

SURVEILLANCE OF INFECTIOUS DISEASES IN ANIMALS AND HUMANS IN SWEDEN 2019

Chapter excerpt -
Psittacosis



Editor: Karl Ståhl

Department of Disease Control and Epidemiology, National Veterinary Institute (SVA), SE-751 89 Uppsala, Sweden.

Authors: Charlotte Axén, Mia Brytting, Ioana Bujila, Erika Chenais, Rikard Dryselius, Helena Eriksson, Pernille Etterlin, Eva Forsgren, Malin Grant, Gittan Gröndahl, Gunilla Hallgren, Anette Hansen, Gete Hestvik, Marika Hjertqvist, Mia Holmberg, Cecilia Hultén, Helena Höök, Cecilia Jernberg, Jerker Jonsson, Ulrika König, Elina Lahti, Emelie Larsdotter, Mats Lindblad, Anna Lundén, Emma Löf, Hans-Olof Nilsson, Oskar Nilsson, Maria Nöremark, Anna Ohlson, Ylva Persson, Karin Persson-Waller, Thomas Rosendal, Karl Ståhl, Robert Söderlund, Kaisa Sörén, Magnus Thelander, Karin Troell, Anders Wallensten, Per Wallgren, Stefan Widgren, Ulrika Windahl, Beth Young, Nabil Yousef, Siamak Zohari, Erik Ågren, Estelle Ågren, Elina Åsbjer

Cover Photo: Anders Lindström

Copyright of map data: ©EuroGeographics for the administrative boundaries

Reporting guidelines: Reporting guidelines were introduced in 2018 for those those chapters related to purely animal pathogens. The guidelines build on experiences from several EU projects, and have been validated by a team of international experts in animal health surveillance. The aim is to develop these guidelines further in collaboration within the global surveillance community and they have therefore been made available in the form of a wiki on the collaborative platform GitHub (<https://github.com/SVA-SE/AHSURED/wiki>). Feel free to contribute!

Layout: The production of this report continues to be accomplished using a primarily open-source toolset. The method allows the source text, produced by authors, to be edited independently of the template for the layout which can be modified and reused for future reports. Specifically, the chapter texts, tables and captions are authored in Microsoft Word and then converted using pandoc and R to the LaTeX typesetting language. Most figures and maps are produced using the R software for statistical computing. Development for 2019 has further improved the importing of content from Word to LaTeX. The method can now import text, tables and figure captions from Word, as well as the newly designed 'IN FOCUS' sections of some chapters. The tool is available as an R-package at GitHub (<https://github.com/SVA-SE/mill/>). This year the report was also built with a continuous integration pipeline on Microsoft's Azure DevOps platform, allowing every committed change to the content to be built and tested automatically. The report generation R-package and process was designed by Thomas Rosendal and Stefan Widgren. In 2019, figures and the final typesetting were done by Wiktor Gustafsson and Thomas Rosendal with contributions from the report authors.

Print: TMG Tabergs AB.

Text, tables, figures and maps may be cited and reprinted only with reference to this report.

Suggestion citation: Surveillance of infectious diseases in animals and humans in Sweden 2019, National Veterinary Institute (SVA), Uppsala, Sweden. SVA:s rapportserie 64 1654-7098.

This report may be subject to updates and corrections. The latest version is always available for download at www.sva.se.

Psittacosis

BACKGROUND

Psittacosis is caused by *Chlamydia psittaci*, an intracellular bacterium. In 1879, psittacosis was described for the first time when an outbreak of pneumonia associated with exposure to tropical pet birds was detected among Swiss patients. The organism was identified in the 1930s. Since then, outbreaks have been described worldwide.

The main reservoir is birds and the organism is excreted in faeces and nasal discharges. Birds may become carriers of the organism and shed it intermittently for years without any clinical signs. People acquire the infection mainly via inhalation of contaminated dust or through contact with infected birds. In birds, the infection is transmitted via contact, by ectoparasites or contaminated equipment. *C. psittaci* may persist in dry faecal material for months.

Control of psittacosis is very difficult since the organism exists in both domestic and wild birds.

