

Global and National Trends in Vaccine Preventable Diseases

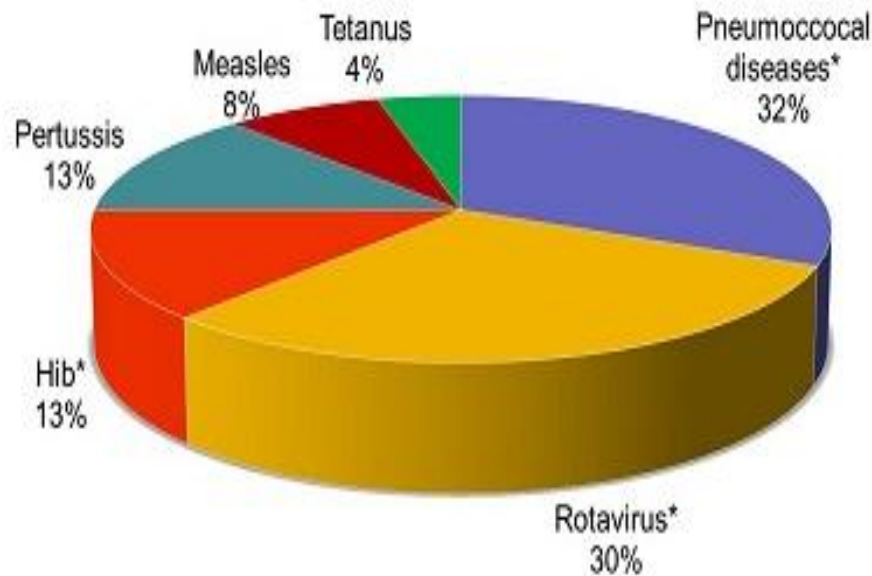
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National Immunisation Office



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

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)



Global picture

25 vaccine preventable diseases

TABLE 1: VACCINE-PREVENTABLE INFECTIOUS AGENTS OR DISEASES

 Anthrax	 Measles	 Rubella	 Cholera	 Meningococcal Disease
 Influenza	 Diphtheria	 Mumps	 Tetanus	 Hepatitis A
 Pertussis	 Tuberculosis	 Hepatitis B	 Pneumococcal disease	 Typhoid fever
 Hepatitis E	 Poliomyelitis	 Tick-borne encephalitis	 Haemophilus influenzae type b	 Rabies
 Varicella and herpes zoster (shingles)	 Human papilloma-virus	 Rotavirus gastroenteritis	 Yellow fever	 Japanese encephalitis

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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



