

“Screening practices for infectious diseases among newly arrived migrants” and
“Vaccine Preventable Disease (VPD): strategies and coverage”
ISS 29 MAY 2015

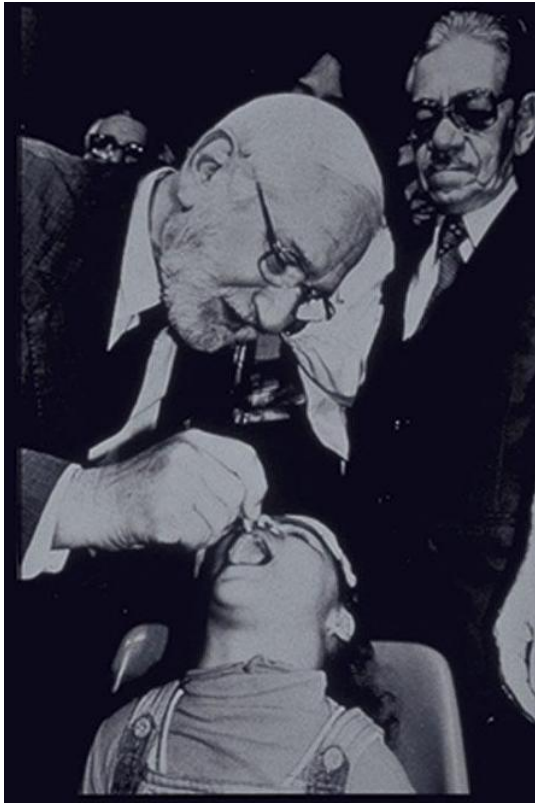
VPD in Mediterranean Basin and Black Sea: the Polio case

