

Rabies PEP Administered (First Visit) 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). Rabies PEP Administered (First Visit) 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	racoon	
		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 in the CCDD parsed field*

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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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