This issue of WHO EpiBrief provides an overview of selected epidemiological characteristics of measles and rubella in the WHO European Region based on monthly surveillance data for 2020.

The measles and rubella surveillance data presented in this issue were reported by Member States of the WHO Regional Office for Europe and are incorporated in the centralized information system for infectious diseases.[1] The analyses of these data are performed on cases with disease onset dates during 2020. Where these dates were unavailable, cases with the date of notification reported during this period were included. If different dates are used the numbers of cases in a specified time period may differ from reports produced by national or partner agencies. Tabulated surveillance data by country for 2019 and 2020 (as of 3 February 2021) are annexed to this issue. They are also published in WHO EpiData no. 1/2021.[2] The United Nations population data was used for incidence calculations.[3] Percentages in this report were rounded to the nearest whole number.

Measles in the WHO European Region

Notifications and laboratory data
For 2020, 12 205 measles cases were reported by 37 (71%) of 52 Member States that submitted measles data (including zero reporting) (Table 1 in annex).

Of the total cases in the Region, 10 717 cases (88%) were reported by 6 countries: Uzbekistan (n=4053; 33%), Kazakhstan (3269; 27%), Russian Federation (1100; 9%), Romania (976; 8%), Kyrgyzstan (708; 6%) and Turkey (611; 5%).

Of the total, 5931 cases (49%) were laboratory confirmed and 1685 cases (14%) were epidemiologically linked. The remaining 4589 cases (38%) were classified as clinically compatible. For 2020, 20 (54%) of the 37 countries notifying measles cases submitted 322 genomic sequence information to the Measles Nucleotide Surveillance database (MeaNS)[4] through WHO-accredited reference laboratories (as of 23 February 2021). The genotypes identified in the Region comprised D8 (n=172) and B3 (150). The dominant measles virus variant was D8 Gir Somnath.IND/42.16/ representing 28% of all submissions and 52% of all D8 variants. Other D8 variants included MVs/Phatthalung.THA/22.19 (7.5%), MVs/Southern Finland.FIN/49.18/(9%) and MVs/Dagon Seikkan.MMR/5.18 (4%). For B3, the named strain MVs/Kabul.AFG/20.2014/3 became dominant over Dublin.IRL/8.16/ in 2020, amounting to 31% and 14%, respectively. Sequences of H1 and D4 genotypes were not reported. The number of sequences of measles virus in the WHO European Region reported to MeaNS by genotype from week 26, 2018 through week 52, 2020 is shown in Fig. 1.

Age distribution
Of the total cases, the age group was known in 12 170 cases: 4213 (35%) were <1 year old, 3200 (26%) were 1–4 years old, 2126 (17%) were 5–19 years old and 2631 (22%) were ≥20 years old (Fig. 2).

The age distribution varied between countries. Fig. 3 shows the age distribution of measles cases in the 3 countries reporting the highest number of cases in the Region: Uzbekistan, Kazakhstan and the Russian Federation. In all these 3 countries, the largest proportion of cases was in children under 5 years of age followed by adults ≥20 years old.

Vaccination status
Vaccination status was known for 10 423 cases (85%). Of the 8518 cases (82%) that were unvaccinated: 4055 (48%) were <1 year old, 2343 (28%) were 1–4 years old, 670 (8%) were 5–9 years old, 400 (5%) were 10–19 years old and 1050 (12%) were ≥20 years old. The remaining 1905 cases (18%) were reportedly vaccinated with at least one dose of measles-containing vaccine (MCV).

Hospitalization
Data on hospitalization status were available for 11 717 (96%) cases. 10 508 cases (90%) were hospitalized. Of these, 38% (n=4041) and 30% (n=3137) were reported in Uzbekistan and Kazakhstan, respectively.

Fig. 1. The number of sequences of measles virus in the WHO European Region reported to MeaNS by genotype, week 26, 2018 through week 52, 2020 (as of 23 February 2021)
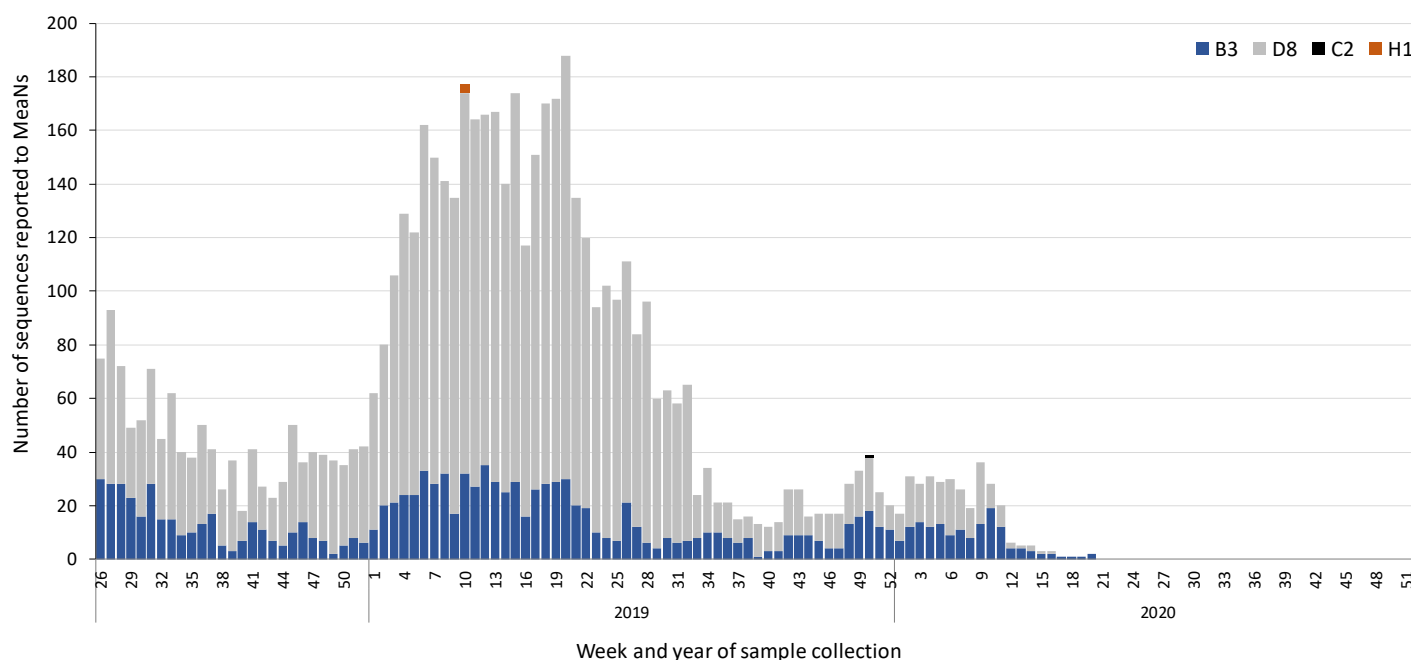
Measles-related deaths

