

GOAL 2: ACHIEVE RUBELLA AND CRS ELIMINATION

(indicator G2.2)

Highlights

- As of December 2014, 140 Member States had introduced rubella vaccines; coverage, however, varies from 12% to 94% depending on region.
- As of the end of 2014, 54 Member States had not introduced rubella-containing vaccine (RCV) into their routine immunization programme. Of those, 42 (78%) are eligible for GAVI Alliance support to introduce RCV.
- Between January 2010 and December 2014, 12 low and middle-income countries (LMIC)¹ introduced an RCV into their national immunization programme. Of these countries, nine (75%) are eligible for GAVI Alliance support.
- The WHO Region of the Americas and the European Region established rubella elimination goals of 2010 and 2015, respectively. The Member States in the Region of the Americas achieved their goal in 2009, one year ahead of the target date. In April 2015, the International Expert Committee (IEC) for Measles and Rubella Elimination in the Americas verified that the Region had eliminated the endemic transmission of rubella and congenital rubella syndrome (CRS).
- In 2014, the European Region reported its lowest ever incidence of rubella (1.0 case per million). While this suggests progress towards the regional elimination goal, it is hard to interpret because the proportion of Member States reporting rubella cases is declining (only 68% of Member States reported rubella cases in 2014). In 2014, the Region was still experiencing a large rubella outbreak in Poland which had started in 2010, putting the 2015 elimination goal at stake.
- The Western Pacific Region has endorsed regional rubella elimination but has not yet set a target date.
- The South-East Asia Region has established a rubella and CRS control goal, linked with its goal to eliminate measles by 2020.
- Two WHO regions (the African Region and the Eastern Mediterranean Region) do not have rubella elimination or control targets.
- Rubella and CRS surveillance systems are weak and cases remain underreported, particularly in Member States that have not yet introduced RCV and/or do not have rubella control or elimination goals. Hence, global rubella and CRS surveillance data do not reflect the true burden of these diseases.
- Failure to fully integrate prevention of rubella and CRS with measles elimination activities represents a major missed opportunity for immunization.

¹ Bangladesh, Cambodia, Cape Verde, Ghana, Lao People's Democratic Republic, Nepal, Philippines, Senegal, Solomon Islands, Morocco, Rwanda, and the United Republic of Tanzania.

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|------------------------------------|--|
| DEFINITION OF INDICATOR (1) | <ul style="list-style-type: none"> Rubella and CRS elimination: The absence of endemic rubella virus transmission in a defined geographical area (e.g. region or country) for ≥ 12 months and the absence of CRS cases associated with endemic transmission in the presence of a well-performing surveillance system <p><i>Note 1:</i> There may be a time lag (up to 9 months) in occurrence of CRS cases after interruption of rubella virus transmission has occurred. Evidence of the absence of continuing rubella transmission from CRS cases is needed because CRS cases excrete rubella virus for up to 12 months after birth</p> <p><i>Note 2:</i> Verification of rubella elimination takes place after 36 months of interrupted rubella virus transmission</p> |
| DATA SOURCES | <ul style="list-style-type: none"> WHO-UNICEF joint reporting forms (JRFs) for disease incidence and WHO-UNICEF Estimates of National Immunization Coverage (WUENIC) data for coverage rates are subject to the same limitations as all other data submitted via the JRFs, as described in the 2014 report of the GVAP Secretariat (2) There are no WHO-UNICEF estimates for rubella coverage. The first dose of measles-containing vaccine (MCV1) is used as a proxy in the Member States that have introduced rubella vaccine (as all the Member States use combined vaccines for first dose of rubella except for the Russian Federation). |
| COMMENTS ON DATA QUALITY | <ul style="list-style-type: none"> None |
| MILESTONES | <ul style="list-style-type: none"> Americas: Rubella eliminated in 2009 and the International Expert Committee verified the Region as rubella and CRS free in April 2015 European: Rubella elimination by 2015 Western Pacific: Rubella elimination but no target date South-East Asia: Rubella control by 2020 African: No target Eastern Mediterranean: No target |

Background and progress

As of December 2014, 140 (72%) Member States had introduced RCV, a 49% (46 countries) increase from 2000 (Figure 11 and Figure 12). Average coverage globally has gradually increased from 41% in 2010 to 46% in 2014. However, it varies from 12% in the South-East Asia Region to 94% in the European Region (Table 9). In 2014, an additional three Member States introduced rubella vaccine in their routine programme (Morocco, Rwanda and the United Republic of Tanzania). Introduction of rubella vaccine is ongoing in six Member States (Burkina Faso, Cameroon, Myanmar, Viet Nam, Yemen, Zimbabwe), and two Member States (Ethiopia and Papua New Guinea) plan to introduce the vaccine in 2016.

