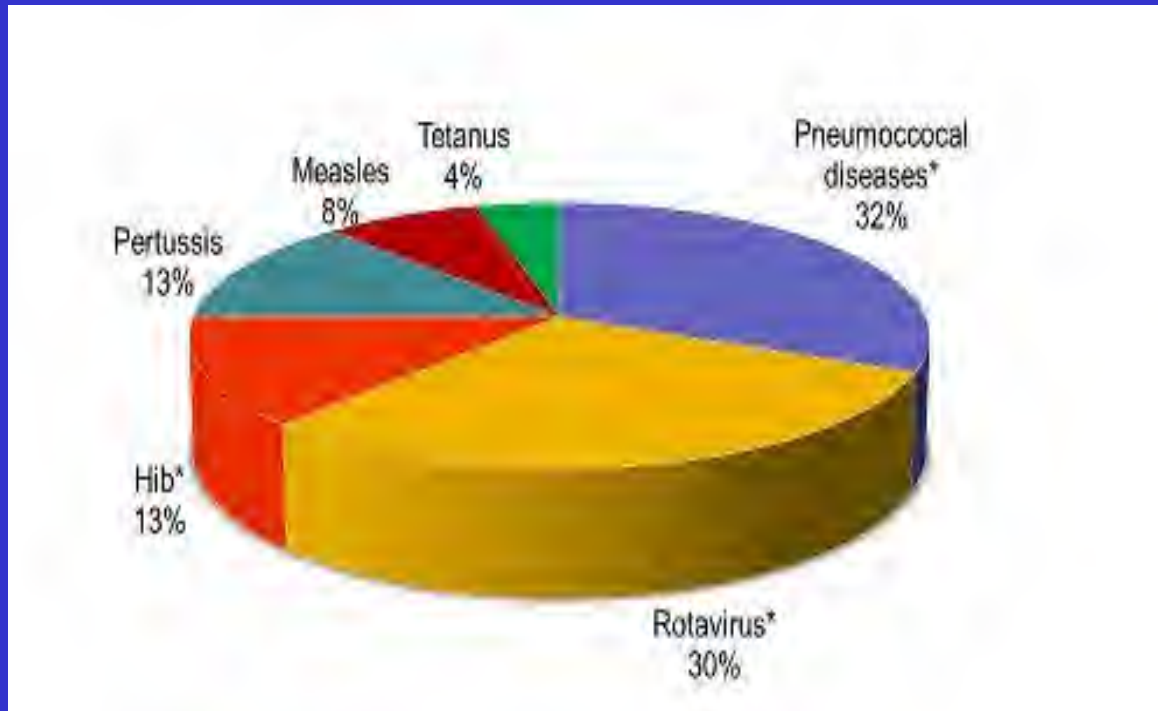
November 2013

Dr Brenda Corcoran  
National Immunisation Office



[www.immunisation.ie](http://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](http://www.immunisation.ie)

# Global picture

Immunisation  
+  
Clean water and sanitation  
Better hygiene  
Education



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



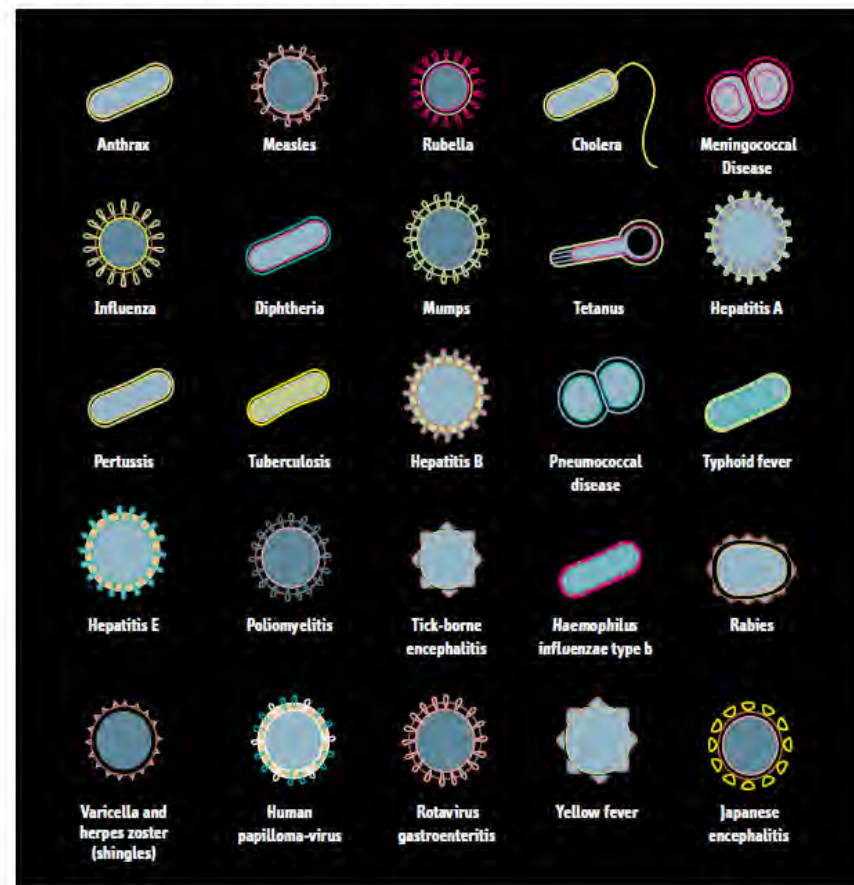
7.6 million in 2010  
(despite an increase in the number of children born each year)



# Global picture

## 25 vaccine preventable diseases

TABLE 1: VACCINE-PREVENTABLE INFECTIOUS AGENTS OR 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 < 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



