

3 December 2022

Situation summary

According to the World Organisation for Animal Health (WOAH), the highly pathogenic avian influenza (HPAI) epidemic season continues with **outbreaks in poultry and reported outbreaks in birds other than poultry, mainly in the Regions of Europe and the Americas**. In the current epidemic period, **H5N1 is the predominant subtype, and unusual persistence of the virus in wild birds during the summer months has been reported for the first time** (1, 2).

In accordance with the seasonal pattern of HPAI¹, the number of outbreaks is expected to increase in the coming months and WOAH recommends that countries maintain and strengthen their surveillance efforts, biosecurity measures on farms, and continue with the timely notification of avian influenza outbreaks in both birds and non-avian species. The quality of surveillance is key for **the early detection and timely response to potential threats to animal health with an impact on public health** (1,2).

Epidemiological situation in the Region of the Americas

As of epidemiological week (EW) 48 of 2022, agriculture authorities in Canada, Colombia, Ecuador, Mexico, Peru, the United States of America, and Venezuela have detected outbreaks of HPAI H5 viruses in domestic birds, farm poultry, and wild birds (**Map 1**), which were notified to the World Organisation for Animal Health (WOAH).

The following is a summary of the situation in countries of the Region of the Americas that reported outbreaks of avian influenza in 2022.

In **Canada**, as of 23 November 2022, multiple HPAI A(H5N1) outbreaks in poultry and non-poultry birds (including wild birds) have been reported in the provinces of Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Quebec, and Saskatchewan². To date, no confirmed cases of avian influenza A(H5N1) have been identified in humans in the identified outbreaks.

¹ Avian influenza viruses are classified into low pathogenic avian influenza viruses (LPAI) and highly pathogenic avian influenza viruses (HPAI) according to their ability to cause disease in birds.

² Public Health Agency of Canada. Avian Influenza, available at: <https://bit.ly/3TCTii2>; Status of the ongoing response to avian influenza by province, available at: <https://bit.ly/3fl2aYq>

In **Colombia**, between 19 October and 30 November 2022, the Colombian Agricultural Institute (ICA per its acronym in Spanish) identified 22 HPAI A(H5N1) outbreaks (13 additional outbreaks registered since the epidemiological alert published on November 19). Of the total number of outbreaks, five were identified in a rural area of Cartagena District in Bolívar Department, seven were identified in rural and peri-urban areas of Acandí Municipality in Chocó Department, four were identified in a rural area of Cereté Municipality and two in a rural area of Lórica Municipality in Córdoba Department, one in El Retén Municipality in Magdalena Department and two in a rural area of Los Toluviejo Municipality in Sucre Department. The outbreaks have been identified in backyard birds that had contact with wild birds traveling along migratory routes to the south of the continent. To date, no confirmed cases of avian influenza A(H5N1) have been identified in humans in the identified outbreaks^{3,4}.

In **Ecuador**, on 25 November 2022, the Ministry of Agriculture and Livestock has detected an outbreak of H5 avian influenza in a poultry production farm in the province of Cotopaxi. The detection is the result of the controls that are carried out periodically and were increased due to the detection of HPAI H5 in several countries of the Region. To date, no confirmed cases of Avian Influenza A(H5N1) have been identified in humans⁵.

In **Mexico**, between October and 11 November 2022, the National Agrifood Health, Safety, and Quality Service (SENASICA, per its acronym in Spanish) identified an outbreak of HPAI A(H5N1) in backyard birds, poultry farms, and wild birds. The outbreaks in wild birds were identified in wetlands in the states of Mexico and Jalisco, as well as in Texcoco (a protected natural reserve) and in parks in Baja California, Aguascalientes, and Puebla. The outbreaks in birds from poultry farms were identified in the states of Nuevo León, Sonora, Aguascalientes, and Jalisco, as well as backyard farms in the states of Chiapas, Chihuahua, and the state of Mexico. To date, no confirmed cases of avian influenza A(H5N1) associated with this outbreak have been identified in humans⁶.

