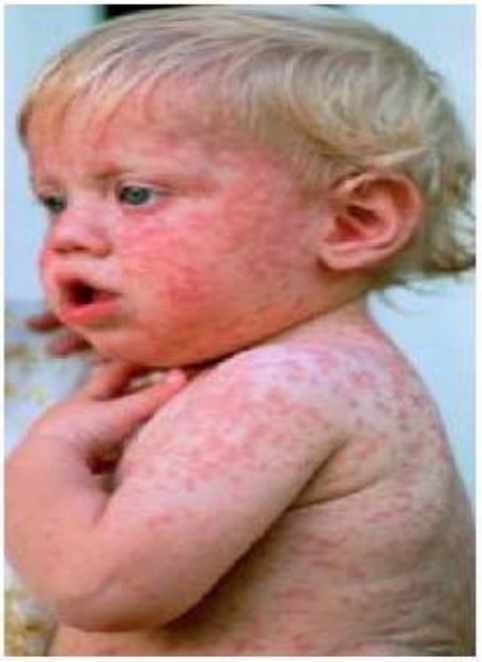
Measles Elimination 2010

Dr. Suzanne Cotter

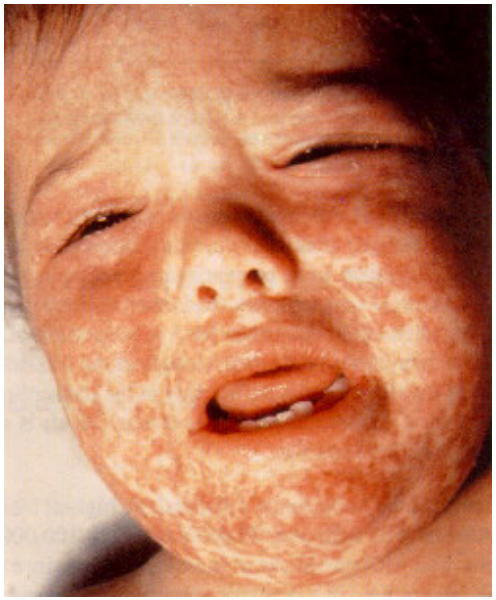
4th National Immunisation Conference 2007

Measles



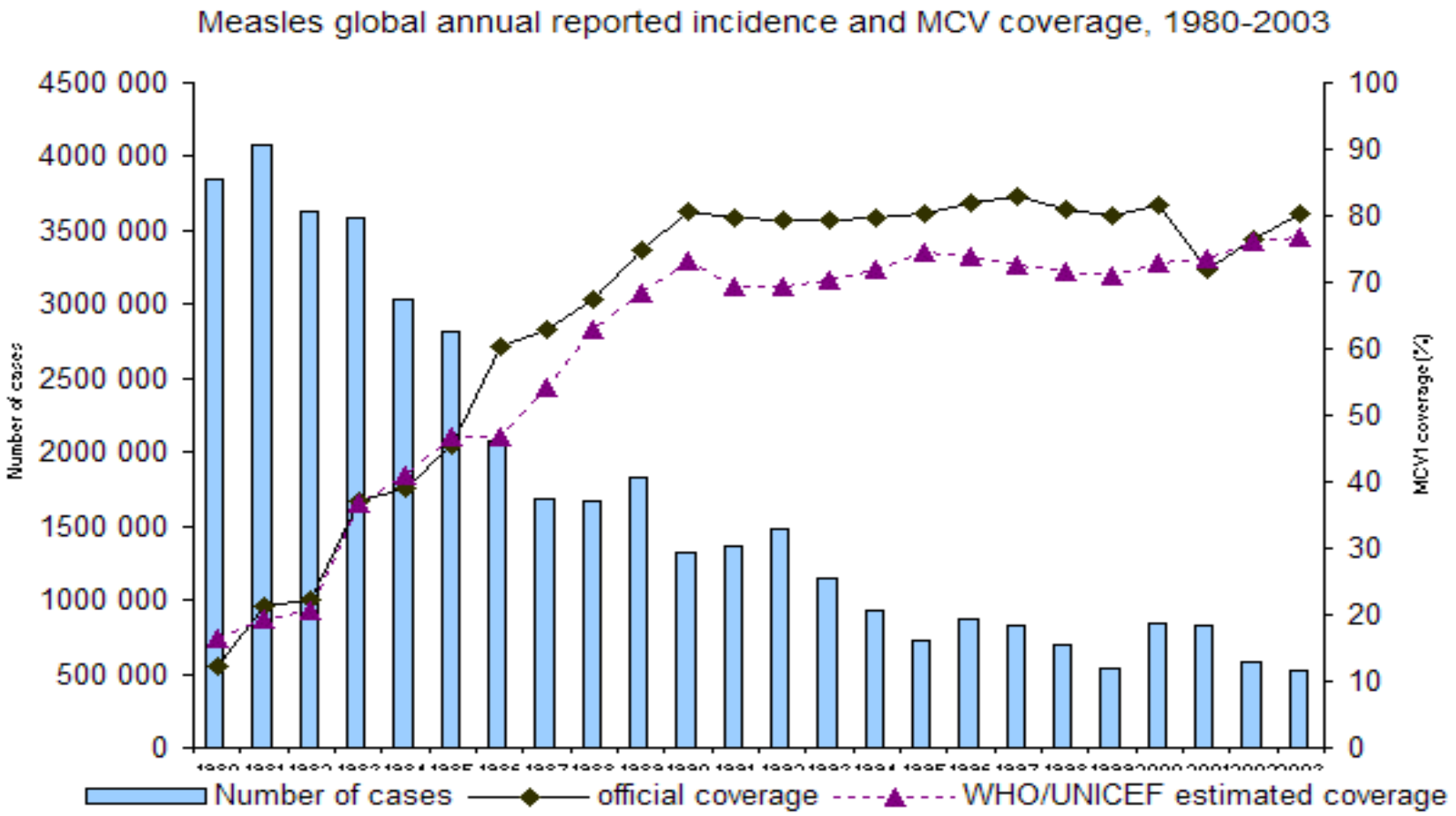
- Viral illness
  - Highly infectious
  - Human reservoir only
  - Respiratory transmission
- Responsible for ~500,000 deaths in 2004 (WHO)
- 2 doses of MMR recommended at
  - 12-15 months, 4-5 years

