

Influenza-Associated Pediatric Mortality

Reporting Form Instructions

USVI USE ONLY Section (case report form only)

This section at the top of the form should be used by health departments to record personal identifiers such as name and address of patient. Please do not leave this section blank. Patient identifiers will not be transmitted to CDC.

Patient Demographics

1. State: state of residence of patient
 - States are responsible for reporting their residents, regardless of the location of death. If a patient dies outside their state of residence, the state where the death occurs should make arrangements to transfer any data regarding the case to the patient's state of residence, who should then report the case to CDC.
2. County: county of residence of patient (required field)
3. State ID: the state assigned unique identifier (required field).
4. CDC ID: the CDC case ID automatically assigned by the web-based reporting system.
5. Age: The age of the patient at the time of death. Age may be entered as days, months, or years. All cases should be <18 years old.
6. Date of birth
7. Sex
8. Ethnicity
9. Race

Death Information

10. Date of illness onset: earliest date of symptom onset associated with influenza illness
11. Date of death (required field).
12. Autopsy performed
- 13a. Cardiac/respiratory arrest occurred outside of hospital
- 13b. Location of death: if other, please specify location in text field
- 13c. Admission date if the death occurred in the hospital

CDC Laboratory Specimens

- 14a. Were pathology specimens sent to CDC's Infectious Diseases Pathology Branch (please provide the laboratory ID number if known)
- 14b. Were influenza isolates or original clinical material sent to CDC's Influenza Division (please provide laboratory ID number if known)?

Influenza Testing

15. The purpose of the influenza testing section is to collect diagnostic information. Multiple testing methods may be recorded, and both negative and positive results can be entered. All confirmed cases are required to have at least one positive diagnostic test for influenza along with a corresponding specimen collection date. Result values are specific to the test type that is listed.

- a. Commercial rapid diagnostic test
- b. Viral culture
- c. Fluorescent antibody (IFA or DFA)
- d. Enzyme immunoassay (EIA)
- e. RT-PCR
- f. Immunohistochemistry (IHC)

Culture confirmation of bacterial pathogens from STERILE (Invasive) SITES

- 16a. Was a specimen collected for bacterial culture from a normally sterile site (e.g. blood, cerebrospinal fluid [CSF], tissue, or pleural fluid)?
- Specimens collected greater than 24 hours after death are **NOT** sterile
 - The purpose of this question is to collect data on bacterial infections that may have been complicating factors of the influenza illness and potentially led to death. It is important to include information about bacterial organisms that were cultured from normally sterile sites.
 - A normally sterile site is blood, cerebrospinal fluid (CSF), pleural fluid, peritoneal fluid, pericardial fluid, bone, joint fluid, or internal body site (lung, lymph node, brain, heart, liver, spleen, vitreous fluid, kidney, pancreas, or ovary).
 - *Pleural fluid*: includes "chest fluid", thoracentesis fluid.
 - *Peritoneal fluid*: includes abdominal fluid, ascites.
 - *Joint*: includes synovial fluid; fluid, needle aspirate or culture of any specific joint (knee, ankle, elbow, hip, wrist).
 - *Bone*: includes bone marrow
 - *Muscle*: includes tissue or biopsy that is surgically obtained (considered an acceptable sterile site for GAS only)
 - *Internal Body Site*: specimen obtained from surgery or aspirate from lung, lymph node, brain, heart, liver, spleen, vitreous fluid, kidney, pancreas, or ovary.
- 16b. If yes, please indicate the site from which the specimen was obtained and the result (if more than one specimen type is positive and more than one organism cultured from each specimen type in the comments section)
- If other specimen type is selected, please specify in text field
- 16c. If positive, the organism cultured
- Select any of the species listed or select other and indicate the species isolated
 - If reporting another viral co-infection, please do so in section 18b (Clinical Diagnosis and Complications)

Culture confirmation of bacterial pathogens from NON-STERILE SITES

- 16d. Were other respiratory specimens collected for bacterial culture (e.g. sputum, ET tube aspirate)?
- **The following are respiratory sites:** sputum and endotracheal aspirate. While these are non-sterile sites, they can indicate real bacterial infections with pathogens such as *S. aureus* and may be the only indication for a related pneumonia.
- 16e. If yes, please indicate the site from which the specimen was obtained and the result (if more than one specimen type is positive and more than one organism cultured from each specimen type in the comments section)
- If other specimen type is selected, please specify in text field
- 16f. If positive, the organism cultured
- Select any of the species listed or select other and indicate the species isolated
 - If reporting another viral co-infection, please do so in section 18b (Clinical Diagnosis and Complications)

Pathology confirmation of bacterial pathogens

16g. Was a specimen (e.g. fixed lung tissue) collected from an autopsy for testing of bacterial pathogens by a local or state pathologist. (If pathology results are available from CDC it is not necessary to input those results here, however please make sure to complete questions 14a. and 14b. [CDC Laboratory Specimens Section].)

