



SURVEILLANCE REPORT

Annual Epidemiological Report for 2015

Smallpox

Key facts

- There were no reports of smallpox or potential smallpox in EU, EEA or other countries in 2015. Smallpox was declared eradicated in 1980.

Methods

This report is based on data for 2015 retrieved from The European Surveillance System (TESSy) on 12 December 2016. 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.

For a detailed description of methods used to produce this report, please refer to the *Methods* chapter [1].

An overview of the national surveillance systems is available online [2].

Additional data on this disease are accessible from ECDC's online *Surveillance atlas of infectious diseases* [3].

The EU case definition was used by 23 countries; three countries used an alternative case definition, and three countries did not specify the case definition.

Disease surveillance is compulsory in 27 EU/EEA countries. Surveillance systems are comprehensive and mostly passive [2]. Data were obtained from 27 EU/EEA countries. Croatia, Portugal and Liechtenstein did not submit data.

Epidemiology

There were no reports of smallpox or potential smallpox in EU/EEA or other countries in 2015.

Discussion and public health implications

Smallpox is a systemic infectious disease, unique to humans, caused by either of two orthopoxvirus variants, *Variola major* and *Variola minor*. In 1980, the World Health Organization declared smallpox eradicated. Since that date, the WHO follows closely the status of the post-eradication decisions including smallpox virus research and medical countermeasures (vaccines and antivirals) [4].

Mass smallpox vaccination campaigns have ceased after eradication. Consequently, the population that is immunologically naïve to orthopoxviruses has increased significantly, which makes it possible to consider smallpox viruses for use as a biological weapon. Legitimately, the virus exists only in two WHO reference laboratories. Preparedness to deal with any accidental or malicious release or natural re-emergence requires global attention [5].

The disease clinically and immunologically most similar to smallpox is monkeypox, a zoonosis endemic to moist, forested regions in West and Central Africa. Smallpox vaccine provides protection against both infections. The observation of monkeypox cases in humans in the Democratic Republic of Congo over several years prompts the question of whether the cessation of smallpox vaccination drives this phenomenon [6].

References

1. European Centre for Disease Prevention and Control. Introduction to the Annual epidemiological report for 2015. In: ECDC. Annual epidemiological report for 2015. Stockholm: ECDC; 2017. Available from: <https://ecdc.europa.eu/en/annual-epidemiological-reports-2016/methods>
2. European Centre for Disease Prevention and Control. Surveillance systems overview [internet]. Stockholm: ECDC; 2017. Available from: https://ecdc.europa.eu/sites/portal/files/documents/Table-surveillance_systems_overview_0.xlsx
3. European Centre for Disease Prevention and Control. Surveillance atlas of infectious diseases [internet]. Stockholm: ECDC; 2017 [cited 30 May 2017]. Available from: <http://atlas.ecdc.europa.eu>
4. Khalakdina A, Costa A, Briand S. Smallpox in the post-eradication era. Wkly Epidemiol Rec. 2016 May 20;91(20):257-64. Available from: <http://www.who.int/wer/2016/wer9120.pdf>
5. Petersen BW, Damon IK, Pertowski CA, Meaney-Delman D, Guarnizo JT, Beigi RH, et al. Clinical guidance for smallpox vaccine use in a postevent vaccination program. MMWR Recomm Rep. 2015 Feb 20;64(RR-02):1-26.
6. Reynolds MG, Damon IK. Outbreaks of human monkeypox after cessation of smallpox vaccination. Trends Microbiol. 2012 Feb;20(2):80-7.