2026

REPORT OF THE COMMISSIONER OF THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT TO THE PARLIAMENT OF CANADA ON BEHALF OF THE AUDITOR GENERAL OF CANADA

Avian Influenza

Office of the Auditor General of Canada
Bureau du vérificateur général du Canada

INDEPENDENT AUDITOR'S REPORT

Performance audit reports

This report presents the results of a performance audit conducted by the Office of the Auditor General of Canada (OAG) under the authority of the Auditor General Act.

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- report both positive and negative findings
- conclude against the established audit objectives
- make recommendations for improvement when there are significant differences between criteria and assessed performance

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At a Glance

Overall message

Overall, the federal government had measures in place to protect wildlife, domestic animals, and people from avian influenza. However, there remain challenges in assessing the impact of avian influenza on species at risk, consistently documenting activities performed to eliminate the virus from infected premises, and effectively managing the inventory of human vaccines.

Avian influenza, often referred to as bird flu, is caused by a highly contagious virus that mainly infects wild birds but can spread to domestic animals—such as chickens, dairy cattle, and pets—and then to humans. An outbreak of avian influenza began in Canada in December 2021, and there are concerns that the virus could mutate, leading to human-to-human transmission and potentially a pandemic. Environment and Climate Change Canada, the Canadian Food Inspection Agency, and the Public Health Agency of Canada each play a role in preventing and managing outbreaks.

Since the outbreak, Environment and Climate Change Canada has strengthened its surveillance of migratory birds by redirecting existing funding. However, without dedicated funding, future efforts may be difficult to sustain. Also, despite recognizing the need to understand the impact of avian influenza on species that are or could become threatened, endangered, or extinct, the department did not conduct routine and targeted surveillance for species at risk.

To contain the spread of avian influenza in domestic animals, the Canadian Food Inspection Agency conducted all the required procedures and eliminated the virus from all 47 premises included in the audit sample. However, documentation could be improved, such as the consistency and completeness of information recorded by inspectors.

By March 2025, the Public Health Agency of Canada secured a total of 870,000 doses of an avian influenza vaccine for people at risk of exposure, such as farmers and veterinarians. Over 95% of doses went unused by the time the vaccines expired in February 2026. While the agency obtained the financial approval to purchase more doses, it had not yet decided whether updating the vaccine inventory was needed.

Key facts and findings

- Since December 2021, the avian influenza virus has been detected in every province and territory, including 43 bird species that are at risk at the federal or provincial level.
- Since December 2021, Environment and Climate Change Canada expanded its avian influenza surveillance program for migratory birds by increasing the numbers of samples tested and by including antibody testing in blood samples from wild birds and wild bird eggs.
- Between December 2021 and March 2026, approximately 17.3 million commercial birds either died or were culled due to the virus, costing about $360 million in compensation paid by the Canadian Food Inspection Agency.
- The Public Health Agency of Canada distributed 39,200 doses of the avian influenza vaccine to the provinces and territories and donated 2,300 doses to the research community.

See **Recommendations and Responses** at the end of this report.

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Introduction

Background

Avian influenza

1. Avian influenza, more commonly referred to as bird flu, refers to a disease caused by multiple influenza A viruses, which are highly contagious respiratory viruses and known for their ability to mutate rapidly, leading to severe outbreaks and potential pandemics. These viruses are commonly found in certain species of wild birds that spread the viruses through migration, mainly infecting domestic poultry, which in turn have spread the virus to other mammals, including humans. Avian influenza viruses, identified through laboratory testing, are classified into 2 categories based on the severity of the illness caused in domestic poultry: low pathogenic avian influenza and highly pathogenic avian influenza. Typically, highly pathogenic avian influenza viruses cause severe illness and mortality in animals, while low pathogenic avian influenza viruses cause little or no clinical signs.

2. An outbreak of the highly pathogenic avian influenza H5N1 subtype in 2020 led to a global panzootic (a pandemic in animals). This subtype was first detected in Canadian wildlife and in domestic poultry in December 2021. Since then, it has been found in wildlife in every province and territory. By March 2026, approximately 17.3 million commercial birds either died or were culled due to avian influenza. The Canadian Food Inspection Agency paid about $360 million in compensation for the costs of the animals and infected materials destroyed as authorized under the Health of Animals Act.

3. Avian influenza viruses have spread from wild birds to domestic poultry and in turn to mammals, including humans. From January 2020 to January 2025, 103 human cases were reported worldwide, resulting in 11 deaths. None of these deaths occurred in Canada; however, there was 1 person in British Columbia who experienced a severe infection from H5N1 in November 2024. While the public health risk to the general population remains low since there is currently no human-to-human transmission of the viruses, the World Health Organization considers avian influenza viruses to be priority pathogens with pandemic potential if the viruses mutate.

4. The federal government is addressing the prevention, control, and management of avian influenza outbreaks through the application of a One Health perspective. This is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, domestic and wild animals, and ecosystems.

Roles and responsibilities

5. **Environment and Climate Change Canada.** The department is the lead federal entity responsible for the conservation and protection of migratory birds under the Migratory Birds Convention Act, 1994 and of animals listed under the Species at Risk Act. With respect to the detection of avian influenza, the department leads surveillance in live and hunter-harvested birds and supports the surveillance of sick and dead wildlife.

6. **Canadian Food Inspection Agency.** By administering and enforcing the Health of Animals Act, the agency leads the Government of Canada's efforts in preventing, detecting, responding to, and managing the spread of avian influenza in Canadian poultry and domestic mammals. The agency is responsible for implementing "stamping-out" procedures aimed at eliminating the virus from infected premises. The agency may also provide financial compensation to producers for the cost of animals and materials destroyed through the stamping-out process.

7. **Public Health Agency of Canada.** The agency is responsible for detecting, preventing, and controlling infectious diseases in humans, such as avian influenza. The agency also supports strengthened public health collaboration across federal, provincial, and territorial governments, and across the human, animal, and environmental (One Health) sectors. The agency also has other public health responsibilities, including science coordination, surveillance, risk assessment, communications, guidance, emergency preparedness and response, and medical countermeasures, such as vaccines and personal protective equipment.