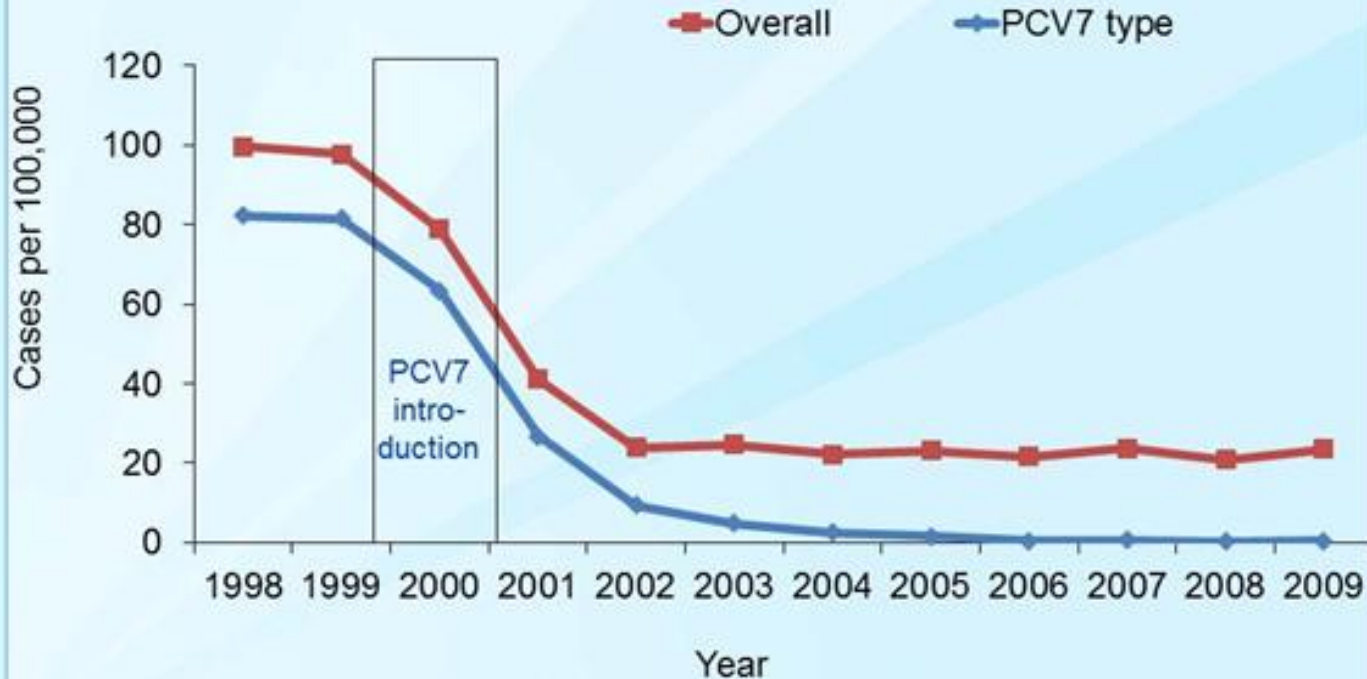
2010 PCV in immunisation schedules

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



Pneumococcal disease USA

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

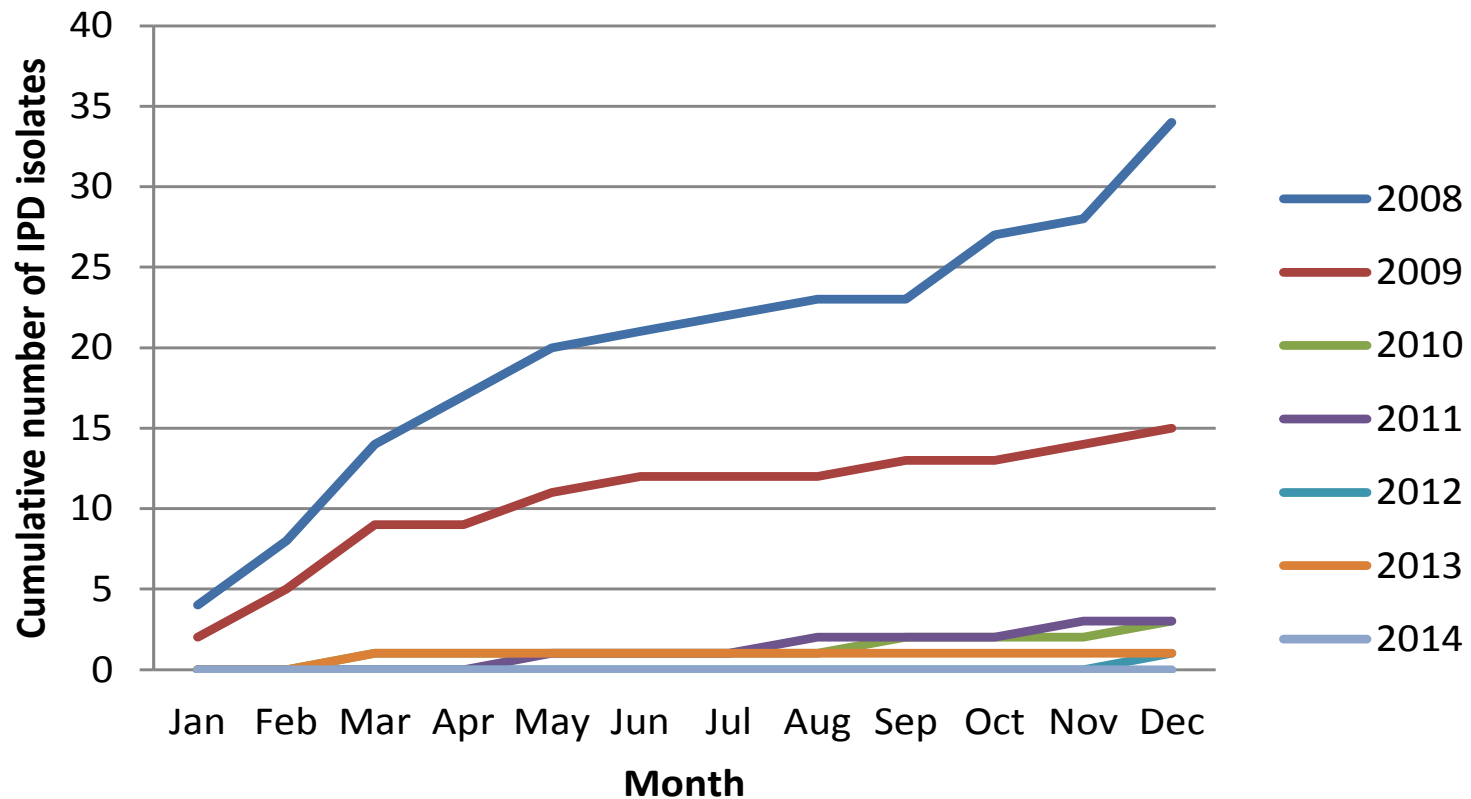


Moore, IDSA, 2009 & CDC Unpublished