- If yes, please indicate the results of these tests in the comments section at the end of the form

Medical Care

17. Was the patient placed on mechanical ventilation?

- a. For patients admitted to the ICU, this will most often be recorded in the ICU notes. References to vent settings, oscillator, HFOV, or HI-FI are typically associated with mechanical ventilation. Do not include cases in which the patient experienced cardio-respiratory arrest and was intubated during an unsuccessful resuscitative effort outside the hospital or in transit to the hospital.

Clinical Diagnoses and Complications

18a. Did complications occur during the acute illness?

18b. If yes, check all complications that occurred during the acute illness.

- Complications are usually stated in the general hospital chart. Additionally, hospital physicians may be able to provide information regarding a patient's hospital course.
- Acute Respiratory Disease Syndrome (ARDS)
- Another viral co-infection – specify diagnosis if available.
- Bronchiolitis
- Cardiomyopathy/myocarditis
- Croup
- Encephalopathy/encephalitis
- Hemorrhagic pneumonia/pneumonitis
- Pneumonia (Chest X-Ray confirmed)
- Reye syndrome
- Seizures
- Sepsis
- Shock
- Other
 - Please specify if there is a complication that occurred during the acute illness that is not available for selection

19a. Did the child have any medical conditions that existed before the start of the acute illness?

19b. If yes, check all medical conditions that existed before the start of the acute illness:

- Previous medical conditions are often listed on the hospital admission note or in the general hospital chart. Additionally, hospital physicians may be able to provide information regarding a patient's previous medical conditions.
- Asthma/reactive airway disease
- Cancer (diagnosis and/or treatment began in previous 12 months) (specify)
 - Includes both solid tumors and hematologic malignancies. If the patient has complete cure, do not check. Examples include acute myelogenous leukemia (AML), acute lymphocytic leukemia (ALL), and lymphoma.

- Cardiac disease/congenital heart disease (specify)
 - Examples include includes ventriculoseptal defect (VSD), Tetralogy of Fallot, transposition of the great arteries, atrial septal defect (ASD), pulmonary stenosis, hypoplastic left ventricle syndrome, aortic stenosis, mitral regurgitation, and coarctation of the aorta.
- Cerebral palsy
- Chromosomal abnormality/genetic syndrome (specify)
 - Record any history of chromosomal abnormalities on the medical chart. Examples include trisomy 21 (Down Syndrome) or trisomy 18 (Edwards syndrome).
- Chronic pulmonary disease (specify)
 - Specify any underlying chronic pulmonary disease that existed before the acute illness, other than asthma/reactive airway disease and cystic fibrosis. Examples include chronic aspiration pneumonia, bronchopulmonary dysplasia (BPD), "chronic lung disease", and interstitial lung disease.
- Cystic fibrosis
- Diabetes mellitus
 - Includes either type I *or* type II (both “insulin-dependent” and “adult-onset”). Also includes glucose intolerance and new-onset diabetes. Do not include patients noted as “pre-diabetic”.
- Hemoglobinopathy
 - Examples include sickle cell disease, hemoglobin SS, hemoglobin SC, hemoglobin S-beta thalassemia, beta thalassemia, and alpha thalassemia. Do NOT include sickle cell trait or thalassemia trait (also known as thalassemia minor).
- History of febrile seizures
 - Include history of seizures associated **only** with fever; also known as febrile convulsions. Patients with a history of febrile seizures do not typically require anti-seizure medication.
- Immunosuppressive condition (specify)
 - Includes HIV infection, immunosuppressive therapy, and immunoglobulin deficiency.
- Endocrine disorder (specify)
 - Examples include congenital adrenal hyperplasia, hypothyroidism, hyperthyroidism, adrenal insufficiency/Cushing syndrome, and pituitary abnormalities.
- Mitochondrial disorder (specify)
 - Examples include Pearson syndrome and Myoclonic Epilepsy with Ragged Red Fibers (MERRF).
- Moderate to severe developmental delay
- Neuromuscular disorder (specify)
 - Examples include muscular dystrophy and spinal muscular atrophy.
- Obesity
 - Childhood obesity is defined for children ≥ 2 years as BMI –for-age percentile $\geq 95^{\text{th}}$. Morbid obesity is not defined for children.
- Other Neurological Disorder (specify)
 - Include conditions that affect muscles of breathing or the ability to swallow (swallowing disorders/dysfunctions). Examples include static encephalopathy and hypoxemic ischemic encephalopathy.
- Premature at birth (specify gestational age in weeks)

