



Pennsylvania
Department of Health



Bureau of Epidemiology

Respiratory Virus Outbreak Toolkit

Last Updated: 11/24/2025



Pennsylvania Department of Health

This toolkit is for long-term care facilities (LTCF). For this toolkit, a LTCF can include but is not limited to the following facility types: skilled nursing, rehabilitation, personal care homes, assisted living, and intermediate care homes.

However, information, tools, and interventions may apply to other facilities, such as psychiatric units, jails, or other congregate living settings.

The purpose of the toolkit is to provide recommendations for facilities before and during a respiratory virus outbreak. This toolkit will cover many respiratory viruses, including seasonal influenza, respiratory syncytial virus (RSV), COVID-19, adenovirus, and more.

Guidance in this toolkit may be updated throughout the season. Facilities should verify they have the most up to date version.

Versions:

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V2. Published: September 26, 2025. Merged with the COVID-19 LTC Toolkit

V2. Updated: November 10, 2025. Clarified the isolation guidance for residents with any respiratory virus (including COVID-19) and updated the PPE table in the PPE section on page 8-9. The guidance in this document may differ from CDC guidance; LTCFs should defer to this document for guidance. This document also supersedes any COVID or respiratory-related PA HAN that precedes PA HAN 806.

Acknowledgments

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Section 1: Readiness and Prevention

Infection Prevention and Control Plan

LTCFs should have a comprehensive infection prevention and control plan. This plan is meant to be a living document that is regularly reviewed and updated. The guidance below is not inclusive of everything that should be included in an infection control plan. This toolkit is meant to provide high-level guidance and resources specific to respiratory viruses.

For more information on what should be included in your facility's infection control plan, visit:

- [Infection Control Plan Outline for Long-Term Care Facilities](#)¹
- [CDC's Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings | Infection Control | CDC](#).²
- [Nursing Home Infection Preventionist Training Course - WB4448R - CDC TRAIN - an affiliate of the TRAIN Learning Network powered by the Public Health Foundation](#)³
- [PA Project Firstline](#)⁴
- [Preventing Transmission of Viral Respiratory Pathogens in Healthcare Settings | Infection Control | CDC](#)⁵

Education and Training

LTCFs should provide job-specific infection prevention education and training for all health care personnel. This training should be mandatory for new employees and repeated annually. When lapses occur, additional training should be provided.

For more information on training, visit:

- [Nursing Home Infection Preventionist Training Course - WB4448R - CDC TRAIN - an affiliate of the TRAIN Learning Network powered by the Public Health Foundation](#)³
- [PA Project Firstline](#)⁴

Residents, family members, and visitors should be informed about basic infection prevention practices and the facility's specific plan. This can be communicated through letters, signage, informational sessions, and other appropriate methods. This education should include:

- How viruses spread
- Importance of vaccination of residents, health care personnel (HCP), and visitors
- Prevention methods
- Recognizing virus symptoms
- Precautions during high virus activity or outbreaks

Visitation

LTCFs should have a visitation plan prepared in advance for outbreak situations. This plan should include:

- Trigger or reasoning for limiting visitation
- Requirements for visiting during an outbreak (i.e., mask, etc.)
- Encouraging visitors to receive updated vaccinations when appropriate (i.e., influenza, COVID, etc.)
- Communication plans for residents and visitors

NOTE: [A sample letter](#) (Appendix C: Sample Letter for Resident's Family) is available for facilities to use in the event of an outbreak. LTCFs can modify dates, names, and contact information within the letter, or use it as a model for their own letters.

Visitors should be educated about the risk of respiratory viruses if they visit the facility during an outbreak. They should not visit if they are ill. They should receive any recommended respiratory vaccines they do not already have. LTCFs should make personal protective equipment (PPE) and hand hygiene products (such as alcohol-based hand sanitizer or handwashing supplies) available to visitors.

Below is a visitation plan checklist LTCFs can modify and use for respiratory viruses.

Table 1. Visitation Plan Checklist

For Visitors

Post signs at the entrance reminding visitors of the importance of:

- Remaining up to date with all recommended influenza, COVID-19, Tdap, and (if eligible) pneumococcal and RSV vaccines
- Staying home when sick
- Maintaining masking (person with symptoms wears face mask) and physical distancing; and
- Adhering to any other facility instructions related to visitation.

Establish a process to make visitors entering the facility, regardless of their vaccination status, aware of recommended actions to prevent transmission to others if they have any of the following three criteria:

- A positive viral test for any respiratory virus
- Any respiratory virus symptoms
- Close contact with someone with a respiratory virus or symptoms.

Visitors with a respiratory virus or respiratory symptoms should delay non-urgent in-person visitation until they are fever-free for 24 hours without the use of fever-reducing medicines and symptoms are improving. Visitors who were recently ill should wear a mask until symptoms have fully resolved.

Additional recommendations from Centers for Medicare & Medicaid Services (CMS) related to visitation can be found here: [Nursing Home Visitation -COVID-19 \(REVISED\) QSO-20-39-NH REVISED 05/08/2023 \(cms.gov.\)](https://www.cms.gov/medicare/coverage/policies/2020-revisions-late-cycle/cms-2020-39-nh-revised-05-08-2023)

Additional information about visitation for nursing homes and [intermediate care facilities for individuals with intellectual disabilities and psychiatric residential treatment facilities](#) is available from CMS.

Infection Prevention and Control (IPC) During Visitation

- Educate visitors on recommended infection prevention and control practices that are to be used during the visit.
- Instruct visitors to maintain masking regardless of vaccination status per facility policy.
- Maintain physical distancing of at least 6 feet between people, including, when around other residents, visitors that are not part of their group, and health care providers (HCP) in the facility.

- Develop a plan to manage visitor flow throughout the facility.
- Determine if there is a need to limit the total number of visitors in the facility at one time to maintain recommended IPC precautions.
- Determine if there is a need to limit the number of visitors per resident at one time to maintain any required physical distancing.

- Residents and their visitors can choose to have close contact and to not mask, however, these best practices should be considered:
 - Resident and all visitors are up to date with all recommended respiratory vaccines including boosters; and
 - Resident is not moderately or severely immunocompromised; and
 - Visit takes place in the resident's room or the designated visitation room.

Location of Visitation

Indoor visitation can occur in single-person rooms, or multi-person rooms if the roommate is not present. If the roommate is unable to leave, facilities can consider:

- Outdoor visitation:
 - Outdoor visits generally pose a lower risk of transmission due to increased space and airflow. For outdoor visits, create accessible and safe outdoor spaces for visitation, such as in courtyards, patios, or parking lots, including the use of tents, if available. However, weather considerations (e.g., inclement weather, excessively hot or cold temperatures, poor air quality) or an individual resident's health status (e.g., medical condition(s), quarantine status) may hinder outdoor visits. LTCFs should have a policy for outdoor visits.
 - Outdoor visitation is preferred when the resident and/or visitor are not up to date with all recommended vaccinations.
- LTCFs should facilitate and encourage alternate forms of visits (e.g., video conferencing) and communication with the resident.

Staffing

LTCFs should have a staffing plan to address shortages due to illness. Sick leave policies should be flexible and in line with public health guidance. For more information on staffing, visit [Strategies to Mitigate Healthcare Personnel Staffing Shortages | CDC](#)⁶

Sick health care personnel (HCP) should follow the exclusion guidance in Table 2.

Below is a table outlining the incubation period, infectious period, and exclusion periods for respiratory viruses.

NOTE: Facilities may take additional precautions, such as longer HCP exclusion or temporary reassignment of HCP who care for high-risk residents. HCP with longer-lasting symptoms such as cough or runny nose should mask until they are symptom-free.

Table 2. Incubation and Infectious Periods by Virus

Virus	Incubation Period*	Infectious Period	Exclusion Criteria for HCP ⁷
Influenza	1 – 4 Days (Average: 2 days)	Before onset of symptoms (1 day) until symptoms resolve (Average: 5 – 7 days)	Restrict from work until at least 3 days have passed since symptom onset (or since first positive test if asymptomatic) and at least 24 hours have passed with no fever (without the use of fever-reducing medicines), symptoms are improving, and HCP feel well enough to return to work. The first possible day for HCP to return to work is day 4**.
RSV	3 – 7 Days (Average: 5 days)	Before onset of symptoms until the symptoms resolve (Average: 7 – 10 days)	
Human metapneumovirus	4 – 9 Days	Variable: 3 – 10 days, but may be longer in immunocompromised individuals	
Parainfluenza	2 – 6 Days	3 – 10 days for initial infections, less for subsequent infections	
Adenovirus	4 – 8 Days	Variable: Individuals could be asymptomatic, but still able to infect others for weeks to months	Wear a facemask for source control [†] in all patient care and common areas of the facility (e.g., HCP break rooms) for at least 7 days since symptom onset (or since first positive test if asymptomatic). The first possible day for HCP to work unmasked is day 8**.
Rhinovirus	2 – 4 Days	Variable: From onset of symptoms until the symptoms resolve (Average: 7 – 14 days)	
COVID-19	3 – 7 Days (Average: 6 days)	Variable: Before onset of symptoms and up to 10 days after symptoms start, but may be longer in immunocompromised individuals	

NOTES:

*Incubation periods listed here are general. These can vary based on factors that can change under different scenarios, such as population immunity, age range, or vaccination status

** Day 0 is the first day that symptoms develop. If no symptoms are experienced, the first day of positive test should be used as day 0.

† Source control refers to the use of well-fitting facemasks or respirators to cover a person's mouth and nose to prevent spread of respiratory secretions when they are breathing, talking, sneezing, or coughing.

Testing Infrastructure

LTCFs need to procure their own testing supplies. LTCFs should also procure lab support needed to detect respiratory viruses like COVID-19, influenza, and RSV in both residents and HCP. While federal, state, and local resources might be available during national emergencies (COVID Pandemic, 2009 H1N1), facilities should be prepared for routine virus testing during regular seasonal epidemics.

It is important for facilities to partner with hospitals and/or commercial labs that can perform expanded respiratory panels, to identify respiratory viruses other than influenza, RSV, or COVID-19. **LTCFs cannot rely on the state public health lab (Bureau of Laboratories) for routine testing, as their resources are limited.**

In-house Testing for LTCFs

LTCFs frequently use rapid tests or point-of-care tests for influenza and COVID-19. These require a CLIA waiver to be used. Any positive influenza (all counties), RSV (all counties) or COVID-19 (Philadelphia, Allegheny, and Montgomery counties) point-of-care test must be reported by the LTCF to Pennsylvania's disease surveillance system, PA-NEDSS.

Influenza and RSV are reportable in PA. Please refer to the [reporting section](#) for more details on how to report to PA-NEDSS.

Testing at the Bureau of Laboratories

Specimen collection kits for Bureau of Laboratories (BOL) testing are limited. Testing through BOL can only be done with approval from the local or state health department. During outbreaks, a maximum of four specimens may be sent to BOL. These specimens are for public health surveillance, not for diagnostic testing of all residents. Additional specimens may be sent to BOL under special circumstances, but acceptance of these specimens is not guaranteed.

Improper collection or shipping of specimens can affect results, leading to inconclusive test results. See [Appendix B for instructions on collection and shipping](#).

Prevention

Good hand and [respiratory hygiene](#) are key to preventing infections.⁵ HCP and residents should frequently wash their hands with soap and water for at least 20 seconds or use alcohol-based hand sanitizer, especially between contact with patients. Cover your mouth and nose when sneezing or coughing, avoid touching your face afterward. Masks can be utilized during times of high respiratory activity and outbreaks as an additional strategy to prevent or limit spread.

LTCFs should require routine and targeted cleaning of environmental surfaces. Select EPA-registered [disinfectants](#) that will kill the pathogens most likely to contaminate surfaces.⁸ Please note that some respiratory viruses are resistant to many disinfectants. During and after an outbreak, refer to EPA's website for disinfectants appropriate for the causative agent.

More information on prevention strategies can be found in the [Interventions Section](#).

Hand Hygiene

Hand hygiene is one of the best ways to prevent the spread of infection. HCP, residents, and visitors should be educated on proper hand hygiene. Supplies should be made available to residents and their visitors to conduct proper hand hygiene.

