



Core Case Notification Data Element Recommendations: Travel

This document was developed by the Data Standardization Work Group (DSWG) of the Council of State and Territorial Epidemiologists (CSTE) Surveillance Practice and Implementation Subcommittee (SPIS) as a part of a larger data harmonization effort. It will be published and maintained in a repository on the CSTE website.

The DSWG identified and standardized the data elements to utilize in the transmission of core surveillance case data to the Centers for Disease Control and Prevention (CDC). Core surveillance data classes and data elements are those that apply across many conditions and, in general, are not specific to any single condition or condition family. In each recommendation document, the DSWG provides common definitions, value sets/code sets, structure, and interpretation notes for each identified data element that is designated as core. The DSWG does not provide questions which would be used to populate the recommended data elements. More information about the DSWG and data harmonization can be found [here](#).

The structure of this document is as follows:

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Background

Travel history is a data concept for which there is much variation in how the information is collected and structured in case surveillance systems, including differences across conditions within the same system. The variation stems from many factors, including the level of detail needed regarding the travel location, dates, and the exposure period, the geographic and demographic characteristics of a jurisdiction, and varying information requested by CDC. Even the definition of travel is not standardized. What geopolitical boundaries, distance from the home jurisdiction, or minimum duration qualifies as travel? Is a specific reason required to qualify as travel? Is the transit period included as part of the travel information collected, or only the destination? The DSWG created a standardized definition and structure for core travel history data elements that would still allow for the need for variation across conditions.

Defining Scope for Core Travel Data Element Recommendations

In scope: The DSWG remained focused on core surveillance needs throughout the travel history discussions. As various travel-related data elements were introduced, those that were supported by consensus to be included in routine case notifications to CDC were considered further. Selected data elements are those for which we recommend a common submission mechanism, such as inclusion in a Generic message mapping guide (MMG) or the equivalent, allowing jurisdictions to submit this information in the same way for many conditions and without implementation of condition-specific messaging structures. Selection does *not* imply that the data elements must be collected for all cases or all conditions.

Out of scope: The DSWG acknowledged that there may be additional travel-related information needed in some jurisdictions, for certain conditions, or for purposes other than for sending to CDC. Those pieces may be addressed in future DSWG work. Some of these data elements are listed in Appendix B. Some key discussions around out-of-scope travel data included the following:

- The workgroup acknowledged that there are varying levels of granularity required across data elements based on the condition. In other words, while a high-level (i.e., yes/no) indication of

travel may apply to many conditions, information on the specific itinerary or mode of transport, for example, may only be applicable for certain cases. Given the public health requisite for extensive or very specific travel history data for selected conditions, we anticipate the continued need for collection and/or submission of travel history data that goes beyond the core surveillance data that can be submitted for all conditions.

- With the focus on condition-agnostic core data for surveillance, identification of the appropriate time frames for each condition was considered outside the scope of discussion. Although the specific exposure period is key to an individual case investigation, it is less important in the development of a standardized set of elements. A past barrier to standardizing travel history data elements has been the importance of having a travel exposure window that is appropriate for the condition under investigation. Using the same window for all conditions is neither practical nor useful epidemiologically. Data elements for travel history have frequently included a time frame as part of the element definition (e.g., travel in the 14 days before symptom onset). To allow harmonization of the travel exposure data class across conditions, we recommend data elements (below) that are agnostic of the travel exposure window. However, we recommend and assume that travel history will be collected using standard condition-specific exposure periods. Guidance on these condition-specific exposure periods is outside the scope of this document but may be derived from case definitions, CDC investigation forms, or other CDC guidance.
- Similarly, the level of detail required for airline exposure notifications or to meet the needs of the Division of Global Migration Health (DGMH) was outside the scope of discussion since the focus was on surveillance data to be included in routine case notifications to CDC.
- Implementation considerations for the standardized travel data elements outlined below may be warranted and development will likely require additional CDC guidance. Considerations might include instructions for transmitting partial date data depending on message formatting, determination of relevant condition-specific travel exposure windows, or selection of a relevant condition-specific subset of concepts from standard value sets, such as Travel Purpose (PHVS_TravelPurpose_CDC) (Table 6), among others.

Core Surveillance Travel History Data Elements for Routine Case Notifications

The data elements below are those that the DSWG agreed to define as core surveillance data for case notifications to CDC. Data elements marked with an asterisk (*) had at least 50% support but did not reach the 80% consensus mark within the group and are included as core data elements with weak support from the DSWG. For each of the data elements listed below, there is no pre-defined default value for what should be transmitted when the data element has not been populated. Refer to Tables 1-8 below for definitions and additional information for each data element. Further details on eCR and USCDI as input data sources for travel data can be found in Appendix A.

