

Spotted Fever Rickettsiosis 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 Diseases 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: July 2025

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

Use-Cases for Definition:

Case-finding: Primary

Trend monitoring: Secondary

Early outbreak detection: Tertiary

Emergent Condition: Not Intended as Use Case

Justification: No query definition exists for spotted fever rickettsiosis. 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 spotted fever rickettsiosis 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 at 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 spotted fever rickettsiosis chief complaint free text terms:
 - The visit is included if it contains:
 1. A chief complaint related to disease name – (“rickettsiosis” or “spotted fever”) **OR**
 2. A chief complaint related to disease subgroups – (“rocky mountain” or “rocky mtn” or “RMSF” or “ RMSF” or “RMSF “ or “ RMSF “ or “pacific coast tick”) **OR**
 3. Chief complaint terms nested together with **ANDNOT** – (“rickettsia”) **ANDNOT**
 - a. A chief complaint related to typhus and neorickettsia – (“typhus” or “typhi” or “neorickettsia”) **OR**
- Inclusion based on ICD-9 discharge diagnosis codes related to spotted fever rickettsiosis:
 - The visit is included if it contains:
 1. A discharge diagnosis code for Spotted Fevers (080.0) **OR**
 2. A discharge diagnosis code for Rickettsialpox (083.2) **OR**
- Inclusion based on ICD-10 discharge diagnosis codes related to spotted fever rickettsiosis:
 - The visit is included if it contains:
 1. A discharge diagnosis code for Spotted Fever – (A77.0 or A77.1 or A77.2 or A77.3) **OR**
 2. A discharge diagnosis code for Rickettsialpox – (A79.1) **OR**
- Inclusion based on SNOMED discharge diagnosis codes related to spotted fever rickettsiosis:
 - The visit is included if it contains:
 1. A discharge diagnosis code for Rickettsia organisms – (415342003 or 18054009) **OR**
 2. A discharge diagnosis code for Rickettsia diseases – (186771002 or 75096007 or 186772009) **ANDNOT**
- All the above must exclude:
 1. A chief complaint related to follow-up visits – (“history of rocky” or “history rocky” or “history of rickettsia” or “follow up”)

Detailed Definition Components

Table 1. Inclusion and exclusion terms.

Terms	Description
Inclusion	
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	
A77.0	Spotted fever due to Rickettsia rickettsii
A77.1	Spotted fever due to Rickettsia conorii
A77.2	Spotted fever due to Rickettsia siberica
A77.3	Spotted fever due to Rickettsia australis
A79.1	Rickettsialpox due to Rickettsia akari
International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)	
082.0	Spotted fevers
083.2	Rickettsialpox
SNOMED Concepts	
415342003	Rickettsia, spotted fever group (organism)
186771002	Spotted fever group rickettsial disease (disorder)
18054009	Rickettsia rickettsii (organism)
75096007	Rickettsialpox (disorder)
186772009	Rocky Mountain spotted fever (disorder)
Chief Complaint	
"rickettsiosis"	
"spotted fever"	
"rocky mountain"	
"rocky mtn"	
"RMSF" or " RMSF" or "RMSF " or " RMSF "	
"pacific coast tick"	
Chief Complaint – Nested Together with <i>ANDNOT</i>	
"rickettsia"	"typhi"
	"typhus"
	"neorickettsia"
Exclusion	
Chief Complaint	
"History of rocky"	
"history rocky"	
"history of rickettsia"	
"history RMSF"	
"rule out rocky mountain"	
"rule out RMSF"	
"follow up"	

