

**Title:** H5N1 Outbreak in Polish Cats

**Activities:** Identify agent based on laboratory testing; Confirm diagnoses; Surveillance and tracing of potentially infected or exposed domestic animals, livestock, and wildlife; Dispose of animal carcasses, litter, and animal products; Perform contact tracing activities; Monitor and manage suspected cases; WHO/WOAH notification; Share information and key messages with the public; Publish and share data; Initiate epidemiological investigation; Integrate and analyze surveillance data; Genetically sequence samples; Diagnose cases; Document and communicate the results of epidemiological investigation; Determine mode of transmission; Count cases; Construct case definitions; Conduct disease surveillance; Conduct risk assessment; Count deaths; Carry out screening/testing activities; Promote good hygiene practices; Control food hazards, pests, and other agents likely to contaminate food; Develop hypothesis to explain specific exposure that caused disease; Identify at risk population;

**Stakeholders:** Health authorities; World Organization for Animal Health; Food and Agriculture Organization of the United Nations; Animal health authorities

**Phases:** Detection; Early response; Intervention

**Years:** 2023

**Countries:** Poland

**Agent:** Influenza A (H5N1)

**Case study prepared by:** JL Chretien, August 7, 2023

**Please include full case study text below this line.**

The European Center for Disease Prevention and Control (ECDC), the European Food Safety Authority (EFSA), and the European Union Reference Laboratory (EURL) for Avian Influenza confirmed the first feline case of H5N1 in Poland to be reported on June 10, 2023.<sup>1</sup> Previous outbreaks of H5N1 in domesticated cats suggest that H5N1 transmission is driven by close contact with, or consumption of infected birds or poultry.<sup>2,3</sup> A clinical review also noted that cats may contract H5N1 after being exposed to H5N1-infected cats within their first week of

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<sup>1</sup> European Food Safety Authority, European Centre for Disease Prevention and Control, European Union Reference Laboratory for Avian Influenza. (2023). Avian influenza overview April – June 2023. EFSA Journal, 21(7). <https://doi.org/10.2903/j.efsa.2023.8191>

<sup>2</sup> Leschnik, M. (2007, February). Subclinical Infection with Avian Influenza A H5N1 Virus in Cats. Emerging Infectious Diseases, 13(2), 243–247. 10.3201/eid1302.060608

<sup>3</sup> Songserm, T. (2006, April). Avian Influenza H5N1 in Naturally Infected Domestic Cat. Emerging Infectious Diseases, 12(4), 681–683. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3294706/>

infection.<sup>4</sup> The World Organisation for Animal Health (WOAH)/Food and Agriculture Organization of the United Nations Network (FAO) of Expertise on Animal Influenza (OFFLU) reported that H5N1-infected cats usually exhibit symptoms a few days after exposure to the virus, experiencing “listlessness, loss of appetite, severe depression, fever, neurological disease, respiratory and enteric signs, jaundice, and death.”<sup>5</sup> By July 17, 2023, 33 cats and one captive caracal, a medium-sized wild cat native to Africa and the Middle East, had tested positive for avian influenza A subtype H5N1 (A(H5N1)) in Poland.

On June 18, 2023, a veterinarian in western Poland reported a cat who had died after suffering from pronounced neurological and respiratory symptoms.<sup>6</sup> By July 16, 2023, 25 cats had died following H5N1 infection: 14 were euthanized and 11 succumbed to the virus. As of August 2, 2023, the EFSA has not reported any documented cases of felines transmitting H5N1 to other felines or humans in Poland. The infections spanned 9 voivodeships (equivalent to provinces) in Poland and were detected in major cities such as Warsaw, Poznań, Gdańsk, Gdynia, Pruszcz Gdański, Bydgoszcz, and Lublin, representing the first recorded nationwide outbreak of A(H5N1) in felines. The last recorded feline death due to H5N1 occurred on June 30, 2023, in Poland, and the source of the outbreak has remained unknown.<sup>7</sup> The World Health Organization (WHO) hypothesized that the cats could have encountered infected birds or their habitats or consumed food or birds contaminated with H5N1. Polish epizootic investigations are considering all scenarios. According to the WHO, information from 25 infected cats shows that 18 cats had occasional access to balconies or backyards, 5 were strictly indoor cats, and 2 were predominantly outdoor cats.<sup>8</sup> An OFFLU statement issued on June 28 reports that the cats’ varying outdoor access and the wide geographical distribution of the infections suggest that the virus is unlikely to have directly originated from wild birds or have been transmitted between cats.<sup>9</sup> Genomic sequence analyses of samples from 19 infected cats conducted at the National Veterinary Institute in Puławy, Poland, indicate that all viruses belong to A(H5N1) H5 clade 2.3.4.4b, or the A(H5N1) CH genotype, and are highly related to each other, suggesting that the infections originated from a single source.<sup>10</sup> In early June, researchers identified this specific

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<sup>4</sup> Thiry, E. (2009). H5N1 avian influenza in cats. ABCD guidelines on prevention and management. *Journal of Feline Medicine & Surgery*, 11(7), 615-618. <https://doi.org/10.1016/j.jfms.2009.05.011>

<sup>5</sup> WOAH/FAO Global Network of Expertise on Animal Influenza. (2023, June 28). Infections with Avian Influenza A(H5N1) virus in cats in Poland.

