Measles and rubella elimination country profile
Turkey

Measles elimination status

2016 interrupted
2017 interrupted

Source: European Regional Verification Commission for Measles and Rubella Elimination (RVC) meeting report: www.euro.who.int/7thrvc

Measles and rubella surveillance

National case-based surveillance for measles, rubella and CRS
Lab confirmation for diagnosis of measles, rubella and CRS

Source: WHO/UNICEF Joint Reporting Form on Immunization, 2017

Measles and rubella immunization schedule, 2017

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Schedule</th>
<th>Year of introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCV1</td>
<td>MMR</td>
<td>12 months</td>
</tr>
<tr>
<td>MCV2</td>
<td>MMR</td>
<td>6 years</td>
</tr>
<tr>
<td></td>
<td>RCV</td>
<td>2006</td>
</tr>
</tbody>
</table>

Measles vaccination in school: Yes

MCV1 = first dose measles-containing vaccine; MCV2 = second dose measles-containing vaccine; RCV = rubella-containing vaccine

Definition used for an outbreak

2 or more laboratory-confirmed cases which are temporally related (with dates of rash onset occurring between 7 and 18 days apart for measles, and between 12 and 46 days apart for rubella) and epidemiologically or virologically linked, or both

Source: Measles and rubella elimination Annual Status Update report, 2017

Rubella elimination status

2016 endemic
2017 endemic

Source: European Regional Verification Commission for Measles and Rubella Elimination (RVC) meeting report: www.euro.who.int/7thrvc

Demographic information, 2017

| Total population         | 80 745 020 |
| < 1 year old             | 1 314 452  |
| < 5 years old            | 6 728 071  |


Measles and rubella cases and immunization coverage, 2008–2017

Source: Disease incidence and immunization coverage (WUENIC), WHO, Data and Statistics, Immunization Monitoring and Surveillance and communication with the country [http://www.who.int/immunization/monitoring_surveillance/data/en/]
MCV1 = first dose measles-containing vaccine
MCV2 = second dose measles-containing vaccine

Confirmed measles cases by month of onset, 2013-2017

Source: CISID 2017

Vaccine Schedule

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Schedule</th>
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<tr>
<td>MCV1</td>
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MCV1 = first dose measles-containing vaccine; MCV2 = second dose measles-containing vaccine; RCV = rubella-containing vaccine
Measles and rubella elimination country profile
Turkey

Measles cases by first subnational level, 2017

Measles genotypes by first subnational level, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017

Measles cases by age group and vaccination status, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017
Note: Excludes imported cases

Sources of infection, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017

Supplementary immunization activities

Source: Supplementary immunization activities, WHO, Data and Statistics, Immunization Monitoring and Surveillance (http://www.who.int/immunization/monitoring_surveillance/data/en/) and communication with the country

Information on CRS, 2017

No cases reported

Source: Measles and rubella elimination Annual Status Update report, 2017
CRS = congenital rubella syndrome

Measles incidence by first subnational level, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017

Measles genotypes by first subnational level, 2017

Source: MeaNS 2017

Note: The dots in the maps are placed randomly within the administrative regions.

Map disclaimer: The boundaries and names shown and the designations used on the maps do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Measles cases by age group and vaccination status, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017
Note: Excludes imported cases

Sources of infection, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017

Supplementary immunization activities

Source: Supplementary immunization activities, WHO, Data and Statistics, Immunization Monitoring and Surveillance (http://www.who.int/immunization/monitoring_surveillance/data/en/) and communication with the country

Information on CRS, 2017

No cases reported

Source: Measles and rubella elimination Annual Status Update report, 2017
CRS = congenital rubella syndrome

Measles incidence by first subnational level, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017

Measles genotypes by first subnational level, 2017

Source: MeaNS 2017

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Measles cases by age group and vaccination status, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017
Note: Excludes imported cases

Sources of infection, 2017

Source: Measles and rubella elimination Annual Status Update report, 2017

Supplementary immunization activities

Source: Supplementary immunization activities, WHO, Data and Statistics, Immunization Monitoring and Surveillance (http://www.who.int/immunization/monitoring_surveillance/data/en/) and communication with the country

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Source: Measles and rubella elimination Annual Status Update report, 2017

Measles genotypes by first subnational level, 2017

Source: MeaNS 2017

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Measles and rubella elimination country profile

Turkey

Measles incidence, epidemiologic and virologic characteristics, 2013-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Suspected cases</th>
<th>Confirmed measles cases</th>
<th>Discarded as non-measles</th>
<th>Measles incidence</th>
<th>Genotypes detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>17 809</td>
<td>7389</td>
<td>16</td>
<td>10 404</td>
<td>87.3</td>
</tr>
<tr>
<td>2014</td>
<td>4876</td>
<td>562</td>
<td>3</td>
<td>4311</td>
<td>7.4</td>
</tr>
<tr>
<td>2015</td>
<td>3492</td>
<td>342</td>
<td>0</td>
<td>3150</td>
<td>4.3</td>
</tr>
<tr>
<td>2016</td>
<td>2217</td>
<td>9</td>
<td>0</td>
<td>2208</td>
<td>0.1</td>
</tr>
<tr>
<td>2017</td>
<td>2642</td>
<td>79</td>
<td>5</td>
<td>2558</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Source: Measles and rubella elimination Annual Status Update report, 2013-2017
Incidence calculated per 1 million population
ND = Data not available; NA= Not applicable


