

March 24, 2025

Biannual report on Influenza A in Ontario Swine herds: July to December 2024

Background Information on Influenza A in Swine

The purpose of this update is to provide information on influenza A in Ontario swine herds based on laboratory submissions from July 2024 to December 2024. Under the authority of the *Animal Health Act*, Ontario Ministry of Agriculture, Food and Agribusiness (OMAFRA) has a mandate to protect animal health and take appropriate action on animal diseases that may affect human health. Therefore, influenza in all animal species is designated as an immediately notifiable hazard which requires all veterinary laboratories in Ontario to notify OMAFA when the virus is identified by a laboratory test. This report was created from data that was directly reported to OMAFA under the authority of the *Animal Health Act*.

Influenza is a common virus that affects multiple animal species, including swine, birds, horses, dogs, and cattle. Additional information on influenza and animal health can be found at [Animal health: Influenza | ontario.ca](https://www.ontario.ca/animal-health/influenza).

Influenza is a zoonotic disease and in rare cases influenza viruses from pigs can affect humans. There is no risk of contracting influenza from pork products that are properly handled and cooked. If a case of influenza virus from swine is identified in a person, OMAFA will assist the Ontario Ministry of Health and the Public Health Agency of Canada with an investigation. People can help prevent transmission of influenza between animals and themselves by wearing gloves and an N-95 respirator mask, and by washing their hands after working with or handling animals. If you have questions about your health, please contact your physician.

Human influenza viruses can also be transmitted to pigs. If you are sick with a cold or flu, stay home and ask someone else to look after your animals.

Influenza virus in swine has various subtypes, including H1N1, H3N2 and H1N2. The H1N1 subtype was the predominant subtype detected until 2004 when H3N2 influenza was identified in Canadian pigs and spread to swine herds throughout all provinces including Ontario. The H1N2 influenza subtype was first identified in Ontario pigs in February of 2015 and since October of 2016 has become more common in Ontario swine herds. At the time of this report publication, there have been no detections of Influenza A subtype H5N1 in Canadian or Ontario ruminants or swine to date. Some influenza strains can circulate and cause little or no signs of disease in pigs, while others cause coughing, fever, laboured

breathing, muscle stiffness and abortion. In most cases, pigs infected with influenza viruses quickly become ill and recover, although severe cases can result in death. The virus can also make infected pigs more susceptible to infection with other bacteria and viruses.

Influenza A in Ontario Swine, July to December 2024

The information presented in this report is limited to the information provided in the laboratory submission form. In cases where adequate information on herd production type was not available, disease data is displayed under the category titled “swine, not specified” (see Figure 2 below). Isolations from all investigation types or submission purposes (e.g., monitoring, elimination) and clinical contexts (e.g., uncomplicated infections, co-infection with other respiratory pathogens) are included in this report and should be considered when interpreting the data.

Detections of influenza appeared to increase over the duration of this reporting period (Figure 1). In November 2024, the number of positive submissions received was 24, and is the highest monthly number of swine submissions positive for influenza recorded since prior to January 2023.

