

Outdoor Falls

Definition Factsheet & Technical Brief

Authors: Brittany Yarnell, MPH¹, Ruth Koepke, MPH², Sandra Gonzalez, PhD, MPH³, Anna Frick, MPH, CIC⁴

¹ Nebraska Department of Health and Human Services

² Wisconsin Department of Health Services

³ Colorado Department of Public Health and Environment

⁴ Alaska Department of Health

Points of contact:

Brittany Yarnell (byarnell@marionhealth.org) – Marion County Public Health Department, IN

Definition Description: The Outdoor Falls query is designed to capture falls that occur outdoors within approximately 48 hours of the encounter and excludes activities more likely to result in a fall or intentionally caused the fall (e.g., hockey or assault). It is inclusive for all age groups and while it can be used year-round, it may be most beneficial during or after extreme weather or after human-caused events (e.g., stage collapse and panic results in falls).

Link to ESSENCE Query Setup:

https://essence.syndromicsurveillance.org/nssp_essence/servlet/TemporalTimeSeriesViewer?sessionAttributeID=2380_19_02_2026_22_32_46_744

Open the link, and click “Configuration Options” in the upper left corner

New or Revised Definition: New CC and DD Category

Date Added to ESSENCE: April 2026

Use-Cases for Definition:

Case-finding: Not Intended as Use Case

Trend monitoring: Primary

Early outbreak detection: Not Intended as Use Case

Emergent Condition: Not Intended as Use Case

Justification: There are two existing falls queries, CC and DD Category ‘65+ fall query’ and Chief Complaint Subsyndrome ‘Fall’, however neither differentiate where the fall occurs. It can be important to tell where falls occur, since causes and prevention methods for outdoor falls can differ from indoor falls. It also is designed to include other free text fields such as Clinical Impression and Triage Note.

Data Source During Development: Emergency Department

Validation Methods: Nebraska evaluated existing queries both in ESSENCE and from other local jurisdictions to generate initial test query. The initial query was tested with CC and DD only and expanded to include Clinical Impression and Triage Notes, along with additional inclusion and exclusion criteria from validation testing. Once ready, AK, CO, and WI joined testing group and several rounds of validation that included a winter and non-winter months were completed.

Validation Results: The PPV for probable visits ranged from 85% - 91% and further increased to 90% - 94% when Undetermined/Maybe visits are included. The query performed better during the winter month than the summer month (Probable+Maybe: Winter – 93% to 98%; Summer – 88% to 90%)

Limitations: This query was only validated for Emergency visits, so use with other patient classes should be evaluated if a jurisdiction intends to monitor trends with other patient classes. Triage Notes and Clinical Impressions were included since they can greatly contribute to identifying where the fall occurred. If your jurisdiction does not include those elements, you may not be able to identify as many outdoor falls. This query was validated by states that experience snowfall. While warm weather months were reviewed as well, warmer states may want to validate their results before tracking trends. Finally, SNOMED CT codes are not included.

Definition Fields and Structure: The Chief Complaint Discharge Diagnosis Parsed Free Text field (also applied to Chief Complaint History, Triage Notes, and Clinical Impression) is used to query discharge diagnosis codes and free text with exclusions (as necessary), to develop the syndrome definition.

Visits are included if they have either of the following:

- One or more of the inclusion diagnosis codes listed in Table 1
- Text terms or abbreviations that refer to falls and an outdoor-related term

Visits are excluded if they have Chief Complaint Discharge Diagnosis Parsed Free Text, Chief Complaint History, Triage Notes, or Clinical Impression text terms that:

- One or more of the exclusion diagnosis codes listed in Table 1
- Refer to an outside force that may have caused the fall
- Refer a possible medical cause for the fall
- Mention a week or a month period passing
- Mention a recreational activity more like to have falls (e.g., ice skating)
- Mention entering or exiting a vehicle
- Mention not being in an upright or standing position
- Indicate a subsequent visit
- Indicate a garage being the possible location
- Indicate was a possible suicide attempt

Plain Language Description: The Outdoor Falls query is designed to capture potential accidental falls that may have occurred outdoors within the past 48 hours. This is done by looking for diagnosis codes from initial falls resulting from ice or snow and free text combinations of different ways to phrase 'fall' plus an outdoor indicator such as 'sidewalk' or 'driveway'. It also has some measure in place to remove falls that occurred an extended period of time before the encounter (e.g., weeks or months), falls that may have been caused by an outside force (e.g., assault or hit by a car), potentially had a non-mobility related medical cause (e.g., stroke), or happened during a common activity or location where falls may be more likely to occur (e.g., gymnastics or at water park).

