Vaccine Preventable Diseases

National Immunisation Programme

Tralee, October 2015

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Childhood Immunisation Schedule (Since July 2015)

Birth	BCG
2 months	6 in 1 + Pneumococcal Conjugate Vaccine (PCV)
4 months	6 in 1 + Meningococcal C (Men C)
6 months	6 in 1 + PCV
12 months	Measles Mumps + Rubella (MMR) + PCV
13 months	Men C + Haemophilus influenza b (Hib)
4-5 years	Diphtheria, Tetanus, Pertussis, Polio + MMR
12-13 years	Tetanus, Diphtheria, Pertussis
12-13 years	Human Papilloma Virus
12-13 years	MenC booster

6 in 1 contains vaccines against

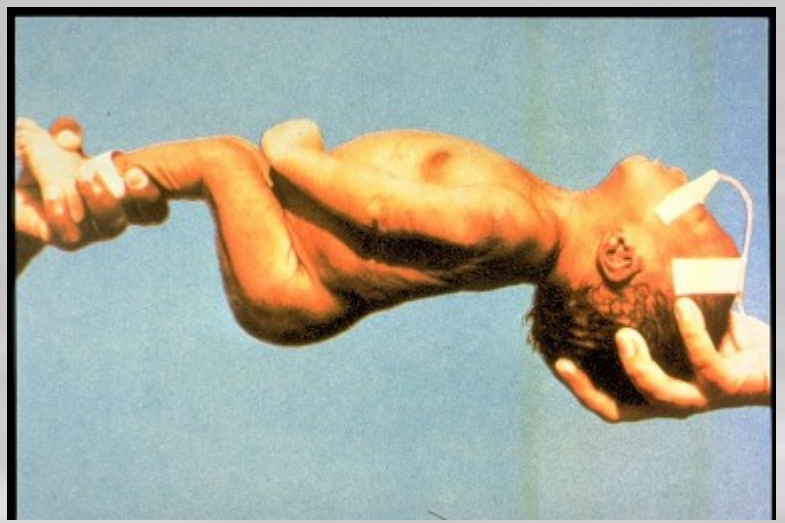
Diphtheria, Tetanus,
Pertussis (whooping cough), Polio
Haemophilus influenza b (Hib), Hepatitis B

DISEASES WE SELDOM SEE

Tetanus

- Bacteria - Clostridium tetani
- Ubiquitous organism. Spores in soil. Introduced into body by injury.
- No person to person spread
- Acute neurological disease with muscle rigidity
- Caused by neurotoxin produced by C tetani
- Vaccination with toxoid (modified toxin) to stimulate production of antitoxin
- Cannot be eradicated