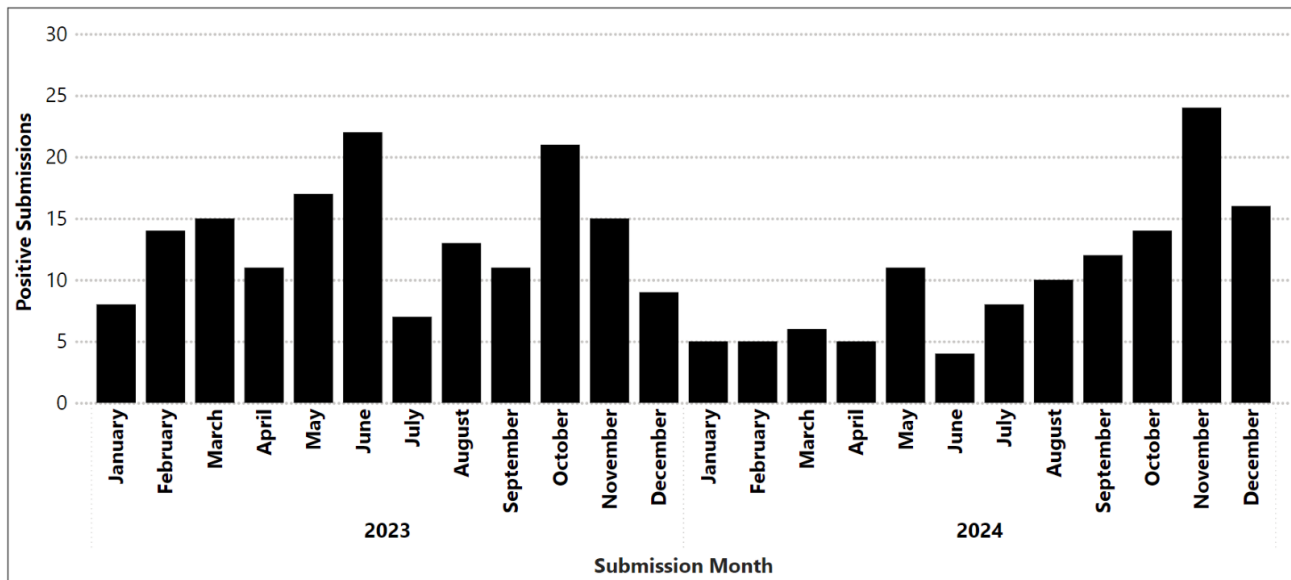


Figure 1. Submissions with positive tests (not including ELISA tests) for influenza in swine by submission month, Ontario, Jan 2023 to Dec 2024.

Most positive submissions were sent from nursery and grow-finish units across most months in this reporting period (Figure 2). In quarter (Qtr) 4 2023, and all Qtrs in 2024 there were also a number of positive submissions from sow herds (Figure 3).

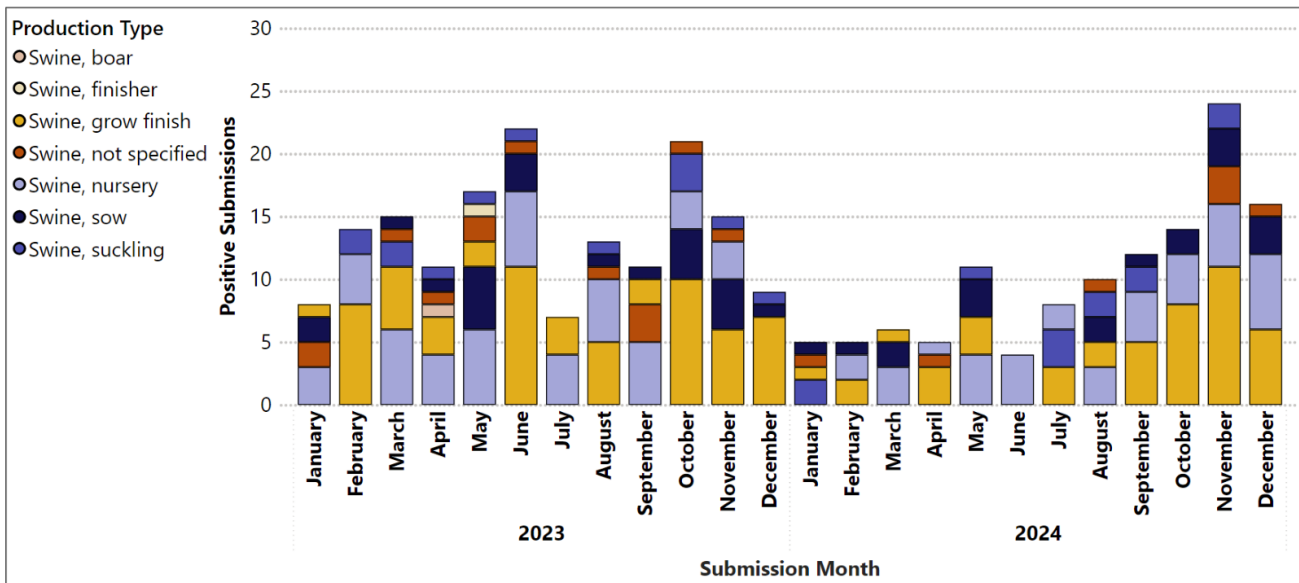


Figure 2. Number of submissions with positive tests (not including ELISA tests) for influenza in swine by production type and submission month, Ontario, Jan 2023 to Dec 2024.