Donato Greco
Member of Polio Regional Certificate
Commission

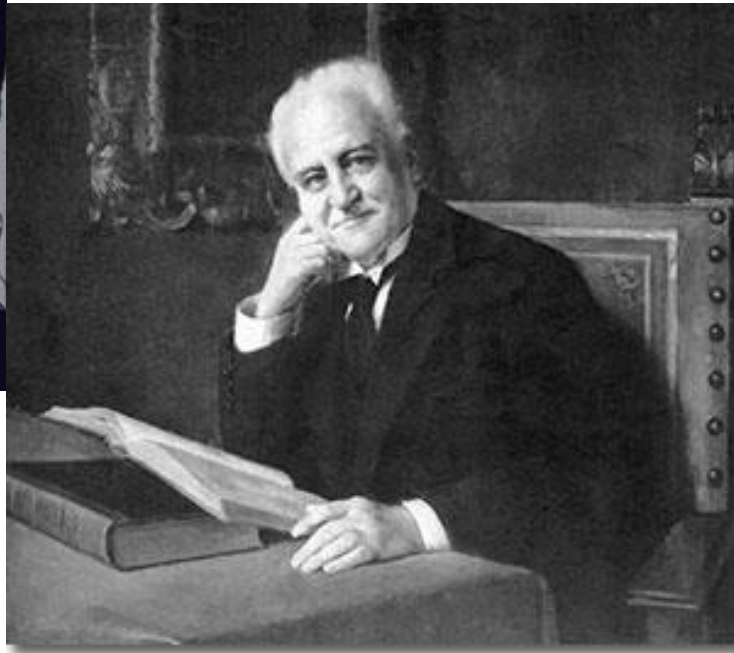
An ancient disease



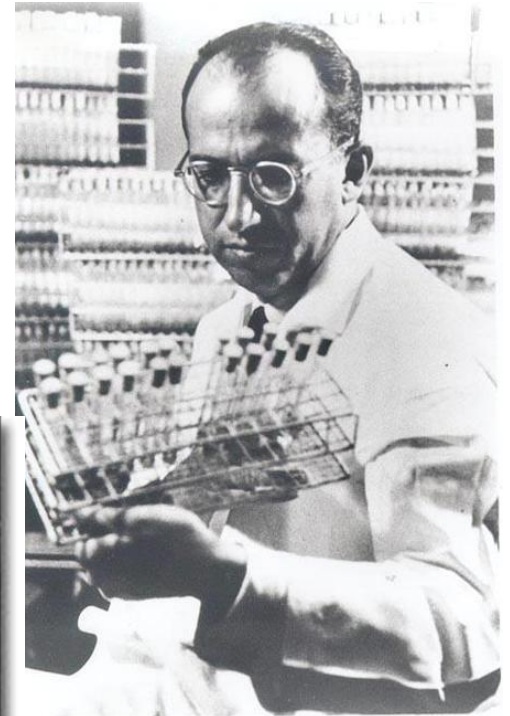




SABIN



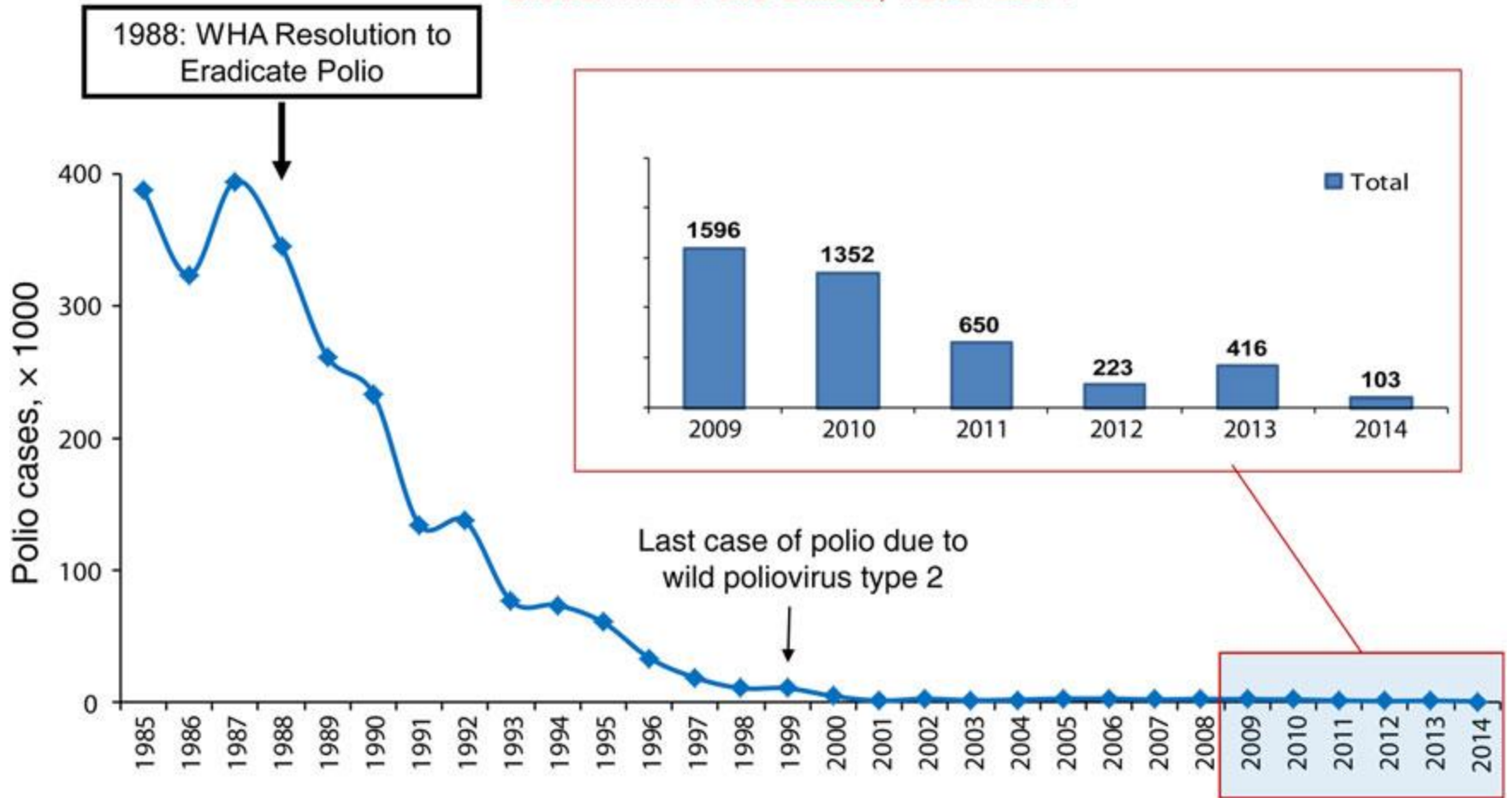
SCLAVO



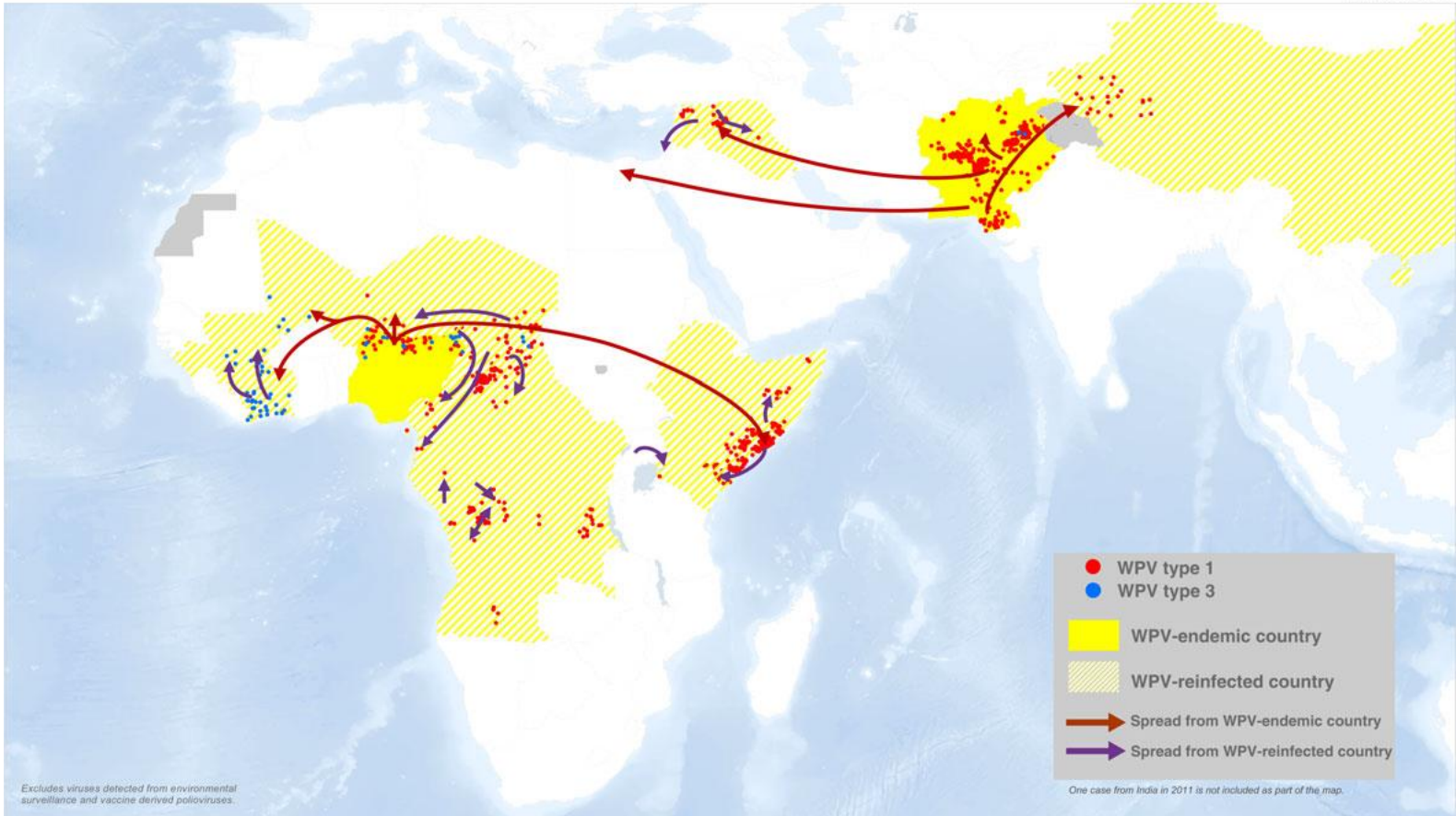
WHO/5832 AMRO POLIO USA MID 1955
Dr Jonas Salk who developed the first polio vaccine in 1955.
Le Dr Jonas Salk, "père" du premier vaccin antipoliomyélique mis au
point en 1955.
PLEASE CREDIT PHOTO WHO/USIS

SALK

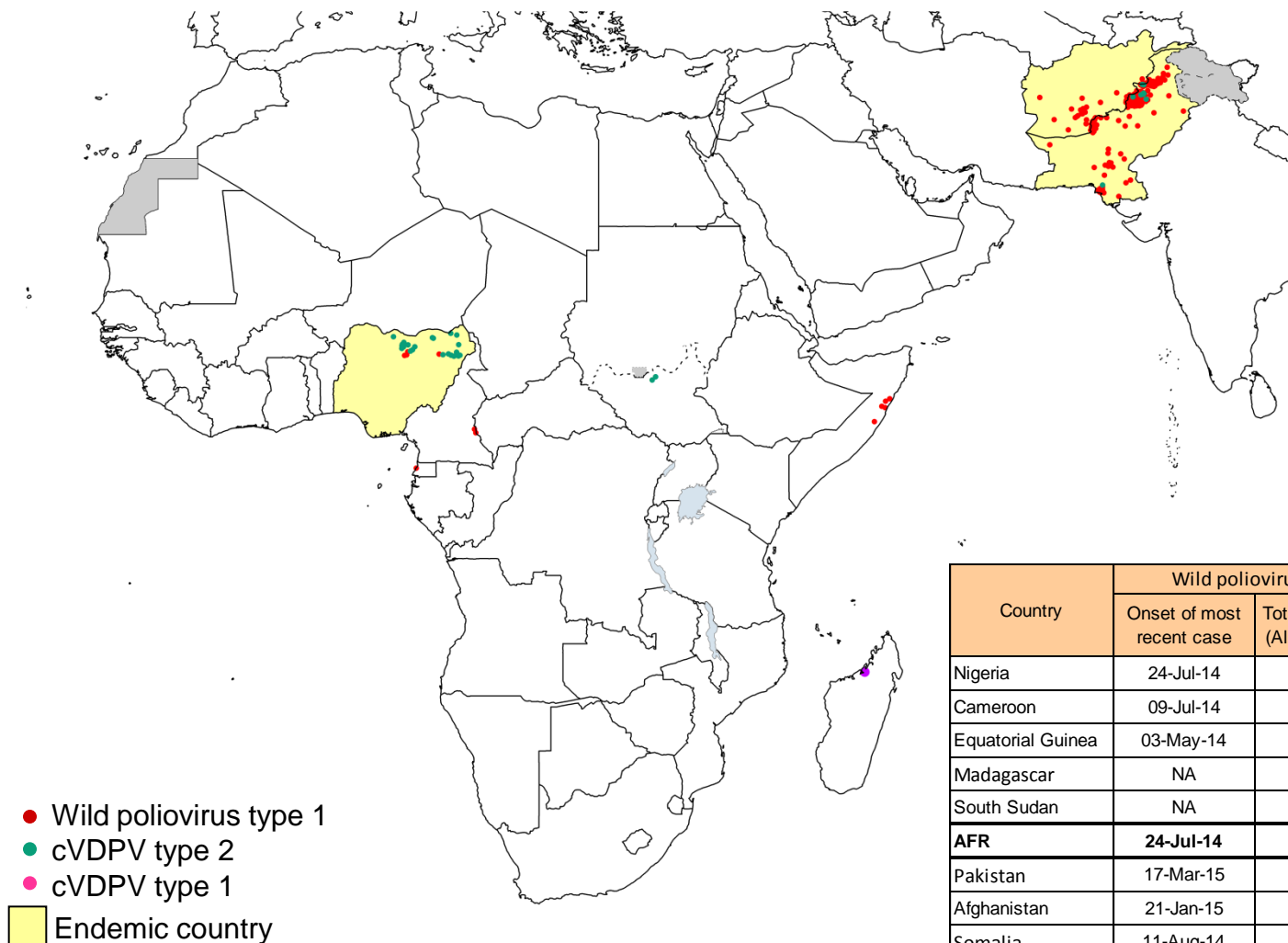
Global Wild Polio Cases, 1985–2014



GLOBAL WILD VIRUS DISTRIBUTION AND INTERNATIONAL SPREAD, 2011 - 2014



Wild Poliovirus & cVDPV¹ Cases², Previous 12 Months³



¹cVDPV is associated with ≥ 2 AFP cases or non-household contacts. VDPV2 cases have ≥ 6 (≥ 10 for type1) nucleotides difference from Sabin in VP1.

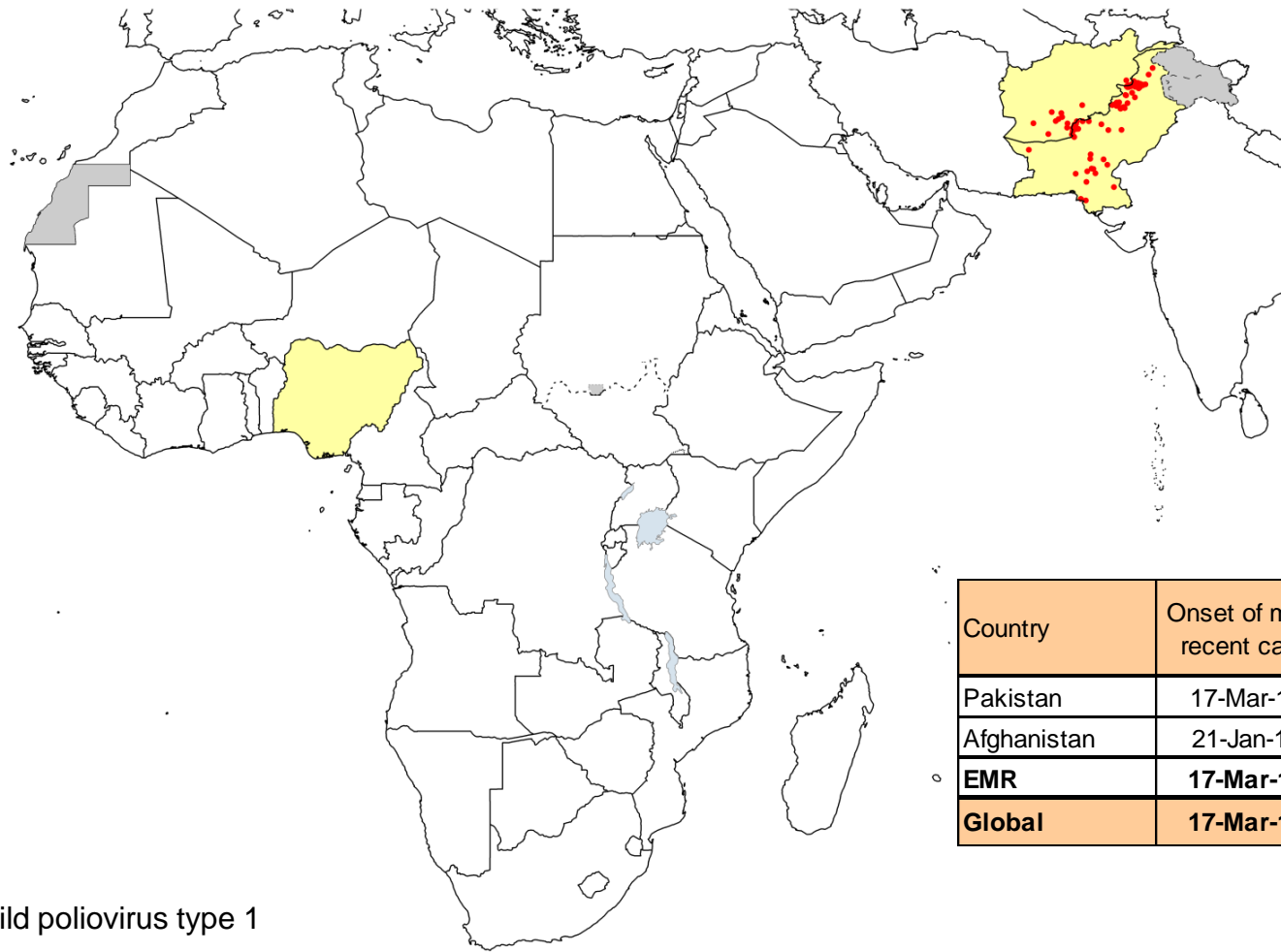
²Excludes viruses detected from environmental surveillance.