Classifying Visits for Validation:

Criteria to classify a visit as True Positive/Probable

All of the following must be met:

- The fall occurred outdoors or W00 is used
 - Can assume it happened outside if it was on ice
- Encounter occurred within approximately 48 hours of the event
 - Assume it is recent, unless it says otherwise
 - E.g., fell on sidewalk and got bleeding under control vs still having wrist pain from fall in parking lot last week
 - Does not mention being a subsequent visit (can visit PCP or non-hospital UCC first)
- Was in a 'standing' or 'upright' position before the fall occurred
 - Exclude examples: getting out of a car or riding a bike
 - Note: If there is no reason to exclude the visit and the other criteria is satisfied, the visit should be included as probable
- Was unintentional or possibly caused by a non-mobility related medical condition
 - Exclusion examples: Hit by a car; got into a fight and fell; possible suicide attempt, fell in road; had a stroke, heart attack, or seizure
 - Note: If there is no reason to exclude the visit and the other criteria is satisfied, the visit should be included as probable

Criteria to classify a visit as Undetermined (Maybe)?

Probable criteria met, except:

- Unknown timeframe (e.g., still has wrist pain from fall in parking lot)
- Location was unknown and W00 was not used

Criteria to classify a visit as False Positive/Ruled Out?

- Pushed by an outside force (e.g., car or person)
- Related to a possible suicide attempt
- A non-mobility related health condition caused or contributed to the fall (e.g., seizure, stroke, heart attack)
- Recreational sport (e.g., hockey or gymnastics)
- Fall occurred > 48 hours before visit
- Was not in an upright or standing position (e.g., pulling weeds, exiting car, from a chair)

Detailed Definition Components

Table 1. Inclusion and exclusion terms, Outdoor Falls v1.

Terms	Description
Inclusion	
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	
W00	Fall due to ice and snow
Y93.H2	Activity, gardening and landscaping
Y92.007	Garden or yard of unspecified non-institutional (private) residence as the place of occurrence of the external cause
Y92.480	Sidewalk as the place of occurrence of the external cause
Y92.828	Other wilderness area as the place of occurrence of the external cause
W00	Fall due to ice and snow
International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)	
N/A	This query was validated with data newer than 2018 and is intended to be used for trend monitoring, so ICD-9 codes are not included
Chief Complaint	
Includes different phrasing for fall and includes phrasing that may indicate it occurred outdoors (e.g., fell while walking on sidewalk ; tripped in an uneven driveway)	
Exclusion	
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	
I60	Nontraumatic subarachnoid hemorrhage
I61	Nontraumatic intracerebral hemorrhage
I62	Other and unspecified nontraumatic intracranial hemorrhage
I63	Cerebral infarction
I65	Occlusion and stenosis of precerebral arteries, not resulting in cerebral infarction
I66	Occlusion and stenosis of cerebral arteries, not resulting in cerebral infarction
I67	Other cerebrovascular diseases
I68	Cerebrovascular disorders in diseases classified elsewhere
I69	Sequelae of cerebrovascular disease
V00.321A	Fall from snow-skis, initial encounter
V00.841A	Fall from standing electric scooter, initial encounter
V19	Pedal cycle rider injured in other and unspecified transport accidents
V86	Occupant of special all-terrain or other off-road motor vehicle, injured in transport accident
V93.22	Heat exposure on board fishing boat
W00 ____ [DS]; W00 ____ [DS]	Fall due to ice and snow, subsequent encounter or Fall due to ice and snow, sequela encounter (note, extra underscore is to accommodate a period)
W04	Fall while being carried or supported by other persons
W05	Fall from non-moving wheelchair, nonmotorized scooter and motorized mobility scooter
W06	Fall from bed
W07	Fall from chair
W08	Fall from other furniture
W09	Fall on and from playground equipment
W11	Fall on and from ladder
W12	Fall on and from scaffolding
W13	Fall from, out of or through building or structure
W14	Fall from tree
W15	Fall from cliff
W16	Fall, jump, or diving into water
Y93.22	Activity, ice hockey
Y93.23	Activity, snow (alpine) (downhill) skiing, snowboarding, sledding, tobogganing and snow tubing
International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)	
N/A	This query was validated with data newer than 2018 and is intended to be used for trend monitoring, so ICD-9 codes are not included

