

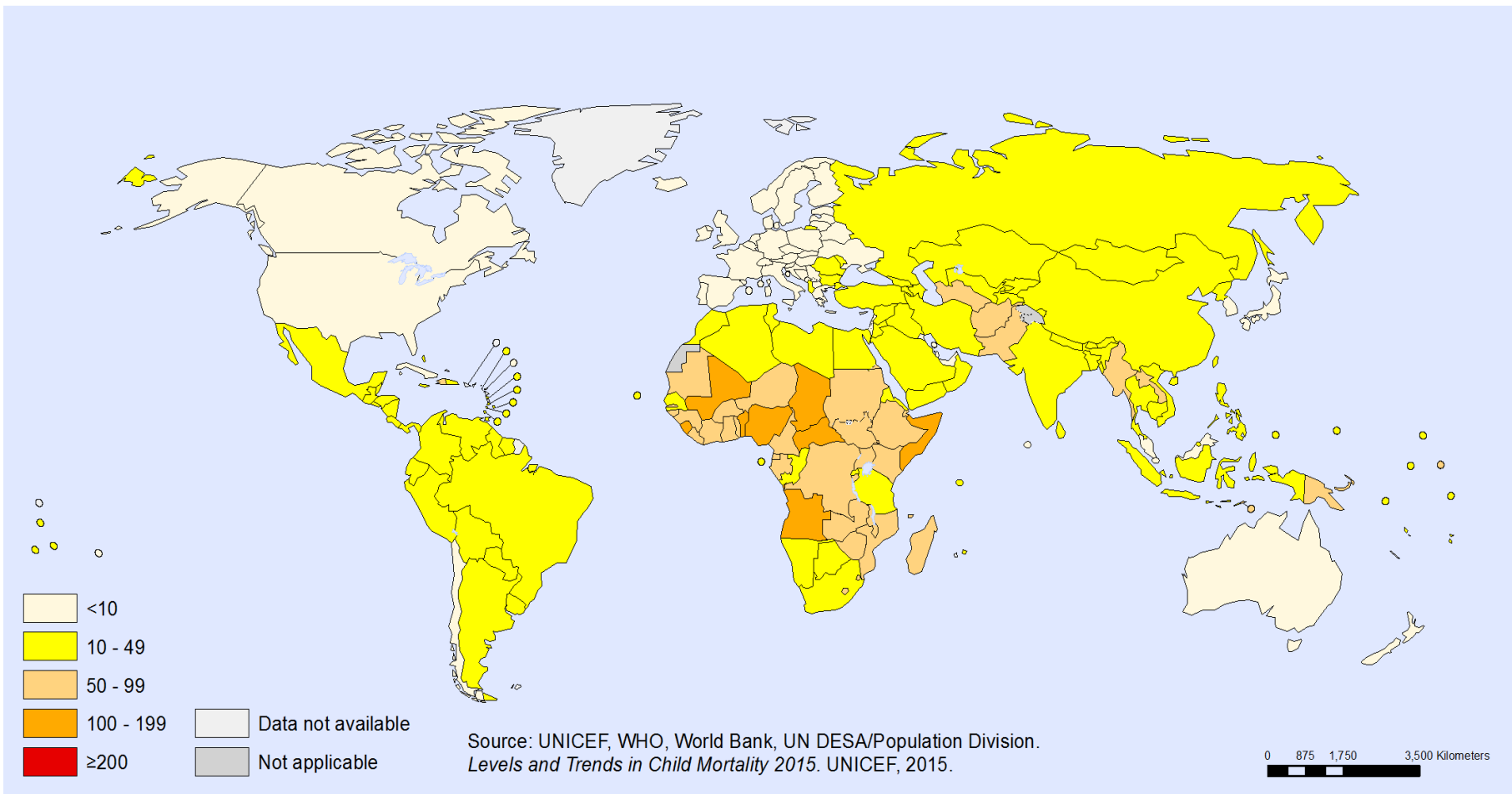
Global and National Trends in Vaccine Preventable Diseases