United Nations' Sustainable Development Goals

Ensure healthy lives and promote well-being for all at all ages

Source: United Nations

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

Source: United Nations

8. In September 2015, Canada adopted the United Nations' 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals. Avian influenza has links to these goals, including:

- **Goal 3—Good Health and Well-Being.** Avian influenza is a zoonotic disease, meaning it can transmit from animals to humans. In the Canadian Food Inspection Agency's 2024–25 Departmental Plan, the agency links its ongoing work to protect Canadians from diseases that may be transmitted from animals to humans to this goal. The agency, in its 2023 to 2024 Departmental Sustainable Development Strategy Report, also links its One Health approach for dealing with highly pathogenic avian influenza to Goal 3.
- **Goal 15—Life on Land.** The avian influenza virus causes high mortality rates in wild bird populations and has spread to mammals, threatening biodiversity. Environment and Climate Change Canada notes in its 2024–25 Departmental Plan that it will leverage the One Health model to support wildlife health by, for example, supporting decision making through the monitoring of emerging pathogens and the impacts on wildlife health.

Sustainable development principles in Canada

9. The Federal Sustainable Development Act and the Auditor General Act set out several principles to guide sustainable development decision making in Canada. Our office has grouped them into 14 principles and created icons to symbolize them that we consider in our environment and sustainable development audits. The subject matter of this audit relates to:

- Principle 2—protecting human health
- Principle 3—protecting ecosystems and showing respect for nature
- Principle 4—meeting international and domestic obligations

These principles and the list of all 14 sustainable development principles are in the following figure.

Sustainable development principles in Canada

Source: Adapted from the Federal Sustainable Development Act and the Auditor General Act

Focus of the audit

10. This audit focused on whether:

- Environment and Climate Change Canada's surveillance systems and processes for the detection of the avian influenza virus supported the management and conservation of migratory birds and species at risk
- the Canadian Food Inspection Agency eliminated the avian influenza virus from infected premises and contained its spread in domestic animals
- the Public Health Agency of Canada secured a sufficient supply of avian influenza vaccine and managed the supply to protect human health against the threat of a pandemic

11. This audit is important because federal government departments and agencies must take action on avian influenza to protect public health, prevent a potential human pandemic, safeguard the economy and food security, and conserve wildlife and biodiversity.

12. More details about the audit objectives, scope, approach, and criteria are in **About the Audit** at the end of this report.

Findings and Recommendations

Environment and Climate Change Canada strengthened its targeted surveillance systems to monitor avian influenza in migratory birds

Why this finding matters

13. Highly pathogenic avian influenza is a major conservation threat for wild bird populations due to the current outbreak's unprecedented, large-scale mortality and broad distribution among migratory bird populations. Avian influenza poses an additional conservation threat to species that are or could become threatened, endangered, or extinct. It has been detected in every province and territory in Canada and across each of the 4 major migratory bird flight paths in North America. Its presence in various mammal species, including domestic animals, such as dogs, further illustrates the widespread impact of this outbreak.

Context

14. Since 2005, Environment and Climate Change Canada, alongside the **Canadian Wildlife Health Cooperative**,[1] provincial and territorial wildlife ministries, Indigenous communities, and academic institutions, has conducted avian influenza surveillance through Canada's Interagency Surveillance Program for Avian Influenza Viruses in Wildlife (formerly Canada's Inter-Agency Wild Bird Influenza Survey).

1 **Canadian Wildlife Health Cooperative**—A network of private and public partners and collaborators dedicated to wildlife health. Its purpose is to advance the health of Canadian wildlife, recognizing wildlife health as central to maintaining sustainable relationships among wildlife, humans, domestic animals, and the environment. The cooperative receives funding from several federal departments and agencies.

15. At the start of the current outbreak in December 2021, Environment and Climate Change Canada already had in place an avian influenza surveillance program with 2 components:

- core virus surveillance, consisting of swabbing live and hunter-harvested wild birds
- sampling results from both live and dead birds from national partners, mainly the Canadian Wildlife Health Cooperative

The department expanded its surveillance of avian influenza in migratory birds

Findings

16. We found that the average number of samples the department collected through its core virus surveillance greatly increased after the outbreak started in 2021:

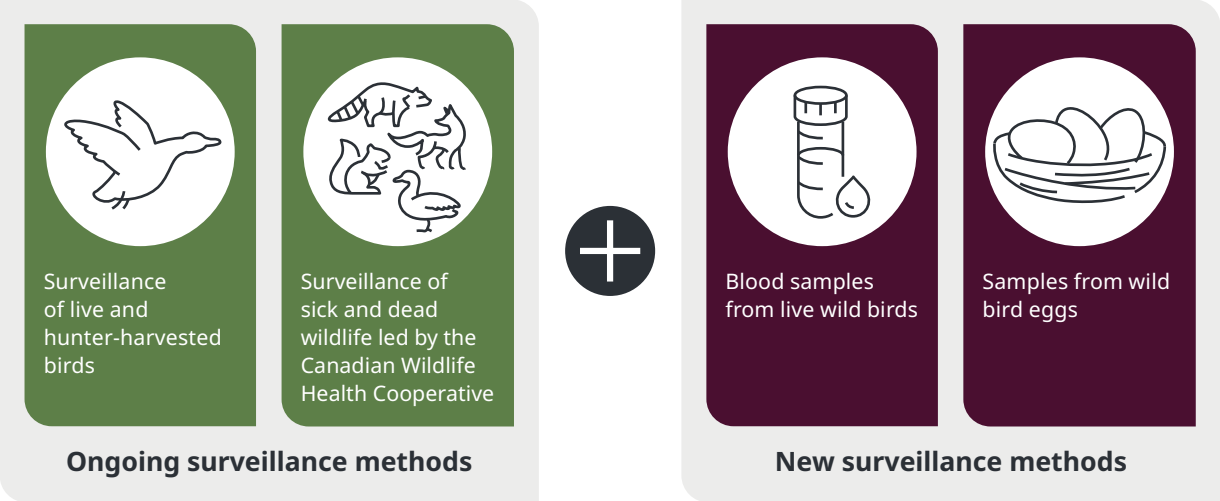
- from 2005 to 2020, just over 3,300 samples annually
- from 2021–22 to 2024–25, just over 9,550 samples annually

17. In addition, we found that in 2024–25, the department focused its core surveillance on collecting samples from wild bird species that displayed higher rates of infection and were considered globally as key avian influenza “reservoirs,” meaning they are natural hosts that harbour the virus in their populations.

18. We also found that in 2022–23, the department expanded its avian influenza surveillance program to include 2 new surveillance components: antibody testing in blood samples from wild birds, and antibody testing in wild bird eggs (Exhibit 1). This allowed the department to determine whether live birds had been previously exposed to the virus, thereby identifying immunity patterns in wild bird populations.

19. In early 2023, the department led consultations with federal and provincial experts and the Canadian Wildlife Health Cooperative to prioritize information needs related to the current avian influenza outbreak. These consultations identified criteria to guide action on highly pathogenic avian influenza surveillance and research. We found that the department informed its surveillance plans based on this exercise. This included prioritizing sampling for species that likely experienced significant impacts to their populations because of avian influenza in 2021–22.

