

Considering the increase of respiratory viruses activity in the region and the ongoing influenza and other respiratory viruses (ORV) season in the Northern Hemisphere, the Pan American Health Organization / World Health Organization (PAHO/WHO) recommends Member States to strengthen surveillance for Influenza, Respiratory Syncytial Virus (RSV) and SARS-CoV-2 and adopt the necessary measures for prevention, ensuring high vaccination coverage in high-risk groups, appropriate clinical management, strict compliance with infection prevention control measures in health care services, adequate supplies of antivirals, and timely treatment of associated complications.

Situation summary

Following is a summary of the influenza situation by sub-regions in the Region of the Americas¹. The status of the Northern subregion, which presents an earlier increase in seasonal influenza, is reported first, followed by the Southern Cone sub-region, where an out of season increase in influenza activity has been reported for this time of year. Country information is summarized in alphabetical order after the subregional overview. The situation for the other subregions with expected activity is then presented in alphabetical order. More detailed information on influenza and other respiratory viruses can be obtained from the PAHO/WHO Regional Influenza Update, published weekly on the PAHO/WHO website at: <https://www.paho.org/en/influenza-situation-report>.

In the **Northern sub-region**², since epidemiological week (EW) 40 of 2022, influenza activity and severe acute respiratory infections (SARI), measured by hospitalizations, have increased throughout the subregion, with a predominance of influenza A(H3N2) and the co-circulation of influenza A(H1N1)pdm09 and influenza B/Victoria. The SARS-CoV-2 activity was low overall, and RSV circulation continued to increase overall.

In **Canada**, SARI activity in the young population, measured by pediatric hospitalizations (≤ 16 years), was above the average for the 2014-15 to 2019-20 seasons. Influenza activity increased at the average of previous seasons but remained at a baseline level, with influenza A(H3N2) as the dominant subtype. In EW 43 of 2022, respiratory syncytial virus activity has increased, above expected levels for this time of year.

In **Mexico**, as measured by hospitalizations, SARI activity is low compared to previous seasons. The influenza season appears to have started earlier than in previous years, with an increasing trend in influenza activity since EW 30 of 2022 and at moderate-intensity

¹ The information presented in this update is from the data reported by Ministries of Health, National Influenza Centers (NICs) of Member States via PAHO/WHO platforms (i.e., FluNet and FluID), information from weekly reports, and bulletins published online by Ministries of Health or shared directly with PAHO/WHO.

² Canada, Mexico, and the United States.

levels for this time. Influenza A(H3N2) detections predominate, followed by influenza A(H1N1)pdm09 (where subtyping was performed) and B/Victoria. RSV activity is elevated but decreasing.

In the **United States**, since EW 40 of 2022, the cumulative rate of laboratory-confirmed influenza hospitalizations has been higher than the cumulative in-season hospitalization rates during previous seasons (2015-16 to 2021-22). As of EW 43 of 2022, an early increase in influenza activity was reported across the country. Influenza A(H3N2) predominated, and influenza A(H1N1)pdm09 and influenza B (undetermined lineage) co-circulated. In addition, RSV-associated hospitalization rates have sharply increased since October 2022, with infants less than one year as the most affected group.

In the **Southern Cone sub-region**³, as of EW 43, 2022, SARI activity measured by hospitalizations was at low-intensity levels in the subregion, with an increase in influenza activity since EW 36 of 2022. Influenza A(H3N2) predominated, with co-circulation of influenza A(H1N1)pdm09 and influenza B/Victoria. SARS-CoV-2 activity has remained low overall, while some countries had high RSV activity.

In **Argentina**, SARI activity measured by hospitalizations was at baseline levels. Influenza activity has shown an increasing trend since EW 33 of 2022, above the average of previous seasons at moderate-intensity levels. Influenza B (lineage undetermined) was more frequently detected, followed by influenza A(H1N1)pdm09 (where subtyping was performed). In EW 42 of 2022, RSV activity decreased.

In **Brazil**, as of EW 44 of 2022, SARI activity measured by hospitalizations was at epidemic levels. Influenza activity was at baseline levels, with influenza A(H3N2) predominance followed by influenza A(H1N1)pdm09. RSV activity has increased since EW 36 of 2022, remaining at high levels.