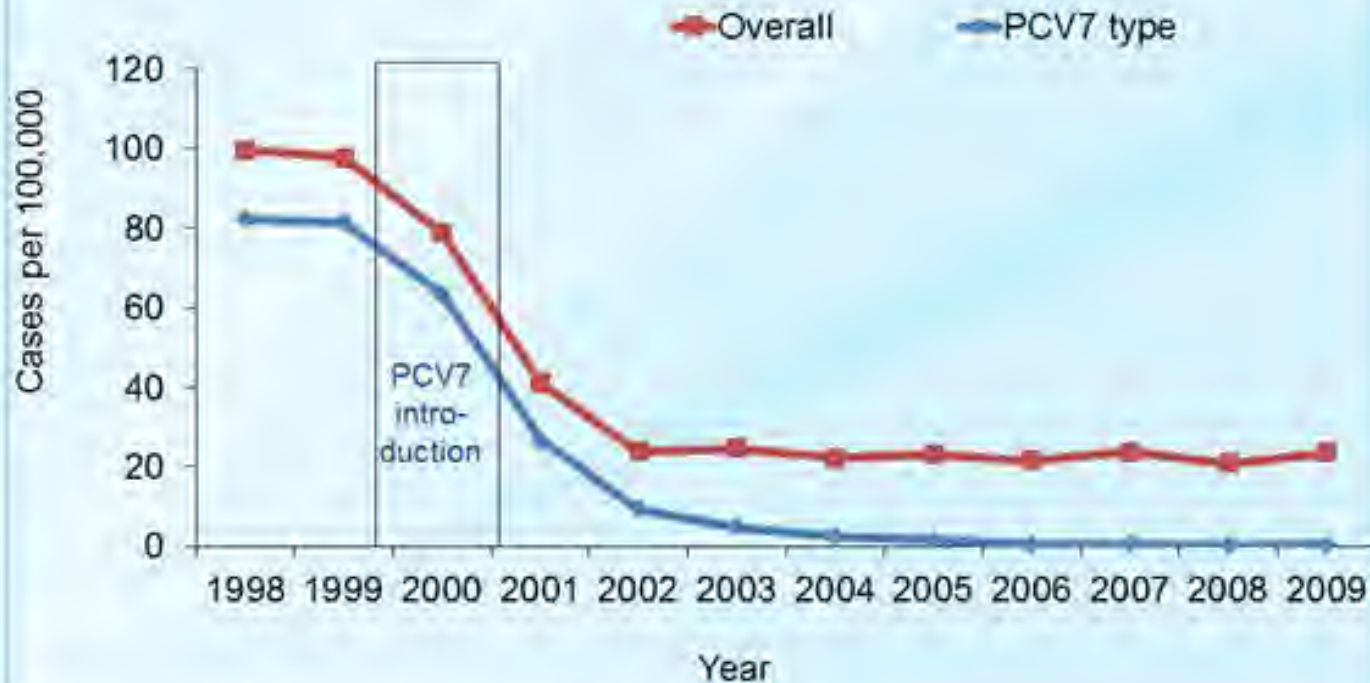
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# Pneumococcal disease USA

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



Moore, IDSA, 2009 & CDC Unpublished



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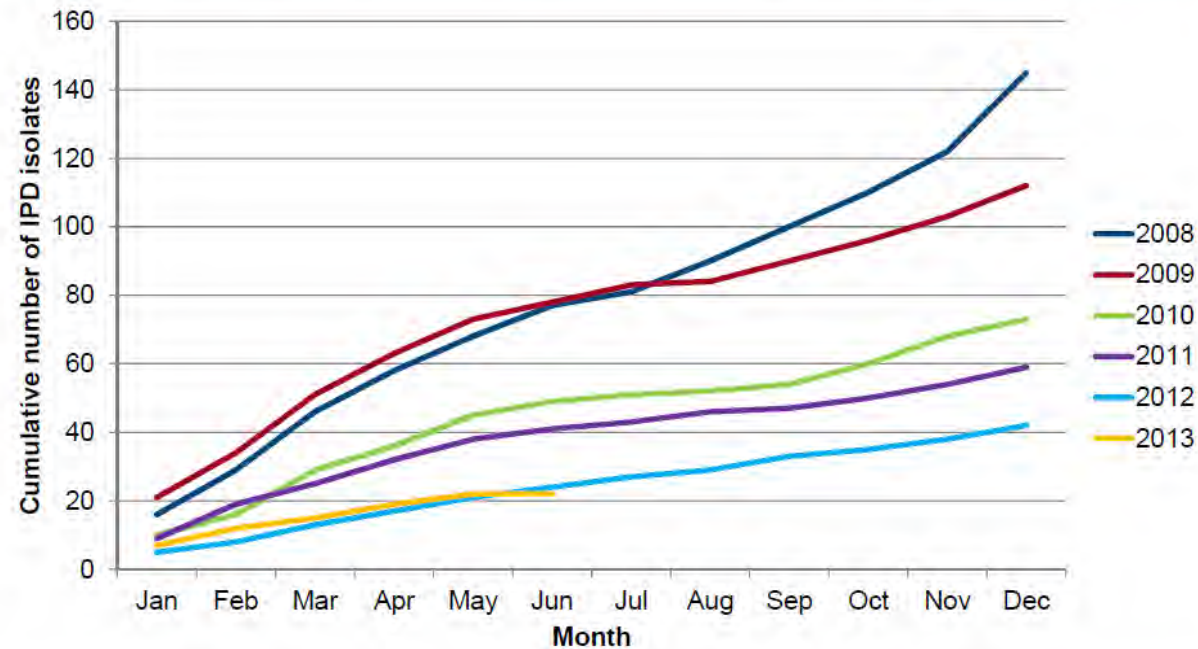


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# Pneumococcal disease Ireland

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



71% reduction in IPD when cumulative number of cases between Jan – Jun 2008 and 2013 are compared  
Data source: IPD Typing Project

