

Mumps v2

Definition Factsheet & Technical Brief

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Definition Purpose: Created in collaboration between subject matter experts from the CDC National Syndromic Surveillance Program (NSSP) and CDC Viral Vaccine Preventable Diseases Branch (VVPDB)'s mumps program for use with emergency department data to develop a query for mumps defined by the National Notifiable Diseases Surveillance System (NNDSS). Please note that while disease queries are developed using the NNDSS case definition as the basis for identifying patient visits of interest, the queried patient visits themselves may or may not represent a case patient in NNDSS and further public health investigation will most often be required. This query is intended to be a version 2 and may be further improved upon by the NSSP community of practice in the future. This query is intended to be narrow and capture visits with specific terms to support greater monitoring and actionable public health data. More complex and/or broader queries may exist that more broadly capture symptoms or travel-based terms.

New or Revised Definition: Revised Definition

Date Added to ESSENCE: October 2025

Definition Description: Designed to capture emergency department visits with a diagnostic code or textual indicator of possible mumps.

Use-Cases for Definition:

Case-finding: Tertiary

Trend monitoring: Primary

Early outbreak detection: Secondary

Emergent Condition: Not Intended as Use Case

Justification: The previous mumps v1 definition resulted in a high number of false positives among visits using a discharge diagnosis code of mumps for patients with historical cases. New syntax is required to ensure only acute infections are included.

Data Source During Development: Emergency Department Visits. Chief Complaint Query Validation dataset (CCQV) in ESSENCE.

Development Methods:

1. The CDC team used the NNDSS case definition of mumps to identify diagnostic codes (International Classification of Diseases, 9th & 10th Revision (ICD-9-CM, ICD-10-CM), SNOMED Clinical Terms (CT)) and chief complaint free-text for syndrome development.
2. NSSP and CDC subject matter experts (SMEs) evaluated the mumps v1 query and identified new syntax required to ensure only acute infections were included.
3. The codes and free text were then categorized as inclusion or exclusion terms. These terms were formatted for querying in ESSENCE.
4. Text analysis was conducted on the initial query to find additional inclusion or exclusion terms.
5. The query was cross-checked internally by NSSP and by CDC SMEs as needed.

Validation Methods: This definition is part of the collection of definitions created by CDC NSSP for the rapid reportables project. The rapid reportables project is led by the CDC NSSP team to create definitions for all nationally reportable diseases. These definitions focus on chief complaint text and diagnostic codes of the disease or its causative agents with no mention of symptoms. Select members of the Community of Practice were then asked to review line-level results for their jurisdictions and provide feedback to ensure the intended results of the definitions were met.

Definition Fields and Structure:

The Chief Complaint Discharge Diagnosis (CCDD) parsed field is used to query both the discharge diagnosis codes and chief complaint free text, and exclusions are incorporated as necessary.

- Inclusion based on ICD-10 discharge diagnosis codes related to mumps:
 - The visit is included if it contains:
 1. A discharge diagnosis code for Mumps (B26) **OR**
- Inclusion based on SNOMED discharge diagnosis codes related to mumps:
 - The visit is included if it contains:
 1. Discharge diagnosis codes for Mumps (36989005 or 78580004 or 240526004 or 44201003 or 75548002 or 237443002 or 10665004 or 31646008 or 236771002 or 40099009 or 111870000) **AND**
- Inclusion based on mumps complaint free text terms:
 - The visit is included if it contains:
 1. Chief complaint related to symptoms caused by disease - ("paroti" or "throat" or "swell" or "swoll" or "face" or "faci" or "ache" or "pain" or "fever" or "discomfort" or "orchitis") **OR**
 2. Chief complaint related to affected areas - ("face" or "faci" or "cheek" or "jaw" or "neck") **ANDNOT**
- All of the above must exclude:
 1. An ICD-10 discharge diagnosis code for Encounter for Immunization (Z23) **OR**
 2. A SNOMED discharge diagnosis codes related to adverse reaction to vaccination (293114004 or 192719005 or 293125008) **OR**
 3. A SNOMED discharge diagnosis code related to history of mumps (161420006) **OR**
 4. Chief complaint terms nested together - ("vaccin" **ANDNOT** "not vaccinated") **OR**
 5. Chief complaint terms related to routine check-ups - ("well child" or "screening" or "annual" or "wellness") **OR**
 6. Chief complaint term related to allergies - ("allerg") **OR**
 7. Chief complaint term related to specimen collection - ("specimen collection") **OR**
 8. Chief complaint term related to MMR vaccination - ("MMR") **OR**
 9. Chief complaint terms related to follow-up visits - ("follow up" or "followup") **OR**
 10. Chief complaint term related to a history of mumps - ("history of mumps" or "history mumps")

Detailed Definition Components

Table 1. Inclusion and exclusion terms.