In 2020, there were 10 reported measles-related deaths in 4 countries: Kazakhstan (5 deaths), Bulgaria (2), Turkey (2) and Kyrgyzstan (1). This corresponded to a death rate per 1000 measles cases of 0.82.

8 deaths (80%) occurred in children under 10 years of age: 4 cases were <1 year old and 4 cases were 1–9 years old. The remaining 2 deaths occurred in a 29-year-old and a 45-year-old. All but one of the 10 deaths were laboratory-confirmed cases of measles. 8 fatal cases were unvaccinated and in the remaining 2 cases the vaccination status was unknown.

Imported cases

Importation status was known for 6060 (50%) measles cases. Of these, 350 (5.8%) cases were imported. Most imported cases (81%; n=285) were reported by Uzbekistan (n=241), Russian Federation (29) and France (15). (Table 1 in annex).

Fig. 2. Age distribution of measles cases by proportion (left) and incidence per million inhabitants (right) in the WHO European Region, 2020 (n=12 205)*
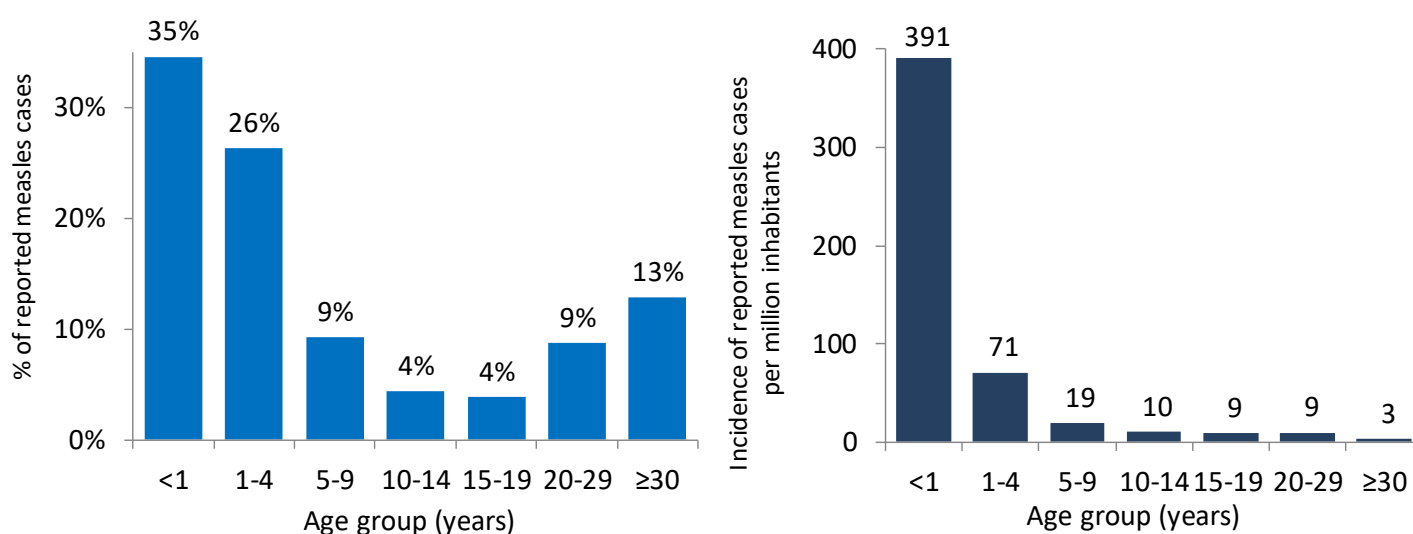
N.B. Discarded cases are not included.
*For 35 cases the age group was not reported.

