

Acute Rabies 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: February 2025

Definition Description: Designed to capture emergency department visits with a diagnostic code or textual indicator of acute exposure to rabid animals or initial administration of rabies post-exposure prophylaxis (PEP). Acute Rabies v1 is designed to capture first visits and will exclude any subsequent visits for Rabies PEP. To look at all visits for Rabies PEP, see the Rabies PEP Administered v1 definition.

Use-Cases for Definition:

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

Justification: No query definition exists for acute exposure to rabid animals or initial administration of rabies PEP. 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 "Animal Rabies" 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.

- Inclusion based on Rabies related chief complaint free text terms:
 - The visit is included if it contains:
 1. Chief complaints related to the disease name – (“rabid”, “rabie”, “rabbie”, “rabes”) **OR**
- Inclusion based on ICD-10 discharge diagnosis codes related to Rabies:
 - The visit is included if it contains:
 1. A discharge diagnosis code of Rabies (A82) **OR**
 2. A discharge diagnosis code of Contact with and (suspected) exposure to rabies (Z20.3) **OR**
 3. A discharge diagnosis code of Encounter for prophylactic rabies immune globin (Z29.14) **OR**
- Inclusion based on ICD-9 discharge diagnosis codes related to Rabies:
 - The visit is included if it contains:
 1. A discharge diagnosis code of Rabies (071) **OR**
 2. A discharge diagnosis code of Contact with or exposure to rabies (V01.5) **OR**
 3. A discharge diagnosis code of Need for prophylactic vaccination and inoculation against rabies (V04.5) **OR**
- Inclusion based on SNOMED discharge diagnosis codes related to Rabies:
 - The visit is included if it contains:
 1. A discharge diagnosis code of Exposure to Rabies virus (444459008) **OR**
 2. A discharge diagnosis code of Administration of vaccine product containing only Rabies lyssavirus antigen (34631000) **ANDNOT**
- Inclusion based on animal exposures chief complaint free text terms:
 - The visit is included if it contains:
 1. Chief complaint free text of animal exposures nested together – (“bit”, “scratch”, “exposure”) **AND** (“bat”, “raccoon”, “raccoon”, “fox”, “skunk”, “otter”, “mongoose”, “coyote”) **ANDNOT**
- All of the above must exclude:
 - Chief complaint free text and discharge diagnosis codes nested together:
 1. Chief complaint free text indicating subsequent visit - (“2”, “3”, “4”, “5”) **ANDNOT** “Z20 3” **OR** (“second”, “third”, “fourth”, “fifth”, “final”, “last”, “repeat”, “return”, “recheck”, “revisit”, “subsequent” **AND**
 2. Chief complaint free text indicating shot or visit – (“dose”, “immun”, “inj”, “round”, “series”, “set”, “shot”, “vac”, “vax”, “visit”) **OR**
 3. ICD-10 discharge diagnosis code of Encounter for Immunization (Z23) **AND**
 4. Chief complaint free text indicating rabies – (“rabid”, “rabie”, “rabbie”, “rabes”) **OR**
 5. ICD-10 discharge diagnosis code of Rabies (A82) **OR**
 6. ICD-10 discharge diagnosis code of Contact with and (suspected) exposure to rabies (Z20.3) **OR**
 7. ICD-10 discharge diagnosis code of Encounter for prophylactic rabies immune globin (Z29.14) **OR**
 8. ICD-9 discharge diagnosis code of Rabies (071) **OR**
 9. ICD-9 discharge diagnosis code of Contact with or exposure to rabies (V01.5) **OR**
 10. ICD-9 discharge diagnosis code of Need for prophylactic vaccination and inoculation against rabies (V04.5) **OR**

- 11. SNOMED discharge diagnosis code of Exposure to Rabies virus (444459008) **OR**
- 12. SNOMED discharge diagnosis code of Administration of vaccine product containing only Rabies lyssavirus antigen (34631000) **OR**
- Chief complaint free text related to subsequent visits for rabies – (“second rabid”, “second rabie”, “second rabbie”, “second rabes”, “third rabid”, “third rabie”, “third rabbie”, “third rabes”, “fourth rabid”, “fourth rabie”, “fourth rabbie”, “fourth rabes”, “fifth rabid”, “fifth rabie”, “fifth rabbie”, “fifth rabes”, “last rabid”, “last rabie”, “last rabbie”, “last rabes”, “follow up”, “followup”, “next rabid”, “next rabie”, “repeat rabies”, “repeat rabid”, “return for rabie”, “return for rabie”, “return for rabbie”, return for rabes”, “return rabid”, “return rabie”, “return rabbie”, “return rabes”, “recheck”) **OR**
- SNOMED discharge diagnosis codes related to adverse effects of Rabies vaccination:
 - 1. A discharge diagnosis code of Adverse reaction to component of vaccine product containing Rabies lyssavirus antigen (293118001) **OR**
 - 2. A discharge diagnosis code of Post rabies vaccination encephalitis (192714000)

Detailed Definition Components

Table 1. Inclusion and exclusion terms...