Table 2. ESSENCE syntax for the CCDD parsed field

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(,^rickettsia^,ANDNOT,(^typhi^,OR,^typhus^,OR,^neorickettsia^),OR,^rickettsiosis^,OR,^spotted fever^,OR,^rocky mountain^,OR,^rocky mtn^,OR,!RMSF!,OR,^pacific coast tick^,OR,^;A77[0-3]^,OR,^;A791^,OR,^;0820^,OR,^;0832^,OR,^;415342003^,OR,^;186771002^,OR,^;18054009^,OR,^;75096007^,OR,^;186772009^),ANDNOT,(^history of rocky^,OR,^history rocky^,OR,^history of rickettsia^,OR,^history RMSF^,OR,^rule out rocky mountain^,OR,^rule out RMSF^,OR,^follow up^,)
```

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=6Apr2025&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=12Jul2025&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=notdetector&CCDDParsedFreeText=\(,%5Erickettsia%5E,ANDNOT,\(,%5Etyphi%5E,OR,%5Etyphus%5E,OR,%5Eneorickettsia%5E\),OR,%5Erickettsiosis%5E,OR,%5Espotted%20fever%5E,OR,%5Erocky%20mountain%5E,OR,%5Erocky%20mtn%5E,OR,!RMSF!,OR,%5Epacific%20coast%20tick%5E,OR,%5E;A77%5B0-3%5D%5E,OR,%5E;A791%5E,OR,%5E;0820;%5E,OR,%5E;0832;%5E,OR,%5E;415342003;%5E,OR,%5E;186771002;%5E,OR,%5E;18054009;%5E,OR,%5E;75096007;%5E,OR,%5E;186772009;%5E\),ANDNOT,\(,%5Ehistory%20of%20rocky%5E,OR,%5Ehistory%20rocky%5E,OR,%5Ehistory%20of%20rickettsia%5E,OR,%5Ehistory%20RMSF%5E,OR,%5Erule%20out%20rocky%20mountain%5E,OR,%5Erule%20out%20RMSF%5E,OR,%5Efollow%20up%5E,\)%20&timeResolution=weekly](https://essence2.syndromicsurveillance.org/nssp_essence/servlet/TemporalTimeSeriesViewer?datasource=va_hosp&startDate=6Apr2025&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=12Jul2025&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=notdetector&CCDDParsedFreeText=(,%5Erickettsia%5E,ANDNOT,(,%5Etyphi%5E,OR,%5Etyphus%5E,OR,%5Eneorickettsia%5E),OR,%5Erickettsiosis%5E,OR,%5Espotted%20fever%5E,OR,%5Erocky%20mountain%5E,OR,%5Erocky%20mtn%5E,OR,!RMSF!,OR,%5Epacific%20coast%20tick%5E,OR,%5E;A77%5B0-3%5D%5E,OR,%5E;A791%5E,OR,%5E;0820;%5E,OR,%5E;0832;%5E,OR,%5E;415342003;%5E,OR,%5E;186771002;%5E,OR,%5E;18054009;%5E,OR,%5E;75096007;%5E,OR,%5E;186772009;%5E),ANDNOT,(,%5Ehistory%20of%20rocky%5E,OR,%5Ehistory%20rocky%5E,OR,%5Ehistory%20of%20rickettsia%5E,OR,%5Ehistory%20RMSF%5E,OR,%5Erule%20out%20rocky%20mountain%5E,OR,%5Erule%20out%20RMSF%5E,OR,%5Efollow%20up%5E,)%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, ICD-9-CM, SNOMED diagnostic codes), or by the disease or pathogen name listed in the chief complaint text. Therefore, the spotted fever rickettsiosis syndromic surveillance definition includes ICD-10-CM, ICD-9-CM, and SNOMED diagnostic codes for spotted fever rickettsiosis, along with direct mentions of spotted fever rickettsiosis (“rickettsiosis”, “spotted fever”, “rocky mountain”, “rocky mtn”, “RMSF”) or reference to the pathogen (“rickettsia”, “pacific coast tick”) in chief complaint text. To ensure that only rickettsia infections were included, we excluded records with chief complaint text that includes other mentions of rickettsia that are not considered spotted fever rickettsiosis: (“typhi”, “typhus”, “neorickettsia”). To ensure that only acute infections were captured, we excluded records with chief complaint text that includes disease history: ‘history of rocky’, ‘history rocky’, ‘history of rickettsia’, ‘history RMSF’, ‘follow up’.