Terms	Description
Inclusion	
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) – Nested Together with Chief Complaint* using AND	
B26	Mumps
SNOMED Concepts – Nested Together with Chief Complaint* using AND	
36989005	Mumps (disorder)
78580004	Mumps orchitis (disorder)
240526004	Mumps parotitis (disorder)
44201003	Meningitis caused by mumps virus (disorder)
75548002	Mumps oophoritis (disorder)
237443002	Mastitis of mumps (disorder)
10665004	Mumps pancreatitis (disorder)
31646008	Mumps encephalitis (disorder)
236771002	Mumps epididymo-orchitis (disorder)
40099009	Meningoencephalitis caused by mumps virus (disorder)
111870000	Mumps without complication (disorder)
Chief Complaint*	
“paroti”	
“throat”	
“swell”	
“swoll”	
“face”	
“faci”	
“cheek”	
“jaw”	
“neck”	
“ache”	
“pain”	
“fever”	
“discomfort”	
“orchitis”	
Chief Complaint	
“mumps”	
Exclusion	
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	
Z23	Encounter for immunization
SNOMED Concepts	
293114004	Adverse reaction to component of vaccine product containing Mumps orthorubulavirus antigen (disorder)
192719005	Post mumps vaccination encephalitis (disorder)
293125008	Adverse reaction to component of vaccine product containing only Measles morbillivirus and Mumps orthorubulavirus and Rubella virus antigens (disorder)
161420006	History of mumps (situation)
Chief Complaint – Nested Together with ANDNOT	
“vaccin”	“not vaccinated”
Chief Complaint	
“well child”	
“allerg”	
“screening”	

"annual"
"wellness"
"specimen collection"
"MMR"
"follow up"
"followup"
"history of mumps"
"history mumps"

