



Pertussis in Ireland - emerging trends

Update 1/11/2012

Pertussis (Whooping cough)

- Bacterial infection caused by *Bordetella pertussis*
- Highly contagious respiratory disease
- Severe, debilitating cough illness (“100 day cough”) classically seen
 - Other manifestations include inspiratory “whoop” or vomiting and exhaustion after coughing, apnoeic episodes in infants
- Highest morbidity and mortality among infants
- Estimated worldwide deaths > 300,000/yr
- Following introduction of vaccines good control achieved, but recent emergence of disease in many countries

Pertussis vaccines and schedule in Ireland- historic

Pertussis-containing vaccines

- 1952-1996; whole cell pertussis vaccine (wP)
- 1996 – current; acellular pertussis vaccine (aP)

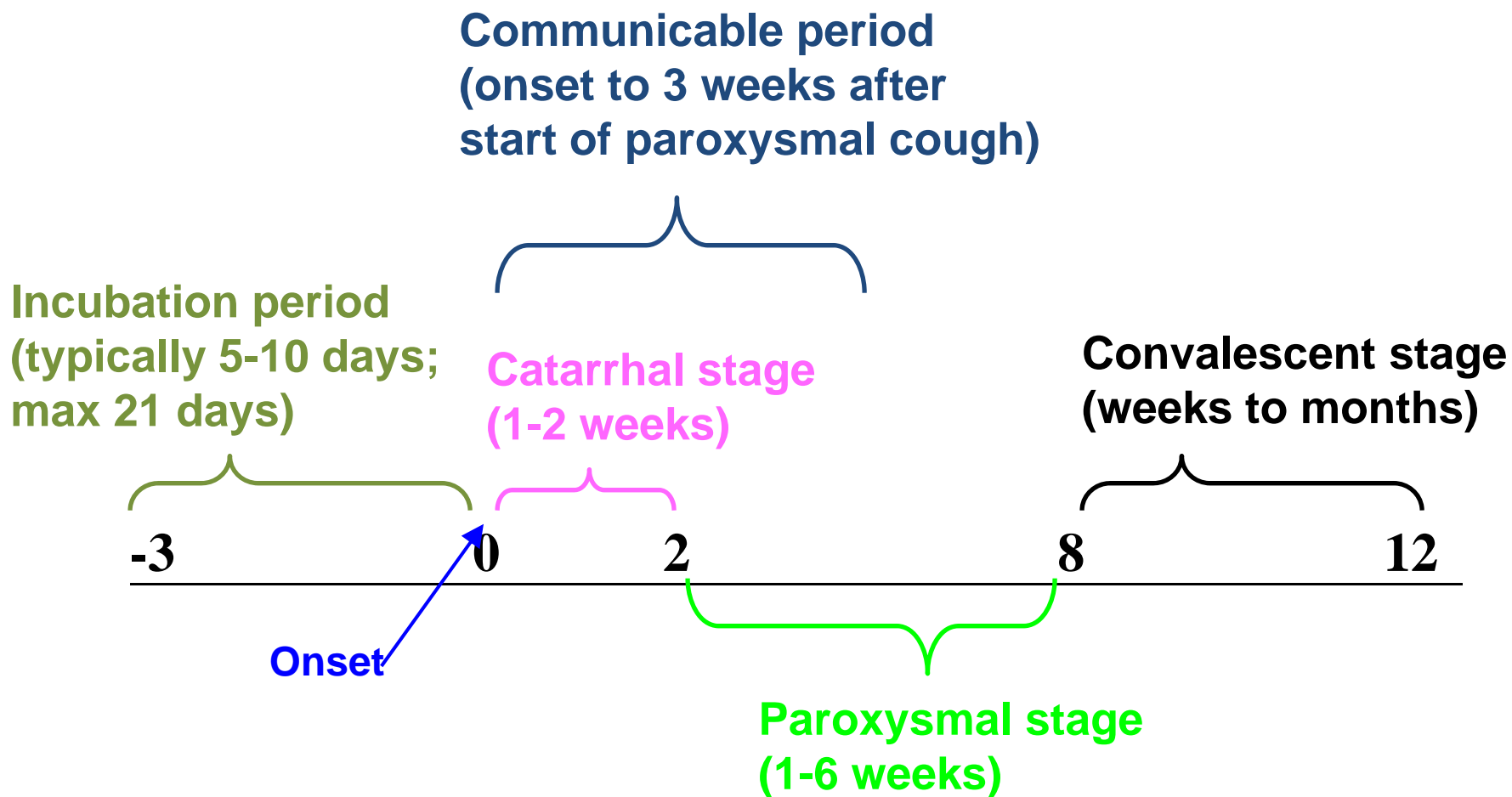
Schedule

- Primary series 2,4,6 months of age
- Booster doses preschool (4-5 years of age)
 adolescent booster (NIAC*2008)

*NIAC: National Immunisation Advisory Committee, RCPI 2008



Pertussis - Clinical Course (in weeks)



Source: ACIP May 2012. Stacey Martin.
<http://www.cdc.gov/vaccines/ed/ciinc/Pertussis.htm>

Surveillance of Pertussis in Ireland

- Infectious Disease Reporting: Legal framework
- Notifiable since 1948 (1947 Health Act)
- Case definitions used since 2004
- Clinicians/laboratory directors required to notify to Medical officer of health
- Timely notification is important to facilitate timely public health action

Infectious disease notification



Standard case notifications forms

Patient Name: _____		Disease: _____	Date: ____/____/____
Notification of Infectious Disease _____		ID identifier (official use only) _____	
Patient first name: _____		Surname: _____	
Address: _____		Country of birth: Ireland <input type="checkbox"/> Other <input type="checkbox"/> if other, specify: _____ Probable country of infection: _____	
Contact tel. no: _____			
D.O.B.: _____	Age: _____	Sex: _____	
Occupation/School/ Crèche: _____			
Infectious disease (see list at front): _____		Date of onset: _____	
Date of diagnosis: _____		Laboratory results: _____	
Type of specimen (stool, blood, csf etc): _____			
Case classification: Possible <input type="checkbox"/> Probable <input type="checkbox"/> Confirmed <input type="checkbox"/>			
Vaccination status (if vaccine preventable): Complete <input type="checkbox"/> Incomplete <input type="checkbox"/> Unvaccinated <input type="checkbox"/> Unknown <input type="checkbox"/>			
Hospitalised: Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>			
Additional information: _____		Notifier (stamp may be used) (Please Print) Name: _____ Address: _____ Tel: _____ Name of consultant or GP: _____	
Signed: _____			
Title/Position: _____			
Date of notification: _____			

Available at <http://www.hpsc.ie/hpsc/NotifiableDiseases>

Notification process

- Who notifies?
 - A medical practitioner and a clinical director of a diagnostic laboratory
- Role of case definitions
 - The notifier should have regard to the case definitions for infectious diseases circulated by the Health Protection Surveillance Centre (HPSC).

