

## **Paratyphoid Fever 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:** April 2026

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

### **Use-Cases for Definition:**

Case-finding: Primary

Trend monitoring: Not Intended as Use Case

Early outbreak detection: Secondary

Emergent Condition: Not Intended as Use Case

**Justification:** No query definition exists for paratyphoid fever infections. 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 paratyphoid fever to identify diagnostic codes (International Classification of Diseases, 9th & 10th Revisions (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 by 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 paratyphoid fever chief complaint free text terms:
    - The visit is included if it contains:
      1. A chief complaint related to disease name – (“paratyph”) **OR**
      2. A chief complaint related to alternative name – (“enteric fever”) **OR**
      3. A chief complaint related to disease agent – (“salmonella” and “paratyphi”) **OR**
  - Inclusion based on ICD-10 discharge diagnosis codes related to paratyphoid fever:
    - The visit is included if it contains:
      1. A discharge diagnosis code for Paratyphoid fever – (A01.1 or A01.2 or A01.3 or A01.4) **OR**
  - Inclusion based on ICD-9 discharge diagnosis codes related to paratyphoid fever:
    - The visit is included if it contains:
      1. A discharge diagnosis code for Paratyphoid fever – (002.1 or 002.2 or 002.3 or 002.9) **OR**
  - Inclusion based on SNOMED discharge diagnosis codes related to paratyphoid fever:
    - The visit is included if it contains:
      1. A discharge diagnosis code for Paratyphoid fever – (76623002 or 71085009 or 51254007 or 85904008) **OR**
      2. A discharge diagnosis code for *Salmonella* Paratyphi – (79128009 or 85908006 or 32488009) **OR**
      3. A discharge diagnosis code for Colitis caused by *Salmonella* Paratyphi – (1163127003 or 1163128008 or 1163125006) **OR**
      4. A discharge diagnosis code for Multidrug-resistant *Salmonella* Paratyphi – (840687007) **OR**
      5. A discharge diagnosis code for Eruption of skin caused by *Salmonella* Paratyphi – (1287471003 or 1287511006 or 1287512004 or 1287513009) **ANDNOT**
  - All the above must exclude:
    - An ICD-10 discharge diagnosis code for Adverse reaction of other bacterial vaccines – (T50.A95) **OR**
    - An ICD-10 discharge diagnosis code for Encounter for immunization – (Z23) **OR**
    - An ICD-10 discharge diagnosis code for Encounter for other specified prophylactic measures – (Z29.8) **OR**
    - A SNOMED discharge diagnosis code for Post paratyphoid vaccination encephalitis – (192707002) **OR**
    - A SNOMED discharge diagnosis code for Adverse reaction to component of paratyphoid vaccine – (219079000)
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# Detailed Definition Components

**Table 1.** Inclusion and exclusion terms.

| Terms                                                                                              | Description                                              |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <i>Inclusion</i>                                                                                   |                                                          |
| <b>International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)</b> |                                                          |
| A01.1                                                                                              | Paratyphoid fever A                                      |
| A01.2                                                                                              | Paratyphoid fever B                                      |
| A01.3                                                                                              | Paratyphoid fever C                                      |
| A01.4                                                                                              | Paratyphoid fever, unspecified                           |
| <b>International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)</b>  |                                                          |
| 002.1                                                                                              | Paratyphoid fever A                                      |
| 002.2                                                                                              | Paratyphoid fever B                                      |
| 002.3                                                                                              | Paratyphoid fever C                                      |
| 002.9                                                                                              | Paratyphoid fever, unspecified                           |
| <b>SNOMED Concepts</b>                                                                             |                                                          |
| 76623002                                                                                           | Paratyphoid A fever                                      |
| 71085009                                                                                           | Paratyphoid B fever                                      |
| 51254007                                                                                           | Paratyphoid C fever                                      |
| 85904008                                                                                           | Paratyphoid fever                                        |
| 79128009                                                                                           | <i>Salmonella</i> Paratyphi A                            |
| 85908006                                                                                           | <i>Salmonella</i> Paratyphi B                            |
| 32488009                                                                                           | <i>Salmonella</i> Paratyphi C                            |
| 1163127003                                                                                         | Colitis caused by <i>Salmonella</i> Paratyphi A          |
| 1163128008                                                                                         | Colitis caused by <i>Salmonella</i> Paratyphi B          |
| 1163125006                                                                                         | Colitis caused by <i>Salmonella</i> Paratyphi C          |
| 840687007                                                                                          | Multidrug-resistant <i>Salmonella</i> Paratyphi          |
| 1287471003                                                                                         | Eruption of skin caused by <i>Salmonella</i> Paratyphi   |
| 1287511006                                                                                         | Eruption of skin caused by <i>Salmonella</i> Paratyphi A |
| 1287512004                                                                                         | Eruption of skin caused by <i>Salmonella</i> Paratyphi B |
| 1287513009                                                                                         | Eruption of skin caused by <i>Salmonella</i> Paratyphi C |
| <b>Chief Complaint</b>                                                                             |                                                          |
| “paratyph”                                                                                         |                                                          |
| “enteric fever”                                                                                    |                                                          |
| “salmonella” AND “paratyphi”                                                                       |                                                          |
| <i>Exclusion</i>                                                                                   |                                                          |
| <b>International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)</b> |                                                          |
| T50.A95                                                                                            | Adverse reaction of other bacterial vaccines             |
| Z23                                                                                                | Encounter for immunization                               |
| Z29.8                                                                                              | Encounter for other specified prophylactic measures      |
| <b>SNOMED Concepts</b>                                                                             |                                                          |
| 192707002                                                                                          | Post paratyphoid vaccination encephalitis                |
| 219079000                                                                                          | Adverse reaction to component of paratyphoid vaccine     |

