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Addressing the resurgence of psittacosis: a call for enhanced surveillance and public health measures

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INTRODUCTION

Psittacosis is a zoonotic disease began by the bacteria *Chlamydia psittaci*, an intracellular gram-negative bacterium has a global distribution and can affect various bird species, including parrots, pigeons and poultry[1]. Humans primarily acquire psittacosis through inhalation of aerosols or dust contaminated with the organism from infected birds or their droppings. While the disease incidence varies worldwide it ruins a vital community wellbeing worry owed to its latent to source severe respiratory illness. Subclinical, transient, and multi-organ failure are among the clinical symptoms, which are fewer times associated with fulminant psittacosis[2]. The diagnosis of pittacosis can be made using the clinical presentation and diagnostic procedures such as polymerase chain reaction (PCR), micro immunofluorescence, indirect fluorescent antibody, and culture that identify the human pathogenic *C. psittaci*. The illness takes 5–14 days to fully develop. Psittacosis frequently manifests as fever, chills, myalgia, cough, headache, and dyspnea[3]. Severe pneumonia caused by *C. pneumoniae* can lead to systemic multiple organ failure, and occasionally death. While reports of healthcare-associated infections (HAIs) and interpersonal transmission of *C. psittaci* infections exist, they appear to be exceedingly uncommon. Although traditional methods for *C. psittaci* screening have so many obstacles, clinicians often receive negative results[4]. A novel technique called metagenomic next-generation sequencing (m-NGS) may quickly and precisely pinpoint possible pathogens, such as bacteria, fungus, viruses, parasites, & mycoplasma.

PSITTACOSIS: TRANSMISSION, SYMPTOMS, AND TREATMENT

Psittacosis is a zoonotic illness that affects humans and is caused by the bacteria *Chlamydophila psittaci*. In areas where *C. psittaci* is epizootic in the native bird population, human infections are typically linked to person prone to pet birds, poultry workers, pet bird owners and gardeners. More than 450 bird species have been linked to *C. psittaci*, which has also been detected in a number of mammalian species, such as swine, dogs, cats, and reptiles[5]. But the most common cause of human psittacosis is birds, particularly pet birds (psittacine birds, finches, canaries, and pigeons) as seen in Fig. 1. Human disease transmission mostly happens when airborne particles from feather dust, dried feces, or respiratory secretions are inhaled. It is not necessary to come into direct contact with birds to become infected. Psittacosis is generally manifesting as fever, chills, headache, sore muscles, and dry cough. People start showing symptoms 5–14 days after being exposed to the bacteria. Antibiotic therapy started as soon as possible works well and helps prevent complications like pneumonia. Less than 1 in 100 cases of psittacosis result in death when treated with the right antibiotics.

PSITTACOSIS: EPIDEMIOLOGICAL TRENDS AND CLINICAL INSIGHTS

Psittacosis is globally distributed, with prevalence influenced by bird populations, human interactions, and healthcare practices. It is heightened in areas with dense bird populations and among individuals with frequent bird contact, like pet owners, poultry workers, and bird-related industry personnel.

Wang *et al* reported a pregnant woman with breathing problems and a fever after contact with birds, sheep, and goats. m-NGS testing and macrolide treatment followed[6]. Wang *et al* documented a domestic epidemic of atypical pneumonia from *C. psittaci* in China. Incidence amid the COVID-19 pandemic suggests familial clustering due to the epidemic. The three cases encountered mild illness, likely due to timely medical intervention and diagnosis, underscoring the importance of heightened health awareness. Furthermore, m-NGS proves pivotal in accurately pinpointing pulmonary infection pathogens[7].

Yuan *et al* highlighted poultry exposure history as crucial for diagnosing *C. psittaci* pneumonia. Severe cases tend to exhibit elevated inflammatory and cardiac biomarkers, with higher

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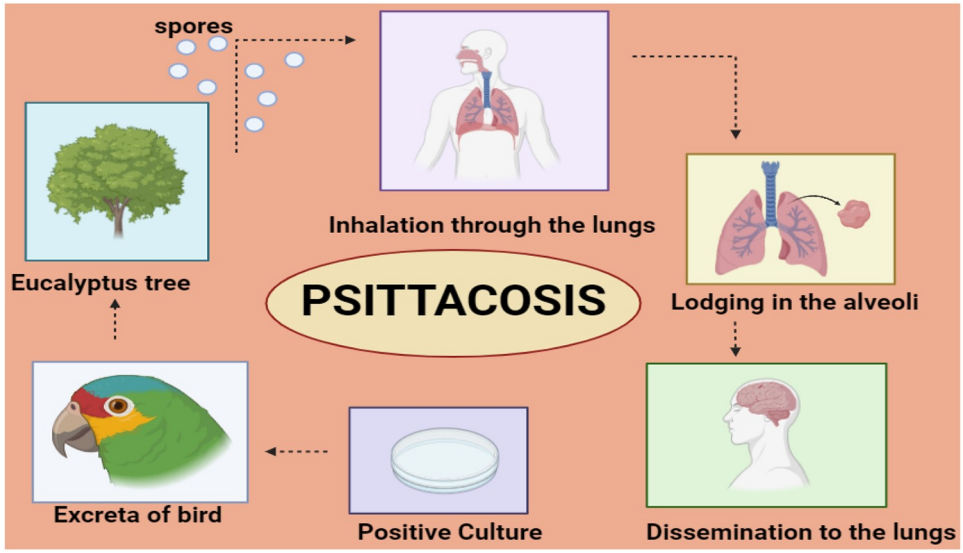

Figure 1. Diagrammatic view of Psittacosis spread cycle.

lymphocyte levels indicating protective effects. The study's higher coinfection rate underscores the value of m-NGS for comprehensive early respiratory infection detection in *C. psittaci* pneumonia patients[8].