Standalone data elements:

- [International Travel](#)
- [Domestic Travel](#)
- [Specify Different Travel Exposure Window*](#)

Repeating block of data elements:

- [International Destination\(s\) of Recent Travel](#)
- [Domestic Destination\(s\) of Recent Travel](#)
- [Reason\(s\) for Travel*](#)
- [Date of Arrival to Travel Destination](#)
- [Date of Departure from Travel Destination](#)



The following data elements were also discussed, but there was no consensus to include them in core surveillance data for routine case notifications to CDC.

- Travel
- Date of Return from Travel
- Date of Return to the US from Travel
- Length of Time in the US
- Length of Time in the US Unit

Travel as a concept is meant to be inclusive of any time that the person spent outside of their home jurisdiction during a timeframe appropriate for the condition's exposure period in an effort to gauge the role of travel as a risk factor. In the context of core data for surveillance to be transmitted to CDC, the home jurisdiction refers to the person's current state or territory of residence. While travel within one's home jurisdiction can be epidemiologically relevant, the working group agreed that inter-jurisdictional travel was of primary importance for the purposes of core data transmission to CDC. Capturing travel within one's home jurisdiction may be warranted to meet jurisdictional or condition-specific needs. There can be ambiguity in determining a person's residence for reporting purposes, but guidelines are presented in the CSTE position statement 11-SI-04, Revised Guidelines for Determining Residency for Disease Notification Purposes¹. Time spent outside of the home jurisdiction includes travel for vacation or for work, as well as time spent away to visit relatives or friends, for medical reasons, for a routine daily commute, and when moving/relocating (including international migration), among other reasons.

An overarching Travel data element is currently included in several condition-specific message mapping guides to capture whether or not the person spent any time outside of their jurisdiction, either domestically or internationally, during the relevant time period. Including such a question might be helpful in the flow of collecting data in a surveillance system; if the response is "No", then no additional travel-related questions need be addressed for that case investigation. However, for the purposes of identifying core surveillance data for case notifications to CDC, an umbrella Travel element is unlikely to provide additional information when the International Travel and Domestic Travel data elements are also present. Therefore, the conclusion was that because the overall Travel element is redundant, it would not be included as core surveillance for case notifications.

Workgroup members overwhelmingly agreed that a repeating set of data elements, also referred to as a repeating block, is the best way to appropriately collect, store, and share travel data in order to account for multiple trips or destinations. The first three data elements (i.e., International Travel, Domestic Travel, and Different Travel Exposure Window, when applicable) would serve as summary-level questions to capture the overall travel picture for the person, while the remaining data elements would be part of the repeating block and would be populated as many times as needed to capture all trips or destinations that occurred within the condition-specific relevant time period. This approach was considered more useful than a single set of summary-level questions to capture all travel-related data.

This approach also supports the appropriate logic across the data elements. If both International Travel and Domestic Travel are "No", it follows that none of the repeating block data elements should be populated. Furthermore, these repeating block elements should only be populated if either International Travel or Domestic Travel is "Yes" and should only include destinations and dates for travel that occurs during the relevant time period. That is, any travel or time spent outside of the state or territory of residence that occurs entirely outside of the time period that is relevant to the condition should not be included in the case notification.

¹ CSTE position statement 11-SI-04. "Revised Guidelines for Determining Residency for Disease Notification Purposes". <https://cdn.ymaws.com/www.cste.org/resource/resmgr/PS/11-SI-04.pdf>



It is also important to pursue inclusion of these data elements as concepts in SNOMED terminology. In this way, each element would be precisely defined as per the comprehensive SNOMED requirements, allowing for easier incorporation into USCDI and more standardization across EHR systems.