Pertussis (*Bordetella pertussis*) case definition

Clinical criteria

Any person with a cough lasting at least two weeks

AND at least one of the following three:

Paroxysms of coughing

Inspiratory “whooping”

Post-tussive vomiting

OR Any person diagnosed as pertussis by physician

OR Apnoeic episodes in infants

Pertussis (*Bordetella pertussis*) case definition (continued)

Laboratory criteria

At least one of the following:

- Isolation of *Bordetella pertussis* from a clinical specimen
- Detection of *Bordetella pertussis* nucleic acid in a clinical specimen
- *Bordetella pertussis* specific antibody response

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

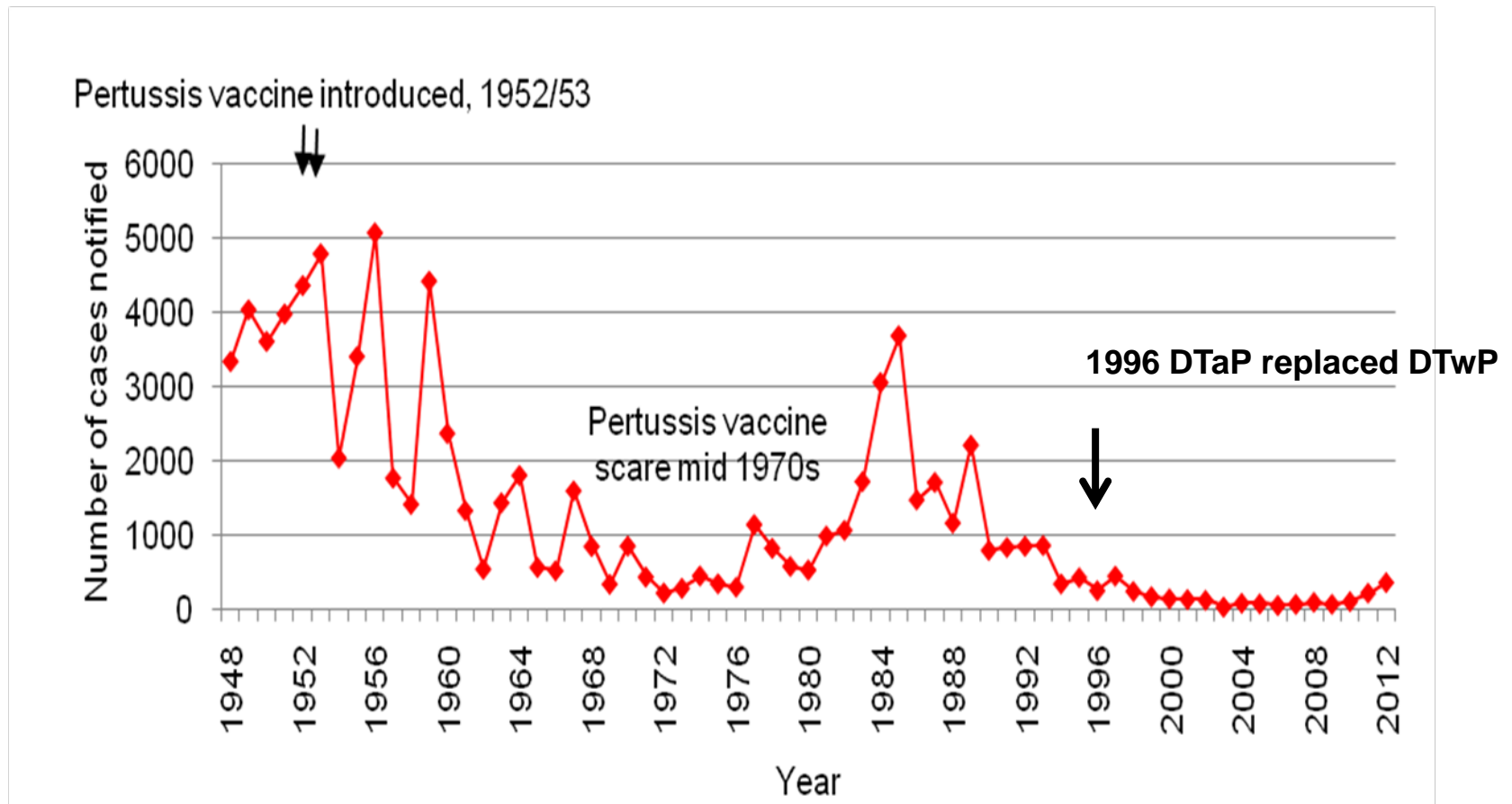
Possible case - clinical criteria

Probable case - clinical criteria and epidemiological link

Confirmed case - clinical and laboratory criteria



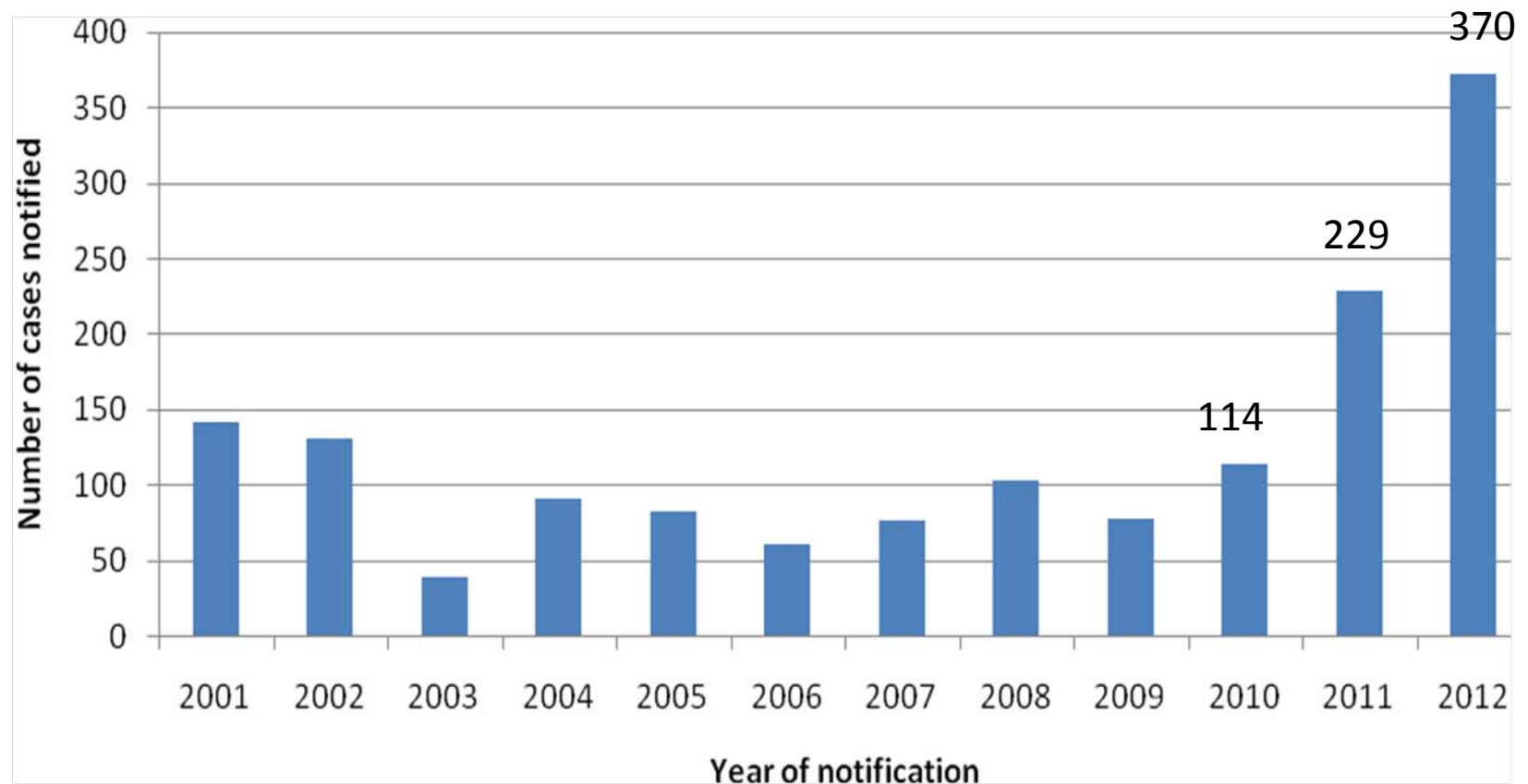
Trends Pertussis notifications, Ireland 1948- 2012*