Pneumococcal disease Ireland

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



100% reduction in IPD cases, comparing Jan-Dec 2014 with the same period in 2008

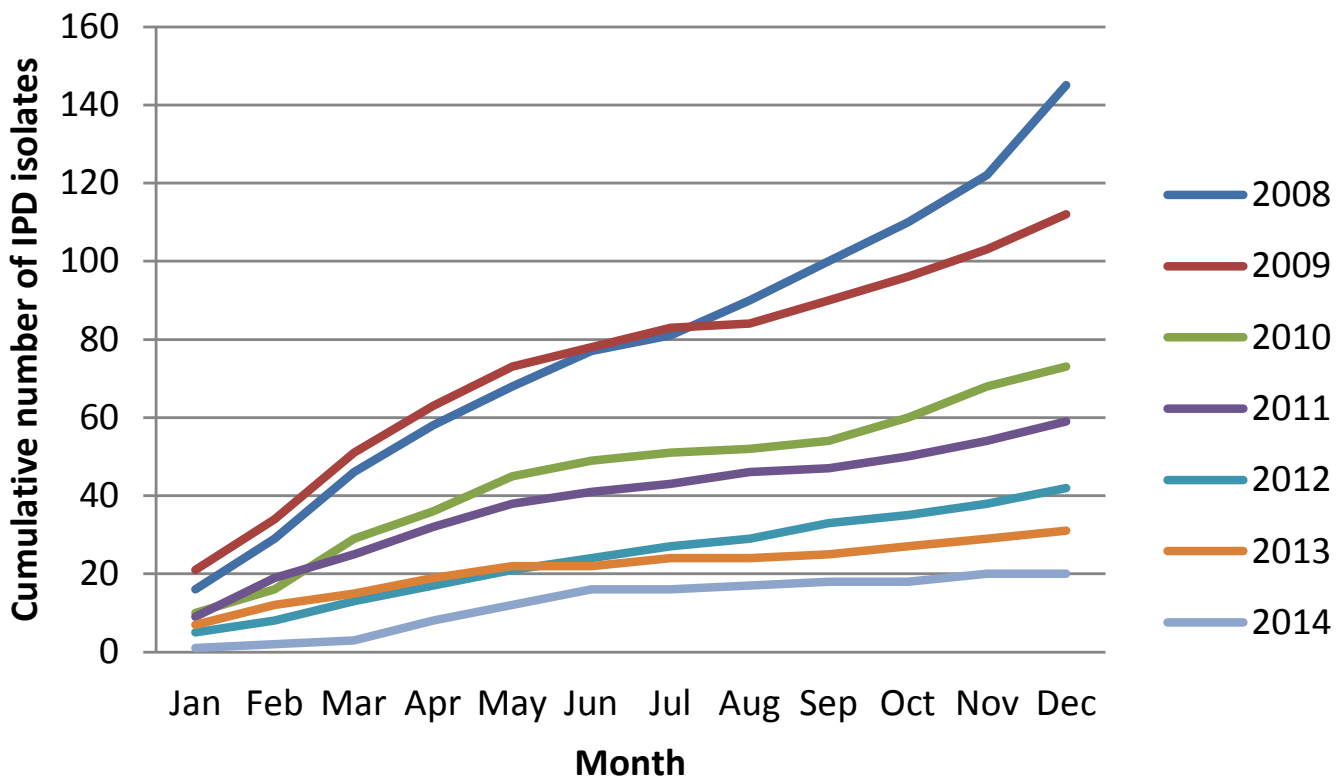
Data source: IPD Typing Project

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Pneumococcal disease Ireland