Table 1. Core Surveillance Data Element for Routine CDC Case Notification – International Travel

International Travel	
Definition	Indicator that person spent time outside of the USA states or territories in a time period relevant to the condition
Standard Code for Transmission to CDC	No appropriate LOINC code exists for this concept. Until an appropriate LOINC code is requested and available, the below may be utilized as an interim: SNOMED: 874901007 – International travel (event)
Value set or coding system	PHVS YesNoUnknown CDC - Yes/No/Unknown
Abstracted/ Derived/ Created	Derived
Derived from (examples)	Travel indicator, International destination(s) of recent travel, Dates traveled
Recommendations for Input Data Source(s)	• Case investigation • eCR
Notes	The “time period relevant to the condition” will be defined on a condition-by-condition basis by CDC program areas. Current MMGs utilize travel questions to collect information on potential exposures and not subsequent transmission.
Data Source Details	
eCR CDA	Travel History CDA template
eCR FHIR	US Public Health Travel History profile
ELR	N/A
USCDI v6	N/A
USCDI+ Public Health: Case Reporting Use Case	N/A

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Table 2. Core Surveillance Data Element for Routine CDC Case Notification – Domestic Travel

Domestic Travel	
Definition	Indicator that the person spent time domestically outside of their state/territory of residence, but within the USA states or territories, in a time period relevant to the condition
Standard Code for Transmission to CDC	No appropriate LOINC code exists for this concept. Until an appropriate LOINC code is requested and available, the below may be utilized as an interim: SNOMED: 874902000 – Recent domestic travel (event)
Value set or coding system	PHVS YesNoUnknown_CDC - Yes/No/Unknown
Abstracted/ Derived/ Created	Derived
Derived from (examples)	Travel indicator, Domestic destination(s) of recent travel, Dates traveled
Recommendations for Input Data Source(s)	• Case investigation • eCR
Notes	The “time period relevant to the condition” will be defined on a condition-by-condition basis by CDC program areas. Current MMGs utilize travel questions to collect information on potential exposures and not subsequent transmission.
Data Source Details	
eCR CDA	Travel History CDA template
eCR FHIR	US Public Health Travel History profile
ELR	N/A
USCDI v6	N/A
USCDI+ Public Health: Case Reporting Use Case	N/A

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Table 3. Core Surveillance Data Element for Routine CDC Case Notification – Specify Different Travel Exposure Window

Specify Different Travel Exposure Window	
Definition	If the travel exposure window used by the jurisdiction is different from that stated in the CDC travel exposure questions for the condition, specify the time interval in days here. Otherwise, leave blank.
Standard Code for Transmission to CDC	PHIN Questions: INV663 - Specify different travel exposure window
Value set or coding system	N/A
Abstracted/ Derived/ Created	Created
Derived from (examples)	N/A
Recommendations for Input Data Source(s)	• Case investigation
Notes	This field should be used to denote the exposure window used in the PHA investigation, not the duration of travel. For example, if the CDC travel exposure questions for the condition use the 14 days before onset, and the PHA conducting the investigation instead routinely uses the 7 days before onset for this condition, the value for this field might be “7 days before onset”. Rather than something entered during case investigation, this value should be static across cases for a given condition and reflect the time period specified in the PHA’s surveillance system. This data element will often be left blank as it will not be applicable in most circumstances, but the ability to transmit this information to CDC is important when applicable. There was weak support (>50% but <80%) for this data element’s inclusion in core surveillance data to include in routine case notifications to CDC.
Data Source Details	
eCR CDA	N/A
eCR FHIR	N/A
ELR	N/A
USCDI v6	N/A
USCDI+ Public Health: Case Reporting Use Case	N/A

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Table 4. Core Surveillance Data Element for Routine CDC Case Notification – International Destination(s) of Recent Travel

International Destination(s) of Recent Travel	
Definition	International destination or countries where the person spent time
Standard Code for Transmission to CDC	LOINC: 82764-2 – Country of travel outside the U.S.
Value set or coding system	ISO 3166: Codes for the representation of names of countries and their subdivisions
Abstracted/ Derived/ Created	Abstracted
Derived from (examples)	N/A
Recommendations for Input Data Source(s)	• Case investigation • eCR
Notes	This data element should be part of the standard repeating block for travel data.
Data Source Details	
eCR CDA	ClinicalDocument/component/Social History Section V3 /Travel History V3/participant/participantRole/code
eCR FHIR	US Public Health Travel History profile • Observation.component: travelLocation.value[x].coding
ELR	N/A
USCDI v6	Not present in USCDI v6. A data element present as Level 2 within USCDI: Travel History Location (Level 2): A location in a person's travel history either as an address or as a coded location.
USCDI+ Public Health: Case Reporting Use Case	Travel History Location • Definition: A location in a person's travel history either as an address or as a coded location. • Part of the Travel Information data class

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Table 5. Core Surveillance Data Element for Routine CDC Case Notification – Domestic Destination(s) of Recent Travel