³Onset of paralysis 15 April 2014 – 14 April 2015

| Country | Wild poliovirus | | cVDPV | |
|-------------------|---------------------------|-----------------------|---------------------------|--------------|
| | Onset of most recent case | Total WPV (All type1) | Onset of most recent case | Total cVDPV* |
| Nigeria | 24-Jul-14 | 4 | 16-Nov-14 | 27 |
| Cameroon | 09-Jul-14 | 2 | NA | 0 |
| Equatorial Guinea | 03-May-14 | 1 | NA | 0 |
| Madagascar | NA | 0 | 29-Sep-14 | 1 |
| South Sudan | NA | 0 | 12-Sep-14 | 2 |
| AFR | 24-Jul-14 | 7 | 16-Nov-14 | 30 |
| Pakistan | 17-Mar-15 | 269 | 13-Dec-14 | 9 |
| Afghanistan | 21-Jan-15 | 25 | NA | 0 |
| Somalia | 11-Aug-14 | 5 | NA | 0 |
| EMR | 17-Mar-15 | 299 | 13-Dec-14 | 9 |
| Global | 17-Mar-15 | 306 | 13-Dec-14 | 39 |

*cVDPV1 in Madagascar, cVDPV2 in all other countries. NA: most recent case had onset of paralysis prior to rolling 12 months.

Wild Poliovirus Cases¹, Previous 6 Months²

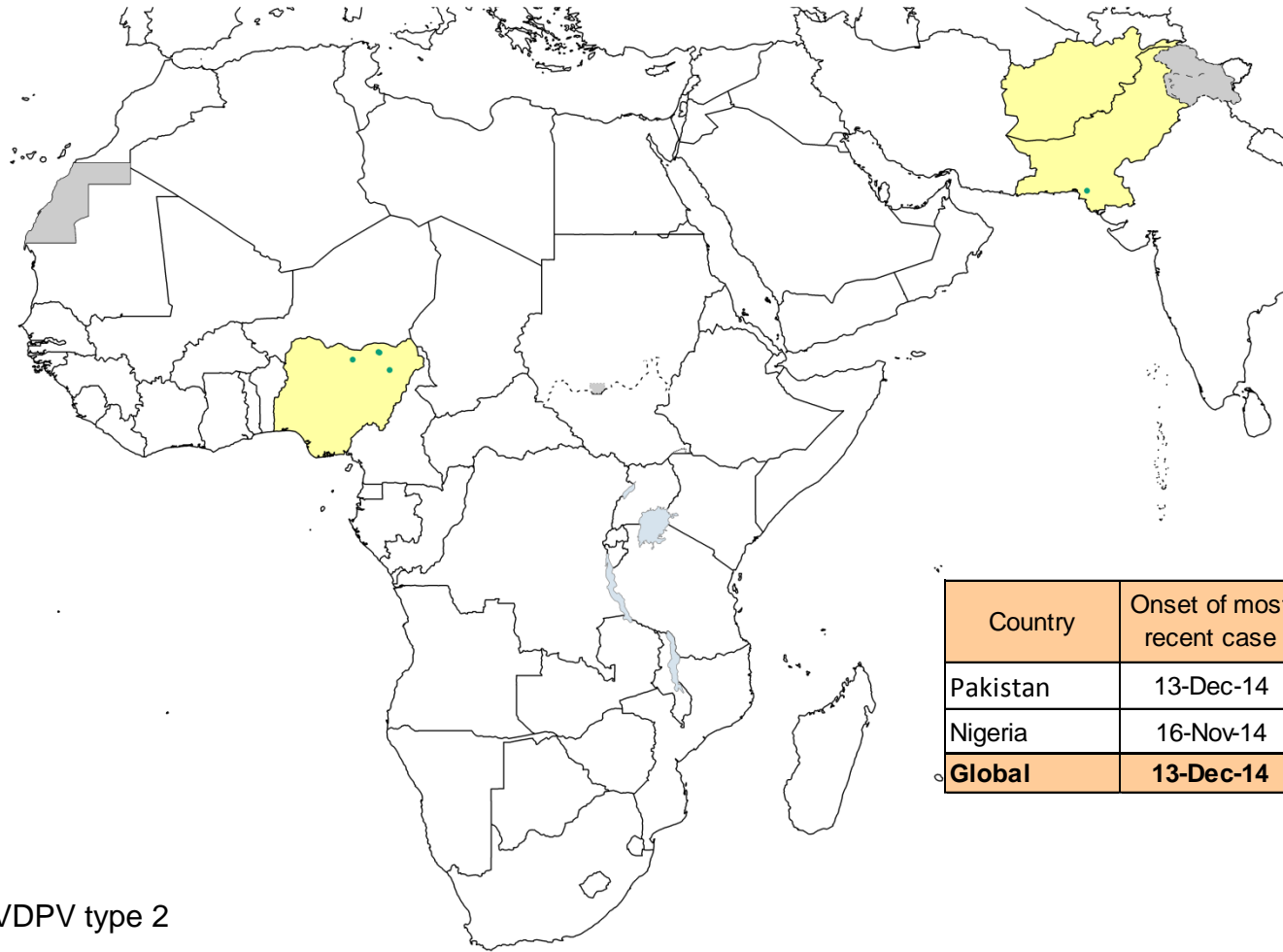


| Country | Onset of most recent case | Number of infected districts | Total WPV (All type1) |
|---------------|---------------------------|------------------------------|-----------------------|
| Pakistan | 17-Mar-15 | 30 | 94 |
| Afghanistan | 21-Jan-15 | 9 | 11 |
| EMR | 17-Mar-15 | 39 | 105 |
| Global | 17-Mar-15 | 39 | 105 |

¹Excludes viruses detected from environmental surveillance.

²Onset of paralysis 15 October 2014 – 14 April 2015

cVDPV¹ Cases², Previous 6 Months³



| Country | Onset of most recent case | Number of districts | Total cVDPV (All type 2) |
|---------------|---------------------------|---------------------|--------------------------|
| Pakistan | 13-Dec-14 | 1 | 1 |
| Nigeria | 16-Nov-14 | 3 | 4 |
| Global | 13-Dec-14 | 4 | 5 |

¹cVDPV is associated with ≥ 2 AFP cases or non-household contacts. VDPV2 cases have ≥ 6 (≥ 10 for type1) nucleotides difference from Sabin in VP1.

²Excludes viruses detected from environmental surveillance.

