CEMI 20

20ème Colloque sur le Contrôle Epidémiologique des Maladies Infectieuses

27 mars 2015 - Institut Pasteur Paris

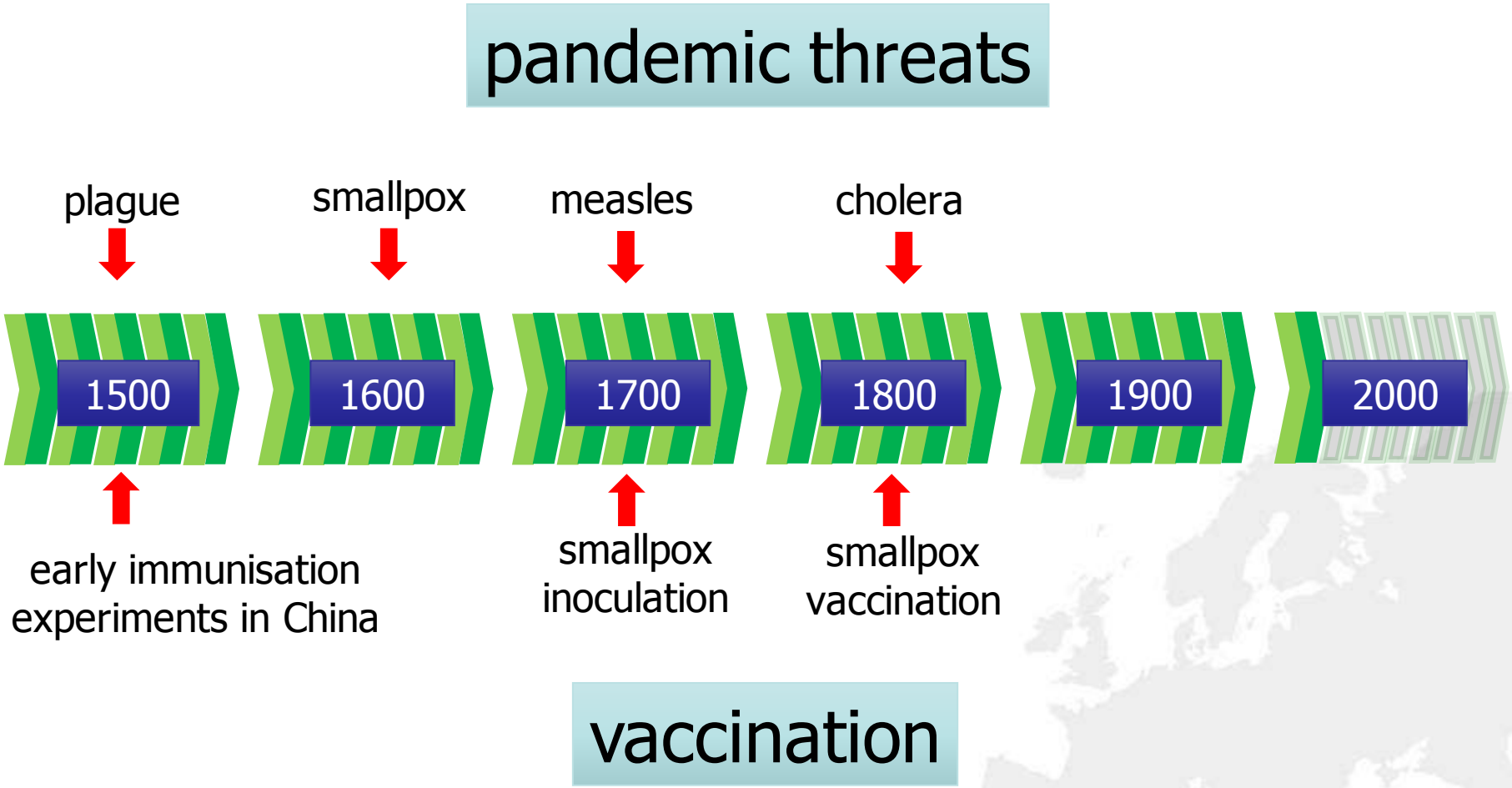
European Centre for Disease Prevention and Control

Perspectives pour le troisième millénaire en Europe et dans le monde

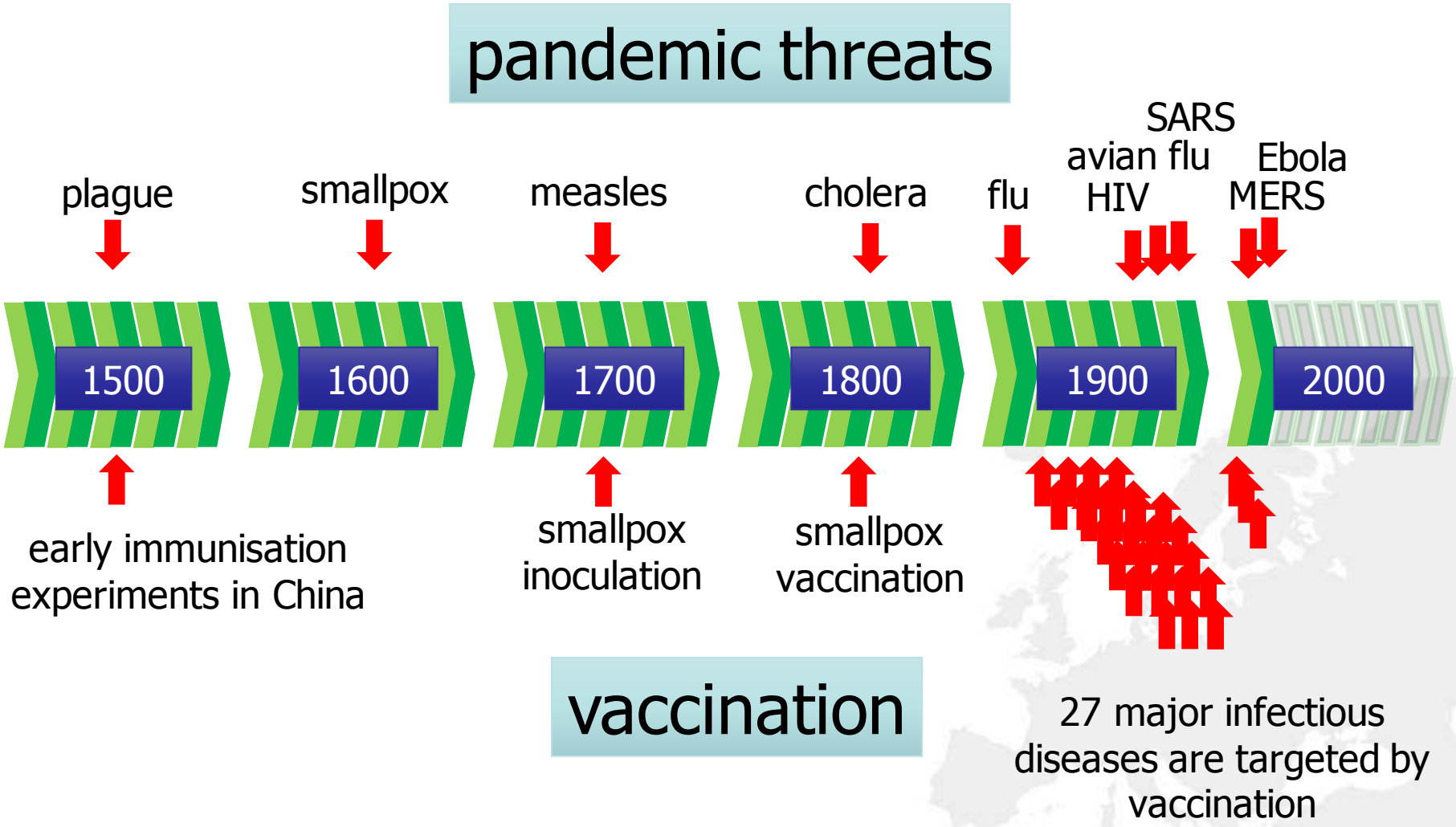
Pier Luigi Lopalco, Head of Scientific Assessment Section

