

CDC Broad Acute Respiratory DD v1
Definition Factsheet & Technical Brief

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Definition Purpose: To assist state, tribal, local, territorial, and federal public health practitioners in identifying visits in the emergency department (ED) and urgent care (UC) settings with diagnostic codes associated with a broad range of acute respiratory illnesses. This includes codes associated with specific respiratory infections (e.g., Influenza, respiratory syncytial virus [RSV], or coronavirus), and codes associated with general respiratory illness such as cough or pneumonia.

New or Revised Definition: New

Date Added to ESSENCE: June 17, 2022

Definition Description: This definition is designed to capture visits for a broad range of respiratory conditions using discharge diagnoses.

Use-Cases for Definition: (check all that apply; add additional as needed)

- Case-finding
- Trend monitoring
- Early outbreak detection

Justification for New Version:

Co-circulation of multiple respiratory viruses has garnered interest in tracking the impacts of respiratory illnesses together. This is a new definition that was created to monitor the combined effects of multiple respiratory illnesses and aid in identification of the primary cause of increases through pathogen-specific surveillance. This aims for a broad view of respiratory visits and does not attempt to parse out visits due to a specific infection or condition. Additionally, historic baselines would exist and could be used to help determine if a new respiratory pathogen emerges.

Development Methods:

This definition has been developed over time with input from a variety of subject matter experts. The definition is also being used for identifying acute respiratory illnesses in the Respiratory Virus Laboratory Emergency Department Network Surveillance system (RESP-LENS).

Validation Results:

Trends were compared across existing syndrome definitions and with respiratory virus surveillance systems. The definition did capture increases seen in RSV, Influenza, and COVID-19 discharge diagnosis-based definitions; however, during periods where Influenza and RSV were decreasing, the definition did not capture a small increase in COVID-19. Overall respiratory illness activity usually remains stable if an increase in one pathogen occurs when other respiratory pathogens are decreasing. When comparing the definition to laboratory data from the National Respiratory and Enteric Virus Surveillance System (NREVSS), increases in Influenza, RSV, and COVID-19 percent positivity were captured, except for one increase in COVID-19 during summer 2022 when Influenza was decreasing and in 2021 when RSV was increasing. Overall, this definition appears to capture increases in

respiratory illness activity based on comparisons with known increases detected through other discharge diagnosis-based definitions and laboratory data.

Definition Fields and Structure:

The Discharge Diagnosis field is used to query the diagnosis codes to develop the syndrome definition.

- Automatic inclusion (yes):
 - If a diagnosis code indicating any of the specific terms listed is present, the visit is automatically included in the syndrome.
- Automatic inclusion (no):
 - Codes for “dyspnea, unspecified” and “shortness of breath” will only result in inclusion if the code for “fever” is also included. Likewise, the code for “fever” will only result in inclusion if the code for “dyspnea, unspecified” or “shortness of breath” is included.

Limitations:

Because this is an intentionally broad definition, interpretation must also be broad, i.e., it is not meant to provide pathogen-specific information. In addition, RSV-specific coding is often not routinely submitted for non-pediatric populations.

Detailed Definition Components:

Table 1. Descriptions of discharge diagnosis codes included in the CDC Broad Acute Respiratory DD v1 definition.