In **Peru**, in 2022, as of 22 November, several outbreaks of HPAI A(H5) virus were identified in wild aquatic birds (pelicans) at Cangrejos beach in the department of Piura. Additionally, similar cases have been found at Pimentel beach and in the San José wetlands, both in the department of Lambayeque, and at Puerto Viejo beach, in the department of Lima. The laboratory of the Department of Virology and Emerging Diseases Naval Medical Research Unit - Six (NAMRU-6) communicated the preliminary result of the samples of the first case in Piura, which has been subtyped as Influenza A(H5N1)⁷.

In the **United States of America**, since late 2021 through 30 November 2022, outbreaks of HPAI A(H5) virus have been reported in wild waterfowl, commercial poultry, and backyard poultry. These are the first detections of avian influenza A(H5) viruses in the United States since 2016. Preliminary genetic sequencing and RT-PCR tests on some virus samples show that these viruses

³ National Institute of Health. Weekly Epidemiological Bulletin No.44. Available at:

<https://www.ins.gov.co/buscador-eventos/Paginas/Vista-Boletin-Epidemiologico.aspx>

⁴ Colombian Agricultural Institute. Resolution 00022990 "By which the State of Sanitary Emergency is declared in the National Territory due to the presence of Highly Pathogenic Avian Influenza." Available at:

<https://bit.ly/3gbPIU1>

⁵ Ministry of Agriculture and Livestock of Ecuador. Press release. Available at: <https://bit.ly/3UxyTeW>

⁶ Government of Mexico. Strategic vaccination to protect national poultry production. Available at:

<https://bit.ly/3hLKrO0>

⁷ National Agrarian Health Service of Peru. Press release. Available at: <https://bit.ly/3Vlq3Mm>

correspond to HPAI A(H5N1) virus of the 2.3.4.4 clade. During the same period, HPAI outbreaks have been reported in wild birds in 47 states and in poultry in 46 states⁸.

On 28 April 2022, a case of Influenza A(H5N1) was identified in the United States in a person who participated in the culling of birds at a commercial poultry facility in Colorado, where influenza A(H5N1) virus was detected in birds. This was the second human case associated with this specific group of H5 viruses that are currently predominant, and the first case in the United States. The patient was isolated and treated with antivirals, did not require hospitalization, and made a full recovery. In this event, no evidence of person-to-person transmission of influenza A(H5N1) virus was identified⁹.

In **Venezuela**, on 29 November 2022, the Ministry of Popular Power for Productive Agriculture and Land, because of inspection and epidemiological surveillance activities, identified an outbreak of HPAI in pelicans in Puerto Piritu, in the west area of the state of Anzoátegui. Molecular studies detected Influenza A/H5 virus, this being the first time that HPAI has been detected in Venezuela. The molecular characterization of neuraminidase is in progress¹⁰.