| Variable Type | Terms | Description | |
|---|-----------|---|--|
| Inclusions | | | |
| Discharge Diagnosis: ICD-10-CM | A82 | Rabies | |
| | Z20.3 | Contact with and (suspected) exposure to rabies | |
| | Z29.14 | Encounter for prophylactic rabies immune globin | |
| Discharge Diagnosis: ICD-9-CM | 071 | Rabies | |
| | V01.5 | Contact with or exposure to rabies | |
| | V04.5 | Need for prophylactic vaccination and inoculation against rabies | |
| Discharge Diagnosis: SNOMED concepts | 444459008 | Exposure to Rabies virus | |
| | 34631000 | Administration of vaccine product containing only Rabies lyssavirus antigen | |
| Chief Complaint Terms | rabid | | |
| | rabie | | |
| | rabbie | | |
| | rabes | | |
| Chief Complaint Terms – Nested Together with AND | bit | bat | |
| | scratch | raccoon | |
| | exposure | racooc | |
| | | fox | |
| | | skunk | |
| | | otter | |
| | | mongoose | |
| | | coyote | |
| Exclusions | | | |
| Discharge Diagnosis: SNOMED concepts | 293118001 | Adverse reaction to component of vaccine product containing Rabies lyssavirus antigen | |
| | 192714000 | Post rabies vaccination encephalitis | |
| Chief Complaint Terms and Discharge Diagnosis Codes– Nested Together with AND | 2* | dose | rabid |
| | 3* | immun | rabie |
| | 4* | inj | rabbie |
| | 5* | round | rabes |
| | second | series | A82 (Rabies) |
| | third | shot | Z20.3 (Contact with and (suspected) exposure to rabies) |
| | fourth | vac | Z29.14 (Encounter for prophylactic rabies immune globin) |
| | fifth | vax | 071 (Rabies) |
| | final | visit | V01.5 (Contact with or exposure to rabies) |
| | last | Z23 (Encounter for Immunization) | V04.5 (Need for prophylactic vaccination and inoculation against rabies) |

| | | | |
|--------------------------|-------------------|--|---|
| | return | | 444459008 (Exposure to Rabies virus) |
| | recheck | | 34631000 (Administration of vaccine product containing only Rabies lyssavirus antigen) |
| | revisit | | |
| | subsequent | | |
| Chief Complaint Terms | second rabid | | |
| | second rabie | | |
| | second rabbie | | |
| | second raves | | |
| | third rabid | | |
| | third rabie | | |
| | third rabbie | | |
| | third raves | | |
| | fourth rabid | | |
| | fourth rabie | | |
| | fourth rabbie | | |
| | fourth raves | | |
| | fifth rabid | | |
| | fifth rabie | | |
| | fifth rabbie | | |
| | fifth raves | | |
| | last rabid | | |
| | last rabie | | |
| | last rabbie | | |
| | last raves | | |
| | Follow up | | |
| | followup | | |
| | return for rabid | | |
| | return for rabie | | |
| | return for rabbie | | |
| | return for raves | | |
| | return rabid | | |
| | return rabie | | |
| | return rabbie | | |
| | return raves | | |
| | recheck | | |

Table 2. *ESSENCE* syntax

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(,^rabi[de]^,OR,^rabbi^,OR,^rabes^,OR,^;A82^,OR,^;Z203^,OR,^;Z2914^,OR,^;071^;^,OR,^;V0[14]5^,O
R,^;444459008;^,OR,^;34631000;^,OR,(,^bit^,OR,^scratch^,OR,^exposure^,),AND,(,!bat!,OR,^raccoon^,
OR,^raccoon^,OR,^fox^,OR,^skunk^,OR,^otter^,OR,^mongoose^,OR,^coyote^,)),ANDNOT,(,(,!2345]!,A
NDNOT,^Z20
3^,OR,^second^,OR,^third^,OR,^fourth^,OR,^fifth^,OR,^final^,OR,^last^,OR,^repeat^,OR,^return^,OR,^r
echeck^,OR,^revisit^,OR,^subsequent^,),AND,(,^dose^,OR,^immun^,OR,^inj^,OR,^round^,OR,^series^,
OR,^set^,OR,^shot^,OR,^va[cx]^,OR,^visit^,OR,^;Z23^,),AND,(,^rabi[de]^,OR,^rabbi^,OR,^rabes^,OR,^
;A82^,OR,^;Z203^,OR,^;Z2914^,OR,^;071^;^,OR,^;V015^,OR,^;444459008;^,OR,^;34631000;^,)),OR,^se
cond rabi[de]^,OR,^second rabbi^,OR,^second rabes^,OR,^third rabi[de]^,OR,^third rabbies^,OR,^third
rabes^,OR,^fourth rabi[de]^,OR,^fourth rabbi^,OR,^fourth rabes^,OR,^last rabi[de]^,OR,^last
rabbi^,OR,^last rabes^,OR,^follow up^,OR,^followup^,OR,^next rabi[de]^,OR,^repeat
rabi[de]^,OR,^return for rabi[de]^,OR,^return for rabbi^,OR,^return for rabes^,OR,^return
rabi[de]^,OR,^return rabbi^,OR,^return rabes^,OR,^recheck^,OR,^;293118001;^,OR,^;192714000;^,)
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