Discharge Diagnosis Code Type	Terms	Description
ICD-10-CM	A22.1	Pulmonary anthrax
	A37.X*	Whooping cough
	A37.00	Whooping cough due to Bordetella Pertussis without Pneumonia
	A37.01	Whooping cough: Bordetella pertussis, pneumonia
	A37.10	Whooping cough due to Bordetella parapertussis without pneumonia
	A37.11	Whooping cough: B. parapertussis, pneumonia
	A37.80	Whooping cough due to other Bordetella species without pneumonia
	A37.81	Whooping cough: other Bordetella, pneumonia
	A37.90	Whooping cough, unspecified species without pneumonia
	A37.91	Whooping cough, unspecified species, pneumonia
	A48.1	Legionnaire’s disease
	B25.0	Cytomegaloviral pneumonitis
	B34.2	Coronavirus infection, unspecified
	B34.9	Viral infection, unspecified
	B44.0	Invasive pulmonary aspergillosis
	B44.81	Allergic bronchopulmonary aspergillosis
	B44.9	Aspergillosis, unspecified
	B97.2	Coronavirus as the cause of diseases classified elsewhere
	B97.4	Respiratory syncytial virus as the cause of diseases classified elsewhere
	J00	Acute nasopharyngitis (common cold)
	J01.X*	Acute sinusitis
	J01.00	Acute maxillary sinusitis, unspecified
	J01.01	Acute recurrent maxillary sinusitis
	J01.10	Acute frontal sinusitis, unspecified
	J01.11	Acute recurrent frontal sinusitis
	J01.20	Acute ethmoidal sinusitis, unspecified
	J01.21	Acute recurrent ethmoidal sinusitis
	J01.30	Acute sphenoidal sinusitis, unspecified
	J01.31	Acute recurrent sphenoidal sinusitis
	J01.40	Acute pansinusitis, unspecified

J01.41	Acute recurrent pansinusitis
J01.80	Other acute sinusitis
J01.81	Other acute recurrent sinusitis
J01.90	Acute sinusitis, unspecified
J01.91	Acute recurrent sinusitis, unspecified
J02.X*	Acute pharyngitis
J02.0	Streptococcal pharyngitis
J02.8	Acute pharyngitis due to other specified organisms
J02.9	Acute pharyngitis, unspecified
J03.X*	Acute tonsillitis
J03.00	Acute streptococcal tonsillitis, unspecified
J03.01	Acute recurrent streptococcal tonsillitis
J03.80	Acute tonsillitis due to other specified organisms
J03.81	Acute recurrent tonsillitis due to other specified organisms
J03.90	Acute tonsillitis, unspecified
J03.91	Acute recurrent tonsillitis, unspecified
J04.X*	Acute laryngitis and tracheitis
J04.0	Acute laryngitis
J04.10	Acute tracheitis without obstruction
J04.11	Acute tracheitis with obstruction
J04.2	Acute laryngotracheitis
J04.30	Supraglottitis, unspecified, without obstruction
J04.31	Supraglottitis, unspecified, with obstruction
J05.X*	Acute obstructive laryngitis [croup] and epiglottitis
J05.0	Acute obstructive laryngitis [croup]
J05.10	Acute epiglottitis without obstruction
J05.11	Acute epiglottitis with obstruction
J06.X*	Acute upper respiratory infections of multiple and unspecified sites
J06.0	Acute laryngopharyngitis
J06.9	Acute upper respiratory infection, unspecified
J09.X*	Influenza due to identified novel influenza A virus
J09.X1	Influenza due to identified novel influenza A virus with pneumonia
J09.X2	Influenza due to identified novel influenza A virus with other respiratory manifestations
J09.X3	Influenza due to identified novel influenza A virus with gastrointestinal manifestations
J09.X9	Influenza due to identified novel influenza A virus with other manifestations
J10.X*	Influenza due to other identified influenza virus
J10.0	Influenza due to other identified influenza virus with pneumonia
J10.00	Influenza due to other identified influenza virus with unspecified type of pneumonia
J10.01	Influenza due to other identified influenza virus with the same other identified influenza virus pneumonia
J10.08	Influenza due to other identified influenza virus with other specified pneumonia
J10.1	Influenza due to other identified influenza virus with other respiratory manifestations
J10.2	Influenza due to other identified influenza virus with gastrointestinal manifestations
J10.8	Influenza due to other identified influenza virus with other manifestations
J10.81	Influenza due to other identified influenza virus with encephalopathy
J10.82	Influenza due to other identified influenza virus with myocarditis
J10.83	Influenza due to other identified influenza virus with otitis media