³Onset of paralysis 15 October 2014 – 14 April 2015

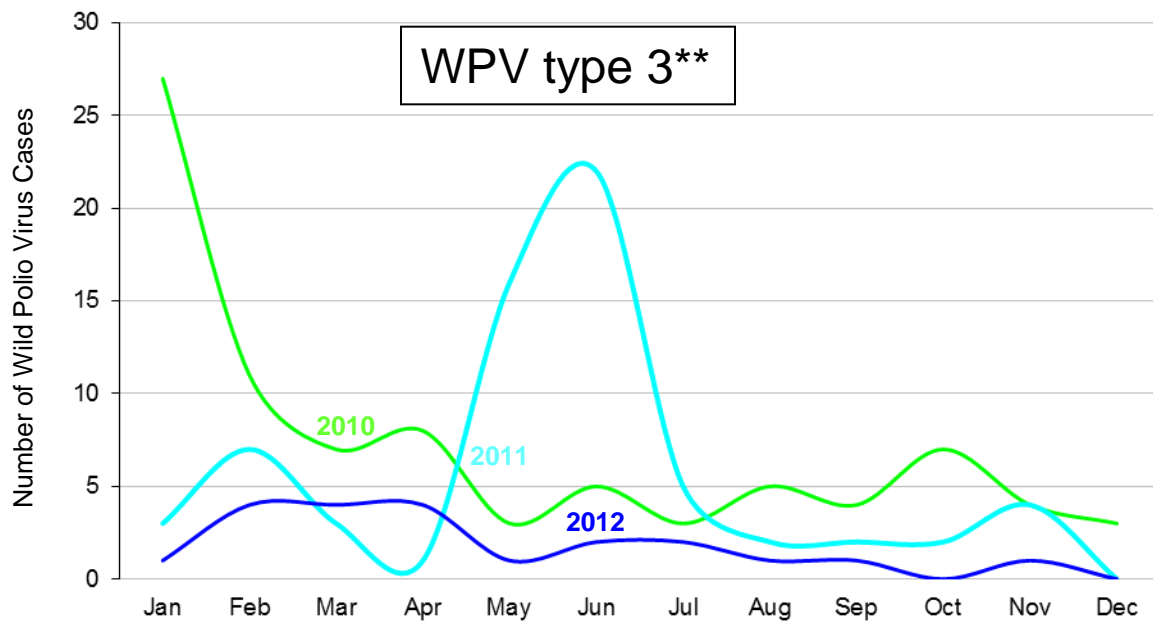
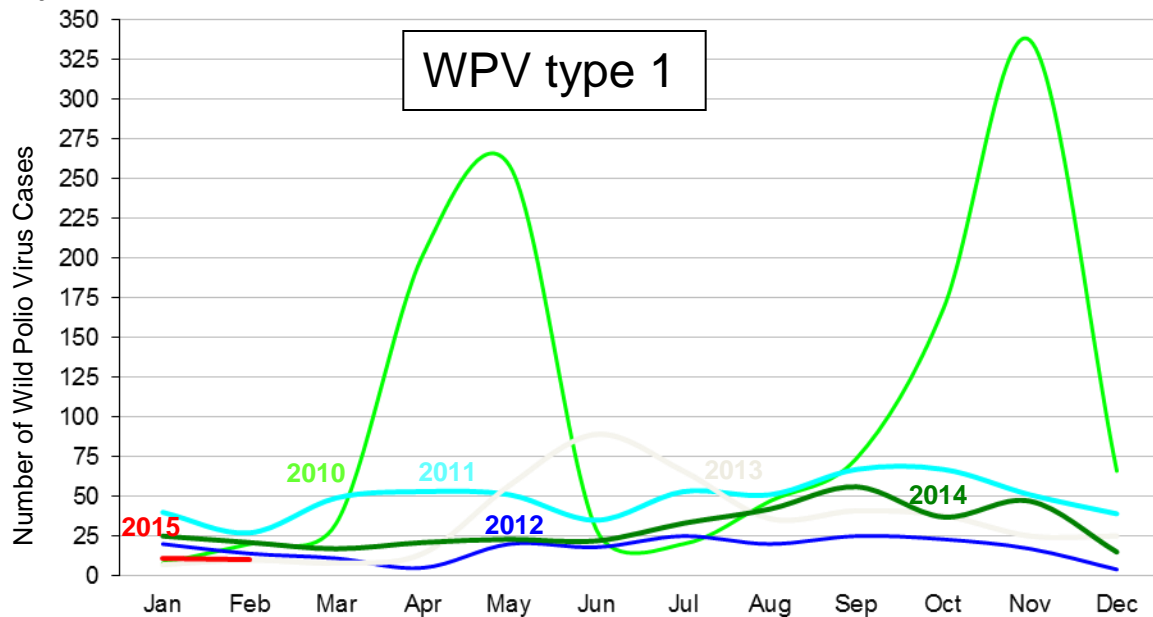
Wild Poliovirus 2010 - 2015

| Country or territory ³ | Wild virus confirmed cases | | | | | | | | | Wild virus reported from other sources ² | | | | | | |
|--|----------------------------|------------|------------|------------|------------|------------------------------|-----------|-----------------------------|-----------------------------|---|------------|------------|------------|------------|---------------------------|-----------|
| | Total | | | | | 01 Jan - 14 Apr ¹ | | Onset of most recent type 3 | Onset of most recent type 1 | Total | | | | | Date of most recent virus | |
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2014 | 2015 | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | |
| Pakistan | 144 | 198 | 58 | 93 | 306 | 47 | 21 | 18-Apr-12 | 17-Mar-15 | 79 | 136 | 89 | 66 | 127 | 26 | 10-Mar-15 |
| Afghanistan | 25 | 80 | 37 | 14 | 28 | 4 | 1 | 11-Apr-10 | 21-Jan-15 | | | | | 17 | 6 | 22-Feb-15 |
| Somalia | 0 | 0 | 0 | 194 | 5 | 0 | 0 | NA | 11-Aug-14 | | | | | | | |
| Nigeria | 21 | 62 | 122 | 53 | 6 | 1 | 0 | 10-Nov-12 | 24-Jul-14 | | 1 | 15 | 3 | 1 | | 05-May-14 |
| Cameroon | 0 | 0 | 0 | 4 | 5 | 3 | 0 | 15-Oct-09 | 09-Jul-14 | | | | | | | |
| Equatorial Guinea | 0 | 0 | 0 | 0 | 5 | 3 | 0 | NA | 03-May-14 | | | | | | | |
| Iraq | 0 | 0 | 0 | 0 | 2 | 1 | 0 | NA | 07-Apr-14 | | | | | | | |
| Israel ⁴ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | NA | | | | 136 | 14 | | 30-Mar-14 |
| Syrian Arab Republic | 0 | 0 | 0 | 35 | 1 | 1 | 0 | NA | 21-Jan-14 | | | | | | | |
| Ethiopia | 0 | 0 | 0 | 9 | 1 | 1 | 0 | NA | 05-Jan-14 | | | | | | | |
| West Bank and Gaza | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | NA | | | | 7 | 1 | | 05-Jan-14 |
| Kenya | 0 | 1 | 0 | 14 | 0 | 0 | 0 | NA | 14-Jul-13 | | | | 1 | | | 12-Oct-13 |
| Egypt | 0 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 03-May-04 | 1 | | 2 | | | | 06-Dec-12 |
| Niger | 2 | 5 | 1 | 0 | 0 | 0 | 0 | 19-Jan-11 | 15-Nov-12 | | | | | | | |
| Chad | 26 | 132 | 5 | 0 | 0 | 0 | 0 | 10-Mar-11 | 14-Jun-12 | | | | | | | |
| DRC | 100 | 93 | 0 | 0 | 0 | 0 | 0 | 24-Jun-09 | 20-Dec-11 | | | | | | | |
| CAR | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 09-Aug-09 | 08-Dec-11 | | | | | | | |
| China | 0 | 21 | 0 | 0 | 0 | 0 | 0 | NA | 09-Oct-11 | | | | | | | |
| Guinea | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 03-Aug-11 | 03-Nov-09 | | | | | | | |
| Côte d'Ivoire | 0 | 36 | 0 | 0 | 0 | 0 | 0 | 24-Jul-11 | 06-Aug-09 | | | | | | | |
| Angola | 33 | 5 | 0 | 0 | 0 | 0 | 0 | 17-Nov-08 | 07-Jul-11 | | | | | | | |
| Mali | 4 | 7 | 0 | 0 | 0 | 0 | 0 | 23-Jun-11 | 01-May-10 | | | | | | | |
| Congo ⁵ | 441 | 1 | 0 | 0 | 0 | 0 | 0 | NA | 22-Jan-11 | | | | | | | |
| Gabon | 0 | 1 | 0 | 0 | 0 | 0 | 0 | NA | 15-Jan-11 | | | | | | | |
| India | 42 | 1 | 0 | 0 | 0 | 0 | 0 | 22-Oct-10 | 13-Jan-11 | 19 | | | | | | 10-Nov-10 |
| Uganda | 4 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 15-Nov-10 | | | | | | | |
| Russian Federation | 14 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 25-Sep-10 | | | | | | | |
| Liberia | 2 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 08-Sep-10 | | | | | | | |
| Nepal | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 15-Oct-08 | 30-Aug-10 | 1 | | | | | | 12-Jul-10 |
| Kazakhstan | 1 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 12-Aug-10 | | | | | | | |
| Tajikistan | 460 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 04-Jul-10 | | | | | | | |
| Turkmenistan | 3 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 28-Jun-10 | | | | | | | |
| Senegal | 18 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 30-Apr-10 | | | | | | | |
| Mauritania | 5 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 28-Apr-10 | | | | | | | |
| Sierra Leone | 1 | 0 | 0 | 0 | 0 | 0 | 0 | NA | 28-Feb-10 | | | | | | | |
| Total | 1352 | 650 | 223 | 416 | 359 | 61 | 22 | | | 100 | 137 | 106 | 213 | 160 | 32 | |
| Total wild virus type 1⁶ | 1265 | 583 | 202 | 416 | 359 | 61 | 22 | | | | | | | | | |
| Total wild virus type 3 | 87 | 67 | 21 | 0 | 0 | 0 | 0 | | | | | | | | | |
| Tot. in endemic countries | 232 | 341 | 217 | 160 | 340 | 52 | 22 | | | | | | | | | |
| Tot. in non-end countries | 1120 | 309 | 6 | 256 | 19 | 9 | 0 | | | | | | | | | |
| No. of countries (infected) | 20 | 16 | 5 | 8 | 9 | 8 | 2 | | | | | | | | | |
| No. of countries (endemic) | 4 | 4 | 3 | 3 | 3 | 3 | 3 | | | | | | | | | |

Countries in yellow are endemic. Countries in pale yellow are considered to have active transmission (i.e. within the previous 6 months) of an imported poliovirus

¹Data in WHO HQ on 15 April 2014 for 2014 data and 14 April 2015 for 2015 data. ²Wild viruses from environmental samples, contacts and other sources. ³In March 2014, a serotype 1 wild poliovirus was detected in an environment specimen from Brazil, further investigation indicates this is an isolated event without evidence of circulation. ⁴Results are based on L20B positive culture. Prior to reporting week 16, 2014, results were based on a combination of direct qRT-PCR on RNA from concentrated sewage and L20B positive culture. ⁵The 2010 total includes cases with inadequate specimens that were exceptionally classified as confirmed polio based on their association with the WPV1 outbreak. ⁶Includes 1 case in 2012 with a mixture of W1W3 virus. NA - Most recent case had onset prior to 1999.