Hand hygiene supplies:

- Place FDA-approved alcohol-based hand rub (ABHR) with 60-95% alcohol in every resident room (ideally both inside and outside of the room) and other resident care and common areas (e.g., outside dining hall, in therapy gym, etc.).
- Verify facility plan for hand hygiene meets life safety code and any other applicable local, state, and federal regulations.
- Unless hands are visibly soiled, performing hand hygiene using an ABHR is preferred over soap and water in most, but not all clinical situations¹¹
- Develop a plan to make sure that sinks are well-stocked with soap and paper towels for hand washing.

Resources:

- [Make Your Intention Prevention - Clean Hands Stop the Spread](#)⁹
- [Hand Hygiene Audit Guidance.pdf](#)¹⁰
- [PA DOH Alcohol-Based Hand Rub Memo](#)¹¹

Transmission-Based Precautions (TBP)

When a resident is suspected or confirmed to have a respiratory viral infection, additional precautions are needed to protect HCP during resident care. These precautions should be used in addition to standard precautions, source control, and proper hand hygiene. Proper institution of TBP includes placement in a private room, if available.

Appropriate donning and doffing of personal protective equipment (PPE) is also important in preventing transmission. Please refer to the [PPE Donning and Doffing Sequence](#)¹² from the CDC for more information. Facilities are responsible for maintaining an adequate supply of PPE. PA DOH

cannot provide PPE if a facility runs out. Consider using [CDC's Personal Protective Equipment Burn Rate Calculator | Healthcare Workers | CDC](#)¹³ for assistance.

By taking a pan-respiratory approach, information in the table below may not always align with Appendix A of the [Isolation Precautions Guideline | Infection Control | CDC](#).¹⁴ When discrepancies are encountered, the guidance in the table below represents the preferred approach of the Department.

Virus	Type of Precaution	Duration of Precaution
Influenza (AH1, AH3, B)	Droplet	Until symptoms resolve OR 7 days, whichever is longer.
RSV	Contact	
SARS-CoV-2	Airborne* + Contact + Eye Protection	
Other respiratory viruses** (e.g. parainfluenza, seasonal coronaviruses, rhinovirus, adenovirus)	Follow specific virus instructions in Appendix A of the Isolation Precautions Guideline Infection Control CDC . ¹⁴	
*If an airborne infection isolation room (AIIR) is not available, use a private room (or cohort) with the door closed. **If specific virus instructions are not available, defer to the respiratory infections or pneumonia entry for details.		

Resources:

- [Contact Precautions Sign](#)¹⁶
- [Droplet Precautions Sign](#)¹⁷
- [Airborne Precautions Sign](#)¹⁸

Monitor Community Transmission

Community respiratory virus activity and transmission can affect respiratory virus activity within facilities, through the movement of residents, HCP, HCP, and visitors. Facilities should regularly monitor community transmission to gauge respiratory virus activity within their community. LTCFs should use the surveillance data sources provided below to monitor activity and make data-driven decisions regarding the implementation of broader masking measures for both residents and HCP, visitation policies, scaling or reducing group activities as appropriate, activation of enhanced surveillance, and determining the optimal timing for offering

vaccinations.

Monitoring Activity

There are several available resources to monitor community transmission:

- [PA DOH Respiratory Virus Dashboard](#)¹⁹ is updated weekly and contains reported case counts, emergency department visits, hospitalization, and death data for some respiratory viruses.
- [Pennsylvania Wastewater Surveillance System \(PaWSS\) | Department of Health | Commonwealth of Pennsylvania](#)²⁰ monitors trends in SARS-CoV-2, influenza A, and RSV in wastewater.
- [Respiratory Illnesses Data Channel | Respiratory Illnesses | CDC](#)²¹ – Provides a summary of respiratory virus activity.
- [FluView | FluView | CDC](#)²² – Provides multiple links to interactive dashboards including Influenza-like Illness (ILI), novel influenza, vaccine coverage, and more.

Health Communications

An additional method of monitoring community activity is by participating in Health Care Coalition calls, signing up for Health Alerts from the PA Health Alert Network, and working with LTC partners like LTC-Rise or the Long-Term Care Transformation Office (LTCTO).

- [Health Alert Network \(HAN\) \(pa.gov\)](#)²³ – Provides information from the Department of Health about urgent public health situations and other health risks.
- [Long-Term Care Transformation Office \(LTCTO\)](#)²⁴ – Provides guidance and assistance to LTCFs across PA.
- [Health Care Coalition](#)²⁵ – A formal collaboration among health care organizations and public and private partners that is organized to prepare for, respond to, and recover from an emergency, mass casualty or catastrophic event.

Vaccination

All residents, HCP, and visitors should stay up to date on respiratory virus vaccines. Residents must be protected from respiratory viruses. HCP and visitors are often the ones who introduce respiratory viruses into LTCFs. HCP and visitors should be encouraged to stay up to date on all vaccines to protect residents.

Influenza

Vaccination of residents and the HCP who work in LTCFs is important. A preliminary study showed that influenza vaccination during the 24-25 season reduced adult influenza-related outpatient visits, with a vaccine effectiveness between 36% and 54%. It also reduced adult influenza-related hospitalizations, with a vaccine effectiveness between 41% and 55%.²⁶

The importance of HCP influenza vaccination to protect residents was modelled in a study from 2008. It showed that increasing HCP vaccination coverage decreased the average attack rate (number of cases divided by population) for residents and HCP. Increased vaccination coverage also reduced the introduction rate of influenza, which helps reduce the attack rate.²⁷

It's important that residents and HCP receive the influenza vaccine each year. Influenza vaccines are updated annually due to the changes in circulating virus strains. There are several vaccine types available each year. People who are immunocompromised or 65 and older may receive one of the following influenza vaccine types:

- High-dose inactivated influenza vaccine
- Recombinant influenza vaccine
- Adjuvanted inactivate influenza vaccine

If the above vaccines are not available, they may receive any other age-appropriate influenza vaccine. October is the best time to get the influenza vaccine. However, you can and should get the influenza vaccine after October as long as influenza is still circulating and high. Influenza vaccination from March to June is not recommended. Some groups, such as people who are pregnant, immunocompromised, or unable to get the vaccine in October, can receive it in the summer.

Influenza vaccines can be co-administered with other vaccines.

COVID-19

COVID-19 vaccine effectiveness studies have also found that vaccination protected against hospitalizations and death among adults and those 65 and older.²⁸

The COVID-19 vaccines are also updated every year to provide protection against circulating variants. The newly updated versions are released at the end of the summer or early fall. Some groups, like people who are immunocompromised or 65 and older, may need two doses of COVID vaccine each year.

Everyone 18 and older should plan to receive the updated vaccine once it becomes available

to ensure the best protection against circulating viruses during the upcoming respiratory virus season. For more information on COVID-19 vaccine recommendations, consult the [American Academy of Family Physicians](#), the [American Academy of Pediatrics](#), and the PADOH Respiratory Virus Vaccines page.²⁹

- **High-risk groups** are those over the age of 65, anyone who has not previously been vaccinated, pregnant and or nursing mothers, people who live in congregate settings like LTCFs, and those who have other comorbidities like chronic heart or lung conditions.
- **Recent infection:** People who have recently had COVID-19 may consider waiting **3 months** after infection before receiving their next dose, as infection can provide temporary protection.
- **Recent vaccination:** If you have received an older version of the vaccine, wait **8 weeks** before getting the updated formulation to optimize your immune response.
- **Co-administration:** COVID-19 vaccines can be co-administered with other vaccines.
- **Best timing:** As soon as the new version of the shot is available (usually late summer to early fall). If you miss it, get vaccinated as soon as you can.

RSV

RSV vaccines were first available during the 2023-2024 season for older adults and pregnant people. The RSV vaccine is administered only once (not annually). It is very effective at preventing severe outcomes from RSV. One study found RSV vaccine effectiveness in adults 60 years or older was 80% against RSV-associate hospitalizations, and 81% against ICU-admission or death due to RSV.³⁰

Adults 75+ may receive a single dose of RSV vaccine if they have NOT been previously vaccinated. Adults 50 – 74 with certain risk factors may receive a single dose of RSV vaccine if not previously vaccinated. Risk factors that qualify include living in a LTCF, chronic heart or lung disease, weakened immune system, or other medical conditions.³¹

The best time to receive an RSV vaccine is from September to January, which is the RSV season. The RSV vaccine can be administered outside of these months depending on local RSV activity. RSV vaccines can be co-administered with other important vaccinations.

Pneumococcal Disease

Pneumococcal vaccines protect against serious infections caused by *S. pneumoniae* bacteria. This bacterium can colonize a person and not cause any problems, until that person experiences a respiratory virus infection, like influenza or COVID-19. That viral infection can cause bacteria, which was previously not causing any problems, to lead to serious infections, like secondary bacterial pneumonia. For this reason, it is incredibly important for residents to be up to date on both their respiratory virus and pneumococcal vaccinations. There are several pneumococcal vaccines that can prevent these types of infections.

People aged 19 – 49 years with certain conditions and everyone 50+ may receive a pneumococcal vaccine. Individuals interested in receiving these vaccines should discuss with LTCF HCP or their doctor. The vaccine you receive is based on your past vaccination history and age group. There is also an app, [PneumoRecs VaxAdvisor](#)³², which can help determine for what vaccines you are eligible.

There are two types of pneumococcal vaccines available:

1. Pneumococcal conjugate vaccines (PCVs)
2. Pneumococcal polysaccharide vaccine

The number in the pneumococcal vaccine name refers to the number of serotypes included in that vaccine. Below is a figure describing the serotypes covered by the different vaccine types.³³

Included in vaccine

Not included in vaccine

Vaccine	Serotype																															
	1	3	4	5	6A	6B	7F	9V	14	18C	19A	19F	23F	22F	33F	8	10A	11A	12F	15B	2	9N	17F	20	15A	15C	16F	23A	23B	24F	31	35B
PCV21																																
PPSV23																																
PCV20																																
PCV15																																

Abbreviations: PCV = pneumococcal conjugate vaccine; PCV15 = 15-valent PCV; PCV20 = 20-valent PCV; PCV21 = 21-valent PCV; PPSV23 = 23-valent pneumococcal polysaccharide vaccine.

Figure 3. Serotypes included by pneumococcal vaccine type ³³

Laboratory-Confirmed Cases

LTCFs are responsible for reporting any influenza or RSV-positive tests that are performed in-house (i.e. point-of-care or rapid tests). This includes reporting of HCPs if they were tested in-house.

Options for reporting to PA-NEDSS:

- Manual reporting
- Uploading spreadsheets (must onboard to Electronic Laboratory Reporting first)
- Simple Report ([Home | Simple Report](#))³⁴
- Aggregate reporting (for influenza and RSV only)

Testing performed at a hospital, commercial, or public health lab should be reported by the testing laboratory. Please confirm with your laboratory that they will fulfill their reporting obligations. Do not include lab-reported cases in aggregate reporting counts, to prevent double counting of cases.

LTCFs in locations with a county or municipal health department should refer to local reporting requirements for COVID-19. For all other counties, voluntary reporting of COVID-19 cases is encouraged.

For more information on PA-NEDSS: [PA-NEDSS Welcome to PA-NEDSS \(state.pa.us\)](#)³⁵

Hospitalizations and Deaths

Laboratory-confirmed influenza and RSV hospitalizations and deaths are also reportable to PA-NEDSS. These CANNOT be entered using the aggregate reporting module. **These should be entered via manual case reporting in PA-NEDSS.**

Respiratory Virus Outbreaks



All respiratory virus outbreaks are reportable to PA DOH BOE within 24 hours, regardless of the etiologic agent. These can be reported by contacting your local PA DOH District Office or local health department. Contact information for your local public health jurisdiction can be found [here](#).³⁶

You can also report an outbreak by calling **1-877-724-3258**.

Section 2: Outbreak Response and Control

Case Definitions for LTCFs

Influenza Confirmed Case:

- Detection of influenza virus nucleic acid by polymerase chain reaction **OR**
- Detection of influenza virus antigen, including by point-of-care rapid antigen test or in-laboratory direct immunofluorescence assay (DFA), without other laboratory confirmation

RSV Confirmed Case:

- Detection of respiratory syncytial virus nucleic acid by polymerase chain reaction **OR**
- Detection of RSV virus antigen, including by point-of-care rapid antigen test or in-laboratory direct immunofluorescence assay (DFA), without other laboratory confirmation

COVID Confirmed Case:

- Detection of SARS-CoV-2 ribonucleic acid by polymerase chain reaction **OR**
- Detection of SARS-CoV-2 virus antigen, including by point-of-care rapid antigen test or in-laboratory direct immunofluorescence assay (DFA), without other laboratory confirmation

Outbreak Definitions

Each virus should be reported as its own outbreak. Note that HCP are deliberately excluded from the outbreak definitions. For example, if you have a resident and a HCP member ill with a respiratory virus, this does NOT qualify as an outbreak.