In 2014, the global incidence of rubella was estimated to be 4.6 per million population (reported by 158 Member States, Table 9 and Figure 13). Note that the total number of Member States reporting rubella incidence to WHO has diminished dramatically in recent years, from 176 (91%) in 2012 to

158 (81%) Member States in 2014, which explains the appearance that rubella incidence is diminishing.

The same trend can be seen with CRS reporting. In total 111 (57%) Member States reported CRS figures in 2014 compared with 130 (67%) in 2012 (Table 10). The very low reported incidence is probably more a sign of the almost non-existent CRS surveillance systems outside the Americas and a few other Member States than a reflection of true disease burden.

The **Region of the Americas** achieved its 2010 elimination goal in 2009 and very few cases of rubella and CRS have been reported in the region since then. Between 2010 and 2014, 56 imported rubella cases were reported in eight countries: Argentina (4), Brazil (1), Canada (19), Chile (1), Colombia (2), Mexico (2) and the United States (27). Regarding CRS, five imported cases were reported in Canada (1 in 2011) and the United States (3 in 2012 and 1 in 2013). In 2015, the region was verified as having eliminated rubella and CRS.

All 53 Member States in the **European Region** use the combined measles, mumps and rubella (MMR) vaccine in a two-dose schedule. Based on JRF data, the number of rubella cases reported in the region dropped by 98% between 2013 (n = 39614) and 2014 (n = 640). However, only 19 countries in the Region reported rubella cases in the 2015 JRF. Most of the cases occurred in Poland even though no cases were reported in JRF. Regional sources² reported around 5899 rubella cases in Poland in 2014. Countries that reported cases in JRF include Kazakhstan (n = 152), Germany (n = 151), and Georgia (n = 149).

The large decrease in cases reported in 2014 is primarily the result of a decrease in cases reported by Poland, despite lack of a response measure to control the outbreak. The outbreak in Poland started in 2010 and was caused by aggregation of susceptible cohorts in the context of gender-specific immunization in the past, and late introduction of the two-dose MMR schedule. The outbreak mostly affected adolescent/young adult men, with 37% of those affected by rubella being 15 years of age and older.

In 2014, the **Regional Committee for the Western Pacific** endorsed the Regional Framework for Implementation of the Global Vaccine Action Plan in the Western Pacific and its specified immunization goals, including the regional rubella elimination goal (target date to be determined). At the regional meeting of the Technical Advisory Group (TAG) in June 2015, a recommendation was made to establish 2020 as the target date for elimination of rubella in the region; this recommendation will be discussed by Member States at the next Regional Committee Meeting. The number of reported rubella cases has been declining in the Western Pacific Region since 2011 (from 76 022 in 2011 to 12 814 in 2014) with the majority of cases being reported from China and Japan. Reported CRS cases have also declined in the region (44 in 2013 and 12 in 2014) with most cases being reported from China. CRS surveillance is either weak or is not carried out by many countries in the region.

Six of the 11 countries in the **South-East Asia Region** had introduced RCV by the end of 2014; the remaining five countries are home to approximately 33 million (87%) of the 38 million children under 1 year of age. However, all five of these countries have committed to introducing the vaccine in the next few years. In 2014, 9263 confirmed cases of rubella were reported. India continued to report the most confirmed cases (4870), followed by Indonesia (3267) and Nepal (704). Surveillance for CRS

² These data are available at

http://www.euro.who.int/_data/assets/pdf_file/0004/276115/EpiData-No12-2014.pdf?ua=1

only started as a WHO-supported activity after the September 2013 Regional Committee resolution and all countries in the region have agreed in principle to establish sentinel surveillance for CRS.