In **Chile**, as measured by hospitalizations and intensive care unit (ICU) admissions, SARI activity is low compared to previous seasons, and influenza deaths recorded are similar to the same period of prior years. The influenza season appears to be prolonged compared to previous seasons, with an increasing trend at high-intensity levels for this time. Influenza A(H3N2) detections predominated, followed by influenza A(H1N1)pdm09 and B/Victoria. RSV activity was low overall.

In **Paraguay**, as of EW 43 of 2022, SARI cases per 100 hospitalizations were below the average of previous years at low-intensity levels. Influenza activity continues at baseline levels, with influenza B/Victoria more frequently detected, followed by A(H3N2). RSV activity was low overall.

In **Uruguay**, in EW 43 of 2022, SARI activity measured by hospitalizations, although above the average of previous years, remains at low levels. Since EW 41 2022, influenza activity has had a steep increase but at low-intensity levels, with influenza A(H3N2) circulating. In EW 43 of 2022, increased RSV activity was reported, but decreasing.

³ Argentina, Brazil, Chile, Paraguay, and Uruguay.

In the **Andean sub-region**⁴, as of EW 43 of 2022, SARI activity was low, except in Bolivia where SARI cases per 100 hospitalizations was increased at moderate-intensity levels. Influenza activity remained low, predominating influenza A(H3N2) and co-circulating influenza B/Victoria. Overall, SARS-CoV-2 and RSV activity was low in the subregion.

In **Bolivia**, SARI activity per 100 hospitalizations increased above the average of previous years at moderate-intensity levels, with most of the cases among children under five. Influenza activity increased above the average of previous years at low-intensity levels with influenza A(H3N2) predominance, followed by a few influenza B/Victoria detections. RSV activity was at baseline levels.

In **Colombia**, influenza and SARI activity are at low levels, with co-circulation of influenza A(H3N2) and influenza A(H1N1)pdm09; respiratory syncytial virus (RSV) activity remained at low levels as of EW 43 of 2022.

In **Ecuador**, SARI cases and influenza percent positivity were at baseline levels. RSV activity was low overall.

In **Peru**, as of EW 39 of 2022, pneumonia cases among children under five were higher compared to 2020 to 2021 seasons. In EW 43 of 2022, low influenza activity, with influenza A(H3N2) predominance was reported. RSV activity was reported at baseline levels.

In **Venezuela**, influenza activity was at baseline levels with the circulation of influenza B/Victoria.

In the **Caribbean sub-region**⁵, SARI activity was low overall as of EW 43, 2022. Influenza activity remained low across the subregion with A(H3N2) virus predominance. Influenza activity was increasing in **Jamaica** and **Puerto Rico**. RSV activity increased during the last three weeks affecting children under two years in **French Guiana**, while SARS-CoV-2 activity was elevated in **Dominica** and **Suriname**.

In the **Central American sub-region**⁶, SARI activity was low overall as of EW 43 of 2022. Influenza activity remained low with influenza A(H3N2) predominance and the co-circulation of influenza B (lineage undetermined). However, influenza activity increased in **Guatemala** with A(H3N2) predominance, and in **Nicaragua** increased with the circulation of influenza B (lineage undetermined). In addition, SARS-CoV-2 activity remained low in the subregion overall. RSV activity increased in **Costa Rica** and **El Salvador**.

⁴ Bolivia (Plurinational State of), Colombia, Ecuador, Peru, and Venezuela (Bolivarian Republic of).

⁵ Aruba, the Bahamas, Barbados, Bermuda, the Cayman Islands, Cuba, Curacao, Dominica, the Dominican Republic, French Guiana, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago.

⁶ Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

Influenza at the Human-Animal Interface

During 2022, detections of, highly pathogenic avian influenza (HPAI) A(H5) viruses have been reported in Colombia (backyard poultry)⁷, México (commercial poultry)⁸, and the U.S. (commercial poultry facility and a backyard flock)⁹. No human infections have been detected in relation to these events in Colombia and México.

With regards human infections caused by zoonotic viruses in the region, in April 2022, the first human infection with influenza A(H5N1) was reported in the US. This case occurred in a person who had direct exposure to poultry and was involved in the culling (depopulating) of poultry with presumptive H5N1 bird flu. No other human cases have been detected¹⁰.

During 2022 two cases of swine influenza have been reported in the region, one in the US and one in Brazil. Regarding variant viruses, in August 2022, the US reported the first human infection with an influenza A(H3N2)v¹¹. The case occurred in a person younger than 18 who participated in an agricultural fair. No further human infections were identified¹².