Exhibit 1—In response to the avian influenza outbreak, Environment and Climate Change Canada expanded its surveillance methods to detect the virus in migratory birds



Source: Based on information from Environment and Climate Change Canada

Read the Exhibit 1 text description

20. We also found that the department's program to detect avian influenza in migratory birds focused surveillance efforts on specific times of the year to match migratory patterns and on species and locations in which infection was more likely. This was in line with the best practices of the World Organisation for Animal Health's Terrestrial Animal Health Code.

The department did not conduct targeted surveillance to assess the impact of avian influenza on species at risk

Findings

21. We found that the department's approach to detect avian influenza in migratory birds did not include any routine or targeted surveillance for species listed under the Species at Risk Act. The department recognized the need to collect data to understand the impacts of avian influenza on species at risk and categorized this as a surveillance and research priority. However, the department obtained only limited samples from at-risk species opportunistically, either through the Canadian Wildlife Health Cooperative's sick and dead wildlife surveillance program or through the department's existing population monitoring programs, which were not created for avian influenza–specific work. Collecting data through targeted surveillance of avian influenza in species that are or could become

threatened, endangered, or extinct is important for informing management decisions associated with protecting these vulnerable or threatened populations.

22. We also found that the avian influenza surveillance program did not identify the subspecies of animals sampled. This presents a challenge, as there are species that have distinct subspecies, only some of which are listed as at risk under the act.

23. By the end of our audit period, we found that highly pathogenic avian influenza had been detected in 43 at-risk bird species across all 10 provinces in Canada, 7 of which are listed as at risk under the federal Species at Risk Act, such as the endangered Whooping Crane (Exhibit 2).

Exhibit 2—Highly pathogenic avian influenza threatens already endangered species

In November 2025, 2 Whooping Crane samples tested positive for highly pathogenic avian influenza. Both samples were from dead birds. There are estimated to be only around 550 Whooping Cranes in the main population. These endangered birds migrate from Wood Buffalo National Park in Alberta and the Northwest Territories to Aransas, Texas. Detecting the virus in such species at risk is important in informing what additional surveillance activities may be needed to better understand virus exposure risks and for updating species management plans.

Photo: © Michael Forsberg

Source: Based on information from Environment and Climate Change Canada and various other sources

Recommendation

24. Environment and Climate Change Canada should improve its surveillance methods for detecting highly pathogenic avian influenza in species at risk to:

- understand which species at risk are most vulnerable and susceptible to the impacts of the virus
- inform the management and conservation of these species

The department's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

Avian influenza surveillance lacked dedicated funding

Context

25. In June 2018, federal-provincial-territorial ministers responsible for parks, protected areas, conservation, wildlife, and biodiversity approved A Pan-Canadian Approach to Wildlife Health. Its development was led by Environment and Climate Change Canada and the Canadian Wildlife Health Cooperative. The approach sought to improve capacity and approaches to wildlife health surveillance across jurisdictions by improving capacity in regions where it was lacking.

Findings

26. Despite the approval by federal-provincial-territorial ministers of A Pan-Canadian Approach to Wildlife Health, an implementation plan was never finalized or funded. While broader than avian influenza, the requested funding could have enhanced the department's surveillance activities for wildlife health, including impacts from avian influenza.

27. We also found that in 2024 and 2025, program officials made 2 other requests for avian influenza surveillance funding. Under these requests, program officials sought to create an adaptive annual targeted surveillance program and a network that would use real-time data to better track, manage, and respond to active infections and past exposures. At the end of the audit period on November 30, 2025, both requests remained unfunded.

28. We found that Environment and Climate Change Canada had no dedicated funding for avian influenza surveillance activities, despite program officials' repeated efforts to obtain it. From 2021–22 to 2024–25, the department spent a total of approximately $8.6 million on its avian influenza work. Out of this total, 47% ($4.0 million) was from ongoing funding for core operations, while the remaining 53% ($4.6 million) was reallocated by the department from other existing programs.

29. We also found that Environment and Climate Change Canada's avian influenza surveillance samples were largely collected through ongoing and existing wild bird monitoring programs as resources permitted. Without dedicated funding, there is a risk that the department's mandate to protect and conserve migratory birds and species at risk will not be met.

The Canadian Food Inspection Agency eliminated the virus from infected premises, containing its spread among domestic animals

Why this finding matters

30. Eliminating avian influenza from infected premises prevents the spread of the virus, mitigating risks to animal and human health, and supporting international trade. It also supports food safety and security.

Context

31. The Canadian Food Inspection Agency employs a "stamping-out" policy to eliminate and contain the highly contagious outbreak of avian influenza from infected sites, in alignment with the approach of the World Organisation for Animal Health.

32. Once the agency is notified of sick or dead birds on infected premises, it initiates an investigation and testing. Agency officials collect information on, for example, the number of dead, sick, and exposed animals; the structures of the infected premises; and contact with other farms. They also collect samples from the premises that are sent to a certified lab for testing to confirm the presence of avian influenza.

33. If the agency suspects avian influenza is present, then it initiates its stamping-out process, which begins by restricting access to the premises and implementing movement control zones around the premises to prevent the possible spread of the virus. If the test results from the samples collected come back positive, the agency issues a destruction order and proceeds with the following stamping-out activities to eradicate the virus from the premises and contain its spread:

- **Depopulation.** Animals that are infected, suspected to be infected, or exposed to avian influenza are culled.
- **Disposal.** Carcasses, animal products, litter, manure, feathers, and other materials are carefully disposed of. Disposal options include composting, on-site burial, incineration, rendering, and landfilling.
- **Cleaning and disinfection.** The site is thoroughly cleaned and disinfected. This can be done by way of a multi-step process using, for example, chemical or heat treatment. It can also be done using a "fallow" method for premises whereby contaminated objects are left undisturbed for at least 120 days at specified temperatures to allow for the natural inactivation of the virus to occur.

34. The agency is also expected to conduct the following types of surveillance to confirm the virus is no longer detected on the infected premises or on other commercial premises within 10 kilometres and to approve the release of movement controls:

- **Outbreak surveillance.** Following disposal, surveillance is conducted for at least 14 days on commercial premises within 3 kilometres of the infected premises.
- **Post-outbreak surveillance.** After the first step in the cleaning process has been completed on the infected premises, surveillance is conducted for at least 28 days within 10 kilometres of the infected premises.
- **Restocking surveillance.** Surveillance is conducted on the premises if poultry is restocked within 14 days after full cleaning and disinfection.