- Preterm birth is defined as the birth of a baby of less than 37 weeks gestational age. Indicate gestational age for premature births in number of *completed* weeks. If gestational age is available as weeks and days, record exact age in weeks only; do not round up. For example, if the infant was 26 weeks, 6 days at delivery (26_6), enter 26 weeks for gestational age.
- Pregnant (specify gestational age in weeks)
 - Patient was pregnant at the time of hospitalization and/or death. Specify gestational age in weeks.
- Renal disease (specify)
 - This does not include *acute* renal failure or renal insufficiency. Includes end stage renal disease, chronic renal failure from any cause, nephrotic syndrome, renal tubular acidosis, glomerulonephritis, and polycystic kidney disease
- Seizure disorder
 - Includes seizure disorders other than febrile seizures. Include any seizure condition (e.g, epilepsy), if it requires routine anti-seizure medication.
- Skin or soft tissue infection
- Other
 - Please specify if there is an underlying condition that is not available for selection.

Medication and Therapy History

20a. Was the patient receiving any of the following therapies *prior* to illness onset? (check all that apply)

- Antiviral prophylaxis
- Chemotherapy or radiation therapy
- Chronic aspirin therapy
- Steroids by mouth or injection
- Other immunosuppressive therapy (specify)

20b. Did the patient receive any of the following after illness onset? (check all that apply)

- Antibiotic therapy (specify)
- Antiviral therapy (specify)

Influenza vaccine history

21. Did the patient receive any influenza vaccine during the current season (before illness)?

22. If YES, please specify the influenza vaccine received before illness onset:

- Inactivated influenza vaccine (IIV3) [*injected*]
- Quadrivalent inactivated influenza vaccine (IIV4) [*injected*]
- Live-attenuated vaccine (LAIV) [*nasal spray*]
- Unknown

23. If YES, how many doses did the patient receive and what was the timing of each dose? (Enter dates of vaccination if available)

- Children receive either one or two doses of influenza vaccine depending on their age. If the child received only 1 dose, then select 1 dose ONLY. If the child received two doses, select 2 doses.
- For each selection indicate if the last dose was given more than or equal to 14 days, or less than 14 days, before the patient reported influenza symptoms.

23b. If the patient received two doses of influenza vaccine during the current season, please specify the SECOND influenza vaccine received before illness onset:

- Inactivated influenza vaccine (IIV3) [*injected*]
- Quadrivalent inactivated influenza vaccine (IIV4) [*injected*]
- Live-attenuated vaccine (LAIV) [*nasal spray*]
- Unknown

24. Did the patient receive any influenza vaccine in previous seasons?

24a. If YES, and the patient was ≤ 8 years of age at the time of death, did they receive 2 doses of vaccine during a previous season?

25a. Were immunization records or information about influenza vaccination available for this case?

25b. If yes, please check all sources of information on the patient's influenza vaccination history that were reviewed (please check all that apply).

- Patient's immunization record
- Immunization information system (registry)
- Medical records
- Parent report
- Coroner's report
- News/media
- Other (specify):

Comments

On the last page of the form in the white space, feel free to include additional information regarding the patients' history or the case in general that investigator feels is important to share with VIDO-H-EPID.

Submitting Information

The person submitting the form, their contact phone number, email, and date submitted should be reported here.

Case Investigation Closed:

If no further information or updates are expected on the case, please check "Yes". If additional data or information may become available (e.g., pending lab results, autopsy report, vaccination status), please check "No".