DEPARTMENT OF PUBLIC HEALTH & HUMAN SERVICES

MONTANA COMMUNICABLE DISEASE EPIDEMIOLOGY

2023 Influenza, COVID-19, and RSV Surveillance Guide

Montana Department of Public Health and Human Services

Communicable Disease Epidemiology

Version 2: 9/12/2023

For Local Health Jurisdiction Use Only

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Abbreviations

ARI	Acute Respiratory Illnesses	ILI	Influenza-Like Illness
CCDM	Control of Communicable Diseases Manual	NA	Neuraminidase
CDEpi	Communicable Disease Epidemiology	P&I	Pneumonia and Influenza
COVID-19	Coronavirus Disease 2019	PCR	Polymerase Chain Reaction
Flu	Influenza	RIDTs	Rapid influenza diagnostic tests
FluView	Weekly U.S. Influenza Surveillance Report	RSV	Respiratory Syncytial Virus
ICP/HAI	Infection Control and Prevention/Healthcare-Associated Infections	RT-PCR	Reverse transcription polymerase chain reaction

Introduction

Purpose

This guide is designed to aid in the investigation of cases and/or outbreaks of influenza, COVID-19, or RSV in non-healthcare settings. The materials in this guide may assist with education and communication efforts during case or outbreak investigation and response. Materials in this guide were created by Montana Department of Public Health and Human Services (MTDPHHS) Communicable Disease Epidemiology Section and represent guidance as of August 2023.

Audience

The intended audience for this document is local health jurisdictions in Montana. Please do not distribute this document to any key surveillance partners.

Contact Information

- Communicable Disease Epidemiology (CDEpi)
  - Cases/Outbreaks in non-healthcare settings are monitored by the CDEpi team with MTDPHHS.
  - The CDEpi team is available to assist with investigations in non-healthcare settings. They can be reached at 406-444-0273.
- Infection Control and Prevention/Healthcare-Associated Infections (ICP/HAI) Section
  - Cases/Outbreaks in healthcare settings are monitored by the ICP/HAI team with MTDPHHS.
  - The ICP/HAI section is available to assist with questions related to investigations and infection control and prevention in healthcare settings. They can be reached at 406-444-0273.

A Note About Other Acute Respiratory Illnesses (ARIs)

There are many other ARIs, including but not limited to rhinoviruses, parainfluenza viruses, human metapneumoviruses, and enteroviruses. This guidance document focuses on COVID-19, influenza, and RSV as they are the most common febrile respiratory illnesses observed in Montana, have established surveillance protocols, and often have more severe health outcomes.

For information about other AFRIs, please reference your Control of Communicable Diseases Manual (CCDM) or resources from the CDC.

What's Reportable?

Administrative Rule of Montana 37.114.203

Influenza

- Laboratory confirmed cases (reported in aggregate on a weekly basis throughout the influenza season)
- Hospitalizations and deaths
- Outbreaks

COVID-19

- Confirmed and probable cases
- Hospitalizations and deaths
- Outbreaks

RSV

- Deaths in children younger than 5 years (voluntary)
- Outbreaks

Reporting Deadlines

Administrative Rule of Montana 37.114.204

	Facility → Local Health Department*	Local Health Department → MTDPHHS
Influenza Cases (Laboratory Confirmed)	**Immediately**	Weekly
Influenza, Hospitalizations and Deaths	**Immediately**	**24 hours**
Influenza, Outbreaks	**Immediately**	**24 hours**
COVID-19 Cases	**Immediately**	7 days
COVID-19 Hospitalizations and Deaths	**Immediately**	7 days
COVID-19 Outbreaks (Non-healthcare setting)	**Immediately**	**24 hours**
RSV Deaths in Children <5 years	Voluntary	Voluntary
RSV Outbreaks	**Immediately**	**24 hours**

*Administrative Rule of Montana 37.114.201 states that individuals must report known or suspected cases or outbreaks of communicable disease immediately to their local health department. Work closely with facilities in your jurisdiction to establish reasonable notification timelines (e.g., non-hospitalized COVID-19 cases during business hours).

Influenza (Seasonal)

Background

Influenza (flu) is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and sometimes the lungs. It can cause mild to severe illness, and at times can lead to death. Influenza viruses spread year round, but activity tends to peak between December and February.

Signs & Symptoms

Symptoms typically begin **abruptly** about two days following an exposure. It is possible that an infected person can spread the virus before their symptoms begin. Additionally, an infected person that remains asymptomatic may be able to spread the virus to their close contacts.

- fever* and/or chills
- cough
- sore throat
- runny or stuffy nose
- muscle or body aches
- headaches
- fatigue (tiredness)
- shortness of breath
- behavioral changes (grouchiness, listlessness, etc.; more common in individuals ≥ 65 years old).
- vomiting and diarrhea (more common in children)

*It's important to note that not everyone with the flu will exhibit a fever.

Influenza-Like Illness (ILI)

Individuals who have a fever AND a cough or sore throat. Individuals seeking outpatient care (e.g., emergency department visits) who are classified as having ILI without laboratory confirmed influenza are reported through ILINet. Individuals with ILI are not included in weekly influenza counts.

Transmission

Flu spreads person to person by **droplets** that are expelled when someone infected with flu coughs, sneezes, or talks. Less common, a person may contract flu by touching a surface or object that has flu virus on it and then touching their own mouth, nose, or possibly their eyes.

People with the flu are most contagious in the first three to four days after their illness begins. However, infants and people with weakened immune systems who are infected may be contagious for longer than seven days.

Diagnosis

A person's respiratory illness may be influenza if they have compatible symptoms. Flu viruses usually cause illness during the colder months of the year, but it is not unusual to see cases outside of the typical flu season (e.g., June-September).

Numerous tests are available to detect flu viruses in respiratory specimens.

- More Common:
    - **Rapid influenza diagnostic tests (RIDTs)**: work by detecting antigens that stimulate an immune response. Results are ready within 10-15 minutes. Not as accurate as other flu tests. Also referred to as rapid antigen tests.
    - **Rapid molecular assays**: (e.g., Cepheid) work by detecting genetic material (RNA) of the flu virus. Results are ready within 15-20 minutes and are more accurate than RIDTs.
    - **Reverse transcription polymerase chain reaction (RT-PCR)** (e.g., Biofire, testing at MTPHL)
- Less Common:
    - Viral culture
    - Immunofluorescence assays

RIDTs (rapid antigen tests) have a high rate of false positive results early in the flu season, when flu isn't considered to be "circulating widely". Montana DPHHS recommends that providers order an RT-PCR test to confirm flu in individuals who test positive with an RIDT early in flu season.

- **At the beginning of the flu season:** After your jurisdiction has 3 confirmatory RT-PCR tests during the beginning of the flu season, you may begin including RIDT positives in your aggregate weekly counts. Until then, please only include PCR confirmed cases in your aggregate weekly flu case counts. Consult with CDEpi if you have questions.
- **Once statewide influenza circulation has been confirmed:** You can count any positive test (PCR or RIDT) as part of your aggregate flu case counts.

Individuals with a negative flu test that are exhibiting ILI may still be infected with influenza. These cases should not be included in weekly aggregate counts.

Management of Patient

Influenza cases should **isolate** for the initial 5-7 days of illness and possibly longer for patients who could be infectious for longer periods, including those with immunocompromising conditions. Both **standard** and **droplet** precautions are recommended. For hospitalized patients, they ideally should be placed in single-patient rooms or, if this is not possible, placed in a room with patients with similar illness (cohorting). When cohorting is used, adequate spacing between beds should be provided for droplet precautions. Individuals diagnosed with influenza or experiencing flu-like symptoms should stay home for at least 24 hours after their fever is gone.

Early administration of antiviral drugs (i.e., oseltamivir or Tamiflu) ideally within 48 hours of symptom onset, can reduce the risk of severe complications and death. The CDC recommends antiviral treatment as soon as possible for any patient with suspected or confirmed influenza who: is hospitalized; has severe, complicated, or progressive illness; or is at higher risk for influenza complications. For more information, visit: https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm

Patients should be observed for secondary infections such as bacterial pneumonia.

Types of Flu Viruses (Seasonal)

There are two main types of human flu viruses: types A and B. The flu A and B viruses that routinely spread in people are responsible for seasonal flu epidemics each year. Flu A can be subtyped into various strains. Listed below are the current routinely circulating influenza A and B viruses.