Measles complications

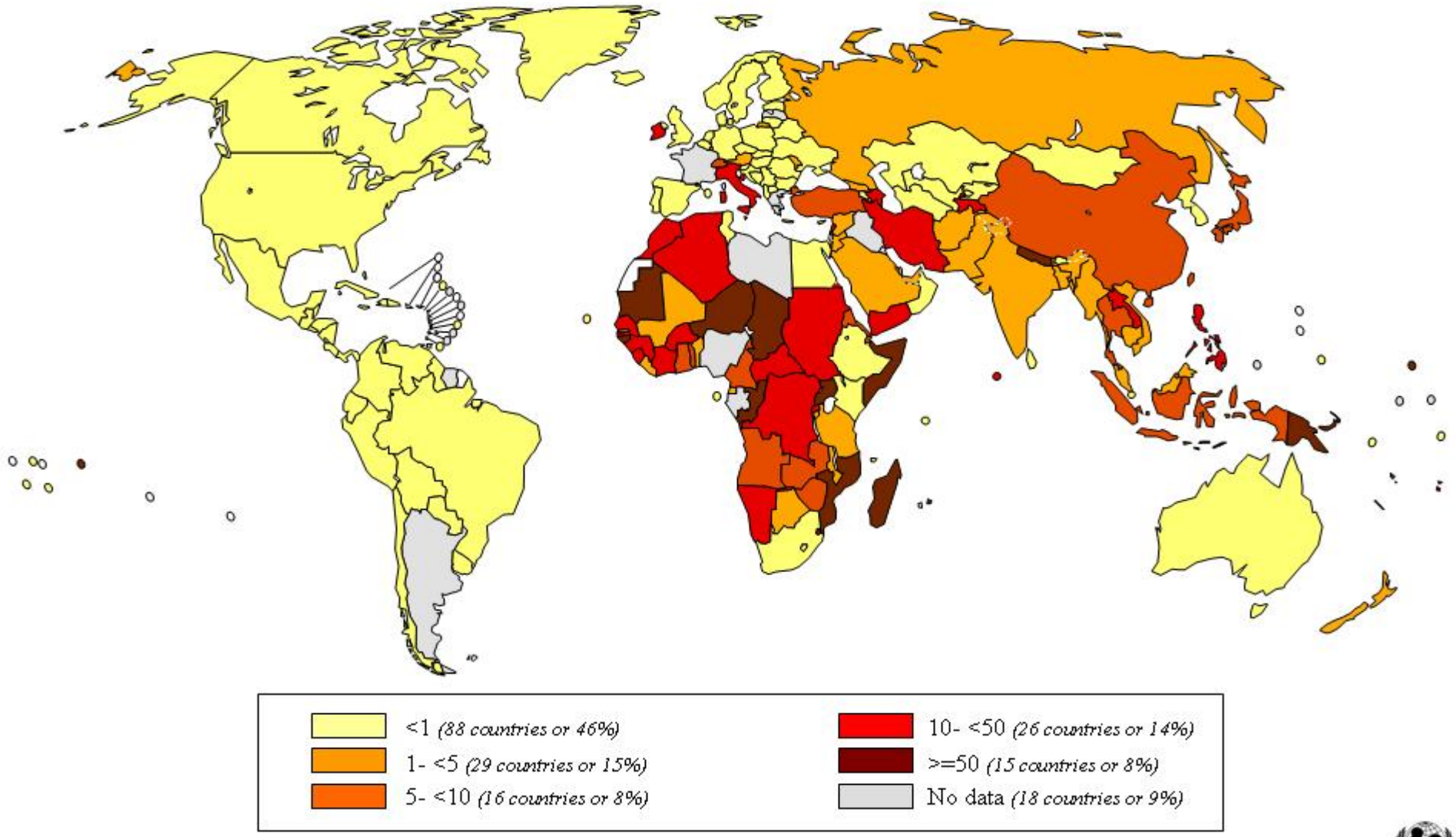


- Reported in ~30% cases
  - Diarrhoea 8%
  - Otitis media 7%
  - Pneumonia 6%
  - Encephalitis 0.1%
  - Death 0.2%
  - Hospitalisation 18%
  - SSPE 7-11 cases/100,000 measles cases