Source: DOH (historic data) and HPSC data

*2012 data weeks 1-39

Pertussis notifications, 2001-2012*

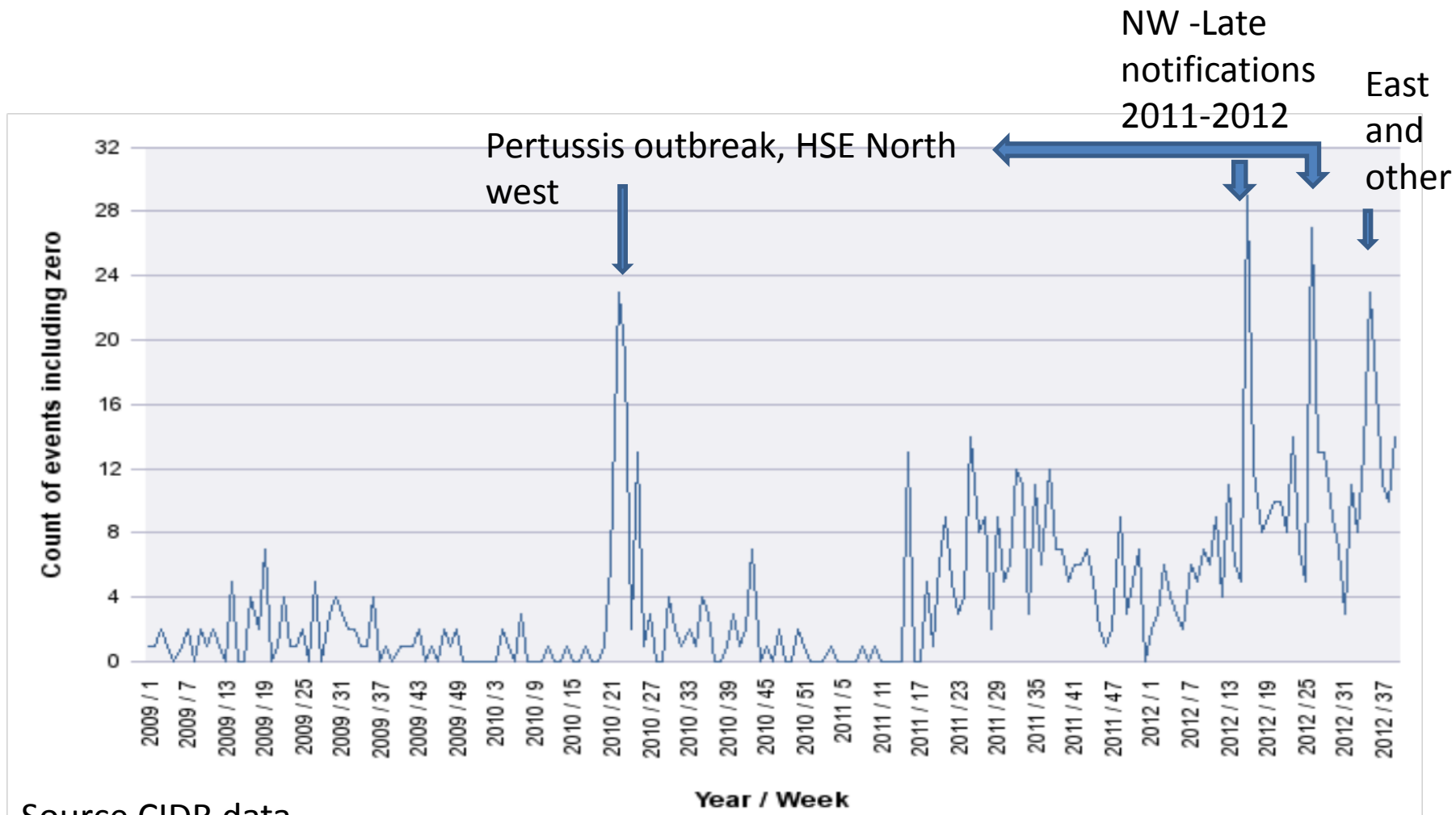


Source CIDR data

*2012 data weeks 1-39



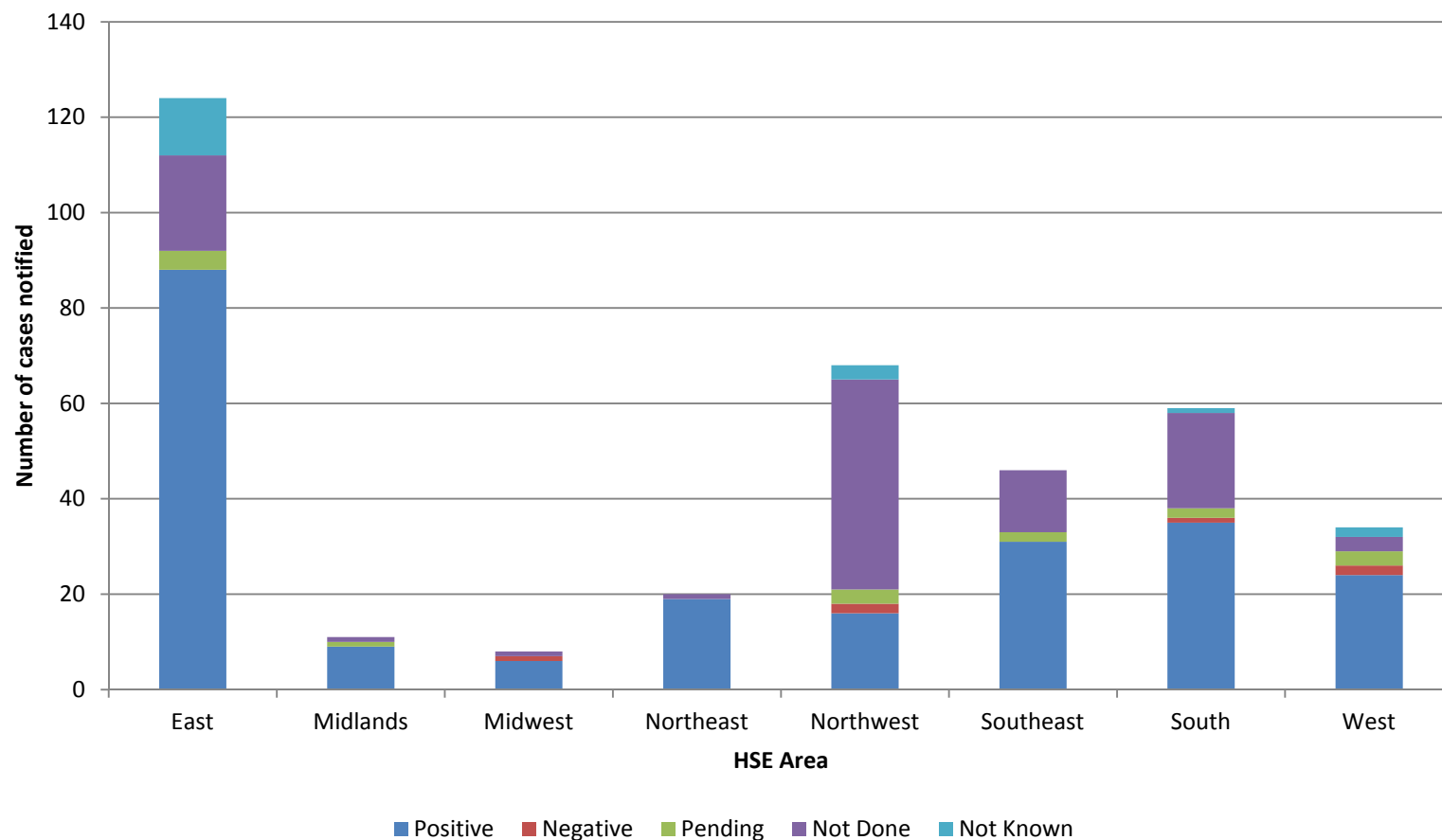
Pertussis notifications by week, 2009-2012*