J10.89	Influenza due to other identified influenza virus with other manifestations
J11.X*	Influenza due to unidentified influenza virus
J11.0	Influenza due to unidentified influenza virus with pneumonia
J11.00	Influenza due to unidentified influenza virus with unspecified type of pneumonia
J11.08	Influenza due to unidentified influenza virus with specified pneumonia
J11.1	Influenza due to unidentified influenza virus with other respiratory manifestations
J11.2	Influenza due to unidentified influenza virus with gastrointestinal manifestations
J11.8	Influenza due to unidentified influenza virus with other manifestations
J11.81	Influenza due to unidentified influenza virus with encephalopathy
J11.82	Influenza due to unidentified influenza virus with myocarditis
J11.83	Influenza due to unidentified influenza virus with otitis media
J11.89	Influenza due to unidentified influenza virus with other manifestations
J12.X*	Viral pneumonia, not elsewhere classified
J12.0	Adenoviral pneumonia
J12.1	Respiratory syncytial virus pneumonia
J12.2	Parainfluenza virus pneumonia
J12.3	Human metapneumovirus pneumonia
J12.81	Pneumonia due to SARS-associated coronavirus
J12.82	Pneumonia due to COVID-19 / SARS CoV-2
J12.89	Other viral pneumonia
J12.9	Viral pneumonia, unspecified
J13	Pneumonia due to Streptococcus pneumoniae
J14	Pneumonia due to Hemophilus influenzae
J15.X*	Bacterial pneumonia, not elsewhere classified
J15.0	Pneumonia due to Klebsiella pneumoniae
J15.1	Pneumonia due to Pseudomonas
J15.20	Pneumonia due to staphylococcus, unspecified
J15.211	Pneumonia due to Methicillin susceptible Staphylococcus aureus
J15.212	Pneumonia due to Methicillin resistant Staphylococcus aureus
J15.29	Pneumonia due to other staphylococcus
J15.3	Pneumonia due to streptococcus, group B
J15.4	Pneumonia due to other streptococci
J15.5	Pneumonia due to Escherichia coli
J15.6	Pneumonia due to other Gram-negative bacteria
J15.7	Pneumonia due to Mycoplasma pneumoniae
J15.8	Pneumonia due to other specified bacteria
J15.9	Unspecified bacterial pneumonia
J16.X*	Pneumonia due to other infectious organisms, not elsewhere classified
J16.0	Chlamydial pneumonia
J16.8	Pneumonia due to other specified infectious organisms
J17	Pneumonia in diseases classified elsewhere
J18.X*	Pneumonia, unspecified organism
J18.0	Bronchopneumonia, unspecified organism
J18.1	Lobar pneumonia, unspecified organism
J18.2	Hypostatic pneumonia, unspecified organism
J18.8	Other pneumonia, unspecified organism
J18.9	Pneumonia, unspecified organism
J20.X*	Acute bronchitis
J20.0	Acute bronchitis due to Mycoplasma pneumoniae
J20.1	Acute bronchitis due to Hemophilus influenzae
J20.2	Acute bronchitis due to streptococcus