35. From December 1, 2021, to July 31, 2025, 533 premises across Canada had been infected with avian influenza.

The agency's stamping-out procedures eliminated the virus from infected premises

Findings

36. We found that the Canadian Food Inspection Agency implemented its stamping-out procedures in all 47 infected premises in our representative sample.

37. The agency has a target to implement movement controls within 1 day of becoming aware of a suspected case of avian influenza for 95% of its cases. We found that movement controls were put in place within 1 day in 44 of 47 (94%) infected premises in our sample. At 3 other premises, inspectors implemented movement controls within 3 days. The agency has no timeline standards for completing any other steps of its stamping-out procedures.

38. We found that inspectors issued destruction orders, and confirmed that depopulation was completed, for all 47 premises in our sample.

39. We found that the agency confirmed that disposal of animals and contaminated materials was completed for all 47 infected premises in our sample.

40. We found that the agency confirmed that full cleaning and disinfection was completed for all 47 premises in our sample, 6 of which used the fallow method as an authorized means of cleaning and disinfection.

41. We found that the required surveillance activities were completed in all but 1 case where we could not confirm whether the surveillance activity was required due to missing documentation.

Documentation on stamping-out procedures was missing, inconsistent, or incomplete

Findings

42. We found missing, inconsistent, or incomplete records for how the inspectors documented most steps in the stamping-out procedures. While we have reviewed other evidence to conclude that the procedures were done, it is important to have accurate documentation on file to demonstrate completeness and consistency among agency inspectors across infected premises.

43. We found that in all 47 infected premises, agency officials confirmed the presence of avian influenza through a laboratory test and prepared a premises investigation questionnaire. However,

we found that the questionnaire was not completed by inspectors in a consistent manner. For example, information on biosecurity practices, sources of infection, and flock health and mortality trends was not consistently recorded in the questionnaire. The agency uses the completed questionnaires for, among other things, assessing risk and making informed operational decisions before undertaking the subsequent stamping-out procedures.

44. An on-site depopulation inspection was required in 44 of the 47 infected premises in our sample. We found that in 4 of the 44 premises requiring an inspection, there was no inspector depopulation report on file to confirm that an in-person inspection took place. However, we determined that depopulation took place based on our review of other documentation. It is important that the inspector depopulation reports be completed to confirm that an in-person inspection took place and to identify the specific actions taken and the findings of the inspection.

45. We found that an on-site disposal inspection took place in all 47 infected premises in our sample. However, in 23 (49%) cases, the disposal inspector reports did not contain the required dates and signatures from both the inspector and the unit lead.

46. An on-site cleaning and disinfection inspection was required in 37 of the 47 premises in our sample. We found that in 1 of the 37 premises requiring an on-site inspection, the agency did not have documentation on file to demonstrate that an on-site inspection was conducted.

47. When deficiencies are noted during cleaning and disinfection site visits, inspectors are required to do on-site follow-up to verify that corrective actions for “major” deficiencies were implemented. However, in 8 cases, we found that inspectors did not document whether the observed deficiencies were major or minor and that the agency had not defined these terms in its instructions for inspectors.

48. When a producer or a third-party organization is completing depopulation, disposal, or cleaning and disinfection activities instead of the agency, the agency requires its inspectors to assess the producers’ and third parties’ standard operating procedures to verify whether they meet the agency’s expectations, including standards on humane depopulation and proper disposal and cleaning and disinfection. Across the 47 premises in our sample, 63 standard operating procedures were required to be assessed. The assessments were supposed to be done prior to the procedures being used on infected premises and before an inspection. We found that the agency completed 46 of 63 (73%) required assessments. We also found that where producers or

third parties carried out depopulation, disposal, and cleaning and disinfection, agency officials were assigned to each of those premises to oversee the work.

Recommendation

49. The Canadian Food Inspection Agency should:

- improve instructions for how inspectors are to record their activities to ensure completeness and promote consistency in documentation
- ensure that the standard operating procedures prepared by producers and third parties are assessed prior to their implementation to confirm that they meet the agency's expectations for how depopulation, disposal, and cleaning and disinfection activities are to be conducted

The agency's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

The Public Health Agency of Canada did not effectively manage the avian influenza vaccine inventory

Why this finding matters

50. The World Health Organization and the Public Health Agency of Canada warn that further mutations of the highly pathogenic avian influenza virus could lead to sustained human-to-human transmission. In order to minimize serious illness, deaths, and societal disruption from the virus, the federal immunization response for avian influenza aims to prevent transmission from animals to humans and help limit opportunities for viral adaptations that could facilitate human-to-human transmission.

Context

51. Although the current public health risk to the general population remains low, sporadic zoonotic infections (those that can be transmitted between animals and humans) require that preparedness efforts be taken to ensure a rapid response in vaccine readiness should the disease pattern, distribution, and severity suddenly shift.

52. In April 2024, the Public Health Agency of Canada updated its rapid risk assessment on avian influenza, which noted that continued transmission of avian influenza A(H5N1) in wild and domestic bird populations and repeated spill-over into diverse wild and domestic mammalian species increase the likelihood of the virus mutating, which could enable sustained transmission in mammalian species, including humans. The risk assessment also noted the rapidly increasing number of cases that had occurred in cattle and poultry farmworkers in the United States.

53. In February 2025, the Public Health Agency of Canada released the National Advisory Committee on Immunization's preliminary guidance on human vaccination against avian influenza in a non-pandemic context. The guidance identified key populations at increased risk of exposure to avian influenza A(H5N1) through handling live viruses or contact with wild or domestic birds or animals or their environments, including laboratory workers and people who live and work on or near farms experiencing outbreaks. The committee recommended that, in a non-pandemic context, the objective of potentially using vaccines against the avian influenza virus is to prevent the transmission of the virus from animals to humans, which could help prevent severe disease in humans and limit opportunities for viral adaptations that could facilitate human-to-human transmission.

54. Since 2013, the World Health Organization had advised against pre-pandemic avian influenza vaccine stockpiling because the next pandemic virus strain cannot be predicted. Then, in December 2025, the organization acknowledged that some countries may also consider maintaining a physical stockpile of vaccines for specific strains, like H5N1, as a precautionary measure given the uncertainty around which strain will cause a pandemic and to maintain flexibility in vaccine stockpiling strategies.