Dr Anna Clarke
National Immunisation Office



www.immunisation.ie

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



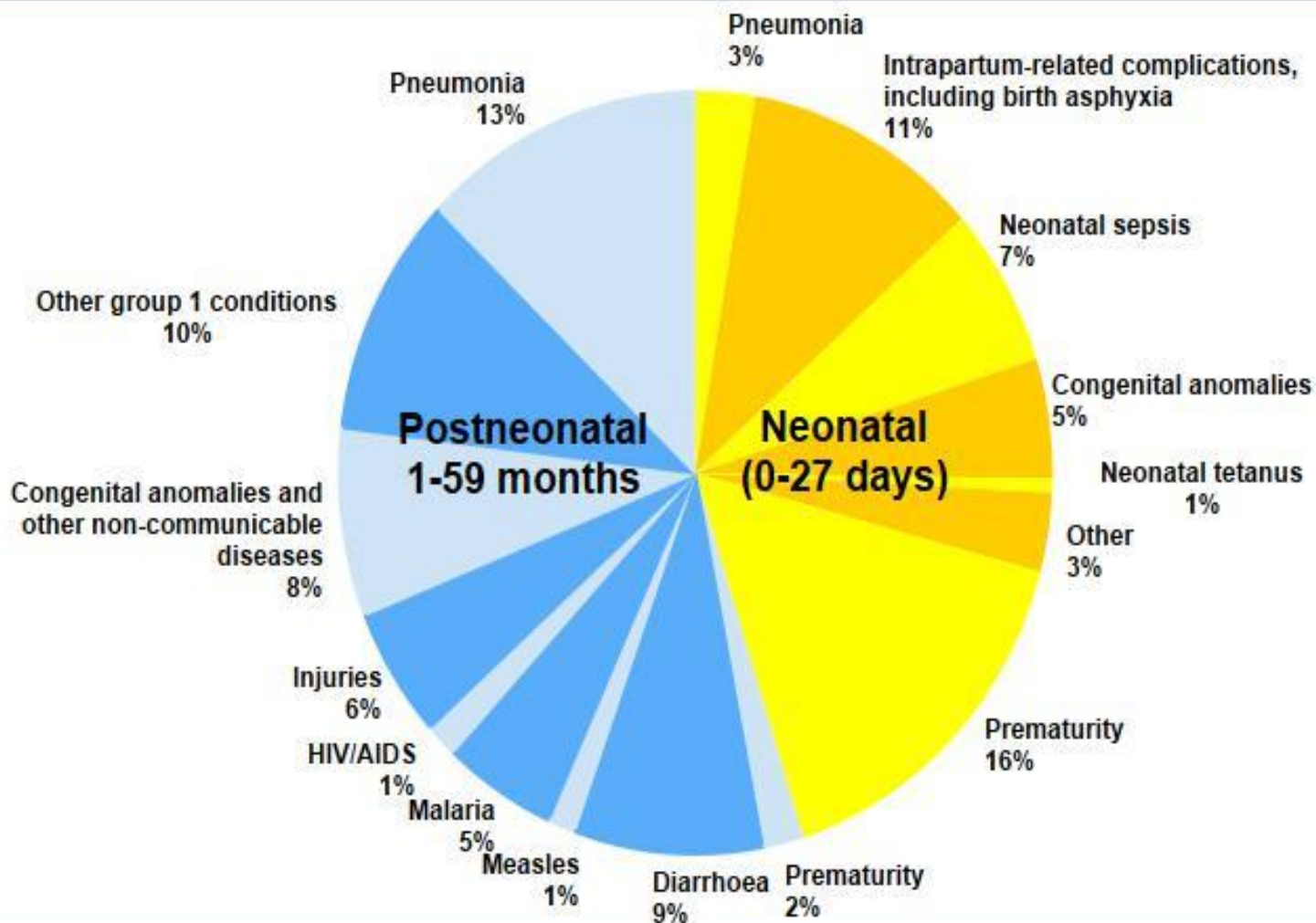
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Data Source: World Health Organization
Map Production: Health Statistics and Information Systems (HSI)
World Health Organization



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Causes of deaths among children under 5 years, 2015



Source: WHO-MCEE methods and data sources for child causes of death 2000-2015 (Global Health Estimates Technical Paper WHO/HIS/IER/GHE/2016.1)