DISEASE

Animals

Birds commonly develop clinical signs when stressed or when their immune system is suppressed. Clinical signs in birds range from an asymptomatic infection to conjunctivitis, sneezing, pneumonia, and generalised infection. Adult birds recover from the infection, but mortality can be up to 90% among young birds.

Humans

In humans, the symptoms often include fever, headache, rash, myalgia, chills and upper or lower respiratory tract infection. The disease is usually mild or moderate but can be severe especially in untreated elderly persons. Most human cases are considered sporadic and many mild infections are likely not diagnosed. The incubation period is usually around 10 days but can vary from 1 to 4 weeks.

LEGISLATION

Animals

Psittacosis is notifiable in animals according to SJVFS 2013:23.

Humans

Psittacosis has been a notifiable disease since 1969 according to the Communicable Disease Act (SFS 2004:168) with the amendments of SFS 2013:634.

SURVEILLANCE

Animals

Surveillance in animals is passive. Notification is based on detection of the organism. At SVA detection is performed by PCR targeting the genus of *Chlamydia*. Species identification can be performed by sequencing the PCR fragment.

Humans

Notification of human cases is mandatory and surveillance is based on identification of the disease by a treating physician or by laboratory diagnosis. Both are obligated to report identified cases to the regional and national level to enable further analyses and adequate intervention measures. For laboratory verification of the infection, serology and PCR are the methods predominantly used.

RESULTS

Animals

In 2019, *C. psittaci* was detected in one of eighteen domestic pet birds tested. In addition, 275 stored samples from wild garden birds sent to SVA for postmortem in 2009–2019, were analysed for *C. psittaci*. In six (2.2%) of the wild birds, *C. psittaci* was detected.

Humans

In 2019, 77 cases of psittacosis were reported, which is more than in any other year during the 2000s (Figure 15). Psittacosis is mainly a domestic infection and only five of the cases were suspected to be infected abroad. Of the cases 54 (70%) were male and 70 (91%) over 50 years old. Contact with birds and bird droppings were considered an important route of transmission. For nearly half (n=36) of the cases, handling of poultry, cage birds or bird feeders were reported as likely vehicles for infection. Psittacosis exhibits a strong seasonal pattern with most reported illnesses during the winter months. In 2019, 56 (73%) of the cases were reported in January–March and December.

DISCUSSION

During the last three years, there has been a marked increase in the number of notified cases of psittacosis. The reasons for this increase are not known. One explanation could be the recently introduced PCR panels for screening of respiratory tract infections where *C. psittaci* is one of the target organisms. Without such screening, a clear suspicion from the physician is required which demands awareness of the illness. A pilot questionnaire study aimed at clinical microbiological laboratories across Sweden showed a clear regional overlap between a larger number of notified cases and usage of a PCR screening approach that includes *C. psittaci*.

In Sweden, like in many other countries, human psittacosis is considered underdiagnosed and underreported. In published reports of psittacosis from other countries, the source has most often been associated with poultry, especially turkeys or pet birds. In Sweden, however, contact with faeces from wild birds, for example when cleaning wild bird feeders, is considered a major source of infection although pet birds and hobby poultry are also well documented risk factors for psittacosis.