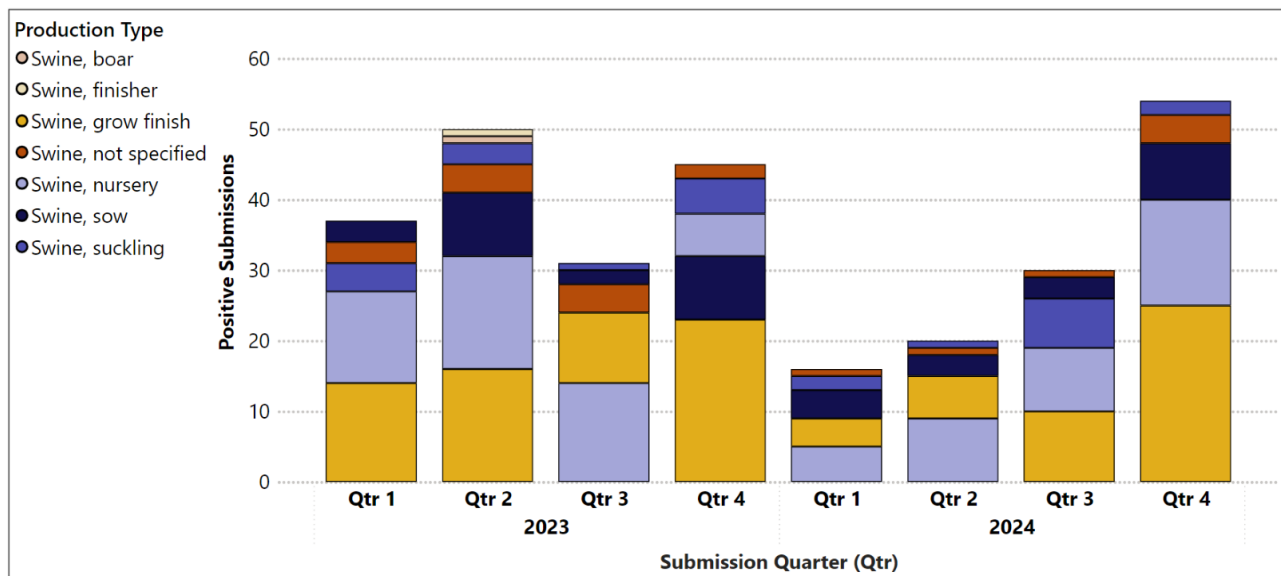


Figure 3. Number of submissions positive for influenza (excluding ELISA tests) in swine by production type and quarter, Ontario, Jan 2023 to Dec 2024. Quarter (Qtr) 1: Jan-Mar, Qtr 2: Apr-Jun, Qtr 3: Jul-Sep, Qtr 4: Oct-Dec.

Figures 4 and 5 below display subtype information, including the main subtypes of H1N1, H1N2, H3N2 and counts of partial, mixed, and “inconclusive” subtypes isolated from Ontario swine herds from Jan 2023-Dec 2024. A mixed subtype refers to a submission detecting a combination of more than one H and/or N subtype, while a partial subtype refers to submissions where only an H or N subtype is detected. Submissions where influenza was detected but subtyping could not be completed are captured in the “inconclusive”

category. Inconclusive subtyping results were most common in November 2024 relative to the other months during the reporting period.

Just over half (52%) of positive submissions from July to December 2024 involved the subtype H3N2 (Figure 4, 5), compared to 72% of positive submissions involving H3N2 for the same period in 2023. The overall number of Influenza A detections in swine during 2024 (120) are also lower than reported in 2023 (163). This is good news, and this decrease is being attributed to the use of updated regional Influenza A swine autogenous vaccines in Ontario.