Measles and measles vaccination world-wide



Reported measles incidence rate per 100,000 population, 2003



Source: WHO/IVB database, 2004

192 WHO Member States. Data as of October 2004

Date of slide: 10 March 2005

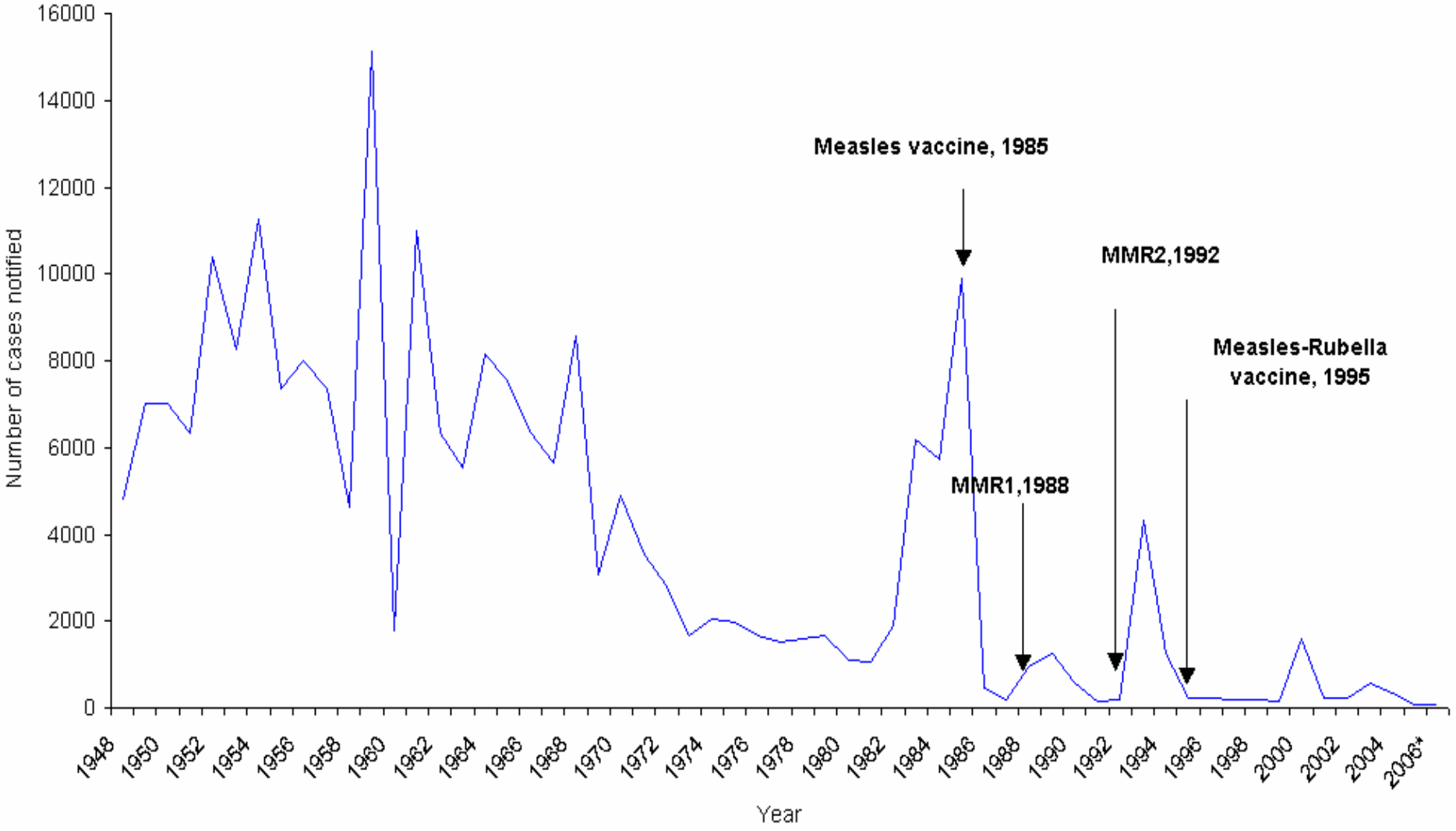
Measles (and rubella) elimination strategy
WHO Euro 2010

- To interrupt indigenous transmission of measles; and
- To prevent congenital rubella infection (CRI) (<1 case of congenital rubella syndrome (CRS) per 100,000 live births)

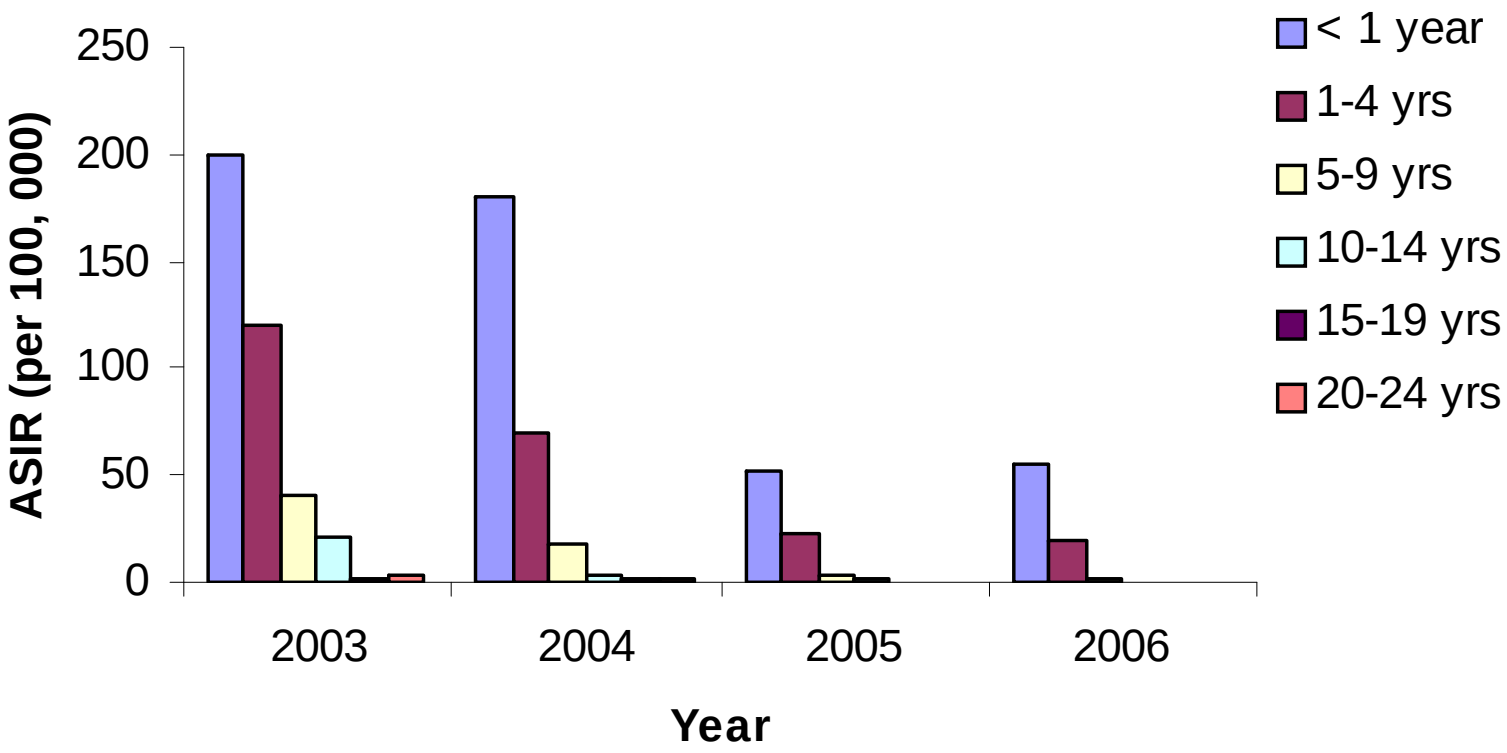
WHO recommended key strategies

- Immunisation
  - ≥ 95% coverage 2 doses MMR
  - 2nd opportunity for MMR
- Strengthen surveillance systems
  - Case investigation
  - Laboratory confirmation
- Immunisation quality and safety
  - Vaccine procurement and distribution
  - Adverse events monitoring
- Communications and advocacy
  - Quality information available
  - Accurate timely information responses to concerns