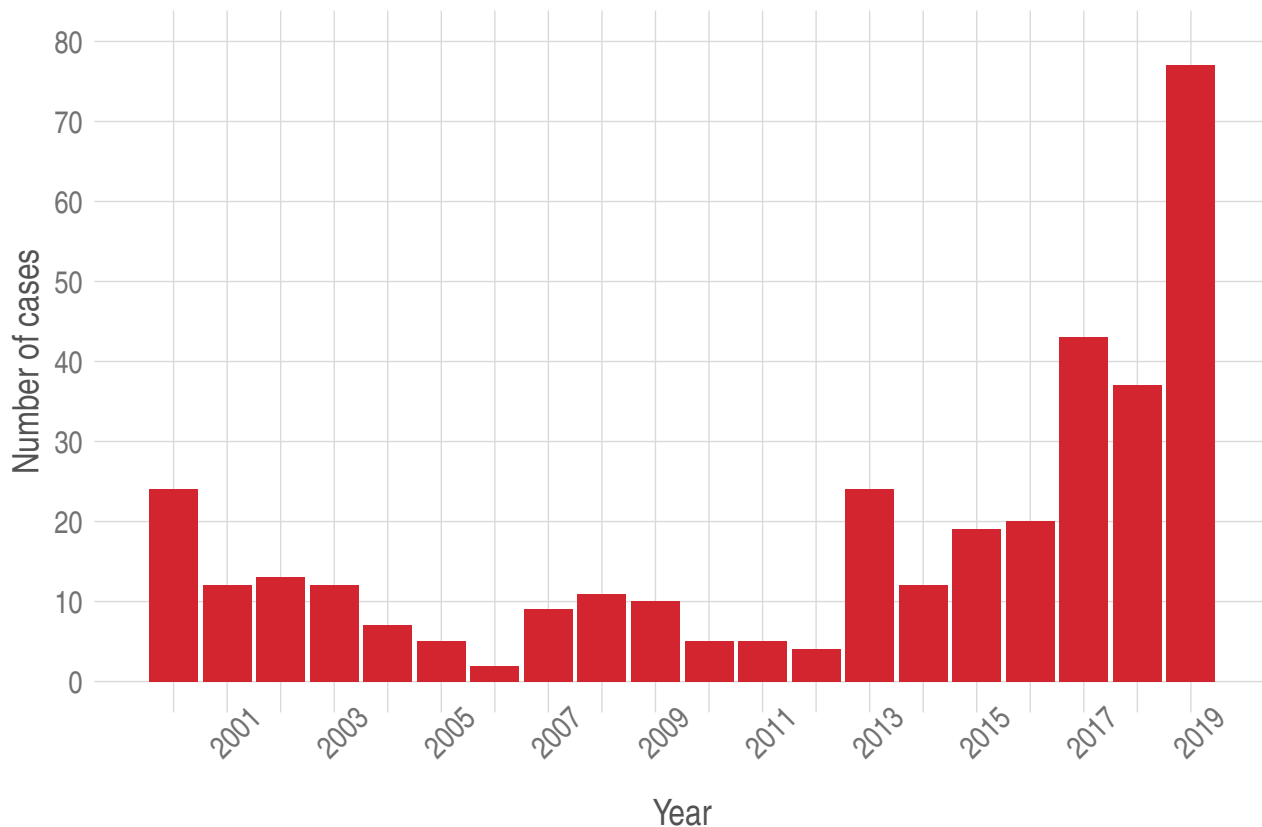


Figure 15: Number of notified human cases of psittacosis in Sweden 2000–2019.

C. psittaci has been detected in a variety of wild bird species, most often in water birds, doves, and pigeons. At present, knowledge on the epidemiology of *C. psittaci* in domestic and wild birds in Sweden is scarce. In a survey performed 2019 of wild garden birds collected during a ten-year period, *C. psittaci* was detected at approximately the same level as in previous Swedish studies of passerines.

REFERENCES

Rehn M, Ringberg H, Runehagen A, Herrmann B, Olsen B, Petersson AC, Hjertqvist M, Kühlmann-Berenzon S, Wallensten A (2013) Unusual increase of psittacosis in southern Sweden linked to wild bird exposure, January to April 2013. *Euro Surveill* 18:20478

Blomqvist M, Christerson L, Waldenström J, Herrmann B, Olsen B (2012) *Chlamydia psittaci* in Swedish wetland birds: a risk to zoonotic infection? *Avian Dis* 56:737–40

Blomqvist M, Christerson L, Waldenström J, Lindberg P, Helander B, Gunnarsson G, Herrmann B, Olsen B (2012) *Chlamydia psittaci* in birds of prey, Sweden. *Infect Ecol Epidemiol* 2:10.3402/iee.v2i0.8435

Chereau F, Rehn M, Pini A, Kühlmann-Berenzon S, Ydring E, Ringberg H, Runehagen A, Ockborn G, Dotevall L, Wallensten A (2018). Wild and domestic bird faces likely source of psittacosis transmission – a case-control study in Sweden, 2014–2016. *Zoonoses Public Health* 65(7):790–797. doi: 10.1111/zph.12492.