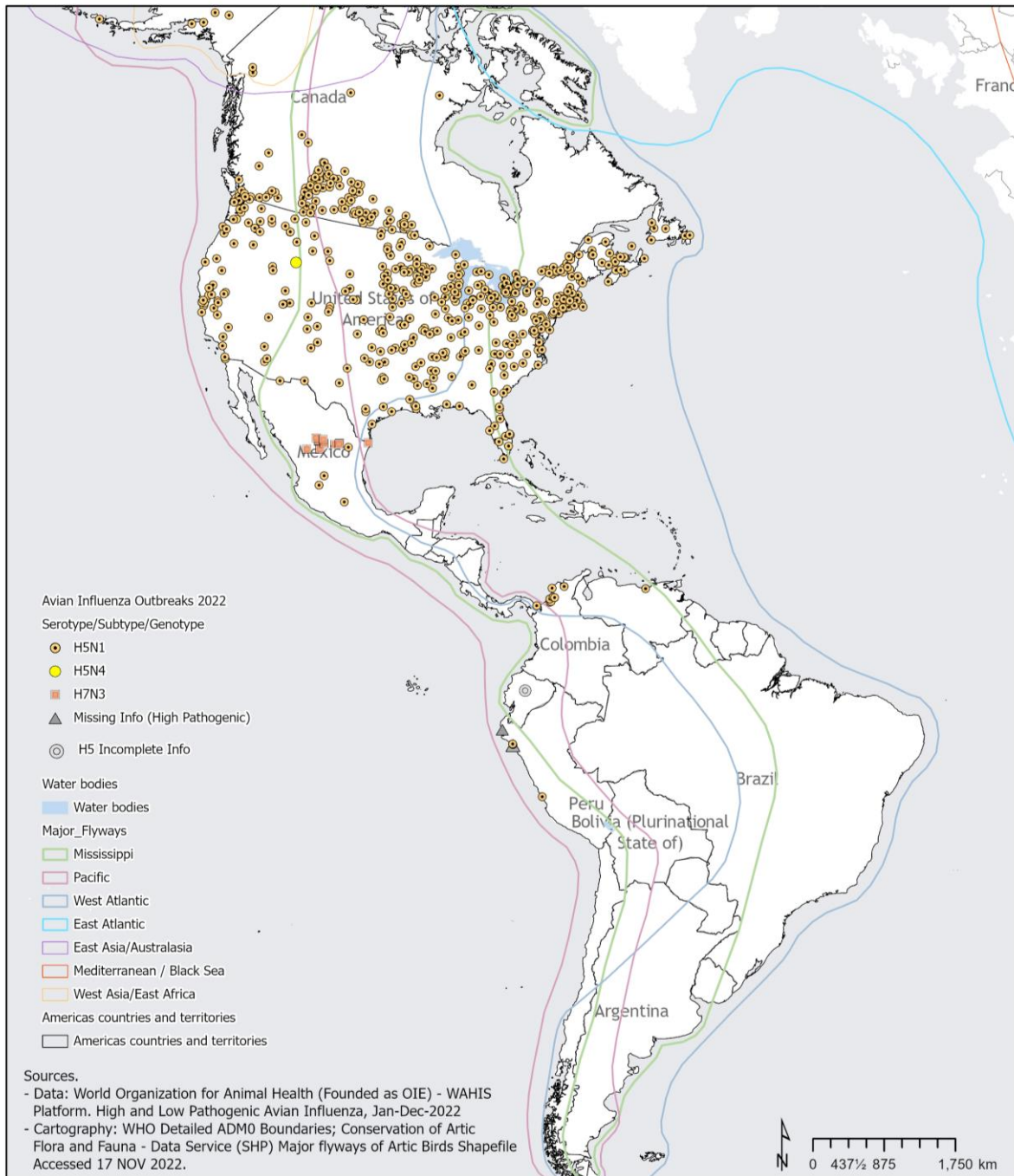
Of the total number of avian influenza outbreaks reported in the **Region of the Americas** in 2022, as of EW 45, only one case of highly pathogenic avian influenza has been identified corresponding to the detection of influenza A(H5N1) in a person who participated in the slaughter of birds in a commercial poultry facility in the United States⁹.

⁸ United States Centers for Disease Control (US CDC). Information on bird flu. Available at: <https://bit.ly/3tyk6pp>

⁹ WHO. Avian Influenza A(H5N1) - United States of America. Available at: <https://bit.ly/3Oa62Kz>

¹⁰ Ministry of Popular Power for Productive Agriculture and Land of Venezuela. Available at: <https://bit.ly/3XUH1IN>

Map 1. Avian influenza outbreaks and main migratory routes of wild birds. Region of the Americas, as of EW 48 of 2022.



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Map production: PAHO Health Emergencies Department/ Health Emergency Information and Risk Assessment Unit/ GIS Team

Recommendations for health authorities in Member States

Both HPAI and LPAI viruses can be rapidly spread among poultry through direct contact with infected waterfowl or other poultry, or through direct contact with fomites or surfaces, or water contaminated with the viruses. Infection of poultry with HPAI viruses can cause severe disease with high mortality. LPAI viruses are more associated with subclinical infection. The terms HPAI and LPAI apply only to the symptoms in birds (chickens in particular), and both types of viruses have the potential to cause infections in humans.