Source CIDR data

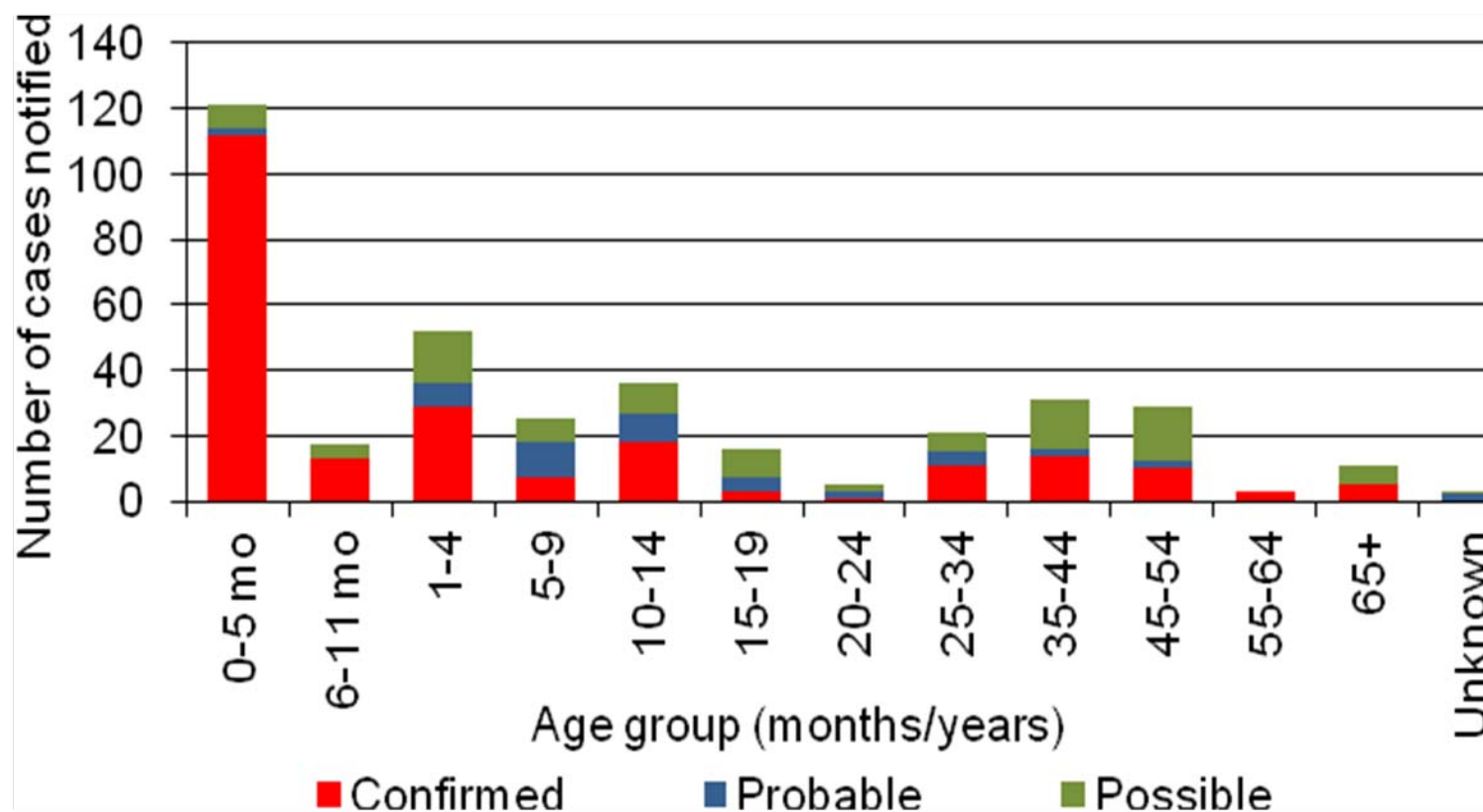
*2012 data weeks 1-39

Pertussis notifications by HSE area and laboratory test status, 2012* (n=370)



Source CIDR data
*2012 data weeks 1-39

Pertussis notifications, Ireland by age group and case classification, 2012*(n=370)