<sup>6</sup> At least 9 cats in Poland die of H5N1 bird flu. (2023, June 26). BNO News.

<https://bnonews.com/index.php/2023/06/at-least-9-cats-in-poland-die-of-h5n1-bird-flu/>

<sup>7</sup> Influenza A(H5N1) in cats – Poland. (2023, July 16). World Health Organization (WHO). Retrieved August 16, 2023, from <https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON476>

<sup>8</sup> Ibid.

<sup>9</sup> WOAH/FAO Global Network of Expertise on Animal Influenza. (2023, June 28). Infections with Avian Influenza A(H5N1) virus in cats in Poland.

<sup>10</sup> Results of genome sequence analysis of highly pathogenic avian influenza (HPAI) viruses, H5N1 subtype, detected in nine cats from Poznań, Tri-City and Lublin. (2023, July 3). National Veterinary Institute — National Research Institute. Retrieved August 16, 2023, from <https://www.piwet.pulawy.pl/aktualnosc/10739>

H5N1 genotype in a white stork (*Ciconia ciconia*) in the Tarnów district.<sup>11</sup> This genotype has incited several A(H5N1) poultry outbreaks in the Wielkopolskie voivodeship of Poland and has been observed sporadically in wild birds since February 2023.<sup>12</sup> The viruses infecting cats in Poland carried two mutations in the PB2 protein, one of which, PB2-E627K, was also found in the A(H5N1)-infected stork and is shown to cause more severe illnesses and fatalities in mammals occasionally. The other mutation, PB2-K526R, has been observed in several human cases of H5N1 and H7N9.<sup>13</sup>

On June 19, 2023, following the circulation of a Facebook alert issued by SpecVet, a private specialist veterinary institute operating two clinics in Warsaw, local news and media sources began reporting on the neurological and respiratory symptoms observed in cats across Poland. On June 26, 2023, the Chief Veterinary Officer in Poland, representing the Chief Veterinary Inspectorate, which falls under the Ministry of Agriculture and Rural Development, announced laboratory results from the National Veterinary Institute in Puławy: 9 of 11 samples from ill cats tested positive for H5N1 influenza.<sup>14</sup> To mitigate the spread of H5N1 in cats, the Officer recommended citizens keep cats indoors, minimize the contact between cats and wild animals or birds, prevent cats from interacting with outdoor footwear, feed cats reliably sourced food, and wash hands after contacting other animals.

The WHO assessed the likelihood of humans contracting H5N1 via exposure to infected cats as low given that there are no documented cases of infected cats transmitting A(H5N1) to humans.<sup>15</sup> Owners of infected cats and health workers exposed to infected cats had a low to moderate risk of contracting H5N1. Currently, the WHO recommends that those exposed to avian influenza should monitor their symptoms for one week, and individuals exposed to infected poultry or animals should be monitored by health officials.<sup>16</sup> An analysis by the FAO, WHO, and WOAH advised individuals to avoid handling sick or dead animals and to notify their healthcare providers if they suspect that they have been exposed to avian influenza.<sup>17</sup>

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<sup>11</sup> Chief Veterinary Officer. (2023, June 17). Communication of the VII CVO on cat disease. Chief Veterinary Inspectorate. Retrieved August 16, 2023, from

<https://www.wetgiw.gov.pl/main/komunikaty/Komunikat-VII-GLW-w-sprawie-choroby-kotow/idn:2302>

<sup>12</sup> European Food Safety Authority, European Centre for Disease Prevention and Control, European Union Reference Laboratory for Avian Influenza. (2023). Avian influenza overview April – June 2023. EFSA Journal, 21(7). <https://doi.org/10.2903/j.efsa.2023.8191>

<sup>13</sup> Ibid.

<sup>14</sup> Chief Veterinary Officer. (2023, June 17). Communication of the VII CVO on cat disease. Chief Veterinary Inspectorate. Retrieved August 16, 2023, from

<https://www.wetgiw.gov.pl/main/komunikaty/Komunikat-VII-GLW-w-sprawie-choroby-kotow/idn:2302>

<sup>15</sup> Influenza A(H5N1) in cats – Poland. (2023, July 16). World Health Organization (WHO). Retrieved August 16, 2023, from <https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON476>

<sup>16</sup> Influenza A(H5N1) in cats – Poland. (2023, July 16). World Health Organization (WHO). Retrieved August 16, 2023, from <https://www.who.int/emergencies/disease-outbreak-news/item/2023-DON476>

<sup>17</sup> World Health Organization (WHO). (2023, July 12). Ongoing avian influenza outbreaks in animals pose risk to humans. World Health Organization (WHO). Retrieved August 16, 2023, from <https://www.who.int/news/item/12-07-2023-ongoing-avian-influenza-outbreaks-in-animals-pose-risk-to-humans>

Polish authorities' efforts to respond to and control the outbreak included surveying owners of infected cats on their health, requesting those who came in contact with infected cats to record and monitor their symptoms, issuing updates and information on the outbreak, initiating epizootic investigations, and publicly announcing precautionary measures to regulate the spread of the virus.

**Please include case study summary text below this line.**

Although influenza A(H5N1) viruses ("bird flu") have been circulating in birds and poultry for decades, a current form of the virus has triggered outbreaks in mammals. In June 2023, Poland reported an outbreak of H5N1 in cats. Epidemiological investigation and integrated surveillance helped contextualize the risk of transmission to humans.