Fig. 3. Age distribution of measles cases in the 3 countries with the largest numbers of cases in the WHO European Region, 2020

Uzbekistan (n=4053)

Uzbekistan (n=4053)

Kazakhstan (n=3268)*

Kazakhstan (n=3268)*

Russian Federation (n=1100)

Russian Federation (n=1100)

*For 1 case the age group was not reported.

Rubella in the WHO European Region

Notifications and laboratory data

For 2020, 184 rubella cases were reported by 15 (31%) of the 48 Member States that submitted rubella data (including zero reporting) (Table 2 in annex).

Of the total cases in the Region, 167 cases (91%) were reported by 5 countries: Poland (n=96; 52%), Ukraine (26; 14%), Germany (17; 9%), Turkey (15; 8%) and Italy (13; 7%).

The majority of cases (n=142; 77%) was classified as clinically compatible and were mostly (75%) reported by Poland (n=95), Ukraine (22), Germany (11) and Italy (10). 1 case (0.5%) was classified as epidemiologically linked and 41 cases (22%) were laboratory confirmed, most of which were reported by Turkey (n=15), Germany (6), Ukraine (4), Azerbaijan (3), Italy (3) and the Russian Federation (3).

During 2020, only one rubella virus sequence was entered in the Rubella Nucleotide Surveillance database (RubeNS)[5] (as of 23 February 2021). The identified genotype was 2B.

Age distribution

The age group was known in 183 cases: 26 (14%) were <1 year old, 61 (33%) were 1–4 years old, 39 (21%) were 5–19 years old and 57 (31%) were ≥20 years old (Fig. 4). Of the 41 laboratory-confirmed cases, 3 were <1 year old, 13 were 1–4 years old, 4 were 5–19 years old, 6 were 20–29 years old, 9 were 30–39 years old and 6 were ≥40 years old (Fig.5). Of the 15 cases that were 20–39 years old, 9 were female.

Fig.5. Classification of reported rubella cases by age group in the WHO European Region, 2020 (n=184)

Vaccination status

Vaccination status was known for 145 cases (79%). Of the 60 (41%) unvaccinated cases: 24 (40%) were <1 year old, 13(22%) were 1–4 years old, 4 (7%) were 5–19 years old and 19 (32%) were ≥20 years old. The remaining 85 cases (59%) were reportedly vaccinated with at least one dose of rubella-containing vaccine.