In response to the above, health authorities have reinforced human epidemiological surveillance with particular emphasis on risk groups and areas¹³.

Recommendations

Considering the increased activity of Influenza, RSV, and SARS-CoV-2 in the region, PAHO/WHO reiterates its recommendations to Member States regarding surveillance, prevention, immunization against influenza and COVID-19, clinical management of patients, implementation of infection prevention control measures in health care services, and communication with the public about preventive measures. These areas are essential to address, considering the early season in Northern Hemisphere countries.

Additionally, countries continue to report human cases of infection with avian and swine influenza (zoonotic influenza), indicating that an influenza virus with pandemic potential (IVPP) could emerge at any time¹⁴.

⁷ <https://wahis.woah.org/#/in-review/4668>

⁸ Detecta Senasica circulación de influenza aviar H5N1 en Montemorelos, Nuevo León
<https://www.gob.mx/senasica/articulos/detecta-senasica-circulacion-de-influenza-aviar-h5n1-en-montemorelos-nuevo-leon?idiom=es>

⁹ Current Bird Flu Situation in Poultry. <https://www.cdc.gov/flu/avianflu/poultry.htm>

¹⁰ <https://www.who.int/emergencies/disease-outbreak-news/item/2022-E000111>

¹¹ CDC Confirms First Human Infection with Flu Virus from Pigs During 2022
<https://www.cdc.gov/flu/swineflu/spotlights/first-human-infection-2022.htm>

¹² Brazil | Influenza due to identified avian or animal influenza virus
<http://www.paho.org/english/ad/dpc/cd/eer-ihrs.htm>

¹³ Influenza at the human-animal interface summary and assessment, 5 October 2022 [Influenza at the human-animal interface summary and assessment, 5 October 2022 \(who.int\)](https://www.who.int/emergencies/disease-outbreak-news/item/2022-E000111)

¹⁴ [Influenza in the northern hemisphere is back \(who.int\)](https://www.who.int/emergencies/disease-outbreak-news/item/2022-E000111)

Apart from vaccination, personal measures such as hand hygiene, physical distancing, respiratory etiquette, mask use, and staying home when sick, which are effective in limiting respiratory viruses transmission¹².

Following is a summary of the main recommendations for surveillance, clinical management, risk communication, vaccination, and for events at the human animal interface.

Surveillance

PAHO/WHO recommends strengthening influenza-like illness (ILI) surveillance systems and prioritizing SARI surveillance to monitor epidemiological behavior changes and viral circulation to assess transmission patterns, clinical severity, and impact on the healthcare system and society and identify at-risk groups of developing influenza-associated complications.

States Parties are recommended to prepare for sustainable integration of SARS-CoV-2 surveillance with other surveillance systems and implement the WHO's guidance on Public health surveillance for COVID-19 – interim guidance¹⁵. Furthermore, given the return of seasonal influenza epidemics, States Parties should further integrate disease surveillance of SARS-CoV-2 and influenza by leveraging and enhancing the Global Influenza Surveillance and Response System (GISRS), complemented with other surveillance strategies or studies to monitor the relative co-circulation of these viruses to inform responses.

PAHO/WHO recommends Member States implement event-based surveillance to accompany indicator-based surveillance. Event-based surveillance is the organized and rapid capture of information about events that may pose a potential risk to public health. The information may come from rumors and other ad-hoc reports transmitted through formal (pre-established routine information systems) or informal -not pre-established routine information systems (i.e., media, direct communication from health care workers, or non-governmental organizations) channels. Event-based surveillance is a functional component of the early warning and response mechanism¹⁶.

Respiratory events that are unusual should be investigated and reported immediately. Unusual events include influenza cases with atypical clinical progression; acute respiratory infection associated with animal disease exposure or observed in travelers to areas prone to novel influenza virus emergence; SARI among health care professionals; or clusters of influenza viral infection outside the regular circulation season.

¹⁵ <https://www.who.int/publications/i/item/WHO-2019-nCoV-SurveillanceGuidance-2022.2>

¹⁶ Early detection, assessment, and response to acute public health events: implementation of early warning and response with a focus on event-based surveillance: WHO: 2014. Available at: http://www.who.int/ihr/publications/WHO_HSE_GCR_LYO_2014.4/en/

As part of routine surveillance and for the etiological confirmation of unusual cases, nasopharyngeal and oropharyngeal specimens (or bronchial lavage in severe cases) should be obtained to detect respiratory viruses. Laboratory analysis of the most severe cases should be always prioritized, especially fatal cases (deaths), where processing tissue samples from the respiratory tract is also recommended when available. All biosafety measures for respiratory pathogens should be granted. The technical guidelines and diagnostic algorithms of the National Influenza Center or the national reference laboratory responsible for laboratory surveillance should be followed¹⁴. PCR negative samples for Influenza should be considered for detection of ORV, following the recommended National testing algorithms.