Tetanus



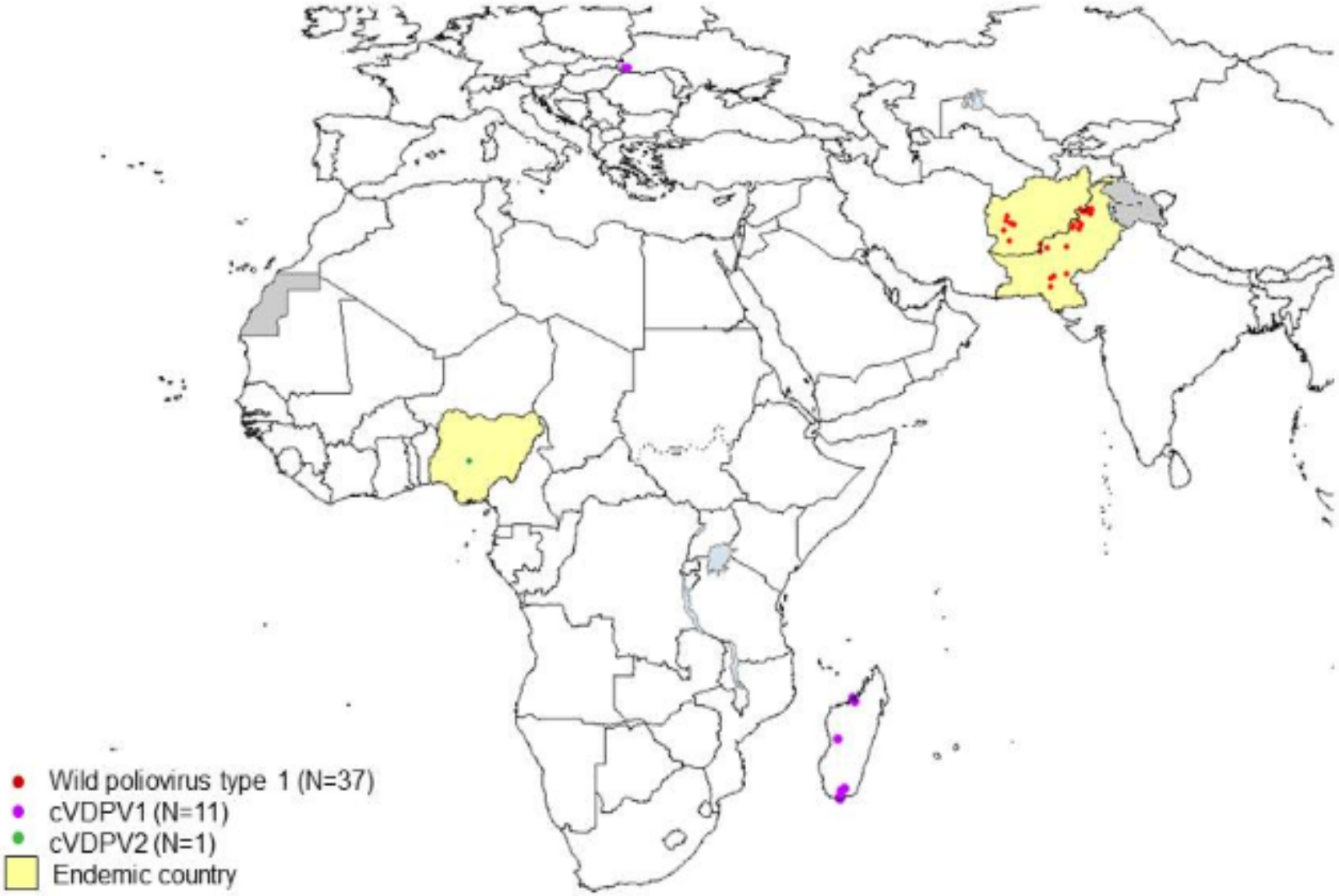
Diphtheria

- Bacteria – Corynebacterium diphtheria
- Still endemic in some parts of the world
- Acute infection upper respiratory tract or occasionally skin
- Spread person to person droplet or skin lesions
- Complications from the toxin
- Vaccination with toxoid (modified toxin) to stimulate production of antitoxin

Poliomyelitis

- Polio virus (3 types) invasion of the gastro-intestinal tract - faecal-oral spread or pharyngeal sections
- Affinity for nervous tissue
- Most infections (95%) asymptomatic
- About 1 in 200 infections paralytic illness
- Vaccine inactivated virus
- Still present in parts of the world

Wild Poliovirus & cVDPV Cases[1], 2015
01 January – 01 September



[1]Excludes viruses detected from environmental surveillance.

Data in WHO HQ as of 01 September 2015

Poliomyelitis

Rubella

- Acute mild viral illness, fever, rash, lymph nodes – non specific difficult clinical diagnosis (IgM positive blood or salivary swab)
- Congenital Rubella Syndrome
  - Foetal loss or major defects eyes, ears, heart, CNS
  - First 12 weeks pregnancy 85% affected
  - 12-<16 weeks 50%
  - 16-20 weeks 25%
- Rubella cases 2013:0, 2014:3
- CRS last case in Ireland more than 10 year ago