- **Influenza A**
    - H1N1 subtype: Currently circulating influenza A (H1N1) viruses are related to the pandemic 2009 H1N1 virus.
        - Individuals with H1N1 should not be considered to have “swine flu” unless they have had exposure to swine within 10 days of symptom onset and their molecular test result is listed as “Influenza A, unsubtypable”. Consult with CDEpi on these cases.
    - H3N2 subtype
- **Influenza B** (typically circulates later in the flu season)
    - Victoria lineage
    - Yamagata lineage

Prevention

- Vaccinate: The CDC recommends a yearly flu vaccine as the first and most important step in protecting against flu infection. Flu vaccines help reduce hospitalizations and deaths, as well as the burden of flu illnesses on the health care system. There are various flu vaccines available that help keep individuals protected against the four routinely circulating influenza A and B viruses.
- Avoid contact with sick individuals. If you are sick, avoid contact with others to keep from infecting them.
- Cover coughs and sneezes.
- Wash your hands often with soap and water. If soap and water are unavailable, use an alcohol-based hand rub.
- Avoid touching your eyes, nose, and mouth.
- Clean and disinfect frequently touched surfaces and objects.

Outbreaks

- **Outbreak definition (all settings)**: **Two laboratory-confirmed cases** of influenza within a defined cohort within 72 hours constitutes an active outbreak.
    - After two cases have been confirmed with laboratory testing, you can epi-link additional cases and reserve testing for specific situations (e.g., an individual develops symptoms after 7 days with no one reporting symptoms or testing positive).
    - Note: Use discretion! If both cases are individuals with no known contact (e.g., a positive flu in a 5th grader and a positive flu in a 1st grader who have no interactions with each other), outbreak protocol can be delayed. We need to see transmission within a cohort or group (e.g., 2 positive flu tests in a classroom) in order to call it an outbreak.
    - One case of influenza should initiate enhanced surveillance in a congregate setting. Consider implementing testing protocols to identify potential new cases and to help catch and mitigate an outbreak early.
- **Outbreak length**: The incubation period for flu ranges from 1-4 days. CDEpi uses **8 days** with no new cases or symptomatic individuals within the cohort as the criteria needed to close the outbreak.
- **Isolation**: All persons with or suspected of having influenza should be isolated for 5-7 days of illness. Individuals should be fever-free for at least 24 hours before being released from isolation.

Reporting Instructions and Requirements

Aggregate Case Counts

Each week during which a laboratory-confirmed case of influenza is reported to the local health officer, the officer must transmit by secure electronic means to the department on Friday of that week the total number of cases of influenza reported. There are two primary methods for reporting this information to CDEpi. If you report through one method, you do not need to report with the other method.

*NOTE: Even if your county has 0 cases reported during a week, please report that via one of the methods below!

- MIDIS (not applicable for tribal jurisdictions): Instructions for reporting weekly aggregate cases in MIDIS can be found in Appendix C.
- JotForm (only for use in tribal jurisdictions): Use the following link to submit your aggregate flu counts through JotForm.

  https://form.jotform.com/232146212559150

Outbreaks

Please notify CDEpi of known or suspected outbreaks of influenza within 24 hours of the outbreak being identified. We recommend reviewing the outbreak report form prior to discussing the outbreak with the facility to ensure you know all components that are required to be reported.

Individuals who should be counted as cases in an outbreak:

- Anyone who has tested positive with any method.
- Anyone who is symptomatic and has a valid exposure but has not been tested.

You can notify CDEpi and the ICP/HAI team of outbreaks by completing the initial outbreak reporting form on JotForm located here: https://hipaa.jotform.com/app/223254785775165/page/5.

Hospitalizations and Deaths

Hospitalizations due to influenza are defined as individuals who were hospitalized more than 24-hours due to illness (e.g., someone admitted and discharged within the same day would not count as an influenza hospitalization). Please create an investigation in MIDIS for individuals who were hospitalized or who died due to influenza. Instructions for creating an Influenza Hospitalization or Death investigation in MIDIS can be found in Appendix D.

Note: Pediatric influenza deaths require a specific form to be completed. Please work with CDEpi to report pediatric flu deaths.

FAQ's

- Will new flu viruses circulate this season?
  - Flu viruses are constantly changing so it's not unusual for new flu viruses to appear each year.
- The lab at my local hospital called us to notify us that someone tested positive for H1N1. Is this swine flu, like the same strain from the 2009 H1N1 pandemic?
    - H1N1 is one of the common strains of influenza that circulates annually but should not be called swine flu unless the case had exposure to swine within 10 days of symptom onset and their molecular test result is listed as "Influenza A, unsubtypeable". Consult with CDEpi on these cases.
- Is it safe to get a COVID-19 vaccine and a flu vaccine at the same time?
  - Studies have indicated that it is safe to get both a COVID-19 vaccine and a flu vaccine at the same visit.

Resources

- Weekly U.S. Influenza Surveillance Report (FluView): https://www.cdc.gov/flu/weekly/index.htm
- FluView Interactive: https://www.cdc.gov/flu/weekly/fluviewinteractive.htm
  - Contains interactive dashboards for ILI and Viral Surveillance, Hospitalizations, ILI Activity Map, Pediatric Mortality, Pneumonia and Influenza (P&I) Mortality, Novel Flu A, and Geographic Spread
- Influenza Hospitalization Surveillance Network (FluSurv-NET, only 13 states participating, Montana not enrolled): https://www.cdc.gov/flu/weekly/influenza-hospitalization-surveillance.htm

COVID-19

Background

COVID-19 (coronavirus disease 2019) is a disease caused by the virus SARS-CoV-2. It is very contagious and can spread very quickly. Most people with COVID-19 have mild symptoms, but some people become severely ill. COVID-19 spreads throughout the year with recent surges occurring during fall and winter months.

Signs & Symptoms

Symptoms may appear anywhere from 2-14 days after an exposure to SARS-CoV-2 virus. Symptoms may change with new COVID-19 variants and can vary depending on the vaccination status of the patient.

- fever and/or chills
- cough
- shortness of breath
- fatigue (tiredness)
- muscle or body aches
- headaches
- new loss of taste or smell
- sore throat
- runny or stuffy nose
- nausea, vomiting, and/or diarrhea

The National Institutes of Health COVID-19 Treatment Guidelines group individuals diagnosed with COVID-19 into five categories based on the severity of their illness.

- **Asymptomatic or pre-symptomatic infection**: people who test positive for SARS-CoV-2 using a virologic test (i.e., a nucleic acid amplification test [NAAT]/PCR or an antigen test) but who have no symptoms that are consistent with COVID-19.
- **Mild illness**: people who may have any of the various signs and symptoms of COVID-19 (e.g., fever, cough, sore throat, malaise, headache, muscle pain, nausea, vomiting, diarrhea, loss of taste and smell) but who do not have shortness of breath, dyspnea, or abnormal chest imaging.
- **Moderate illness**: people who have evidence of lower respiratory disease during clinical assessment or imaging and who have an oxygen saturation (SpO_2) ≥94% on room air at sea level (shortness of breath).
- **Severe illness**: people who have oxygen saturation <94% on room air at sea level, a ratio of arterial partial pressure of oxygen to fraction of inspired oxygen (PaO_2/FiO_2) <300 mm Hg, a respiratory rate >30 breaths/min, or lung infiltrates >50%.
- **Critical illness**: people who have respiratory failure, septic shock, and/or multiple organ dysfunction.

Transmission

Data suggest that incubation periods for COVID may differ by variant of the virus. Studies published in 2020 identified a pooled mean incubation period of 6.5 days from exposure to symptom onset. A study conducted during high levels of Delta variant transmission (fall 2021) reported an incubation period of 4.3 days, and studies performed during high levels of Omicron variant transmission reported a median incubation period of 3–4 days. **CDEpi uses 3.5 days as the average incubation period for COVID-19, based on the currently circulating Omicron variant.**

COVID-19 spreads person to person by **droplets** that are expelled when someone infected with COVID-19 coughs, sneezes, or talks. Less common, a person may contract COVID-19 by touching a surface or object that has SARS-CoV-2 virus on it and then touching their own mouth, nose, or possibly their eyes.

A person with COVID-19 may be infectious 48 hours prior to symptom onset until the individual meets CDC criteria for release from isolation.

Epidemiological studies have demonstrated that the risk of transmission is greatest in closed, poorly ventilated spaces where humans are in close proximity for 10-15 minutes or longer and do not physically distance or wear a protective face covering.

Diagnosis

There are two main types of tests available for detecting SARS-CoV-2. These include polymerase chain reaction tests and antigen tests.