Paris, 27th March 2015

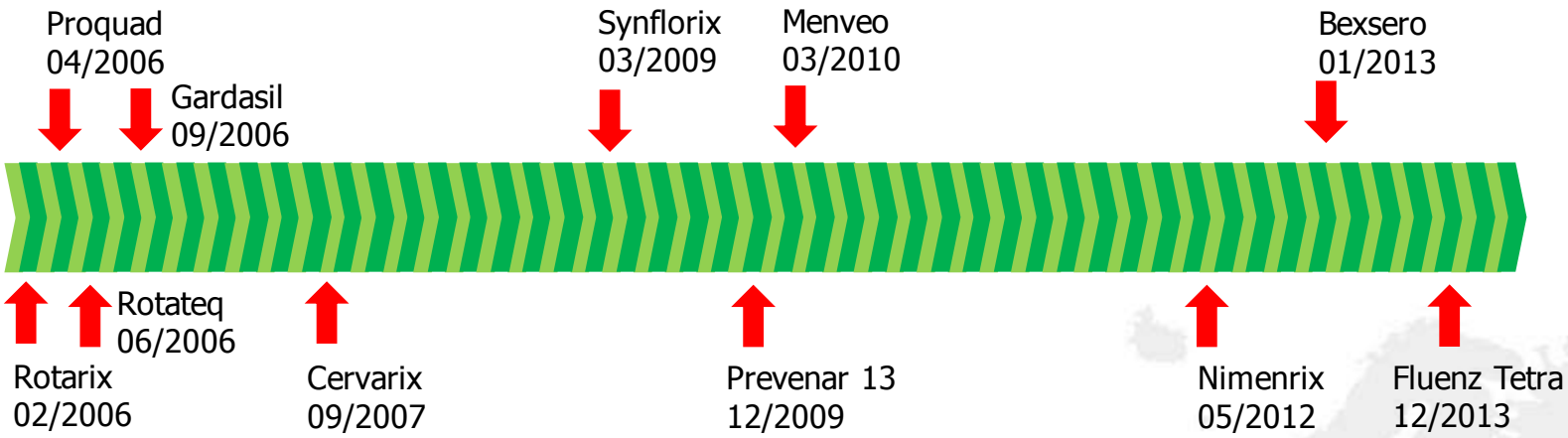
Pandemic threats and Vaccines across history



Pandemic threats and Vaccines across history



New vaccines authorised in the EU
2006/2013



Infectious disease burden across the centuries

▪ XIV century: "Black Death"	30%-70% of European population
▪ 1629-31: the Italian plague	280,000 deaths
▪ 1665-66: the Great plague in London	100,000 deaths
▪ 1852-60: 3rd cholera pandemic, Russia	1,000,000 deaths
▪ 1918-20: Spanish flu, worldwide	75,000,000 deaths
▪ 2011: HIV/AIDS, Sub-saharian Africa	1,200,000 deaths 23,500,000 living with AIDS
▪ 2002: SARS, worldwide	775 deaths
▪ 2009: H5N1 avian flu, worldwide	359 deaths
▪ 2014: Ebola, West Africa	>10,000 deaths

Factors that may influence future pandemics

- Climate change
- Increased movement of people and goods
- Higher risk of zoonosis (poor animal welfare)
- Social inequalities

“Life is a sexually transmitted disease and the mortality rate is 100%”