The agency secured a sufficient supply of vaccines, but a lack of analysis led to an oversupply

Findings

55. We found that the Public Health Agency of Canada's decision to acquire human vaccines against the avian influenza virus was not initially supported by an analysis to determine how many doses the agency needed. In June 2024, the agency initially set out to acquire 800,000 doses of 1 type of vaccine but did not have a supporting analysis for this amount. Then, in August 2024, the agency secured an agreement with an influenza vaccine supplier to acquire 500,000 doses of another type of avian influenza

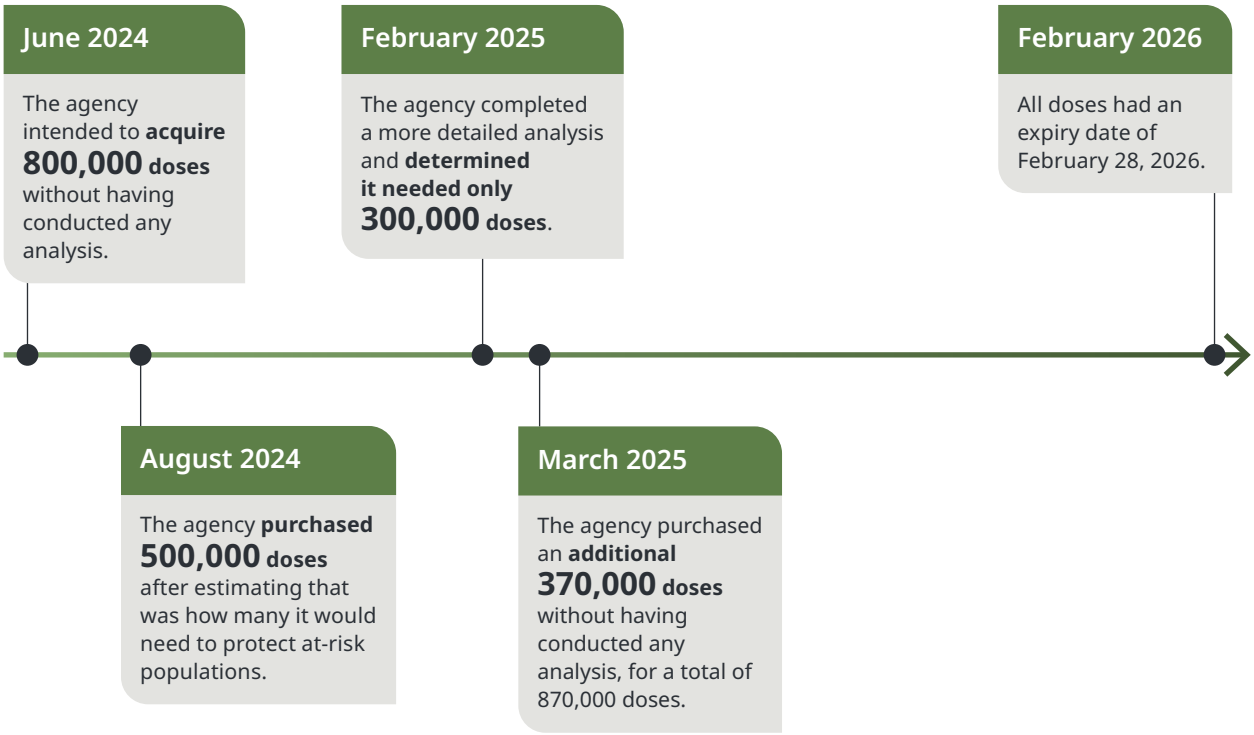
vaccine instead. We found that the agency prepared an estimation of the key at-risk populations that supported the purchase of the 500,000 doses.

56. We found that in February 2025, 6 months after the Public Health Agency of Canada secured the initial procurement agreement, the National Advisory Committee on Immunization published its guidance identifying key at-risk populations. In this same month, using this guidance, the agency prepared a detailed calculation of the doses required for allocation to key at-risk populations in provinces and territories. This reduced the doses allocated to these populations from 500,000 to 300,000, with 200,000 (40%) doses kept in reserve.

57. One month later, on March 4, 2025, the agency secured another agreement with the supplier to acquire an additional 370,000 doses, for a total of 870,000 doses, in spite of having determined a need to allocate only 300,000 doses to key at-risk populations and having a reserve of 200,000 doses. The agency stated that it purchased these additional doses as a precautionary measure to support Canada's readiness if transmission patterns changed and the risk of a pandemic became more imminent. We found that the agency did not have a cost-benefit analysis to justify this purchase. The 870,000 doses were delivered in 2 batches: the first on February 26, 2025, and the second on March 11, 2025. All doses expired on February 28, 2026 (Exhibit 3). The total cost of the vaccines purchased is confidential under the agency's contract with the supplier.

58. The agency's initial decision to acquire the vaccines in 2024 was based on the risks identified in its risk assessments. The agency had extended these risk assessments to September 30, 2026. After the vaccine doses expired in February 2026, the agency obtained the financial approval to purchase more doses if needed, but it had not made a decision on the need to replenish the inventory of avian influenza vaccines despite the risk assessments remaining the same. Should additional inventory be required, it can take up to 5 months for a supplier to manufacture and deliver avian influenza doses depending on the type of vaccine.

Exhibit 3—The Public Health Agency of Canada purchased avian influenza vaccines before determining the exact number of doses it needed



Source: Based on information from the Public Health Agency of Canada

Read the Exhibit 3 text description

Recommendation

59. Given that the Public Health Agency of Canada obtained the financial approval to purchase more avian influenza vaccine doses if needed, the agency should support further procurement decisions based on updated risk assessments, a cost-benefit analysis, and an assessment of demand forecasting for the number of doses that may be needed.

The agency's response. Agreed.

See Recommendations and Responses at the end of this report for detailed responses.

The agency's management of vaccine distribution and monitoring had gaps

Findings

60. We found that the Public Health Agency of Canada had gaps in its management of the distribution and monitoring of the avian influenza vaccine inventory.

61. We found that the agency did not obtain an order-in-council to authorize the transfer of avian influenza vaccines to provinces and territories. In 2020, an order-in-council gave the agency legal authority to transfer COVID-19 vaccines. However, this authority does not apply to avian influenza vaccines. Instead, the agency told us it relied on policy and financial approvals. In our view, it is important that the agency clarify the legal authorities required to transfer vaccines and ensure they are in place, or can be put in place quickly, to respond to future needs, including emergencies.