- **Polymerase Chain Reaction (PCR)**: PCR tests are the “gold standard” for COVID-19 tests. These tests are more likely to detect the virus than antigen tests. It usually takes longer to get these test results back.
- **Antigen**: Antigen tests are rapid tests that usually produce results in 15-30 minutes. Positive results are very accurate and reliable. However, antigen tests are less likely to detect the virus than PCR tests, especially if symptoms are not present. Therefore, a single negative antigen test cannot rule out infection.
    - The FDA recommends 2 negative antigen tests for individuals with symptoms or 3 negative antigen tests for those without symptoms performed 48 hours apart to rule out infection.

Management of Patient

- **Isolation**
    - **Day 0= date of symptom onset or date the patient tested positive (if asymptomatic).**
    - If the patient was asymptomatic but developed symptoms within 10 days of when they were tested, the clock restarts at day 0 on the day of symptom onset.
    - The patient should stay at home for at least 5 days.
    - The patient should isolate from others in their home.
    - The patient should try and use a separate bathroom if possible and avoid sharing personal household items such as cups, towels, and utensils.
    - The patient should avoid travelling and should avoid going places where they are unable to wear a mask.
- **Ending Isolation**:
    - **Patient was Asymptomatic**:
        - The patient may end their isolation after day 5.
    - **Patient had Symptoms**: (refer to page 13 for illness classifications)
        - Mild Illness with Symptoms Improving: the patient may end their isolation after day 5 (patient must be fever-free for 24 hours without the use of fever reducing medication).
        - Mild Illness but Symptoms Not Improving: if patient is not improving after day 5 of isolation, continue to isolate until the patient is fever-free for 24 hours without the use of fever reducing medication and their symptoms improve.
        - Moderate Illness (symptoms include shortness of breath): isolate through day 10.
        - Severe or Critical Illness: isolate through day 10 and consult a physician before ending isolation. Patients with severe or critical illness may have a viral test completed to see if they are negative before releasing them from isolation.
    - **Regardless of when the patient ends isolation, until at least day 11**:
        - The patient should avoid being around people who are more likely to get very sick from COVID-19.
        - They should consider wearing a mask until they are fever free or until they have two sequential negative tests 48 hours apart.

Example Timeline for Release from Isolation for Patients with Mild Illness and Symptom Improvement

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Symptom Onset (Day 0)	(Day 1)	(Day 2)	**Positive Test** (Day 3)	(Day 4)	(Day 5)
Release from Isolation (Day 6)	(Day 7)	(Day 8)	(Day 9)	(Day 10)	**End Mask Usage** (Day 11)	

Example Timeline for Release from Isolation for Patients with Moderate Illness (Shortness of Breath)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Symptom Onset (Day 0)	(Day 1)	**Positive Test** (Day 2)	(Day 3)	(Day 4)	(Day 5)
(Day 6)	(Day 7)	(Day 8)	(Day 9)	(Day 10)	**Release from Isolation, End Mask Usage** (Day 11)	

Example Timeline for Release from Isolation for Patients with Severe or Critical Illness

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Symptom Onset (Day 0)	(Day 1)	**Positive Test** (Day 2)	(Day 3)	(Day 4)	(Day 5)
(Day 6)	(Day 7)	(Day 8)	(Day 9)	(Day 10)	**Consult with Physician and/or Test Patient**	

Prevention

- Frequent handwashing with soap and water for at least 20 seconds and/or use of a hand rub with at least 60% alcohol in it.
- Cleaning and disinfection of frequently touched surfaces.
- Vaccinate: instruct individuals to stay up to date with COVID-19 vaccines.
- School and Early Childhood Education (e.g., daycares) Guidance:
    - Operational Guidance for K-12 Schools and Early Childhood Education Programs: https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/k-12-childcare-guidance.html
    - Encourage students to stay up to date on vaccinations.
    - Students should stay home when sick if they have any symptoms of respiratory or gastrointestinal infections (e.g., cough, fever, sore throat, vomiting, diarrhea).
    - Promote hand hygiene and respiratory etiquette (Appendix F).
    - Improve ventilation to prevent the spread of pathogens and contaminants.
    - Physical distancing of students with the option of barriers between desks and mask wearing by older students and teachers when there is an increase in cases, hospitalizations, and/or deaths in your community.
    - Clean surfaces at least once a day to reduce the risk of germs spreading by touching surfaces.
- Homeless and Correctional Guidance:
    - Prevention strategies for everyday operations should be followed at all times (see https://www.cdc.gov/coronavirus/2019-ncov/community/homeless-correctional-settings.html).
    - Implement enhanced prevention strategies when COVID-19 hospital admission level is high (see https://www.cdc.gov/coronavirus/2019-ncov/your-health/covid-by-county.html) or if there's transmission within a facility.
    - Improve ventilation in buildings and move activities outdoors whenever possible.
    - Consider routine screening testing.
    - Create physical distance wherever possible.
    - Add enhanced cleaning and disinfection protocols.
    - See Appendix G for additional prevention strategies in homeless, correctional, and other congregate living facilities.

Outbreaks

- **Outbreak definition (non-healthcare congregate settings)**: A sudden increase in the frequency (# of cases) of COVID-19 above the usual/expected rate. Sustained transmission also occurring within or between the facility/cohorts.
    - Note: Use discretion! If both cases are individuals with no known contact (e.g., COVID-19 in a 5th grader and COVID-19 in a 1st grader who have no interactions with each other), outbreak protocol can be delayed. We need to see transmission within a cohort or group (e.g., 5 positive COVID-19 tests in a single classroom) in order to call it an outbreak.
- **Outbreak length**: The incubation period for Omicron variants (the most recent dominant circulating strain) of COVID-19 ranges 3-4 days, with an average of 3.5 days. CDEpi uses **7 days** with no new cases or symptomatic individuals within the cohort as the criteria needed to close an outbreak of COVID-19.
- **Exclusions**: See page 15 for guidance on isolation recommendations. For certain non-healthcare congregate settings, facilities may need to consider short-term reductions to the recommended isolation period for staff and/or residents. Facilities should consult local public health before implementing this technique.

Reporting Instructions and Requirements

Individual Cases

Please report individual cases of COVID-19 in MIDIS (see below for case classification). COVID-19 is individually reportable as established in Administrative Rule of Montana 37.114.203. As such, investigations are still required to be completed for all probable and confirmed cases of COVID-19 that are reported to your jurisdiction. Most COVID-19 labs in MIDIS will automatically be turned into case investigations, but local health jurisdictions are expected to update the investigation with key variables including date of symptom onset/diagnosis, hospitalization indicator, death indicator (Appendix E).

Case Classification:

Testing Not Performed	At-Home Test	Antigen Test Administered by a Provider	PCR Test Administered by a Provider
Do not put case into MIDIS, but if the patient is symptomatic, please include them in outbreak counts (see page 20).	**SUSPECT** CDEpi does not require suspect cases to be entered into MIDIS, so it is up to your jurisdiction policies. Please include these cases in outbreak counts.	**PROBABLE** Probable cases are required to be entered into MIDIS. Please also include these cases in outbreak counts.	**CONFIRMED** Confirmed cases are required to be entered into MIDIS. Please also include these cases in outbreak counts.

Hospitalizations and Deaths

Please update investigations in MIDIS for individuals who were hospitalized or who died due to COVID-19 underneath the "Case Info" tab of the investigation. See Appendix E for an example of a COVID-19 investigation in MIDIS.

Children who test positive for COVID-19, progress in clinical severity, and result in hospitalization or death may be classified as having multisystem inflammatory syndrome in children (MIS-C). Please work with CDEpi if you suspect that a case of MIS-C exists in your county to report these case investigations in MIDIS.

Outbreaks

Please notify CDEpi of known or suspected outbreaks of COVID-19 within 24 hours of the outbreak being identified. We recommend reviewing the outbreak report form prior to discussing the outbreak with the facility to ensure you know all components that are required to be reported.

Individuals who should be counted as cases in an outbreak:

- Anyone who has tested positive with any method.
- Anyone who is symptomatic but has not been tested.

You can notify CDEpi by completing the initial outbreak reporting form on JotForm located here: https://hipaa.jotform.com/app/223254785775165/page/5.