Monthly Distribution of Wild Poliovirus Cases*, 2010-2015

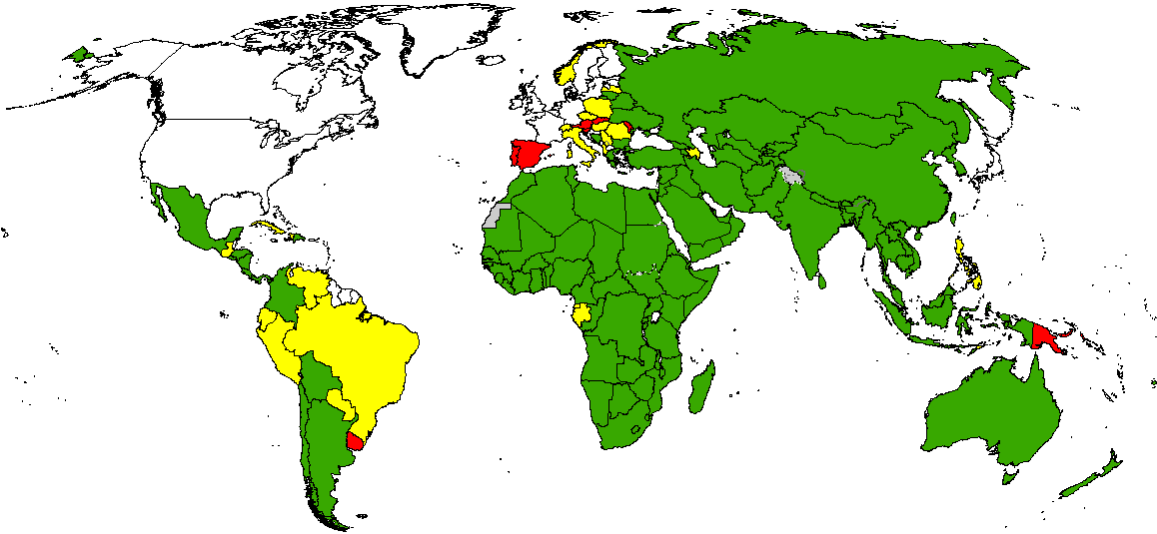


Data in WHO/HQ
as of 07 April 2015

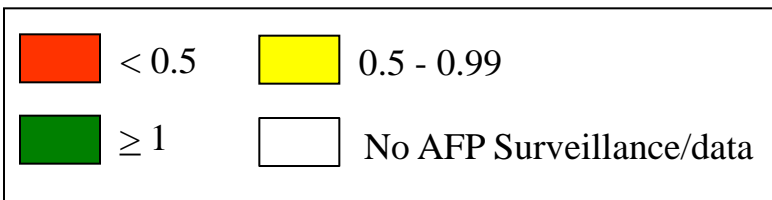
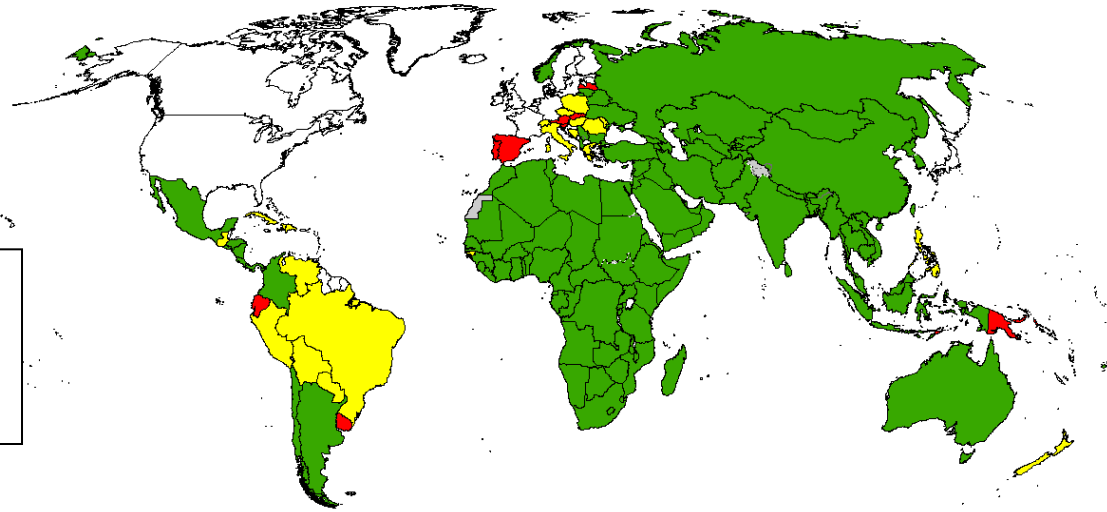
*By date of onset of paralysis. WPV type 1 includes 1 case in 2012 with a mixture of W1W3 virus. Cases with onset in March 2015 will be reflected in the next update. The 2010 total includes AFP cases from Congo with inadequate specimens that have been exceptionally classified as confirmed polio based on their association with the WPV1 outbreak. **No WPV3 case reported in 2013 - 2015.

Non-polio AFP Rate

Mar 2013 – Feb 2014

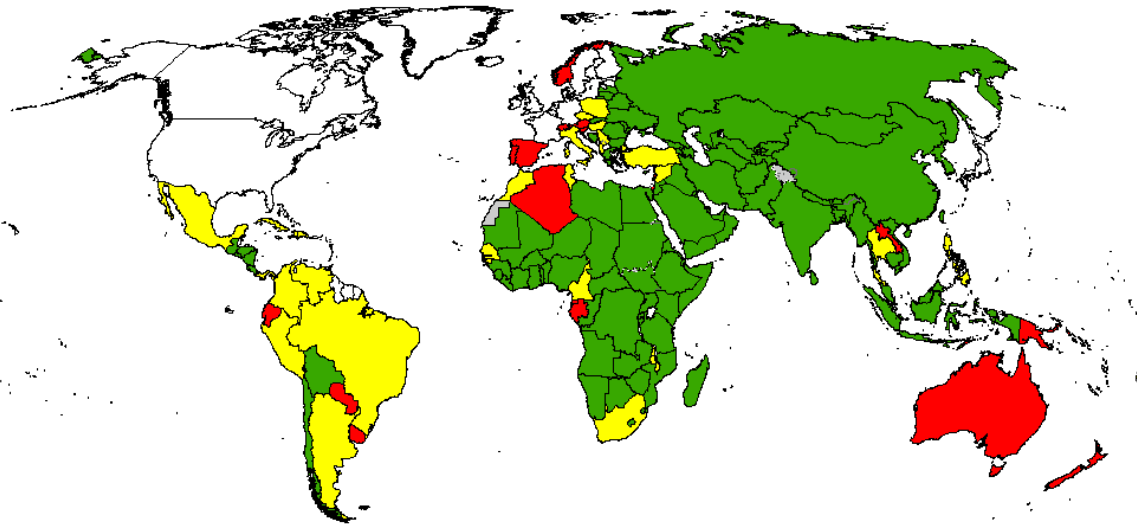


Mar 2014 – Feb 2015

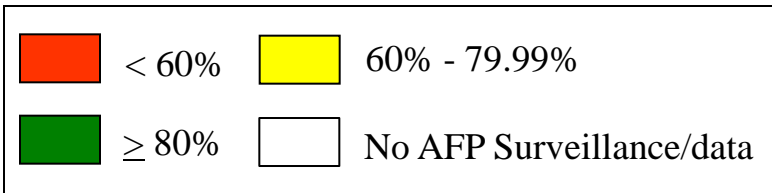
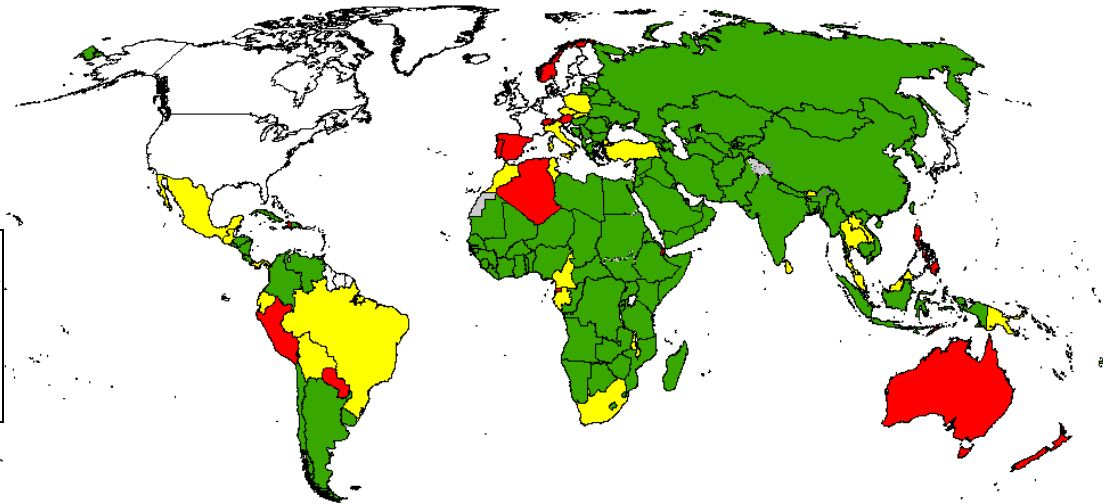