PSITTACOSIS OUTBREAKS AND TRENDS IN EUROPE: FEBRUARY 2024 UPDATE

According to the WHO, Psittacosis cases increased in February 2024 in Austria, Denmark, Germany, Sweden, and the Netherlands; five fatalities were stated (Fig. 2). Austria had a significant increase from its average yearly median of two cases to 14 in 2023, and four cases were recorded in 2024. By 27 February 2024, there had been a surge in Denmark, with 23 cases, mostly localized. The majority of cases in Denmark required hospitalization; the primary cause was likely exposure to wild birds, and pneumonia was common. A significant fraction of the cases 14 in 2023 and 5 in 2024 were connected to contact with domesticated birds, according to German reports. Cases increased in Sweden and the Netherlands as well, and different sources of bird exposure were found. The testing

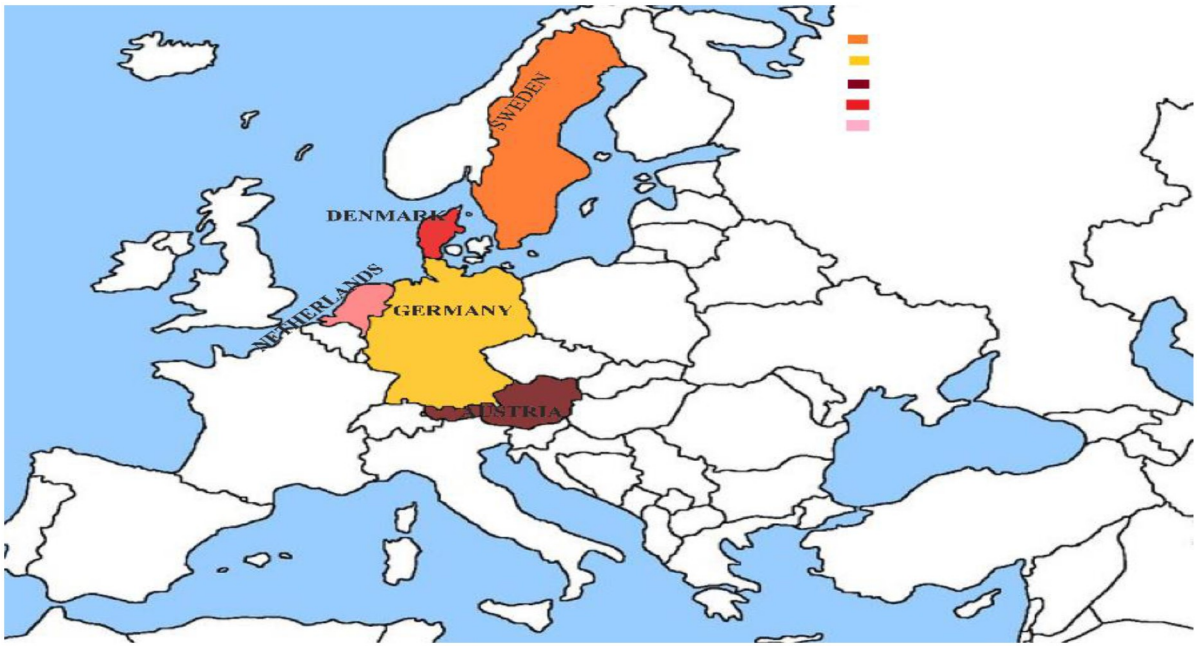

Figure 2. Psittacosis cases and deaths in 2023–2024.

Table 1

Psittacosis cases and deaths in 2023–2024

Country	Psittacosis cases (2023)	Psittacosis cases (2024)	Deaths	Common exposure
Austria	14	4	–	Birds (wild/domestic)
Denmark	–	23 (as of 27 February 2024)	4	Wild birds (80%)
Germany	14	5	–	Birds (domestic/wild)
Sweden	19	10 (Jan)/3 (Feb) 2024	–	Small bird droppings
Netherlands	–	21 (as of 29 February 2024)	1	Birds (wild/domestic)

procedures, mostly RT-PCR, have not changed in recent years (Table 1).

AUTHOR INSIGHTS

- Interdisciplinary collaboration: Addressing the resurgence of psittacosis requires collaboration between public health agencies, veterinary professionals, and bird-related industries to implement effective prevention and control measures.
- Diagnostic advancements: The efficacy of metagenomic sequencing in diagnosing psittacosis underscores the importance of investing in and adopting advanced diagnostic technologies to enhance disease detection and management.
- Public awareness and education: Heightened awareness among healthcare professionals and the public about psittacosis symptoms, transmission routes, and preventive measures is crucial in mitigating the spread of this zoonotic disease and reducing associated morbidity and mortality.

CONCLUSION

Psittacosis's importance for public health is highlighted by its recent resurgence. Recent research demonstrates the potential for diagnosis with metagenomic sequencing. In the face of respiratory diseases such as COVID-19, family outbreaks highlight the importance of being vigilant. To stop transmission, there must be increased awareness, cooperation, and surveillance. Improvements give hope for combating this resurgent zoonotic threat.

Ethical approval

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Consent

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Author's contribution

K., G., K.A., A.S: writing original draft; S.S., S.K., S.K.: resources, formal analysis; S.S., R.M.: writing review and editing.

Conflicts of interest disclosure

All the authors declare to have no conflicts of interest relevant to this study.

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