Resources

- CDC COVID Data Tracker: https://covid.cdc.gov/covid-data-tracker/#datatracker-home
- Trends in U.S. COVID-19 Hospitalizations, Deaths, Emergency Department (ED) Visits, and Test Positivity by Geographic Area https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_select_00
- RESP-NET: https://www.cdc.gov/surveillance/resp-net/dashboard.html

Respiratory Syncytial Virus (RSV)

Background

Respiratory syncytial (sin-SISH-uhl) virus, or RSV, is a common respiratory virus that usually causes mild, cold-like symptoms. Infants and older adults are more likely to develop severe RSV that necessitates hospitalization. RSV can spread year round, but the season typically starts during fall and peaks in the winter.

Signs & Symptoms

- Runny nose
- Decrease in appetite
- Coughing
- Sneezing
- Fever/chills
- Wheezing

Symptoms of RSV usually appear within 4-6 days of being infected (more **gradual** and prolonged compared to influenza and COVID-19).

Symptoms of RSV typically appear in stages rather than all at once. In very young infants with RSV, the only symptoms may be irritability, decreased activity, and breathing difficulties.

Transmission

RSV spreads person to person by **droplets** that are expelled when someone infected with RSV coughs, sneezes, or talks. Patients are most infectious during the first 3-8 days of illness.

Children are often exposed to and infected with RSV outside of the home, such as in school or daycares. They can then transmit the virus to other members of their family.

RSV can survive on hard fomites (inanimate objects) such as tables, doorknobs, and crib rails for many hours. RSV can survive on soft surfaces, such as fabrics, tissues, and hands, for shorter amounts of time.

Some individuals may be at increased risk of severe disease, including:

- Premature infants
- Young children with congenital heart or chronic lung disease
- Young children with compromised immune systems due to a medical condition or medical treatment
- Children with neuromuscular disorders
- Adults with compromised immune systems
- Older adults, especially those with underlying heart or lung disease

Diagnosis

There are four types of tests that may be performed on upper and lower respiratory specimens to diagnose RSV.

- More common:
    - **Real-time reverse transcription-polymerase chain reaction (rRT-PCR)**: more sensitive than culture and antigen testing.
    - **Antigen testing**: sensitive in children, less sensitive in adults.
- Less common:
    - **Viral culture**
    - **Serology**: usually only used for research and surveillance studies.

Management of Patient

- Encourage good respiratory and hand hygiene:
    - Cover your mouth and nose with a tissue when coughing or sneezing.
    - Throw tissues away after use.
    - Wash hands often with soap and water.
    - Avoid close contact with others (e.g., kissing, shaking hands, and sharing cups/eating utensils).
    - Stay home when sick.
    - Clean frequently touched surfaces such as doorknobs, toys, and mobile devices.
- Daycare Facilities:
    - Administrative Rule of Montana 37.95.139 has provisions for children who are known to or suspected of having a communicable disease, including:
        - (2) If, while in care, a child becomes ill or is suspected of having a communicable disease reportable to the health department while in care, the parent shall be notified by the provider. **The parent is responsible for arranging to have the child taken home**.
        - (3) The director, owner, manager, or person in charge of the day care facility must designate a staff member to check daily the health status of each child immediately upon that child's entry into the day care facility, and to exclude any child showing symptoms of illness, under the following guidelines:

- **(a) Children must be without fever of 101F or greater for 24 hours before they return to the day care facility…**
- (b) Children must be without vomiting and diarrhea for 24 hours before they return to the day care facility.
- …
- (g) Children with symptoms of severe illness, such as **uncontrolled coughing, breathing difficulty or wheezing, stiff neck, irritability, poor food or fluid intake, or a seizure, must be evaluated by a health care provider before they may return to the day care facility**;

- (4) If a child develops symptoms of illness while at the day care facility and after the parent or guardian has left, the day care facility must do the following:
  - (a) isolate the child immediately from other children in a room or area segregated for that purpose;
  - (b) contact and inform the parent or guardian as soon as possible about the illness and request the parent or guardian to pick up the child;
  - (c) report each case of suspected communicable disease the same day by telephone to the local health authority, or as soon as possible thereafter if no contact can be made the same day.
- (5) … **No child shall be readmitted after an absence until the reason for the absence is known and there is assurance that the child's return will not harm that child or the other children**.
- (6) The day care facility may readmit a child excluded for illness whenever, in its discretion:
  - (a) the child either shows no symptoms of illness;
  - (b) **the child has been free of fever, vomiting, or diarrhea for 24 hours; or**
  - (c) the child has been on antibiotics for at least 24 hours for bacterial infections.

Prevention

- Monoclonal antibodies: There are two monoclonal antibody products that can help protect infants and young children from severe disease.
    - **New for the 2023-2024 Respiratory Season:** Nirsevimab (Beyfortus) is recommended for all infants who are younger than 8 months and born during – or entering – their first RSV season (typically fall through spring). One dose of nirsevimab can protect infants for 5 months, the length of an average RSV season. A dose of nirsevimab is also recommended for some children between the ages of 8 and 19 months who are at high risk of severe RSV, such as children who are severely immunocompromised, and who are entering their second RSV season.
    - Palivizumab (Synagis) is limited to children under 24 months of age with certain conditions that place them at high risk for severe RSV disease. It must be given once a month during RSV season.
- Vaccination:
    - **New for the 2023-2024 Respiratory Season:** The CDC recommends that adults 60 years and older discuss with their provider whether a single dose of the RSV vaccine is appropriate.
- Encourage individuals with cold-like symptoms to avoid individuals at increased risk for severe RSV disease.

Outbreaks

- **Outbreak definition (non-healthcare congregate settings)**: A sudden increase in the frequency (# of cases) of RSV above the usual/expected rate. Sustained transmission also occurring within or between the facility/cohorts.
    - Note: Use discretion! If both cases are individuals with no known contact (e.g., RSV in a 5th grader and RSV in a 1st grader who have no interactions with each other), outbreak protocol can be delayed. We need to see transmission within a cohort or group (e.g., 5 positive RSV tests in a single classroom) in order to count as an outbreak.
- **Outbreak length**: The incubation period for RSV ranges 4-6 days. CDEpi uses **12 days** with no new cases or symptomatic individuals within the cohort as the criteria needed to close an outbreak of RSV.

Reporting Instructions and Requirements

Deaths in Children <5 years of age

New for the 2023-2024 Respiratory Season: CDEpi is requesting that jurisdictions work with their key surveillance partners to establish reporting of deaths due to RSV in children younger than 5 years of age. While this is not required, it will help our state better understand the severity of RSV.

Outbreaks

Please notify CDEpi of known or suspected outbreaks of RSV within 24 hours of the outbreak being identified. We recommend reviewing the outbreak report form prior to discussing the outbreak with the facility to ensure you know all components that are required to be reported. You can notify CDEpi by completing the initial outbreak reporting form on JotForm located here: https://hipaa.jotform.com/app/223254785775165/page/5.

FAQ's

- Can you contract RSV more than once?
    - People are typically infected with RSV as an infant or toddler. Nearly all children are infected before their second birthday. Repeat infections may occur throughout life.
- Can adults get RSV?
    - Yes. You can contract RSV at any age. That's why it is important to encourage the vaccine in individuals 60+ to help protect younger children from contracting RSV due to familial exposures.

Appendix A: Flu, COVID-19, and RSV Reporting Cheat Sheet (Non-Healthcare Settings)

Condition	What's Reportable	Average Incubation	Exclusions (Isolation)	Outbreak Criteria
Influenza (Flu)	-Laboratory confirmed cases (aggregate weekly) -Laboratory confirmed hospitalizations and deaths -Outbreaks	4 days (Abrupt Symptom Onset)	Isolation should continue for the initial 5-7 days of illness and possibly longer for patients who could be infectious for longer periods. Individuals should be fever free for at least 24 hours before being released from isolation.	**Open**: 2 cases within a cohort within 72-hours. **Close**: 8 days with no new cases.
COVID-19	-Laboratory confirmed/probable cases (PCR/Antigen) -Hospitalizations/ Deaths due to COVID-19 -Outbreaks	3.5 days	**Asymptomatic**: 5 Days **Mild Symptoms and Fever-Free**: 5 Days **Moderate Illness (Shortness of Breath)**: 10 Days **Severe Illness**: at least 10 days, consult with provider before releasing.	**Open**: A sudden increase in the frequency (# of cases) of COVID-19 above the usual/expected rate. Sustained transmission also occurring within or between the facility/cohorts. **Close**: 7 days with no new cases.