Influenza-positive specimens from severe cases or those with unusual presentations must be sent to the PAHO/WHO Collaborating Center at the United States Centers for Disease Control and Prevention (CDC) in Atlanta for further characterization, according to WHO guidelines¹⁷. Influenza A unable to subtype samples (those positive for Influenza A but where the PCR for subtyping is negative or inconclusive) should also be sent immediately to the PAHO/WHO Collaborating Center at the U.S. CDC.

Clinical management

Recommendations for the clinical management of patients with severe respiratory disease indicated in previous [PAHO/WHO guidelines and Epidemiological Alerts and Updates](#) on Influenza continue to apply. Groups at higher risk of developing influenza-associated complications include children less than two years of age; adults over 65 years; pregnant or post-partum women; people with underlying clinical morbidity (e.g., chronic lung disease, asthma, cardiovascular diseases, chronic kidney disease, chronic liver disease, diabetes mellitus, neurological conditions such as central nervous system injuries and delayed cognitive development); people with immunosuppression (e.g., HIV/AIDS or due to medications); and people with morbid obesity (body mass index greater than 40).

Any person with severe or progressive clinical presentation of respiratory illness should be treated with antivirals as soon as influenza is suspected. Treatment should be initiated even before having laboratory confirmation of influenza infection as treatment is more successful if started early. Treatment should be initiated in groups at higher risk of developing complications even before having laboratory confirmation of influenza infection as treatment is more successful if started early. In persons with suspected or confirmed influenza virus infection with or at risk of severe illness (i.e. including seasonal influenza, pandemic influenza and zoonotic influenza), we suggest administering oseltamivir as soon as possible. We suggest not administering inhaled zanamivir, inhaled laninamivir, intravenous peramivir, corticosteroids, passive immune therapy macrolide antibiotic for treatment of influenza.

In settings where batch RT-PCR or other rapid molecular influenza assays (with similar high sensitivity and high specificity) are available and results expected within 24 hours, we

¹⁷ <https://www.who.int/publications/i/item/operational-guidance-on-sharing-seasonal-influenza-viruses>

suggest a strategy of testing for influenza, treating with oseltamivir as soon as possible, and re-evaluating treatment when the test result is available.

In settings where batch RT-PCR or other rapid molecular influenza assays (with similar high sensitivity and high specificity) are not available to provide results within 24 hours, we suggest a strategy of not testing for influenza and treating with oseltamivir as soon as possible.

For more details see the guides, "Guidelines for the clinical management of severe illness from influenza virus infections. Geneva: World Health Organization; 2021." available at: <https://apps.who.int/iris/handle/10665/352453>.

With regards RSV clinical management and prophylaxis, young infants are at higher risk for severe complications and hospitalisation with RSV infection and represent the highest morbidity burden. Many risk factors for RSV infections are like those identified for all-causes lower respiratory tract infections. There are no effective treatment and supportive care remains the cornerstone of clinical management. Currently, RSV treatment is symptomatic with no effective antiviral drugs. Passive immunisation with monoclonal antibodies -palivizumab- constitutes an appropriate intervention to reduce severe acute respiratory infection by RSV among at-risk infants.

Palivizumab prophylaxis was associated with a 43% rate reduction of RSV-related hospitalisations among children with hemodynamically significant congenital heart disease, and a reduction in recurrent wheezing. The cost and method of administration of the drug remain a challenge, although its cost-effectiveness is well-documented. Currently, no licensed vaccine exists for RSV, and there has been a resurgence of vaccine development (vaccine candidates and long-lasting immunoprophylaxis with monoclonal antibodies) along with significant progress in the understanding of immune responses to RSV.

Key recommendations for RSV management^{18 19 20} includes:

- The diagnosis of bronchiolitis and assessment of disease severity should be based on history and physical examination. Laboratory and radiologic studies should not be routinely ordered for diagnosis.

¹⁸ Shawn L. Raston, et. al. Clinical Practice Guidelines: The Diagnosis, Management, and Prevention of Bronchiolitis. *Pediatrics*. 2014 (134(5)); e1474-e1502.