Adequate Stool Collection Percentage

Mar 2013 – Feb 2014



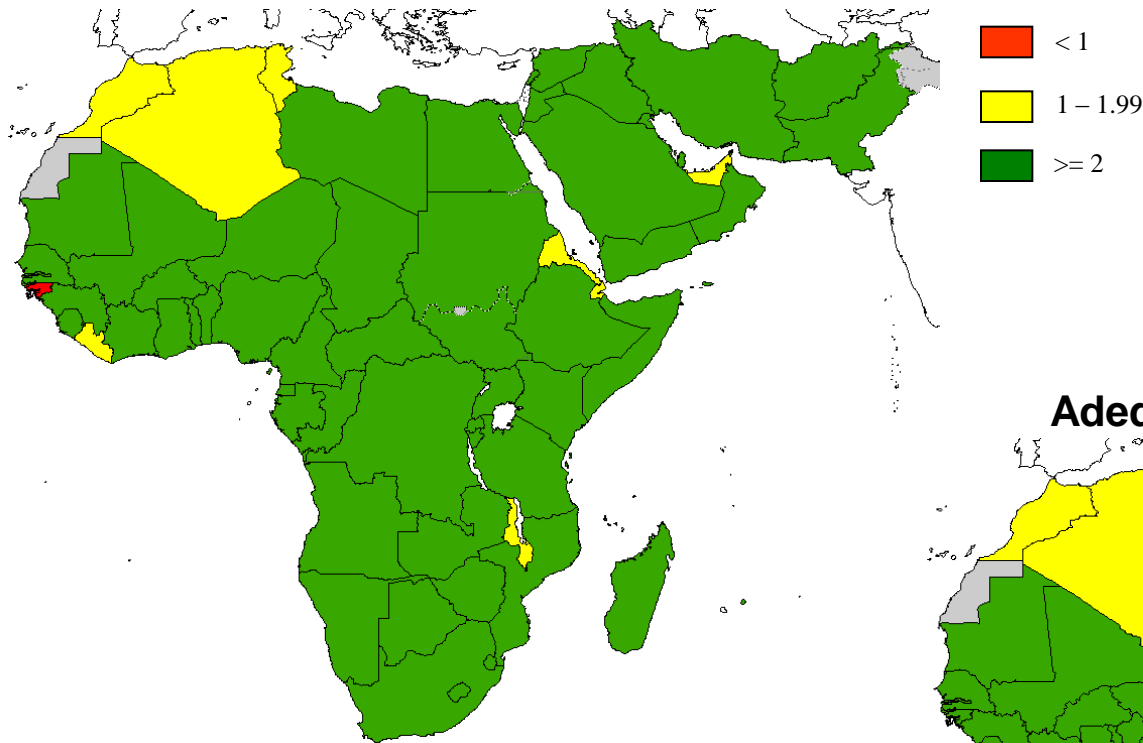
Mar 2014 – Feb 2015



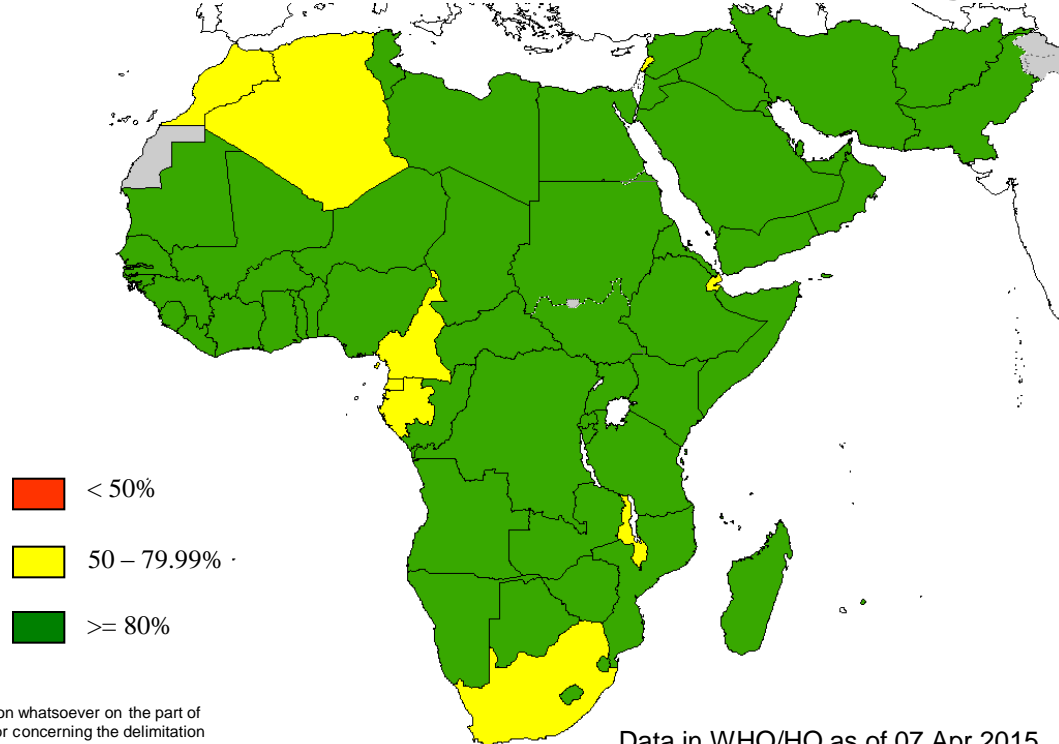
Surveillance Indicators, Polio Endemic Regions

Mar 2014 – Feb 2015 (Rolling 12 months)

Non-polio AFP rate



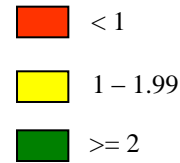
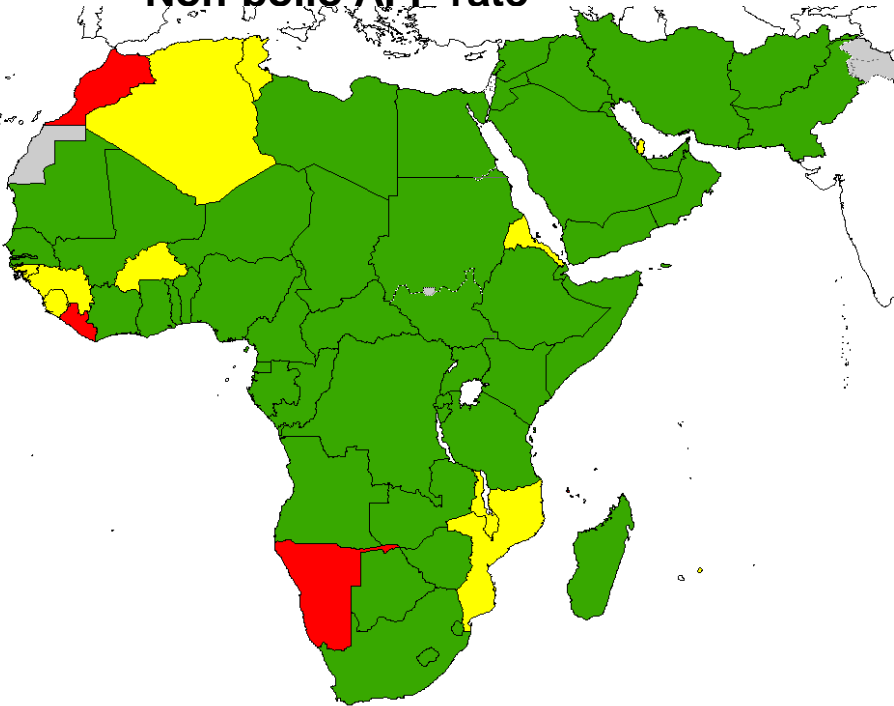
Adequate stool collection percentage



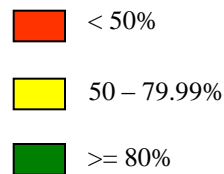
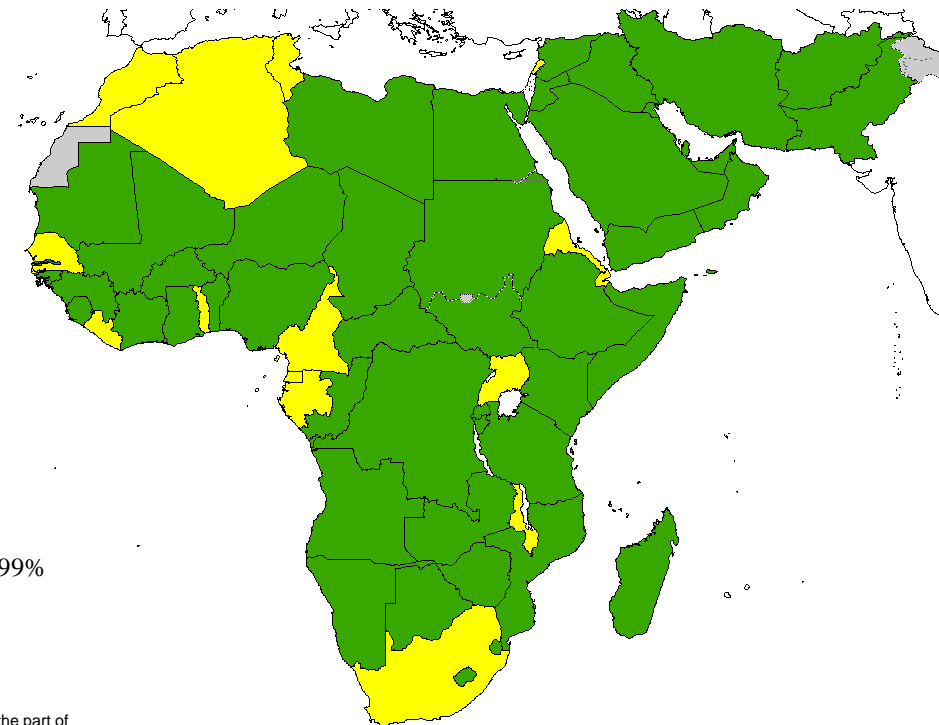
Surveillance Indicators, Polio Endemic Regions

Sep 2014 – Feb 2015 (Rolling 6 months)

Non-polio AFP rate



Adequate stool collection percentage



Polio training Yemen 2012







And many victims !!