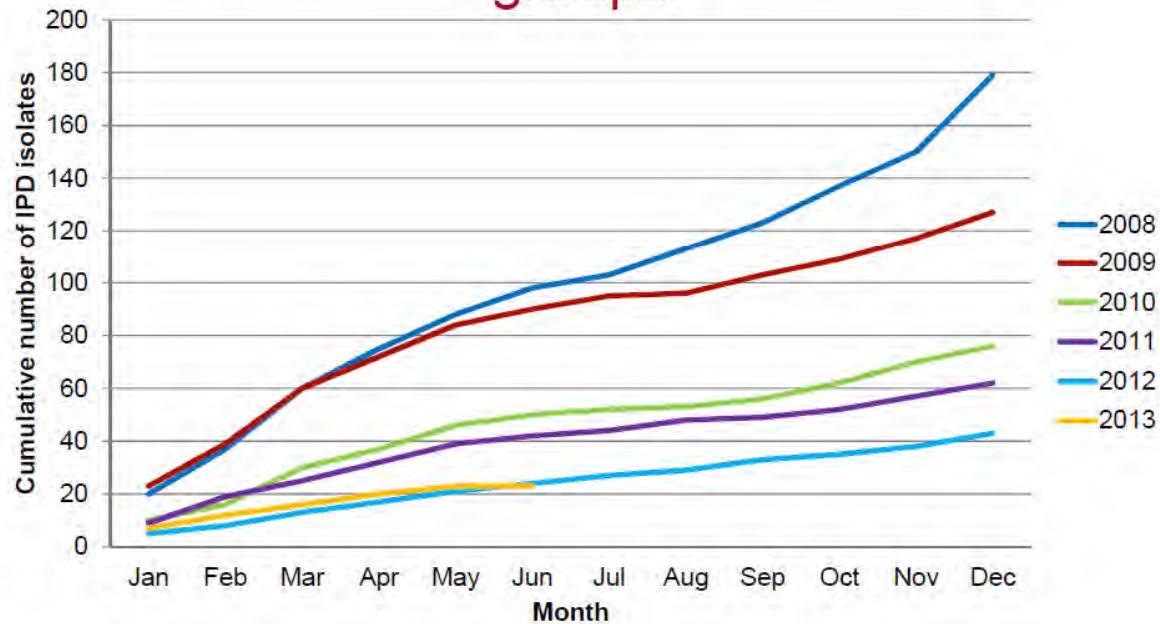


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# Pneumococcal disease Ireland

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



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

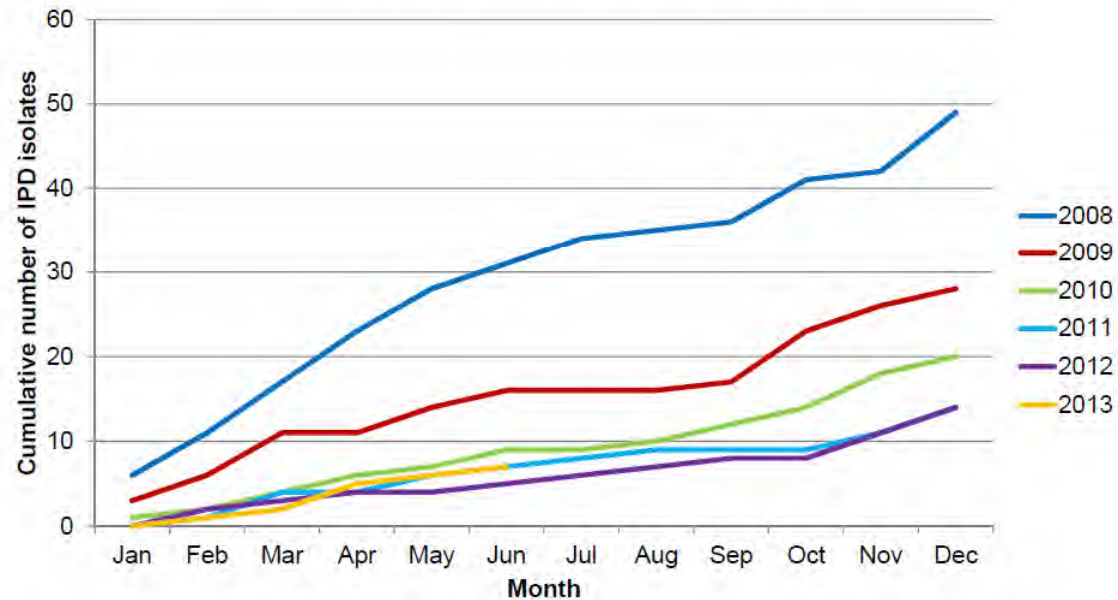
Data source: IPD Typing Project





# 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  
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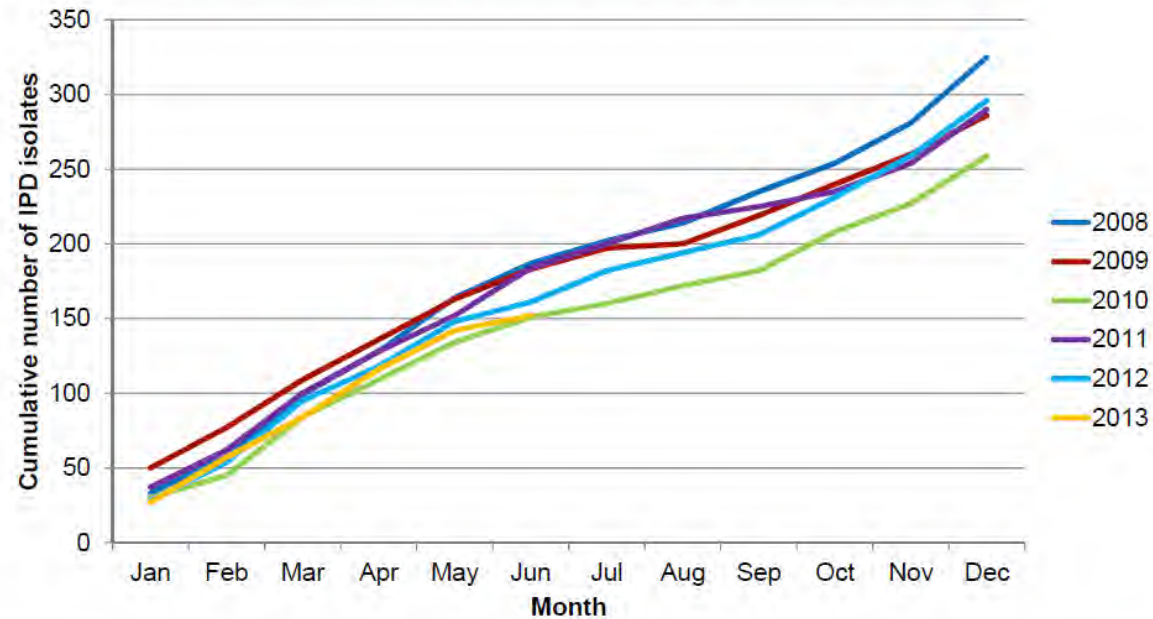
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# Pneumococcal disease Ireland