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




























Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

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

www.immunisation.ie



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

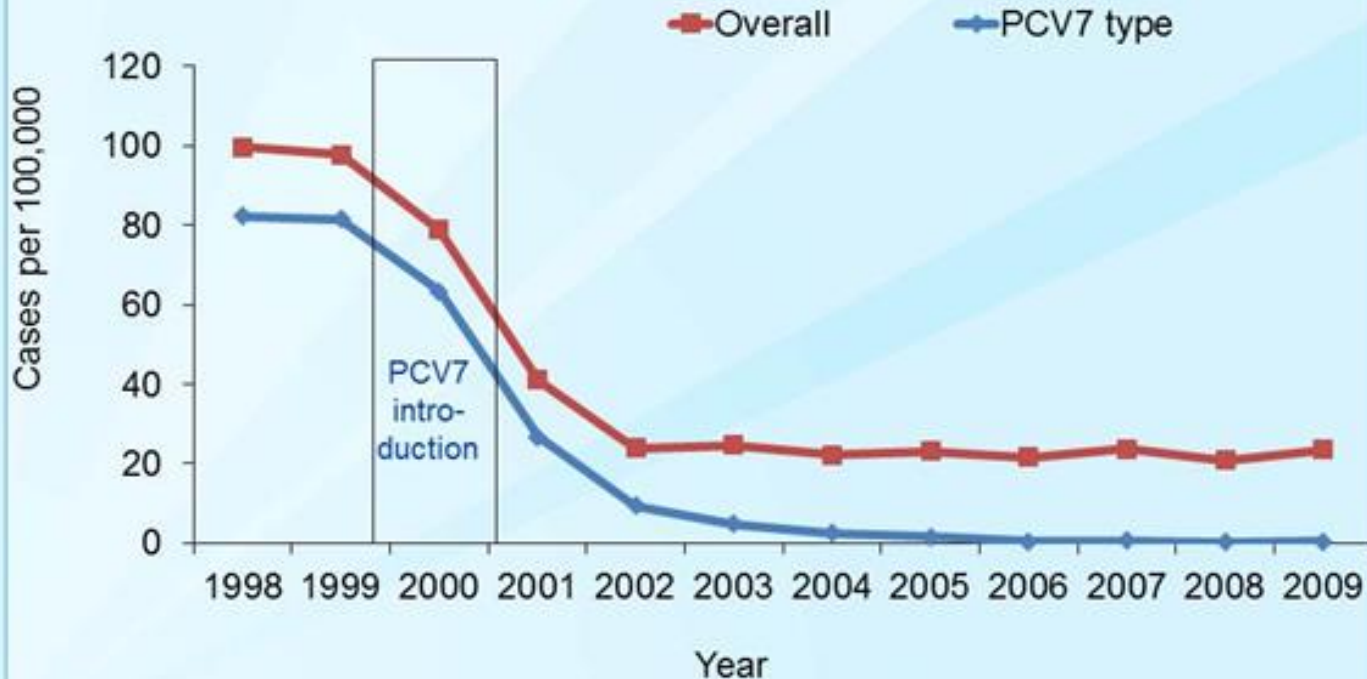
2015 PCV in immunisation schedules

129 countries



Pneumococcal disease USA

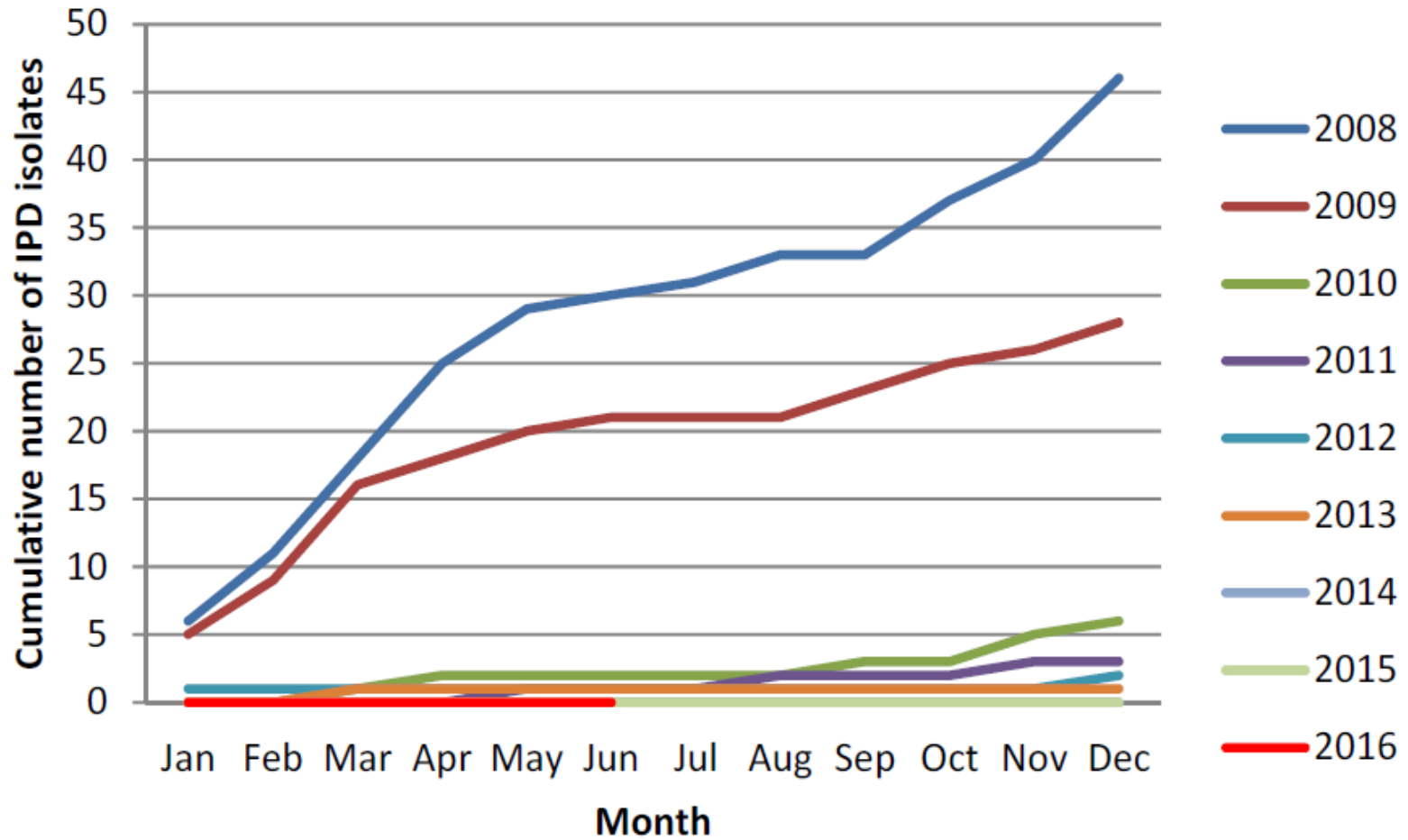
Impact of 7-valent pneumococcal conjugate vaccine on invasive pneumococcal disease among children <5 years old, 1998-2009



Moore, IDSA, 2009 & CDC Unpublished



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

FLANDERS
NEWS.BE

10 °C 43 KM FILE 03 May 2016 14:25 NL FR DE

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Toddler dies of diphtheria in Antwerp

🔗
🖨️
✉️
📘
🐦

Fri 18/03/2016 - 10:30

Michaël Torfs

A 3-year-old girl succumbed in Antwerp's University Hospital (UZA) after having caught diphtheria. The news was announced by the Health and Care Agency yesterday. The toddler died as it took too long to find a counter-poison.