Measles notifications, ROI 1948-2006

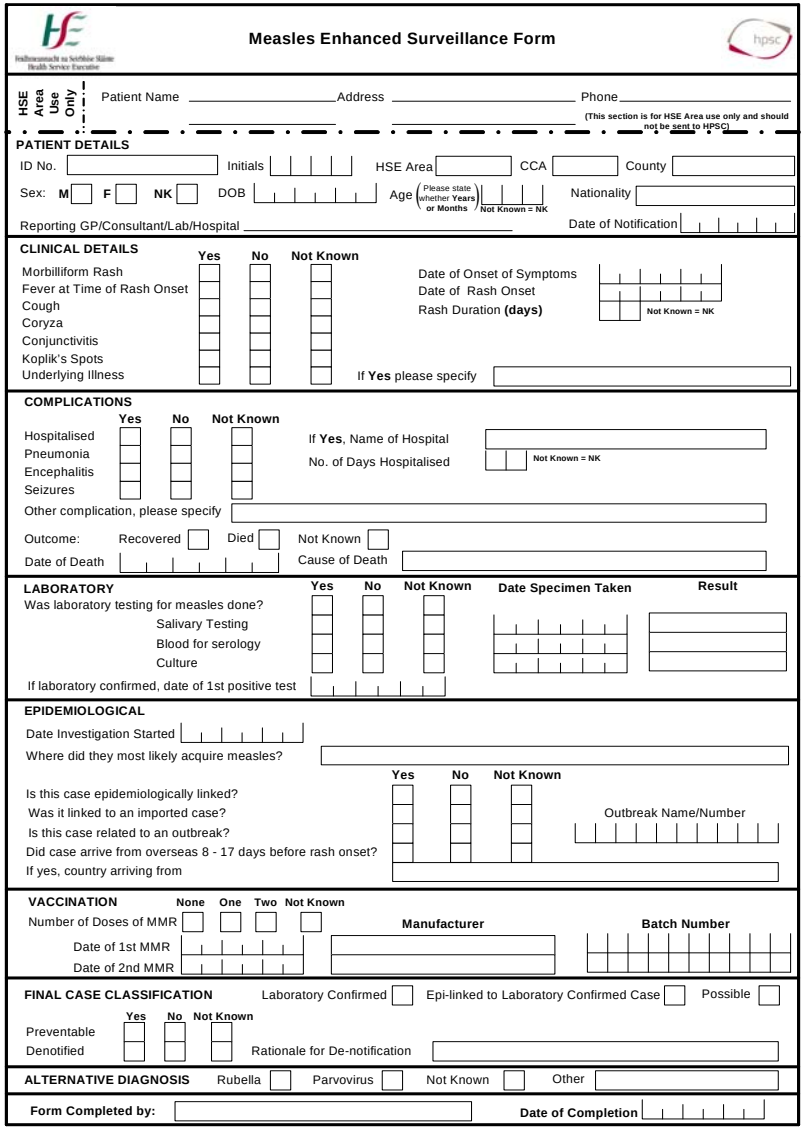


Measles cases, by age group, ROI 2003-2006



Measles enhanced surveillance, ROI

- Case characteristics
- Clinical details
- Laboratory tests
- Complications
- Epidemiologic risk factors
- Vaccination status
- Contacts



Measles Enhanced Surveillance Form

HSE Area Use Only — Patient Name ____ Address ____ Phone ____ (This section is for HSE Area use only and should not be sent to HPSC)

PATIENT DETAILS

ID No. ____ Initials ____ HSE Area ____ CCA ____ County ____

Sex: M ☐ F ☐ NK ☐ DOB ____ Age (Please state whether Years or Months) ____ Not Known = NK ____ Nationality ____

Reporting GP/Consultant/Lab/Hospital ____ Date of Notification ____

CLINICAL DETAILS

	Yes	No	Not Known
Morbilliform Rash	☐	☐	☐
Fever at Time of Rash Onset	☐	☐	☐
Cough	☐	☐	☐
Coryza	☐	☐	☐
Conjunctivitis	☐	☐	☐
Koplik's Spots	☐	☐	☐
Underlying Illness	☐	☐	☐

Date of Onset of Symptoms ____

Date of Rash Onset ____

Rash Duration **(days)** ____ Not Known = NK

If **Yes** please specify ____

COMPLICATIONS

	Yes	No	Not Known
Hospitalised	☐	☐	☐
Pneumonia	☐	☐	☐
Encephalitis	☐	☐	☐
Seizures	☐	☐	☐

If **Yes**, Name of Hospital ____

No. of Days Hospitalised ____ Not Known = NK

Other complication, please specify ____

Outcome: Recovered ☐ Died ☐ Not Known ☐

Date of Death ____ Cause of Death ____

LABORATORY

Was laboratory testing for measles done?	Yes	No	Not Known	Date Specimen Taken	Result
Salivary Testing	☐	☐	☐		
Blood for serology	☐	☐	☐		
Culture	☐	☐	☐		

If laboratory confirmed, date of 1st positive test ____

EPIDEMIOLOGICAL

Date Investigation Started ____

Where did they most likely acquire measles? ____

	Yes	No	Not Known
Is this case epidemiologically linked?	☐	☐	☐
Was it linked to an imported case?	☐	☐	☐
Is this case related to an outbreak?	☐	☐	☐
Did case arrive from overseas 8 - 17 days before rash onset?	☐	☐	☐