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



88% reduction in IPD cases, comparing Jan-Dec 2014 with the same period in 2008

Data source: IPD Typing Project

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Diphtheria

Globally each year

- ~7500 cases
- 5-10% fatal



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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



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

The screenshot shows a news article from AFP. The headline is "US measles outbreak linked to low vaccine rate - study". The sub-headline reads: "A measles outbreak in the United States that began at a Disney theme park in California was able to spread because not enough children are being vaccinated, a study finds". The article is dated March 17, 2015. Below the text is a photograph of a "Disneyland Resort Directory" sign. Several people, including children and adults, are gathered around the sign, which displays a map of the resort. The sign also features the text "Disneyland Resort" and "SOUTH SO".



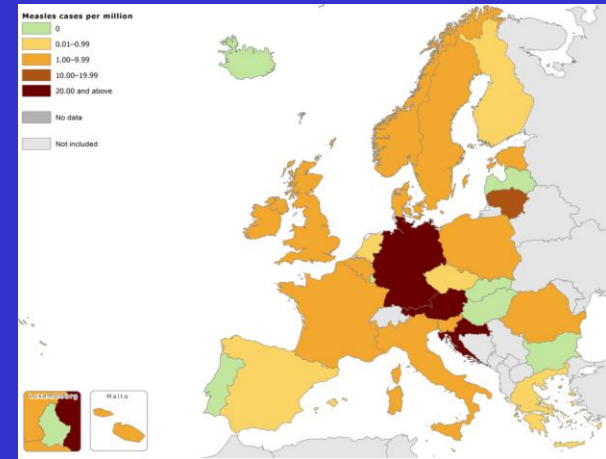
Measles Europe

EU 2015

- 3969 cases reported
- 30 countries
- Germany, France, Italy and Austria
- Majority of cases not vaccinated (75%)
- 1 death and 6 cases of encephalitis

2016

- UK 76 cases in London in last 2 months
- Romania 130 cases this year



EU Measles notification rate
1 March 2015 – 29 Feb 2016

EveningStandard News Football Going Out Lifestyle Showbiz Homes & Property

News & Health
Outbreak of measles declared in London after spate of cases

ROSS LYNNALL | Friday 29 April 2016

29th April
2016

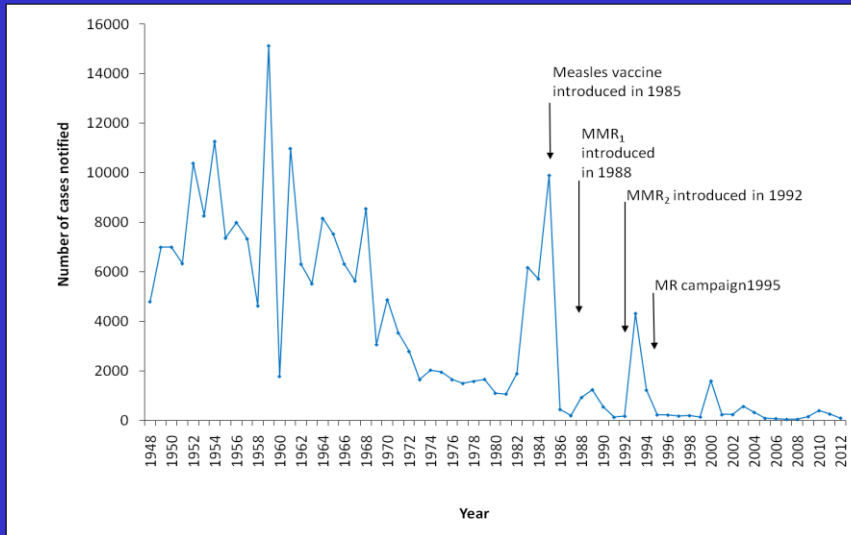
An outbreak of measles has been declared in London

