In 2014, 91,408 salmonellosis cases were reported by 30 EU/EEA countries, with 89,883 confirmed cases and an EU/EEA notification rate of 25.4 cases per 100,000 population. Compared with 2013 (21.4 cases per 100,000), this represented a 19% increase in the EU/EEA notification rate, which was affected by Croatia reporting confirmed cases for the first time in 2014 and Italy being excluded from EU/EEA rate calculations due to incomplete reporting in 2014.

**Epidemiology**

In 2014, 91,408 salmonellosis cases were reported by 30 EU/EEA countries, with 89,883 confirmed cases and an EU/EEA notification rate of 25.4 cases per 100,000 population (Table 1). Compared with 2013 (21.4 cases per 100,000), this represented a 19% increase in the EU/EEA notification rate, which was affected by Croatia reporting confirmed cases for the first time in 2014 and Italy being excluded from EU/EEA rate calculations due to incomplete reporting in 2014.

The highest case rate of salmonellosis was observed among young children 0-4 years of age, with 128.9 cases per 100,000 population (Figure 2). The rate in young children was almost three times higher than in the remaining age groups. In some countries, the rate among young children was more than 30 times higher than that among adults 25-64 years of age, i.e. Bulgaria (32 times), Cyprus (60 times), Greece (40 times), and Portugal (82 times). In these countries, the proportions of hospitalised cases were very high in all age groups (average 77−85%, no data available for Bulgaria) while the salmonellosis notification rates were low. There were no differences in the overall rates between males and females (male−female ratio 1.0:1.0).

There was a decreasing trend of salmonellosis in the EU/EEA in the five-year period 2010−2014 (Figure 4). In 2014, the summer peak was slightly less pronounced than in the previous four years.

**Discussion**

The rate of salmonellosis reported in young children was six times as high as among adults. This may be due to the higher proportion of symptomatic infections among the young, as well as an increased likelihood for parents to bring their children to the doctor and doctors to request samples from small children. The substantial difference between the rates in young children and adults observed in some countries is most likely also affected by underreporting of cases. This is supported by the high proportion of hospitalized cases reported in these countries for a disease which in most cases causes mild symptoms, while at the same time very low notification rates of Salmonella infections are reported. A large European study on salmonellosis seroconversion concluded that seroconversion was not correlated with the reported national incidence of Salmonella infections but rather correlated with prevalence data of Salmonella in laying hens, broilers and slaughter pigs, as assessed in the EFSA EU baseline surveys [2]. Seroreversion also correlated with Swedish data on the country-specific risk of travel-associated salmonellosis [2]. While it is unrealistic that surveillance systems could capture all cases of mild disease, improvements in national surveillance systems could reduce underreporting so it would eventually reach similar levels across all EU/EEA countries. This would require extensive work at all levels, with significant costs associated.

Over the last eight years, EU Member States showed a statistically significant decreasing trend in salmonellosis cases and in the reported number of foodborne outbreaks due to Salmonella [3]. This decrease is thought to be associated with the implementation of Salmonella control programmes in the poultry industry, particularly in laying hens and broilers [4]. Nonetheless, salmonellosis remains the second most common zoonosis in humans in the EU. In 2014, Salmonella was surpassed for the first time by foodborne viruses as the most common cause of foodborne outbreaks [5] although this could also reflect improved virus.
The reduction targets for specific Salmonella serotypes in targeted animal populations clearly had an effect on the prevalence of those serotypes, e.g. of *S. Enteritidis* and *S. Typhimurium* in broilers and turkey [3], which is also reflected in fewer human cases with these serotypes. Non-targeted serotypes are however not being reduced to the same extent. A steady increase of *S. Infantis* has been observed in broiler and turkey in the last years [3]. Also, in animal groups where no target is set, increasing numbers of positive Salmonella findings have been reported, e.g. for *S. Typhimurium* in pigs [4]. National or multinational outbreaks involving other serotypes than the two most common ones (*S. Enteritidis* and *S. Typhimurium*) occur every year. Examples in 2014 were the continued *S. Stanley* outbreak linked to the turkey production chain, a national outbreak of *S. Muenchen* linked to consumption of raw pork products, and an outbreak of cases of *S. Chester* linked to travel to a non-EU country [4]. Multidrug-resistant and/or high ciprofloxacin-resistant clones of e.g. *S. Kentucky, S. Stanley* and *S. Infantis* are also spreading in the animal and human population in the EU [5].

**Public health conclusions**

The rates of salmonellosis vary between EU/EEA countries, reflecting differences in, for example, prevalence in food-production animals, food and animal trade between countries, the proportion of travel-associated cases, and the quality and coverage of surveillance systems. While salmonellosis is decreasing in the EU/EEA due to control programmes targeting specific serotypes in the animal population, it is important to point out that all other Salmonella serotypes in food animals should also be acted upon since they can cause infections in humans and result in outbreaks.

**References**


* The European Surveillance System (TESSy) is a system for the collection, analysis and dissemination of data on communicable diseases. EU Member States and EEA countries contribute to the system by uploading their infectious disease surveillance data at regular intervals.

**Publication data**

(http://ecdc.europa.eu/sites/portal/files/media/en/healthtopics/salmonellosis/Documents/aer2016/Table%201.%20Salmonellosis%20cases%2C%20number%20and%20rate%20per%20100%20000%20population%2C%20EU-EEA%20%202010%E2%80%932014.xlsx)

<table>
<thead>
<tr>
<th>Table 1. Reported confirmed salmonellosis cases: number and rate per 100 000 population, EU/EEA, 2010–2014</th>
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<td><strong>Data</strong></td>
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<tr>
<td><strong>Figure 1. Reported confirmed non-typhoidal salmonellosis cases: rate per 100 000 population, EU/EEA, 2014</strong></td>
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| Period: 01 Jan 2014 - 31 Dec 2014  
Europe ([en/search%5B0%5D=age%3A%34480] | salmonellosis [en/search%5B0%5D=disease%3A110] | surveillance [en/search%5B0%5D=public_health_areas%3A1598] |

(arr/publications-data/figure-2-reported-confirmed-non-typhoidal-salmonellosis-cases-rate-100-000)

| **Data**                                                      |
| **Figure 2. Reported confirmed non-typhoidal salmonellosis cases: rate per 100 000 population, by age and gender, EU/EEA, 2014** |
| Period: 01 Jan 2014 - 31 Dec 2014  
Europe ([en/search%5B0%5D=age%3A%34480] | salmonellosis [en/search%5B0%5D=disease%3A110] | surveillance [en/search%5B0%5D=public_health_areas%3A1598] |

(arr/publications-data/figure-3-non-typhoidal-salmonellosis-cases-seasonal-distribution-eueea-2014)

| **Data**                                                      |
| **Figure 3. Non-typhoidal salmonellosis cases: seasonal distribution, EU/EEA, 2014 compared with 2009–2013** |
| graph - 30 Jan 2017  
Europe ([en/search%5B0%5D=age%3A%34480] | salmonellosis [en/search%5B0%5D=disease%3A110] | surveillance [en/search%5B0%5D=public_health_areas%3A1598] |

(arr/publications-data/figure-4-reported-confirmed-non-typhoidal-salmonellosis-cases-trend-and-number)

| **Data**                                                      |
| **Figure 4. Reported confirmed non-typhoidal salmonellosis cases: trend and number, EU/EEA, 2010–2014** |
| graph - 30 Jan 2017  
Europe ([en/search%5B0%5D=age%3A%34480] | salmonellosis [en/search%5B0%5D=disease%3A110] | surveillance [en/search%5B0%5D=public_health_areas%3A1598] |

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