Outbreak Name/Number ____

If yes, country arriving from ____

VACCINATION None ☐ One ☐ Two ☐ Not Known ☐

Number of Doses of MMR ____ Manufacturer ____ Batch Number ____

Date of 1st MMR ____

Date of 2nd MMR ____

FINAL CASE CLASSIFICATION Laboratory Confirmed ☐ Epi-linked to Laboratory Confirmed Case ☐ Possible ☐

	Yes	No	Not Known
Preventable	☐	☐	☐
Denotified	☐	☐	☐

Rationale for De-notification ____

ALTERNATIVE DIAGNOSIS Rubella ☐ Parvovirus ☐ Not Known ☐ Other ____

Form Completed by: ____ **Date of Completion** ____

Completeness of enhanced data reported to HPSC, 2004-2005

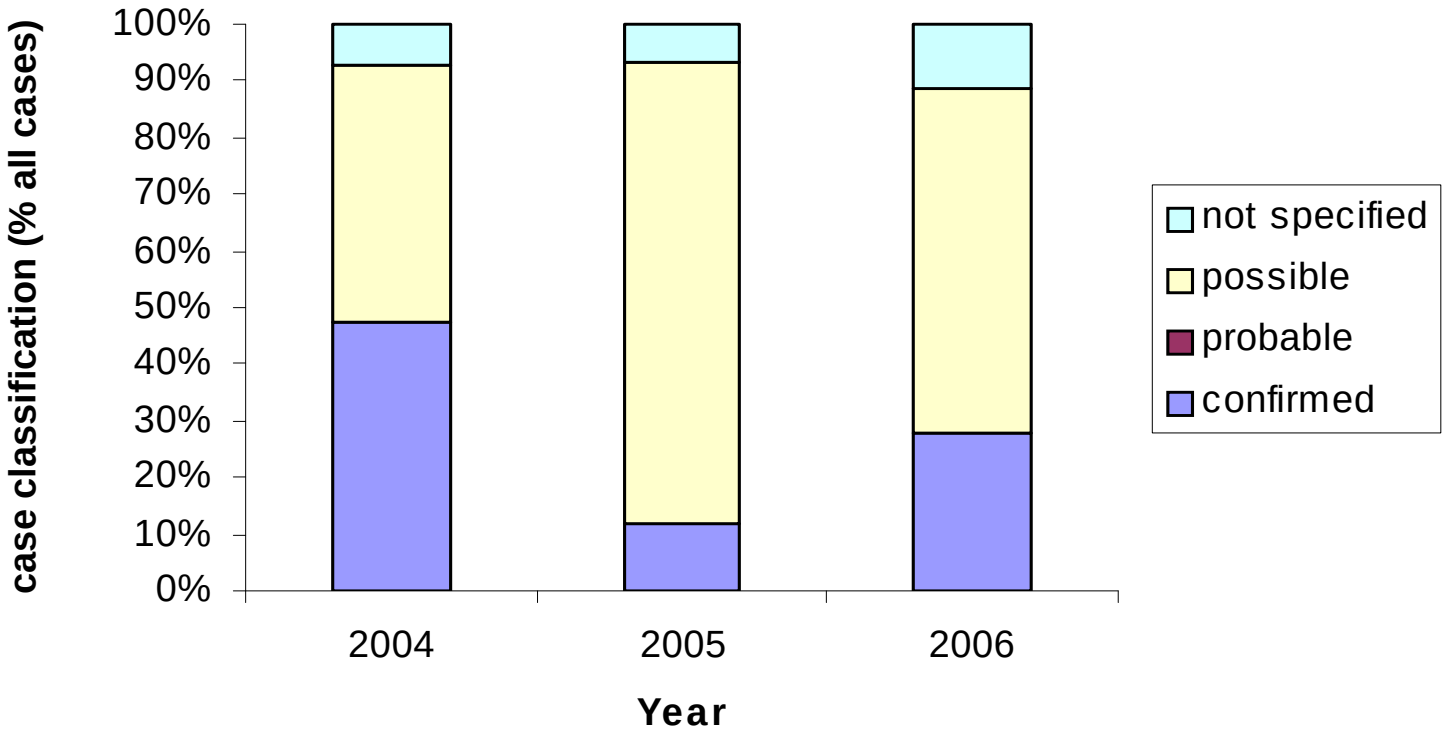
Data item	Data available	2004 (n=330)	2005 (n=93)*
Hospitalisation status	Information provided	54%	41%
	Known hospitalised	23%	13%
Laboratory result	Information provided	47%	26%
	Lab confirmed	44%*	46%
Vaccination status	Information provided	55%	63%
	Unvaccinated	78%**	61%†

**Among the children < 1 year of age, 28 of the 96 cases reported (29%) were lab confirmed*

*** 51 (36%) of those unvaccinated were aged less than one year, and therefore would not normally have been recommended measles vaccination.*