Table 3. LTCF Outbreak Definitions

Influenza or Influenza-Like Illness (ILI)*	Other Respiratory Virus (COVID-19, RSV, Adenovirus, etc.)
1 laboratory-confirmed case of influenza in resident + 1 resident with ILI* within 72 hours, OR 2 laboratory-confirmed cases of influenza in residents within 72 hours	1 laboratory-confirmed case of a respiratory virus in resident + 1 resident with Acute Respiratory Illness (ARI) symptoms** within 72 hours, OR 2 laboratory-confirmed cases of respiratory virus in residents within 72 hours
<i>*Influenza-like Illness (ILI): fever (100F) + cough or sore throat</i> <i>**ARI Symptoms can include cough, fever, sore throat, runny nose, shortness of breath, headache, and fatigue</i>	

Reporting an Outbreak

All respiratory virus outbreaks are reportable in Pennsylvania to the Bureau of Epidemiology. Visit [State Health Centers \(pa.gov\)](https://www.pa.gov)³⁶ to determine whether your facility is within a local health department's jurisdiction. Contact information for the state health centers, city health departments, and county health departments are listed there. Assistance with your outbreak will be provided by the respective health department.

You can also call **1-877-PA-HEALTH** to report an outbreak in your facility.

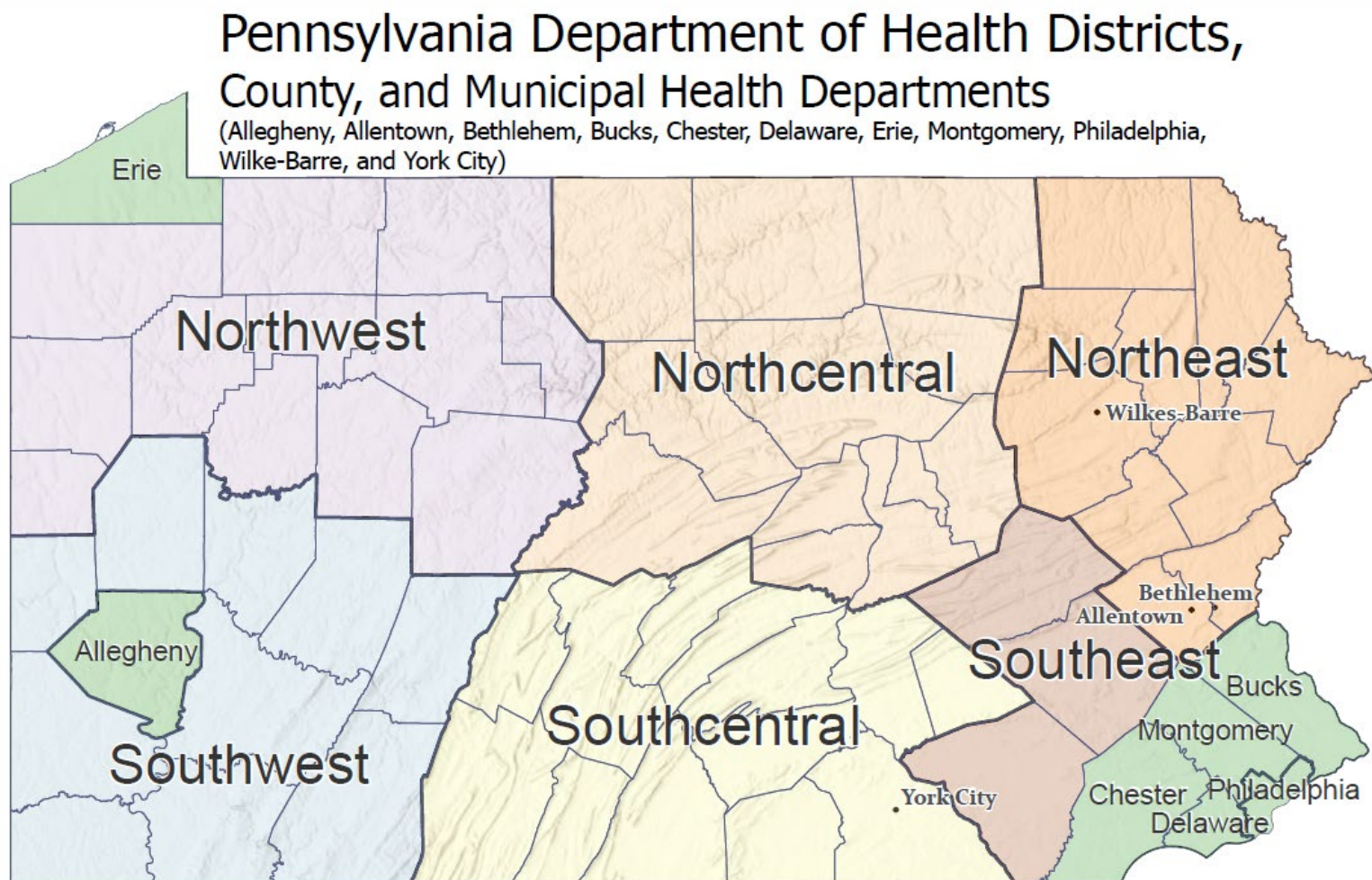


Figure 4. Health Regions and County/Municipal Health Departments ³⁶

Testing Plan

Ensure access to rapid-result respiratory viral testing, whether conducted onsite or through expedited send-out services, with results available within 24 hours. Prompt testing results can guide appropriate treatment and infection prevention and control (IPC) measures.

Test anyone showing signs or symptoms of a respiratory illness.

Asymptomatic testing is not recommended. The choice of diagnostic tests will depend on the suspected cause of the infection. Consider respiratory viruses currently circulating in the community or facility, and if there has been recent contact with someone confirmed to have a specific respiratory infection. Testing should also be considered if the results will impact clinical management, such as treatment and the duration of isolation. At a minimum, tests should include SARS-CoV-2 and influenza viruses, with consideration for other causes like RSV.

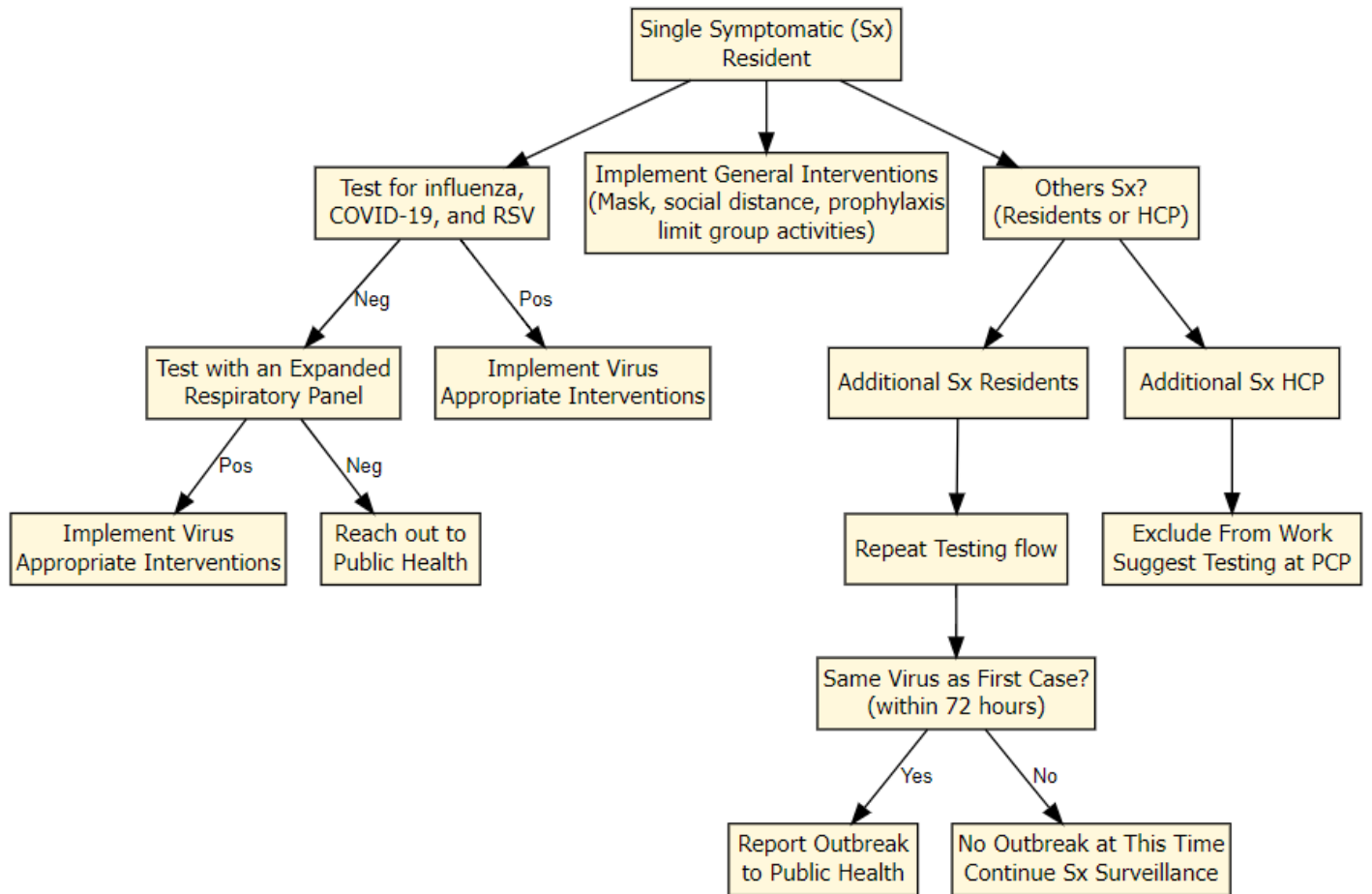
When respiratory illness is first identified in residents or HCP, the LTCF should implement daily symptom monitoring and testing.²⁶ Many respiratory viruses present with similar symptoms. Testing is the gold standard for diagnosis of the pathogen of concern.

If rapid or point-of-care tests are negative for influenza, RSV, and COVID-19, the LTCF needs to test with an expanded respiratory panel. These panels test for many viruses and a few bacteria. LTCFs should have a hospital or commercial lab identified that can perform these tests during outbreaks. The BOL can perform a limited number of expanded respiratory panels if a LTCF is in an emergency or during an outbreak.

The BOL uses Roche's cobas eplex Respiratory Pathogen Panel 2, with 19 targets, including:

- Adenovirus
- Seasonal coronavirus (229E, HKU1, NL63, OC43), and SARS-CoV-2
- Human metapneumovirus, Human Rhinovirus/Enterovirus
- Influenza A, Influenza A H1, Influenza A H1-2009, Influenza A H3
- Influenza B
- Human Parainfluenza Virus-1 (HPIV-1), HPIV-2, HPIV-3, and HPIV-4
- Respiratory Syncytial Virus A, Respiratory Syncytial Virus B
- Chlamydia pneumoniae
- Mycoplasma pneumoniae.³⁷

Testing Flow Chart for LTCFs



Interventions

Unless noted, these interventions apply to all respiratory viruses. These interventions should be implemented whenever there is a respiratory outbreak.

Antivirals and Chemoprophylaxis

Antiviral treatment for influenza should be administered to ill residents (**confirmed or suspected**) preferably within two days of symptom onset. Do not wait for test results.

Antiviral treatment for COVID-19 should be administered to ill residents preferably within five to seven days of symptom onset. The sooner antivirals are administered, the more effective they are.

Be aware of antiviral resistance. Possible signs of antiviral resistance include:

- A resident does not improve or worsens after antiviral treatment
- A resident becomes ill after receiving prophylaxis

Notify your local health jurisdiction if you suspect antiviral resistance.

Chemoprophylaxis is when antivirals are given to non-ill individuals to prevent illness. Chemoprophylaxis should be considered for all non-ill residents and HCP when an outbreak is identified. Unvaccinated residents and HCP should be prioritized. HCP should receive chemoprophylaxis if they are unvaccinated, caring for high-risk individuals, or when the circulating strains are not similar to the ones included in the vaccine.