Top stories

- 02/05 Chaos at Brussels Airport
- 02/05 "We presume it will get better"
- 08/08 "The naughty aunt wooing teenagers away from porn"
- 10/53 "Profiling" could solve long queues at Brussels Airport
- 02/05 Have your say on the Brexit issue!
- 11/18 24 percent of Belgians flouting drink driving rules

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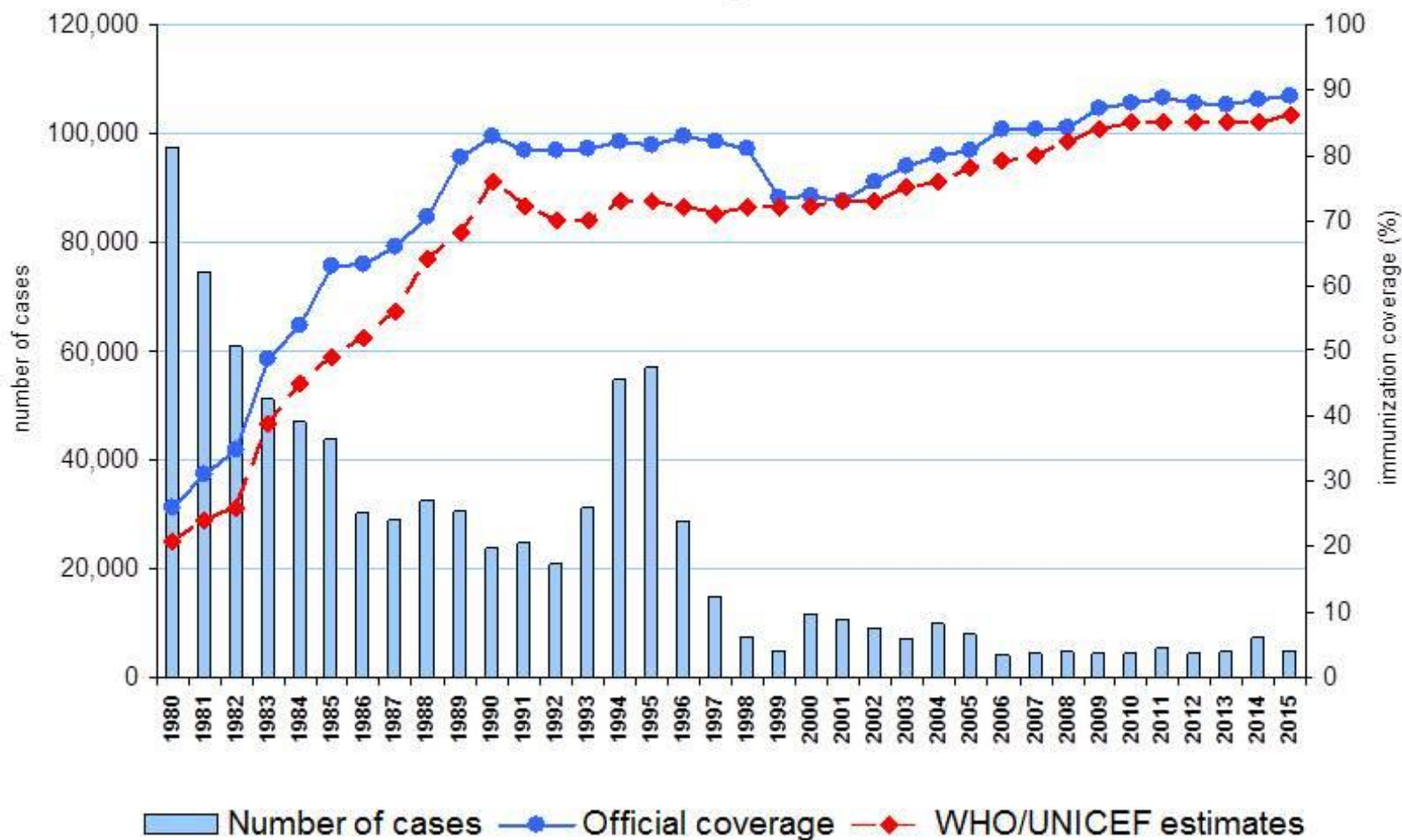
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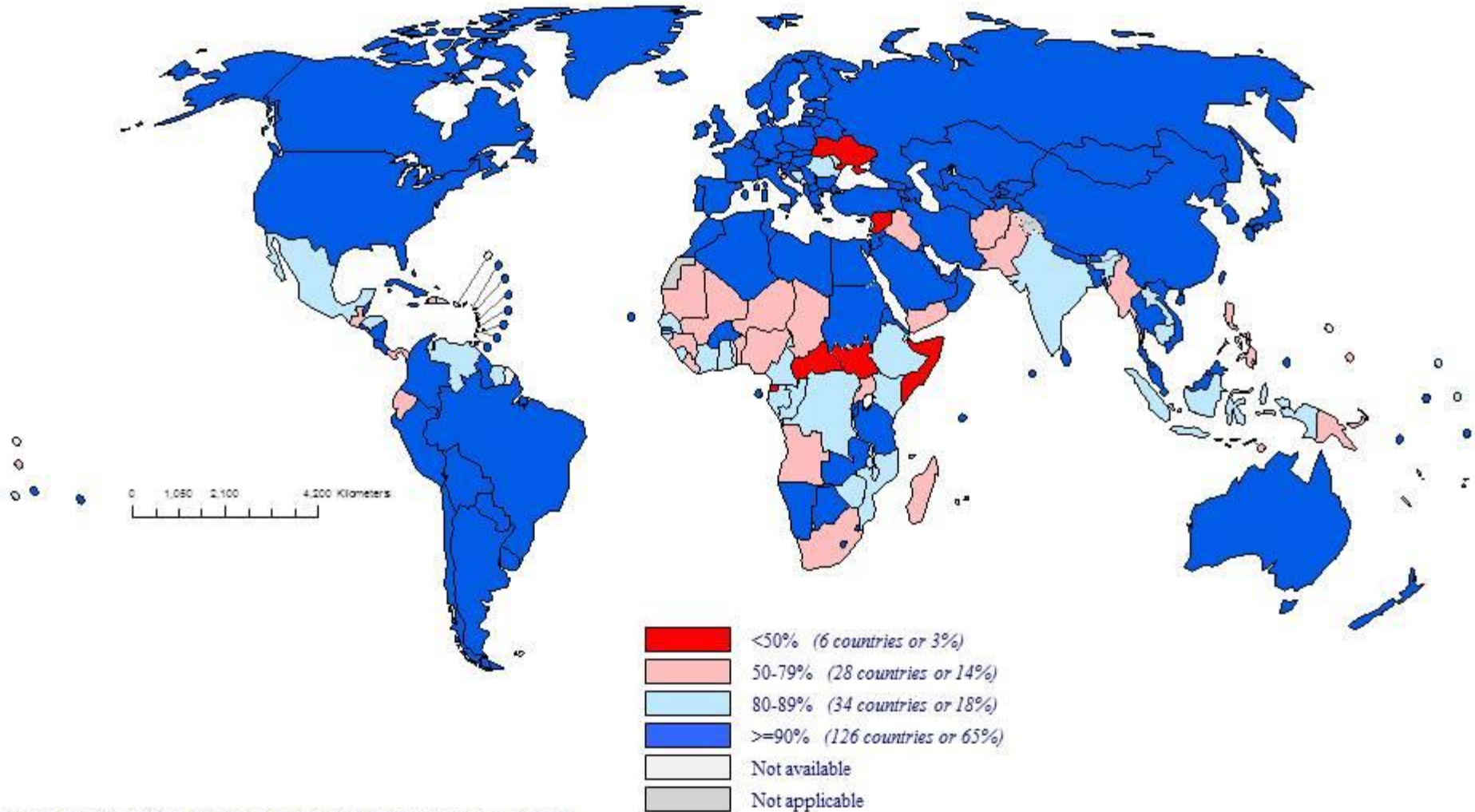
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Diphtheria global annual reported cases and DTP3 coverage, 1980-2015