† 17% were aged >15 months and would have been eligible for MMR

Measles case classifications, ROI 2004-2006

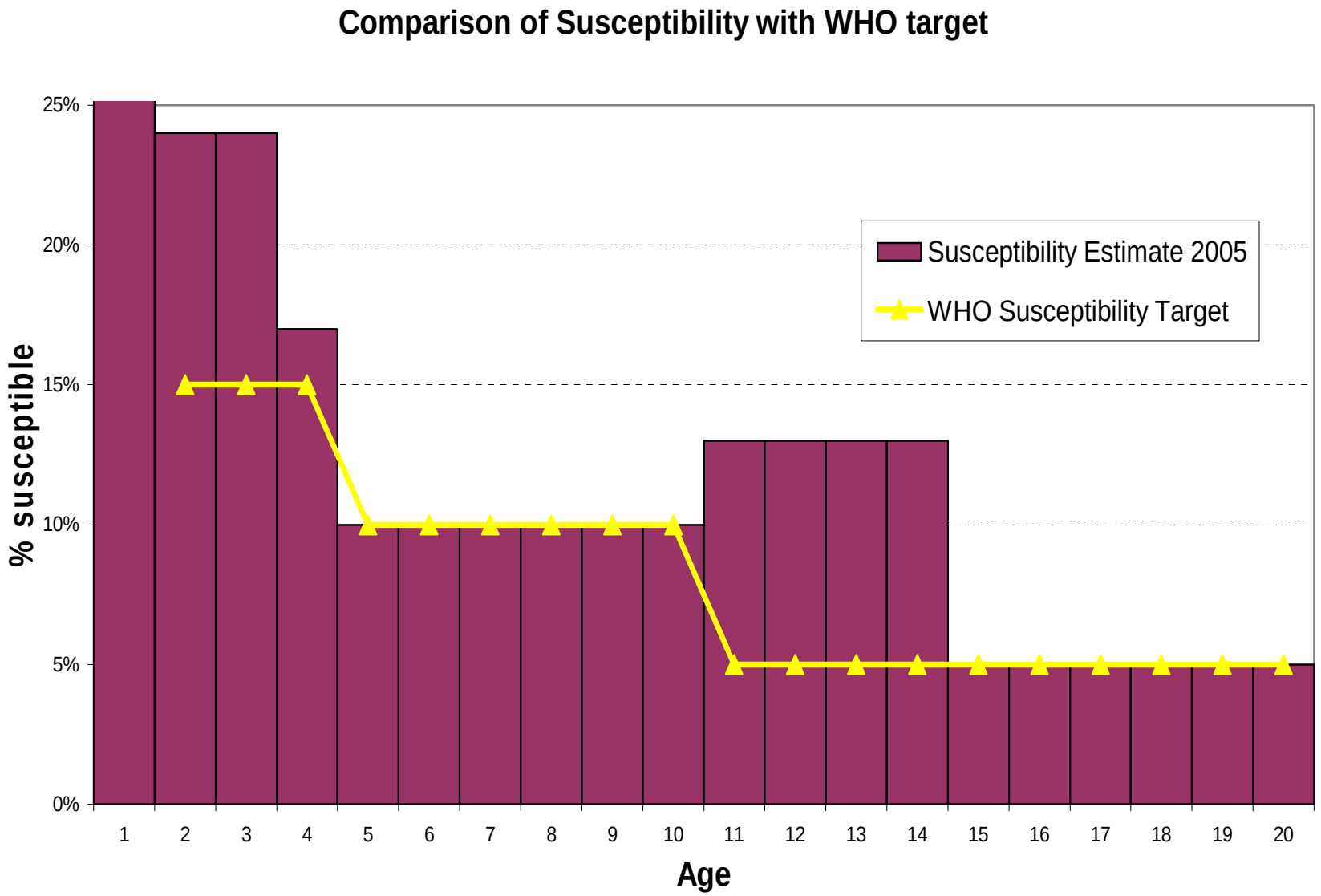


Measuring sero-immunity

- Age stratified standardised serological survey
- Can identify susceptibility gaps in the population
- European Sero-epidemiology Survey 2 (ESEN2) 2003