- 6 Polio Vaccinators killed in Pakistan 2012
- 9 Vaccinators killed in Nigeria 2013
- 7 vaccinators killed in Pakistan 2013



A single healthy Wpoliovirus infected carrier excretes 15 billions Poliovirus units per gr of feces for several weeks

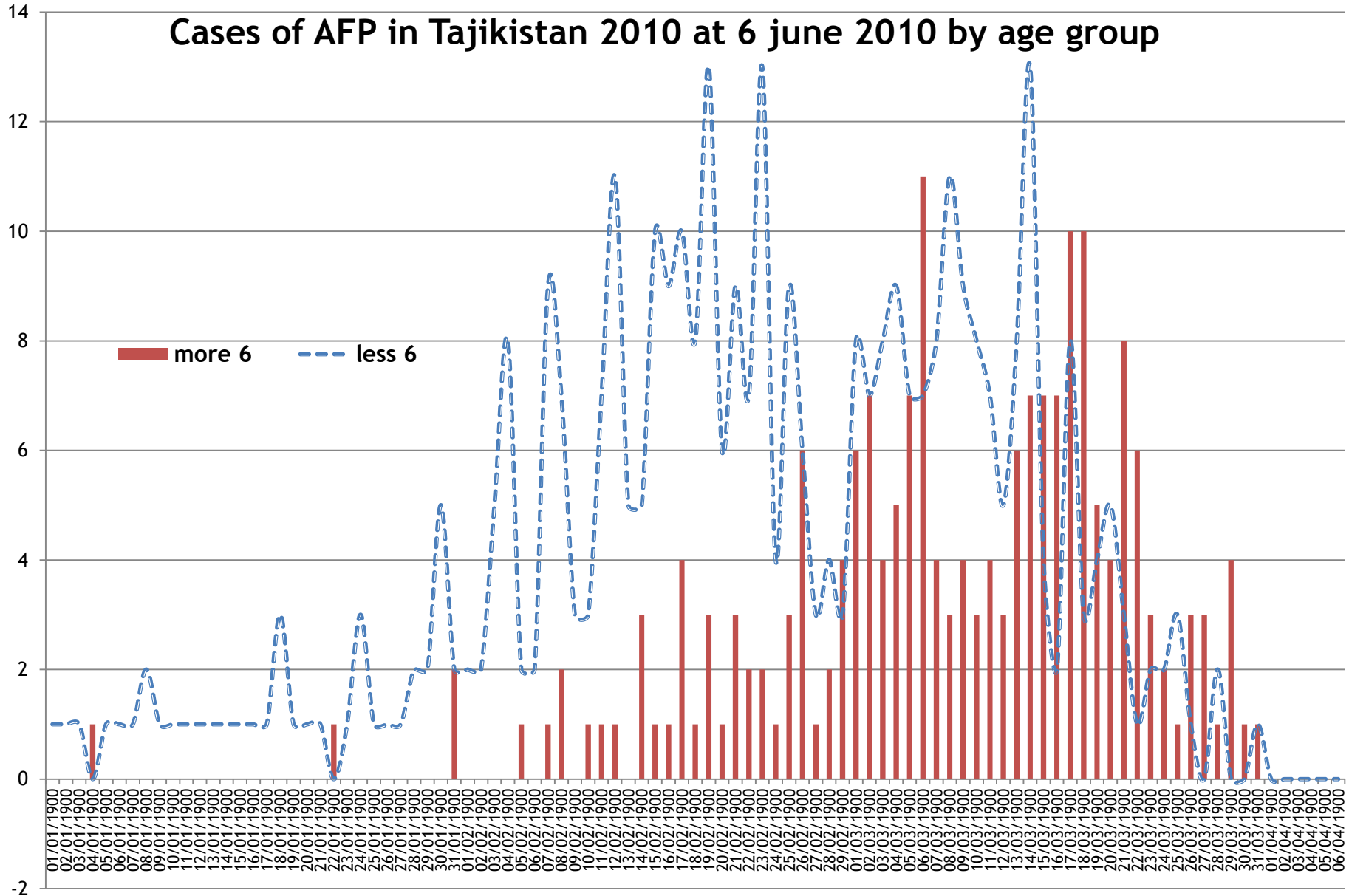
Sufficient to reinfect the GLOBE !





Mountains
cows
cotton and
nice
people

Cases of AFP in Tajikistan 2010 at 6 june 2010 by age group





600 paralyzed children !





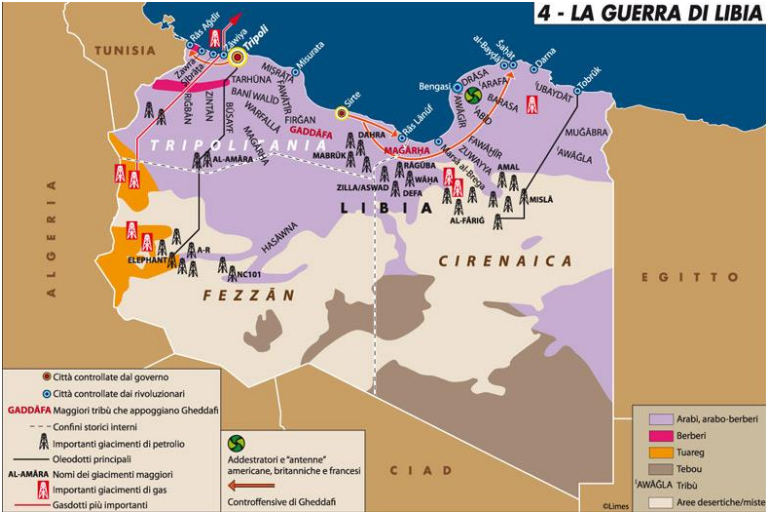


governo did not purchase polio vaccine for two years

In some Districts polio coverage less than 50%

In war areas vaccination stopped

SIRIA RECENT EPIDEMIC



LIBIA : WHO IS VACCINATING ??

Lebanon : 2 million refugees ??

ISRAELE !!!

**More than 100 WP!
Isolates from sewage in all
the country in the last 2
years !!**



Polio virus leaks in to river



🕒 Sun 07/09/2014 - 12:42 👤 MB

The River Laan/Lasne that flows through Flemish and Walloon Brabant became infected

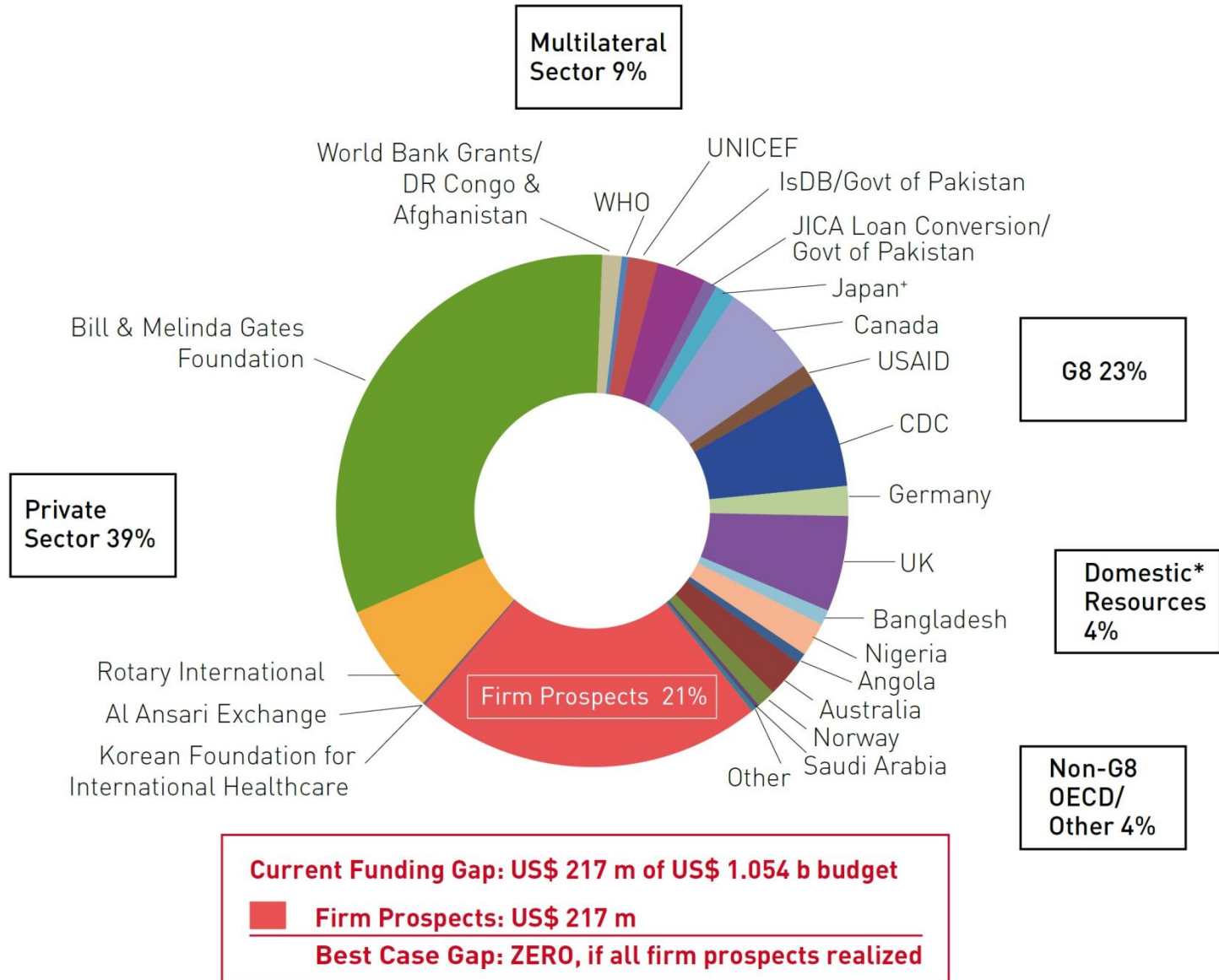
Good News

- Polio 2 eliminated in 1999
- INDIA polio Free !!
- Last case in Afganistan jan 2015
- Last case in Nigeria july 2014
- Pakistan: 21 cases in 2015 (compared with 47 for the same period in 2014),
- Total global cases in 2015: 22 (compared with 61 for the same period in 2014)
- Total in endemic countries in 2015: 22 (compared with 52 for the same period in 2014)
- Total in non-endemic countries in 2015: 0 (compared with 9 for the same period in 2014)

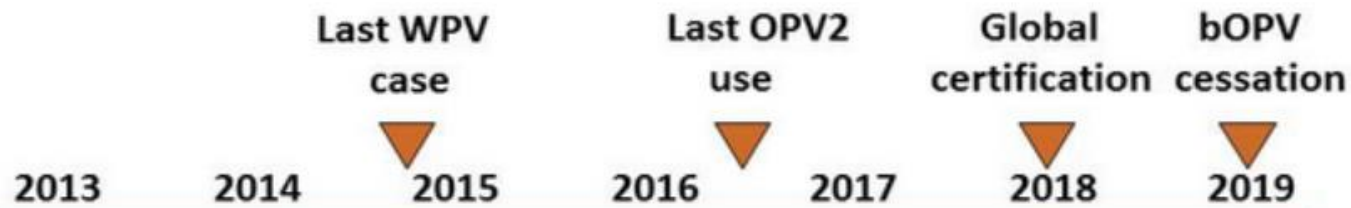
Good News

- Bivalent OPV available
- Use of IPV as Buster
- IHR alert declared by WHO HQ
Polio Public Health Emergency
- Funding gap decreasing

Financing the 2013 budget of US\$ 1.054 billion: US\$ 837 million in contributions with a gap of US\$ 217 million



'Other' includes: the Governments of Brunei Darussalam, Finland, Luxembourg, Monaco and Nepal, plus the GOOGLE Foundation/Matching Grant.
 * Domestic contributions by the Government of India of approximately US\$ 207 million for 2013 are not included in this budget.
 + Includes funds from the Counter Value Fund/Govt of Pakistan.