	J20.3	Acute bronchitis due to coxsackievirus
	J20.4	Acute bronchitis due to parainfluenza virus
	J20.5	Acute bronchitis due to respiratory syncytial virus
	J20.6	Acute bronchitis due to rhinovirus
	J20.7	Acute bronchitis due to echovirus
	J20.8	Acute bronchitis due to other specified organisms
	J20.9	Acute bronchitis, unspecified
	J21.X*	Other acute lower respiratory infections
	J21.0	Acute bronchiolitis due to respiratory syncytial virus
	J21.1	Acute bronchiolitis due to human metapneumovirus
	J21.8	Acute bronchiolitis due to other specified organisms
	J21.9	Acute bronchiolitis, unspecified
	J22	Unspecified acute lower respiratory tract infection
	J39.8	Other specified diseases of upper respiratory tract
	J40	Bronchitis, not specified as acute or chronic
	J47.9	Bronchiectasis with acute exacerbation
	J80	Acute Respiratory Distress Syndrome
	J85.1	Abscess of lung with pneumonia
	J95.821	Acute postprocedural respiratory failure
	J96.0	Acute respiratory failure
	J96.00	Acute respiratory failure, unspecified whether with hypoxia or hypercapnia
	J96.01	Acute respiratory failure with hypoxia
	J96.02	Acute respiratory failure with hypercapnia
	J96.2	Acute and chronic respiratory failure
	J96.20	Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia
	J96.21	Acute and chronic respiratory failure with hypoxia
	J96.22	Acute and chronic respiratory failure with hypercapnia
	J96.91	Respiratory failure, unspecified with hypoxia
	J98.8	Other specified respiratory disorders
	R05	Cough
	R06.03	Acute respiratory distress
	R09.02	Hypoxemia
	R09.2	Respiratory arrest
	R43.0	Anosmia
	R43.1	Parosmia
	R43.2	Parageusia
	U07.1	COVID-19, virus identified
	U07.2	COVID-19, virus not identified
ICD-10-CM – must appear in combination with discharge diagnosis code for fever (R50.9)	R06.00	Dyspnea, unspecified plus fever
	R06.02	Shortness of breath
ICD-9-CM	022.1	Pulmonary anthrax
	033.X*	Whooping cough
	033.0	Whooping cough due to bordetella pertussis [B. pertussis]
	033.1	Whooping cough due to bordetella parapertussis [B. parapertussis]
	033.8	Whooping cough due to other specified organism
	033.9	Whooping cough, unspecified organism
	034.0	Streptococcal sore throat
	041.5	Hemophilus influenzae [H. influenzae] infection in conditions classified elsewhere and of unspecified site

041.81	Other specified bacterial infections in conditions classified elsewhere and of unspecified site, mycoplasma
073.0	Ornithosis with pneumonia
079.1	Echo virus infection in conditions classified elsewhere and of unspecified site
079.2	Coxsackie virus infection in conditions classified elsewhere and of unspecified site
079.3	Rhinovirus infection in conditions classified elsewhere and of unspecified site
079.6	Respiratory syncytial virus (RSV)
079.82	SARS-associated coronavirus infection
079.89	Other specified viral infection
079.99	Other specified viral infection
117.3	Aspergillosis
460	Acute nasopharyngitis [common cold]
461.X*	Acute sinusitis
461.0	Acute maxillary sinusitis
461.1	Acute frontal sinusitis
461.2	Acute ethmoidal sinusitis
461.3	Acute sphenoidal sinusitis
461.8	Other acute sinusitis
461.9	Acute sinusitis, unspecified
462	Acute pharyngitis
463	Acute tonsillitis
464.X*	Acute laryngitis and tracheitis
464.0	Acute laryngitis
464.00	Acute laryngitis without mention of obstruction
464.01	Acute laryngitis with obstruction
464.1	Acute tracheitis
464.10	Acute tracheitis without mention of obstruction
464.11	Acute tracheitis with obstruction
464.2	Acute laryngotracheitis
464.20	Acute laryngotracheitis without mention of obstruction
464.21	Acute laryngotracheitis with obstruction
464.3	Acute epiglottitis
464.30	Acute epiglottitis without mention of obstruction
464.31	Acute epiglottitis with obstruction
464.4	Croup
464.5	Supraglottitis unspecified
465.X*	Acute upper respiratory infections of multiple or unspecified sites
465.0	Acute laryngopharyngitis
465.8	Acute upper respiratory infections of other multiple sites
465.9	Acute upper respiratory infections of unspecified site
466.X *	Acute bronchitis and bronchiolitis
466.0	Acute bronchitis
466.1	Acute bronchiolitis
478.9	Other and unspecified diseases of upper respiratory tract
480.X*	Viral pneumonia
480.0	Pneumonia due to adenovirus
480.1	Pneumonia due to respiratory syncytial virus
480.2	Pneumonia due to parainfluenza virus
480.3	Pneumonia due to SARS-associated coronavirus
480.8	Pneumonia due to other virus not elsewhere classified
480.9	Viral pneumonia, unspecified