[CDC recommends antiviral chemoprophylaxis](#)³⁸ with oseltamivir, zanamivir, baloxavir for a minimum of 2 weeks and continuing for at least 7 days after the last known laboratory-confirmed influenza case was identified on affected units.

However, due to limitations within facilities, the LTCF has the option to use an “expanding coverage” model (see image). This would involve providing chemoprophylaxis to non-ill roommates first, and then expanding outward as cases increase. This method can conserve resources and prevent possible antiviral resistance.

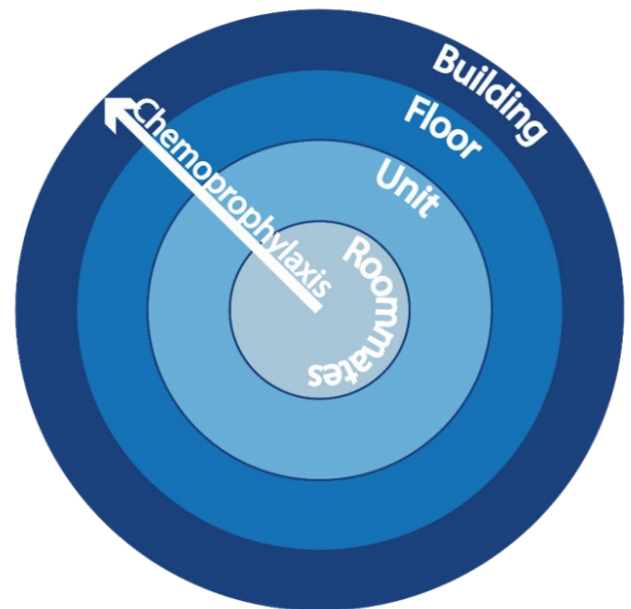


Figure 6. Chemoprophylaxis by expanding coverage

Masking

The LTCF should encourage masking of HCP, residents, and visitors during any respiratory virus outbreak. [Masks help to prevent the spread of illness](#)³⁹. This provides protection for the wearer (if using a fitted N95 or KN95) and protection for others (some surgical and N95/KN95).

The LTCF should also consider masking for HCP and visitors when community activity is high. This recommendation is to protect the residents within the LTCF.

When masking, the masks:

- Should be well-fitting with minimal gaps
- Should cover both nose and mouth
- Should be changed if they become visibly soiled, damaged, or hard to breathe through
- HCP working with suspected or confirmed COVID residents should use fit-tested, NIOSH-approved N95s

When masking is not possible for residents or visitors, consider the following prevention measures:

- Physical distancing of at least 6 feet, so long as it will not interfere with provision of care.
- Arrange seating in common areas, treatment areas, and during group activities so that residents are at least 6 feet apart.
- Consider scheduling appointments to limit the number of residents in common areas or participating in group activities at one time.

Resources:

- [Respirators and Mask Types and Performance | Personal Protective Equipment | CDC](#)⁴⁰
- [Fit Testing | Personal Protective Equipment | CDC](#)⁴¹

Cohorting and Social Distancing

Residents

During an outbreak, it is best to avoid new transfers or admissions. Ill residents should be isolated to a single room if possible. If space is limited, residents ill with the same virus can be cohorted together. Avoid cohorting residents if you are unsure what virus they have.

Refer to the cohorting guide below for examples.

	Resident A						
		No respiratory symptoms and not in isolation or quarantine Not up to date	No respiratory symptoms and not in isolation or quarantine Up to date	Resident on Quarantine with respiratory symptoms	Resident + for influenza A (H1N1)	Resident + for influenza A (H3N2)	Resident + for COVID-19 and RSV
Resident B	No respiratory symptoms and not in isolation or quarantine Not up to date						
	No respiratory symptoms and not in isolation or quarantine Up to date						
	Resident on Quarantine with respiratory symptoms						
	Resident + for influenza A (H1N1)						
	Resident + for influenza A (H3N2)						
	Resident + for COVID-19 and RSV						
							

 = cohort  = single patient room recommended

HCP

HCP should be cohorted by unit to prevent spread of infection to other units. This means dedicating HCP to the outbreak unit and limiting contact to unaffected units. Extra precautions should be taken for more vulnerable units like dementia units. Non-HCP should be restricted from entering a unit with an outbreak. If restriction is not possible, non-HCPs should have limited contact with ill residents.

Improve Ventilation

LTCFs should take steps to improve ventilation in their facility. Effective ventilation strategies and practices can reduce viral particles in the air. Facilities should consult with their facility engineer or HVAC professionals to see what options are feasible.

1. Open windows and doors when able to increase outdoor air flow. Avoid opening doors and windows if this will create safety or health risks (e.g., falls, asthma symptoms).
2. Use fans to increase effectiveness of open windows if facility policy allows. Do not place fan in rooms with monitored air pressure, or where they may cause contaminated air to flow from one person to another.
3. Window fans can be used to move air outside. This can generate strong air room currents.
4. Ensure there is a policy in place for cleaning fans used in resident rooms.

Facilities can also improve air filtration by:

1. Increasing air filtration as high as possible without reducing design airflow.
2. Making sure air filters are properly sized and within their recommended service life.
3. Inspecting filter housing and racks to ensure appropriate filter fit and minimize air that flows around, instead of through, the filter.
4. Ensuring restroom exhaust fans are functional and operating at full capacity when the building is occupied.
5. Inspecting and maintaining exhaust ventilation systems in areas such as kitchens and cooking areas. Operate these systems any time these spaces are occupied. Operating them even when the specific space is not occupied will increase overall ventilation within the occupied building.
 - a. Use portable high-efficiency particulate air (HEPA) fan/filtration systems to enhance air cleaning (especially in higher-risk areas).
 - b. Note: Portable air cleaners with less efficiency than HEPA filters can contribute to room air cleaning. However, they should be clearly labeled as non-HEPA units. For more information see the FAQ on [HEPA filters and portable HEPA air cleaners](#).⁴²

Environmental Cleaning

LTCFs should include regular environmental cleaning in their infection prevention and control plan. The plan should also include when additional environmental cleaning is necessary (e.g. adenovirus, after certain procedures, during outbreaks, etc.).

Below is a table for best cleaning practices at LTCFs. This is not an exhaustive list and is primarily focused on respiratory viruses. Cleaning for other pathogens may not be included.

Table 6. Environmental cleaning recommendations for LTCFs

Best Practices for Cleaning in Healthcare Facilities	Additional Guidance for Ongoing Success
Use disinfectants that kill the viruses that are in the facility	- Influenza, RSV, SARS-CoV-2, and other common respiratory viruses- EPA List N ⁴³ - Adenoviruses- EPA List G ⁴⁴
Clean reusable items between use in accordance with manufacturer guidelines.	Dispose of single-use items after use
Work from clean to dirty to avoid spreading dirt and microorganisms	- Clean low-touch surfaces before high-touch surfaces - Clean resident zones (beds, sitting areas) before resident toilets - Clean high-touch surfaces outside the resident zone before the high-touch surfaces inside the resident zone
Clean general resident areas not under transmission-based precautions before those areas under transmission-based precautions.	Ensure appropriate PPE is worn
Proceed from high surfaces to low surfaces to prevent dirt and microorganisms from dripping or falling and contaminating already cleaned areas	- Clean bed rails before bed legs - Clean environmental surfaces before cleaning floors - Clean floors last to allow collection of dirt and microorganisms that may have fallen
Perform management of laundry, food service utensils, and medical waste in accordance with state law and regulations and facility policy.	Ensure policies in place for HCP to reference

Admissions and Transfers

Avoid new admissions to the affected unit(s) if possible, during an outbreak. LTCFs should also limit unnecessary transfers to other facilities or units for ill individuals or during outbreaks.

If transfers must occur during an outbreak, notify the receiving facility about the outbreak and any precautions.

Special situations that may require additional guidance:

If any of the following situations occur, contact your local health jurisdiction or the PA Department of Health **1-877-PA-HEALTH** (1-877-724-3258).

- The facility continues to see an increasing number of cases, and the outbreak persists despite control measures.
- Previously healthy residents who received prophylaxis or those who received treatment for illness are not responding, which may indicate antiviral resistance, secondary bacterial infection, or multiple circulating respiratory pathogens.

Ending an Outbreak Response

An outbreak is considered “over” when 14 days have passed since the last resident tested positive or became symptomatic (if no positive test is available). Any new infections in a resident (for the applicable virus) would restart the 14-day countdown. New infections in HCP will not affect this countdown.

JUNE 2024						
SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10		12	13	14	15
16	17		19	20	21	22
23	24		26	27	28	29
30						

For example,
if the last positive resident is on
June 11, then the outbreak would
end June 25.

Figure 7. Calendar demonstrating end of an outbreak

JUNE 2024						
SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3		4	5	6	7
9	10		12	13	14	15
16	17		19	20	21	22
23	24		26	27		29
30						

If a new case is identified **AFTER**
the 14-day window, this would
qualify as a new outbreak. Any
outbreak interventions should be
restarted.

For example,
if a new case appears on June 28,
outside of the 14 days, then the
LTCF has a new outbreak. The
LTCF would re-implement the
interventions.

Figure 8. Calendar demonstrating the end of current outbreak
and start of new outbreak

Section 3: Tools

Outbreak Reporting Form

At the end of an influenza outbreak, you should complete an outbreak report form. These are voluntary reports submitted to the Bureau of Epidemiology to provide the Department with additional data about outbreaks and their management. The form should summarize the entire outbreak. LTCFs do NOT need to complete the form for non-influenza outbreaks.

Forms should be completed electronically via the link below.

[Influenza LTCF Outbreak Report Form \(pa.gov\)](#)⁴⁵

Important Note: Report all respiratory outbreaks to your local health jurisdiction within 24 hours of identification of the outbreak. Do not wait until the outbreak ends to notify the local health jurisdiction.

Purpose of data collection

These data provide information on the severity and length of influenza outbreaks across the state. PA DOH uses the data to create new tools, modify interventions, and improve education and outreach to facilities and monitor influenza activity during the flu season. PA DOH also wants to know about vaccine coverage and shortages of vaccines and/or therapeutics to take appropriate actions to address these issues.

Specimens submitted to the BOL assist the state and CDC with virologic surveillance of respiratory viruses. Specimens can also be tested for antiviral resistance. Specimen submissions to BOL are coordinated by the local health jurisdiction and should not be initiated without their approval.

Outbreak Checklist

Please note, some recommendations vary by virus and this is not the full extent of recommendations.

Initial Outbreak Steps	
	Contact your local public health jurisdiction to report an outbreak within 24 hours. Click here to find state health center or county/municipal health department.
	Test residents with respiratory symptoms for respiratory viruses. You may be asked to submit specimens to the Bureau of Laboratories (BOL) through the local public health jurisdiction.
	Implement daily active surveillance for respiratory illness among residents and healthcare personnel (HCP) using the case line list. Include anyone with symptoms AND/OR positive tests.
Infection Control	
	Implement appropriate precautions for all residents with suspected/confirmed respiratory illness. If unknown virus, use standard + droplet.
	Emphasize good hand hygiene, proper respiratory hygiene, and limit group activities (or use social distancing).
Transfers and Admissions	
	Stop new admissions or transfers to floors/units with symptomatic residents.
	When transferring ill residents, notify receiving facility to ensure continuation of appropriate precautions.
	When transferring well residents, notify receiving facility of the presence of a respiratory outbreak.
Treatment and Prophylaxis	
	Administer antiviral treatment to residents who have suspected or confirmed influenza or COVID-19 (do not wait for lab confirmation to begin treatment).
	(<i>INFLUENZA ONLY</i>) Notify your local public health jurisdiction immediately if antiviral resistance suspected. Refer to page 16 of the Respiratory Toolkit .
	(<i>INFLUENZA ONLY</i>) Provide antiviral chemoprophylaxis (oseltamivir) to all non-ill residents on the same room/unit/floor as residents with lab-confirmed influenza. Refer to page 19 of the Respiratory Toolkit .
	(<i>INFLUENZA ONLY</i>) Consider or offer antiviral chemoprophylaxis for unvaccinated personnel who provide care to persons at high risk of complications.
	Important Note: Antivirals used to treat COVID-19 are not approved for use as chemoprophylaxis.
Influenza, COVID-19, RSV, and Pneumococcal Vaccination	
	Offer influenza, COVID-19, RSV, and pneumococcal vaccination to all unvaccinated residents and eligible HCP to reduce the impact of these viruses.
Cohorting and Social Distancing	
	Cohort ill residents to an individual room. If individual rooms not available, only cohort residents with the same virus together or co-infection could occur. Refer to page 21 in the Respiratory Toolkit .
	Have symptomatic residents remain in their rooms (i.e., restriction from activities and group meals). Consider masking (masking ill residents).
	Limit/Stop large group activities; consider serving all meals in resident rooms.
	Limit/Stop visitation and exclude ill persons from visiting the facility via posted notices. A sample letter is available on the LTCF page that facilities can send to families. Signage is also available. ⁴⁵
Recommendations for HCP	
	Follow the HCP exclusion guidance on page 5 of the Respiratory Toolkit .
	Monitor HCP absenteeism due to respiratory illness.
	Restrict HCP movement between affected and unaffected areas of the facility.