Imported cases

Importation status was known in 55 (30%) rubella cases. Of these, 2 cases (4%) were imported cases, 1 reported in Ireland and the other reported in Norway.
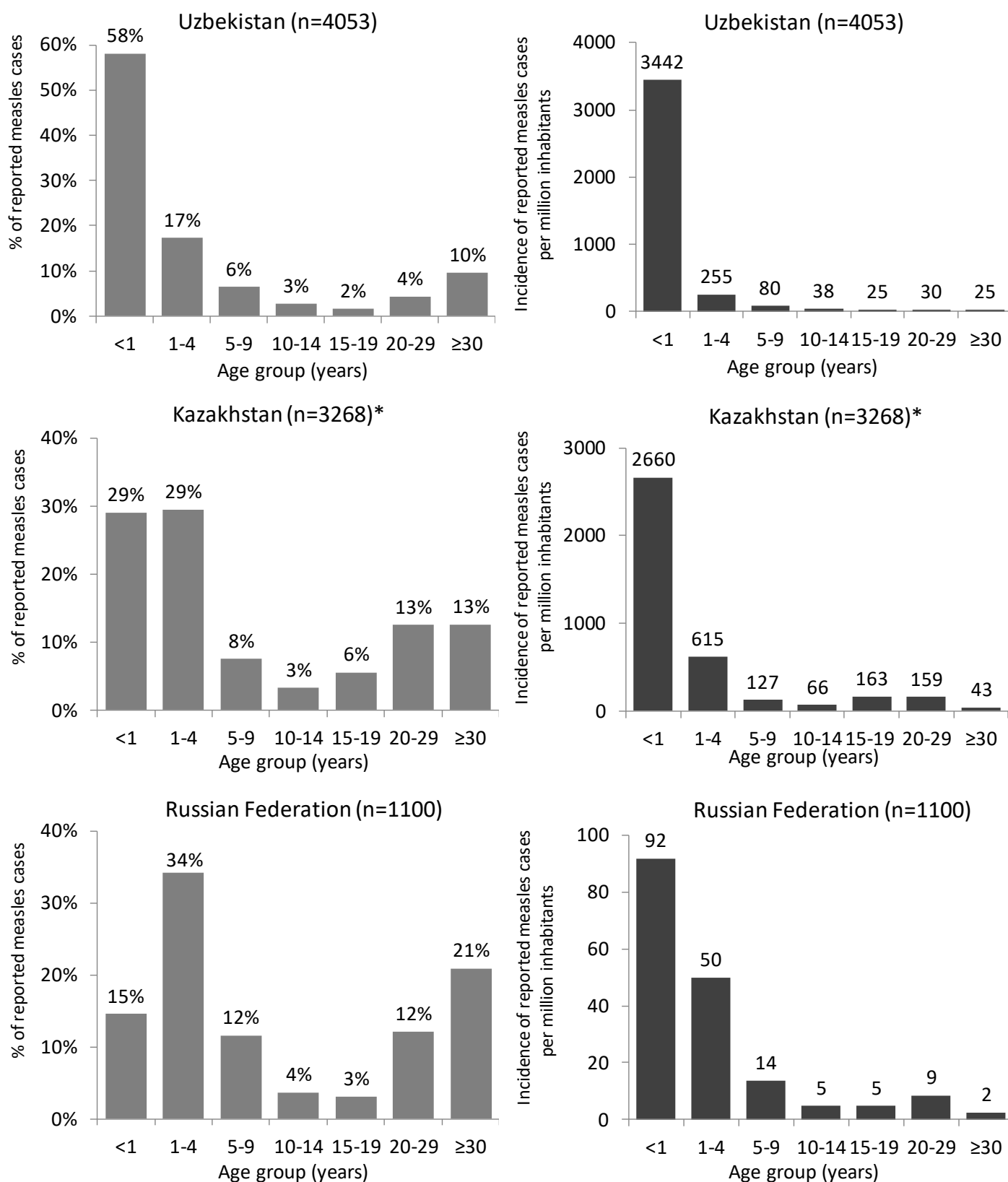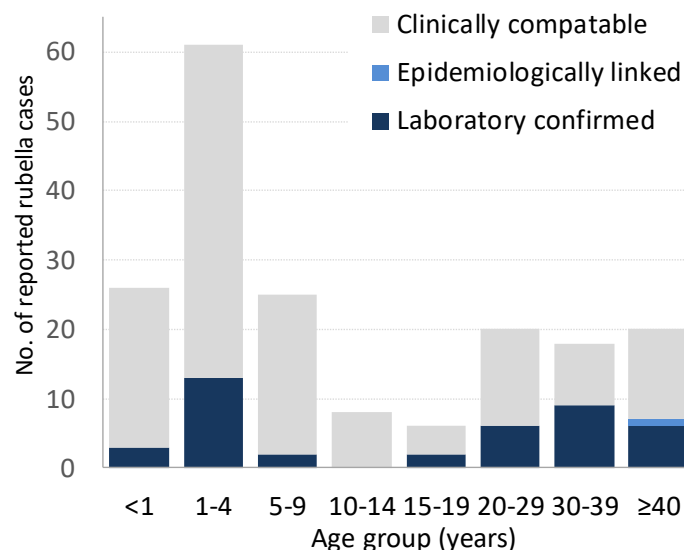
Fig. 4. Age distribution of rubella cases by proportion (left) and incidence per million inhabitants* (right) in the WHO European Region, 2020 (n=184)
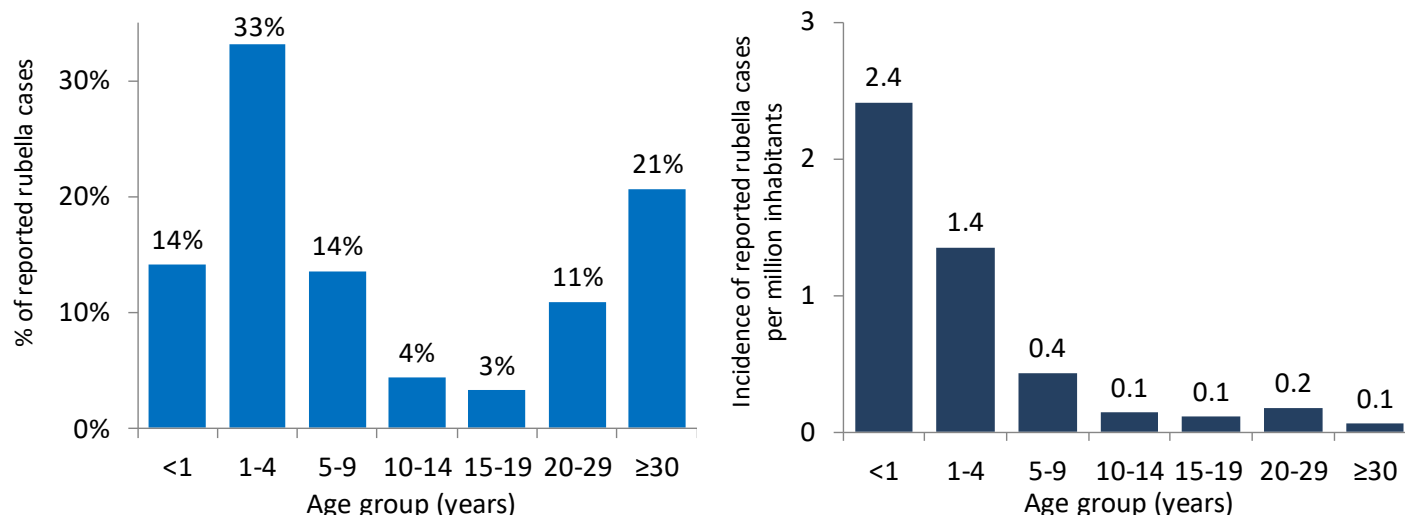
N.B. Discarded cases are not included.

Comments

Measles and rubella in the WHO European Region

The number of reported measles cases in the Region for 2020 (n=12 205) represents a drastic decline of 88% compared with that reported for 2019 (104 443). The number of countries reporting zero measles cases increased from 4 in 2019 to 15 in 2020, out of 53 and 52 reporting countries, respectively.

Rubella continues to be reported in fewer countries than measles. The number of reported rubella cases in the Region for the 2020 (n=184) was also markedly lower than that reported for 2019 (629) largely due to a decline in cases reported by Poland (from 285 cases to 96 cases), Ukraine (from 142 cases to 26 cases) and Germany (from 57 cases to 17 cases). As in previous years, most reported rubella cases were classified as clinically compatible.