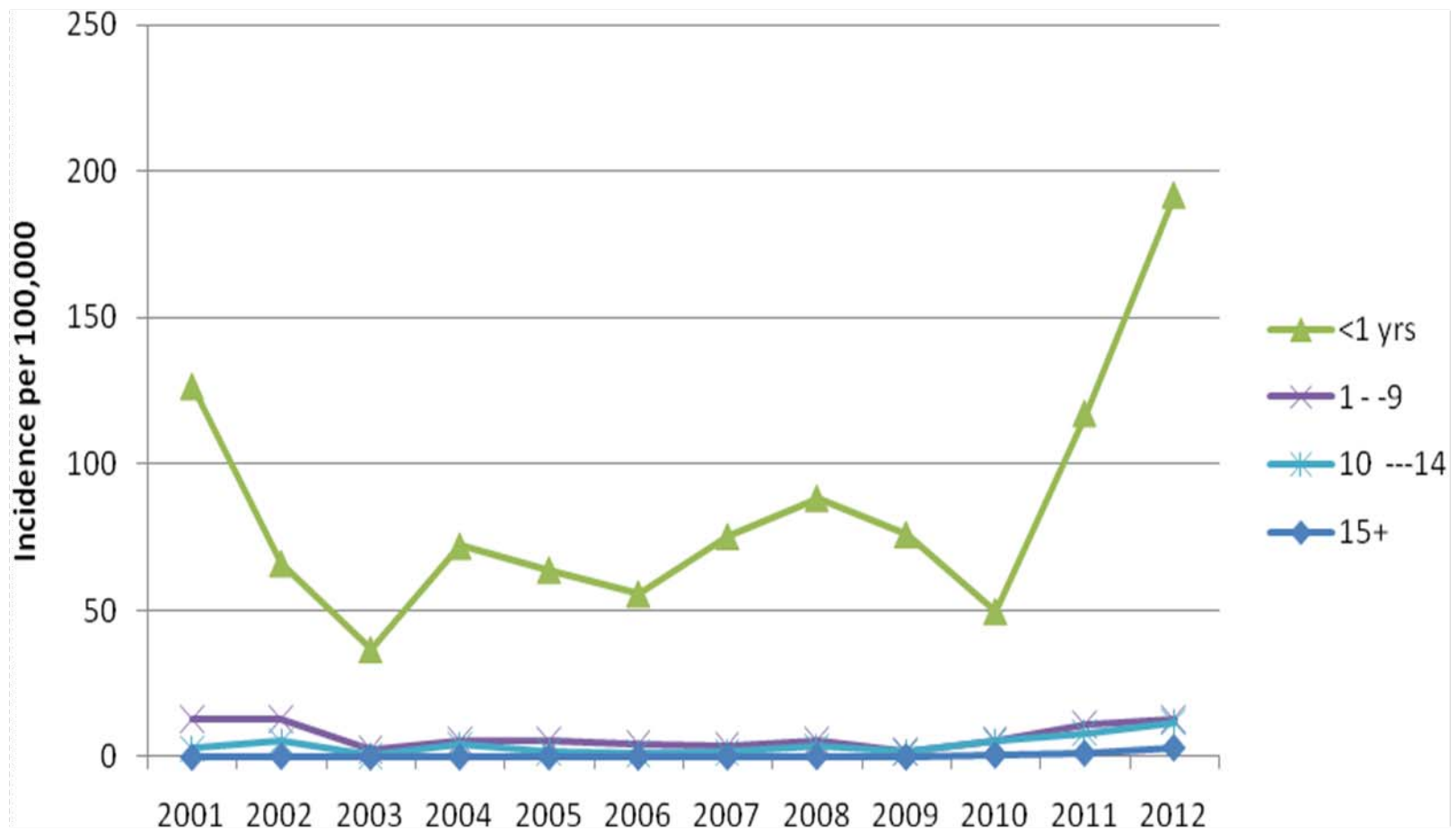


Source CIDR data

*2012 data weeks 1-39

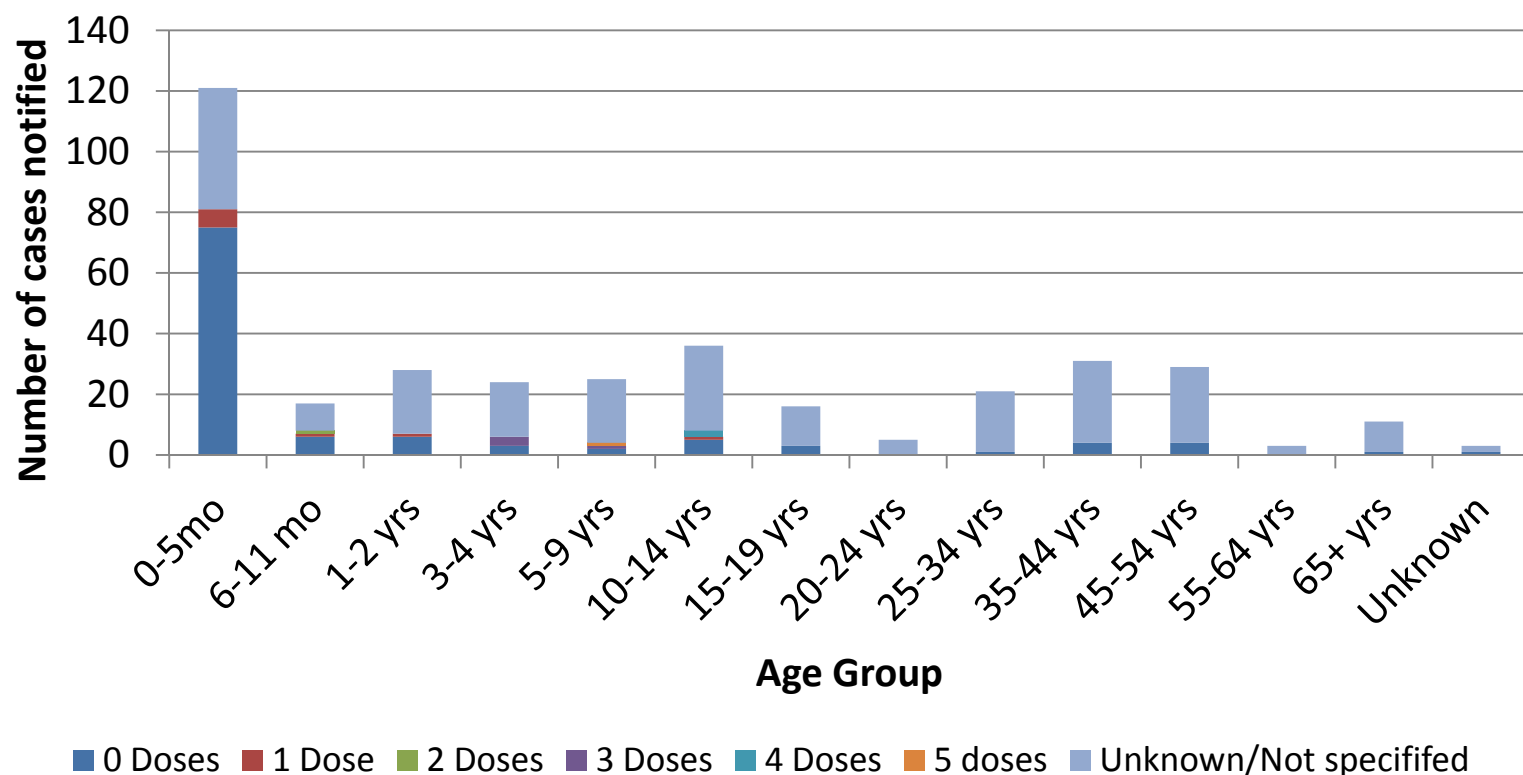
Pertussis notifications, Ireland

ASIR (/100,000) 2001-2012* (n=370)