ES

0:00 / 0:00 40



Measles - Ireland



3 cases to date in 2016

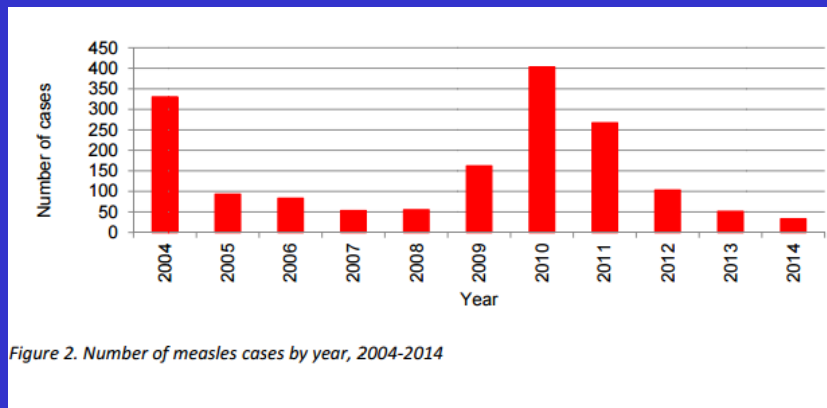


Figure 2. Number of measles cases by year, 2004-2014

Source: HPSC

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Pertussis - global

Every year

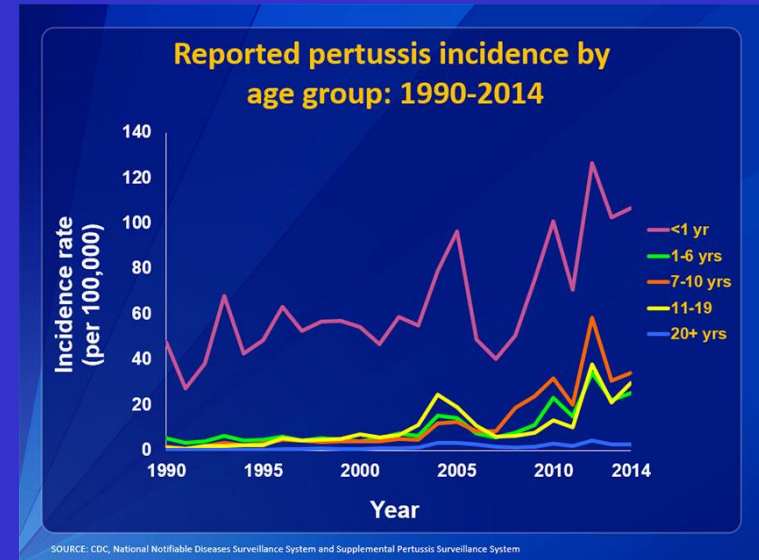
- 16 million pertussis cases
- 195,000 pertussis deaths in children
 - Most in unvaccinated or incompletely vaccinated young infants.
- Recent increases in many developed countries
 - Australia 2009-2011
 - US 2010 – 2012
 - UK 2011- 2012
 - New Zealand 2012 - 2013