Immunization coverage with DTP3 vaccines in infants (from <50%), 2015



Source: WHO/UNICEF coverage estimates 2015 revision. July 2016.
Map production: Immunization Vaccines and Biologicals, (IVB). World Health Organization. 194 WHO Member States.
Date of slide: 28 July 2016

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WHO

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

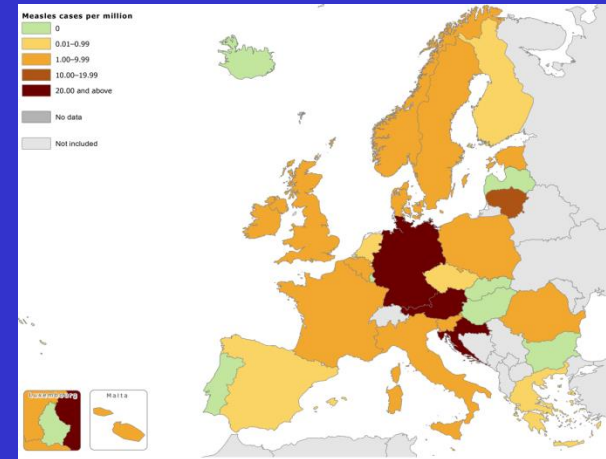
The image shows a screenshot of a news article from AFP. The article title is "US measles outbreak linked to low vaccine rate - study". The sub-headline reads: "A measles outbreak in the United States that began at a Disney theme park in California was able to spread because not enough children are being vaccinated, a study finds". The article is dated March 17, 2015. Below the text is a photograph of a group of people, including children and adults, looking at a large blue "Disneyland DIRECTORY" sign. The sign features a map of the park and various icons for different areas. The caption below the photo states: "People visit Disneyland on January 22, 2015 in Anaheim, California. File photo by Frederic J. Brown/AFP".



Measles Europe

EU 2015

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



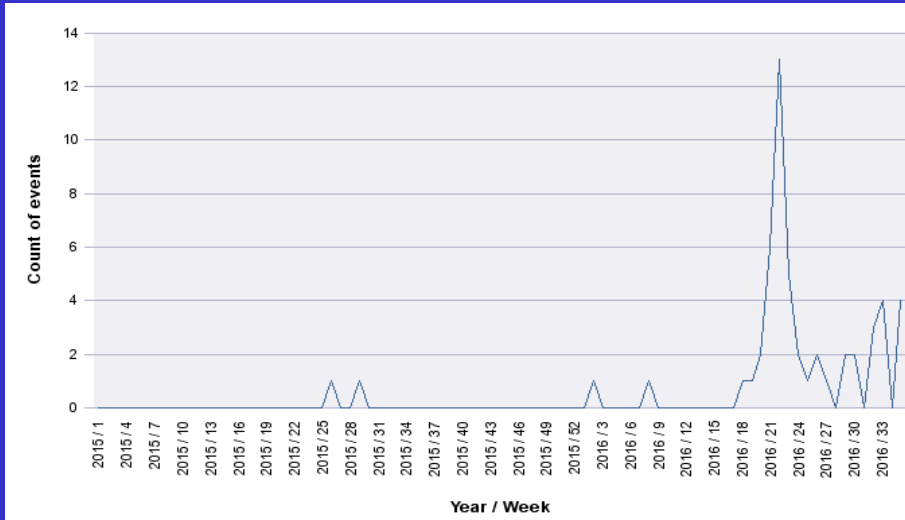
EU Measles notification rate
1 March 2015 – 29 Feb 2016