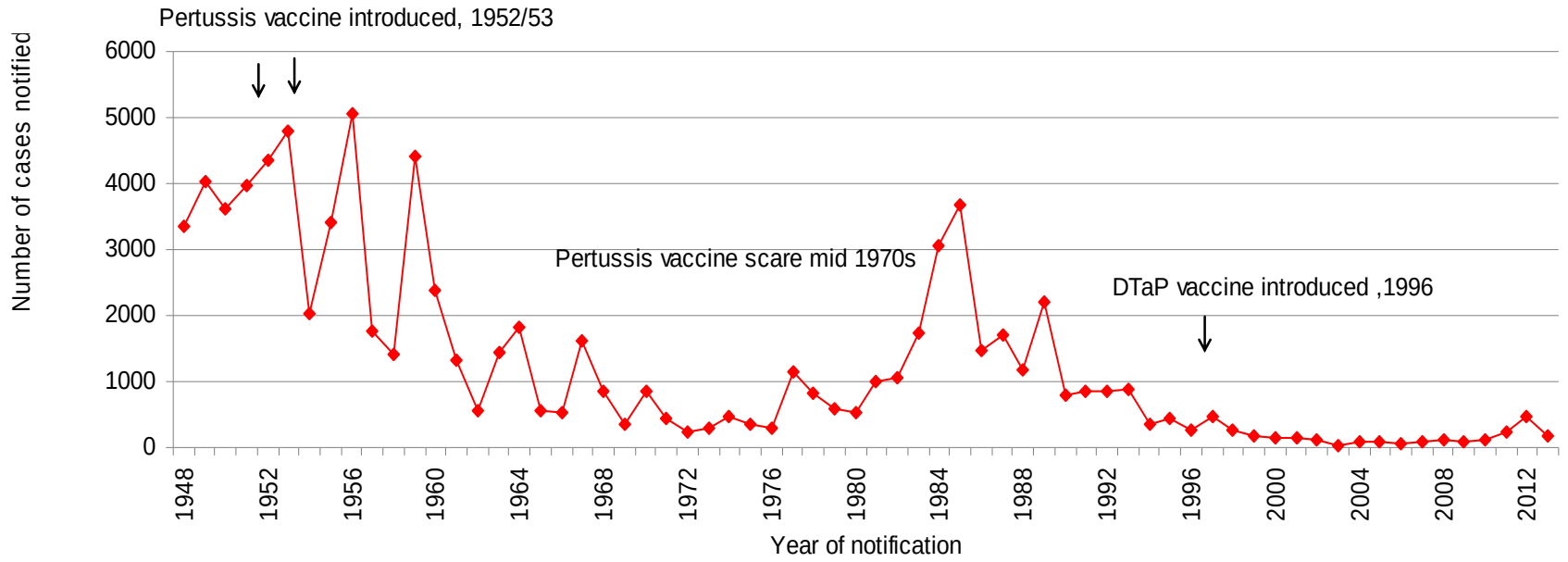
DISEASES WE DO SEE

Pertussis (Whooping Cough)

- Respiratory- paralysis of cilia and inflammation - whooping cough, coughing spasm, apnoea,
- May also get bronchopneumonia, seizures, encephalopathy
- Highly infectious respiratory route
- Mortality 1 in 200 of infant cases