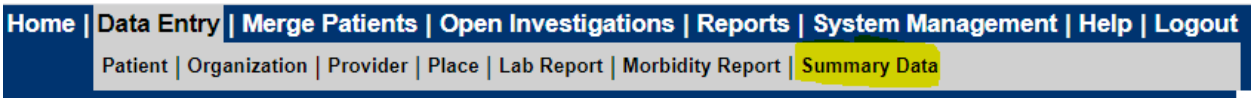
Condition	What's Reportable	Average Incubation	Exclusions (Isolation)	Outbreak Criteria
RSV	-Deaths in children <5 years (voluntary) -Outbreaks	6 days (Gradual Symptom Onset)	None **Note**: Please encourage individuals who are exhibiting signs of a respiratory illness to stay home to avoid transmitting the condition to others. Refer to ARM 37.95.139 for daycare exclusions.	**Open**: A sudden increase in the frequency (# of cases) of RSV above the usual/expected rate. Sustained transmission also occurring within or between the facility/cohorts. **Close**: 12 days with no new cases.

Appendix B: Symptom Comparison Chart

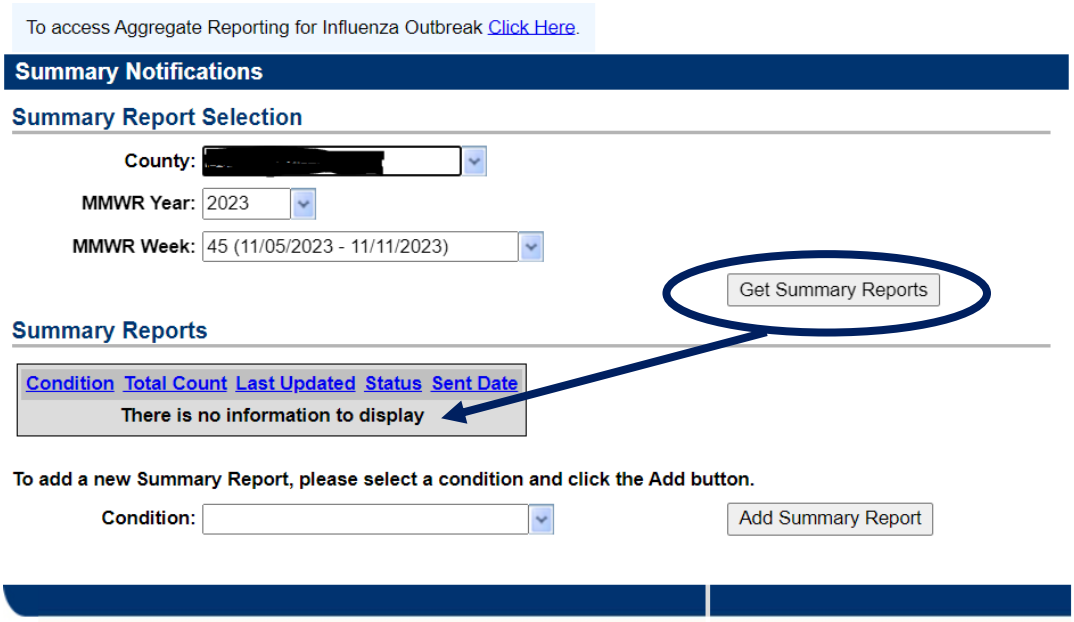
Common Symptoms	Influenza	COVID-19	RSV	Common Cold
Fever and/or Chills	♦	♦	♦	
Headache	♦	♦		
Muscle Pain or Body Aches	♦	♦		
Feeling Tired or Weak	♦	♦		
Sore Throat	♦	♦		♦
Runny or Stuffy Nose	♦	♦	♦	♦
Sneezing			♦	♦
Cough	♦	♦	♦	♦
Shortness of Breath	♦	♦	♦	
Vomiting or Diarrhea	♦	♦		
Change in or Loss of Taste or Smell		♦		

Appendix C: Instructions for Reporting Aggregate Weekly Influenza Cases in MIDIS

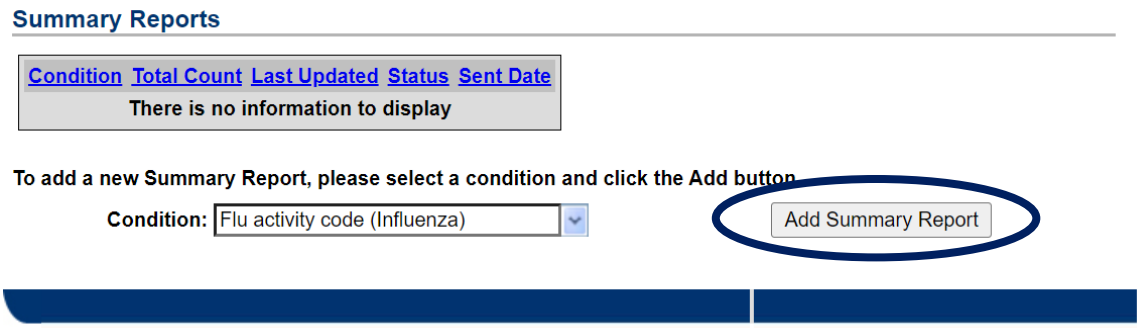
1. Select "Data Entry" in the navigation bar at the top of the MIDIS home page. Select "Summary Data".



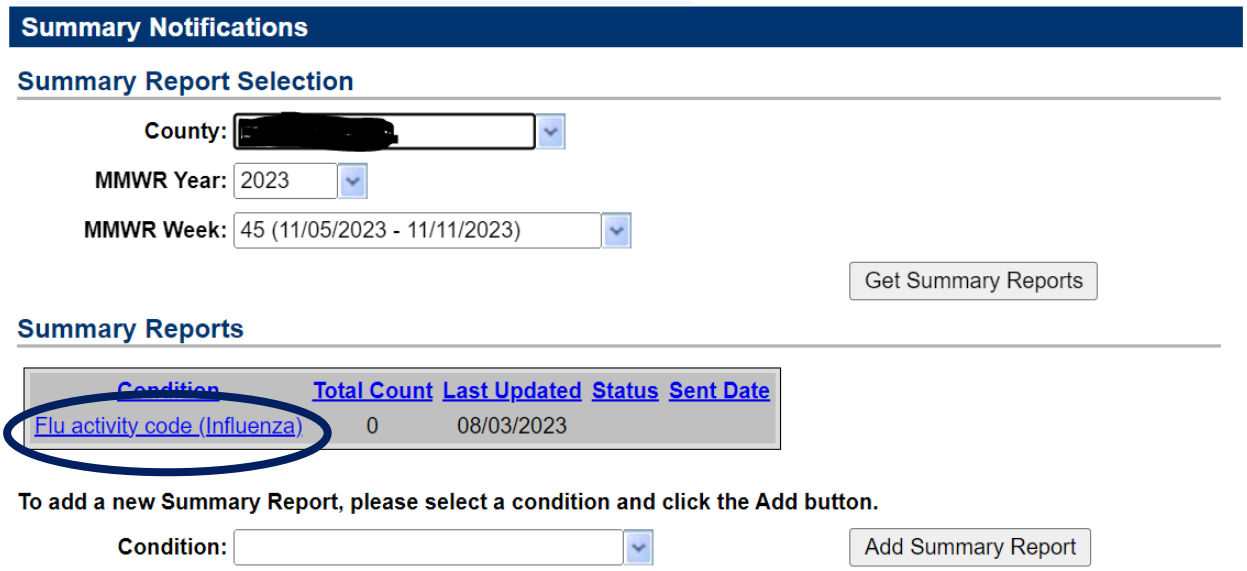
2. Select your county/jurisdiction and the MMWR Week you're reporting for and select "Get Summary Reports". This step helps make sure that you haven't already reported data for the week you are reporting for. Check in the Summary Reports section to make sure it says, "There is no information to display."