	The two ICD-10 codes that also may show with ICD-9 codes are V19 and V86 ('family history of other conditions' and 'Estrogen receptor status' respectively). Both ICD-10 codes are negations. When checked to see if having the ICD-9 codes being negated would negatively impact the counts by checking the ICD-10 equivalents, it was determined that they most likely would not and the ICD-10 codes were not modified to accommodate.
Chief Complaint	
Excludes possible purposeful falls (e.g., assault or fight), possible medical causes (e.g., stroke), external causes not of interest (e.g., hit by a vehicle), events that occurred more than 48 hours before visit (e.g., weeks or months), or during common activities or locations that may be more likely to result in a fall (e.g., gymnastics or waterpark)	

Table 2. ESSENCE syntax, Outdoor Falls v1

Core syntax: Chief Complaint Discharge Diagnosis Parsed Free Text; also apply to Chief Complaint History, Clinical Impression and TriageNote Additional exclusion syntax: Clinical Impression and TriageNote (Separately) Core ESSENCE Syntax (, (, (^F[ae]ll^, ANDNOT, (^falloppian^, or, ^falling out ^, or, ^no fall^, or, ^not f[ae]ll^, or, ^denies any fall^, or, ^deny any fall^, or, ^denies recent fall^, or, ^deny recent fall^, or, ^denies any recent fall^, or, ^deny any recent fall^, or, ^denies fall^, or, ^deny fall^, or, ^without fall^, or, ^w/o fall^, or, ^wo fall^, or, ^catheter fell^, or, ^tube fell^, OR, ^Past medical History^f[ae]ll^, OR, ^fall at home^, or, ^f[ae]ll off^, or, ^F[ae]ll unconscious^, or, ^fall of chest^, or, ^falling back asleep^, or, ^falling because of GSW^, or, ^crib^, or, ^swing^, or, ^off ladder^,), or, ^Slip^, ANDNOT, (^dyslipidemia^, or, ^pink slip^, or, ^slipped dis^, or, ^slip dis^, or, ^disc slip^, or, ^slipper^, or, ^work slip^, OR, ^past medical history^slip^,), or, (^Trip^, or, ^ trip^,), ANDNOT, (^trip to^, or, ^tripod^, or, ^bus trip^, or, ^triple^, OR, ^past medical history^ trip^,),), AND, (^outside^, andnot, (^outside room^, or, ^outside of room^, or, ^outside living room^, or, ^outside bathroom^, or, ^trauma activated outside of the hospital^, or, ^Sign placed on door outside of room^, or, ^the outside^, or, ^go outside^, or, ^outside UC^, or, ^outside facility^, or, ^outside medical^, or, ^outside clinic^, or, ^past medical history^outside^, or, ^not outside^, or, ^outside of the room^, or, ^outside of her normal^, or, ^outside of his normal^, or, ^arrives from outside^,), or, ^outdoor^, or, ^sidewalk^, or, ^Side walk^, or, ^driveway^, or, ^drive way^, or, ^cement^, andnot, (^cement floor^, or, ^past medical history^ cement^,), or, ^parking lot^, or, ^snow^, andnot, (^snow board^, or, ^snowmobile^, or, ^snowboard^,), OR, ^in the mud^, or, ^in mud^, or, ^some mud^, or, ^on the farm^, or, ^manure^, or, ^gravel^, or, ^curb^, or, ^lawn^, or, ^yard^, OR, ^;Y93H2^, or, ^;Y92007^, or, ^;Y92480^, or, ^;Y92828^,), or, ^;W00^, ANDNOT, (^;W00____[DS]^, or, ^;W00____[DS]^,), or, (^F[ae]ll on ice^, or, ^slip on ice^, or, ^fell on the ice^, or, ^GLF on ice^,), andnot, ^past medical history^ ice^,),), ANDNOT, (^;Y932[23]^, or, ^;V00321A^, or, ^;V19^, or, ^;V9322^, or, ^;V86^, or, ^;V00841A^, or, ^;W0[4-9]^, OR, ^;W1[1-6]^, OR, ^asleep^, or, ^assault^, andnot, ^denies^assault^, or, ^assult^, or, ^altercation^, or, ^fight^, or, ^suicid^, ANDNOT, ^Past Medical History^suicid^, or, ^seizure^, ANDNOT, ^Past Medical History^seizure^, or, ^heart attack^, ANDNOT, ^Past Medical History^heart attack^, or, ^;l6[0-9]^, or, ^stroke^, ANDNOT, ^Past Medical History^stroke^, or, ^ischemic attack^, ANDNOT, ^Past Medical History^ischemic attack^, or, ^cardiac arrest^, ANDNOT, ^Past Medical History^cardiac arrest^, or, ^collision^, and, ^vehicle^, or, ^week ago^, or, ^weeks^, andnot, ^past medical history^weeks^, or, ^month ago^, or, ^months^, andnot, ^past medical history^months^, or, ^denies new injury^, or, ^deny new injury^, or, ^ice skat^, or, ^iceskat^, or, ^getting into^, OR, ^syncopal^, ANDNOT, ^Past Medical History^syncopal^, OR, ^garage^, OR, ^pull^, OR, ^mo ago^, OR, ^bike^, or, ^bicycl^, OR, ^passed out^, ANDNOT, ^past medical history^passed out^, OR, ^golf cart^, OR, ^scooter^, OR, ^gym^, or, ^getting out^, or, ^play^, or, ^ play^, andnot, ^past medical history^ play^, or, ^pushed^, andnot, ^past medical history^pushed^, or, ^days^, andnot, (^two days^, or, ^2 days^, OR, ^Past Medical History^days^,), OR, ^standing in^, OR, ^Crash^, or, ^s[ck]ateboard^, or, ^waterpark^, or, ^monkey bar^,) Additional Exclusion ESSENCE Syntax ISNULL, OR, ^, ANDNOT, (^asleep^, or, ^assault^, andnot, ^denies^assault^, or, ^assult^, or, ^altercation^, or, ^fight^, or, ^suicid^, ANDNOT, ^Past Medical History^suicid^, or, ^seizure^, ANDNOT, ^Past Medical History^seizure^, or, ^heart attack^, ANDNOT, ^Past Medical History^heart attack^, or, ^stroke^, ANDNOT, ^Past Medical History^stroke^, or, ^ischemic attack^, ANDNOT, ^Past Medical History^ischemic attack^, or, ^cardiac arrest^, ANDNOT, ^Past Medical History^cardiac arrest^, or, ^collision^, and, ^vehicle^, or, ^week ago^, or, ^weeks^, andnot, ^past medical history^weeks^, or, ^month ago^, or, ^months^, andnot, ^past medical history^months^, or, ^denies new injury^, or, ^deny new injury^, or, ^ice skat^, or, ^iceskat^, or, ^getting into^, OR, ^syncopal^, ANDNOT, ^Past Medical History^syncopal^, OR, ^garage^, OR, ^pull^, OR, ^mo ago^, OR, ^bike^, OR, ^passed out^, ANDNOT, ^past medical history^passed out^, OR, ^golf cart^, OR, ^scooter^, OR, ^gym^, or, ^getting out^, or, ^play^, or, ^ play^, andnot, ^past medical history^ play^, or, ^pushed^, andnot, ^past medical history^pushed^, or, ^days^, andnot, (^two days^, or, ^2 days^, OR, ^Past Medical History^days^,), OR, ^standing in^, OR, ^Crash^, or, ^s[ck]ateboard^, or, ^waterpark^, or, ^monkey bar^,)