62. We found that the agency did not have the information technology (IT) system capability to efficiently manage the distribution and monitoring of the avian influenza vaccine inventory. The IT system lacked real-time system interactions to access distribution data from the supplier, such as the dates and deliveries of doses of avian influenza vaccines. We also found that the agency's quality controls for accurately recording data in its system had gaps, including:

- missing data, such as which logistic service provider delivered vaccine doses
- data errors, such as erroneous dates for when the agency notified the supplier of vaccine orders and when deliveries arrived at provinces and territories

63. We also found that, in the absence of data sharing agreements, the agency relied on voluntary reporting by provinces and territories of vaccine wastage. The agency also relied on the vaccine supplier to report any temperature anomalies during delivery. Temperature monitoring devices were packed with the boxes containing the vaccine doses shipped by the supplier; however, the Public Health Agency of Canada's vaccine system did not have the functionality to allow for these devices to send data directly to it.

64. The vaccine IT system was phased out by March 31, 2026, and any allocation, ordering, and distribution of avian influenza vaccines following this date would have to be managed by a new system called the Warehouse Management System under the National Emergency Strategic Stockpile. The agency told us that the new system has the functionality needed for direct and accurate

tracking of data on vaccine distribution and storage but has not yet been fully activated and externally connected to suppliers' systems. In our view, it would be prudent for the agency to configure, test, and activate these integrations before a pandemic is declared.

65. Our recommendation for this section is at paragraph 72.

Over 95% of the avian influenza vaccine doses went unused

Findings

66. The agency's comprehensive distribution plan, which includes the strategy for how many doses of the avian influenza vaccine would be allocated to each province and territory, was ratified by the federal-provincial-territorial Communicable and Infectious Disease Steering Committee on May 20, 2025, after provinces and territories had already begun placing orders earlier that month.

67. We found that the agency had an equitable strategy for allocating vaccines to provinces and territories that prioritized key at-risk populations identified by the National Advisory Committee on Immunization. This strategy was supported by the agency's consideration of epidemiological trends, labour statistics, and demographic data.

68. However, we also found that the agency had errors in the formulas used to calculate the number of doses to be allocated to key at-risk populations. These errors coincidentally cancelled each other out, resulting in minimal impact to the overall number of vaccines allocated to each province. However, errors of this type could have greater consequences under different conditions.

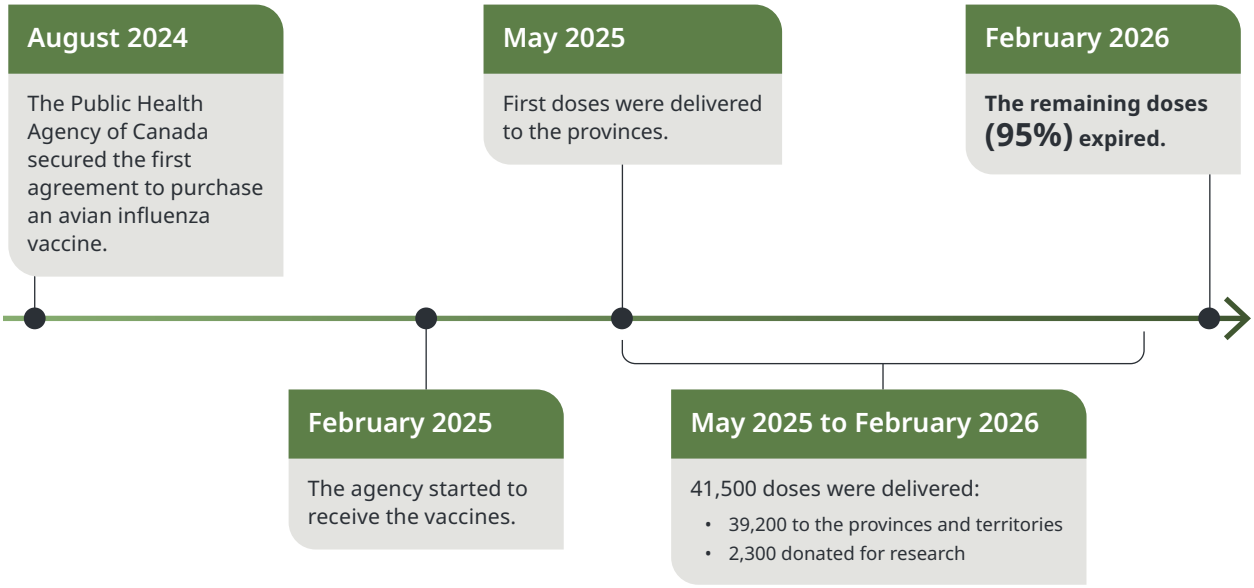
69. On May 12, 2025, the agency opened the first window to allow provinces and territories to place vaccine orders. We found that this was 10 weeks after the supplier delivered the first avian influenza doses into the federally owned, supplier-managed warehouse in February 2025. The agency told us that this delay in opening the order window was because discussions with provincial and territorial governments on vaccination rollout timing and approach were ongoing.

70. We found that out of an allocation of 300,000 doses, 39,200 doses (13%) had been distributed to the provinces and territories. We found that the agency relied on voluntary reporting from the provinces and territories to monitor vaccine wastage and use. While 6 provinces consistently reported this information, the agency was unable to obtain data from the remaining provinces or territories due to a lack of data sharing agreements. This is a

long-standing issue that we have reported on since 1999, most recently in the 2022 report on COVID-19 vaccines, noting how this gap limits the agency's ability to monitor vaccine uptake.

71. Out of an allocation of 20,000 doses, 2,300 doses (12%) had been distributed to the research community, as a donation by the Public Health Agency of Canada. Doses donated for research supports knowledge of vaccine efficacy and potential adverse effects and helps decrease the wastage of unused doses. We found that by the time the vaccine inventory expired, over 95% of the 870,000 doses were not used (Exhibit 4).

Exhibit 4—Over 95% of the avian influenza vaccines were not used before they expired in February 2026



Source: Based on information from the Public Health Agency of Canada

Read the Exhibit 4 text description

Recommendation

72. To improve the management of vaccine distribution and monitoring, the Public Health Agency of Canada should:

- improve its systems and procedures to obtain more direct and accurate data on vaccine stockpiles, including information on use, safe distribution and storage, expiry, and wastage
- implement a plan with provinces and territories to secure data sharing agreements for monitoring vaccine use, safe distribution and storage, expiry, and wastage

The agency's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

Conclusion

73. We concluded that Environment and Climate Change Canada's surveillance systems and processes for the detection of the avian influenza virus supported the management and conservation of migratory birds but did not include routine or targeted detection methods to support the conservation of species at risk.

74. We concluded that in the infected premises we examined, the Canadian Food Inspection Agency eliminated the avian influenza virus and contained its spread in domestic animals. However, documentation on how these procedures were carried out was missing, inconsistent, or incomplete.