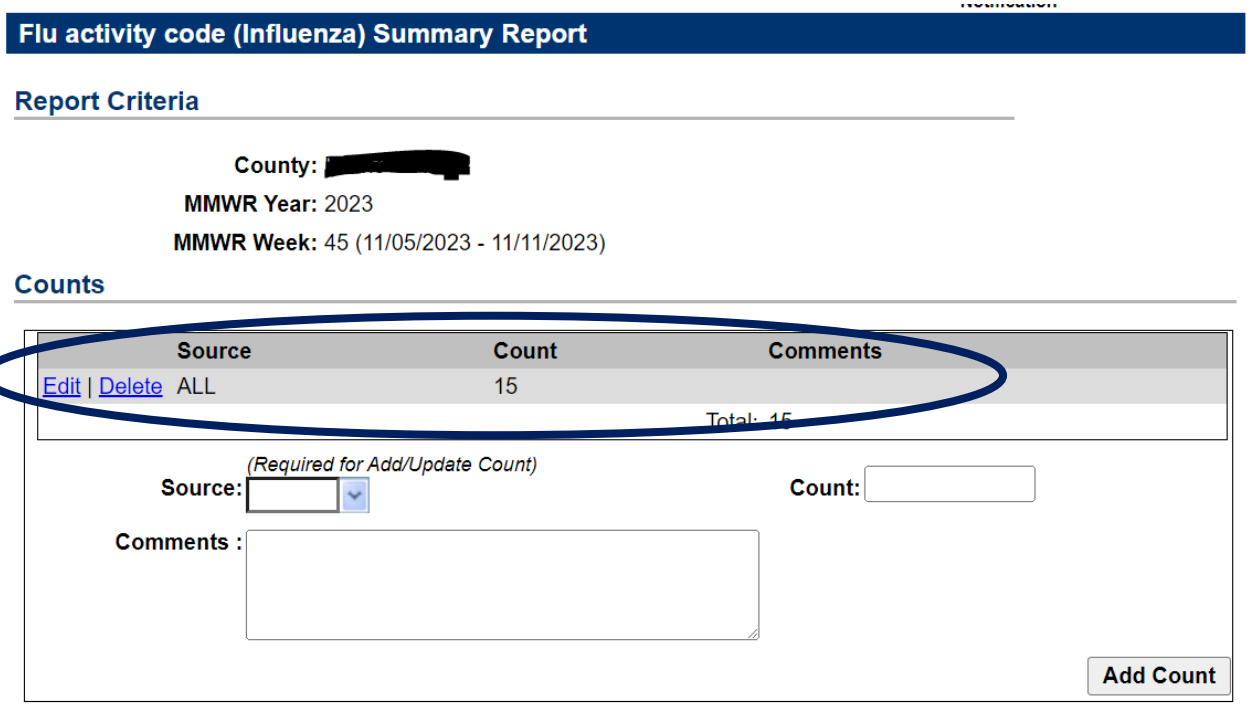
3. Under Summary Reports, select "Flu activity code (Influenza)" and then select "Add Summary Report".



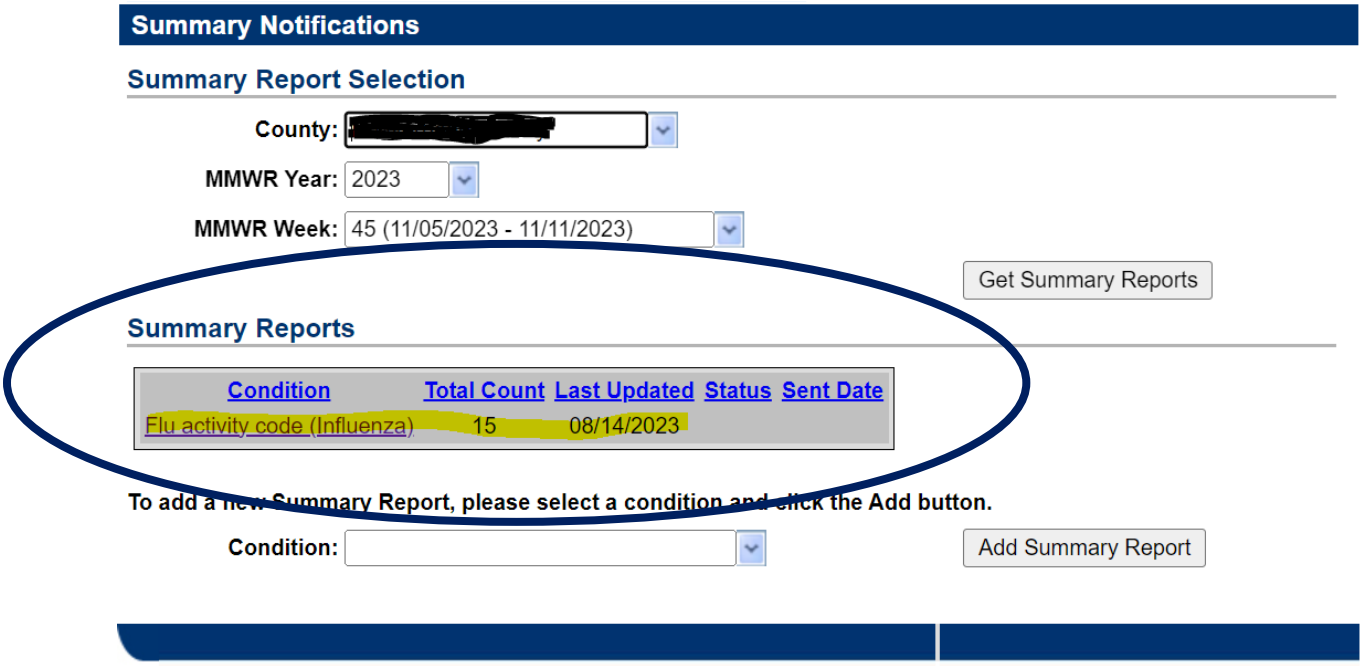
4. Your screen will now display a line for a summary report for flu. It should have "0" listed under the Total Count column. Select the blue hyperlinked "Flu activity code (Influenza)" to update your numbers for the week selected.



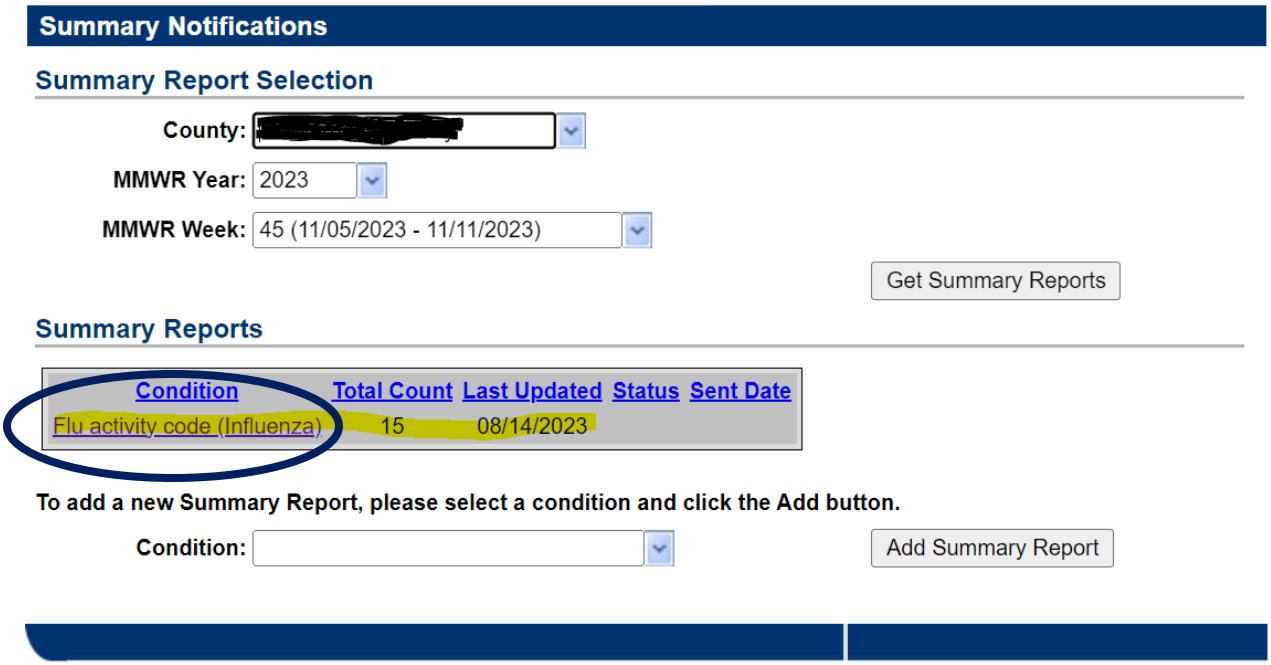
5. For "Source", select "All". Manually enter the count of the total number of laboratory-confirmed flu cases reported for that week and then select "Add Count". Your screen should now look like below.