481	Pneumococcal pneumonia [Streptococcus pneumoniae pneumonia]
482.X*	Other bacterial pneumonia
482.0	Pneumonia due to Klebsiella pneumoniae
482.1	Pneumonia due to Pseudomonas
482.2	Pneumonia due to Hemophilus influenzae [H. influenzae]
482.3	Pneumonia due to streptococcus
482.30	Pneumonia due to Streptococcus, unspecified
482.31	Pneumonia due to Streptococcus, group A
482.32	Pneumonia due to Streptococcus, group B
482.39	Pneumonia due to other Streptococcus
482.4	Pneumonia due to staphylococcus
482.40	Pneumonia due to Staphylococcus, unspecified
482.41	Methicillin susceptible pneumonia due to Staphylococcus aureus
482.42	Methicillin resistant pneumonia due to Staphylococcus aureus
482.49	Other Staphylococcus pneumonia
482.8	Pneumonia due to other specified bacteria
482.81	Pneumonia due to anaerobes
482.82	Pneumonia due to escherichia coli [E. coli]
482.83	Pneumonia due to other gram-negative bacteria
482.84	Pneumonia due to Legionnaires' disease
482.89	Pneumonia due to other specified bacteria
482.9	Bacterial pneumonia, unspecified
483.X*	Pneumonia due to other specified organism
483.0	Pneumonia due to mycoplasma pneumoniae
483.1	Pneumonia due to chlamydia
483.8	Pneumonia due to other specified organism
484.X*	Pneumonia in cytomegalic inclusion disease
484.1	Pneumonia in cytomegalic inclusion disease
484.3	Pneumonia in whooping cough
484.5	Pneumonia in anthrax
484.6	Pneumonia in aspergillosis
484.7	Pneumonia in other systemic mycoses
484.8	Pneumonia in other infectious diseases classified elsewhere
485	Bronchopneumonia, organism unspecified
486	Pneumonia, organism unspecified
487.X*	Influenza
487.0	Influenza with pneumonia
487.1	Influenza with pneumonia
487.8	Influenza with other manifestations
488.X*	Influenza due to identified avian influenza virus
488.0	Influenza due to identified avian influenza virus
488.01	Influenza due to identified avian influenza virus with pneumonia
488.02	Influenza due to identified avian influenza virus with other respiratory manifestations
488.09	Influenza due to identified avian influenza virus with other manifestations
488.1	Influenza due to identified 2009 h1n1 influenza virus
488.11	Influenza due to identified 2009 H1N1 influenza virus with pneumonia
488.12	Influenza due to identified 2009 H1N1 influenza virus with other respiratory manifestations
488.19	Influenza due to identified 2009 H1N1 influenza virus with other manifestations
488.8	Influenza due to novel influenza A
488.81	Influenza due to identified novel influenza A virus with pneumonia

	488.82	Influenza due to identified novel influenza A virus with other respiratory manifestations
	488.89	Influenza due to identified novel influenza A virus with other manifestations
	490	Bronchitis, not specified as acute or chronic
	494.1	Bronchiectasis with acute exacerbation
	517.1	Rheumatic pneumonia
	518.51	Acute respiratory failure following trauma and surgery
	518.53	Acute and chronic respiratory failure following trauma and surgery
	518.6	Allergic bronchopulmonary aspergillosis
	518.81	Acute respiratory failure
	518.82	Other pulmonary insufficiency, not elsewhere classified
	518.84	Acute and chronic respiratory failure
	519.8	Other diseases of respiratory system, not elsewhere classified
	781.1	Disturbance of sensation of smell and taste
	786.2	Cough
	799.02	Hypoxemia
	799.1	Respiratory arrest
ICD-9-CM – must appear in combination with code for fever (780.60)	786.05	Shortness of breath
	786.09	Other respiratory abnormalities

*All codes with the first three-digit prefixes (for example, A37 includes all A37.xx), which are listed in gray.