Line List

A [case line listing](#)⁴⁵ is designed to collect information about all ill cases (residents and HCP) during an outbreak in a long-term care facility. A line-listing can also help the facility:

- Track the spread of the virus(es) within LTCF
- Monitor case counts until the outbreak has finished
- Provide vital information your local health department must collect

Instructions

Upon identification of an outbreak, use this template to collect and organize information on cases. Each symptomatic resident or HCP member's information should be entered in a unique row on the line listing. **Include symptomatic people without test results.** Please use resident or HCP identifiers as well as their initials. Information should be updated daily during the outbreak for all cases. **A key is available on the next page for columns with coded variables.**

Reporting Facility Name and License Number:
Date Outbreak Identified:

Estimated # of exposed:	Patients	Staff
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
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84	84	84
85	85	85
86	86	86
87	87	87
88	88	88
89	89	89
90	90	90
91	91	91
92	92	92
93	93	93
94	94	94
95	95	95
96	96	96
97	97	97
98	98	98
99	99	99
100	100	100

[illegible]

† Staff Role: P=Patient care, F=Food service, H=Housekeeping, M=Maintenance, A=Administrative/clerical, O=Other

‡ Test Type: 0=No test, 1=Culture, 2= PCR, 3=Rapid test, 4=Other (specify)

* Respiratory Vaccinations: Y=ALL, N=None, Unk=Unknown, F = Flu, C = Covid, R = RSV, P = Pneumovax

** Other symptoms: H=Headache, CO=Congestion, RN=Runny nose, GI=Gastrointestinal symptoms, N=Nausea, SB=Shortness of breath, LA=Loss of appetite, CH=Chills, M=Myalgia, O=Other (specify)

Figure 10. Line list

Table 7. Line list key

<i>Patient/HCP identifier</i>		<i>Other symptoms</i>	H=Headache CO=Congestion RN=Runny nose GI=Gastrointestinal symptoms N=Nausea SB=Shortness of breath LA=Loss of appetite CH=Chills M=Myalgia O=Other (specify)
<i>Patient Room Number</i>		<i>Chest X-ray</i>	Positive (+) or Negative (-) or NA
<i>Unit</i>		<i>Type of test ordered</i>	0=No test 1=Culture 2= PCR 3=Rapid test 4=Other (specify)
<i>HCP role</i>	P=Patient care F=Food service H=Housekeeping M=Maintenance A=Administrative/clerical O=Other	<i>Pathogen detected</i>	
<i>Age</i>		<i>Vaccinations current? (Flu, RSV, COVID, Pneumovax) Ex. FC, is current for flu and COVID, FCR is current for flu, COVID and RSV. FP is current for flu and pneumovax.</i>	Y=ALL N=None Unk=Unknown F = Flu C = Covid R = RSV P = Pneumovax
<i>Sex</i>	M=Male F=Female	<i>Date of antiviral start</i>	(MM/DD/YYYY)
<i>Onset date</i>	(MM/DD/YYYY)	<i>Hospitalized</i>	Y=Yes N=No Unk=Unknown
<i>Duration of illness</i>	Days	<i>Died</i>	Y=Yes N=No Unk=Unknown
<i>Fever</i>	Y=Yes N=No Unk=Unknown	<i>Resolved</i>	Y=Yes N=No Unk=Unknown
<i>(If Fever) Highest temp</i>	°F		
<i>Cough</i>	Y=Yes N=No Unk=Unknown		
<i>Sore throat</i>	Y=Yes N=No Unk=Unknown		
<i>Pneumonia</i>	Y=Yes N=No Unk=Unknown		

Epidemic Curve

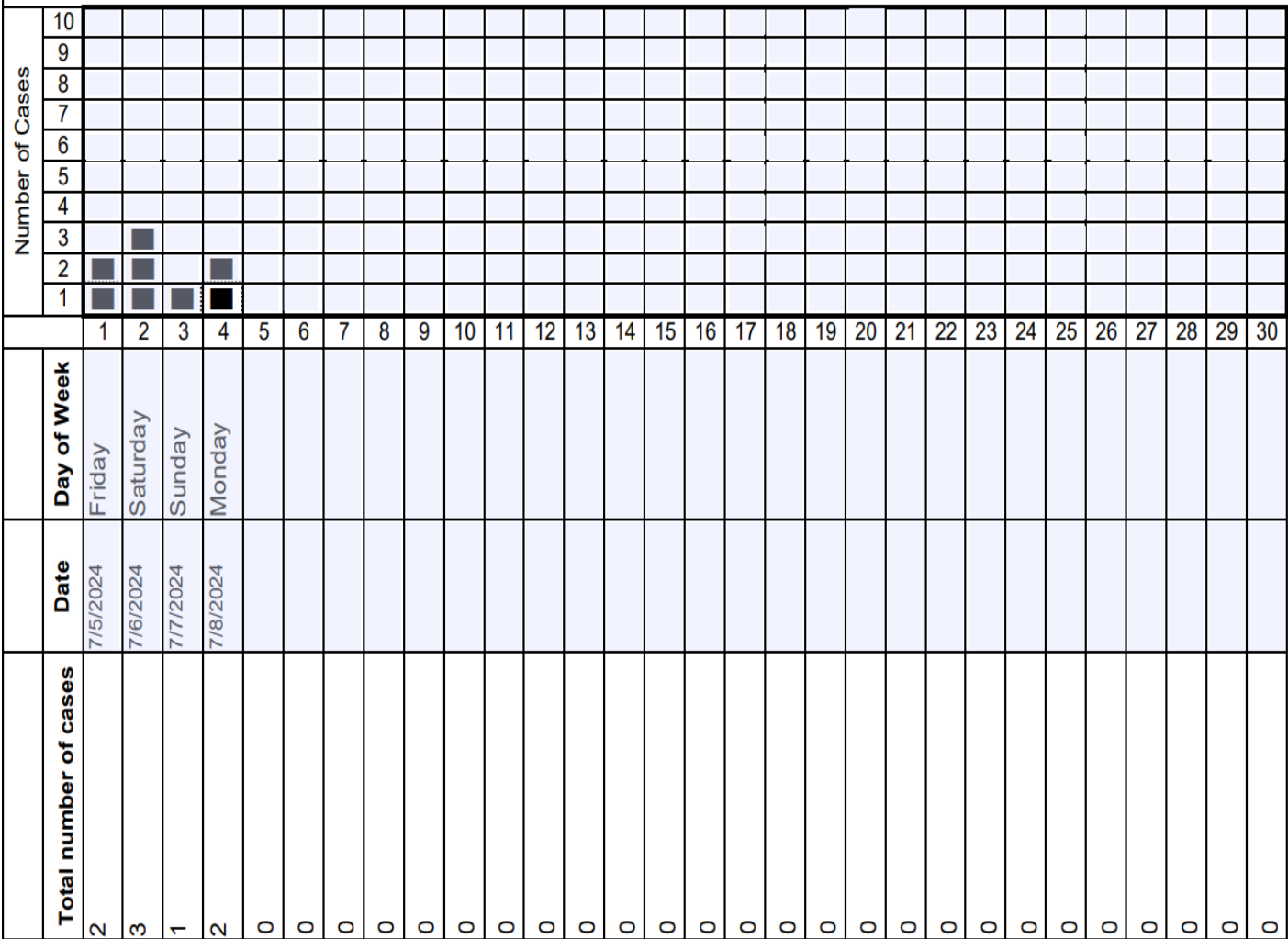
An epidemic curve (or epi curve) is used to display the onset of illness among cases associated with an outbreak of disease. This simple tool can help to show many things about the outbreak: time trends, pattern of spread, likely period of exposure, and the outbreak’s magnitude. The epi curve can help a facility track the outbreak and monitor cases until the outbreak has finished.

The epi curve is a graph with two axes. The horizontal axis shows the date of illness onset for all ill cases. The vertical axis shows the number of cases. Cases are represented by clicking the box on the graph based on the date of their earliest symptom onset. If more than one case’s symptoms began on the same day, these are stacked on the graph.

Instructions

Upon identification of an outbreak, use the epi curve to collect and organize information on cases. During an outbreak, record each case as by clicking the box or marking with an “X” based on the date of the earliest symptoms. Both ill residents and ill HCP members should be included on the graph.

Example



Outbreak Scenario 1

Outbreak scenarios are provided as examples. They are not inclusive of all situations or outbreaks. If your LTCF is struggling with outbreak response, please contact the appropriate public health jurisdiction for assistance.

Important Note: These scenarios are fictitious.

Initial Report

On January 3, a skilled nursing and rehabilitation facility with 60 beds, three units, and 100 HCP members, reported a possible flu outbreak to their state health center.

The facility, which was at full capacity, identified three ill residents and two ill HCP members with influenza-like illness (fever of at least 100°F, plus a cough or sore throat). The outbreak primarily affected unit A, which houses 20 residents and is staffed by 30 employees. The data for ill residents and HCP members reported on January 3rd are in Table 8 and Table 9 below.

Table 8. Ill residents reported on January 3rd, 2024

	Resident 1	Resident 2	Resident 3
Location	Room 101, Unit A	Room 101, Unit A	Room 104, Unit A
Details	75-year-old female, Hospitalized for pneumonia	78-year-old female, Roommate of Resident 1	73-year-old female
Symptoms	Fever (101°F), cough	Fever (101°F), cough	Fever (100°F), cough, sore throat
Onset Date	January 1	January 3	January 3
Testing	Rapid influenza A test - positive Chest radiograph-confirmed pneumonia	Rapid influenza A test - positive	Rapid influenza A test - negative
Up to date Vaccination	Influenza, Pneumococcal, COVID	Influenza, Pneumococcal, COVID, RSV	Influenza, Pneumococcal, COVID, RSV
Treatment	Oseltamivir, start date: January 3	Oseltamivir, start date: January 3	Oseltamivir, start date: January 3

Table 9. Ill HCPs reported on January 3rd

	HCP Member 1	HCP Member 2
Role	Resident-care provider in Unit A only	Housekeeper working in Unit A and other areas
Details	34-year-old female	25-year-old female
Symptoms	Fever (102°F), cough	Fever (101°F), cough, sore throat
Onset Date	December 30	January 3
Testing	Rapid influenza A test - positive	Rapid influenza A test - positive
Up to date Vaccination	Influenza, COVID	COVID
Treatment	Oseltamivir, start date: January 1	Oseltamivir, start date: January 4
Work Status	Excluded from work	Excluded from work

Follow up

On January 5, the nursing home called to report two additional cases, described in Table 10.

Table 10. Additional ill residents reported on January 5th

	Resident 4	Resident 5
Location	Room 105, Unit A	Room 106, Unit A
Details	81-year-old female	86-year-old female
Symptoms	Sore throat (no fever)	Fever (102°F), cough
Onset Date	January 4	January 5
Testing	Rapid influenza A test - negative	Rapid influenza A test - positive
Up to date Vaccination	Influenza, Pneumococcal, COVID, RSV	Pneumococcal, COVID, RSV
Treatment	Oseltamivir, start date: January 4	Oseltamivir, start date: January 5

End of Outbreak

No new cases were reported for 14 days after the onset of the last case (Resident 5). In total, five resident and two employee cases were affected, all from Unit A. This outbreak, laboratory-confirmed as an influenza A outbreak, started on December 30 and ended on January 19. Only one resident was hospitalized, and all cases recovered.

The facility completed and submitted the required outbreak reporting form, case-resident line listings, and outbreak epidemic curve to the community health nurse on January 19 (14 days after the last case's onset). All ill residents were treated promptly with oseltamivir and responded well. Residents exposed to the virus in the affected unit (Unit A) of facility were given prophylactic oseltamivir starting January 4. No further cases were identified, and no one given prophylaxis developed symptoms.