R. D. Laing

The Big Killers in the 3rd millenium

- Tobacco epidemic
- Obesity and metabolic syndrome
- Diseases linked to ageing

Real burden vs Perception

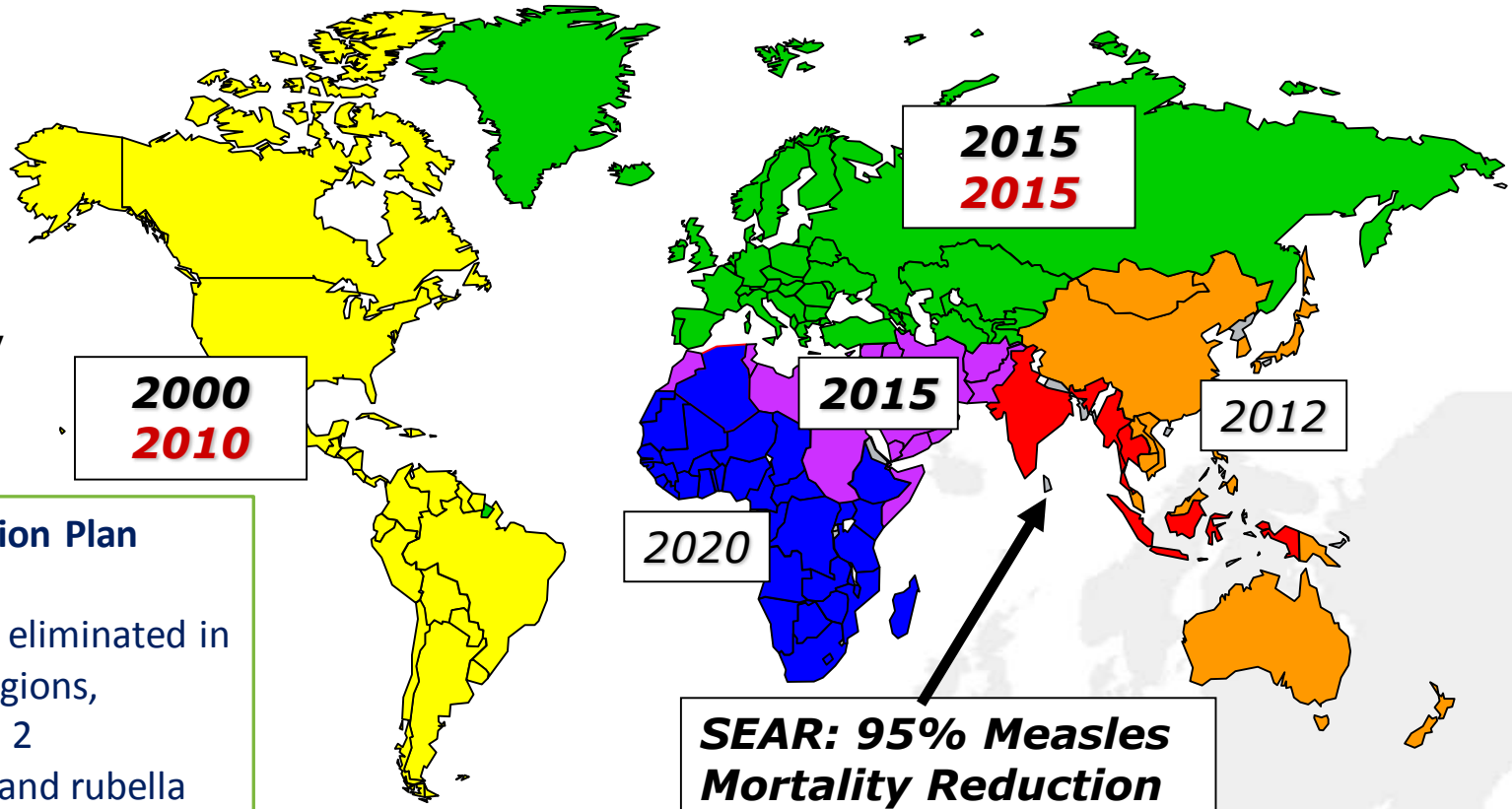
- Media influence
- Political pressure
- Psychological determinants:
  - fear for the unknown
  - fear for the stranger
  - fear for something that I cannot control

Measles and Rubella elimination: High priority – Low perception

Measles and *Rubella* Regional Elimination Goals

Decade of Vaccines goal:

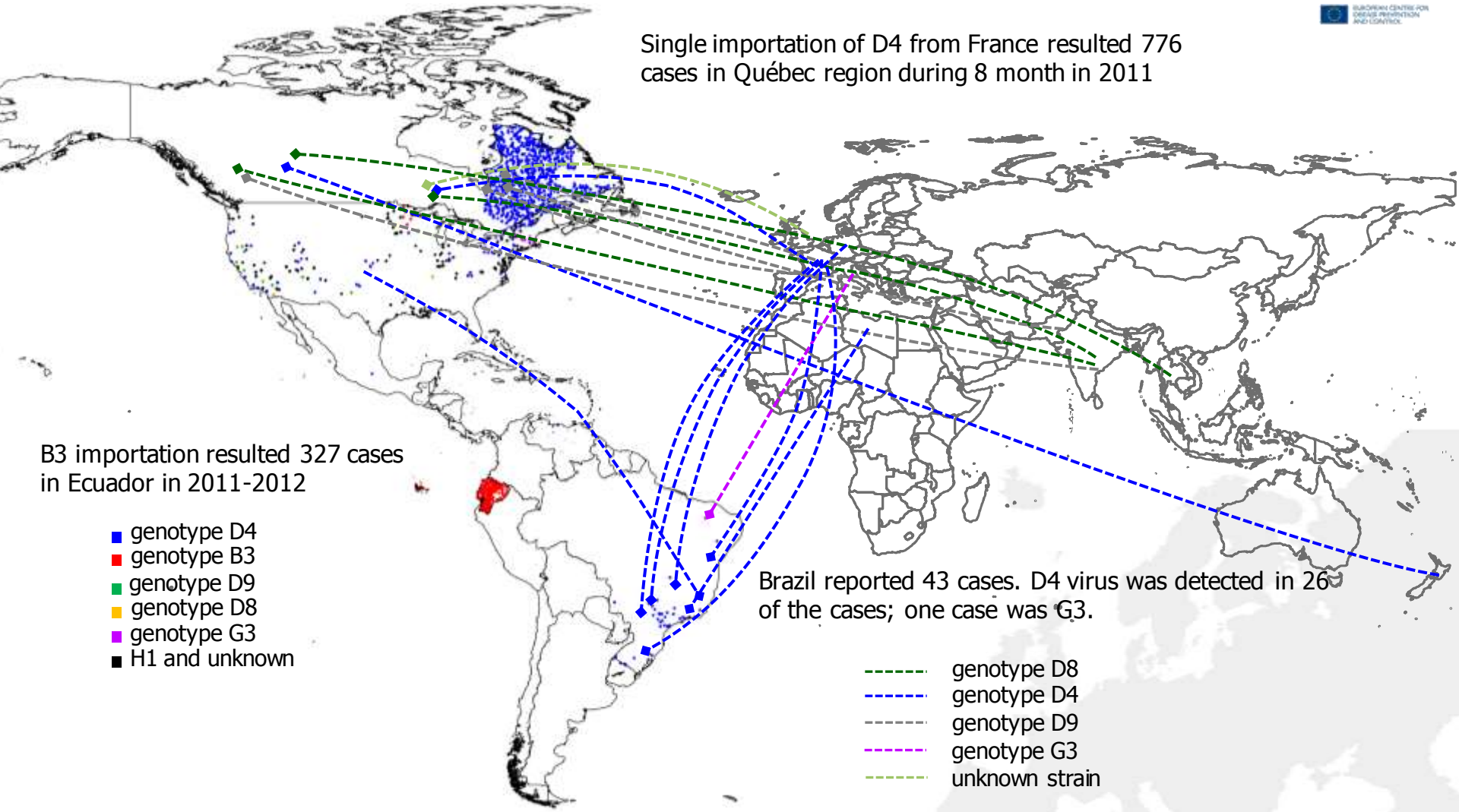
- Meet vaccination coverage targets in every region, country and community