*Why killer
infection
whooping
cough
is back*

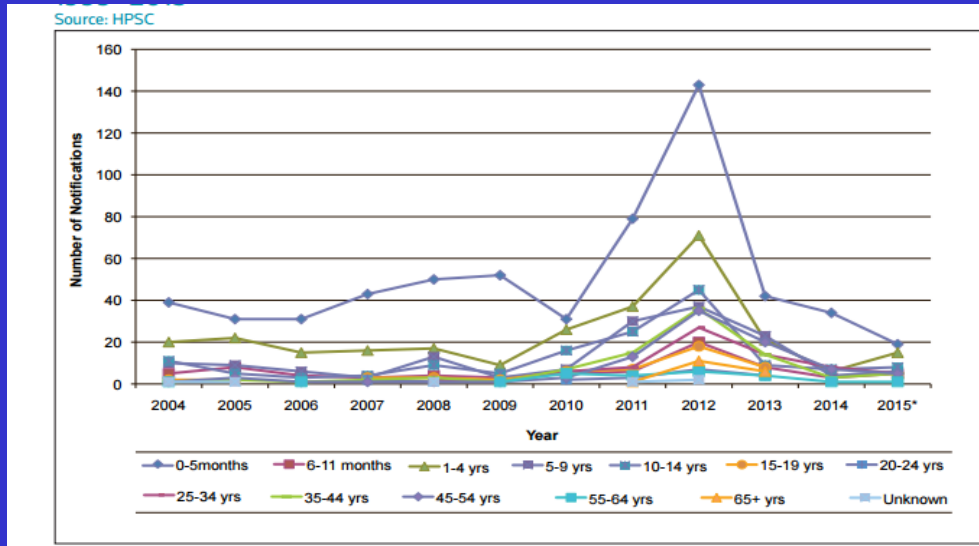


Pertussis

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



Number of notifications 1999- 2015

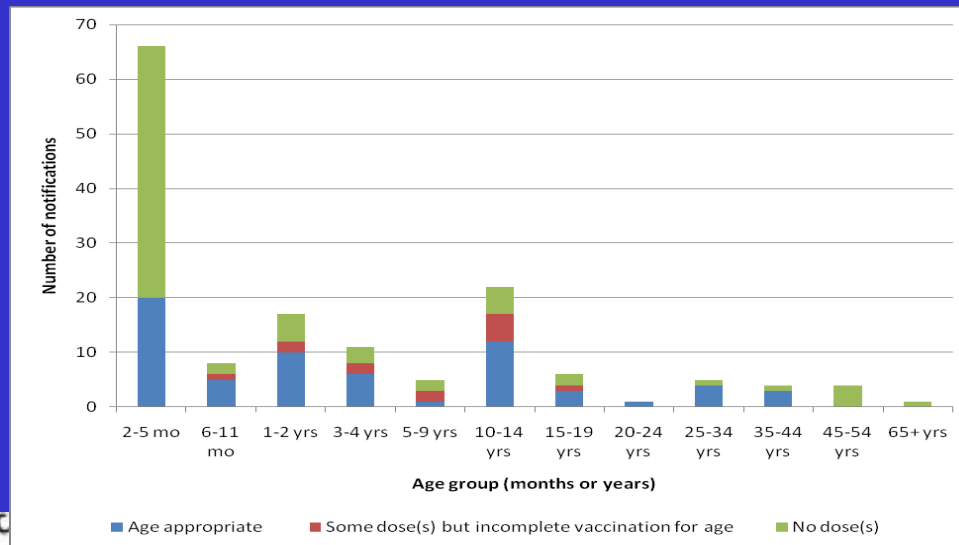


Pertussis Ireland

2012

- Most < 5 years of age
- 48% unvaccinated

Vaccination status (where known) by age group



2016

- 41 cases to date

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

Immunisation Schedule

for children born on or after 1st July 2015

AGE	WHERE	VACCINATION
At birth	HSE clinic or maternity hospital	BCG 1 INJECTION
2 months	GP surgery Visit 1	6 in 1 + PCV 2 INJECTIONS
4 months	GP surgery Visit 2	6 in 1 + MenC 2 INJECTIONS
6 months	GP surgery Visit 3	6 in 1 + PCV 2 INJECTIONS
18 months	GP surgery Visit 4	MMR + PCV 2 INJECTIONS
5 years	GP surgery Visit 5	MenC + Hib 2 INJECTIONS

Appointment for your child's next visit?

Next Appointment

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Tdap vaccine

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

4-in-1 & MMR vaccines

Information for parents of children in Junior Infants

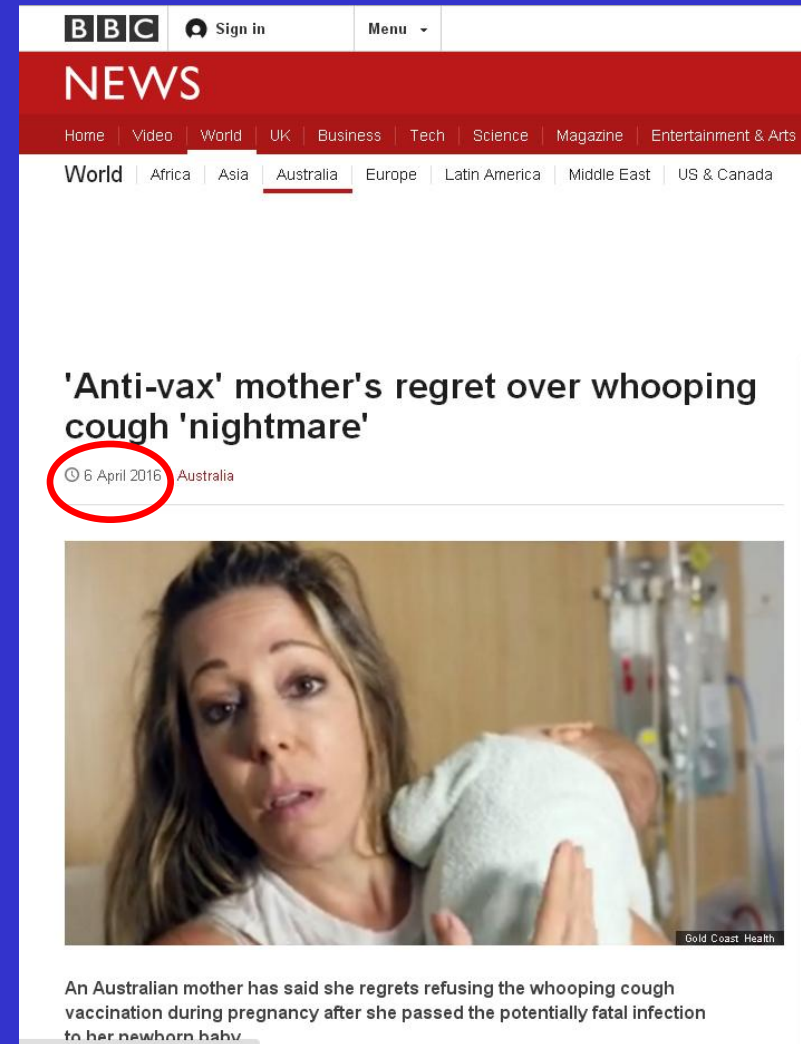
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Pertussis vaccination