Epidemic Curve and Line List

Number of Cases	10															
	9															
	8															
	7															
	6															
	5															
	4															
	3				X											
	2				X											
	1	X	X		X	X	X									
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Day of Week																
Date		30-Dec	1-Jan	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan	7-Jan							
Total number of cases		1	1		3	1	1									

Figure 12. Epidemic Curve for Outbreak Scenario 1

Patient/staff identifier	P=Patient care F=Food service H=Housekeeping M=Maintenance A=Administrative/clerical O=Other					Onset date	Duration of illness	Fever (Y or N)	(If Fever) Highest temp	Cough (Y or N)	Sore throat (Y or N)	Pneumonia (Y or N)	Other symptoms**	Chest X-ray (+, -, Or NA)	Type of test ordered	Pathogen detected	Current Respiratory vaccinations*	Antiviral treatment (Date started)	Hospitalized (Y or N)	Died (Y or N)	Resolved (Y or N)
	Patient Room Number	Unit	If staff, role	Age	Sex																
	101 A			75 F		1-Jan		Y	101 Y			Y		+		3 FLU A	F, P, C	3-Jan Y	N		
	101 A			78 F		3-Jan		Y	101 Y							3 FLU A	Y	3-Jan N	N		
	104 A			73 F		3-Jan		Y	100 Y	Y						3 NEG	Y	3-Jan N	N		
	A	P		34 F		30-Dec		y	102 Y							3 FLU A	F,C	1-Jan N	N		
			H	25 F		3-Jan		Y	101 Y	Y						3 FLU A	C	4-Jan N	N		
	105 A			81 F		4-Jan				Y						3 NEG	Y	4-Jan N	N		
	106 A			86 F		5-Jan		Y	102 Y							3 FLU A	P, C, R	5-Jan N	N		

Figure 13. Line List for Outbreak Scenario 1

Outbreak Scenario 2

Important Note: These scenarios are fictitious.

Initial Report

On February 14, a long-term care facility reported an outbreak of influenza-like illness to their state health center. They identified two ill residents and two HCP members with influenza-like illness (fever of at least 100°F, plus a cough or sore throat). The information about the ill residents and HCPs reported on February 14th are in Table 11 and Table 12. At this point, an outbreak was identified, and influenza chemoprophylaxis was offered to roommates and residents of the hallway where the outbreak was identified.

Table 11. Ill residents reported on February 14

	Resident 1	Resident 2
Location	Room 103, Unit A	Room 105, Unit A
Details	72-year-old female	74-year-old male
Symptoms	Fever (102°F), cough	Fever (101°F), sore throat
Onset Date	February 12	February 13
Testing	Rapid influenza A test – positive	Rapid influenza A test - positive
Up to date Vaccination	Influenza	Influenza, Pneumococcal, COVID, RSV
Treatment	Oseltamivir, start date: February 13	Oseltamivir, start date: February 14

Table 12. Ill HCPs reported on February 14, 2024

	HCP Member 1	HCP Member 2
Role	Housekeeper working in Unit A	Care provider working in Unit A and other areas
Details	32-year-old female	26-year-old female
Symptoms	Cough, body aches, fatigue	Fever (100°F), runny nose, wheezing
Onset Date	February 11	February 16
Testing	Rapid influenza A test - positive	Rapid influenza A test - negative RSV - positive
Up to date Vaccination	Influenza	Not vaccinated
Treatment	Oseltamivir, start date: February 12	Oseltamivir, start date: February 16
Work Status	Excluded from work on February 12	Excluded from work on February 18

Follow-Up Report

As reported below in Table 13, on February 19, two additional residents in a different unit reported cough and wheezing but no fever. Then three additional residents in Unit B tested positive for RSV, with the last testing positive on February 21.

Table 13. Additional ill residents reported on February 19-21

	Resident 3	Resident 4	Resident 5	Resident 6	Resident 7
Location	Room 204, Unit B	Room 204, Unit B	Room 207, Unit B	Room, 207, Unit B	Room 211, Unit B
Details	82-year-old male	80-year-old male, roommate of Resident 3	87-year-old male	88-year-old male, roommate of Resident 5	93-year-old female
Symptoms	Cough, wheezing (no fever)	Cough, wheezing, runny nose	Fever (100°F), runny nose, wheezing	Headache, Sore Throat	Headache, tiredness, runny nose
Onset Date	February 18	February 19	February 19	February 19	February 21
Testing	Rapid influenza A test – negative Respiratory panel – positive for RSV	RSV - positive	RSV - positive	RSV - positive	RSV - positive
Up to date Vaccination	Influenza and COVID-19	Influenza, Pneumococcal, and COVID-19	Influenza, Pneumococcal, and COVID-19	Influenza, Pneumococcal, and COVID-19	Influenza only
Treatment					

Ill residents were masked and cohorted together to prevent further transmission. Visitation to Unit B was paused, and any ill health care workers were encouraged to stay home until they recovered. A new line list and epidemic curve were completed and submitted to the state health center nurse for the RSV outbreak.

Summary

Influenza A Outbreak (Unit A) ended February 27 (14 days after the last positive test). Fifteen residents and twenty HCP were exposed. Two residents and one HCP became ill. There were no hospitalizations or deaths, and all cases recovered. Prompt antiviral treatment, prophylactic antivirals for exposed residents, influenza vaccination offered to unvaccinated individuals were effective at treating this outbreak. The LTCF submitted the outbreak form and line lists to their local health department.

RSV Outbreak (Unit B) ended March 7 (14 days after the last positive test). Out of those exposed (20 residents and 30 HCP members), five residents and one HCP became ill with RSV. There were no hospitalizations or deaths, and all cases recovered. Important outbreak management steps for this outbreak included symptom management, vaccination encouragement for those who had not been vaccinated for RSV, and the choice to use expanded respiratory panel testing. The LTCF submitted the line list to their local health department.

The facility improved its outbreak responses by promptly treating residents who were ill with influenza, identifying the need for a respiratory panel, and using that information to cohort patients ill with the same virus. Cohorting those with symptoms would have led to cohorting patients with RSV and influenza together, which would have likely led to coinfection with both viruses and ultimately more severe illnesses.

Epidemic Curve and Line List

Number of Cases	10																		
	9																		
	8																		
	7																		
	6																		
	5																		
	4																		
	3								X										
	2							X											
	1	X	X	X		X		X	X		X								
Pennsylvania Department of Health																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	Day of Week																		
	Date	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb							
	Total number of cases	1	1	1			1		1	3		1							

Figure 14. Epidemic Curve for Outbreak Scenario 2

Patient/staff identifier	Patient Room Number	Unit	If staff, role	Age	Sex	Onset date	Duration of illness	Fever (Y or N)	(If Fever) Highest temp	Cough (Y or N)	Sore throat (Y or N)	Pneumonia (Y or N)	Other symptoms**	Chest X-ray (+, -, Or NA)	Type of test ordered	Pathogen detected	Current Respiratory vaccinations*	Antiviral treatment (Date started)	Hospitalized (Y or N)	Died (Y or N)	Resolved (Y or N)
	103	A		72	F	12-Feb		Y	102	Y					3	FLU A	F	13-Feb			
	105	A		74	M	13-Feb		Y	101		Y				3	FLU A	Y	14-Feb			
		A	H	32	F	11-Feb				Y			M								
			P	26	F	16-Feb		Y	100				RN, WHEEZING		2	RSV	N				
	204	B		82	M	18-Feb				Y			WHEEZING		2,3	RSV	F,C				
	204	B		80	M	19-Feb				Y			RN, WHEEZING		2	RSV	F,P,C				
	207	B		87	M	19-Feb		Y	100				RN, WHEEZING		2	RSV	F,P,C				
	207	B		88	M	19-Feb					Y		H		2	RSV	F, P, C				
	211	B		93	F	21-Feb							RN, M, H		2	RSV	F				

Figure 15. Line List for Outbreak Scenario 2

Outbreak Scenario 3

Important Note: These scenarios are fictitious.

On June 17, a long-term care facility reported an outbreak of an unknown respiratory virus to their state health center. The facility identified 12 residents with respiratory symptoms, two of whom have been hospitalized with pneumonia. Details about three of the patients are reported in Table 14. None of the rapid tests have been positive for influenza, RSV, or COVID-19. This is a 100-bed facility with three units, including a rehab unit, a skilled nursing facility, and a dementia care unit. There are 120 HCPs. The facility is at full capacity.

Table 14. Ill residents reported on June 17

	Resident A	Resident B	Resident C
Location	Room 101, Dementia care	Room 104, Dementia care	Skilled nursing facility
Details	99-year-old female	89-year-old male, Hospitalized for pneumonia	97-year-old female, Hospitalized for pneumonia
Symptoms	Cough, nasal congestion, temp: 99°F	Sore throat, cough, nasal congestion, shortness of breath	cough, sore throat, nasal congestion, shortness of breath
Onset Date	June 15	June 16	June 14
Testing	Rapid: Influenza - negative RSV - negative COVID-19 - negative	Rapid: Influenza - negative RSV - negative COVID-19 - negative Urine test for Legionella - negative	Rapid: Influenza - negative RSV - negative COVID-19 - negative Urine test for Legionella - negative
Up to date Vaccination	Influenza, Pneumococcal, COVID	Influenza, Pneumococcal, COVID, RSV	Influenza, Pneumococcal, COVID, RSV

The LTCF tests three newly symptomatic residents and two HCP members with a respiratory panel on June 19. While waiting for the results, more residents become ill. One of the HCP members is hospitalized. See details about the three newly ill residents in Table 15 and 2 HCP members in Table 16.

Table 15. Additional details about ill residents reported on June 19

	Resident D	Resident E	Resident F
Location	Room 114, Dementia care	Room 107, Dementia care	Skilled nursing facility
Details	75-year-old male	88-year-old female	73-year-old female, Hospitalized for pneumonia
Symptoms	Fever (101°F), cough	Sore throat, cough, nasal congestion	Fever (101°F), cough, sore throat, shortness of breath
Onset Date	June 17	June 17	June 19
Testing	Rapid: Influenza - negative	Rapid: Influenza - negative	Rapid: Influenza - negative

	RSV - negative COVID-19 - negative Respiratory Panel – No positives	RSV - negative COVID-19 - negative Respiratory Panel: Human Metapneumovirus - positive	RSV - negative COVID-19 - negative Respiratory Panel Human Metapneumovirus - positive
Up to date Vaccination	Influenza, Pneumococcal, COVID	Influenza, Pneumococcal, COVID, RSV	Influenza, COVID, RSV

Table 16. Additional details about ill HCPs reported on June 19

	HCP A	HCP B
Role	Physical therapist who visits many therapy areas	Care provider working in the Dementia Care unit and other areas
Details	54-year-old female, hospitalized with pneumonia on June 19	26-year-old female
Symptoms	Cough, nasal congestion, shortness of breath	Fever (100°F), nasal congestion
Onset Date	June 16	June 20
Testing	Rapid: Influenza - negative RSV - negative COVID-19 - negative Respiratory Panel: Human Metapneumovirus - positive	Rapid: Influenza - negative RSV - negative COVID-19 - negative Respiratory Panel: Human Metapneumovirus - positive
Up to date Vaccination	Influenza and COVID	Not vaccinated
Work Status	Excluded from work on June 16	Excluded from work on June 20

PA DOH recommends that ill residents are given private rooms when possible, and cohorted with other ill residents (if positive for same virus). HCP are excluded from work and are advised to wear a mask after they return. Additional recommendations to limit the spread of the outbreak include:

- Pausing outside visitation and facility group activities during the outbreak.
- Dedicating specific HCP to the affected unit and limiting HCP movement between units.
- Limiting non-health care HCP (food HCP, admin) access to affected unit.
- Offering respiratory vaccines, including influenza, RSV, COVID-19, and pneumococcal to all unvaccinated residents and HCP

Despite interventions, the outbreak spreads to a third unit, the rehab wing of the facility that previously had no ill patients. One HCP and two residents in the rehab unit are ill with similar respiratory symptoms. One additional resident in the dementia care unit becomes ill. All are tested with a respiratory panel to confirm no new pathogens are in the facility. If a different pathogen is present, different prophylactic or treatment options may be available. This knowledge is also necessary for the appropriate cohorting of patients.