Global Vaccine Action Plan Targets:

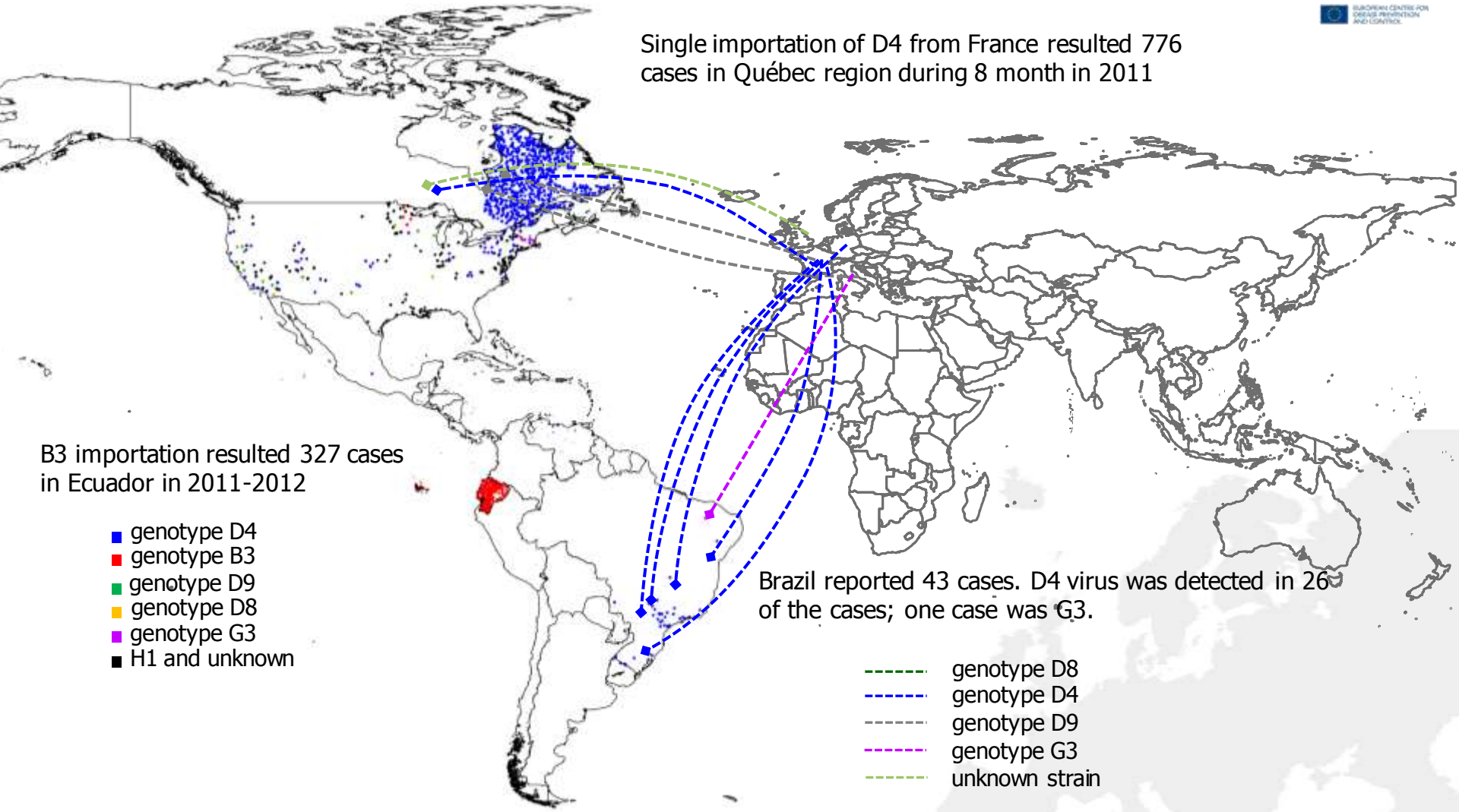
- By 2015: Measles eliminated in at least 4 WHO regions, Rubella in at least 2
- By 2020:Measles and rubella eliminated in 5 WHO regions