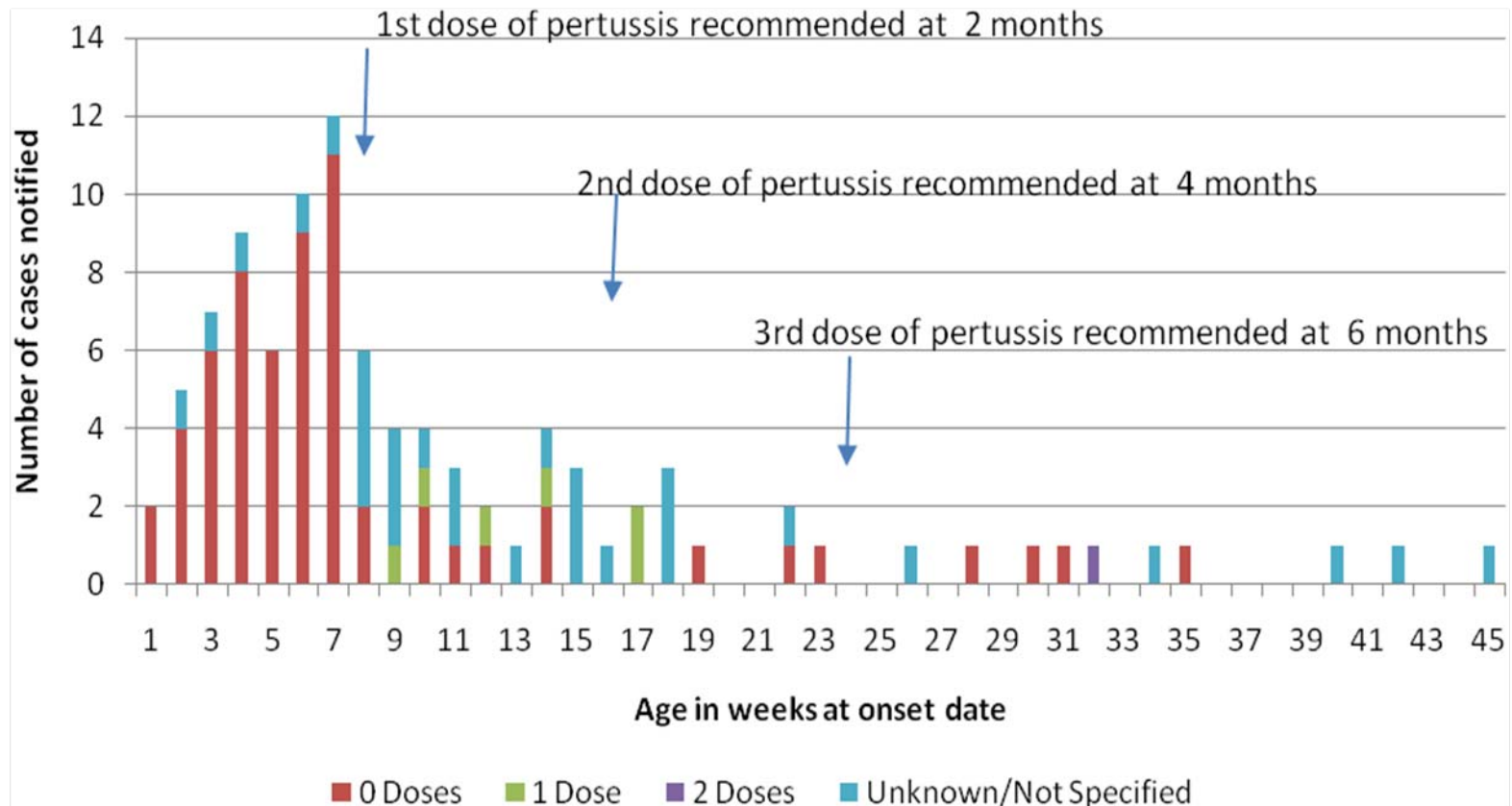
*2012 data weeks 1-39

Pertussis notifications Ireland, 2012* by age group and vaccination status (n=370)



*2012 data weeks 1-39

Pertussis cases <1 year of age, by age (weeks) and number pertussis vaccine doses received, at disease onset date (n=138)

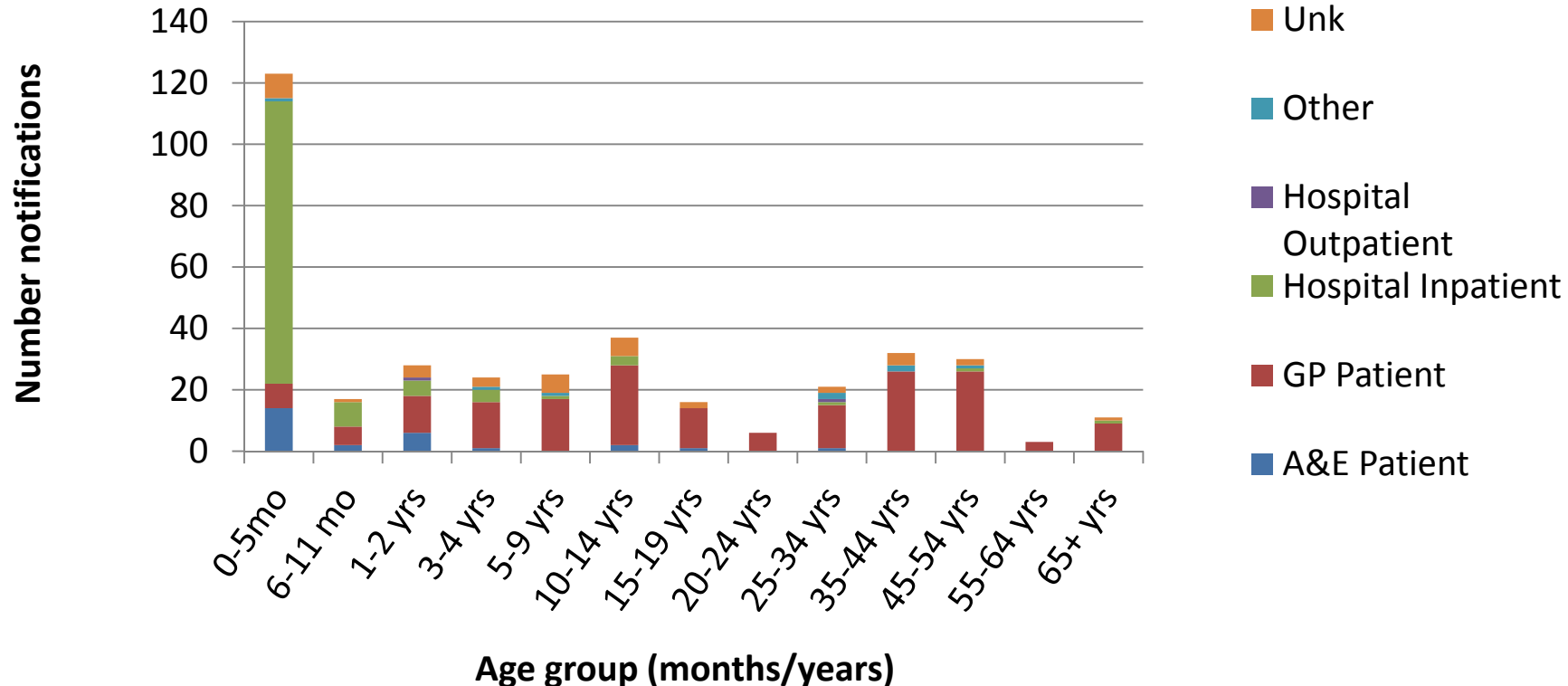


*2012 data weeks 1-39. Onset date available for 98 of 138 events < 1 year

Pertussis notifications, 2012*

according to level of healthcare

Hospitalised: 116/373 cases (31%)
Of which: 92/116 (79%) aged 0-5 months



*2012 data weeks 1-39, (n=370)