Domestic Destination(s) of Recent Travel	
Definition	Domestic destination, state/territory(s) where the person spent time outside of the state/territory of residence
Standard Code for Transmission to CDC	LOINC: 82754-3 – State of travel
Value set or coding system	FIPS 5-2: Codes for the identification of the states and associated areas
Abstracted/ Derived/ Created	Abstracted
Derived from (examples)	N/A
Recommendations for Input Data Source(s)	• Case investigation • eCR
Notes	This data element should be part of the standard repeating block for travel data.
Data Source Details	
eCR CDA	ClinicalDocument/component/Social History Section V3 /Travel History V3/participant/participantRole/addr/state
eCR FHIR	USPublicHealthAddressExtension • Observation.component:travelLocation.extension:travelHistoryAddress • Extension.value[x].state
ELR	N/A
USCDI v6	Not present in USCDI v6. A data element present as Level 2 within USCDI: Travel History Location (Level 2): A location in a person's travel history either as an address or as a coded location.
USCDI+ Public Health: Case Reporting Use Case	Travel History Location • Definition: A location in a person's travel history either as an address or as a coded location. • Part of the Travel Information data class

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Table 6. Core Surveillance Data Element for Routine CDC Case Notification – Reason(s) for Travel

Reason(s) for Travel	
Definition	Reason(s) for time spent outside of the jurisdiction of residence
Standard Code for Transmission to CDC	LOINC: 66415-1 – Reason for travel related to current illness
Value set or coding system	Travel Purpose (CDC)
Abstracted/ Derived/ Created	Abstracted
Derived from (examples)	N/A
Recommendations for Input Data Source(s)	• Case investigation • eCR
Notes	This data element should be part of the standard repeating block for travel data. While implementation of this data element is encouraged across conditions as a core data element, this data element may often not be known and only prioritized during investigation for certain applicable conditions. There was weak support (>50% but <80%) for this data element's inclusion in core surveillance data to include in routine case notifications to CDC.
Data Source Details	
eCR CDA	ClinicalDocument/component/Social History Section V3 /Travel History V3/Purpose of Travel Observation V2/entryRelationship/observation/value/code
eCR FHIR	US Public Health Travel History profile • Observation.component:travelPurpose • SNOMED: 280147009 Observation.component: travelPurpose.value[x]
ELR	N/A
USCDI v6	Not present in USCDI v6. A data element present as Level 0 within USCDI: Purpose of Travel (Level 0): Purpose of travel (business, tourism, etc.)
USCDI+ Public Health: Case Reporting Use Case	N/A

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Table 7. Core Surveillance Data Element for Routine CDC Case Notification – Date of Arrival to Travel Destination

Date of Arrival to Travel Destination	
Definition	Date of arrival at destination
Standard Code for Transmission to CDC	LOINC: 91559-5 – Date of arrival at travel destination
Value set or coding system	Date If the date is unknown, this data element may be left blank.
Abstracted/ Derived/ Created	Abstracted
Derived from (examples)	N/A
Recommendations for Input Data Source(s)	• Case investigation • eCR
Notes	This data element should be part of the standard repeating block for travel data.
Data Source Details	
eCR CDA	ClinicalDocument/component/Social History Section V3 /Travel History V3/effectiveTime
eCR FHIR	US Public Health Travel History profile Observation.effective[x], element for (dateTime or Period)
ELR	N/A
USCDI v6	Not present in USCDI v6. A data element present as Level 2 within USCDI: Travel History Dates (Level 2): The dates spent in a location traveled to.
USCDI+ Public Health: Case Reporting Use Case	Travel History Dates • Definition: The dates spent in a location traveled to. • Part of the Travel Information data class

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Table 8. Core Surveillance Data Element for Routine CDC Case Notification – Date of Departure from Travel Destination

Date of Departure from Travel Destination	
Definition	Date of departure from destination
Standard Code for Transmission to CDC	LOINC: 91560-3 – Date of departure from travel destination
Value set or coding system	Date If the date is unknown, this data element may be left blank.
Abstracted/ Derived/ Created	Abstracted
Derived from (examples)	N/A
Recommendations for Input Data Source(s)	• Case investigation • eCR
Notes	This data element should be part of the standard repeating block for travel data.
Data Source Details	
eCR CDA	ClinicalDocument/component/Social History Section V3 /Travel History V3/effectiveTime
eCR FHIR	US Public Health Travel History profile Observation.effective[x], element for (dateTime or Period)
ELR	N/A
USCDI v6	Not present in USCDI v6. A data element present as Level 2 within USCDI: Travel History Dates (Level 2): The dates spent in a location traveled to.
USCDI+ Public Health: Case Reporting Use Case	Travel History Dates • Definition: The dates spent in a location traveled to. • Part of the Travel Information data class