Measles importations to America - 2011



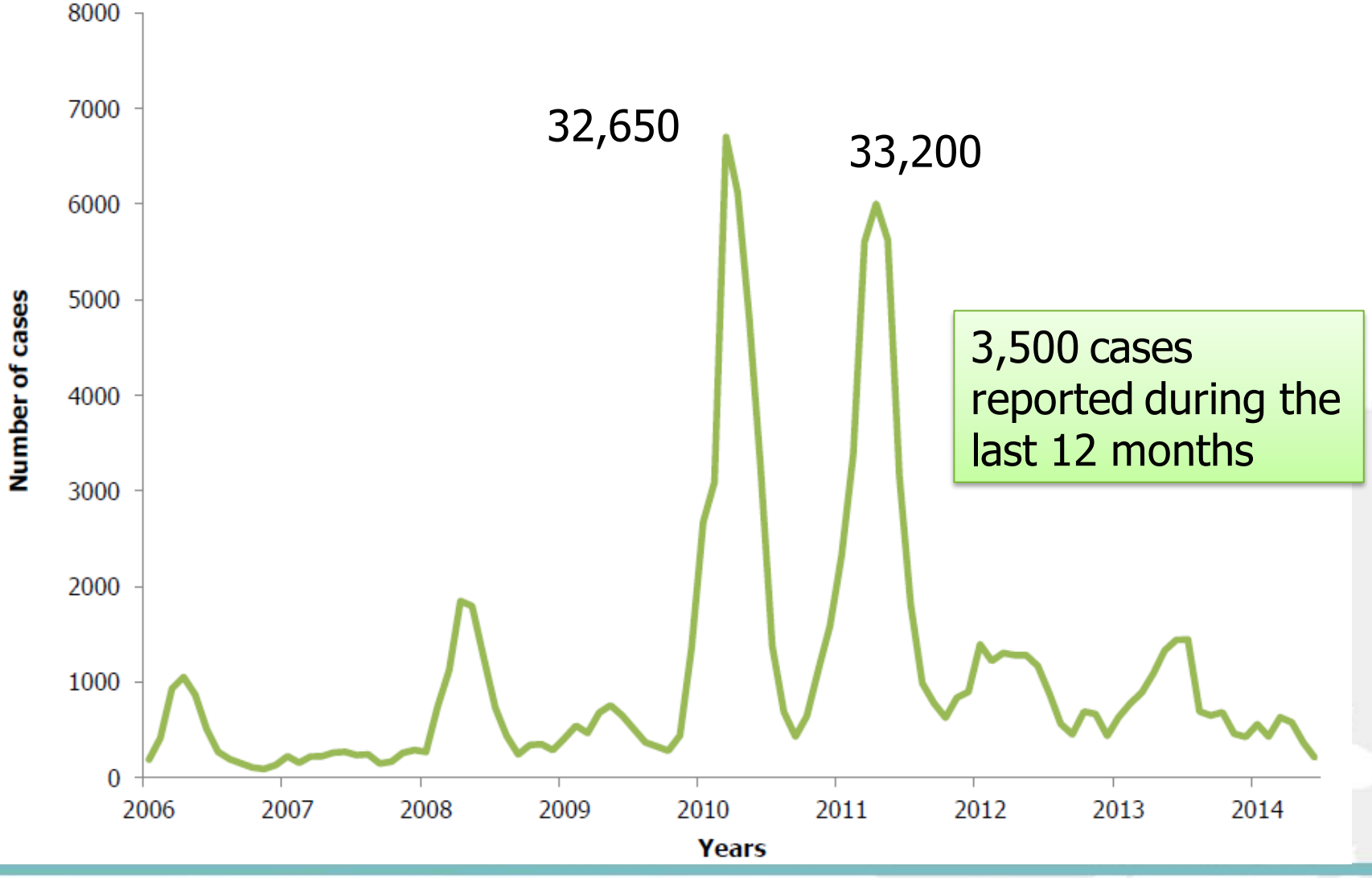
Source: Country reports to FHC/IM-PAHO (as of EW 3/2013) and the Global Measles Laboratory at the US Centers for Disease Control (CDC)

Measles importations to America - 2011



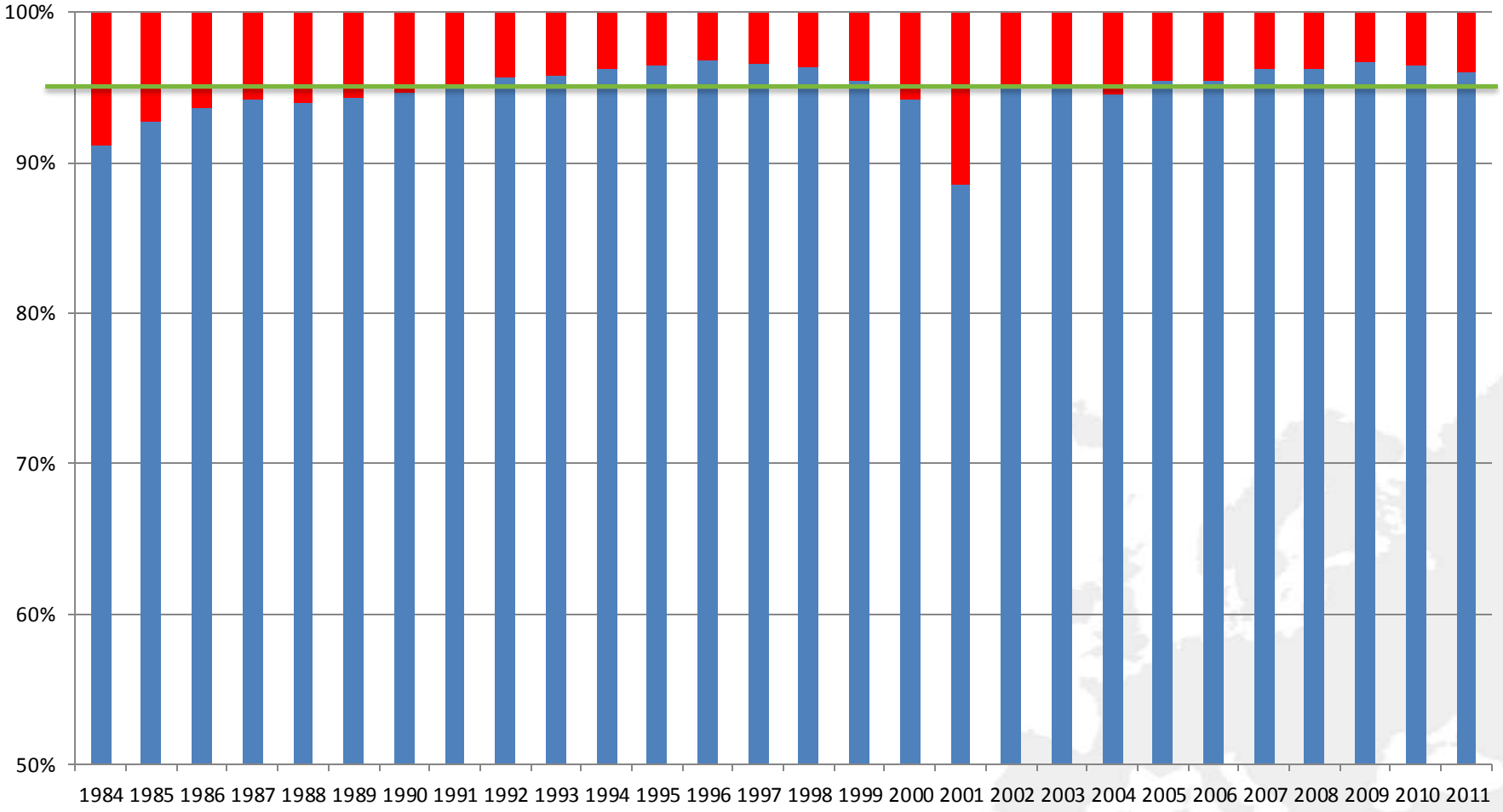
Source: Country reports to FHC/IM-PAHO (as of EW 3/2013) and the Global Measles Laboratory at the US Centers for Disease Control (CDC)