Pertussis fatalities, Ireland

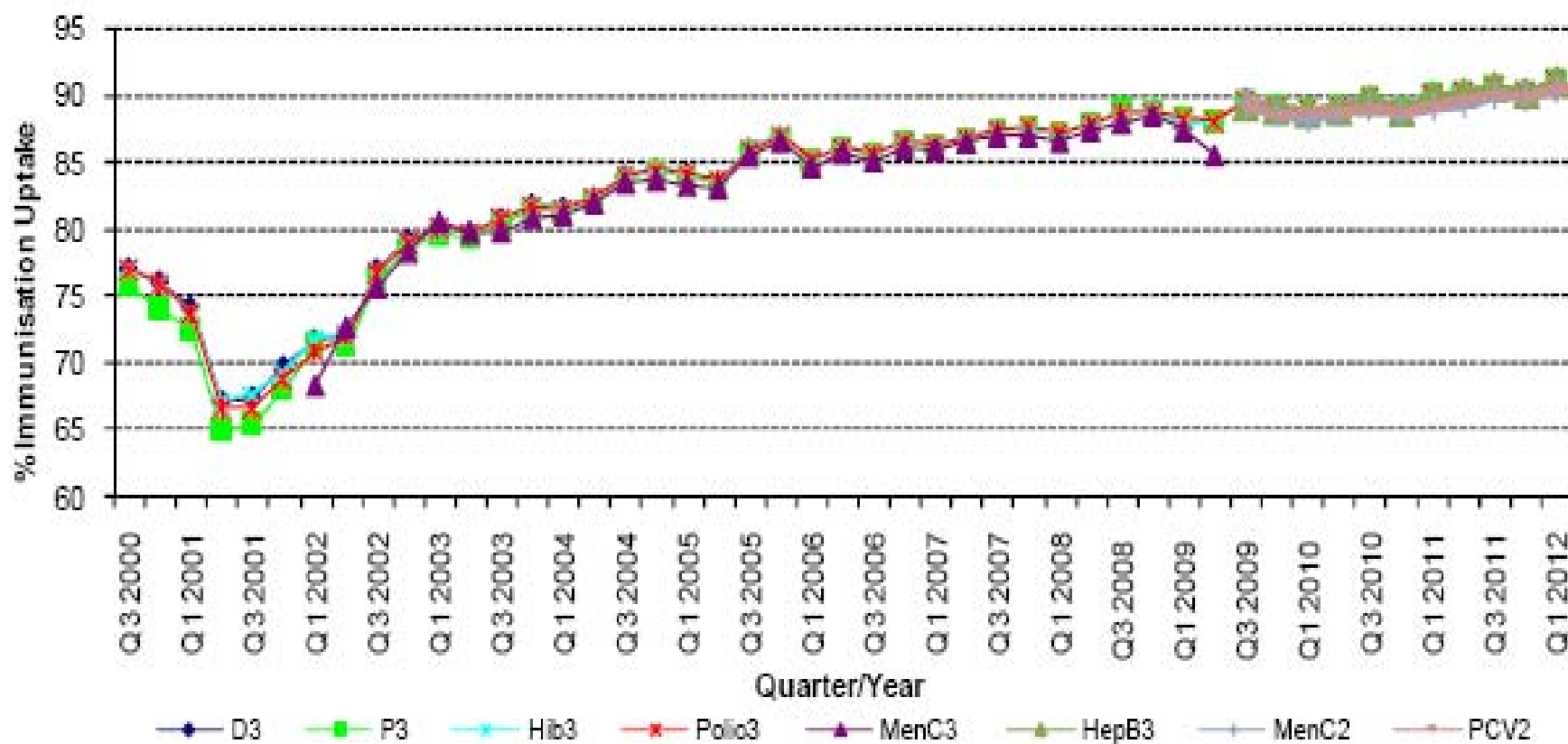
2011-2012*

- 2012 – 2 infant deaths < 8 weeks of age
 - Infant 1
 - Premature infant
 - Onset at 2 weeks of age
 - Infant 2
 - Premature infant
 - Onset at 7 weeks of age
- 2011 – 1 infant death
 - Onset at 7 weeks of age
- None of the above infants were vaccinated – too young for vaccination (which starts at 2 months of age)