2016

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



Measles - Ireland



49 cases to date in 2016

Irish Examiner

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HOME TODAY'S STORIES

Public health warning after possible measles exposure

Wednesday, August 17, 2016

Follow @EvelynRing

By Evelyn Ring
Irish Examiner Reporter

A public health warning has been issued after it was confirmed an adult with measles visited a number of locations in Mitchelstown, Co Cork, and in Clonmel, Co Tipperary, in recent weeks.

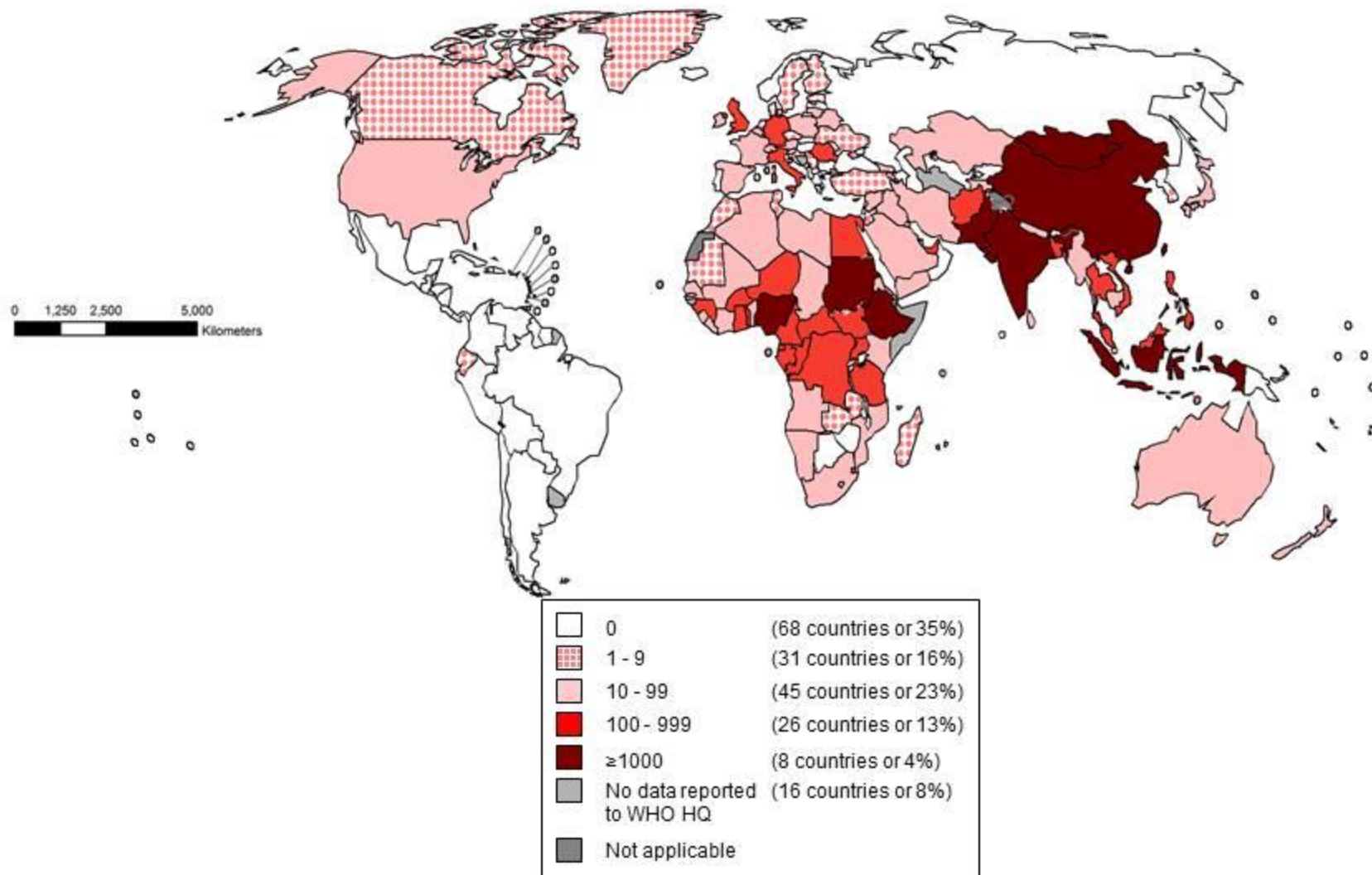


Source: HPSC

www.immunisation.ie



Number of Reported Measles Cases with onset date from Mar 2016 to Aug 2016 (6M period)