Measles cases reported in the EU



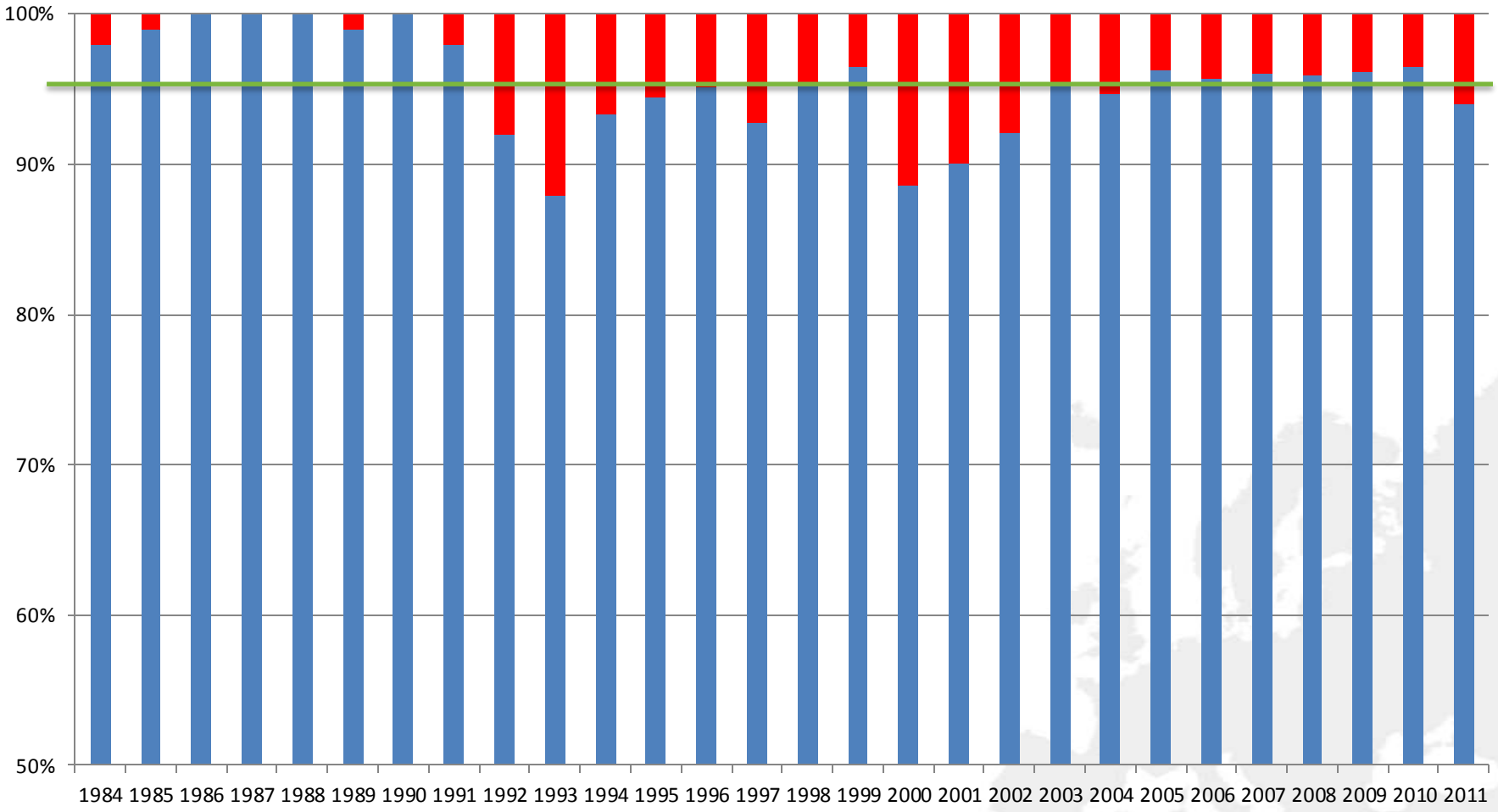
Why measles and rubella are still endemic in Europe?