¹⁹ American Academy of Pediatrics (2014) Committee on Infectious Diseases; American Academy of Pediatrics Bronchiolitis Guidelines Committee. Updated guidance for palivizumab prophylaxis among infants and young children at increased risk of hospitalization for respiratory syncytial virus infection. *Pediatrics*. 2014 Aug;134(2):e620-38. doi: 10.1542/peds.2014-1666. PMID: 25070304.

²⁰ American Academy of Pediatrics (2022) Updated Guidance: Use of Palivizumab Prophylaxis to Prevent Hospitalization From Severe Respiratory Syncytial Virus Infection During the 2022-2023 RSV Season, *Pediatrics*, <https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/interim-guidance-for-use-of-palivizumab-prophylaxis-to-prevent-hospitalization/>

- Risk factors for severe disease such as age less than 12 weeks, premature birth history (particularly under 32 weeks), underlying cardiopulmonary disease (including bronchopulmonary dysplasia and haemodynamically significant congenital heart disease), neuromuscular disorders, or immunodeficiency should be assessed when making decisions about evaluation and management of children with bronchiolitis.
- Bronchodilators (albuterol, salbutamol), epinephrine, and corticosteroids should *not* be administered to infants and children with the diagnosis of bronchiolitis. Likewise, nebulized hypertonic saline should *not* be administered to infants with the diagnosis of bronchiolitis in the emergency department. Nebulized hypertonic saline may be administered to infants and children hospitalized for bronchiolitis.
- Antibiotics should *not* be used in children with bronchiolitis unless there is a concomitant bacterial infection.
- Palivizumab prophylaxis should be administered during the first year of life to infants with hemodynamically significant heart disease or chronic lung disease of prematurity (<32 weeks gestation who require >21% O₂ for the first 28 days of life).
- To prevent spread of respiratory syncytial virus (RSV), hands should be decontaminated before and after direct contact with patients, after contact with inanimate objects in vicinity of patient, and after removing gloves. Alcohol rubs are the preferred method for hand decontamination. Clinicians should educate personnel and family on hand sanitation.
- Infants should not be exposed to tobacco smoke.
- Exclusive breastfeeding for at least 6 months is recommended to decrease the morbidity of respiratory infections.

Guidelines for the clinical management of COVID-19, including the use of Antivirals, Monoclonal Antibodies, and Other Interventions for the Management of COVID-19 Patients are available at the following link: [Clinical management of COVID-19 \(who.int\)](https://www.who.int/publications/m/item/clinical-management-of-covid-19).

Risk Communication

Seasonal influenza is an acute viral infection that spreads easily from person to person. Seasonal influenza viruses circulate worldwide and can affect anyone from any age group. Influenza A (H1N1)pdm09, which caused the 2009 pandemic, circulates annually and is now considered a seasonal influenza strain. Influenza vaccination prior to the start of seasonal virus circulation remains the best preventive measure against severe influenza.

The public should be informed that the main mode of transmission of influenza is by interpersonal contact. Hand washing is the most efficient way to decrease transmission. Knowledge about "respiratory etiquette" also helps to prevent transmission.

People with fever should avoid going to workplaces or public places until the fever subsides. Similarly, school-age children with respiratory symptoms and / or fever should stay at home and not go to school.

To leverage on the knowledge that most of the public has acquired on respiratory disease prevention -brought by the COVID-19 pandemic-, and to prevent confusion and exercise effective communication, Member States should consider developing risk

communications strategies and campaigns that integrate prevention messaging for both viruses. Integration of communication is also advised for the promotion of COVID-19 and influenza vaccination.

Vaccination

Immunization is an important strategy for preventing influenza, in particular to prevent severe disease resulting in hospitalization or death.

PAHO/WHO recommends vaccination of groups at particular risk of severe influenza including older adults, people with underlying conditions, children under 59 months and pregnant individuals. Health workers are at increased risk of exposure and transmission of influenza virus and therefore should be also prioritize.

Recommendations for events at the Human-animal interface

The overall public health risk from currently known influenza viruses at the human-animal interface has not changed. This is because the likelihood of sustained human-to-human transmission of these viruses remains low. However, human infections with viruses of animal origin are expected at the human-animal interface wherever these viruses circulate in animals²¹.