Table 17. Additional details about ill residents reported on June 22

	Resident G	Resident H	Resident I
Location	Room 114, Dementia care unit	Room 318, Rehab unit	Room 321, Rehab unit
Details	98-year-old male	67-year-old female, Roommate of Resident 1	55-year-old male, Hospitalized for pneumonia
Symptoms	Sore throat, cough, nasal congestion, temp: 99.8°F	Sore throat, cough, nasal congestion	Fever (101°F), cough, sore throat, shortness of breath
Onset Date	June 21	June 22	June 24
Testing	Rapid: Influenza - negative RSV - negative COVID-19 - negative Respiratory Panel – No positives	Rapid: Influenza - negative RSV - negative COVID-19 - negative Respiratory Panel: Human Metapneumovirus - positive	Rapid: Influenza - negative RSV - negative COVID-19 - negative Urine test for Legionella – negative Respiratory Panel Human Metapneumovirus - positive
Up to date Vaccination	Influenza, Pneumococcal, COVID	Influenza, Pneumococcal, COVID, RSV	Influenza, Pneumococcal, COVID, RSV

HCP C

Role	Housekeeping HCP working only in the rehab wing of the facility
Details	32-year-old male
Symptoms	Cough, nasal congestion, fever (101°F)
Onset Date	June 16
Testing	Rapid: Influenza - negative RSV - negative COVID-19 - negative Human Metapneumovirus - positive
Up to date Vaccination	Influenza and COVID
Work Status	Excluded from work on June 16

Cases slow down with continued implementation of the interventions. An HCP tested positive on June 30th. Fourteen days after no new resident cases, the outbreak closed on July 15th.

Epidemic Curve and Line List

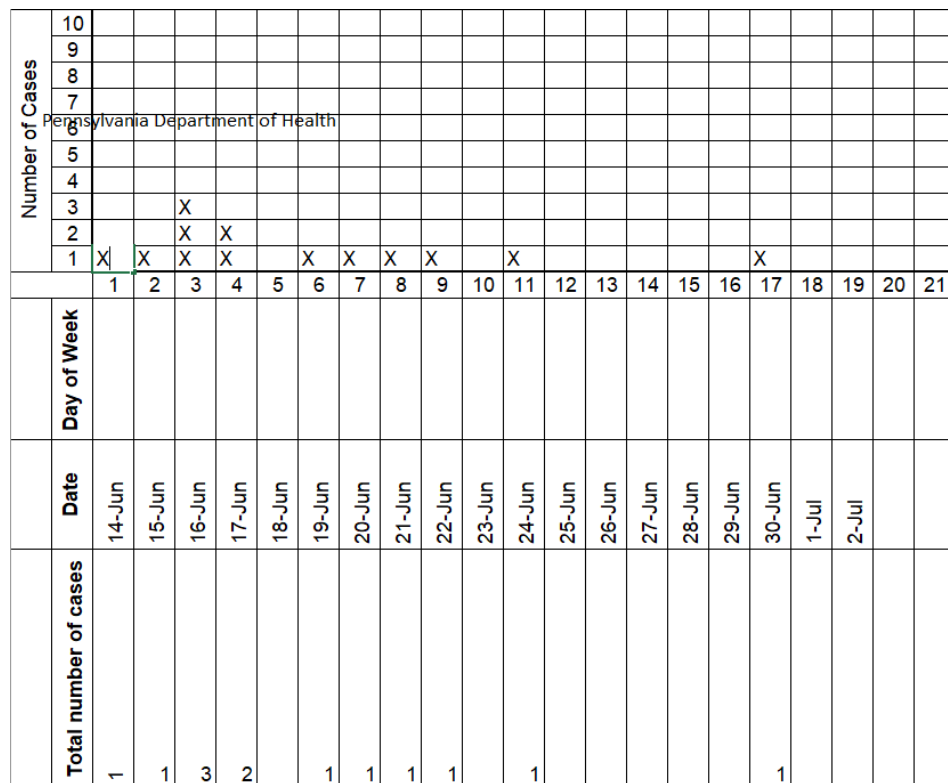


Figure 16. Epidemic Curve for Outbreak Scenario 3

Patient/staff identifier	Patient Room Number		Unit	Age	Sex	Onset date	Duration of illness	Fever (Y or N)	(If Fever) Highest temp	Cough (Y or N)	Sore throat (Y or N)	Pneumonia (Y or N)	Other symptoms**	Chest X-ray (+, -, Or NA)	Type of test ordered	Pathogen detected	Current Respiratory vaccinations*	Antiviral treatment (Date started)	Hospitalized (Y or N)	Died (Y or N)	Resolved (Y or N)
	Patient	Staff																			
	101	D		99	F	15-Jun				Y			CO		3	NEG	F, P, C				
	104	D		89	M	16-Jun				Y	Y	Y	CO, SB	3, 4	NEG	Y		Y			
		S		97	F	14-Jun				Y	Y	Y	CO, SB	3, 4	NEG	Y		Y			
	114	D		75	M	17-Jun	Y		101	Y				3, 4	NEG	F, P, C					
	107	D		88	F	17-Jun				Y	Y		CO	3, 4	HmPV	Y					
		S		73	F	19-Jun	Y		101	Y	Y	Y	SB	3, 4	HmPV	F, C, R		Y			
		P		54	F	16-Jun				Y		Y	CO, SB	3, 4	HmPV	F, C		Y			
		P		26	F	20-Jun	Y		100				CO	3, 4	HmPV	N					
	114	D		98	M	21-Jun				Y	Y		CO	3, 4	NEG	F, P, C					
	318	R		67	F	22-Jun				Y	Y		CO	3, 4	HmPV	Y					
	321	R		55	M	24-Jun	Y		101	Y	Y	Y	SB	3, 4	HmPV	Y		Y			
		R	H	32	M	16-Jun	Y		101	Y			CO	3, 4	HmPV	F, C					

Figure 17. Line List for Outbreak Scenario 3

Outbreak Scenario 4

Important Note: These scenarios are fictitious.

On December 1, a long-term care facility, with 90 residents and 100 HCPs, experienced an outbreak of influenza. Initially, five residents in the skilled nursing unit showed symptoms of fever, cough, and body aches. The facility suspected the flu but delayed reporting it to the state health department and didn't take immediate action to isolate sick residents. No diagnostic tests were performed, and no restrictions on visitors or group activities were put in place.

By December 5, 12 more residents across all three units, including the dementia care and rehab wings, began showing flu-like symptoms. Two of these residents were hospitalized with pneumonia. Some HCPs also became ill but continued working because of HCP shortages. There was no effort to cohort sick residents or limit HCP movement between the units.

Table 18. Initially ill residents, reported ill December 1-4

	Resident A	Resident B	Resident C
Location	Room 101, Skilled Nursing	Room 204, Rehab Unit	Room 312, Dementia Care
Details	85-year-old male	78-year-old male	92-year-old male
Symptoms	Fever, cough, fatigue	Fever, cough, shortness of breath	Fever (100°F), body aches
Onset Date	December 3	December 4	December 1
Testing	Rapid influenza A test – positive	Rapid influenza A test – positive	Rapid influenza A test – positive
Up to date Vaccination	None	Influenza, and COVID-19, and RSV	Influenza, Pneumococcal, and COVID-19
Hospitalization	No	Yes, pneumonia	No

HCP in various roles, including nurses, housekeeping, and kitchen HCP, became sick as well. No policies were put in place to exclude them from work, so many continued working while sick, further spreading the virus.

	HCP A	HCP B	HCP C
Role	Nurse	Housekeeper	Cook
Details	54-year-old female	26-year-old female	29-year-old male
Symptoms	Fever, cough, body aches	Fever, nasal congestion	Fever, fatigue
Onset Date	December 5	December 6	December 7
Testing	Rapid influenza A test – positive	Rapid influenza A test – positive	Rapid influenza A test – positive
Up to date Vaccination	Influenza and COVID	Not vaccinated	Not vaccinated
Work Status	Continued working	Continued working	

Despite the growing number of illnesses among residents and HCP, the facility failed to limit HCP movement between units. Sick HCP continued caring for both healthy and ill residents, further spreading the virus. No vaccinations were offered to unvaccinated residents or HCP, despite the facility having access to influenza vaccines. Prophylactic use of oseltamivir (Tamiflu) was not utilized.

By December 12, the outbreak worsened. More than 30 residents were sick, and eight were hospitalized, three of whom were on ventilators due to severe pneumonia. Four residents passed away due to complications from influenza. At this point, nearly half of the HCP were sick, and some residents had no caregivers, further neglecting basic infection control measures.

Table 19. Residents that were hospitalized or deceased by December 12, 2024

	Resident D	Resident E	Resident F	Resident G
Location	Room 102, Skilled Nursing	Room 206, Rehab Unit	Room 310, Dementia Care	Room 112, Skilled Nursing
Details	89-year-old female	95-year-old female	83-year-old male	88-year-old male
Symptoms	Fever, cough, fatigue	Fever, cough, shortness of breath	Fever (100°F), body aches	Fever, cough, shortness of breath
Onset Date	December 7	December 8	December 8	December 7
Testing	Rapid influenza A test – positive	Rapid influenza A test – positive	Rapid influenza A test – positive	Rapid influenza A test – positive
Up to date Vaccination	None	Influenza, Pneumococcal, and COVID-19, and RSV	Influenza, Pneumococcal, and COVID-19	RSV only
Hospitalization	Yes, pneumonia	Yes, severe flu	Yes, ventilator	Yes, Pneumonia
Outcome	Deceased	Deceased	Survived	Deceased

It wasn't until December 15, when the facility finally contacted the state health department, that proper outbreak control measures were put into place. All visits were stopped, group activities were canceled, and sick residents were finally isolated. However, by this time, the outbreak had already spread to nearly 75% of the facility's residents, with 12 deaths and dozens of hospitalizations.

The failure to follow basic outbreak protocols, such as reporting early, isolating sick residents, excluding ill HCP from work, and offering flu vaccines, led to a preventable massive outbreak.

Line List

Patient/staff identifier	Patient Room Number	P=Patient care F=Food service H=Housekeeping M=Maintenance A=Administrative /clerical O=Other			Sex	Onsetdate	Duration of illness	Fever (Y or N)	(If Fever) Highest temp	Cough (Y or N)	Sore throat (Y or N)	Pneumonia (Y or N)	Other symptoms**	Chest X-ray (+, -, Or NA)	Type of test ordered	Pathogen detected	Current Respiratory vaccinations *	Antiviral treatment (Date started)	Hospitalized (Y or N)	Died (Y or N)	Resolved (Y or N)	
		Unit	If staff, role	Age																		
	101	S		85	M	3-Dec		Y		Y			M			3	FLU A	N	4-Dec	N	N	
	204	R		78	M	4-Dec		Y		Y		Y	SB			3	FLU A	F, C, R	4-Dec	Y	N	
	312	D		92	M	1-Dec		Y	100				F			3	FLU A	R, P, C	2-Dec	N	N	
			P	54	F	5-Dec		Y		Y			M			3	FLU A	F, C		N	N	
			H	26	F	6-Dec		Y					CO			3	FLU A	N		N	N	
			F	29	M	7-Dec		Y					M			3	FLU A	N		N	N	
	102	S		89	F	7-Dec		Y		Y		Y	M			3	FLU A	N		Y	Y	
	206	R		95	F	8-Dec		Y		Y			SB			3	FLU A	Y		Y	Y	
	310	D		83	M	8-Dec		Y	100				M			3	FLU A	F, P, C		Y	N	
	112	S		88	M	7-Dec		Y		Y		Y	SB			3	FLU A	R		Y	Y	

Figure 18. Line List for Scenario 4

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Appendices

Appendix A: Respiratory Disease Background

Influenza:

Influenza, or the flu, is a contagious illness caused by flu viruses. It primarily affects the nose, throat, and lungs. The flu is caused by different types of viruses called influenza A and influenza B. In the United States, the number of people with flu usually starts increasing in the fall, with the highest number in the winter.

Young children, older adults, pregnant people, and people with chronic health conditions (like asthma, diabetes, or heart disease) are most at risk of severe illness.

Antivirals can be prescribed to treat influenza. They are best given within two days of symptom onset. Chemoprophylaxis can be given to asymptomatic exposed persons to prevent infection

[Flu | Department of Health | Commonwealth of Pennsylvania](#)

RSV:

Respiratory syncytial (sin-SISH-ul) virus, or RSV, is a common respiratory virus that usually causes mild, cold-like symptoms. However, RSV can cause serious illness in infants, some young children, and older adults.