While the potential exists for these viruses to cause human infections, infections with avian influenza viruses are generally rare and when they have occurred, these viruses have not spread easily from person-to-person. To date, no person-to-person human transmission caused by avian influenza A(H5N8), A(H5N2), or A(H5N1) viruses has been reported either in the Americas or globally.

Intersectoral coordination

Control of the disease in animals is the first measure to reduce the risk to humans. For this reason, it is important that prevention and control actions, both in the animal and human health sectors, are carried out in a coordinated and concerted manner. Agile information exchange mechanisms will have to be established and/or strengthened to facilitate coordinated decision-making.

Implementation of a comprehensive surveillance program, including wild birds and both backyard and commercial poultry, is essential. Targeted risk-based surveillance strategies should be combined with a strengthening of general surveillance. In this regard, sensor awareness tasks are key, particularly in the backyard, to encourage the detection and notification of suspicious events. These programs also provide information that enables spread modeling and more accurate risk analysis.

Full recommendations for strengthening intersectoral work on surveillance, early detection, and investigation of influenza events at the human-animal interface are available at: <https://bit.ly/3qEUNN>

Surveillance in humans

People at risk of contracting infections are those directly or indirectly exposed to infected birds, for example, poultry keepers who maintain close and regular contact with infected birds or during slaughter or cleaning and disinfection of affected farms. For this reason, the use of adequate personal protective equipment and other protection measures is recommended to avoid zoonotic transmission in these operators.

In order to identify early transmission events at the human-animal interface, surveillance of exposed persons is recommended. In this sense, it is recommended to monitor the appearance of influenza-like illness (ILI) or severe acute respiratory infection (SARI) in people exposed to birds (domestic, wild, or in captivity) infected with influenza viruses during zoonotic events. Given the detection of an infection in humans, early notification is essential for an investigation and implementation of adequate measures that include the early isolation and treatment of the case, the active search for other cases associated with the outbreak, as well as the identification of close contacts for management and follow-up (11).

Health personnel in areas where transmission of avian influenza (HPAI or LPAI) in birds is taking place should be alerted about the possibility of infection in people exposed to these viruses.

PAHO/WHO reiterates to Member States the need to maintain influenza virus surveillance and to immediately ship human influenza samples to the US CDC WHO Collaborating Center.

Since information on the circulation of avian influenza A/H5 viruses is important for the human zoonotic influenza vaccine composition and for generating data for preparedness and response, countries are encouraged to share animal influenza samples with the St. Jude Children's Hospital WHO Collaborating Center. St. Jude is a WHO Collaborating Center focused exclusively on the threat to humans from influenza viruses of animals.

Notification of cases in humans

1. A **confirmed positive case** of human influenza A/H5 infection should be **reported immediately** via two channels—the WHO International Health Regulations (IHR) Regional Contact Point (ihr@paho.org) via the IHR National Focal Point, and the GISRS managed by PAHO and WHO (flu@paho.org). The report should include all available results from the epidemiological case investigation and the virological characteristics of the virus.
2. A **suspected** case of human influenza A/H5 infection should be **reported immediately** to the GISRS, and information about the suspected case can be shared with the WHO IHR Regional Contact Point, given it is an unusual event. The report should include all available results from the epidemiological case investigation and the virological characteristics of the virus.

Laboratory diagnosis in humans

Sample collection in humans

Samples should be collected by trained personnel in adherence to all biosafety instructions including the use of appropriate personal protective equipment (PPE) for respiratory viruses.

The recommended samples are the same type(s) of samples used for influenza routine surveillance. A nasopharyngeal swab is the optimal specimen collection method for influenza testing. However, a combined nasal and throat swab specimen or aspirate specimens can be collected. A sterile Dacron/nylon swab should be used for sample collection. Cotton tipped and wooded swabs are not recommended as they interfere in the sample processing and inhibit molecular diagnostic reactions. Swabs should be placed in a viral transport media tube containing 3 mL of sterile viral transport medium and transported in the same tube with viral transport medium (VTM).

Sample collection is recommended within 4 days of symptom onset for the highest influenza virus yield and better detection. Sampling of asymptomatic contacts is not recommended, unless considered necessary according to national guidelines.