Although the **Eastern Mediterranean Region** has not yet set a rubella elimination goal, 13 countries (60%) have set a national target for rubella/CRS elimination and 10 countries are now implementing CRS surveillance. In 2014, 2945 confirmed cases of rubella were reported by the countries of the Eastern Mediterranean Region, the majority of these (95%) were reported from four countries (Afghanistan, Pakistan, Sudan and Yemen) which had not yet introduced RCV.³ So far, only one of the six GAVI-eligible countries (i.e. Yemen) has benefited from GAVI support to conduct supplementary immunization activities (SIAs) of RCV with introduction planned in 2015.

The African Region does not have a rubella control or elimination target and, in 2014, reported the highest incidence of rubella of all WHO regions. This is not surprising given the low uptake of RCV in the region. By the end of 2014, seven (15%) of the countries had introduced RCV. Of these, four countries are GAVI eligible.

A new phase of accelerated rubella control and CRS prevention has begun, marked by the 2011 WHO Position Paper, which recommended a strategy consistent with rubella and CRS elimination (3), the inclusion of rubella elimination in five WHO regions by 2020 as a disease control target in the Global Vaccine Action Plan (2012), and GAVI support for the introduction of rubella vaccine in countries meeting the eligibility criteria.

The key challenges are:

- a) building support for additional regions to adopt elimination goals. This includes ensuring that all Member States can achieve and maintain the minimum coverage ($\geq 80\%$) through routine services and/or in SIAs required for introduction of RCV;
- b) advocating for resources and a secure vaccine supply needed to meet the European Region's elimination goal;
- c) ensuring high routine coverage of RCV (because of the use of combined measles and rubella-containing vaccines (MR) or measles, mumps and rubella-containing (MMR) vaccines, the programmatic target for RCV1 and RCV2 coverage is $\geq 95\%$);
- d) ensuring high-quality MR SIAs that reach at least 95% of targeted children, as verified through surveys; and
- e) strengthening synergies between rubella and measles surveillance and expanding CRS surveillance – commitment at all levels of government as well as involvement of the private sector is needed to address these challenges.

For GAVI-eligible countries, the challenge is in capitalizing on the available resources for RCV introduction while ensuring sufficient political and financial commitment to assure the sustainability of the programme.

Financial support from the GAVI Alliance together with the leadership, coordination and technical expertise from the Measles & Rubella Initiative (M&RI), provide an opportunity for Member States and regions to accelerate progress in rubella control and CRS prevention. However, except for the Americas, the WHO regions are not on track to achieve elimination. Substantially greater

³ Yemen, with GAVI support, conducted a nationwide MR campaign for children aged from 9 months to 14 years in November 2014 and subsequently introduced RCV in February 2015.

commitment and investment by Member States and the global immunization community will be required to complete the task of rubella elimination in the European Region by 2015 and to reach the GVAP target of rubella elimination in five regions by 2020.

Table 9 and Table 10 and Figure 11-13 provide data on cases of rubella and CRS.

Table 9: Rubella cases and incidence by WHO region, 2012–2014

| WHO region | National rubella coverage (%) | | | Member States reporting rubella cases (%) | | | Rubella incidence per million population | | |
|------------------------------|-------------------------------|-------------|-------------|---|-----------|-----------|--|-------------|-------------|
| | 2014 | 2013 | 2012 | 2014 | 2013 | 2012 | 2014 | 2013 | 2012 |
| African Region | 10.3 | 3.5 | 0.1 | 94 | 91 | 87 | 7.9 | 15.3 | 13.0 |
| Region of the Americas | 91.9 | 91.3 | 94 | 94 | 97 | 100 | 0 | 0 | 0 |
| Eastern Mediterranean Region | 41.7 | 37.7 | 37.9 | 90 | 86 | 90 | 4.8 | 6.7 | 3.0 |
| European Region | 94.2 | 94.8 | 94.6 | 68 | 79 | 89 | 1.0 | 63.4 | 42.3 |
| South-East Asia Region | 12.1 | 12.2 | 10.8 | 91 | 100 | 100 | 5.1 | 5.6 | 3.8 |
| Western Pacific Region | 91.3 | 91.3 | 89.3 | 59 | 63 | 85 | 6.9 | 18.3 | 24.1 |
| Total | 45.7 | 43.8 | 42.3 | 81 | 85 | 91 | 4.9 | 14.2 | 13.4 |

Note: MCV1 was used as a proxy in the Member States that have introduced rubella vaccine.