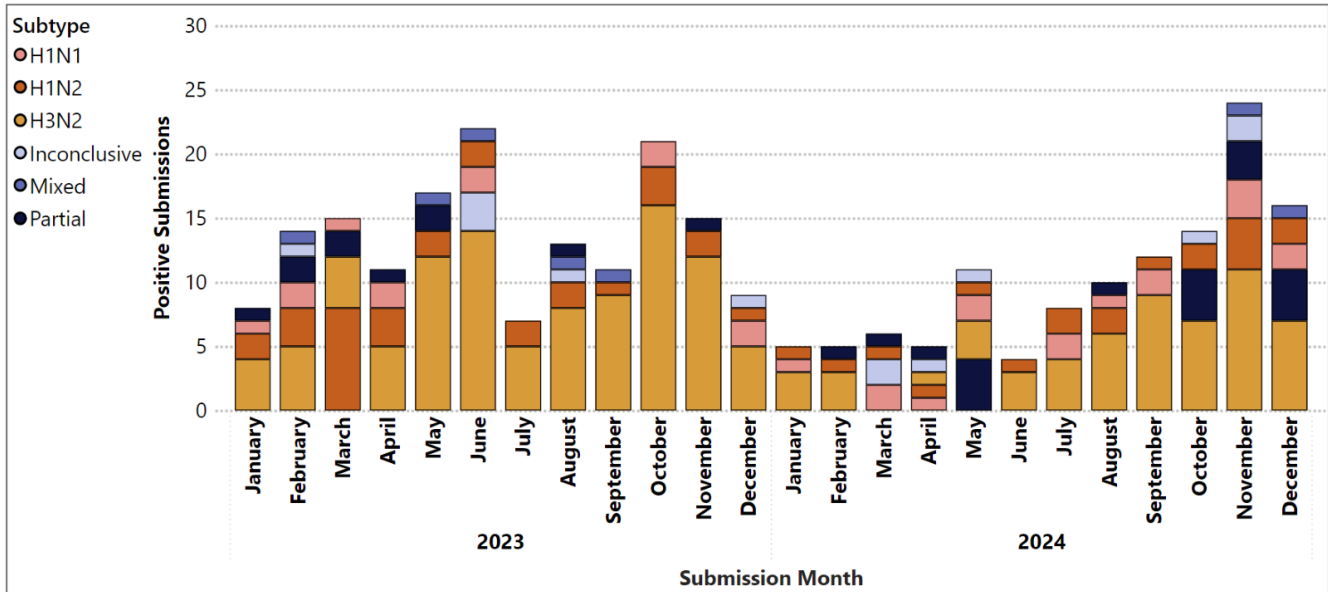


Figure 4. Submissions positive for influenza (not including ELISA tests) in swine by subtype and submission month, Ontario, Jan 2023 to Dec 2024.

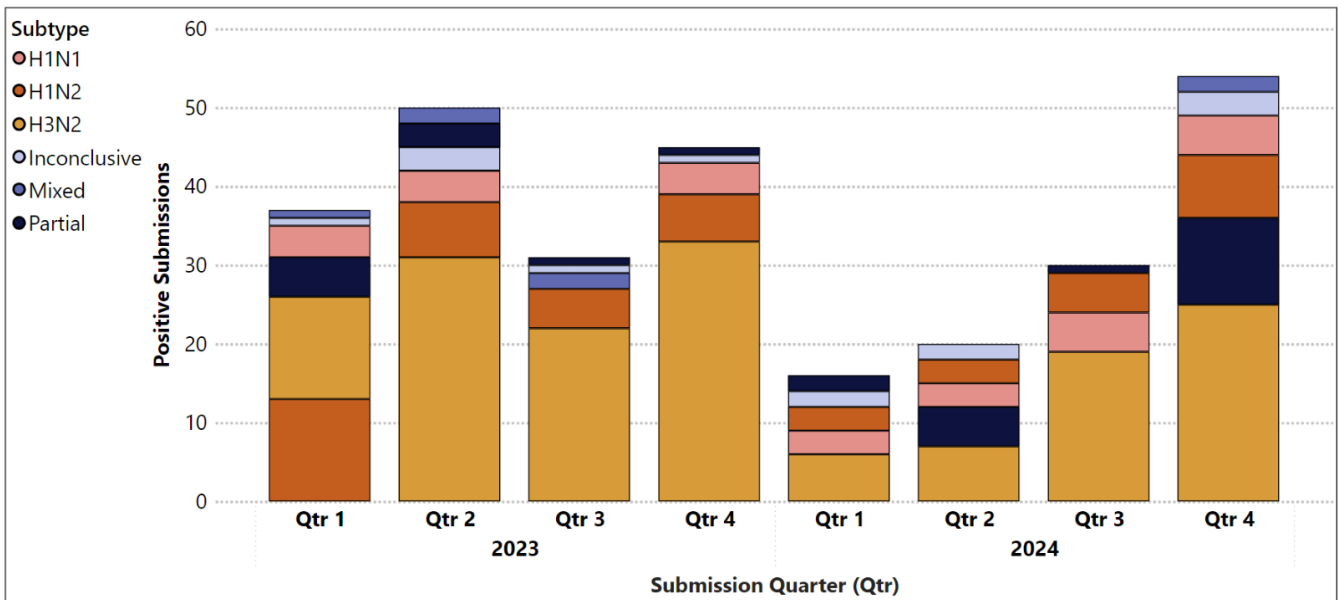


Figure 5. Submissions positive for influenza (not including ELISA tests) in swine by subtype and submission quarter (Qtr), Ontario Jan 2023 to Dec 2024: Qtr 1: Jan-Mar, Qtr 2: Apr-Jun, Qtr 3: Jul-Sep, Qtr 4: Oct-Dec.