Samples should be kept refrigerated (4-8°C) and sent to the laboratory (central, national, or reference laboratory) where they should be processed within the first 24-72 hours after collection. If samples cannot be sent within this period, freezing at -70 °C (or less) is recommended until samples are shipped (ensuring the cold chain is maintained).

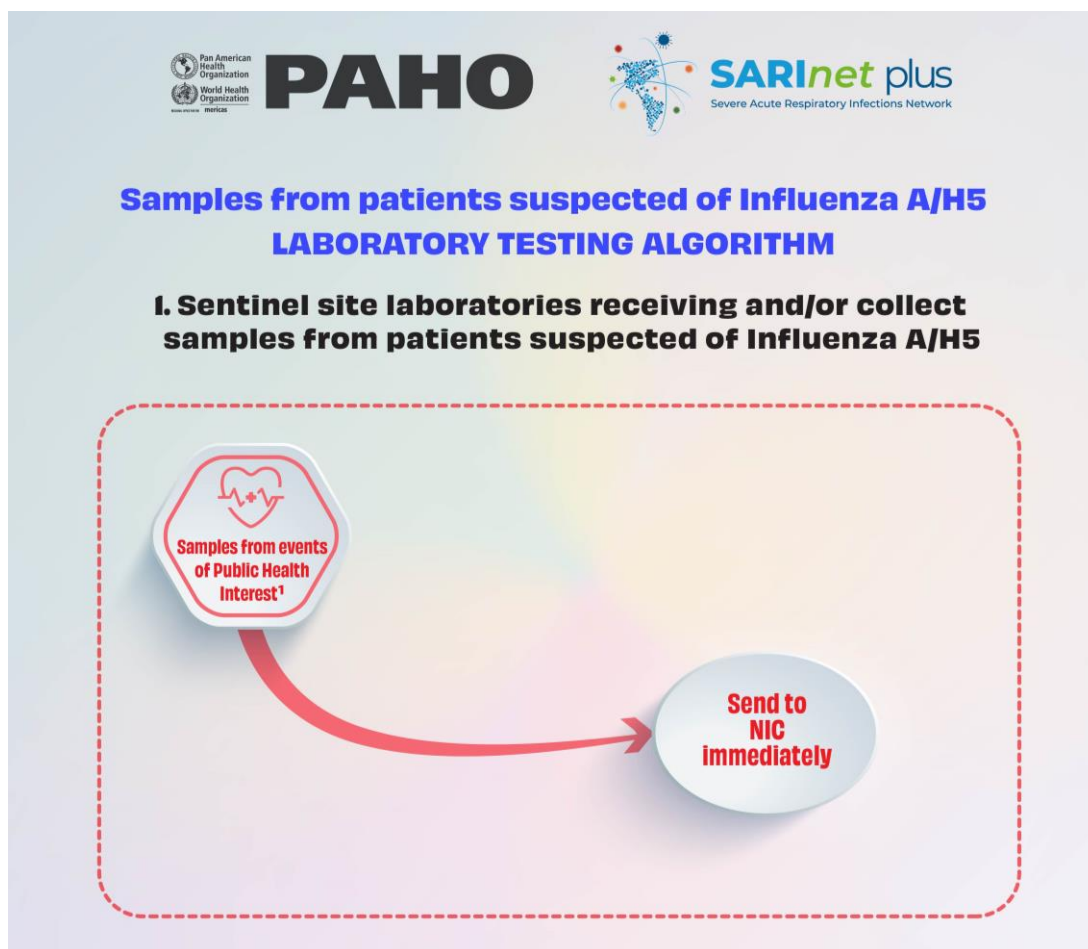
Sample flow and laboratory testing algorithm

In the Americas, all national influenza centers (NICs) and national reference laboratories (NRL) for human influenza as part of the WHO Global Influenza Surveillance and Response System (GISRS) use molecular diagnostic protocols and reagents developed and validated by the WHO Collaborating Center at the US Centers for Disease Control and Prevention (US CDC).

Sentinel sites and/or decentralized laboratories should refer suspected samples of influenza A/H5 to the NIC or NRL for testing (**Figure 1**)¹¹.