## Impact of PCV on the burden of IPD caused by all serotypes in $\geq 2$ year olds

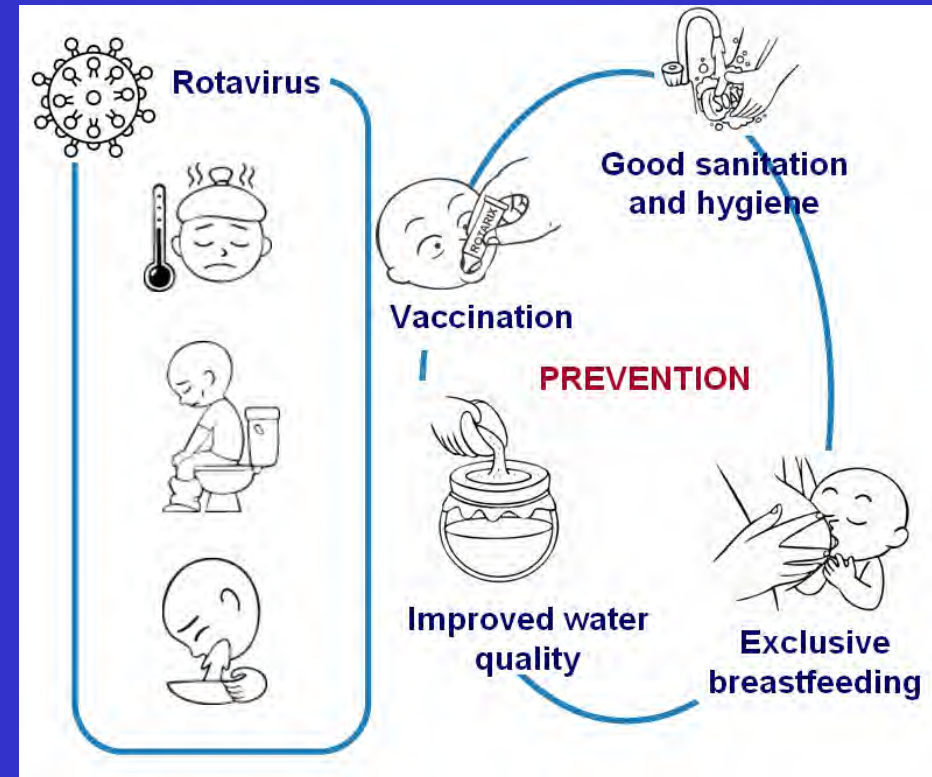


19% reduction in IPD when cumulative number of cases between Jan – Jun 2008 and 2013 are compared  
Data source: IPD Typing Project



# 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



[www.immunisation.ie](http://www.immunisation.ie)

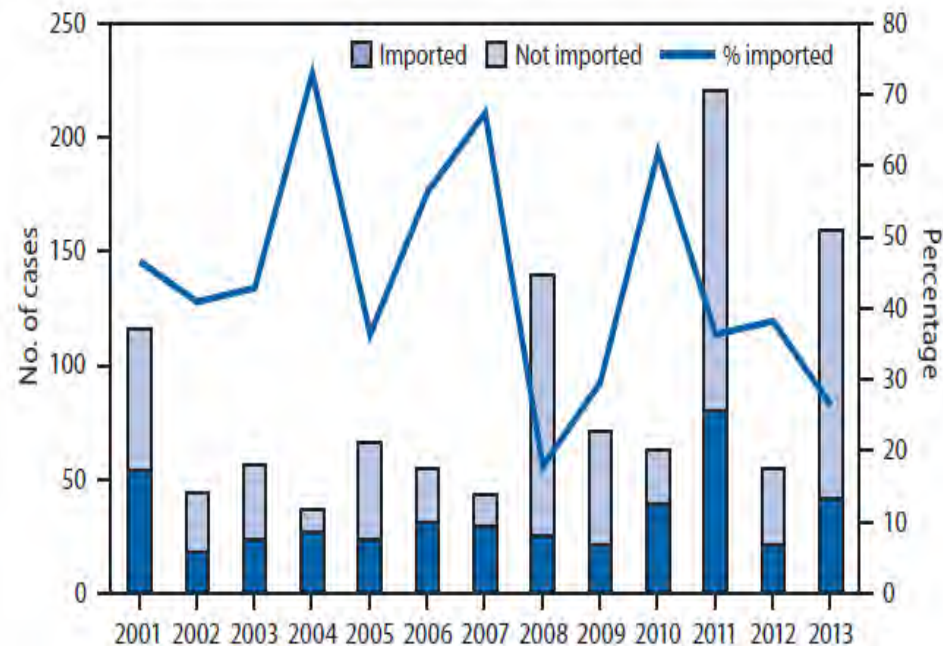


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# Measles USA

FIGURE 1. Number and percentage of measles cases that were directly imported and number of cases that were not directly imported\* – United States, 2001–2013<sup>†</sup>