Half (42/84) of influenza detections during this report period belong to the 2010.1 clade of the H3N2 subtype (Figure 6), which was first isolated in Ontario swine in April 2023. However, approximately 20% of positive submissions in this report period were not able to be sequenced.

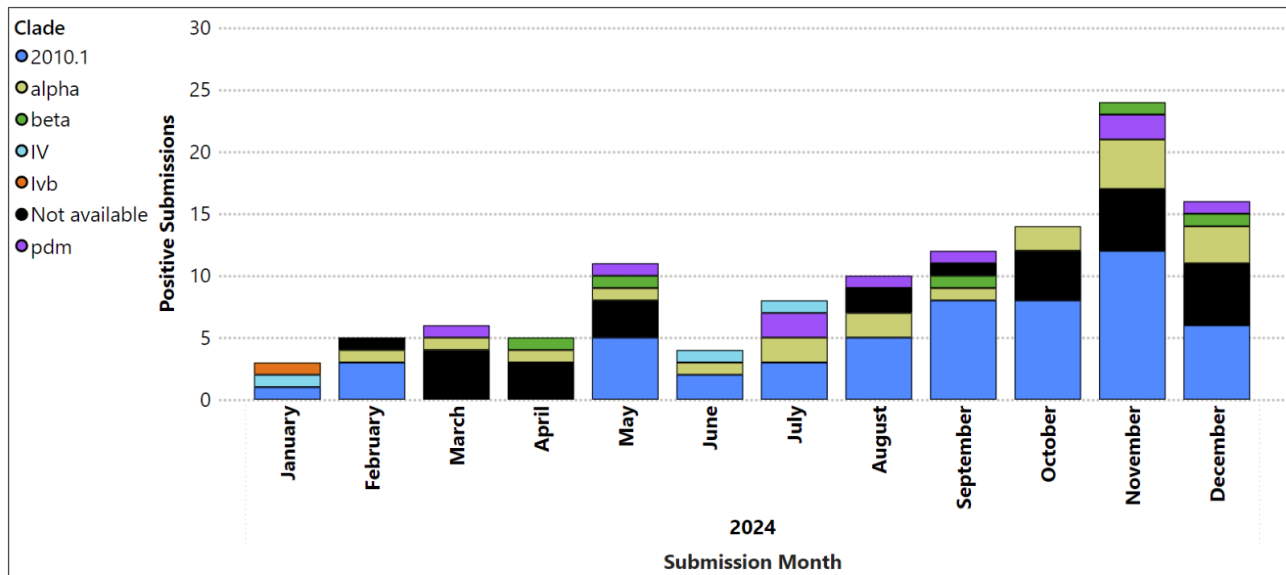


Figure 6. Submissions positive for influenza (not including ELISA tests) in swine by clade and submission month, Ontario, Jan 2023 to Dec 2024.

Most influenza detections in swine continue to come from the swine dense counties of Huron and Perth, followed by Oxford, Middlesex, Wellington, and Bruce. (Figure 7). In this report period, seven positive submissions did not include county level location information and are not included in the figure below.