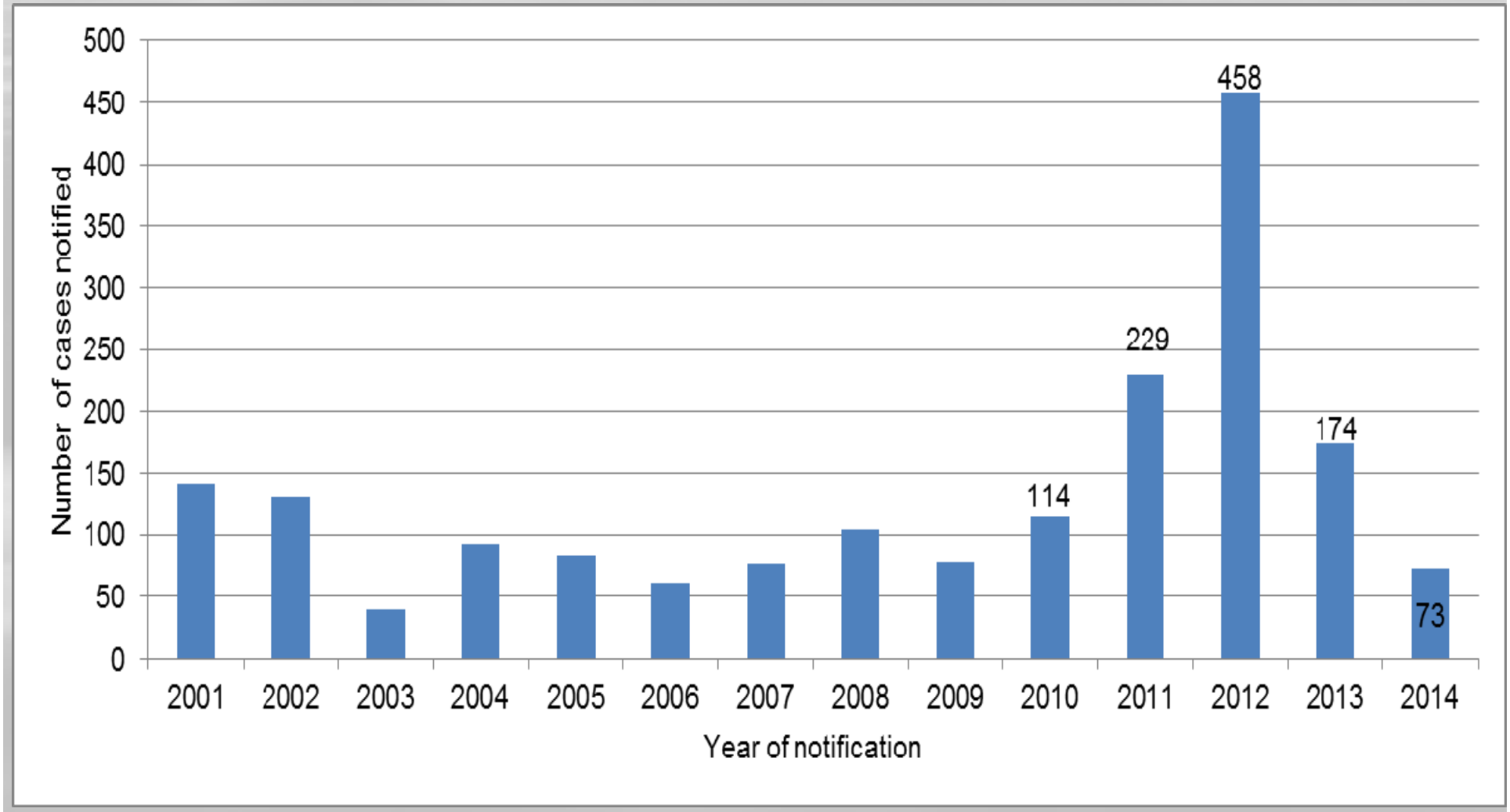
Pertussis

Trends Pertussis notifications, Ireland 1948- 2013



Source HPSC

Pertussis notifications, 2001-2014



Meningococcal Disease

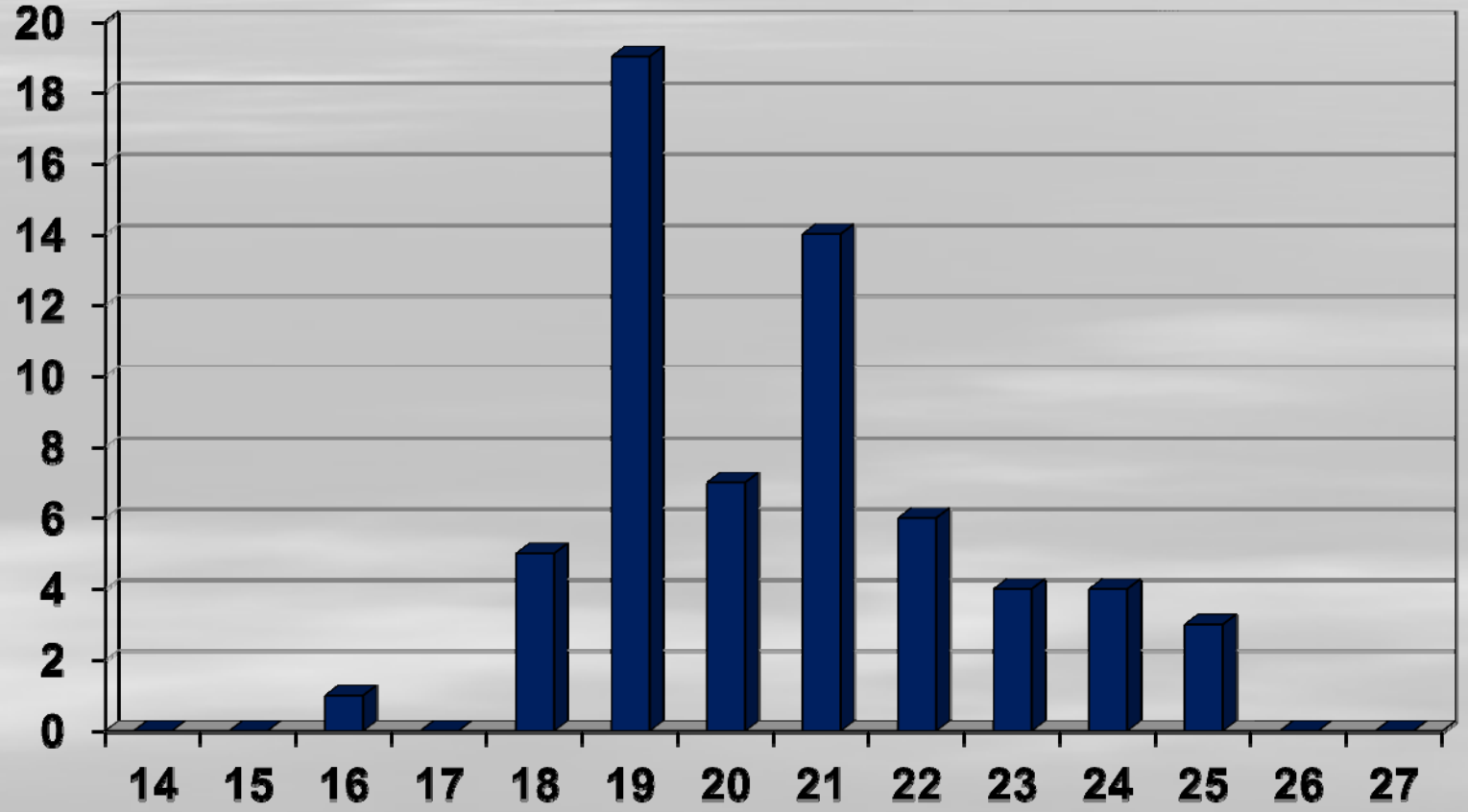
- Bacteria Neisseria meningitidis several strains
  - Groups B and C Ireland
  - Groups A, B, C, Y, W135 globally
- Meningitis and/or septicaemia commonest
- High asymptomatic carriage in population
- Mortality rate 5%
- MenC vaccine introduced in 2000 all up to 23 years
- MenB vaccine recently licensed – Introduced UK September 2015