Irish population (%) with measles immunity, by age group (ESEN2) 2003

European Sero-epidemiology (ESEN2) data for modelling*

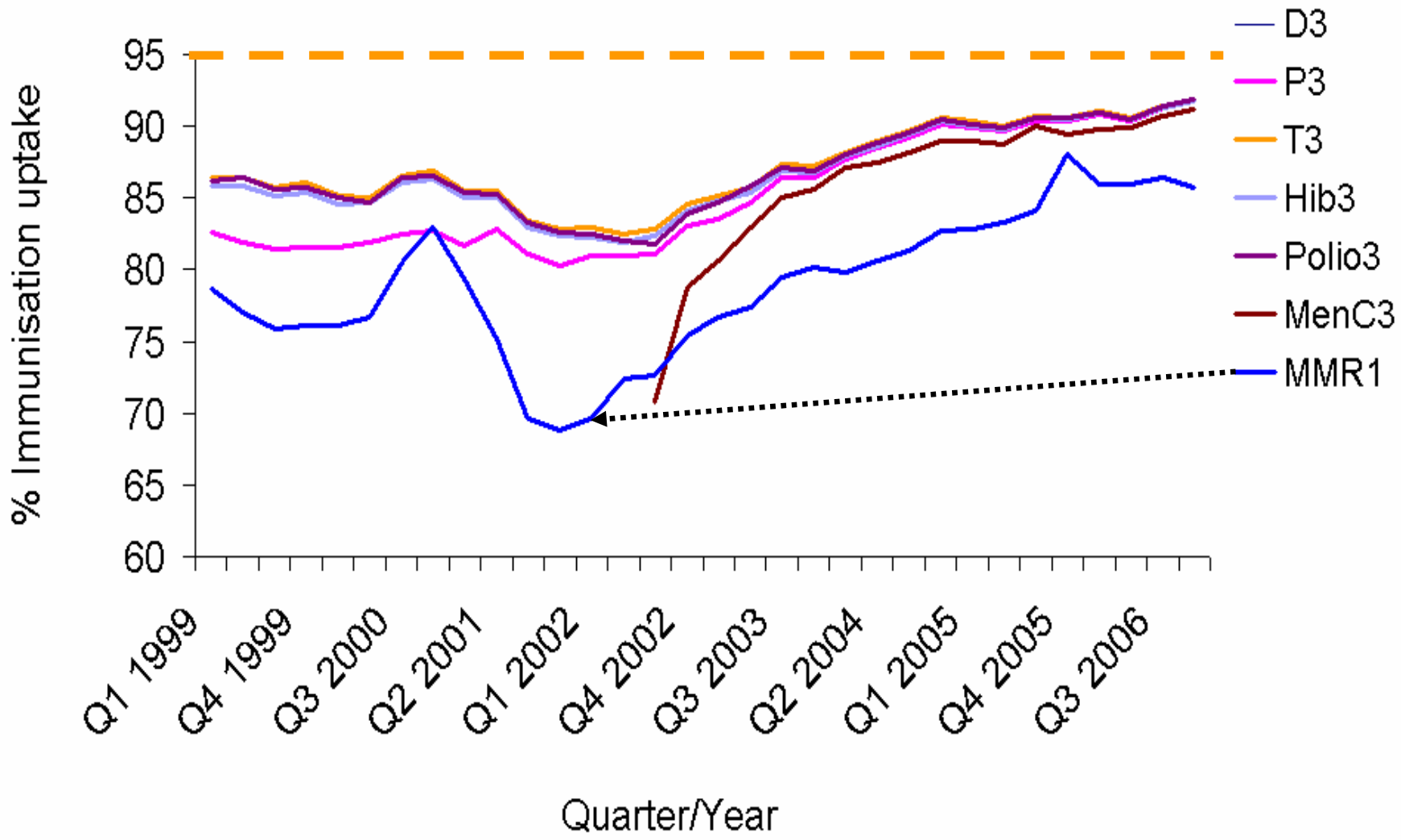


Source: Dr. Nigel Gay, Modelling unit, Cfi, HPA

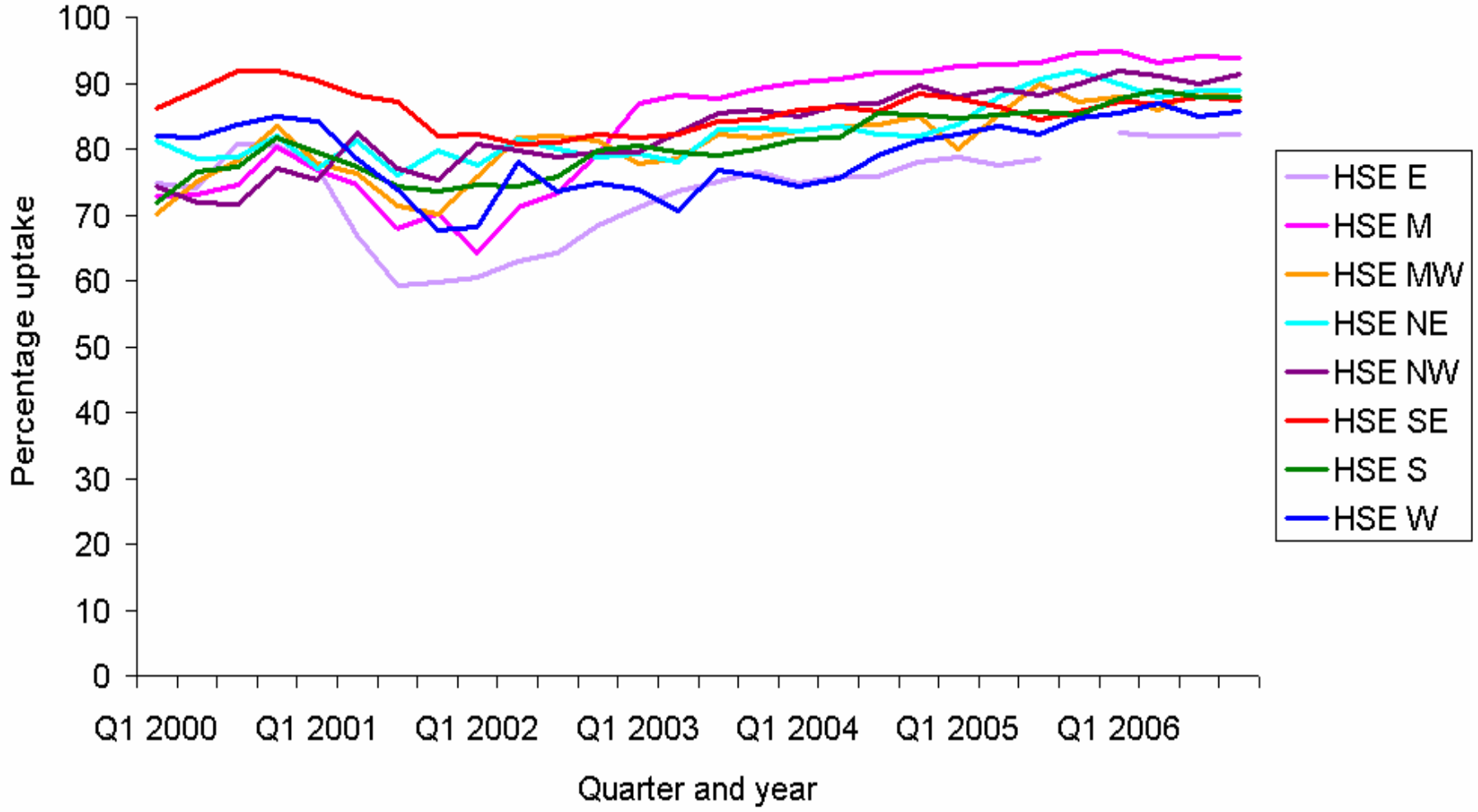
MMR immunisation uptake

- Routinely measured at 24 months
  - HSE specific Immunisation information system(s)-computerised
  - HSE Area uptake data reported quarterly to HPSC
  - HPSC collates and publishes
  - Recent analysis by CCA/LHO
- No national data on MMR_2 uptake available
  - Some HSE Areas scanned records into local computer systems
  - Other areas records archived (paper based)

Immunisation coverage at 24 months of age, all vaccines, 1999-2006



MMR_1 coverage at 24 months, Q1,2000 to Q4,2006



95% uptake MMR in schools is achievable, HSE Midlands*

	Junior Infants	6th Class
2001-2002	95.6%	94.04%
2003-2004	96.5	
2005-2006	96.7%	

***IMJ-2003 Volume 96 No. 9**

Supplemental activities needed

- Provide all children with opportunity for second dose MMR

Options

- Vaccine delivery
  - School based teams vs. GP practices
  - School based teams
- Age groups
  - Children aged
    - 11-14 years
    - 5-14 years
    - 4-18 years
      - ESEN2 study
      - Mumps outbreak 3rd level college students
- Comprehensive versus strategic?
  - Comprehensive - booster for all 4-18 years of age OR
  - Strategic - those lacking record MMR2

Achieving measles elimination by 2010 – summary of requirements

- Routine MMR_1 and MMR_2 coverage $\geq$95%
  - "Push and pull approach"
    - Increase awareness
    - Follow-up defaulters
    - Opportunistic vaccination
    - Mop-up clinics
    - Identify susceptibles before outbreaks
    - Rapid and routine submission of immunisations to HSE immunisation offices for data input and generation of defaulters
- Supplemental activity needed
  - School campaign for children 4-18 years of age
- Improve surveillance and control
  - Rapid reporting and investigation
  - Identification contacts
  - Vaccinate susceptibles
  - Coordination and allocation of resources
    - Particularly for outbreak situations

WHO outcome indicators (Ireland's recent performance)

Measles incidence < 1 per 1 000 000 pop.