75. We concluded that the Public Health Agency of Canada secured a sufficient supply of the avian influenza vaccine to protect human health from avian influenza but did not effectively manage the distribution and monitoring of the supply.

About the Audit

This independent assurance report was prepared by the Office of the Auditor General of Canada on avian influenza. Our responsibility was to provide objective information, advice, and assurance to assist Parliament in its scrutiny of the government's management of resources and programs and to conclude on whether the federal response to avian influenza complied in all significant respects with the applicable criteria.

All work in this audit was performed to a reasonable level of assurance in accordance with the Canadian Standard on Assurance Engagements (CSAE) 3001—Direct Engagements, set out by the Chartered Professional Accountants of Canada (CPA Canada) in the CPA Canada Handbook—Assurance.

The Office of the Auditor General of Canada applies the Canadian Standard on Quality Management 1—Quality Management for Firms That Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements. This standard requires our office to design, implement, and operate a system of quality management, including policies or procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

In conducting the audit work, we complied with the independence and other ethical requirements of the relevant rules of professional conduct applicable to the practice of public accounting in Canada, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

In accordance with our regular audit process, we obtained the following from entity management:

- confirmation of management's responsibility for the subject under audit
- acknowledgement of the suitability of the criteria used in the audit
- confirmation that all known information that has been requested, or that could affect the findings or audit conclusion, has been provided
- confirmation that the audit report is factually accurate

Audit objectives

The objectives of this audit were to determine whether:

- Environment and Climate Change Canada's surveillance systems and processes for the detection of the avian influenza virus supported the management and conservation of migratory birds and species at risk
- the Canadian Food Inspection Agency eliminated the avian influenza virus from infected premises and contained its spread in domestic animals
- the Public Health Agency of Canada secured a sufficient supply of avian influenza vaccine and managed the supply to protect human health against the threat of a pandemic

Scope and approach

Objective 1 examined Environment and Climate Change Canada's active and passive surveillance systems and processes to understand, evaluate, and mitigate the risk that avian influenza poses to migratory birds and species at risk. We reviewed the amount and frequency of the sampling, and the sampling methodologies, used to detect avian influenza in wild birds in relation to the department's stated surveillance objectives.

Objective 2 examined the application by the Canadian Food Inspection Agency of its established procedures to eliminate the avian influenza virus from infected premises and to contain the spread of the virus. We used representative sampling to examine the implementation of these procedures at 47 infected premises across Canada, from a population of 533 premises that completed the stamping-out procedures by July 31, 2025. Where representative sampling was used, sample sizes were sufficient to conclude on the sampled population with a confidence level of 90% and a margin of error of +10%. Additional audit work was conducted to November 30, 2025.

Objective 3 examined the activities of the Public Health Agency of Canada to secure a sufficient supply of human avian influenza vaccines. This objective also examined the Public Health Agency of Canada's management and oversight of the allocation, distribution, and monitoring of the vaccine supply. We evaluated the methodology and calculations the agency used for its pre-pandemic vaccine allocation strategy, and we validated vaccine distribution dates and amounts in the agency's tracking system.

We did not examine fundamental and applied federal science research on the impacts of the virus on humans and animals; authorization processes for the development of human and animal vaccines against the virus; enforcement of the border controls to prevent the introduction of the virus into Canada; or whether compensation payments to farmers for animals and things destroyed as a result of the virus were granted in an appropriate manner.

Criteria

We used the following criteria to conclude against our audit objectives:

Criteria	Sources
Objective 1: Environment and Climate Change Canada has systems and processes for the active and passive surveillance of the avian influenza virus in migratory birds and species at risk.	• Terrestrial Animal Health Code, World Organisation for Animal Health, 2024 • Guidelines for Wildlife Disease Surveillance: An Overview, World Organisation for Animal Health • General Guidelines for Surveillance of Diseases, Pathogens and Toxic Agents in Free-Ranging Wildlife, World Organisation for Animal Health and International Union for Conservation of Nature • Species at Risk Act • Migratory Birds Convention Act, 1994 • Policy on Results, Treasury Board • Canada's Interagency Surveillance Program for Avian Influenza Viruses in Wildlife: 2022–2023 Implementation Plan, Environment and Climate Change Canada • A Pan-Canadian Approach to Wildlife Health, federal provincial, and territorial governments of Canada and Canadian Wildlife Health Cooperative • National Avian Influenza Virus Surveillance Program in Live and Hunter-Harvested Waterfowl as Part of Canada's Interagency Surveillance Program for Avian Influenza Viruses in Wildlife, Environment and Climate Change Canada, 2024 • Paired Avian Influenza Virus Swabs and Serology: Proposed National Approach, Environment and Climate Change Canada • Avian Influenza Virus Serology in Eggs: Proposed National Approach, Environment and Climate Change Canada • Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations

Criteria	Sources
Objective 2: The Canadian Food Inspection Agency eliminates the avian influenza virus on infected premises and contains its spread.	• Terrestrial Animal Health Code, World Organization for Animal Health, 2024 • Canadian Food Inspection Agency Act • Health of Animals Act • Health of Animals Regulations • Reportable Diseases Regulations • Safe Food for Canadians Act • Safe Food for Canadians Regulations • Animal Health Functional Plan, Canadian Food Inspection Agency, 2022 • Highly Pathogenic Avian Influenza Event Response Plan 2022, Canadian Food Inspection Agency, last revised 2025 • Animal Health Common Procedures Manual, Canadian Food Inspection Agency, 2025 • Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations
Objective 3, criterion 1: The Public Health Agency of Canada secures avian influenza vaccines to ensure a sufficient supply for Canadians.	• Public Health Agency of Canada Act • Department of Public Works and Government Services Act • Government Contracts Regulations • Policy on the Planning and Management of Investments, Treasury Board • Directive on the Management of Procurement, Treasury Board, 2025 • Supply Manual, Public Services and Procurement Canada • Rapid Response: Preliminary Guidance on Human Vaccination Against Avian Influenza in a Non-Pandemic Context as of December 2024, National Advisory Committee on Immunization • Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations • Health Portfolio Sex- and Gender-Based Analysis Plus Policy: Advancing Equity, Diversity and Inclusion, Health Canada, 2022

Criteria	Sources
Objective 3, criterion 2: The Public Health Agency of Canada manages the equitable allocation and timely distribution of the avian influenza vaccine and monitors its supply.	• Public Health Agency of Canada Act • Policy on Results, Treasury Board • Human Vaccines Against Avian Influenza Comprehensive Distribution Plan, Public Health Agency of Canada • Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations • Health Portfolio Sex- and Gender-Based Analysis Plus Policy: Advancing Equity, Diversity and Inclusion, Health Canada, 2022

Period covered by the audit

For objectives 1 and 2, the audit covered the period from January 1, 2021, to November 30, 2025. For objective 3, the audit covered the period from January 1, 2021, to March 31, 2026. These are the periods to which the audit conclusions apply. However, to gain a more complete understanding of the subject matter of the audit, we also examined certain matters that preceded the start date of these periods.