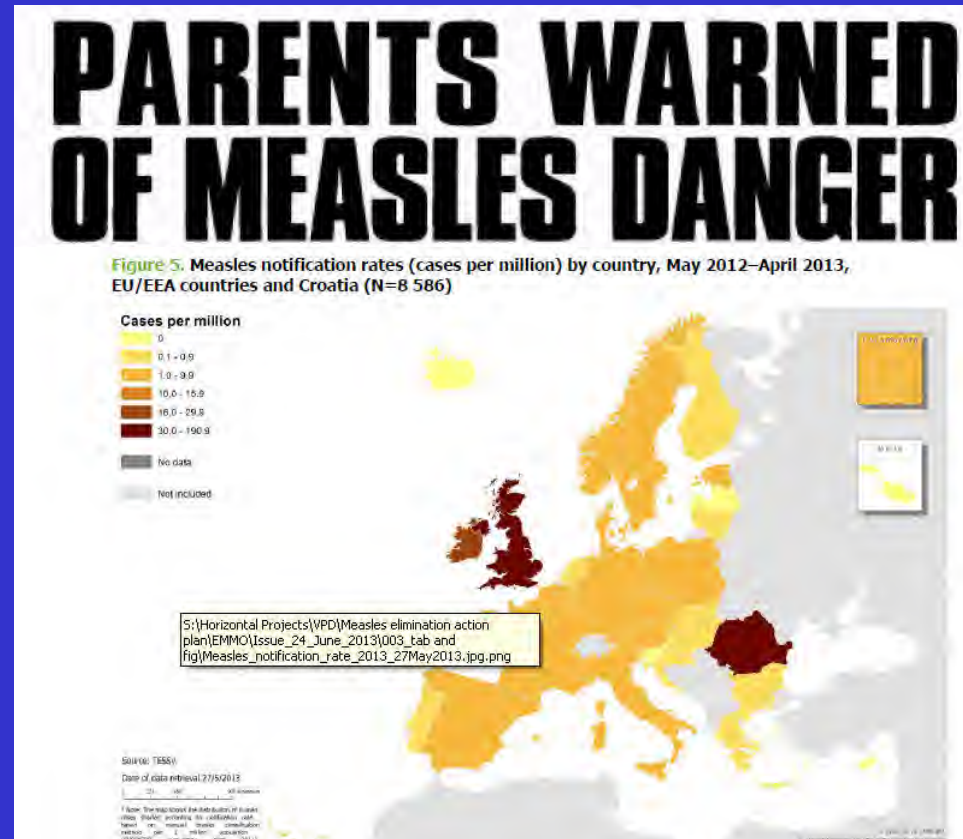
January 1–August 24, 2013

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

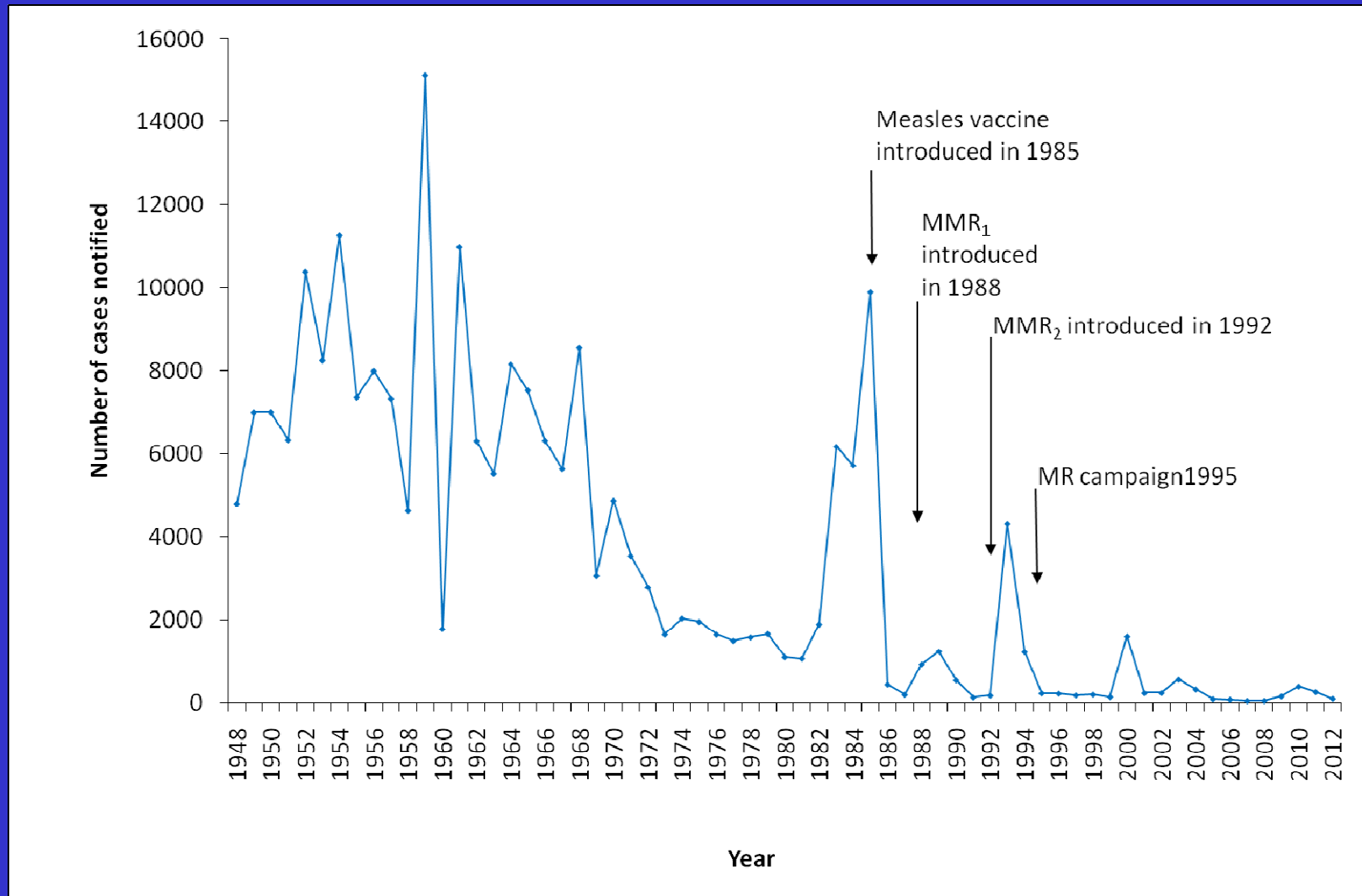


Rate of measles cases by country. Source ECDC



[www.immunisation.ie](http://www.immunisation.ie)