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Pertussis - global

Every year

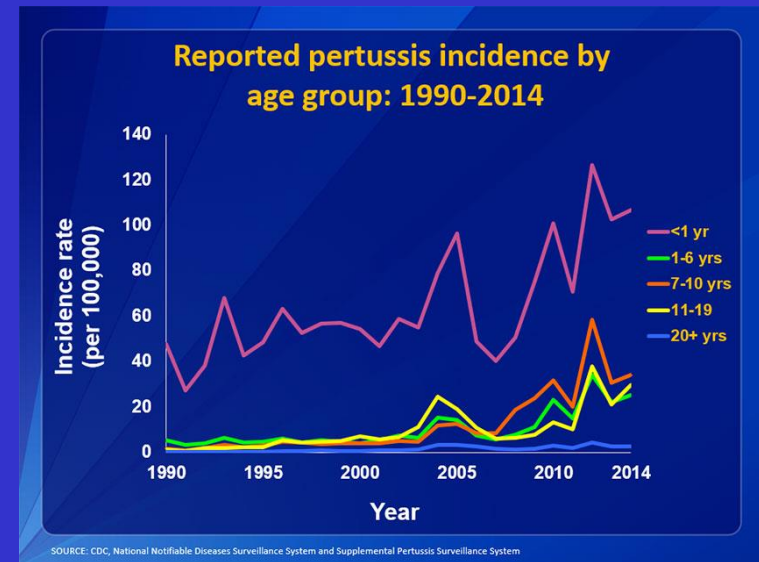
- 16 million pertussis cases
- 195,000 pertussis deaths in children
 - Most in unvaccinated or incompletely vaccinated young infants.
- Recent increases in many developed countries
 - Australia 2009-2011
 - US 2010 – 2012
 - UK 2011- 2012
 - New Zealand 2012 - 2013

*Why killer
infection
whooping
cough
is back*

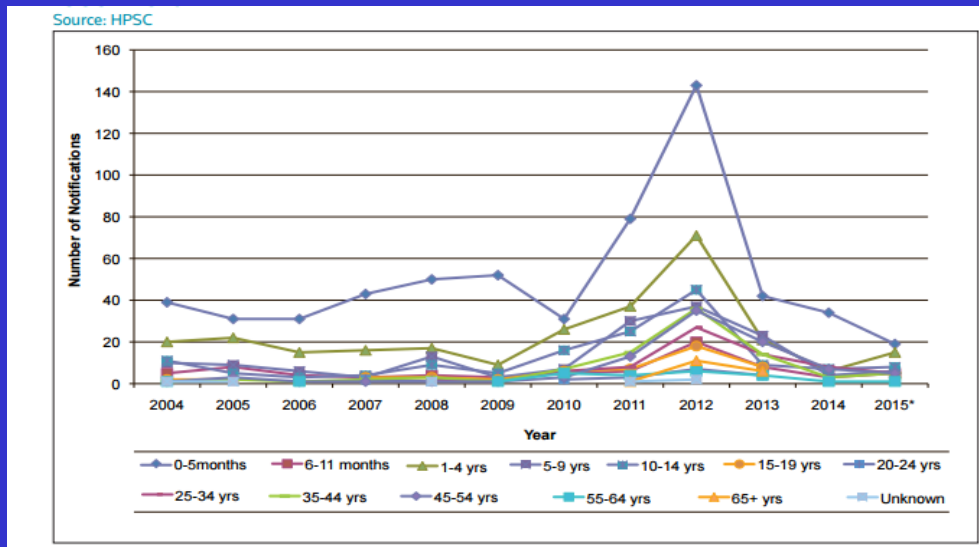


Pertussis

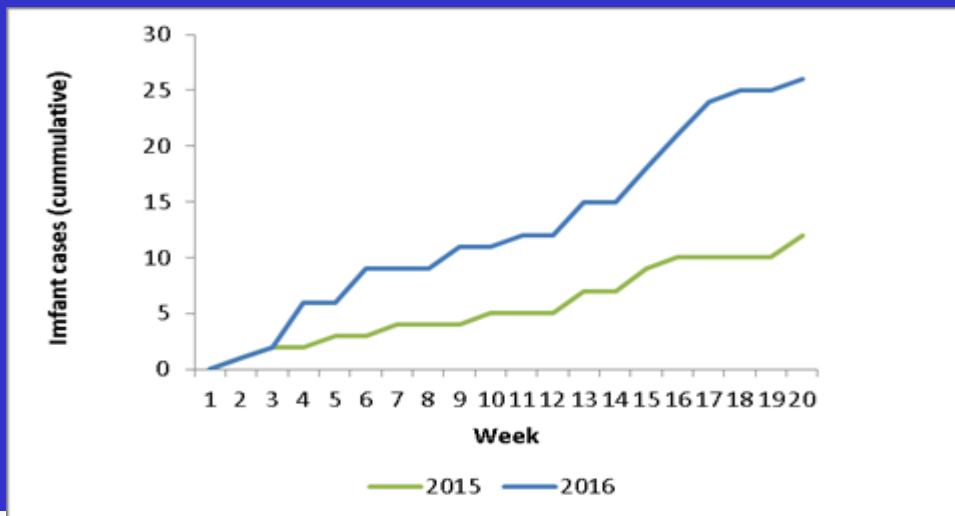
- Cough lasting at least 2 weeks
- No other cause
- +
 - Paroxysms of coughing or
 - Inspiratory 'whoop' or
 - Vomiting post cough