Date of the report

We obtained sufficient and appropriate audit evidence on which to base our conclusion on April 29, 2026, in Ottawa, Canada.

Audit team

This audit was completed by a multidisciplinary team from across the Office of the Auditor General of Canada led by Markirit Armutlu, Principal. The principal has overall responsibility for audit quality, including conducting the audit in accordance with professional standards, applicable legal and regulatory requirements, and the office’s policies and system of quality management.

Recommendations and Responses

Responses appear as they were received by the Office of the Auditor General of Canada.

In the following table, the paragraph number preceding the recommendation indicates the location of the recommendation in the report.

Recommendation	Response
24. Environment and Climate Change Canada should improve its surveillance methods for detecting highly pathogenic avian influenza in species at risk to: • understand which species at risk are most vulnerable and susceptible to the impacts of the virus • inform the management and conservation of these species	**Environment and Climate Change Canada's response.** Agreed. Environment and Climate Change Canada agrees to improve its methods for detecting highly pathogenic avian influenza in species at risk, using a science-informed and risk-based prioritization that reflects the role of wildlife health in the federal government's One Health approach. To support conservation outcomes, Environment and Climate Change Canada will update its governance model to create integration between the Pan-Canadian Approach to Wildlife Health framework (within which Highly Pathogenic Avian Influenza monitoring and surveillance occurs) and the Species at Risk program by March 2027.
49. The Canadian Food Inspection Agency should: • improve instructions for how inspectors are to record their activities to ensure completeness and promote consistency in documentation • ensure that the standard operating procedures prepared by producers and third parties are assessed prior to their implementation to confirm that they meet the agency's expectations for how depopulation, disposal, and cleaning and disinfection activities are to be conducted	**The Canadian Food Inspection Agency's response.** Agreed. To support continuous improvement and ensure the completeness and consistency of documentation across an emergency response, the Canadian Food Inspection Agency will review the documentation guidelines and forms used for emergency response activities. This review will include: • revising and clarifying instructions for inspectors completing forms; and • assessing forms and documentation processes to identify efficiencies and opportunities to simplify. • updating procedures to include instructions for how to document the oversight of third parties and producers performing depopulation, disposal and cleaning and disinfection activities This review will be initiated in April 2026. Review completion will be dependent on the status of the on-going emergency response. Target for implementation is March 31, 2027.

Recommendation	Response
59. Given that the Public Health Agency of Canada obtained the financial approval to purchase more avian influenza vaccine doses if needed, the agency should support further procurement decisions based on updated risk assessments, a cost-benefit analysis, and an assessment of demand forecasting for the number of doses that may be needed.	**The Public Health Agency of Canada's response.** Agreed. The Public Health Agency of Canada will develop by October 2026 a comprehensive framework to inform its decision-making on future procurement for human vaccine for avian influenza based on epidemiological context, risk assessment, One Health preparedness, guidance for vaccine use, vaccine demand forecasting, costing analysis, and expert consultation.
72. To improve the management of vaccine distribution and monitoring, the Public Health Agency of Canada should: • improve its systems and procedures to obtain more direct and accurate data on vaccine stockpiles, including information on use, safe distribution and storage, expiry, and wastage • implement a plan with provinces and territories to secure data sharing agreements for monitoring vaccine use, safe distribution and storage, expiry, and wastage	**The Public Health Agency of Canada's response.** Agreed. To improve the management of vaccine distribution and monitoring, by November 2026, the Public Health Agency of Canada will onboard pandemic influenza vaccine vendors with which it has contracts into its information systems to have direct and accurate data on inventories including distribution, storage and expiry. The Public Health Agency of Canada is working closely with the provinces and territories to finalize the Public Health Information Sharing Agreement, with FPT Ministerial approvals expected by December 2026. The initial scope of the agreement includes vaccination data, which provides the opportunity to enhance data sharing on key indicators for vaccine use, uptake and wastage. Beginning in June 2026, the Agency will also begin work to negotiate inclusion of principles-based language for vaccine-related indicators within Canada's Pandemic Preparedness Plan's Medical Countermeasures Technical Component, planned for publication by December 2027.

Appendix—Text Descriptions of Exhibits

Here are the text descriptions of the exhibits.

Exhibit 1—In response to the avian influenza outbreak, Environment and Climate Change Canada expanded its surveillance methods to detect the virus in migratory birds—Text description

This image shows Environment and Climate Change Canada's ongoing surveillance methods and the new surveillance methods the department added in response to the avian influenza outbreak.

The ongoing surveillance methods are as follows:

- surveillance of live and hunter-harvested birds
- surveillance of sick and dead wildlife led by the Canadian Wildlife Health Cooperative

The new surveillance methods are as follows:

- blood samples from live wild birds
- samples from wild bird eggs

Source: Based on information from Environment and Climate Change Canada

Back to Exhibit 1

Exhibit 3—The Public Health Agency of Canada purchased avian influenza vaccines before determining the exact number of doses it needed—Text description

This timeline shows the Public Health Agency of Canada's process for purchasing avian influenza vaccines from June 2024 to February 2026:

- June 2024: The agency intended to acquire 800,000 doses without having conducted any analysis.
- August 2024: The agency purchased 500,000 doses after estimating that was how many it would need to protect at-risk populations.
- February 2025: The agency completed a more detailed analysis and determined it needed only 300,000 doses.
- March 2025: The agency purchased an additional 370,000 doses without having conducted any analysis, for a total of 870,000 doses.
- February 2026: All doses had an expiry date of February 28, 2026.

Source: Based on information from the Public Health Agency of Canada

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Exhibit 4—Over 95% of the avian influenza vaccines were not used before they expired in February 2026—Text description

This timeline shows how the Public Health Agency of Canada distributed avian influenza vaccines from August 2024 to February 2026:

- August 2024: The agency secured the first agreement to purchase an avian influenza vaccine.
- February 2025: The agency started to receive the vaccines.
- May 2025: First doses were delivered to the provinces.
- May 2025 to February 2026: 41,500 doses were delivered—39,200 to the provinces and territories and 2,300 donated for research.
- February 2026: The remaining doses (95%) expired.

Source: Based on information from the Public Health Agency of Canada

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