

Plague v1 **Definition Factsheet & Technical Brief**

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Definition Purpose: Created by the CDC National Syndromic Surveillance Program (NSSP) for use with emergency department data to develop queries for all National Notifiable Diseases defined by the National Notifiable Disease Surveillance System (NNDSS). Please note that while the 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 1 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: New Definition

Date Added to ESSENCE: February 2025

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

Use-Cases for Definition:

- ☒ Case-finding
- ☐ Trend monitoring
- ☒ Early outbreak detection

Justification: No query definition exists for Plague. CDC wants to use emergency department data to monitor trends.

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 plague 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. The codes and free text were then categorized as inclusion or exclusion terms. These terms were formatted for querying in ESSENCE.
3. Text analysis was conducted on the initial query to find additional inclusion or exclusion terms.
4. The query was cross-checked internally as NSSP and by CDC subject matter experts 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 plague chief complaint free text terms:
 - The visit is included if it contains:
 1. A chief complaint related to disease agent – (“yersinia p” or “y pestis”) **OR**
 2. A chief complaint related to disease name – (“plague” or “plegue” or “plaue” or “plage” or “pleague” or “plaueg” or “bubonic”) **ANDNOT**
 - The visit is excluded if it contains:
 1. A chief complaint related to other words with plague – (“plagued” or “plaged” or “white plague” or “psoriasis” or “hollenhorst” or “hollenhurst” or “hollenharst”) **OR**
- Inclusion based on ICD-10 discharge diagnosis codes related to plague:
 - The visit is included if it contains:
 1. A discharge diagnosis code for Plague – (A20) **OR**
- Inclusion based on ICD-9 discharge diagnosis codes related to plague:
 - The visit is included if it contains:
 1. A discharge diagnosis code for Plague – (020.0 or 020.1 or 020.2 or 020.3 or 020.4 or 020.5 or 020.8 or 020.9) **OR**
- Inclusion based on SNOMED discharge diagnosis codes related to plague:
 - The visit is included if it contains:
 1. A discharge diagnosis for Plague – (58750007) **OR**
 2. A discharge diagnosis for other forms of Plague – (186287003 or 50797007 or 43484003 or 240384004 or 186284005 or 38976008 or 35339003 or 67525007 or 9012003) **ANDNOT**
- All the above must exclude:
 - An ICD-10 discharge diagnosis code related to psoriasis – (L40) **OR**
 - A SNOMED discharge diagnosis code related to immunization – (219083000 or 192709004)

Detailed Definition Components

Table 1. Inclusion and exclusion terms.

Variable Type	Terms	Description
Inclusions		
Discharge Diagnosis: ICD-10-CM	A20	Plague
Discharge Diagnosis: ICD-9-CM	020.0	Bubonic plague
	020.1	Cellulocutaneous plague
	020.2	Septicemic plague
	020.3	Primary pneumonic plague
	020.4	Secondary pneumonic plague
	020.5	Pneumonic plague, unspecified
	020.8	Other specified types of plague
	020.9	Plague, unspecified
Discharge Diagnosis: SNOMED concepts	186287003	Ambulatory plague (disorder)
	50797007	Bubonic plague (disorder)
	43484003	Cellulocutaneous plague (disorder)
	240384004	Gastroenteric plague (disorder)
	58750007	Plague (disorder)
	186284005	Plague meningitis (disorder)
	38976008	Pneumonic plague (disorder)
	35339003	Primary pneumonic plague (disorder)
	67525007	Secondary pneumonic plague (disorder)
	9012003	Septicemic plague (disorder)
Chief Complaint Terms – Nested Together with ANDNOT	“plague”	“plagued”
	“plegue”	“plaged”
	“plauge”	“white plague”
	“plage”	“psoriasis”
	“pleague”	“hollenhurst”
	“plaague”	“hollenhorst”
	“bubonic”	“hollenharst”
		“eye”
		“aortic”
		“carotid”
Chief Complaint Terms	“yersinia p”	
	“y pestis”	
Exclusions		
Discharge Diagnosis: ICD-10-CM	L40	Psoriasis

Discharge Diagnosis:SNOMED concepts	219083000	Adverse reaction to component of vaccine product containing <i>Yersinia pestis</i> antigen (disorder)
	192709004	Post plague vaccination encephalitis (disorder)

Table 2. *ESSENCE* syntax

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(, (, ^pl[ae]gue^, OR, ^plauge^, OR, !plage!, OR, ^pleague^, OR, ^plaugue^, OR, ^bubonic^, ), ANDNOT, (, ^plaged^, OR, ^plagued^, OR, ^white plague^, OR, ^psoriasis^, OR, ^hollenh[aou]rst^, OR, ^eye^, OR, ^aortic^, OR, ^carotid^, OR, ^coronary^, ), OR, ^yersinia p^, or, ^y pestis^, OR, ^;A20^, OR, ^;020[0-589];^, OR, ^;186287003;^, OR, ^;50797007;^, OR, ^;43484003;^, OR, ^;240384004;^, OR, ^;58750007;^, OR, ^;186284005;^, OR, ^;38976008;^, OR, ^;35339003;^, OR, ^;67525007;^, OR, ^;9012003;^, ), ANDNOT, (, ^;L40^, OR, ^;219083000;^, OR, ^;192709004;^, )
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