**Table 2.** ESSENCE syntax for the CCDD parsed field

```
(,^paratyph^,OR,^enteric fever^,OR,(^salmonella^,AND,!paratyphi!),OR,^;A01[1-4]^,OR,^;002[1239];^,OR,^;76623002;^,OR,^;71085009;^,OR,^;51254007;^,OR,^;85904008;^,OR,^;79128009;^,OR,^;85908006;^,OR,^;32488009;^,OR,^;1163127003;^,OR,^;1163128008;^,OR,^;1163125006;^,OR,^;840687007;^,OR,^;1287471003;^,OR,^;1287511006;^,OR,^;1287512004;^,OR,^;1287513009;^),ANDNOT,(,^;T50A95^,OR,^;Z23^,OR,^;Z298^,OR,^;192707002;^,OR,^;219079000;^,)
```

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=4Jan2026&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=28Feb2026&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=no-detector&CCDDParsedFreeText=\(,%5Eparatyph%5E,OR,%5Eenteric%20fever%5E,OR,\(,%5Esalmonella%5E,AND,!paratyphi!\).\),OR,%5E;A01%5B1-4%5D%5E,OR,%5E;002%5B1239%5D;%5E,OR,%5E;76623002;%5E,OR,%5E;71085009;%5E,OR,%5E;51254007;%5E,OR,%5E;85904008;%5E,OR,%5E;79128009;%5E,OR,%5E;85908006;%5E,OR,%5E;32488009;%5E,OR,%5E;1163127003;%5E,OR,%5E;1163128008;%5E,OR,%5E;1163125006;%5E,OR,%5E;840687007;%5E,OR,%5E;1287471003;%5E,OR,%5E;1287511006;%5E,OR,%5E;1287512004;%5E,OR,%5E;1287513009;%5E,\).ANDNOT,\(,%5E;T50A95%5E,OR,%5E;Z23%5E,OR,%5E;Z298%5E,OR,%5E;192707002;%5E,OR,%5E;219079000;%5E,\)&timeResolution=weekly](https://essence2.syndromicsurveillance.org/nssp_essence/servlet/TemporalTimeSeriesViewer?datasource=va_hosp&startDate=4Jan2026&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=28Feb2026&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=no-detector&CCDDParsedFreeText=(,%5Eparatyph%5E,OR,%5Eenteric%20fever%5E,OR,(,%5Esalmonella%5E,AND,!paratyphi!).),OR,%5E;A01%5B1-4%5D%5E,OR,%5E;002%5B1239%5D;%5E,OR,%5E;76623002;%5E,OR,%5E;71085009;%5E,OR,%5E;51254007;%5E,OR,%5E;85904008;%5E,OR,%5E;79128009;%5E,OR,%5E;85908006;%5E,OR,%5E;32488009;%5E,OR,%5E;1163127003;%5E,OR,%5E;1163128008;%5E,OR,%5E;1163125006;%5E,OR,%5E;840687007;%5E,OR,%5E;1287471003;%5E,OR,%5E;1287511006;%5E,OR,%5E;1287512004;%5E,OR,%5E;1287513009;%5E,).ANDNOT,(,%5E;T50A95%5E,OR,%5E;Z23%5E,OR,%5E;Z298%5E,OR,%5E;192707002;%5E,OR,%5E;219079000;%5E,)&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-9-CM, ICD-10-CM, SNOMED diagnostic codes), or by the disease name listed in the chief complaint text. The paratyphoid fever syndromic surveillance definition includes direct mentions of paratyphoid fever using “paratyph” or “enteric fever” in chief complaint text, and mentions of the pathogen using combined terms for “salmonella” and “paratyphi”. To ensure that only acute paratyphoid fever infections were captured, diagnostic codes were excluded if there were diagnostic codes indicating vaccination.