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Appendix A. Input Data Standards and Data Sources for Travel History Data

Electronic Case Reporting (eCR)

The CDA implementation guide for eCR includes a Travel History template that captures information on travel locations, dates, purpose of travel, and transportation. A single template can support multiple locations but only a single date range, which allows for cases where the patient spent time in multiple locations and the exact dates of travel are unknown. However, multiple repeats of the template can be included in an eCR document to represent multiple travel locations with known dates. The implementation guide notes that “the focus should be on date of arrival and date of departure”, which aligns with the consensus of the DSWG that the time spent in the location of interest is more relevant than the time spent away from the person’s residence.

The travel location may be free text, coded, or a specific address if more granular information such as street or city is known. The coded locations are pulled from the CDC value set for geographical location history, PHVS_GeographicLocationHistory_CDC, which is the same value set referenced in the USCDI submission for travel history location. If a specific address is provided instead of a coded location, the country of travel is required, and other components of the address are optional.

The Travel History CDA template contains an optional template for Purpose of Travel Observation, which represents the reason for travel. The possible codes are pulled from the CDC value set, [PHVS_TravelPurpose_CDC](#), and includes codes such as business, immigration, and tourism.

The FHIR implementation guide for eCR uses the US Public Health Travel History profile to represent a patient’s travel history. The specifications align closely with the corresponding specifications in the CDA implementation guide.

Travel history criteria in RCKMS are included in the reporting specifications for several conditions as part of the category of epidemiologic criteria, none of which are currently implemented. Therefore, public health jurisdictions are not currently able to receive electronic case reports based on patients having traveled to or resided in a specific geographic area pertinent to the condition. However, if the PHA receives an eICR as a result of other reporting rules being met, then the agency could benefit from travel history information being included in the report according to the standards described above.

Electronic Laboratory Reporting (ELR)

ELR does not contain defined data elements related to travel history.

USCDI and USCDI+

The most recently finalized version of USCDI (version 6) does not include any data elements relevant to travel history. However, several data elements have been submitted in the Travel Information data class and are being considered for inclusion in a subsequent version (Table 9). In particular, Travel History Location and Travel History Dates are currently classified as Level 2 data elements, which include those data elements for which there is broad standardization and guidance for their collection. These data elements have existing terminology standards or technical specifications for their representation, are already being captured and exchanged in multiple EHRs, and can be applied to most care settings. A third data element, “Purpose of Travel”, is currently classified as a Level 0 data element, which means that it is still relatively primitive in the areas of standardization and electronic exchange.



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Table 9. Travel-related data elements in USCDI or USCDI+ Public Health Domain

Data Element	Description	USCDI Level	USCDI+ Use Case
Travel History Location	A location in a person's travel history either as an address or as a coded location.	2	Case Reporting
Travel History Dates	The dates spent in a location traveled to.	2	Case Reporting
Purpose of Travel	Purpose of travel (business, tourism, etc.)	0	N/A

Note that no travel-related data elements have been included in any finalized version of USCDI. However, two travel-related data elements, Travel History Dates and Travel History Location, have been included in the Travel Information data class of USCDI+ under the use case of Case Reporting in the Public Health domain. Both data elements have the same definition as in USCDI.

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Appendix B. Additional Travel-Related Data Elements

Beyond the above data elements that were discussed in the workgroup, additional data elements relevant to travel may also be of interest in the context of a specific condition or group of conditions. These elements include:

- Recent Cruise Travel
- Name of Cruise Line
- Name of Ship
- Cruise Departure City
- Cruise Departure State
- Cruise Departure Country
- Date of Cruise Departure
- Cruise Return State
- Cruise Return Country
- Date of Cruise Return
- Cabin Number
- Port of Call City
- Port of Call Country
- Port of Call State
- Port of Call Date
- Travel County
- Duration of Stay
- Duration of Stay - Units
- Date Left for Travel
- Public Transportation
- Public Transportation Type
- Public Transportation Route
- Date Using Public Transportation
- Locations Routinely Visited
- Time of Day
- Did the Mother Travel Outside the US During the First Trimester of Pregnancy
- DGMQID
- Import Status
- Received Healthcare Outside of the USA