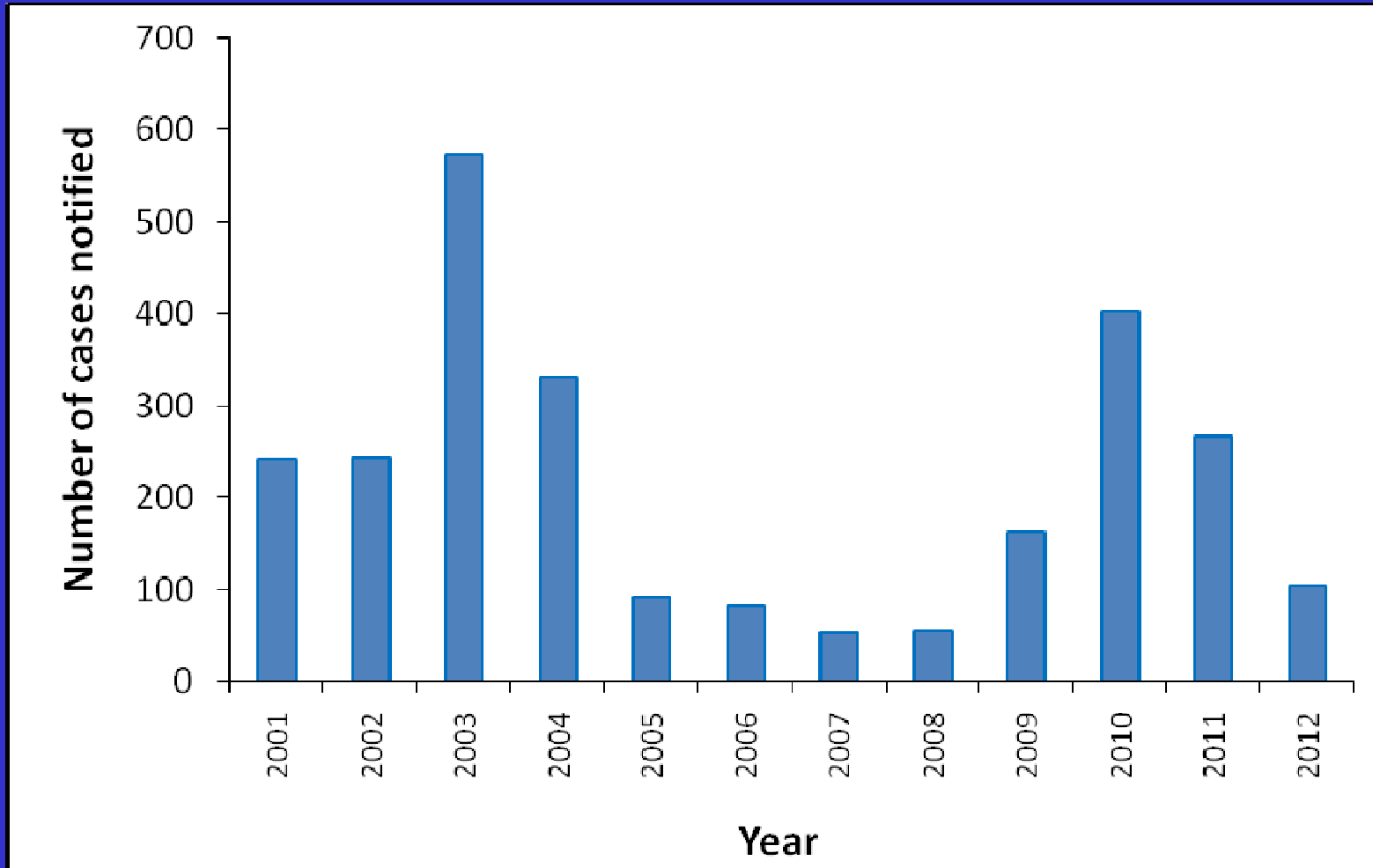
# Measles - Ireland



[www.immunisation.ie](http://www.immunisation.ie)



# Measles - Ireland



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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 dose of MMR vaccine
  - 2012/2013 completed in second level schools
  - 2013/2014 ongoing in primary schools





# Pertussis - global

Every year

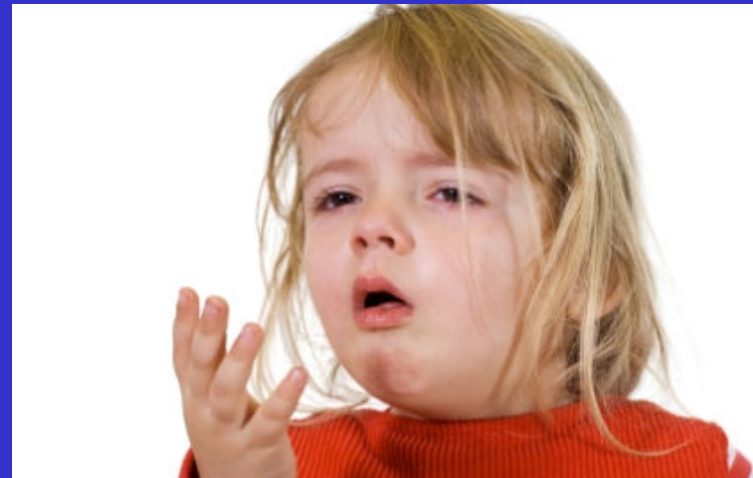
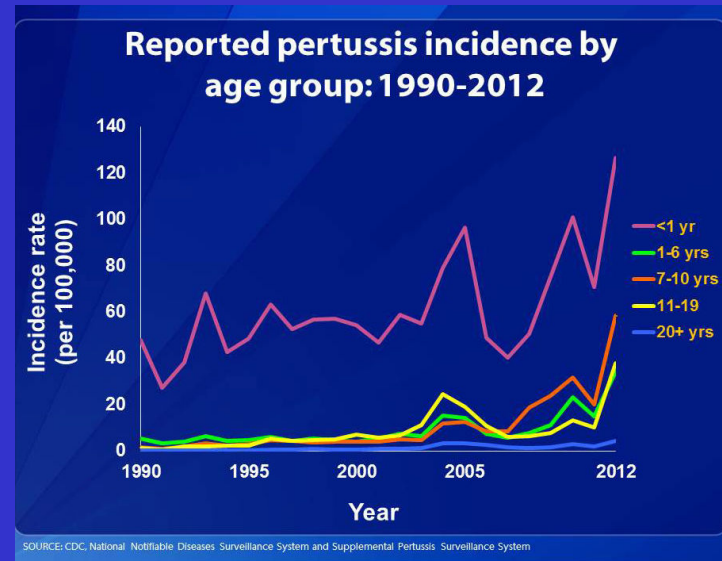
- 16 million pertussis cases
- 195,000 pertussis deaths in children
  - Most in unvaccinated or incompletely vaccinated young infants.
- Recent increases in many developed countries
  - Australia 2009-2011
  - US 2010 – 2012
  - UK 2011- 2012
  - New Zealand 2012 - 2013

