



SURVEILLANCE REPORT

Annual Epidemiological Report for 2015

Severe acute respiratory syndrome (SARS)

Key facts

- There were no cases of SARS in the EU/EEA 2015.
- Knowledge about the epidemiology and ecology of SARS coronavirus infection remains presently incomplete and the risk of re-emergence is unpredictable.
- The rapid spread of SARS worldwide showed the need to maintain surveillance despite the disease's absence since 2003.
- The emergence in 2012 of a novel coronavirus in humans in the Middle East associated with the early detection of imported cases to Europe (the Middle East respiratory syndrome coronavirus – MERS CoV) showed that SARS and related viruses need to be globally monitored and response capacities need to be maintained.

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].

Epidemiology

Severe acute respiratory syndrome (SARS) is a respiratory disease in humans caused by the SARS coronavirus (SARS-CoV). In 2002–2003 an epidemic originating in Foshan, Guangdong Province, China, spread globally, with over 8 000 known cases reported in eight months from 33 countries on five continents, 21% of which were

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healthcare workers. The case–fatality rate was about 10%. The last known community case occurred in the USA in July 2003, but another localised SARS-related crossover from animals occurred in 2004 [4].

Although surveillance has been ongoing, there were no reports of SARS virus infection in humans from 29 EU and EEA countries (no reports from Liechtenstein) in 2015; nor have there been any reports of SARS virus infection in humans worldwide since 2003.

Discussion and public health implications

SARS is believed to have been an animal virus that recently crossed the species barrier to infect humans. Bats have been identified as potential reservoir hosts of coronaviruses associated with SARS [5]. The SARS outbreak illustrated the importance of sensitive detection tools in the preparedness and response to emerging health threats. Other key preparedness activities include advance planning, communication, education and training, and stockpiling supplies of personal protective equipment [6-8].

The emergence in 2012 of human cases of an acute respiratory illness of unknown origin in several countries in the Middle East (Jordan, Qatar and Saudi Arabia with importation of several cases to Europe), the Middle East respiratory syndrome coronavirus (MERS CoV) revealed the importance of close monitoring, collaboration between laboratories (to promptly set up laboratory capacity for detection and characterisation of emerging pathogens), and appropriate protective biosafety measures using lessons learnt from the past SARS outbreak [9-13].

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. Cleri DJ, Ricketti AJ, Vernaleo JR. Severe acute respiratory syndrome (SARS). *Infect Dis Clin North Am*. 2010 Mar;24(1):175-202.
5. Anderson LJ, Tong S. Update on SARS research and other possibly zoonotic coronaviruses. *Int J Antimicrob Agents*. 2010 Nov; 36 Suppl 1:S21-5.
6. Peiris JS, Poon LL. Detection of SARS coronavirus. *Methods Mol Biol*. 2011;665:369-82.
7. Toner ES, Nuzzo JB. Acting on the lessons of SARS: what remains to be done? *Biosecur Bioterror*. 2011 Jun;9(2):169-74.
8. McCloskey B, Zumla A, Stephens G, Heymann DL, Memish ZA. Applying lessons from SARS to a newly identified coronavirus. *Lancet Infect Dis*. 2013 Mar 20. doi:pii: S1473-3099(13)70082-3. 10.1016/S1473-3099(13)70082-3.
9. Zaki AM, van Boheemen S, Bestebroer TM, Osterhaus AD, Fouchier RA. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. *N Engl J med* 2012 Nov 8;367(19):1814-20.
10. Corman VM, Eckerle I, Bleicker T, Zaki A, Landt O, Eschbach-Bludau M, et al. Detection of a novel human coronavirus by real-time reverse-transcription polymerase chain reaction. *Euro Surveill*. 2012 Sep 27;17(39). pii: 20285. Erratum in *Euro Surveill*. 2012;17(40): pii/20288.
11. van Boheemen S, de Graaf M, Lauber C, Bestebroer TM, Raj VS, Zaki AM, et al. Genomic characterization of a newly discovered coronavirus associated with acute respiratory distress syndrome in humans. *MBio*. 2012 Nov 20;3(6). doi:pii: e00473-12. 10.1128/mBio.00473-12.
12. Pebody RG, Chand MA, Thomas HL, Green HK, Boddington NL, Carvalho C, et al. The United Kingdom public health response to an imported laboratory confirmed case of a novel coronavirus in September 2012. *Euro Surveill*. 2012 Oct 4;17(40):20292.
13. Menachery VD, Yount BL Jr, Debbink K, Agnihothram S, Gralinski LE, Plante JA, et al. SARS-like cluster of circulating bat coronaviruses shows potential for human emergence. *Nat Med*. 2015 Dec;21(12):1508-13. doi: 10.1038/nm.3985. Erratum in: *Nat Med*. 2016 Apr;22(4):446.