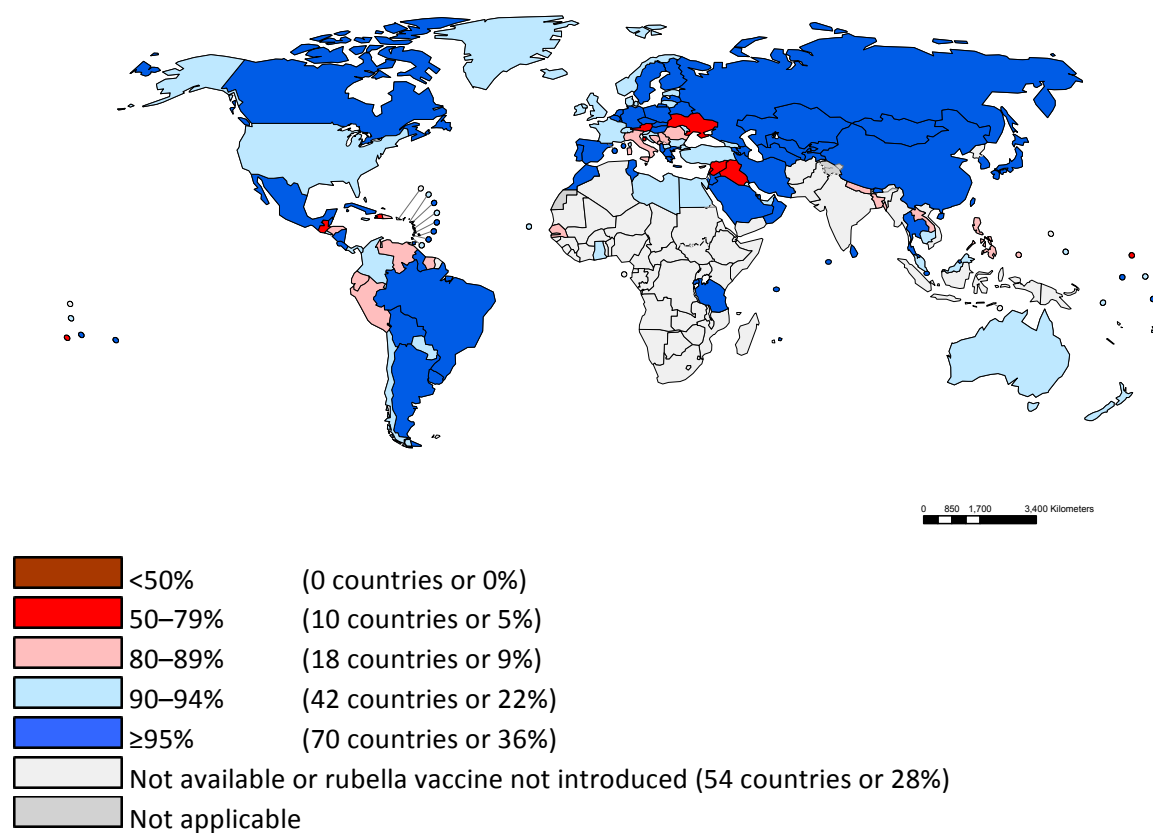
Source: JRF (as of 26 June 2015) and WHO-UNICEF estimates, 1980–2014, revision July 2015.

Table10: CRS cases and incidence by region, 2010–2014

| WHO region | CRS incidence per million population | | | Member States reporting CRS cases (%) | | |
|------------------------------|--------------------------------------|-------------|-------------|---------------------------------------|-----------|-----------|
| | 2014 | 2013 | 2012 | 2014 | 2013 | 2012 |
| African Region | 0.08 | 0.03 | 0.34 | 36 | 34 | 43 |
| Region of the Americas | 0 | 0 | 0 | 94 | 97 | 100 |
| Eastern Mediterranean Region | 0.01 | 0.06 | 0.15 | 38 | 52 | 43 |
| European Region | 0.04 | 0.07 | 0.09 | 64 | 81 | 81 |
| South-East Asia Region | 0.37 | 0.08 | 0.12 | 64 | 55 | 55 |
| Western Pacific Region | 0.04 | 0.13 | 0.39 | 44 | 48 | 63 |
| Total | 0.06 | 0.02 | 0.04 | 57 | 63 | 67 |

Source: JRF (data as of 26 June 2015).