*Why killer  
infection  
whooping  
cough  
is back*



# Pertussis

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

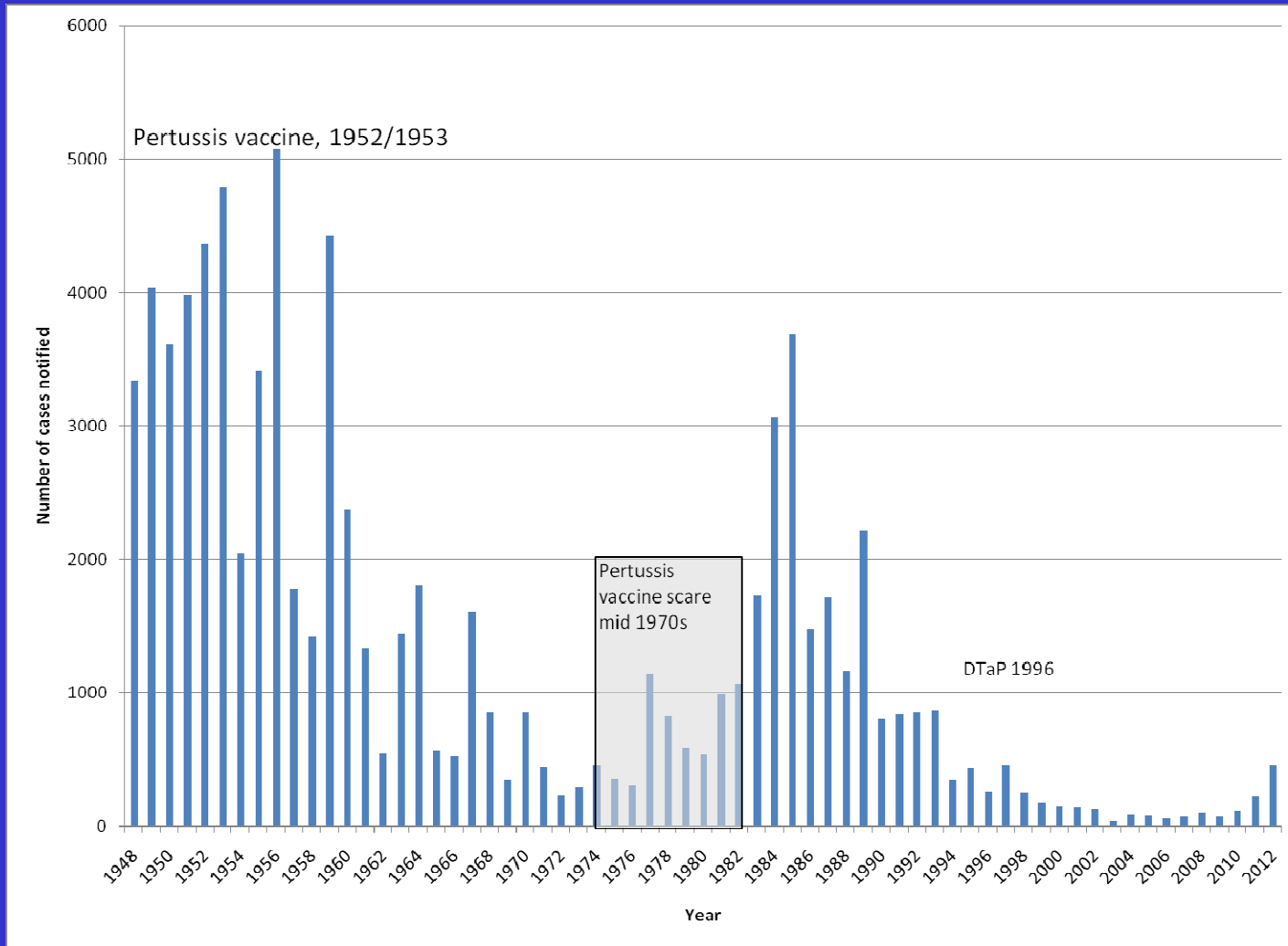


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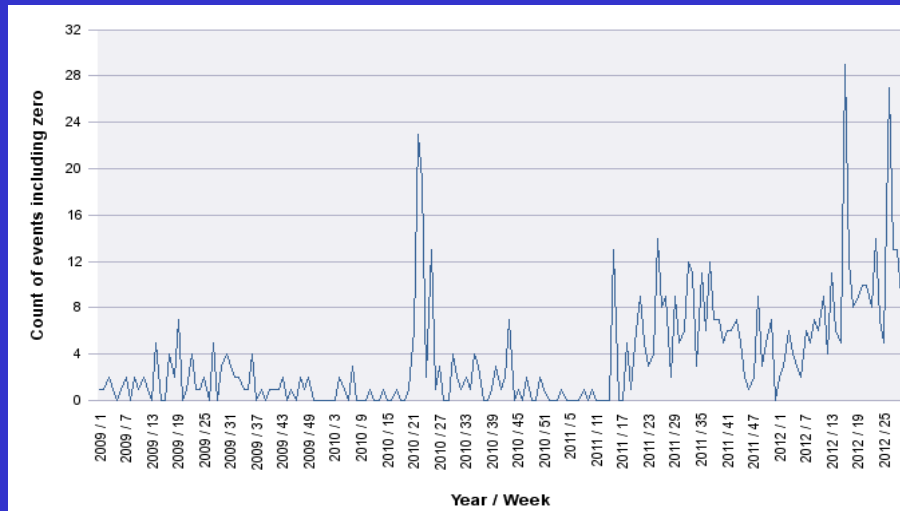
# Pertussis - Ireland



[www.immunisation.ie](http://www.immunisation.ie)



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



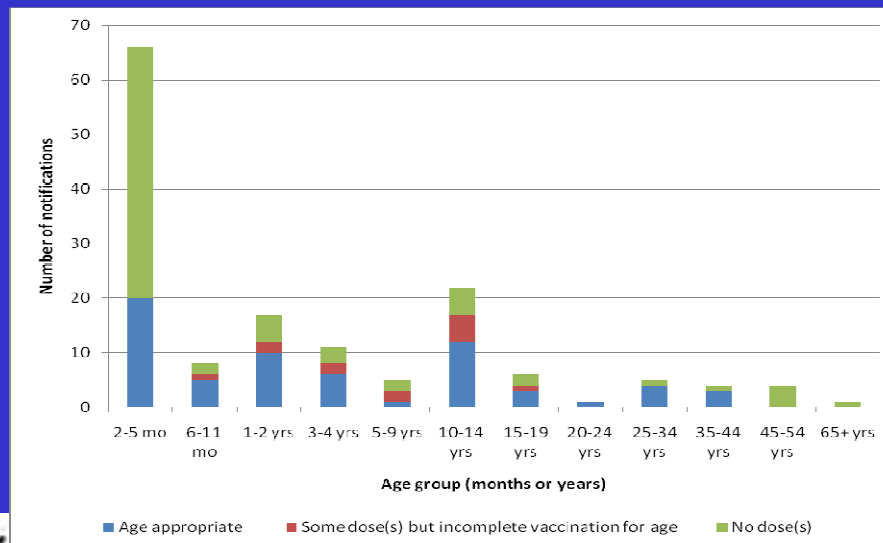
# Pertussis Ireland

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

2012

- Most < 5 years of age
- 48% unvaccinated

Vaccination status (where known) by age group



Source: HPSC

[www.immunisation.ie](http://www.immunisation.ie)



# Pertussis vaccination

Age appropriate vaccination

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

Primary Childhood Immunisation Schedule

AGE	WHERE	VACCINATION
At Birth	Hospital or clinic	BCG
2 months		6 in 1 + PCV
4 months		6 in 1 + Men C
6 months		6 in 1 + PCV + Men C
1 year		MMR + PCV
1 year 6 months		Men C + Hib

Information for your child's next visit?

Next appointment

**Tdap vaccine**

Information for parents of children in First Year of second level school.



www.immunisation.ie

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**4-in-1 & MMR vaccines**

Information for parents of children in Junior Infants



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# Pertussis vaccination

- **HCWs** in contact with