*2012 data weeks 1-39

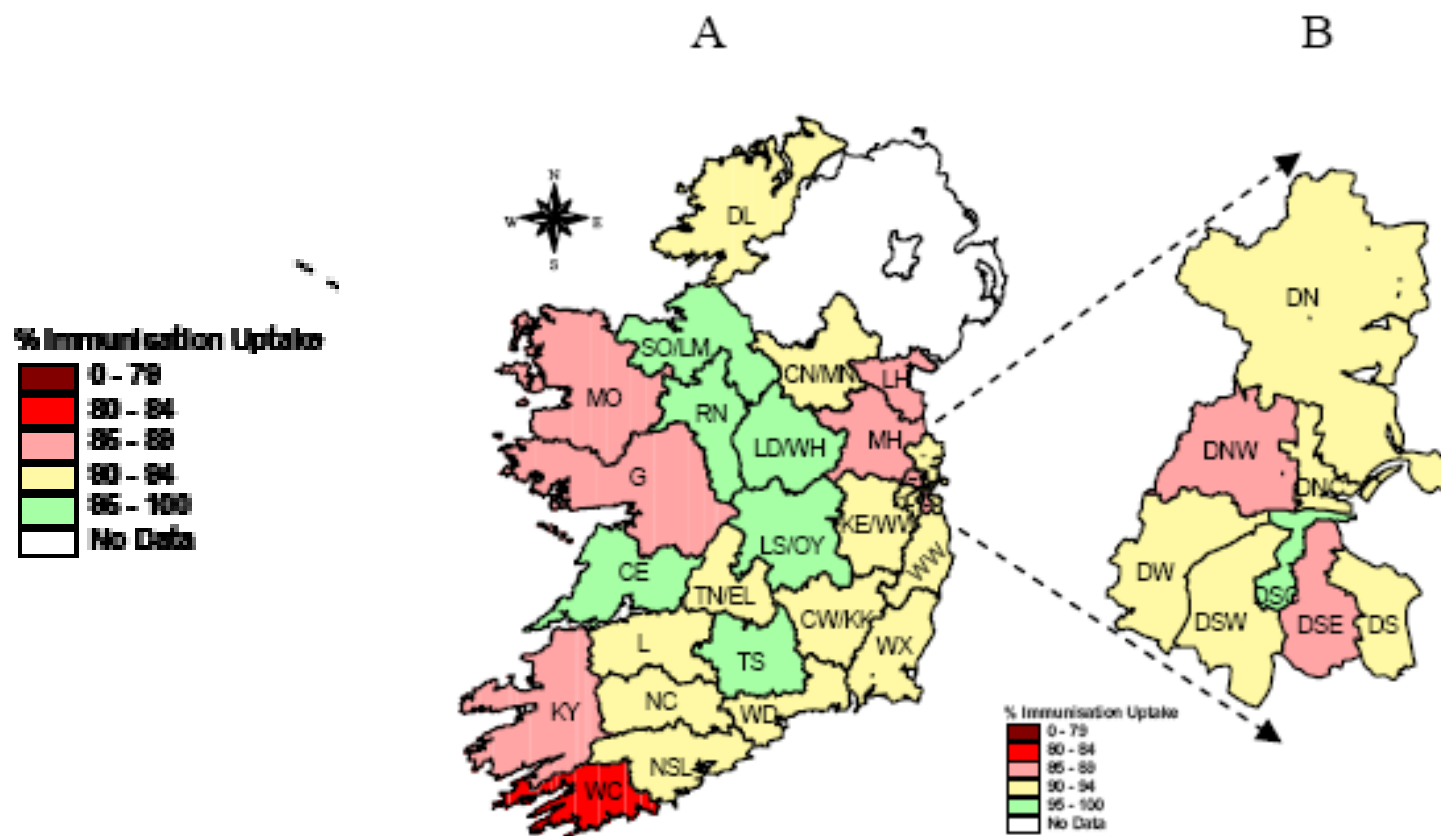
Quarterly immunisation uptake, Ireland

by vaccine type at 12 months of age, Q2 2000- Q1 2012



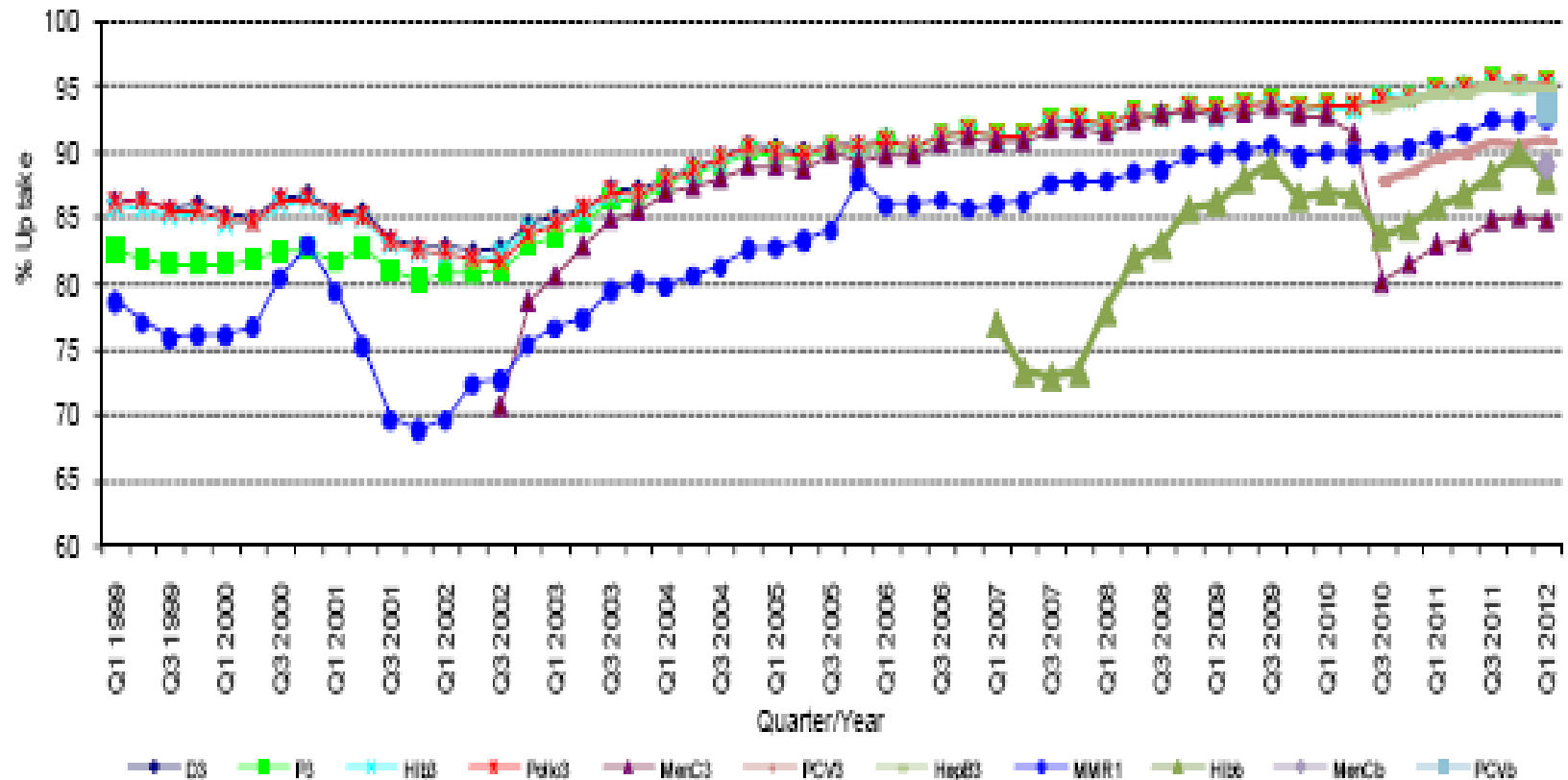
Source: HSE HPSC data

Proportion of children at 12 months of age who have received 3rd dose of pertussis vaccine, by LHO, Q1 2012



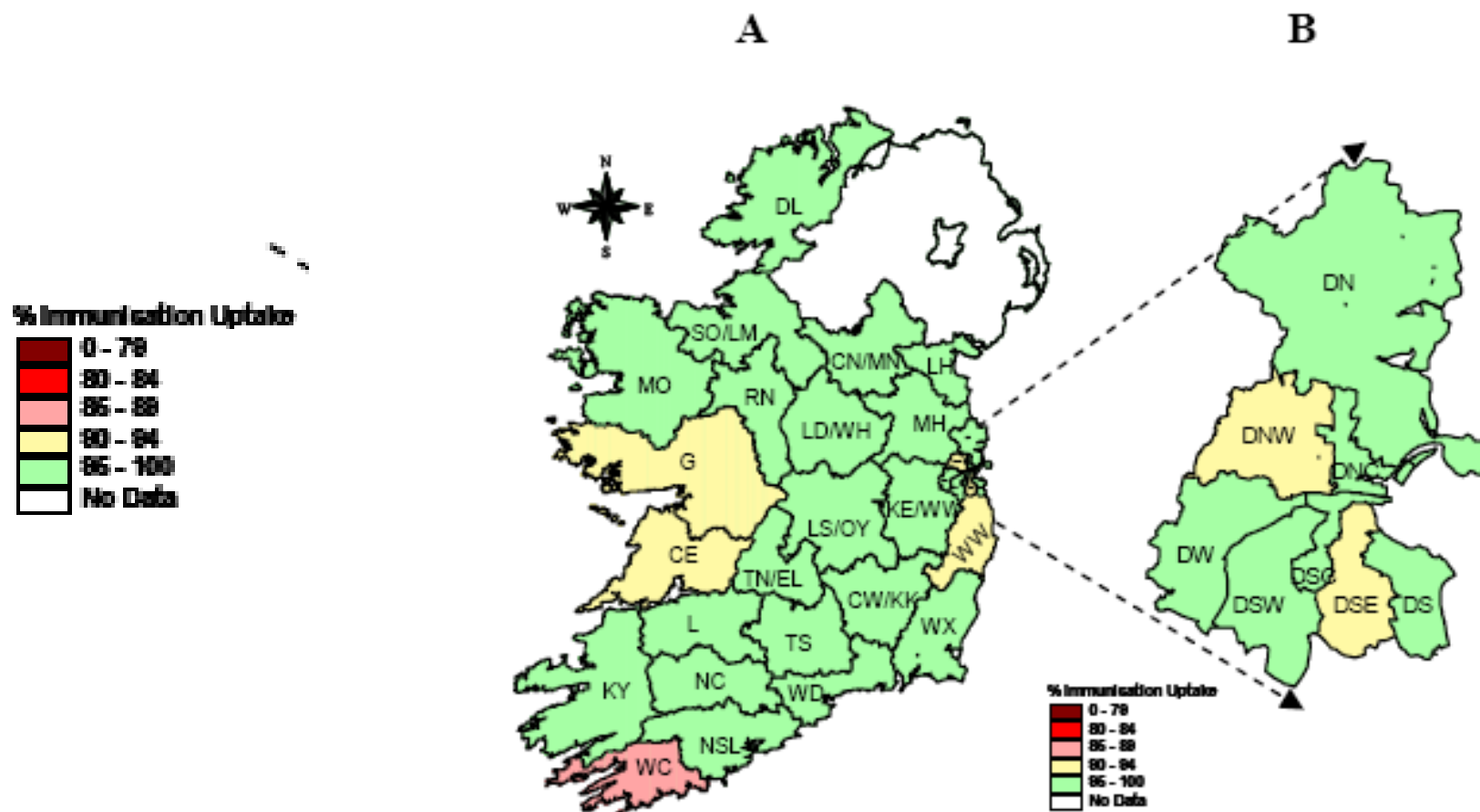
Source: HSE HPSC data

Quarterly immunisation uptake, 24 months of age, Q1 1999- Q1 2012



Source: HSE HPSC data

Proportion of children at 24 months of age who have received 3rd dose of pertussis vaccine, by LHO, Q1 2012



Source: HSE HPSC data

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Summary of “Guidelines -public health management of pertussis” (August 2012)

Available at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/PertussisWhoopingCough/Guidance/File,13577,en.pdf>

Pertussis vaccination guidance

Immunisation Guidelines
for Ireland

2005 (updated)

Royal College of Physicians
of Ireland



ROYAL COLLEGE OF
PHYSICIANS OF IRELAND

Achieving high standards of medical practice and patient care

- National Immunisation Advisory Committee (NIAC)
- Pertussis Chapter
 - Updated August 2012
 - Available at <http://www.immunisation.ie/en/>



Summary

- Marked increase in pertussis since 2011
- Predominantly affecting infants
- Incidence highest in first 8 weeks of life
- Hospitalisations highest in 0-5 months age
- 3 deaths in infants in past two years
- Recent updated
 - NIAC vaccination recommendations
 - Public Health guidance

Acknowledgements

- Departments of Public Health in each HSE area
- Hospital laboratories
- HSE Immunisation staff