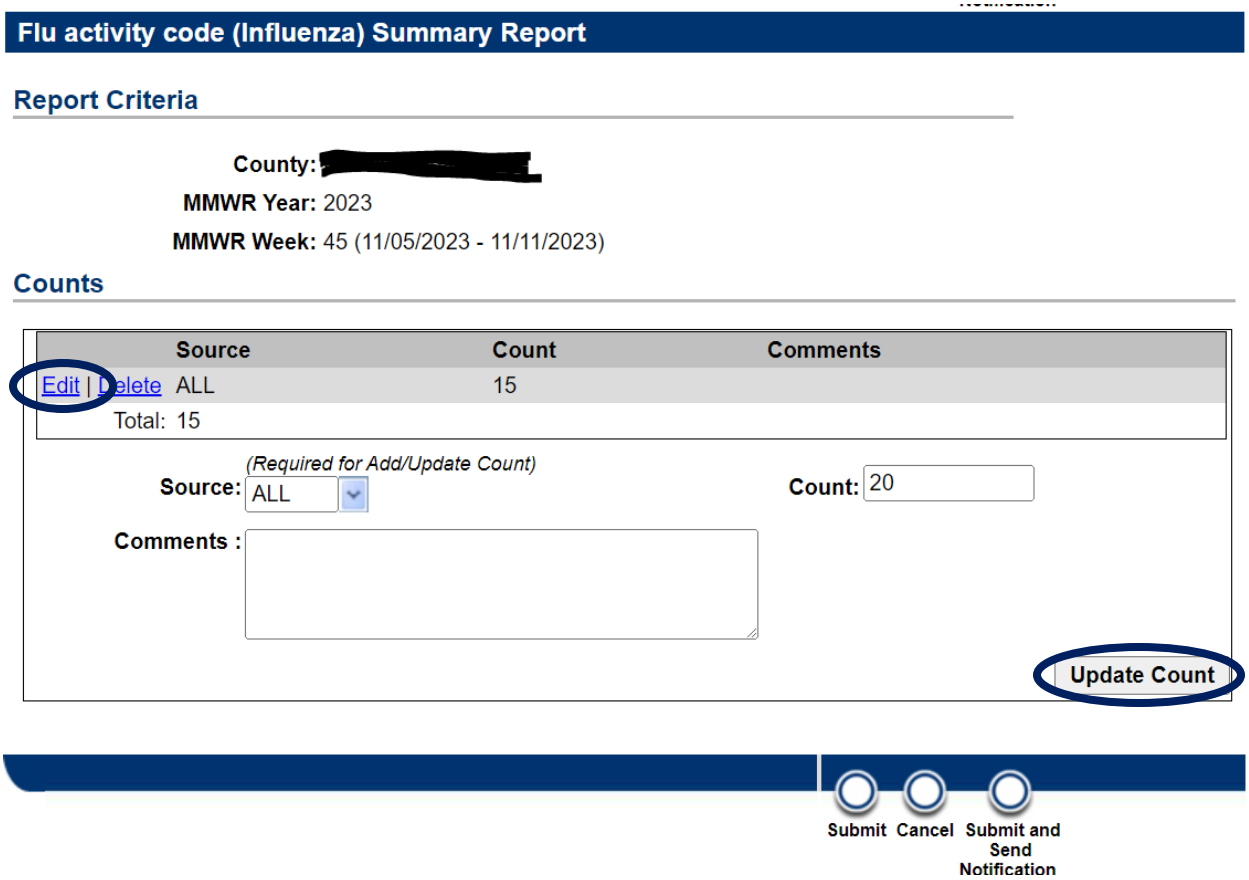
6. Select "Submit" at the bottom of the page, and your screen should now look like this:



7. **If you need to update** a summary report for a certain week (e.g., a facility calls a little late and notifies you that they had 5 cases, so you need to add that to the aggregate counts), follow steps 1 and 2 again. Select the hyperlinked "Flu activity code (Influenza)".



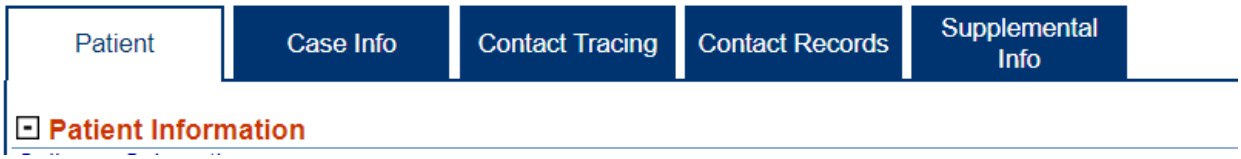
8. Select “Edit” where you reported the previous counts and update the number. Select “Update Count”.



9. Select “Submit” at the bottom of the page. You should now see the updated count on your summary page.

Appendix D: Influenza Hospitalization and Death Data Entry In MIDIS

1. Influenza hospitalizations and deaths are required to be entered into MIDIS. Find the patient's file in MIDIS and the associated influenza lab. If there is no lab in MIDIS for the patient, please manually enter one.
2. Select "Create Investigation" and choose "Influenza, Hospitalization or Death".
3. The following data elements should be collected and reported in MIDIS:



   a. Patient Tab
      i. Patient Name
      ii. Patient DOB
      iii. Patient Address
      iv. Patient Phone Number
      v. Patient Race and Ethnicity
   b. Case Info Tab
      i. Clinical
         1. Hospital information
         2. Admission Date
         3. Discharge Date
      ii. Condition
         1. Diagnosis Date
         2. Illness Onset
         3. Influenza Virus Type
         4. Influenza Vaccine Information
         5. Underlying Conditions and Comorbidities
         6. Death Indicator
      iii. Epidemiologic
         1. Outbreak Indicator
         2. Case Status
         3. MMWR Week and Year (Note: remember to backdate the MMWR week to the week that the patient tested positive or was enumerated as a case).

Appendix E: COVID-19 MIDIS Investigations- Key Data Elements

COVID-19 investigations are required to be completed for confirmed and probable cases of COVID-19 (refer to page 20 of this document).

1. Most COVID-19 labs will enter MIDIS on their own. However, you may still have facilities that fax you lab reports as notification. These may have to be manually entered into MIDIS.
2. Select "Create Investigation" and choose "2019 Novel Coronavirus (COVID-19)".
3. The following data elements should be collected and reported in MIDIS:

   a. Patient Tab
      i. Patient Name
      ii. Patient DOB
      iii. Patient Address
      iv. Patient Phone Number
      v. Patient Race and Ethnicity
   b. Case Info Tab
      i. Clinical
         1. Diagnosis Date
         2. Was the Patient Hospitalized for this Illness?
         3. Did the Patient Die from This Illness?
      ii. Epidemiologic
         1. Outbreak Indicator
         2. Case Status
         3. MMWR Week and Year (Note: remember to backdate the MMWR week to the week that the patient tested positive or was enumerated as a case).
   c. COVID Tab
      i. Symptoms
         1. Symptoms Present During Course of Illness (Yes/No)
         2. Symptom Onset

Appendix F: COVID-19 Prevention Strategies to Utilize in Congregate Living Facilities (Non-Healthcare Settings)

The following recommendations are for preventing COVID-19 in congregate living facilities.

Activity	Prevention Strategies for Everyday Operations	Enhanced Prevention Strategies
Ventilation	Ensure HVAC systems operate properly and provide acceptable indoor air quality.	Where possible, consider holding group activities outdoors. Increase and improve ventilation as much as possible.
Provide Access to Testing	Test residents and staff who have been exposed or who are symptomatic.	Implement screening testing of residents and/or staff if there are concerns about the population being at especially high risk for severe illness.
Wear Masks or Respirators	Maintain a stock of PPE and offer high-quality masks/respirators to all residents and staff. Offer other PPE for staff and residents based on risk.	Require universal indoor masking, regardless of vaccination status.
Promote Infection Control and Cleaning	Conduct standard infection control, cleaning, and disinfection at all times. Maintain supplies for hand hygiene, cleaning, and disinfection at no cost to residents or staff.	Add enhanced cleaning methods (https://www.cdc.gov/hygiene/cleaning/facility.html)
Implement Post-Exposure Guidance	Test residents and staff who have been exposed at least five full days after exposure (or sooner, if they develop symptoms) and require them to wear a mask while indoors for 10 full days after exposure, regardless of vaccination status.	
Implement Isolation Guidance	• Isolate staff, volunteers, and residents who test positive away from other residents or away from the facility as applicable.	