Appendix

Definition Evolution During Development

Nebraska has many outdoor falls, during winter months in particular, and wants to monitor trends during and post events like ice storms. Before this query was developed, the only standardized queries were the Fall syndrome and the 65+ falls CC and DD Category. Like Nebraska, other jurisdictions also had modified queries to capture more winter falls, but there was an expressed desire for a more general outdoor fall queries during a CoP call.

Process:

- Nebraska gathered examples of the existing fall-related queries and combined the terms to validate them with CCDD
- Using the output, add terms that seemed relevant and could add Visits of Interest (Vol) or non-Vol
 - o E.g., Visits that included 'Outside' may have also included 'sidewalk', so 'sidewalk' was added
- Clinical Impression was added to the query to determine if including Clinical Impression added value (more Vol than non-Vol)
 - o Removed visits added by CCDD pull for the check, since those were not uniquely captured by Clinical Impression
- Triage Note was added to the query to determine if including Triage Note added value
 - o Removed visits added by CCDD and Clinical Impression pull for the check, since those were not uniquely captured by Triage Note
- Exclusion terms applied directly to the Clinical Impression and Triage Note fields were added, to see if they reduced non-Vol
 - o Note: at this point 12 versions of the query were reviewed
- Asked for volunteers to join with the validation process
 - o Finished after three versions of the query were validated
- Submitted for review