Meningococcal Disease

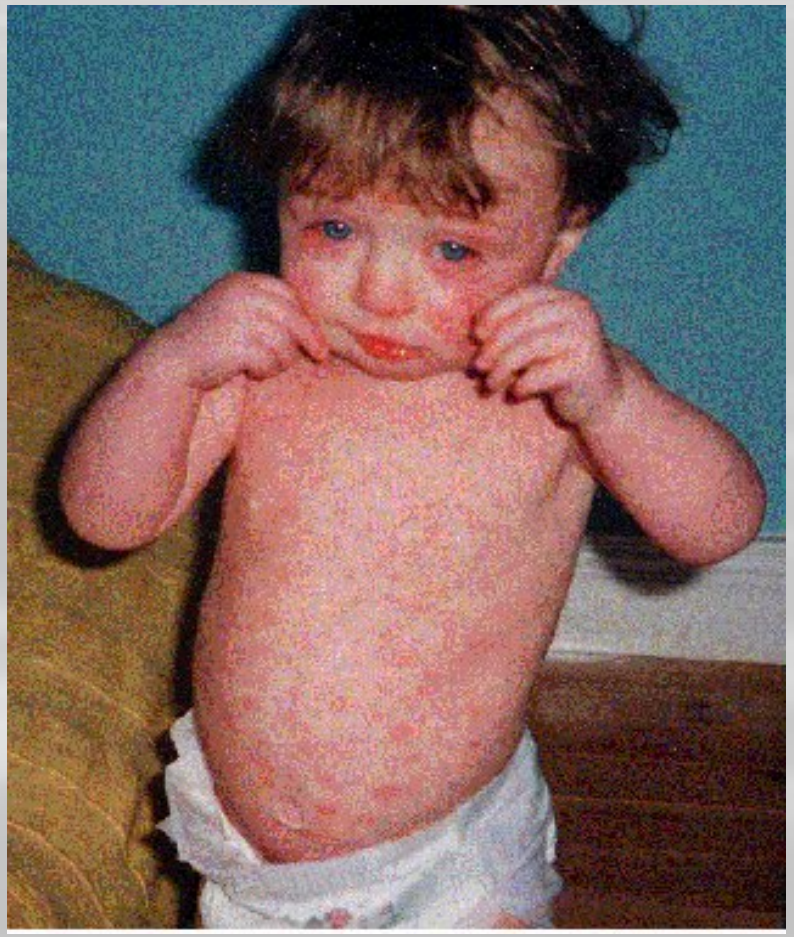
Measles

- Measles virus paromyxovirus
- WHO estimate 145,700 measles deaths in 2013
- Cough, coryza, conjunctivitis, rash
- Confirmed IgM positive blood or salivary swab or PCR positive on salivary swab
- Pneumonia, encephalitis, seizures
- Mortality rate 1 in 3,000

Measles cases, West Cork, week of notification, 2012



A child infected with measles



Hepatitis B

- Most serious complications due to chronic infection
- Younger acute infection more risk of chronic disease
  - Perinatal (untreated) 90%
  - 1-5 years 30-50%
  - Adults 5-10%
- 25% with chronic infection die prematurely from cirrhosis or liver cancer

Pneumococcal Disease

- Pneumococcal Disease: pneumonia, bacteraemia, meningitis
- Young, old & immunocompromised
- Highest rate of Invasive pneumococcal disease young children, especially under 2
- 90 known serotypes
  - 10 most common 62% of invasive disease worldwide
- Current routine childhood vaccine 13 serotypes
- Decrease in disease since introduction of vaccine
  - Cases in < 2 year olds - 2007:41 2014:16

Vaccine Preventable Diseases Have Not Gone Away!