Table 2. ESSENCE syntax for the CCDD parsed field

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(,^mumps^,OR,(,^B26^,OR,^;36989005;,OR,^;78580004;,OR,^;240526004;,OR,^;44201003;,OR,^;75548002;,OR,^;237443002;,OR,^;10665004;,OR,^;31646008;,OR,^;236771002;,OR,^;40099009;,OR,^;111870000;,),AND,(,^paroti^,OR,^throat^,OR,^sw[eo]ll^,OR,^fac[e]i^,OR,^cheek^,OR,^jaw^,OR,^neck^,OR,^ache^,OR,^pain^,OR,^fever^,OR,^discomfort^,OR,^orchitis^,)),ANDNOT,(,^testing^,OR,^inject^,OR,^titer^,OR,^titre^,OR,^shot^,OR,(,^vaccin^,ANDNOT,^not vaccinated^,),OR,^well child^,OR,^allerg^,OR,^screening^,OR,^annual^,OR,(,^wellness^,OR,^specimen collection^,OR,^MMR^,OR,^follow up^,OR,^followup^,OR,^history of mumps^,OR,^history mumps^,OR,^Z23^,OR,^;293114004;,OR,^;192719005;,OR,^;293125008;,OR,^;161420006;,)
```

Use the following URL and click Configuration Options to see the query setup:

[https://essence2.syndromicsurveillance.org/nssp_essence/servlet/TemporalTimeSeriesViewer?datasource=va_hosp&startDate=29Dec2024&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=29Mar2025&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=notdetector&detector&CCDDParsedFreeText=\(,%5Emumps%5E,OR,\(,%5E;B26%5E,OR,%5E;36989005;%5E,OR,%5E;78580004;%5E,OR,%5E;240526004;%5E,OR,%5E;44201003;%5E,OR,%5E;75548002;%5E,OR,%5E;237443002;%5E,OR,%5E;10665004;%5E,OR,%5E;31646008;%5E,OR,%5E;236771002;%5E,OR,%5E;40099009;%5E,OR,%5E;111870000;%5E,\),AND,\(,%5Eparoti%5E,OR,%5Ethroat%5E,OR,%5Esw%5Eo%5Edi%5E,OR,%5Efac%5Ee%5Di%5E,OR,%5Echeek%5E,OR,%5Ejaw%5E,OR,%5Eneck%5E,OR,%5Eache%5E,OR,%5Epain%5E,OR,%5Efever%5E,OR,%5Ediscomfort%5E,OR,%5Eorchitis%5E,\)\),ANDNOT,\(,%5Etesting%5E,OR,%5Einject%5E,OR,%5Etiter%5E,OR,%5Etitre%5E,OR,%5Eshot%5E,OR,\(,%5Evaccin%5E,ANDNOT,%5Enot%20vaccinated%5E,\),OR,%5Ewell%20child%5E,OR,%5Eallerg%5E,OR,%5Escreening%5E,OR,%5Eannual%5E,OR,%5Ewellness%5E,OR,%5Especimen%20collection%5E,OR,%5EMMR%5E,OR,%5Efollow%20up%5E,OR,%5Efollowup%5E,OR,%5Ehistory%20of%20mumps%5E,OR,%5Ehistory%20mumps%5E,OR,%5E;Z23%5E,OR,%5E;293114004;%5E,OR,%5E;192719005;%5E,OR,%5E;293125008;%5E,OR,%5E;161420006;%5E,\)%20%20&timeResolution=weekly](https://essence2.syndromicsurveillance.org/nssp_essence/servlet/TemporalTimeSeriesViewer?datasource=va_hosp&startDate=29Dec2024&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=29Mar2025&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=notdetector&detector&CCDDParsedFreeText=(,%5Emumps%5E,OR,(,%5E;B26%5E,OR,%5E;36989005;%5E,OR,%5E;78580004;%5E,OR,%5E;240526004;%5E,OR,%5E;44201003;%5E,OR,%5E;75548002;%5E,OR,%5E;237443002;%5E,OR,%5E;10665004;%5E,OR,%5E;31646008;%5E,OR,%5E;236771002;%5E,OR,%5E;40099009;%5E,OR,%5E;111870000;%5E,),AND,(,%5Eparoti%5E,OR,%5Ethroat%5E,OR,%5Esw%5Eo%5Edi%5E,OR,%5Efac%5Ee%5Di%5E,OR,%5Echeek%5E,OR,%5Ejaw%5E,OR,%5Eneck%5E,OR,%5Eache%5E,OR,%5Epain%5E,OR,%5Efever%5E,OR,%5Ediscomfort%5E,OR,%5Eorchitis%5E,)),ANDNOT,(,%5Etesting%5E,OR,%5Einject%5E,OR,%5Etiter%5E,OR,%5Etitre%5E,OR,%5Eshot%5E,OR,(,%5Evaccin%5E,ANDNOT,%5Enot%20vaccinated%5E,),OR,%5Ewell%20child%5E,OR,%5Eallerg%5E,OR,%5Escreening%5E,OR,%5Eannual%5E,OR,%5Ewellness%5E,OR,%5Especimen%20collection%5E,OR,%5EMMR%5E,OR,%5Efollow%20up%5E,OR,%5Efollowup%5E,OR,%5Ehistory%20of%20mumps%5E,OR,%5Ehistory%20mumps%5E,OR,%5E;Z23%5E,OR,%5E;293114004;%5E,OR,%5E;192719005;%5E,OR,%5E;293125008;%5E,OR,%5E;161420006;%5E,)%20%20&timeResolution=weekly)

Syntax Plain Language Description The definition uses discharge diagnosis codes and free-text chief complaint terms. The definition requires that an emergency department visit contains a reference to the disease by its discharge diagnosis code (in at least one of the following: ICD-10-CM, SNOMED diagnostic codes), or by the disease name listed in the chief complaint text. The mumps syndromic surveillance definition includes direct mentions of mumps using “mumps” in chief complaint text. To ensure that only acute mumps were captured, diagnostic codes were only included if combined with symptoms (“paroti”, “throat”, “swell”, “swoll”, “face”, “faci”, “ache”, “pain”, “fever”, “discomfort”, “orchitis”) or affected areas (“face”, “faci”, “cheek”, “jaw”, “neck”). Other methods were to exclude records with diagnostic codes or chief complaint text that includes routine check-ups (“well child”, “screening”, “annual”, “wellness”), disease history (“follow up”, “followup”, “history of mumps”, “history mumps”), and vaccination (“MMR”, “vaccin” andnot “not vaccinated”).