Factors related to the implementation of COVID-19 prevention and control measures during 2020 are likely to have contributed to the observed decline in reported measles and rubella cases. These include:

- fewer visits to hospitals and medical practitioners during full or partial lockdown of countries, which may have led to milder cases of disease going undetected;
- decreased measles and rubella virus transmission as a result of non-pharmaceutical measures such as stay-at-home recommendations, closure of schools, banning of mass gatherings, closer of international borders, widespread physical distancing and improved hand hygiene and coughing/sneezing etiquette; and
- interrupted or disrupted disease surveillance due to diversion of human and other resources to COVID-19-related matters.

Vaccination

Attaining the optimal immunization coverage (≥95%) with two measles- and rubella-containing vaccine doses at all subnational levels (provinces, regions and districts) whilst closing immunity gaps in all age groups is crucial for the elimination of measles and rubella. Despite the reduction in the number of reported measles cases, the age distribution of reported cases suggests that immunity gaps persist in all age groups particularly in children <5 years old.

Delayed delivery of vaccination services has been inevitable in countries where movement restrictions were in place as part of the COVID-19 prevention and control measures. In addition, shortages of both healthcare staff delivering vaccines and vaccine supply are likely to have disrupted routine immunization services. Countries where disruptions occurred, even for short periods, either at local or national level, are urged to mitigate the accumulation of individuals susceptible to vaccine-preventable diseases. This requires close monitoring of vaccination uptake at national, and local levels and enumerating the cohorts of those who have missed their vaccine doses for tailor-made catch-up immunization. WHO guidance on routine immunization services during the COVID-19 pandemic in the WHO European Region is available online.[6]

Surveillance

All countries are urged to continue ensuring that their surveillance systems for measles and rubella are sensitive and specific enough to detect, confirm and classify all suspected cases.[7] Considerable effort is required to increase the level of laboratory confirmation of suspected cases to confirm the occurrence or absence of measles and rubella and exclude the possibility of over-reporting.

Compared to the previous year, there has been a notable reduction in the number of sequences reported to MeaNS (decrease of 80%) and RubeNS (decrease of 90%). This reduction was not only due to a large decrease in the number of countries reporting sequences but also in the number of sequences per country. This drastic decline negatively impacts surveillance performance and hampers comparative analysis with previous years' data. It also severely limits characterization of outbreaks and consequently the ability to verify disease elimination. Countries are reminded of the importance of continuing molecular surveillance of measles and rubella and report nucleotide sequence data to MeaNS and RubeNS.

Countries should consider assessing the impact of the COVID-19 pandemic on measles, rubella and other outbreak-prone vaccine-preventable diseases (VPDs) to determine the extent of the observed decline in reported cases due to changes in disease epidemiology (as an indirect result of non-pharmaceutical measures to the COVID-19 response), and disease surveillance performance. The latter may lead to increased risk for outbreaks due to undetected circulation of measles, rubella or other VPDs. Efforts (including dedication of appropriate resources) should be made by countries to ensure high quality VPD surveillance.

Elimination status

As part of the annual verification process, the European Regional Verification Commission for Measles and Rubella Elimination (RVC) reviewed annual status update reports for 2019 in three separate virtual sessions during 2020 to accommodate for delays in submission of the reports. Data on measles and rubella of 48 and 45 countries, respectively, were reviewed. 7 countries' rubella data was retrospectively reviewed for 3 consecutive years 2017–2019.

The RVC verified that by the end of 2019, 29 countries demonstrated the absence of endemic transmission of both diseases. One country has interrupted measles for 24 months. 12 countries remained endemic for measles and 6 countries were considered in a re-established state of measles transmission. The Commission also determined that for the first time,

Belgium, Denmark, France, Germany, Romania, Serbia and Turkey were verified as having eliminated rubella based on retrospective review.

Another session will be planned for the RVC to review the annual status update reports for 2019 of the remaining 5 countries that have not yet submitted reports and retrospectively review another 4 countries' rubella data for 3 consecutive years 2017–2019.

Elimination of both measles and rubella remains a priority goal for all countries of the WHO European Region. The cornerstones for eliminating these diseases remain high population immunity, closure of immunity gaps in the population and high-quality surveillance to monitor disease occurrence for public health action.

References

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2. World Health Organization Regional Office for Europe. WHO EpiData no. 1/2021. www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/publications/surveillance-and-data/who-epidata/epidata-12021

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Annex

Table 1. Measles cases in the WHO European Region: classification, reporting and surveillance performance, 2020 (as of 3 February 2021)