  - infants
  - pregnant women
  - immunocompromised
- **Pregnant women**
  - between 27-36 weeks gestation
  - can be given later or in 1<sup>st</sup> week post partum (may not be as effective)

***Vaccine from HSE National Cold Chain Service***

***Private administration***



**Whooping Cough Vaccine for Pregnant Women**



# 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



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**Polio outbreak in Syria as 10 cases confirmed**

7 hours ago

The World Health Organization has confirmed 10 cases of polio in Syria - the first outbreak in the country in 14 years.

Before Syria's civil war began in 2011, some 95% of children in the country were vaccinated against the disease, but now an estimated 500,000 children have not been immunised.

Lyse Doucet reports now from one of the polio clinics in Damascus.

5<sup>th</sup> November 2013



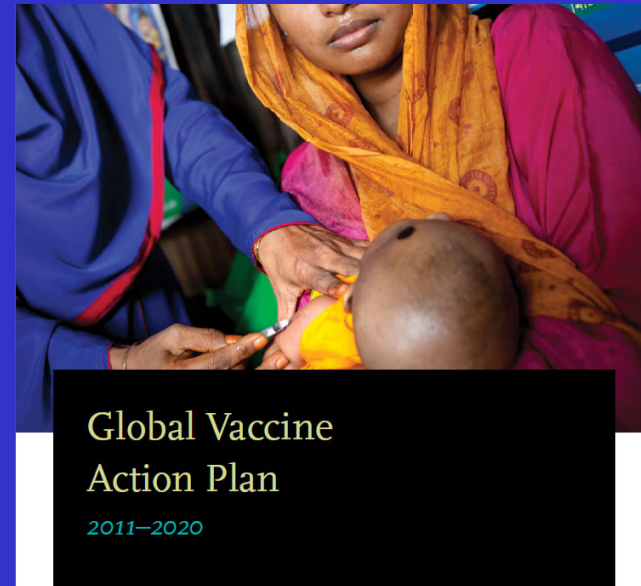
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# Summary

- ✓ Vaccines available to prevent 25 vaccine preventable diseases
- ✓ 2 million deaths prevented from 2000-2010
- ✓ High vaccine coverage and surveillance essential to prevent outbreaks



[http://www.who.int/immunization/global\\_vaccine\\_action\\_plan/GVAP\\_doc\\_2011\\_2020/en](http://www.who.int/immunization/global_vaccine_action_plan/GVAP_doc_2011_2020/en)



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