Figure 11: Immunization coverage with rubella-containing vaccines^a in infants, 2014



^a MCV1 was used as a proxy in the Member States that have introduced rubella vaccine.

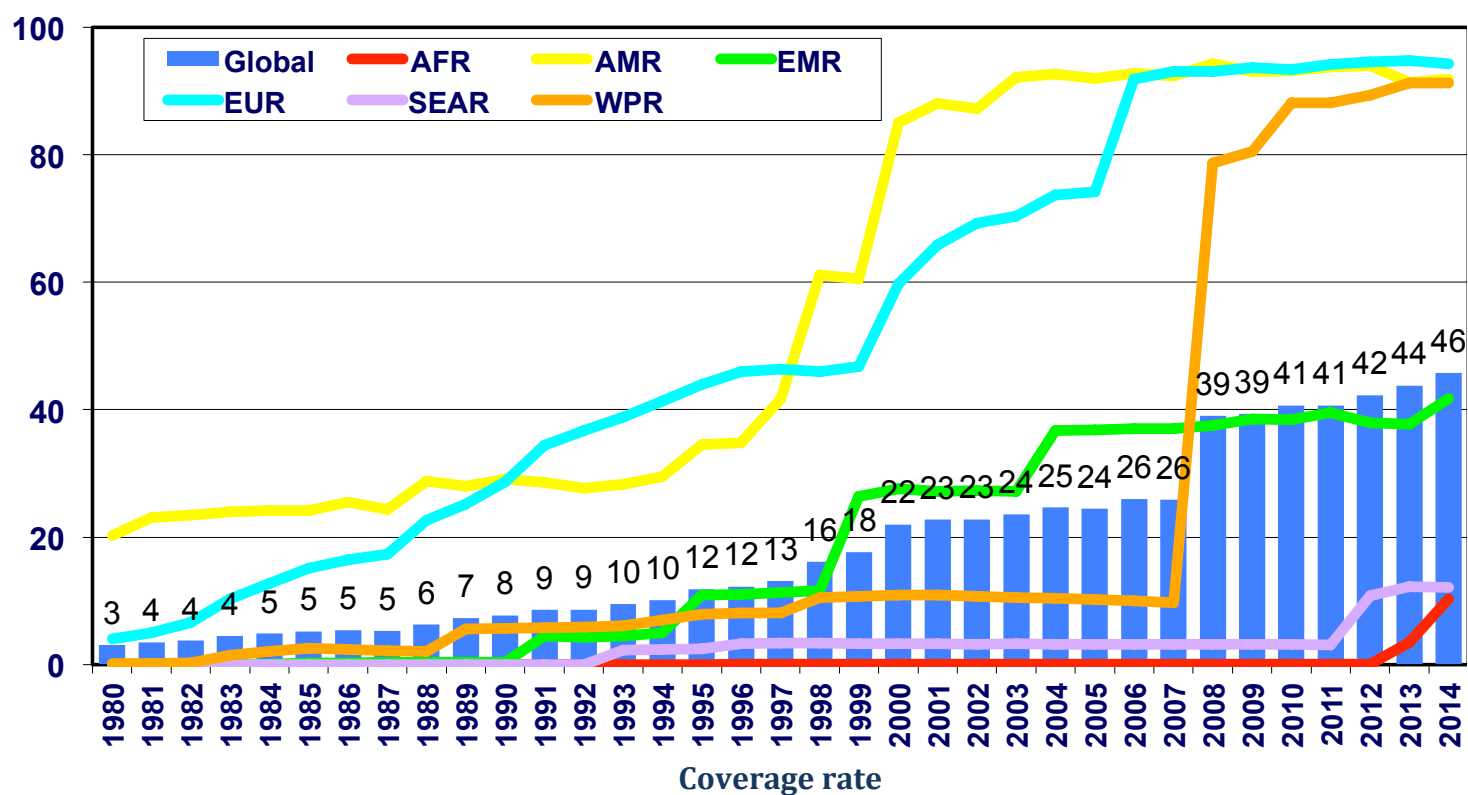
Map production: Immunization Vaccines and Biologicals (IVB), World Health Organization.