Country	Total Population in 2020 [1]	2019 Incidence Rate (per 1 million population)	2019 Total measles cases [2]	2019 Total measles deaths	2020 Total measles cases [2]	Classification Lab confirmed	Classification Epi-Link [4]	Classification Clinically compatible [3]	Discarded measles	Imported cases	Measles deaths	Report Completeness [4]	Report Timeliness [4]	Report Month & year of last report	Surveillance Laboratory investigation rate [4]	Surveillance Rate of discarded cases [5]	Surveillance Origin of infection [4]	Surveillance Timeliness of investigation [4]
Albania[7]	2 877 797	167.31	482	2	4	4	0	0	15	0	0	100%	100%	Dec-20	100%	0.5	100%	100%
Andorra	77 265	0.00	0	-	0	0	0	0	0	-	-	100%	75%	Dec-20	-	0.0	-	-
Armenia	2 963 243	2.37	7	0	0	0	0	0	20	-	-	100%	75%	Dec-20	100%	0.7	-	100%
Austria	9 006 398	16.86	151	0	25	20	3	2	1	1	0	100%	92%	Dec-20	91%	0.0	100%	8%
Azerbaijan	10 139 177	25.98	261	0	2	2	0	0	9	0	0	100%	92%	Dec-20	91%	0.1	100%	91%
Belarus[7]	9 449 323	20.21	191	0	0	0	0	0	206	-	-	100%	100%	Dec-20	100%	2.2	-	0%
Belgium	11 589 623	41.68	481	0	69	22	8	39	-	0	0	100%	83%	Dec-20	-	-	-	-
Bosnia and Herzegovina	3 280 819	424.42	1401	0	4	0	0	4	-	0	0	83%	50%	Oct-20	-	-	-	-
Bulgaria	6 948 445	178.14	1247	0	245	227	7	11	-	2	2	100%	100%	Dec-20	97%	-	1%	100%
Croatia	4 105 267	12.59	52	0	0	0	0	0	0	-	-	100%	100%	Dec-20	-	0.0	-	-
Cyprus	1 207 359	5.01	6	0	1	1	0	0	-	1	0	100%	92%	Dec-20	100%	-	100%	100%
Czech Republic	10 708 981	53.98	577	0	4	4	0	0	-	1	0	100%	92%	Dec-20	100%	-	100%	0%
Denmark	5 792 202	2.60	15	0	4	4	0	0	-	0	0	100%	100%	Dec-20	100%	-	100%	0%
Estonia	1 326 535	20.37	27	0	0	0	0	0	36	-	-	92%	92%	Nov-20	100%	2.7	-	100%
Finland	5 540 720	2.17	12	0	5	5	0	0	-	2	0	100%	100%	Dec-20	100%	-	100%	0%
France	65 273 511	40.49	2637	2	240	186	29	25	-	15	0	100%	100%	Dec-20	96%	-	79%	0%
Georgia	3 989 167	980.79	3920	2	18	15	0	3	34	0	0	92%	75%	Nov-20	96%	0.9	94%	92%
Germany	83 783 942	6.07	507	0	73	54	14	5	-	8	0	100%	92%	Dec-20	92%	-	85%	0%
Greece	10 423 054	4.30	45	0	2	2	0	0	-	0	0	100%	100%	Dec-20	100%	-	100%	0%
Hungary	9 660 351	2.37	23	1	0	0	0	0	0	-	-	100%	100%	Dec-20	-	0.0	-	-
Iceland	341 243	26.55	9	0	0	0	0	0	-	-	-	100%	100%	Dec-20	-	-	-	-
Ireland	4 937 786	14.95	73	0	19	2	0	17	-	2	0	100%	100%	Dec-20	26%	-	32%	16%
Israel	8 655 535	120.67	1028	0	6	6	0	0	-	0	0	100%	83%	Dec-20	100%	-	0%	83%
Italy	60 461 826	26.75	1620	1	102	82	12	8	20	10	0	100%	100%	Dec-20	95%	0.0	81%	0%
Kazakhstan	18 776 707	718.33	13326	21	3269	2006	1004	259	-	0	5	100%	50%	Dec-20	-	-	-	-
Kyrgyzstan[7]	6 524 195	358.95	2303	0	708	153	319	236	143	6	1	100%	100%	Dec-20	35%	2.2	100%	97%
Latvia	1 886 198	1.05	2	0	0	0	0	0	-	-	-	100%	100%	Dec-20	-	-	-	-
Lithuania	2 722 289	301.49	832	0	1	1	0	0	-	1	0	100%	58%	Dec-20	100%	-	100%	100%
Luxembourg	625 978	38.98	24	0	0	0	0	0	2	-	-	100%	100%	Dec-20	100%	0.3	-	100%
Malta	441 543	72.67	32	0	2	2	0	0	-	0	0	100%	92%	Dec-20	100%	-	100%	0%
Monaco	39 242	0.00	0	-	0	0	0	0	0	-	-	83%	67%	Dec-20	-	0.0	-	-
Montenegro	628 066	0.00	0	-	-	-	-	-	-	-	-	-	-	No Report	-	-	-	-
Netherlands	17 134 872	4.91	84	0	2	2	0	0	-	1	0	100%	100%	Dec-20	100%	-	50%	0%
North Macedonia	2 083 374	904.27	1884	5	0	0	0	0	-	-	-	100%	25%	Dec-20	-	-	-	-
Norway	5 421 241	3.16	17	0	4	4	0	0	-	2	0	100%	100%	Dec-20	100%	-	75%	100%
Poland	37 846 611	36.08	1367	0	31	16	0	15	-	0	0	100%	100%	Dec-20	-	-	-	-
Portugal	10 196 709	0.98	10	0	8	7	0	1	13	4	0	100%	100%	Dec-20	81%	0.1	50%	100%
Republic of Moldova	4 033 963	22.01	89	0	17	17	0	0	21	1	0	100%	100%	Dec-20	100%	0.5	100%	97%
Romania	19 237 691	89.55	1734	5	976	698	176	102	-	0	0	100%	100%	Dec-20	88%	-	100%	29%
Russian Federation	145 934 462	28.59	4171	0	1100	1076	24	0	1628	29	0	100%	83%	Dec-20	100%	1.1	100%	30%
San Marino	33 931	324.87	11	0	0	0	0	0	0	-	-	67%	50%	Sep-20	-	0.0	-	-
Serbia	8 737 371	2.39	21	0	0	0	0	0	-	-	-	100%	100%	Dec-20	-	-	-	-
Slovakia	5 459 642	57.17	312	0	0	0	0	0	0	-	-	100%	100%	Dec-20	-	0.0	-	-
Slovenia	2 078 938	23.09	48	0	6	6	0	0	-	1	0	100%	100%	Dec-20	100%	-	100%	100%
Spain	46 754 778	6.25	292	0	93	90	3	0	41	1	0	100%	100%	Dec-20	100%	0.1	99%	40%
Sweden	10 099 265	1.99	20	0	5	5	0	0	-	4	0	100%	100%	Dec-20	100%	-	100%	0%
Switzerland	8 654 622	26.65	229	2	33	29	4	0	98	7	0	100%	92%	Dec-20	100%	1.1	88%	27%
Tajikistan	9 537 645	0.75	7	0	168	89	74	5	94	0	0	100%	92%	Dec-20	97%	1.0	1%	100%
Turkey[7]	84 339 067	34.66	2892	3	611	610	1	0	1570	2	2	100%	100%	Dec-20	100%	1.9	21%	97%
Turkmenistan[7]	6 031 200	0.00	0	-	0	0	0	0	132	-	-	100%	100%	Dec-20	100%	2.2	-	98%
Ukraine	43 733 762	1303.19	57332	20	211	61	7	143	27	1	0	92%	92%	Nov-20	36%	0.1	98%	99%
United Kingdom	67 886 011	13.06	882	1	84	84	0	0	-	7	0	92%	92%	Nov-20	100%	-	100%	0%
Uzbekistan	33 469 203	53.06	1750	0	4053	339	0	3714	1	241	0	83%	75%	Oct-20	10%	0.0	56%	90%
Region	**932 888 145**	**112.28**	**104443**	**65**	**12205**	**5931**	**1685**	**4589**	**4111**	**350**	**10**	**96%**	**88%**		**65%**	**0.8**	**69%**	**69%**