Activity	Prevention Strategies for Everyday Operations	Enhanced Prevention Strategies
	• If multiple residents have tested positive, they can isolate together in the same area. However, confirmed and suspected cases should never be housed together. • Ensure continuation of support services, including behavioral health and medical care, for residents while they are in isolation.	
Support Access to Treatment as Needed	Effective treatments are now widely available and must be started within a few days after symptoms develop to be effective. Support timely treatment for those eligible; facilities without onsite healthcare capacity should plan to ensure timely access to care offsite.	
Monitor and Communicate Potential Outbreaks or Needs	Continue partnerships and plan for outbreak communications, staffing shortages, spaces for quarantine (in facilities that choose to implement it; not routinely recommended) and isolation, and continuity of services.	
Increase Distance	• Create physical distance in congregate areas where possible. • Reduce movement and contact between different parts of the facility and between the facility and the community (as applicable).	

Appendix G: Respiratory Outbreak Response and Reporting Checklist

✓	Tasks	Reference
	1. Detect the Presence of a Potential Outbreak • Are the reported number of cases unusual or higher than expected? • Surveillance data (e.g., influx of labs in MIDIS). • Notification from a reporter in your jurisdiction (e.g., school, hospital, correctional facility, etc.).	CDEpi 24/7 Number: 406-444-0273
	2. Verify the Diagnosis • Coordinate testing of any symptomatic individuals or request laboratory results if not available in MIDIS. • If confirmatory testing is required (influenza), coordinate with CDEpi.	ARM 37.114.313: Confirmation of Disease
	3. Define and Identify Cases and Exposures • Use a line list (e.g., Appendix I) to track key characteristics of individuals who are confirmed to have infection or are exhibiting similar symptoms and have a valid exposure to a confirmed case (Epi-Link). • Use case definitions established for common respiratory illnesses. • If cause of outbreak is unknown, establish a case definition by characterizing cases by clinical signs and symptoms and epidemiologic information related to person, place, and time.	Appendix I

	4. Implement Immediate Control Measures
	• Isolation/exclusion of individuals with confirmed illness.
	  ○ Have individuals isolate for 24 hours after fever is gone without using fever reducing medicines, regardless of condition.
	• Separation of individuals who are symptomatic or who were exposed from individuals who haven't been exposed.
	  ○ *Remember*: do not place symptomatic individuals who don't have confirmatory testing completed yet in the same quarantine cohort.
	• Provide the facility with educational materials to help them with infection prevention, respiratory etiquette practices, and hand hygiene.
	• Consider working with the ICP/HAI section to have an infection control consultation with the facility. It's a 1-hour consultation to identify potential infection control gaps and answer questions related to infection control and prevention.
		Disease-Specific Exclusion Protocols
		
		Appendix F (COVID-19)

✓	Tasks	Reference
	5. Ending the Outbreak • Work with the facility to monitor when patients develop symptoms to determine potential outbreak end dates. • Adjust the end date as needed if additional cases continue to be identified.	
	6. Next Steps • Implement and evaluate long-term control measures to prevent future outbreaks (e.g., implementing better disinfection protocols, establishing symptom screening programs, etc.) • Educate facility on prevention measures (e.g., frequent hand washing, social distancing, moving group activities outside). • Encourage vaccination! It's one of the best tools we have for preventing outbreaks and reducing disease severity in congregate settings.	

Appendix H: Outbreak Reporting Form

Note: This should be used when interviewing the facility administrator/director/owner. Please notify CDEpi of outbreaks by submitting a report in JotForm here: https://hipaa.jotform.com/app/223254785775165/page/5

MONTANA DPHHS

Please fax to DPHHS CDEpi **(800)616-7460**

OUTBREAK REPORTING FORM

State ID: NORS ID: Reporting Jurisdiction: MMWR Year: MMWR Week:

First ill onset:*		**LHJ notified:***		DPHHS notified:	
Outbreak identified:		**Investigation started:***		**Control measures implemented:***	
Last ill onset:		Outbreak closed:		◯Initial ◯Update ◯Final	

BACKGROUND

Population	Number ill: residents/ attendees ____ staff ____	Total population exposed: residents/ attendees ____ staff ____	
Settings	☐Hospital	☐Long Term Care	☐Assisted Living
	☐Food establishment	☐Catered Event/wedding	☐Community
	☐Day care/ pre school	☐K-12 Elementary	☐Other:_____
Geography	Name of facility:_____	City:_____	County:_____
	Ill cases from reporting jurisdiction only? ◯Y ◯N If no, list others: _____		
Category	☐Respiratory ☐Gastrointestinal ☐Rash ☐Other:_____		
Etiology	Pathogen: ◯confirmed ◯suspected	Incubation period:	
Route of transmission	☐Foodborne ☐Waterborne ☐Person-to-person ☐HAI		
	☐Environmental ☐Animal ☐Indeterminate/ unknown		

METHODS

Outbreak case definition			
Investigation methods	☐Interview with lead staff	☐Facility visit	☐Environmental assessment
	☐Interviews with ill persons/ survey	☐Chart review	☐Specimen collection
	☐Other, please specify:		
Data Analysis	☐Descriptive Epidemiology	☐Cohort study	☐Case-control study

(Please attach all relevant investigation tools (e.g. epidemic curves, line lists, questionnaires)

RESULTS

Clinical Findings	# of cases		**Epidemiology**	# of cases			# of cases		**Laboratory**
Symptoms	Residents / attendees	Staff	Age Group	Residents / attendees	Staff	Gender	Residents / attendees	Staff	Samples submitted for testing? ◯Y ◯N
☐Diarrhea			<1 year			Male			
☐Vomiting			1-4 years			Female			# positive
☐Fever			5-9 years						
☐Cough			10-19 years			Medical			Test results:
☐Rash			20-49 years			HCP visit			
☐			50-74 years			ER visit			
☐			>75 years			Hospitalized			
☐			unknown			Died			*(Please attach all associated laboratory results)*

CONCLUSION

Please summarize this outbreak briefly:

DISCUSSION/ LIMITATIONS

Please discuss any issues that arose during this outbreak investigation that may require improvement:

RECOMMENDATIONS/ CONTROL MEASURES

☐ Hygiene education	☐ Prophylaxis	☐ Environmental Testing
☐ Staff exclusion	☐ Contact tracing	☐ Sample collection
☐ Environmental cleaning	☐ Ward/ school closure	☐ Education materials provided
☐ Cohort ill residents	☐ Visitor restrictions	☐ Case isolation
☐ Assign staff to sections	☐ Group activities cancelled	☐ Training
☐ Other:		

(Please attach all relevant materials that were disseminated (e.g. announcements, notices, letters)

ACTIONS

	Date
☐ HAN issued	
☐ Press release	
☐ Epi Team activated	
☐ Notification letter	
☐	
☐	
☐	

KEY INVESTIGATORS

Name	Title	Affiliation	Contact information

Additional comments:

This form can be located here: https://dphhs.mt.gov/assets/publichealth/CDEpi/CDCPBResources/DiseaseForms/OutbreakNotificationForm2019ADA.pdf

Appendix I: Respiratory Outbreak Line List

Name of Outbreak Location:	Investigation Start Date:
Staff Lead at Outbreak Location:	Outbreak No.:
Staff Lead at LHJ:	Jurisdiction:
Setting of Exposure (Circle): School/Daycare Group Home Correctional Shelter Other	
Suspected Pathogen (Circle): COVID-19 Influenza RSV Other	

	Name or Identifier	Age	Sex (M/F/O/U)	Student/Resident	Staff	Visitor/Other	Onset Date	Room No.	ED Visit	Hospitalized	Deceased	Up to Date on Vaccinations (Y/N)	Lab Confirmed (Y/N)	Notes
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

Absentee Tracking Sheet

Until the outbreak ends, please keep a daily tally of how many new students/residents, staff, and other individuals are associated with the outbreak.

Date	Tally	Total Cases

An Outbreak May Be Declared Over After:

Days Without New Cases	Influenza	COVID-19	RSV
	8	7	14

Questions to Ask Facility Owner/Director/Administrator:

1. On what date did the first individual associated with the outbreak begin exhibiting symptoms?

2. How many people were potentially exposed? (E.g., students/teachers in classroom, residents/HCW on a rehab unit, etc.)

3. Where are sick patients being kept? Are they separate from other patients?

4. Where are individuals who were exposed being kept? Remind them that individuals should not be cohorted together unless they have confirmed illness (don't place two exposed individuals in the same room for quarantine).

5. Will the facility implement broad-based testing (specifically for COVID-19 outbreaks)?

6. What infection control measures is the facility taking to prevent additional spread?