

Travel

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 what 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.

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 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.

Additionally, the workgroup acknowledged that there are varying levels of specificity 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 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. Similarly, the level of detail required for airline exposure notifications or to meet the needs of the Division of Global Migration and Quarantine (DGMQ) was outside the scope of discussion since the focus was on surveillance data to be included in routine case notifications to CDC.

Table 1 shows the travel history data elements that the DSWG agreed to define as core surveillance data for case notifications to CDC. For each of these data elements, there is no pre-defined default value when information is unknown.

Table 2-1. Core Surveillance Travel History Data Elements for Case Notifications

Data Element	Definition	Standard Code	Value set or coding system	Abstracted / Derived / Created	Recommendations for Input Data Source(s)
Travel	Indicator that the patient spent time outside of their jurisdiction of residence in a time period relevant to the condition	SNOMED: 420008001 – Travel (event)	Yes/No/Unknown	Derived	• Case investigation • eCR
International Travel	Indicator that patient spent time outside of the USA in a time period relevant to the condition	SNOMED: 874901007 – International travel (event)	Yes/No/Unknown	Abstracted	• Case investigation • eCR
Domestic Travel	Indicator that the patient spent time domestically outside of their jurisdiction of residence, but within the USA, in a time period relevant to the condition	SNOMED: 420008001 – Recent domestic travel (event)	Yes/No/Unknown	Abstracted	• Case investigation • eCR
Specify Different Travel Exposure Window	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.		N/A		• Case investigation
International Destination(s) of Recent Travel	(Part of repeating block) International destination or countries the patient spent time within	LOINC: 82764-2 – Country of travel outside the U.S.	ISO 3166: Codes for the representation of names of countries and their subdivisions	Abstracted	• Case investigation • eCR
Domestic Destination(s) of Recent Travel	(Part of repeating block) Domestic destination, state(s) spent time within outside of the jurisdiction of residence	LOINC: 82754-3 – State of travel	FIPS 5-2: Codes for the identification of the states and associated areas	Abstracted	• Case investigation • eCR
Reason(s) for Travel	(Part of repeating block) Reason(s) for time spent outside of the jurisdiction of residence	LOINC: 66415-1 – Reason for travel related to current illness	Travel Purpose (CDC)	Abstracted	• Case investigation • eCR
Date of Arrival to Travel Destination	(Part of repeating block) Date of arrival at destination	LOINC: 91559-5 – Date of arrival at travel destination	Date	Abstracted	• Case investigation • eCR
Date of Departure from Travel Destination	(Part of repeating block) Date of departure from destination	LOINC: 91560-3 – Date of departure from travel destination	Date	Abstracted	• Case investigation • eCR

The following data elements were also discussed, but the consensus was to exclude them from core surveillance data that is included in routine case notifications to CDC.

- 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 Units

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

Interpretation Notes

Travel as a concept is meant to be inclusive of any time that the patient 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 patient's current state of residence. Determining residency for the patient's current state of residence is described by the CSTE position statement 11-SI-04, Revised Guidelines for Determining Residency for Disease Notification Purposes. Time spent outside of the home jurisdiction goes beyond travel for vacation or for work, which might be what a patient would consider when asked about travel. Other types of travel that might also meet the definition above would include time spent away visiting relatives or friends, for medical reasons, a routine daily commute, and moving/relocation (including international migration), among other reasons.

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 from Table 1 (i.e., Travel, International Travel, and Domestic Travel) would serve as summary-level questions to capture the overall travel picture for the case, 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 in the 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 Travel = Yes, it follows that at least one of International Travel or Domestic Travel must also be Yes, and vice versa. In addition, the repeating block elements should only be populated if Travel = 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 jurisdiction of residence that occurs entirely outside of the time period that is relevant to the condition should not be included in the case notification.

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.

Input Data Sources for Travel History Data

See Table 2 for a summary of where travel history data may be found within data transmitted to public health using existing standards (eCR, ELR, USCDI).

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 eICR 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 patient'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 eCR 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

The most recently finalized version of USCDI (version 4) 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. 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.

"Travel History Location" is defined as "a location in a person's travel history either as an address or as a coded location". The USCDI submission for this data element indicates its representation by SNOMED code 420008001, Travel (event), using codes from the CDC value set for geographical location history, PHVS_GeographicLocationHistory_CDC. This value set includes both domestic jurisdictions, based on states in the FIPS 5-2 value set, and locations outside of the US, based on countries in the ISO 3166 value set.

"Travel History Dates" refers to "the dates spent in a location traveled to" and is represented using the following LOINC codes: 82752-7, Date travel started, and 91560-3, Date of departure from travel destination.

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. Purpose of travel has been included in various standards and can be represented by SNOMED code 280147009, Type of activity. However, ONC determined that it is currently being captured and exchanged in limited settings (e.g., pilots and proof of concept demonstrations) and is only applicable to a limited number of health care settings and therefore classified it as Level 0.

Note that these data elements are included in Table 2, but they are not yet included in any finalized version of USCDI.

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Table 2-2. Standards and Data Sources for Travel History Data Elements

Data Element	eCR CDA	eCR FHIR	ELR	USCDI*
Travel	ClinicalDocument/component/Social History Section V3 /Travel History V3/code	USPublicHealthTravelHistory • Observation.code SNOMED: 420008001	N/A	N/A
International Destination(s) of Recent Travel	ClinicalDocument/component/Social History Section V3 /Travel History V3/participant/participantRole/code	USPublicHealthTravelHistory • Observation.component: travelLocation.code • Observation.component: travelLocation.value[x].coding	N/A	Travel History Location (Level 2): A location in a person's travel history either as an address or as a coded location.
Domestic Destination(s) of Recent Travel	ClinicalDocument/component/Social History Section V3 /Travel History V3/participant/participantRole/addr/state	USPublicHealthAddressExtension • Observation.component:travelLocation. extension:travelHistoryAddress Extension.value[x].state	N/A	Travel History Location (Level 2): A location in a person's travel history either as an address or as a coded location.
Date of Arrival to Travel Destination	ClinicalDocument/component/Social History Section V3 /Travel History V3/effectiveTime	USPublicHealthTravelHistory Observation.effective[x], element for (dateTime or Period)	N/A	Travel History Dates (Level 2): The dates spent in a location traveled to.
Date of Departure from Travel Destination	ClinicalDocument/component/Social History Section V3 /Travel History V3/effectiveTime	USPublicHealthTravelHistory Observation.effective[x], element for (dateTime or Period)	N/A	Travel History Dates (Level 2): The dates spent in a location traveled to.
Reason(s) for Travel	ClinicalDocument/component/Social History Section V3 /Travel History V3/Purpose of Travel Observation V2/entryRelationship/observation/value/code	USPublicHealthTravelHistory • Observation.component: travelPurpose.code • SNOMED: 280147009 Observation.component: travelPurpose.value[x]	N/A	Purpose of Travel (Level 0): Purpose of travel (business, tourism, etc.)

* No travel-related data elements have been included in any finalized version of USCDI. A higher Level indicates that the data element meets more of the criteria for inclusion but is still yet to be included.

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