<table>
<thead>
<tr>
<th>Year</th>
<th>Discarded non-measles rate</th>
<th>% 1st sub-national unit with ≥ 2 discarded cases</th>
<th>% cases with adequate laboratory investigation</th>
<th>% origin of infection known</th>
<th># specimen tested for measles</th>
<th>% positive for measles</th>
<th>Rate of viral detection</th>
<th>% WHO and proficient labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>13.6</td>
<td>85.2%</td>
<td>99.8%</td>
<td>47.9%</td>
<td>32 640</td>
<td>24.6%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>2014</td>
<td>5.6</td>
<td>67.9%</td>
<td>99.5%</td>
<td>50.8%</td>
<td>8198</td>
<td>11.7%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>2015</td>
<td>3.9</td>
<td>64.2%</td>
<td>100%</td>
<td>23.1%</td>
<td>4370</td>
<td>9.7%</td>
<td>87.5%</td>
<td>100%</td>
</tr>
<tr>
<td>2016</td>
<td>2.8</td>
<td>59.3%</td>
<td>100%</td>
<td>66.7%</td>
<td>3067</td>
<td>3.4%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>2017</td>
<td>3.3</td>
<td>66.7%</td>
<td>103.9%</td>
<td>65.5%</td>
<td>2829</td>
<td>2.8%</td>
<td>83.3%</td>
<td>84.8%</td>
</tr>
</tbody>
</table>

Source: ASU 2013-2017
ND = Data not available; NA= Not applicable
A proficient laboratory is WHO accredited and/or has an established quality assurance programme with oversight by a WHO accredited laboratory

Rubella incidence, epidemiologic and virologic characteristics, 2013-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Suspected rubella cases</th>
<th>Confirmed rubella cases</th>
<th>Discarded as non-rubella</th>
<th>Rubella incidence</th>
<th>Genotypes detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>ND</td>
<td>81</td>
<td>0</td>
<td>0</td>
<td>ND</td>
</tr>
<tr>
<td>2014</td>
<td>136</td>
<td>39</td>
<td>0</td>
<td>0</td>
<td>97</td>
</tr>
<tr>
<td>2015</td>
<td>135</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>2016</td>
<td>300</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>2017</td>
<td>2642</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Measles and rubella elimination Annual Status Update report, 2013-2017
Incidence calculated per 1 million population
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<table>
<thead>
<tr>
<th>Year</th>
<th>Discarded non-rubella rate</th>
<th>% 1st sub-national unit with ≥ 2 discarded cases</th>
<th>% cases with adequate laboratory investigation</th>
<th>% origin of infection known</th>
<th># specimen tested for rubella</th>
<th>% positive for rubella</th>
<th>Rate of viral detection</th>
<th>% WHO and proficient labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>13.6</td>
<td>ND</td>
<td>100%</td>
<td>ND</td>
<td>4710</td>
<td>2.2%</td>
<td>ND</td>
<td>100%</td>
</tr>
<tr>
<td>2014</td>
<td>5.6</td>
<td>ND</td>
<td>100%</td>
<td>ND</td>
<td>2947</td>
<td>2.1%</td>
<td>ND</td>
<td>100%</td>
</tr>
<tr>
<td>2015</td>
<td>3.9</td>
<td>ND</td>
<td>100%</td>
<td>ND</td>
<td>2950</td>
<td>1.6%</td>
<td>ND</td>
<td>100%</td>
</tr>
<tr>
<td>2016</td>
<td>2.8</td>
<td>ND</td>
<td>100%</td>
<td>ND</td>
<td>2660</td>
<td>2.7%</td>
<td>ND</td>
<td>100%</td>
</tr>
<tr>
<td>2017</td>
<td>3.3</td>
<td>66.7%</td>
<td>99.3%</td>
<td>0%</td>
<td>2708</td>
<td>0.1%</td>
<td>ND</td>
<td>86.9%</td>
</tr>
</tbody>
</table>

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RVC comments, based on 2017 reporting

The Regional Verification Commission for Measles and Rubella Elimination (RVC) commends Turkey on the improved quality of surveillance compare to previous years and on the high quality of the ASU. However, the RVC would appreciate if more data on the temporal and spatial (subnational) development of immunization coverage in Turkey would be included in next annual status update, to allow better understanding of population immunity. The RVC is concerned regarding the possible size of the susceptible population in some parts of country, and the risk of future outbreaks. In the same time, the RVC highly commend the efforts and achievements of Turkey in the provision of immunization services to refugees.

Surveillance performance indicators and targets

a. Rate of discarded cases: at least 2 discarded measles or rubella cases per 100 000 population
b. % cases with adequate laboratory investigation: ≥ 80%
c. % origin of infection known: ≥ 80%
d. Rate of viral detection: ≥ 80%