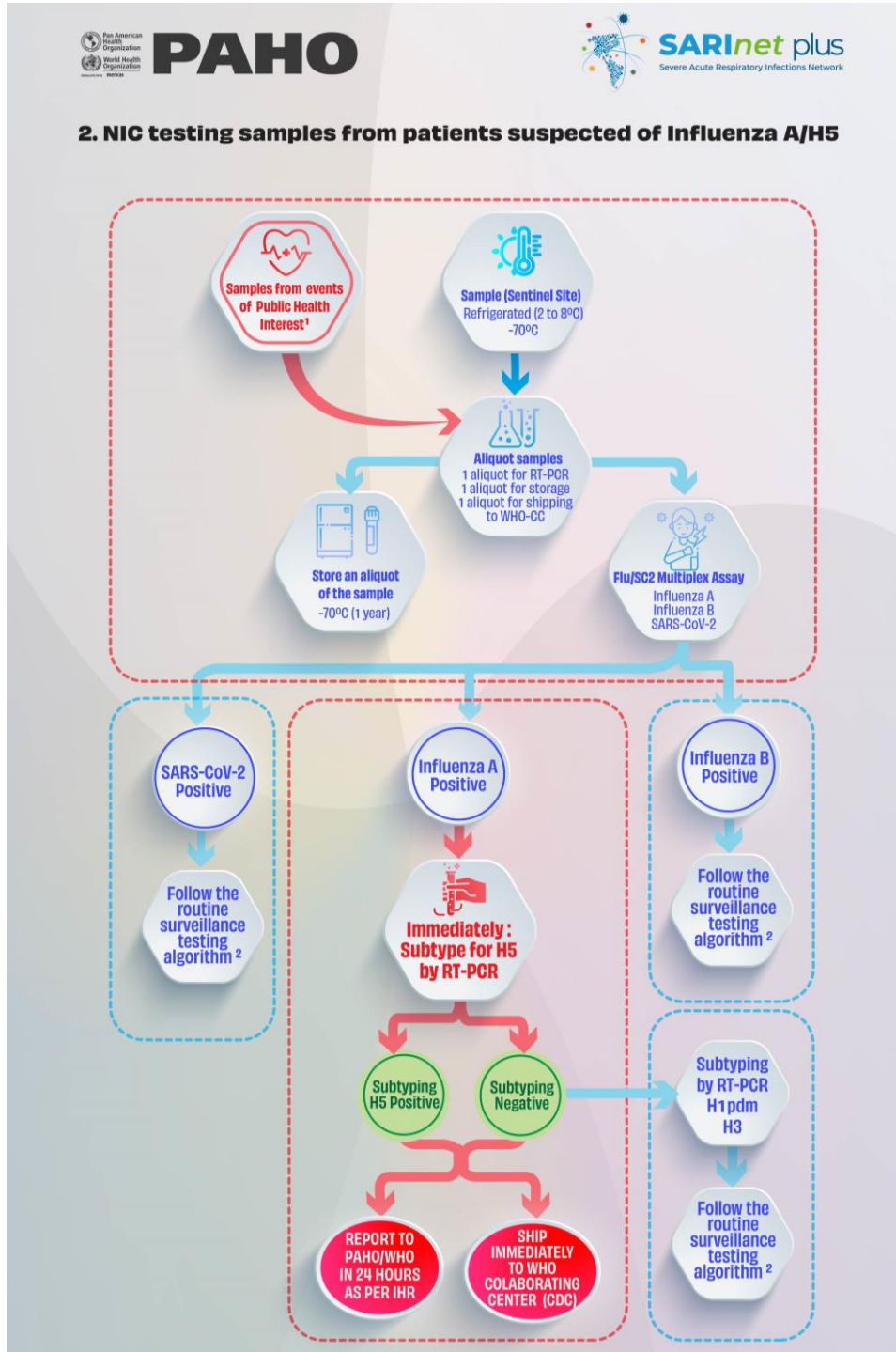
Samples collected from suspected human cases exposed to birds or humans infected with avian influenza A/H5 should be tested for influenza; influenza A-positive samples should be subsequently subtyped for H5 (**Figure 2**)¹¹.