Date of slide: 17 July 2015.

Source: WHO, UNICEF coverage estimates 2015 revision, July 2015.

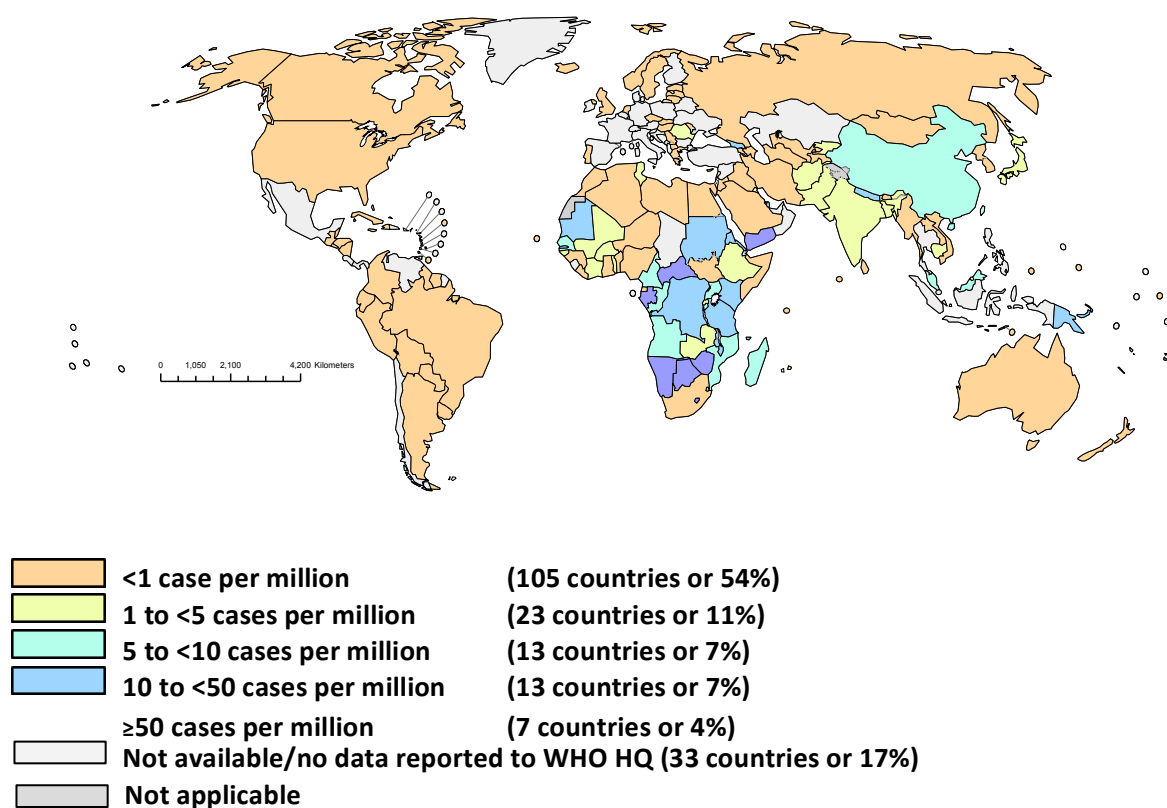
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Figure 12: Rubella-containing vaccine coverage^a by WHO region, 1980–2014



^a MCV1 was used as a proxy in the Member States that have introduced rubella vaccine. Immunization Vaccines and Biologicals (IVB), WHO. 194 WHO Member States. Date of slide: 16 July 2015. Source: WHO-UNICEF coverage estimates 2015 revision, July 2015.

Figure 13: Reported rubella incidence rate per country for 2014^a



^aPer million population.

Map production: Immunization Vaccines and Biologicals (IVB), WHO. Date of slide: 16 July 2015.

Source: Joint Reporting Form as at 26 June 2015: 194 WHO Member States. Map production: Immunization Vaccines and Biologicals (IVB), WHO.

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