Sweden



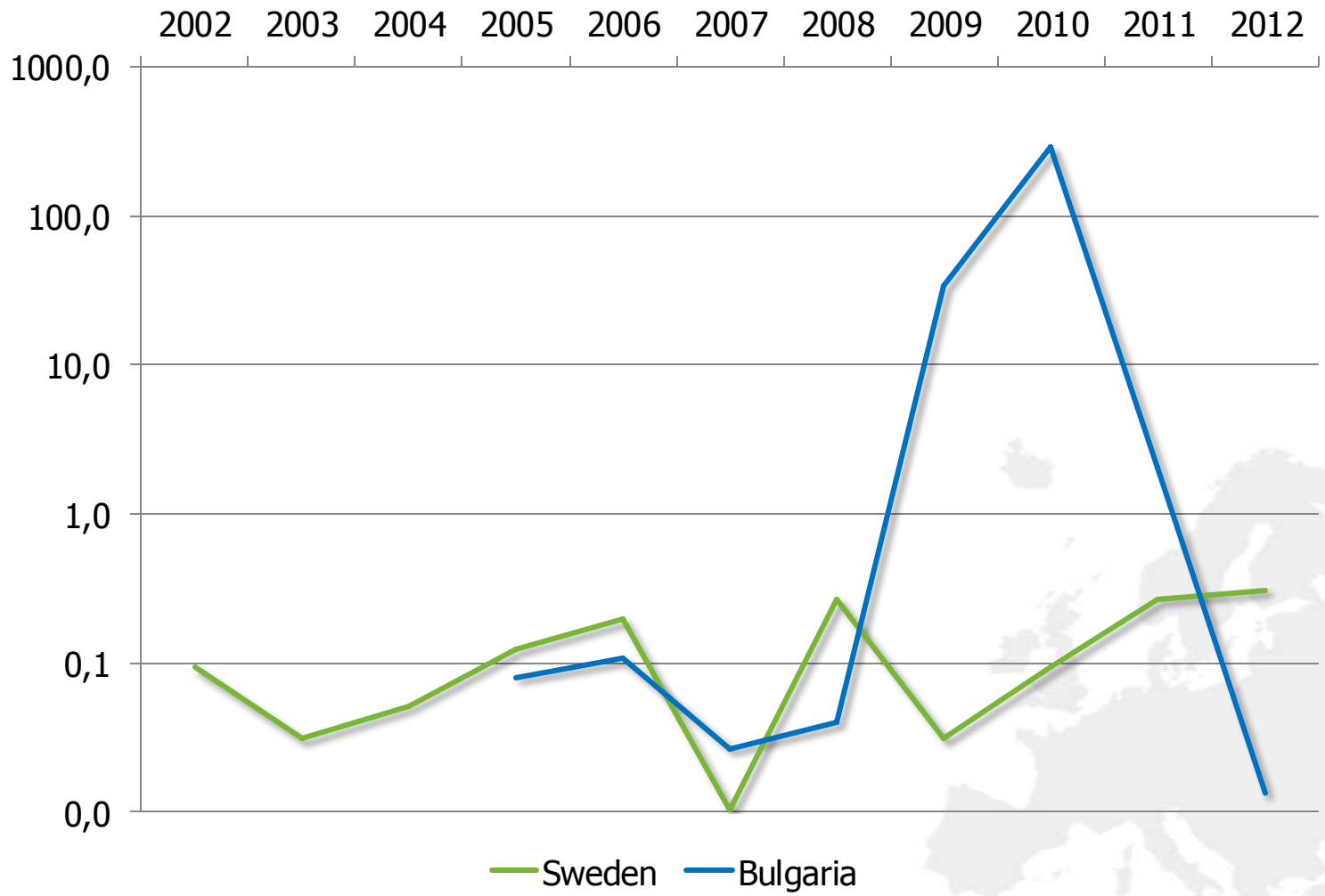
Data Source: WHO CISID

Bulgaria



Data Source: WHO CISID

Measles reported cases
notification rate per 100,000 pop - 2002/2012



Vaccination coverage and inequalities

Measles outbreak in Bulgaria, 2010:

>24,000 cases

90% in Roma communities

25 deaths

photos: courtesy of WHO Euro

% population susceptible to measles in some EU countries

Country or area	Measles seronegative (%)				
	2–4 years	5–9 years	10–19 years	20–39 years	40+ years
WHO target	< 15	< 10	< 5	< 5	< 5
Low susceptibility					
Czech Republic	1.0	0.8	1.5	3.2	0.2
Hungary	2.9	3.8	3.5	8.5	0.3
Luxembourg	5.4[a]	4.7	5.0	2.6	0.2
Slovakia	3.8	4.8	3.3	6.1	0.3
Slovenia	4.0	3.2	4.2	6.1	1.5
Spain	5.0	7.2	4.0	0.8	–
Sweden	1.0	5.8	4.7	5.9	0.5
Intermediate susceptibility					
Australia	10.8	8.0	7.9	9.4	–
Israel	9.1	6.9	5.2	7.0	1.4
Lithuania	4.7	9.8	9.6	12.4	0.3
Malta	9.6	4.3	6.9	5.3	3.1
Higher susceptibility					
Belgium	12.4	14.1	13.3	4.6	2.0
Bulgaria	30.4	25.9	20.7	10.1	9.0
Cyprus	21.8	21.8	13.2	5.9	1.0
England and Wales	18.9	10.2	6.9	2.8	0.2
Ireland	14.2	11.8	8.6	7.8	7.6
Latvia	19.0	42.9	39.8	30.8	3.5
Romania	24.3	11.4	4.2	1.4	0.3

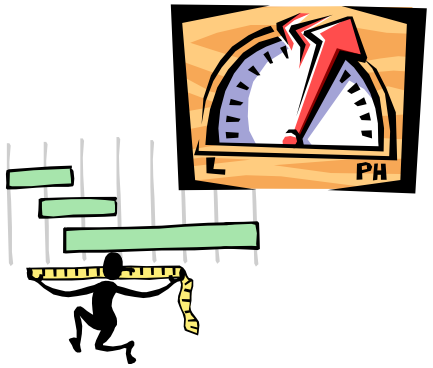
Better knowledge of vaccination coverage in subgroups may prevent outbreaks

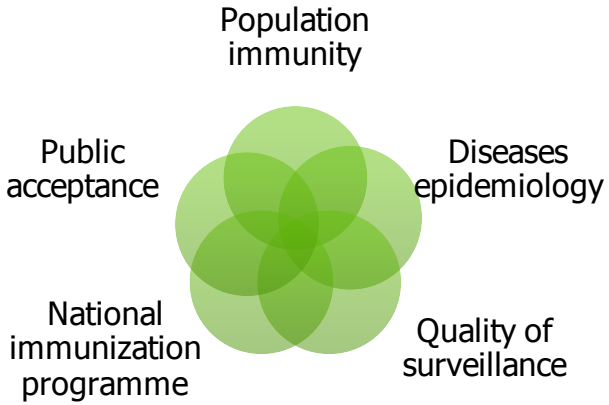
Source: Bulletin of the World Health Organization 2008;86:197–204.

WHO verification process

Evidence Based Verification Process

European Regional Committee





National Verification Committee

Disease and vaccine monitoring to achieve elimination goals

The virtuous route from data to action

Which data do we need to guarantee herd immunity?

disease	vaccine	vaccination programme
disease surveillance	vaccine safety	vaccine uptake
disease impact	vaccine effectiveness	vaccine hesitancy
population level of protection		

Which data do we need to guarantee herd immunity?

disease	vaccine	vaccination programme
routine surveillance outbreak detection outbreak investigation	safety signals detection safety monitoring safety assessment	administrative tools vaccine registries
burden of disease hospitalisations economic analysis	sentinel systems ad hoc studies	behavioural science new media scanning
seroprevalence studies in-depth vaccine coverage analysis		