-2005, 2.4/100,000

Rubella incidence < 1 per 1 000 000 pop.

-2005, 0.4/100,000

CRS < 1 per 100 000 live births

-2005, 0/100,000

MMR2 coverage $\geq$ 95%

- MMR1 coverage Q4 2006 86%
- MMR2 coverage ?

WHO performance indicators
(Ireland's recent performance)

Programme performance indicators in elimination phase	Target	
% weekly reports received	≥ 80%	√
% of cases* notified ≤ 48 hours after rash onset	≥ 80%	?
% of cases* investigated ≤ 48 hours after notification	≥ 80%	?
% of cases* with adequate specimen** and laboratory results within 7 days	≥ 80%	?
% of confirmed cases with source of infection identified	≥ 80%	?

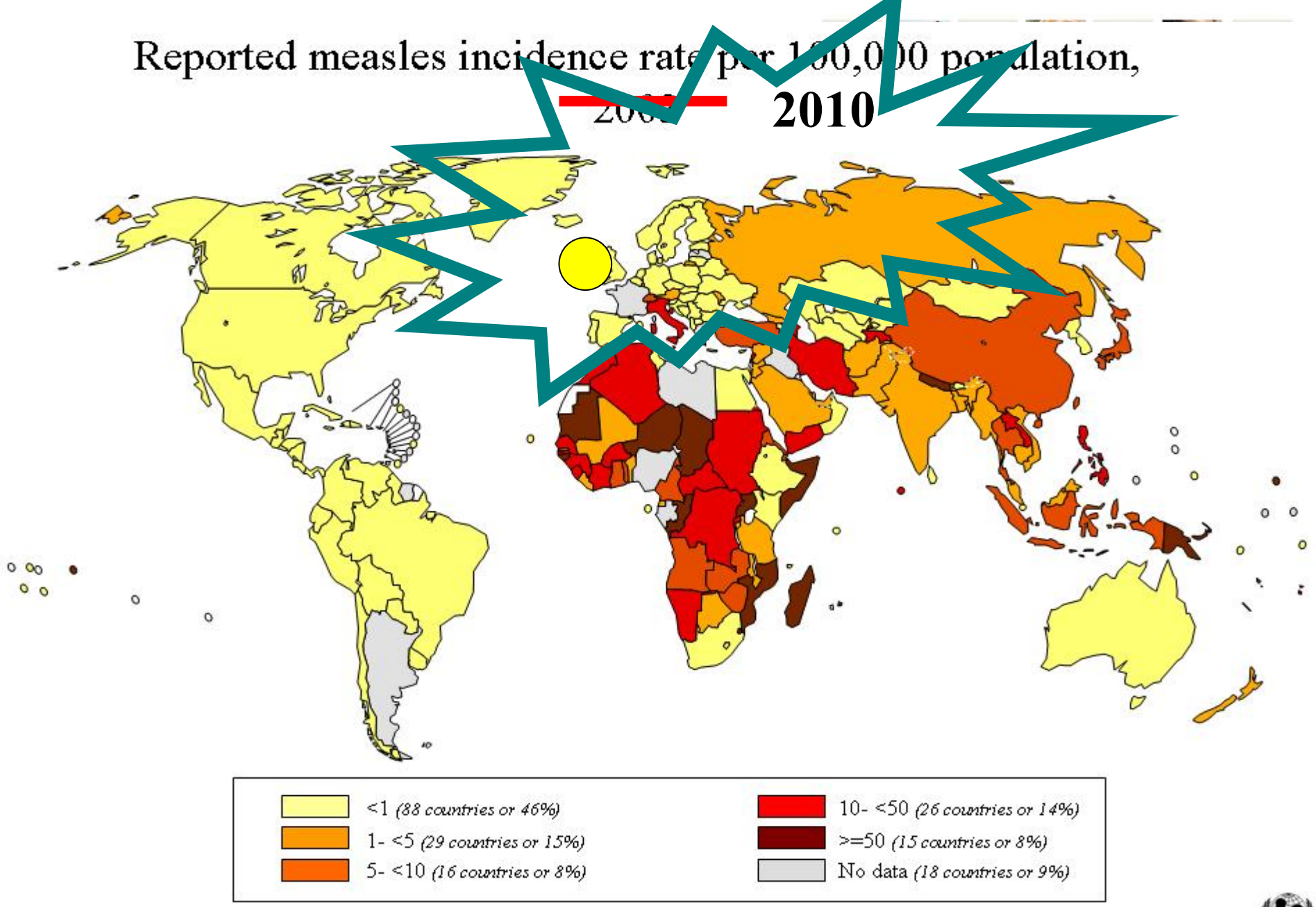
**all cases that meet the clinical definition*

***An adequate specimen is a blood specimen collected within 28 days of the onset of rash*

Acknowledgements

- HPSC
  - Dr. Sarah Gee HPSC
  - Dr. Darina O'Flanagan
- Measles elimination committee members
- HSE Area staff
  - PCCC
    - SMOs, PMOs, Public Health Nurses, GPs.
  - Population Health
    - SPHMs, SMOs, Surveillance scientists, ICNs

Reported measles incidence rate per 1,000,000 population, 2010



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