Number of notifications 1999- 2015



No. of cases in under 6 month age group



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

www.immunisation.ie



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

www.immunisation.ie

Tdap vaccine

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

www.immunisation.ie

HEALTH SERVICE EXECUTIVE
Feidhmeannacht na Seirbhíse Sláinte

4-in-1 & MMR vaccines

Information for parents of children in Junior Infants

www.immunisation.ie

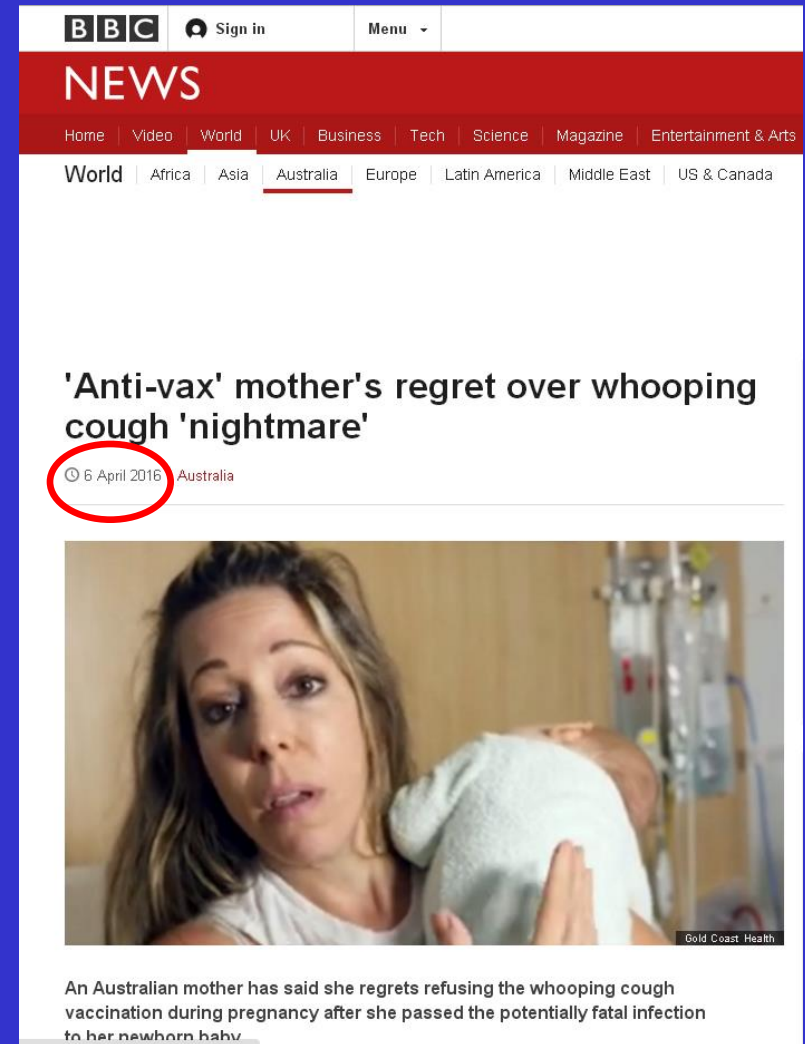
HEALTH SERVICE EXECUTIVE
Feidhmeannacht na Seirbhíse Sláinte



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 various news 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'", and the byline is "© 6 April 2016 Australia". A red circle highlights the date and location. The article features a photograph of a woman holding a baby in a hospital setting, with a 'Gold Coast Health' watermark. The text below the photo 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>

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



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



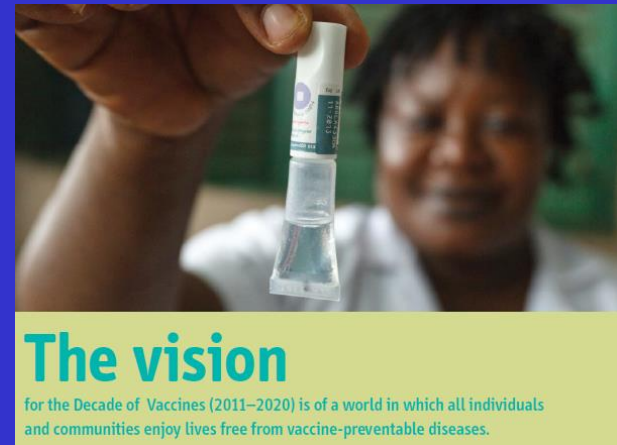
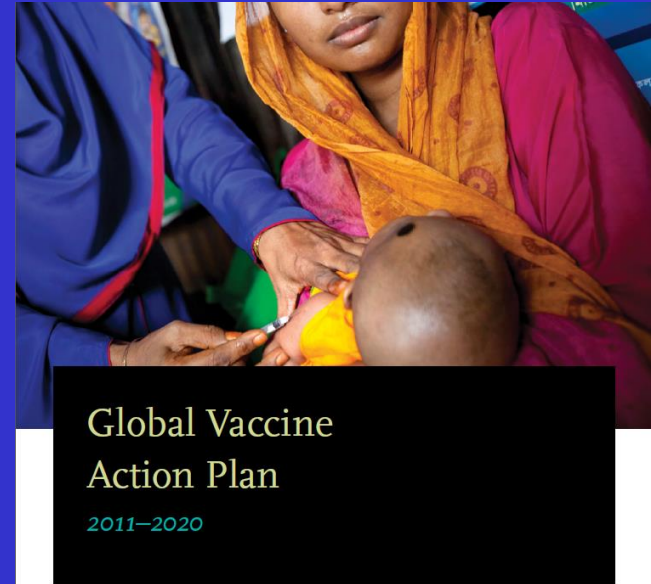
***Vaccine from HSE National
Cold Chain Service***

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



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



www.immunisation.ie



www.immunisation.ie



www.immunisation.ie



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