**Objective 1:
Poliovirus
Detection and
Interruption**



**Objective 2:
Strengthening
Immunization
Systems and OPV
Withdrawal**



**Objective 3:
Containment and
Certification**



**Objective 4:
Legacy Planning**

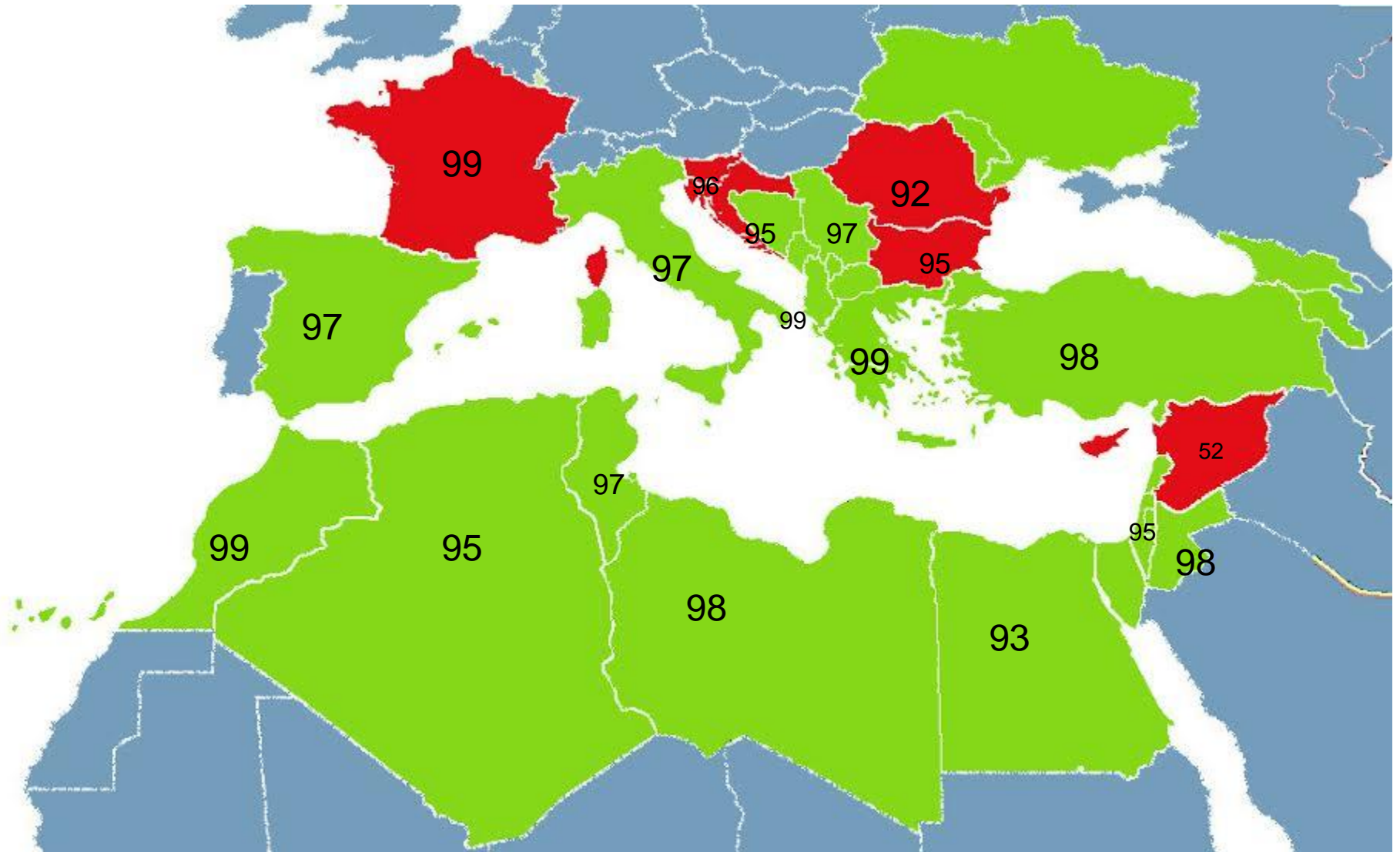


unicef 



BILL & MELINDA
GATES foundation

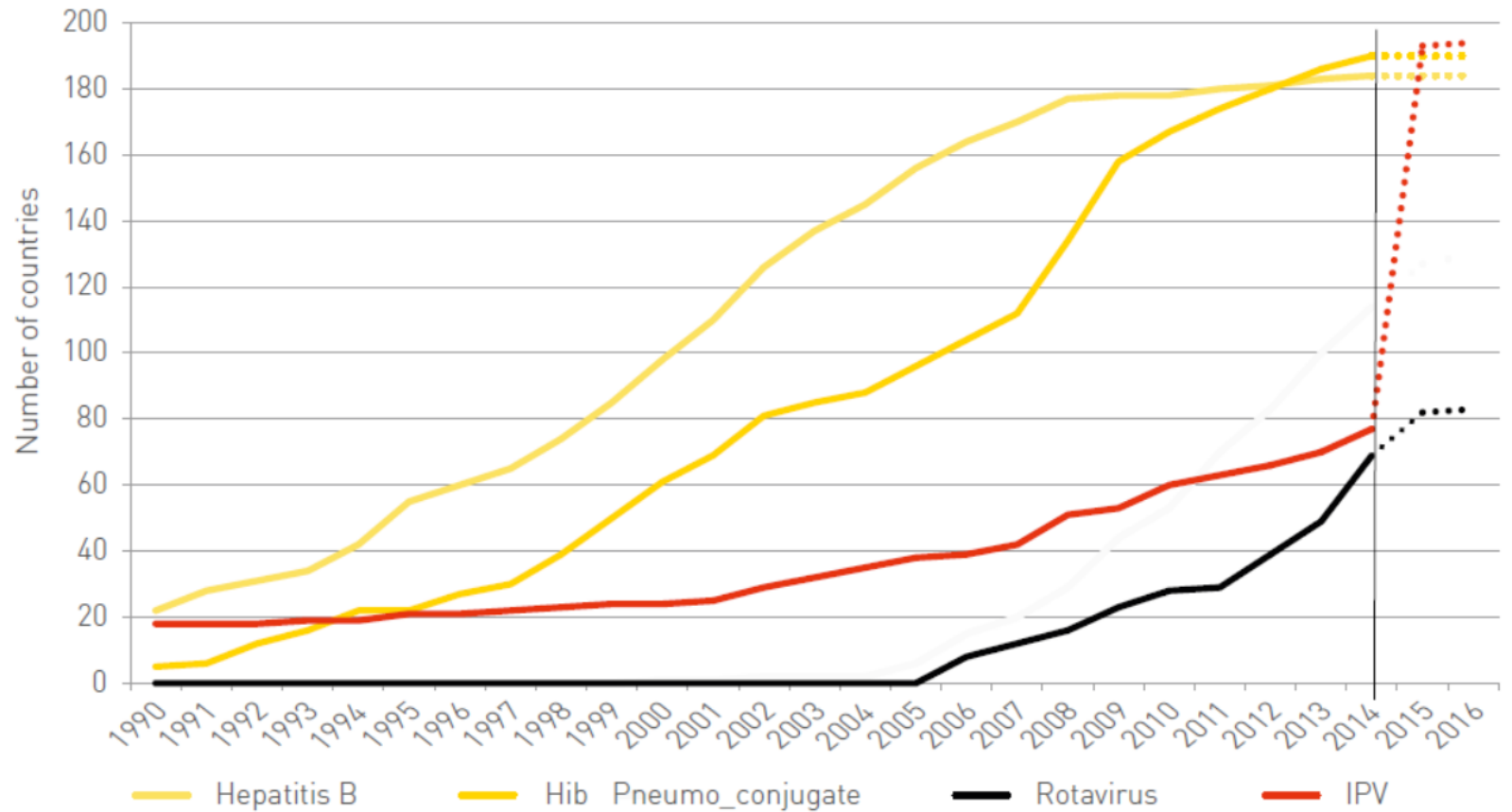
National polio 3 at 1 yr estimates 2014



Critical issues

- Progressive antibody titer decrease for booster absence
- IPV weak mucosal immunity
- OPV Antibody production interference from other enteroviruses
- Uncertainty of life lasting protection in absence of natural or OPV boosters.

Rolling out IPV globally



Are you sure ?

- That in any district of your country polio coverage is higher than 90%
- That doctors are ready to recognize a suspect polio case ?
- That WP1 is not circulating in your sewage ?
- That adolescent and adult population are protected ??



A medical student
with the last textbook
on

Communicable
diseases !

Where there is no
chapter on

Poliomielitis !!!