RSV spreads through coughing, sneezing, contact (like kissing the face of a child who has RSV), and contaminated surfaces. Transmission generally starts in the fall and peaks in the winter in most of the United States.

[About RSV | RSV | CDC](#)

[RSV | Department of Health | Commonwealth of Pennsylvania](#)

COVID-19:

COVID-19 is a contagious respiratory illness caused by the SARS-CoV-2 coronavirus that can infect your nose, throat, lungs, and other organs. Anyone sick with COVID-19 can have a wide range of symptoms, ranging from mild symptoms to severe illness. Signs of being sick may appear 2-14 days after exposure to the virus.

You can pass COVID-19 to someone else both before, while, and after you are sick. Most people are contagious five to seven days after becoming sick. Some people become infected with the virus without feeling sick at all. Young children and people with weakened immune systems may be able to infect others for a longer period of time.

[Coronavirus | Department of Health | Commonwealth of Pennsylvania](#)

Human Metapneumovirus:

Human metapneumovirus (HMPV) is a viral illness that spreads easily and affects your respiratory system (lungs, nose, airway). It can make anyone sick, but is more serious in young children, older people, and those with chronic lung or heart problems.

HMPV can cause bronchitis or pneumonia. You might get sick three to six days after exposure. Most people feel better within seven to 10 days. The duration of illness varies based on the severity. Not everyone gets all these symptoms or a fever.

HMPV usually circulates from winter to spring and sometimes summer. It can spread at the same time as respiratory syncytial virus (RSV) and influenza. Doctors may not always check for HMPV, so they should consider testing in winter and spring if other respiratory illnesses are ruled out.

[Human Metapneumovirus Fact Sheet](#)

Adenovirus:

There are several types of adenoviruses. Types 3, 4, and 7 can cause severe illness. Type 14 has caused outbreaks in colleges and nursing homes. Adenovirus illnesses are usually mild but can be severe.

People, especially those with weak immune systems, can spread the virus even after they feel better. Some people can spread the virus without showing any symptoms.

Adenoviruses resist common disinfectants, so use an EPA-registered product effective against them. These disinfectants can be found [here](#).

[Adenoviruses Factsheet](#)

Rhinovirus

Rhinoviruses are the most frequent cause of the [common cold](#) and are a common viral trigger for asthma attacks. Most rhinovirus infections cause no symptoms or mild symptoms. If you do develop symptoms, they often last less than 7 days but can last up to 2 weeks. They can also cause severe illness, especially if you have a [weakened immune system](#), asthma, or another underlying medical condition.

There are no immunizations to prevent rhinovirus infection.

[About Rhinoviruses](#) | [Rhinoviruses](#) | [CDC](#)

Parainfluenza

Human parainfluenza viruses (HPIVs) commonly cause upper and lower respiratory illnesses in infants, young children, older adults, and people with weakened immune systems, but anyone can get infected. Symptoms generally appear 2 to 6 days after infection.

There are four types of HPIVs (1-4) and two subtypes (4a and 4b). Currently, there is no vaccine to protect you against infection caused by HPIVs.

In the United States, infections associated with HPIV-1 usually peak every other year. Infections with HPIV-2 also peak every other year, during the years when HPIV-1 is low. HPIV-3 usually has peaks annually,

particularly when HPIV-1 and HPIV-2 are low. Infections with HPIV-4 are less well-defined but appear to occur yearly.

[About Human Parainfluenza Viruses \(HPIVs\) | HPIVs | CDC](#)
[Clinical Overview of Human Parainfluenza Viruses \(HPIVs\) | HPIVs | CDC](#)

Seasonal Coronaviruses

There are four common types of human coronaviruses (HCoVs), and they generally cause mild upper respiratory illness. These are called “alpha” coronaviruses and are different from “beta” coronaviruses, which include SARS, MERS, and SARS CoV-2.

There is no vaccine to prevent HCoV infection.

[Seasonality of Common Human Coronaviruses, United States, 2014–2021 - Volume 28, Number 10—October 2022 - Emerging Infectious Diseases journal - CDC](#)

Appendix B: Respiratory Specimen Collection and Shipping Instructions

These instructions are for any respiratory specimen going to the state public health lab (Bureau of Laboratories). Kits can be obtained by reaching out to your local health department or state health center.

Specimen Collection

1. Nasopharyngeal swabs are collected in 15 mL screw capped tube with 3 mL of transport medium (e.g., VTM, UTM). Store at room temperature until use. Cotton-tipped swabs with wooden shafts are NOT acceptable and will be rejected.
2. Label tube with patient’s first name, last name, date of birth (DOB), and collection date.
3. Specimen label MUST match submission form, or specimen may be rejected.
4. Specimens should be collected within 1-4 days of the onset of symptoms.
5. All respiratory swabs collected from the same patient should be inserted into the same tube of transport media, one tube per patient.
6. Refrigerate specimens until ready for packaging and shipping. If the specimens cannot arrive at the Bureau of Laboratories within 24-48 hours of collection, freeze and ship them frozen the next business day.

Acceptable Specimens for Influenza Testing

1. Nasopharyngeal swabs (NP – preferred and required for the full respiratory panel)

- Pass the NP swab through the nares. (See diagram below)
- Resistance will be met, and this will confirm contact with the nasopharynx.
- Rub the swab tip several times across the mucosal surface. This will loosen and collect cellular material.
- Allow a time of contact of up to 30 seconds.
- Withdraw the swab and place in the viral transport media. Make sure liquid medium covers the swab tip.
- Break or cut the end of the swab and screw the vial lid on tightly.

2. Oropharyngeal (OP) or Throat Swab

- Using plastic handled swab, vigorously swab both the tonsils and the posterior pharynx. (See diagram below)
- Place swab into the transport media. Make sure liquid medium covers the swab tip.
- Break or cut the end of the swab. Screw the vial lid on tightly.

3. Anterior Nasal

- Insert the entire soft end of the swab into your nostril no more than $\frac{3}{4}$ of an inch (1.5 cm). (See diagram below)
- Slowly rotate the swab, gently pressing against the inside of your nostril at least 4 times for a total of 15 seconds. Get as much nasal discharge as possible on the soft end of the swab.
- Gently remove the swab.
- Using the same swab, repeat swabbing in your other nostril with the same end of the swab.
- Place the swab in the sterile tube and snap off the end of the swab at the break line, so that it fits comfortably in the tube. Place the cap on the tube and screw down tightly to prevent leakage.

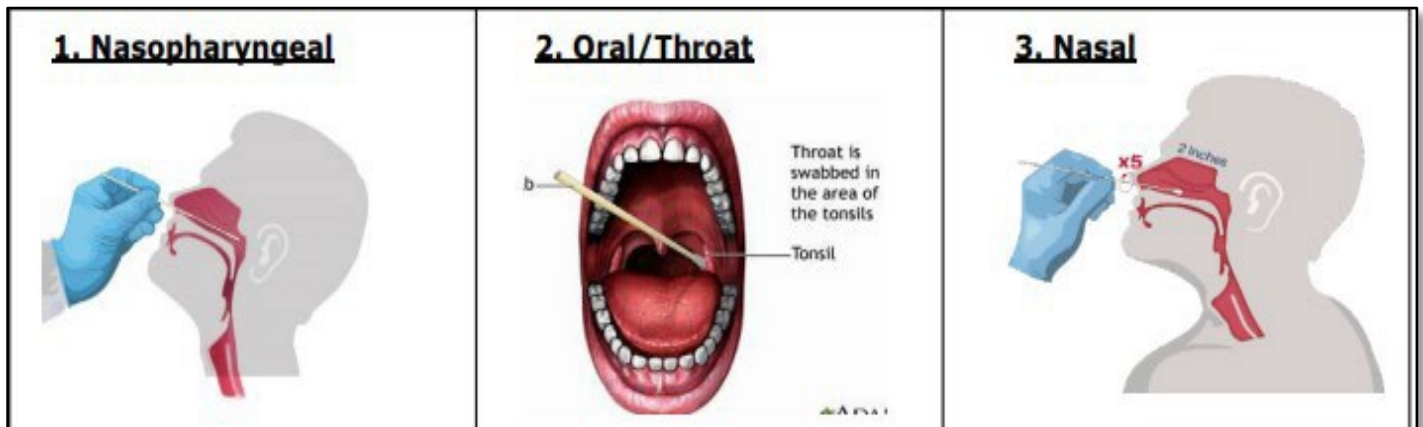


Figure 16. Images demonstrating specimen collection sites

BOL Specimen Submission Form

- Please include a submission form with each test request: LTCF Outbreak. Testing will not be initiated without the required fields. Use this [BOL Micro Specimen Submission Form.pdf](#).
 - Patient name (last, first, middle), street address, city, zip code, and county. DOB, sex, date of onset, date of collection, specimen source, and collection date.
 - Submitter name, complete address, and contact information, including both phone and fax number.
 - Test requested from BOL - LTCF Outbreak
- Label the specimen with patient's name, DOB, the specimen source, and the collection date.
 - Patient's information on the specimen submission form must match the information on the specimen container or else testing will NOT be performed

Specimen Packaging and Storage Instructions

1. Place the tube in the compartment of the biohazard bag and seal the bag. Place the paperwork in the outer pocket of the biohazard bag.
2. Ship the specimen as soon as possible after collection. In case of delay, store the specimen at 2 - 8°C until shipping and no longer than 72hrs. If a longer delay in shipping is anticipated, freeze the specimen at -20°C or lower. Use sufficient Dry ice or Include Frozen Ice-cold pack (Multiple packs to keep it very cold) with the shipment to maintain the required temperature during transit.

Caution: Temperature is checked upon receipt. Specimens not maintained at 2–8°C for up to 72 hours, or at –20°C or lower beyond 72 hours, will be subject to immediate rejection.

3. Ship as a Category B diagnostic specimen to the address on the submission form and include a return address.
 - a. Address the package to: PA Department of Health, Bureau of Laboratories, 110 Pickering Way, Exton, PA 19341
4. Call Quick Courier at 800-355-1004 to request overnight pickup of a "Pickup Account #PADOH-RESP" package for next-day delivery to the Bureau of Laboratories.
5. For regular surveillance specimens, a dispatcher will pick up the specimen and deliver it to the Bureau of Laboratories the next business day. Calls to Quick Courier must be made by noon for delivery the next business day.
6. Do not ship specimens out on Fridays, weekends, days before a holiday, or on holidays.
7. To submit a "subtype negative" influenza A virus specimen, send email to ra-dhpabolab_flu@pa.gov with the following information or for any questions.
 - Facility name,
 - Facility address,

- Pick-up location,
- Point-of-contact: name, email, and phone number,
- Number of packages,
- Time packages will be ready for pickup,
- Hours available for pickup,
- Patient initials, and patient's DOB

Appendix C: Sample Letter for Resident's Family

[Insert Facility Letterhead or Logo]

[Insert Date]

Dear Family Member:

We are writing to let you know that [Name of Facility] is taking special precautions with visitors and residents for the next few weeks because of an increase in respiratory illness in the facility. Although anyone can get ill, it is most serious in the elderly, very young children, in people with chronic illnesses (such as lung disease, cancer, heart disease, or diabetes), or those with weakened immune systems. Respiratory viruses can spread easily via discharges from the nose and throat, usually when an infected person coughs or sneezes. We are committed to doing everything possible to protect our residents.

- We have separated the resident(s) who are sick to reduce their contact with other residents.
- Group activities will be limited or discouraged.
- If residents or healthcare personnel have not been vaccinated for flu, COVID-19, or RSV, they are now being offered vaccine.
- Specific infection control precautions are being used during this period.

While we are not restricting visitors to the facility at this time, we ask that you do the following to help us prevent further spread of illness among residents:

- Do not visit the facility if you are sick. Wait to visit until you have been without a fever for at least 24 hours (without the use of fever-reducing medication) and symptoms are improving.
- If visiting a resident who has symptoms, wear a mask (provided at reception).
- Wash your hands (or use alcohol-based hand sanitizer) upon arrival to the facility and after your visit is over.
- Get flu and COVID-19 shots if you have not already done so.

We appreciate your cooperation in helping us to manage this situation and will let you know when the respiratory virus outbreak precautions are no longer necessary. If you have any questions in the meantime, please contact the [Director of Nursing].

Sincerely,

[Facility Administrator / Director of Nursing]

Appendix D: Additional Signage and Resources

[Clean Hands Count Materials | Clean Hands | CDC](#)

[Print Materials, Graphics and More | Project Firstline | CDC](#)