Figure 1. Sample flow for samples of influenza A/H5 suspected cases at sentinel sites and/or decentralized laboratories.



¹¹ PAHO. Sample Flow and Laboratory Testing Algorithm – Samples from patients suspected of Influenza A/H5. Available at: <https://www.paho.org/en/documents/influenza-and-sars-cov-2-integrated-surveillance-laboratory-testing-algorithm>

Figure 2. NIC testing samples from suspected cases of influenza A/H5^{12,13}



¹² Samples collected out of routine surveillance from event of public health interests. International Health Regulations 2005. Available at: <https://www.who.int/publications/i/item/9789241580496>

¹³ Influenza and SARS-CoV-2 integrated surveillance laboratory testing algorithm. Available at: <https://www.paho.org/en/documents/influenza-and-sars-cov-2-integrated-surveillance-laboratory-testing-algorithm>

Laboratory reagents

US CDC kits for real-time reverse transcription polymerase chain reaction (qRT-PCR) detection of influenza viruses are available through the International Reagent Resource (IRR).

For influenza detection and Influenza A/H5 subtyping, the following kits and controls for molecular detection are available:

- Influenza SARS-CoV-2 Multiplex Assay (RUO) (500 reactions) (Catalog No. FluSC2PPB-RUO), dried primers and probes
- Influenza SARS-CoV-2 Multiplex Assay Positive Controls Kit (RUO) (500 reactions) (Catalog No. FluSC2PC-RUO)
- CDC Real-Time RT-PCR Influenza Virus A/H5 (Asian Lineage) Subtyping Panel (VER 4) (RUO) (Catalog No. FluRUO-13)
- CDC Influenza A/H5N1 (Asian Lineage) Real-Time RT-PCR Positive Control with Human Cell Material (RUO) (Catalog No. VA2715)

Interpretation of results

The markers (targets) of the US CDC kits for influenza A/H5 subtype detection are as follows: INFA (M), H5a (HA), H5b (HA), and RP.

When using the US CDC influenza A/H5 subtyping kit:

- Samples positive for INFA, H5a, and H5b markers are considered **positive for influenza A/H5**.
- Samples positives for only one H5 marker are considered **presumptive for influenza A/H5**.

In both cases, samples should be referred to a WHO Collaborating Center for further characterization or for confirmation (in the case of presumptive results). Nevertheless, a positive sample for Influenza A/H5 (both markers positive) should be reported immediately.

Currently, PAHO is working to support Member States on preparedness and response to Influenza A/H5. For additional support, please contact flu@paho.org.

Shipment of samples

The US CDC is the designated WHO Collaborating Center in the Americas Region for receiving human samples positive for Influenza A/H5. Shipment of human samples to the US CDC WHO Collaborating Center internationally and by air must be in compliance with all international standards according to the International Air Transport Association (IATA) for Biological Substances Category B.

It is important to note that the samples should **not** be sent as routine influenza samples to US CDC.

Animal samples should be sent to the WHO Collaborating Center at St. Jude Children's Hospital. Special documents are necessary for transportation to the United States and must be compliant with all international standards.

For further information regarding logistical and shipment of human or avian Influenza A/H5 samples, PAHO/WHO should be contacted at flu@paho.org.

Sources of information

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15. PAHO/WHO. Influenza at the human-animal interface. PAHO recommendations for strengthen intersectoral work on surveillance, early detection and research, 9 July 2020. Available at: <https://bit.ly/3UQrg4d>
16. WHO. Summary and Assessment of Influenza at the Human-Animal Interface, 5 October 2022. Available at: <https://bit.ly/3EJy9Pf>

Useful links

- WHO. Avian influenza: <https://bit.ly/3XiJ1ej>
- WHO. Strengthening global health security at the human-animal interface: <https://bit.ly/3tGgDFp>
- Food and Agriculture Organization of the United Nations (FAO). Avian Influenza. <https://bit.ly/3tJQGEU>