Table 2. ESSENCE syntax

<p>^;/]A22.1^,or,^;/]A221^,or,^;/]A37^,or,^;/]A48.1^,or,^;/]A481^,or,^;/]B25.0^,or,^;/]B250^,or,^;/]B34.[29]^,or,^;/]B34[29]^,or,^;/]B44.[09]^,or,^;/]B44[09]^,or,^;/]B44.81^,or,^;/]B4481^,or,^;/]B97.[24]^,or,^;/]B97[24]^,or,^;/]J0[0-69]^,or,^;/]J1[0-8]^,or,^;/]J2[012]^,or,^;/]J39.8^,or,^;/]J398^,or,^;/]J40^,or,^;/]J47.9^,or,^;/]J479^,or,^;/]J80^,or,^;/]J85.1^,or,^;/]J851^,or,^;/]J95.821^,or,^;/]J95821^,or,^;/]J96.[02]^,or,^;/]J96[02]^,or,^;/]J96.91^,or,^;/]J9691^,or,^;/]J98.8^,or,^;/]J988^,or,^;/]R05^,or,(^;/]R06.0[02]^,or,^;/]R060[02]^,or,^),AND,(^;/]R50.9^,or,^;/]R509^,or,^;/]R06.03^,or,^;/]R0603^,or,^;/]R09.02^,or,^;/]R0902^,or,^;/]R09.2^,or,^;/]R092^,or,^;/]R43.[012]^,or,^;/]R43[012]^,or,^;/]U07.[12]^,or,^;/]U07[12]^,or,^;/]022.1^,or,^;/]0221[;/]^,or,^;/]034.0^,or,^;/]0340[;/]^,or,^;/]041.5^,or,^;/]0415[;/]^,or,^;/]041.81^,or,^;/]04181[;/]^,or,^;/]079.[1236]^,or,^;/]079[1236][;/]^,or,^;/]079.8[29]^,or,^;/]0798[29][;/]^,or,^;/]079.99^,or,^;/]07999[;/]^,or,^;/]117.3^,or,^;/]1173[;/]^,or,^;/]46[0-6][;/]^,or,^;/]461.[0-9]^,or,^;/]461[0-9][;/]^,or,^;/]46[1456].[0-9]^,or,^;/]46[1456][0-9][;/]^,or,^;/]46[1456][0-9][019][;/]^,or,^;/]478.9^,or,^;/]4789[;/]^,or,^;/]48[0-8][;/]^,or,^;/]48[023478].[0-9]^,or,^;/]48[023478][0-9][;/]^,or,^;/]48[28][0-9][0-9][;/]^,or,^;/]490[;/]^,or,^;/]494.1^,or,^;/]4941[;/]^,or,^;/]517.1^,or,^;/]5171[;/]^,or,^;/]518.5[13]^,or,^;/]5185[13][;/]^,or,^;/]518.6^,or,^;/]5186[;/]^,or,^;/]518.8[124]^,or,^;/]5188[124][;/]^,or,^;/]519.8^,or,^;/]5198[;/]^,or,^;/]073.0^,or,^;/]0730[;/]^,or,^;/]781.1^,or,^;/]7811[;/]^,or,^;/]786.2^,or,^;/]7862[;/]^,or,^;/]799.02^,or,^;/]79902[;/]^,or,^;/]799.1^,or,^;/]7991[;/]^,or,^;/]033[;/]^,or,^;/]033.[0-9]^,or,^;/]033[0-9][;/]^,or,(^;/]780.60^,or,^;/]78060[;/]^,or,^),AND,(^;/]786.0[59]^,or,^;/]7860[59][;/]^,or,^)</p>
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