Based on HPAI seasonal pattern, the number of outbreaks is expected to raise in the coming months and the World Organization for Animal Health (WOAH) recommends that countries maintain their surveillance efforts, the biosecurity measures at farm level, and continue timely reporting of avian influenza outbreaks in both poultry and nonpoultry species. High quality of information is key to support early detection and rapid response to potential threats to both animal and public health²².

Surveillance for the emergence of novel influenza viruses with pandemic potential should be ongoing throughout the current COVID-19 pandemic. In addition, due to the constantly evolving nature of influenza viruses, PAHO continues to stress the importance of SARI and ILI surveillance to detect virologic, epidemiologic, and clinical changes associated with circulating influenza seasonal and zoonotic viruses that may affect human health.

In addition to active case-finding, contact identification, and activity monitoring conducted during zoonotic events, it is recommended to enhance existing SARI and ILI surveillance systems in locations where cases reside, where animal outbreaks occur, or where the source of infection is suspected.

PAHO reiterates that all human infections caused by a novel influenza subtype are notifiable under the International Health Regulations (IHR) and that States Parties to the IHR (2005) are required to immediately notify WHO of any laboratory-confirmed case of

²¹ <https://www.who.int/publications/m/item/influenza-at-the-human-animal-interface-summary-and-assessment-5-oct-2022>

²² <https://www.woah.org/app/uploads/2022/10/hpai-situation-report-20221020.pdf>

recent human infection caused by an influenza A virus with the potential to cause a pandemic.

Complete recommendations to strengthen intersectoral work for surveillance, early Detection, and investigation of influenza events at the human-animal interface are available at: <https://iris.paho.org/handle/10665.2/52563>.

Related Links

Surveillance

- [Statement on the thirteenth meeting of the International Health Regulations \(2005\) Emergency Committee regarding the coronavirus disease \(COVID-19\) pandemic \(who.int\)](#)
- [End-to-end integration of SARS-CoV-2 and influenza sentinel surveillance: revised interim guidance \(who.int\)](#)
- [Final report Ad hoc expert consultation in the Region of the Americas: Challenges, gaps and next steps in COVID 19 surveillance and its integration in to influenza and other respiratory viruses surveillance - PAHO/WHO | Pan American Health Organization](#)
- PAHO/WHO Epidemiological Alerts on Influenza are available at: www.paho.org/epialerts
- <https://www.who.int/teams/global-influenza-programme/surveillance-and-monitoring/influenza-updates>
- Influenza Reports. Pan American Health Organization / World Health Organization. Available at: <https://www.paho.org/en/influenza-situation-report>
- Manual for the laboratory diagnosis and virological surveillance of influenza. 2011. Available at: <https://apps.who.int/iris/handle/10665/44518>
- World Health Organization. Early detection, assessment and response to acute public health events: Implementation of Early Warning and Response with a focus on Event-Based Surveillance. Interim Version. WHO/HSE/GCR/LYO/2014.4. Geneva: WHO: 2014. Available at: <https://apps.who.int/iris/handle/10665/112667>
- Technical Documents - Coronavirus Disease (COVID-19). Available at <https://www.paho.org/en/technical-documents-coronavirus-disease-covid-19>

Clinical management

- [Clinical care of severe acute respiratory infections – Tool kit \(who.int\)](#)
- [Guide pour la prise en charge des patients adultes en état critique atteints de COVID-19 dans les Amériques. Version abrégée 3 \(paho.org\)](#)
- [Considerations on the Use of Antivirals, Monoclonal Antibodies, and Other Interventions for the Management of COVID-19 Patients in Latin America and the Caribbean \(paho.org\)](#)
- [Guidelines for the clinical management of severe illness from influenza virus infections. Geneva: World Health Organization; 2021](#)

Vaccines

- [Recommended composition of influenza virus vaccines for use in the 2022-2023 northern hemisphere influenza season \(who.int\)](#)

Human-animal interface

- [Avian influenza \(who.int\)](#)
- [WAHIS \(woah.org\)](#)
- [Disease Outbreak News \(who.int\)](#)
- [Informe de situación de Influenza | OPS/OMS | Organización Panamericana de la Salud \(paho.org\)](#)
- [Human infection with avian influenza A\(H5\) viruses. Update 4 November 2002](#)
- [Influenza at the Human-Animal Interface: PAHO Recommendations to Strengthen Intersectoral Work for Surveillance, Early Detection, and Investigation, 9 July 2020](#)
- [Influenza at the human-animal interface summary and assessment, 5 October 2022 \(who.int\)](#)