Data source: Monthly aggregated and case-based data reported by Member States to WHO/Europe directly or via ECDC/TESSy. Member States submitting aggregate data: Belgium, Bosnia and Herzegovina, Kazakhstan, North Macedonia, Poland (since Feb 2019) and Serbia.

[1] *Population source* : United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2019 Revision.
[2] All confirmed measles cases regardless of origin.
[3] Unless specified as laboratory confirmed or epi-linked, cases are classified as clinically compatible.
[4] Target (>=80%) not achieving are highlighted in red.
[5] Rate of discarded cases not achieving the target (>=2 discarded cases per 100 000) are highlighted in red. Rate of discarded cases is not calculated for the countries submitting only confirmed measles cases.
[6] Surveillance indicators can not be calculated for Member States submitting aggregate data.
[7] Country classifies discard cases as "discarded, not measles, not rubella".

Table 2. Rubella cases in the WHO European Region: classification, reporting and surveillance performance, 2020 (as of 3 February 2021)

| Country | Total Population in 2020[1] | 2019 | | 2020 | | | | | | | | | | | | |
		Incidence Rate (per 1 million population)	Total rubella cases[2]	Total rubella cases[2]	Lab confirmed	Epi-Link	Clinically compatible[3]	Discarded rubella	Imported cases	Completeness[4]	Timeliness[4]	Month & year of last report	Laboratory investigation rate[4]	Rate of discarded cases[5]	Origin of infection[4]	Timeliness of investigation[4]
Albania[7]	2 877 797	0.00	0	0	0	0	0	15	-	100%	100%	Dec-20	100%	0.5	-	100%
Andorra	77 265	0.00	0	0	0	0	0	0	-	100%	75%	Dec-20	-	0.0	-	-
Armenia	2 963 243	0.00	0	0	0	0	0	0	-	100%	75%	Dec-20	-	0.0	-	-
Austria	9 006 398	0.00	0	1	0	1	0	-	0	100%	83%	Dec-20	-	-	0%	0%
Azerbaijan	10 139 177	0.20	2	3	3	0	0	2	0	100%	92%	Dec-20	80%	0.0	0%	100%
Belarus[7]	9 449 323	-	-	1	1	0	0	206	0	100%	100%	Dec-20	100%	2.2	0%	0%
Belgium[8]	11 589 623	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bosnia and Herzegovina	3 280 819	0.91	3	0	0	0	0	-	-	83%	42%	Oct-20	-	-	-	-
Bulgaria	6 948 445	0.00	0	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
Croatia	4 105 267	0.00	0	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
Cyprus	1 207 359	0.00	0	1	1	0	0	-	0	100%	92%	Dec-20	100%	-	0%	0%
Czech Republic	10 708 981	0.00	0	0	0	0	0	-	-	100%	92%	Dec-20	-	-	-	-
Denmark[8]	5 792 202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Estonia	1 326 535	0.00	0	0	0	0	0	7	-	92%	92%	Nov-20	100%	0.5	-	100%
Finland	5 540 720	0.00	0	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
France[8]	65 273 511	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	3 989 167	2.25	9	0	0	0	0	10	-	92%	75%	Nov-20	80%	0.3	-	90%
Germany	83 783 942	0.68	57	17	6	0	11	-	0	92%	83%	Dec-20	35%	-	47%	0%
Greece	10 423 054	0.00	0	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
Hungary	9 660 351	0.00	0	0	0	0	0	0	-	100%	100%	Dec-20	-	0.0	-	-
Iceland	341 243	0.00	0	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
Ireland	4 937 786	0.00	0	2	1	0	1	-	1	100%	92%	Dec-20	50%	-	50%	100%
Israel	8 655 535	0.00	0	0	0	0	0	-	-	100%	83%	Dec-20	-	-	-	-
Italy	60 461 826	0.40	24	13	3	0	10	4	0	100%	100%	Dec-20	82%	0.0	23%	0%
Kazakhstan	18 776 707	0.27	5	1	1	0	0	-	0	100%	50%	Dec-20	-	-	-	-
Kyrgyzstan[7]	6 524 195	0.62	4	0	0	0	0	143	-	100%	100%	Dec-20	22%	2.2	-	94%
Latvia	1 886 198	1.05	2	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
Lithuania	2 722 289	0.00	0	0	0	0	0	-	-	100%	58%	Dec-20	-	-	-	-
Luxembourg	625 978	0.00	0	0	0	0	0	1	-	100%	100%	Dec-20	100%	0.2	-	100%
Malta	441 543	0.00	0	0	0	0	0	-	-	100%	92%	Dec-20	-	-	-	-
Monaco	39 242	0.00	0	0	0	0	0	0	-	75%	58%	Oct-20	-	0.0	-	-
Montenegro	628 066	0.00	0	-	-	-	-	-	-	-	-	No Report	-	-	-	-
Netherlands	17 134 872	0.00	0	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
North Macedonia	2 083 374	0.00	0	0	0	0	0	-	-	100%	25%	Dec-20	-	-	-	-
Norway	5 421 241	0.00	0	1	1	0	0	-	1	100%	100%	Dec-20	100%	-	100%	100%
Poland	37 846 611	7.52	285	96	1	0	95	-	0	100%	100%	Dec-20	-	-	-	-
Portugal	10 196 709	0.20	2	1	0	0	1	5	0	100%	100%	Dec-20	50%	0.0	100%	100%
Republic of Moldova	4 033 963	0.00	0	0	0	0	0	3	-	100%	100%	Dec-20	100%	0.1	-	100%
Romania	19 237 691	0.21	4	3	1	0	2	-	-	100%	92%	Dec-20	33%	-	100%	33%
Russian Federation	145 934 462	0.23	34	3	3	0	0	0	0	100%	83%	Dec-20	100%	0.0	100%	100%
San Marino	33 931	0.00	0	0	0	0	0	0	-	75%	42%	Sep-20	-	0.0	-	-
Serbia	8 737 371	-	-	-	-	-	-	-	-	-	-	No report	-	-	-	-
Slovakia	5 459 642	0.00	0	0	0	0	0	0	-	100%	100%	Dec-20	-	0.0	-	-
Slovenia	2 078 938	0.00	0	0	0	0	0	-	-	100%	100%	Dec-20	-	-	-	-
Spain	46 754 778	0.09	4	0	0	0	0	4	-	100%	100%	Dec-20	75%	0.0	-	50%
Sweden	10 099 265	0.00	0	0	0	0	0	0	-	100%	92%	Dec-20	-	0.0	-	-
Switzerland	8 654 622	0.12	1	0	0	0	0	18	-	100%	92%	Dec-20	94%	0.2	-	6%
Tajikistan	9 537 645	0.00	0	0	0	0	0	11	-	92%	83%	Nov-20	100%	0.1	-	100%
Turkey[7]	84 339 067	0.58	48	15	15	0	0	1585	0	100%	100%	Dec-20	99%	1.9	73%	97%
Turkmenistan[7]	6 031 200	0.00	0	0	0	0	0	132	-	100%	100%	Dec-20	100%	2.2	-	98%
Ukraine	43 733 762	3.23	142	26	4	0	22	6	0	92%	92%	Nov-20	31%	0.0	92%	94%
United Kingdom	67 886 011	0.04	3	0	0	0	0	-	-	92%	92%	Nov-20	-	-	-	-
Uzbekistan	33 469 203	0.00	0	0	0	0	0	0	-	83%	75%	Oct-20	-	0.0	-	-
Region	**932 888 145**	**0.68**	**629**	**184**	**41**	**1**	**142**	**2152**	**2**	**88%**	**79%**		**92%**	**0.4**	**63%**	**85%**

Data source: Monthly aggregated and case-based data reported by Member States to WHO/Europe directly or via ECDC/TESSy. Member States submitting aggregate data: Bosnia and Herzegovina, Kazakhstan, North Macedonia and Poland.

[1] *Population source:* United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2019 Revision.

[2] All confirmed rubella cases regardless of origin.

[3] Unless specified as laboratory confirmed or epi-linked, cases are classified as clinically compatible.

[4] Target (>=80%) not achieving are highlighted in red.

[5] Rate of discarded cases not achieving the target (>=2 discarded cases per 100 000) are highlighted in red. Rate of discarded cases is not calculated for the countries submitting only confirmed rubella cases.

[6] Surveillance indicators can not be calculated for Member States submitting aggregate data.

[7] Country classifies discard cases as "discarded, not measles, not rubella".

[8] Country does not have a comprehensive rubella surveillance system.