Assessing vaccine safety in the post-marketing phase

ÖSTERREICH AKTUELL

JASMIN SCHIAT STARB

HPV-VORSORGE

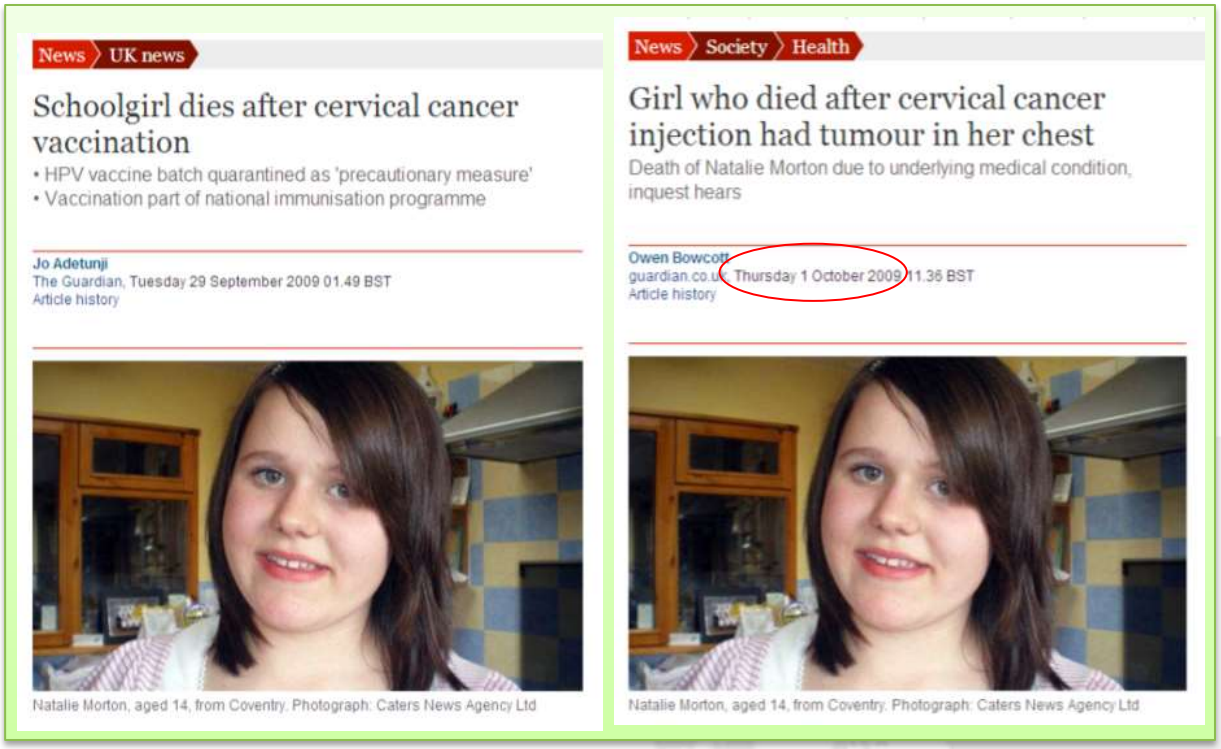
Angst vor neuer Krebs-Impfung

Zweites Mädchen (15) aus OÖ nach Impfung auf der Intensivstation

ÖSTERREICH AKTUELL

Ein Opfer packt aus

Krebs-Impfung: Schon acht bedenkliche Fälle



News › UK news

Schoolgirl dies after cervical cancer vaccination

- HPV vaccine batch quarantined as 'precautionary measure'
- Vaccination part of national immunisation programme

Jo Adetunji
The Guardian, Tuesday 29 September 2009 01.49 BST
Article history

Natalie Morton, aged 14, from Coventry. Photograph: Caters News Agency Ltd

News › Society › Health

Girl who died after cervical cancer injection had tumour in her chest

Death of Natalie Morton due to underlying medical condition, inquest hears

Owen Bowcott
guardian.co.uk, Thursday 1 October 2009 11.36 BST
Article history

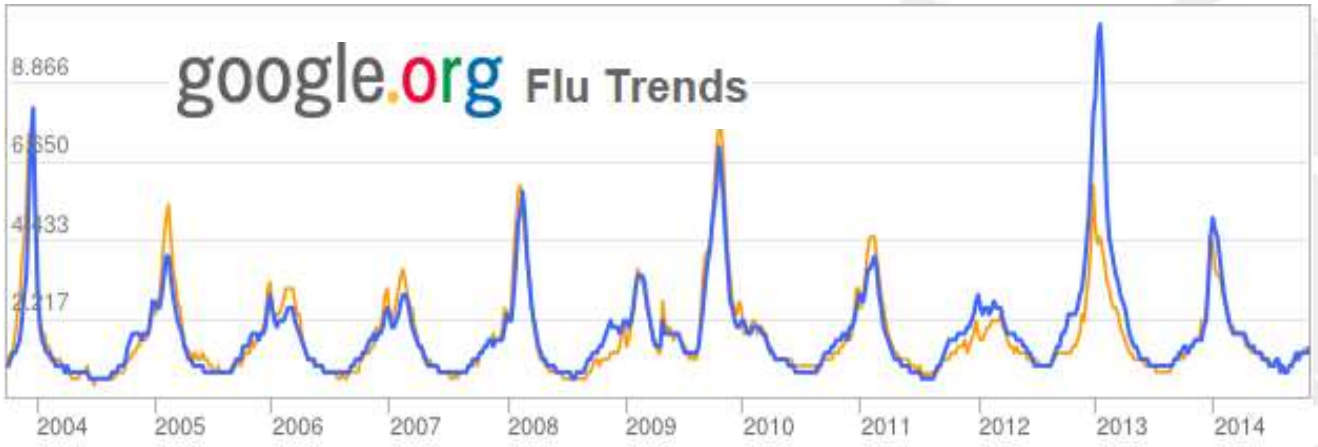
Natalie Morton, aged 14, from Coventry. Photograph: Caters News Agency Ltd

Monitoring vaccination sentiment

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

The Vaccine Confidence Project

monitoring public confidence in immunisation programmes



Monitoring vaccination sentiment

Twitter could bring better understanding of vaccine refusal patterns

The team identified tweets, geo-located the messages and compared their findings to the Centers for Disease Control and Prevention's Behavior Risk Factor Surveillance System. Their results show that states with a higher number of residents who received the flu shot had a higher number of vaccine-positive messages on Twitter

Is EU prepared for the next threat?

DECISIONS

DECISION No 1082/2013/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 22 October 2013

on serious cross-border threats to health and repealing Decision No 2119/98/EC

The Decision provides ***four major benefits***:

- to strengthen **preparedness** planning
- to improve **risk assessment and management** of cross-border health threats
- to establish the necessary arrangements for the development and implementation of a **joint procurement** of medical countermeasures
- to enhance the **coordination of response** at EU level by providing a solid legal mandate to the Health Security Committee

Merci

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