- **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***



The image shows a screenshot of a BBC News article. The page header includes the BBC logo, a 'Sign in' button, and a 'Menu' dropdown. The main navigation bar lists categories: Home, Video, World, UK, Business, Tech, Science, Magazine, and Entertainment & Arts. Below this, a secondary navigation bar lists regional categories: World, Africa, Asia, Australia (highlighted with a red underline), Europe, Latin America, Middle East, and US & Canada. The article title is "'Anti-vax' mother's regret over whooping cough 'nightmare'", with the word "Anti-vax" circled in red. The byline reads "© 6 April 2016 Australia". The article features a photograph of a woman in a hospital setting, looking distressed while holding a baby. The photo is credited to "Gold Coast Health". Below the photo, the text reads: "An Australian mother has said she regrets refusing the whooping cough vaccination during pregnancy after she passed the potentially fatal infection to her newborn baby."

<http://www.bbc.com/news/world-australia-35975011>

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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



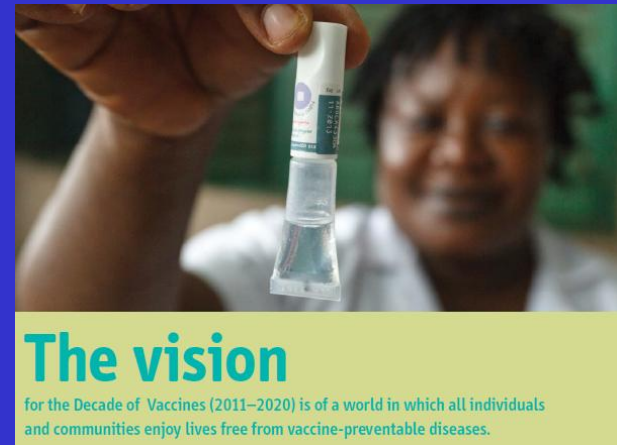
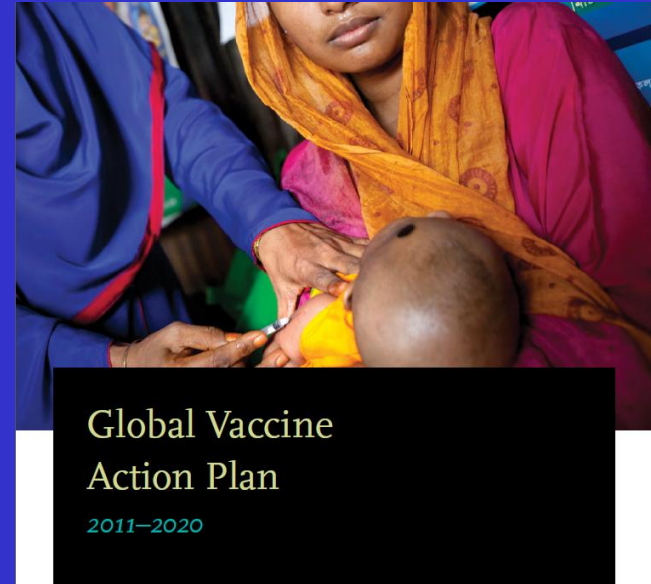
***Vaccine from HSE National
Cold Chain Service***

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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



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