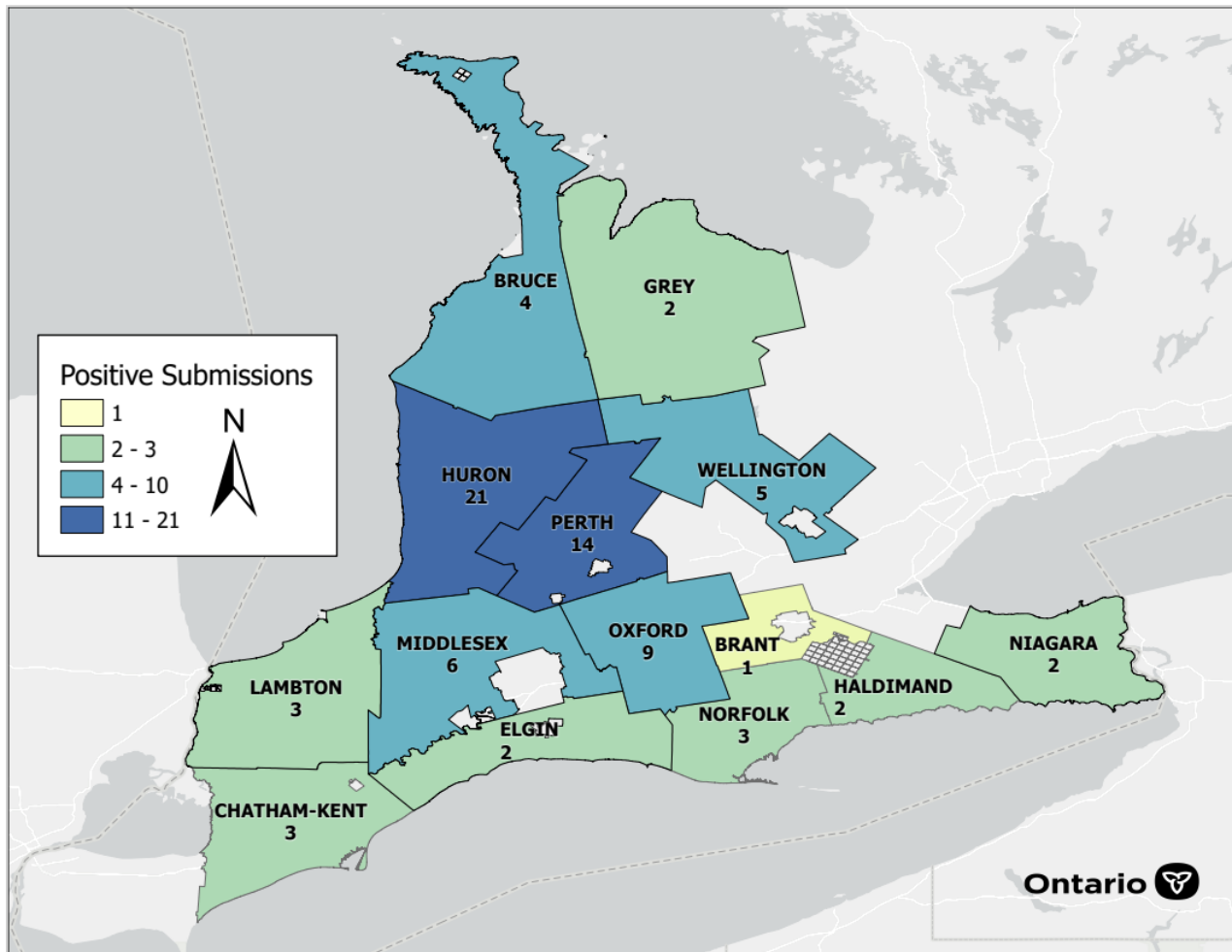


Figure 7. Submissions positive for influenza (not including ELISA tests) in swine by county, Ontario, July 2024 to Dec 2024.

Take Home Messages

A notable finding of this report was the continuation of dominance of subtype H3N2 during quarter 3 and quarter 4 of 2024 (Figure 5). In April of 2023, the Animal Health Laboratory (AHL) in Guelph, identified a “new” clade of subtype H3N2 known as 2010.1 in Ontario pigs. More information on this finding and the origins of this virus was made available in the September AHL newsletter and can be accessed via the following [link](#). Clade 2010.1 of subtype H3N2 strain was added into regional autogenous vaccines in

Ontario as early as January 1, 2024. The overall number of Influenza A detections during 2024 in swine are lower than the previous Jan-Dec 2023. This trend is being attributed to the use of the updated regional Influenza A autogenous vaccines for Ontario pigs and is a good news story for the Ontario swine industry.

In October 2024, Quebec announced the detection of clade 2010.1 of subtype H3N2 Influenza in a swine herd in eastern Quebec. This herd had no epidemiological connections to Ontario. To date, there have been no other detections of this clade in other provinces, and all are conducting Influenza A in swine surveillance activities and on the lookout for it.

There are no known detections of this new clade infecting humans to date, but the importance of following good biosecurity practices, using personal protective equipment when working with sick pigs, and swine farm workers staying home if they may be sick with respiratory illness and/or are experiencing a fever must be emphasized. The goal is to prevent further virus transmission and the potential to infect other species. Your veterinarian can provide advice on how to prevent and manage influenza infections in your herd, including vaccination strategies, isolation procedures for incoming animals, and good biosecurity measures.

Disease surveillance activities that include subtyping and genotyping of detections of Influenza A in swine are funded through the Ontario Agri-Food Innovation Alliance. This report showcases the importance of this funding which allows for the monitoring of genetic reassortments and mutations of this virus.