

Self Harm v1 Definition Factsheet & Technical Brief

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Definition Description: This query is intended to identify visits in the emergency department (ED) with diagnostic codes and/or chief complaints associated with a broad range of self-harm injuries and/or behavior. This includes codes (including ICD-10-CM code R45.88 which may or may not co-exist with a self-harm injury code or self-harm text) and text associated with self-harm (e.g., intentional poisoning, intentional self-harm by handgun discharge, nonsuicidal self-harm), regardless of suicidal intention.

New or Revised Definition: This is a revised definition that began with modifications to Suicide Attempt v1. Suicide Attempt v1 was a broad definition that captured a wide variety of self-harm. It is inappropriately labeled “suicide attempt”, however, as most ICD-10-CM codes do not specify if the self-harm had suicidal or nonsuicidal intent.

Date Added to ESSENCE: December 2025

Use-Cases for Definition:

Case-finding: Primary

Trend monitoring: Primary

Early outbreak detection: Primary

Emergent Condition: Tertiary

Justification: There were large differences between the two CDC Suicide Attempt queries (v1 and v2) due to the difference in selection criteria. V1 focuses on identifying all self-harm, while v2 focuses on self-harm injury with suicidal attempt or ideation. Modification of both queries focused on updating v1 by review of codes in v2 while at the same time removing any requirement of confirmed suicidal attempt or ideation. The goal of this query was to make improvements to v1 and describe the overall burden of self-harm. Self-harm, regardless of suicidal ideation or attempt, is a public health concern and any self-harming behavior may be more likely to be repeated and/or result in death by suicide.

Data Source During Development: Emergency Department visits

Validation Methods: Wisconsin created and tested the first version of the query with a result of 93% PPV. The original definition was shared with four states that conducted testing (WA, KS, VT, and CO). A visit was confirmed as intentional self-harm by supportive narrative with and without corresponding self-harm codes OR it was confirmed if there was a self-harm code with or without narrative to support the code inclusion. A visit was determined false or ruled out if it was not related to self-harm (such as follow-up or sequelaes visits for previous self-harm, or mental health visits or check-ins with no self-harm injury or reference to self-harm).

Validation Results: Testers shared their results after narrative review of at least 100 visits. The original query resulted in a range of 75% valid cases in WA to 90% in CO (not including WI results). Based on feedback from testers, slight modifications were made to remove inclusion key phrases related to “try/attempt” AND “cut/laceration” as this language captured instances of accidental cutting of fingers and other appendages while cooking, woodworking, etc.

WI reviewed the impact of this modification, as well as a few adjustments to syntax. In all, these changes removed 80 WI records (tested against a 6-month period in 2024 and compared with the older version of the query). WI

reviewed the records removed based on the adjustments. The 80 records accounted for 2.1% of the total records identified with self-harm for the 6-month period based on the original definition (N=3,747). Of these 80, 76 of these were removed due to the language adjustment related to try/attempt and cut/laceration. The other 4 appear to be due to the syntax clean-up. For the 4 removed for syntax clean-up, none of these were valid (3 were invalid cases and 1 was undetermined). Of the 76 removed for the language alteration, only 3 of these were valid self-harm cases (3.9%) (1 was undetermined and 72 were confirmed invalid).

Three states agreed to re-test the modified query. This resulted in significant improvements to PPV. PPV ranged from 88% in WA, 92% in KS, and 97% in VT. CO did not test the modified query though their original PPV was already quite high at 90%.

Limitations: This query has been restricted to focus on data from 2016 onward as it does not include ICD-9-CM codes. It is not possible to capture all variations of keywords and phrases that might be associated with self-harm as these may differ by jurisdiction and new phrases may appear over time. Additionally, it is difficult to capture all possible exclusions though we have tried to identify as many as we could (for instance, exclusion of hanging clothing or hanging deer).

Definition Fields and Structure: Chief Complaint History and Discharge Diagnosis Parsed. Inclusion criteria attempts to capture all diagnoses of self-harm and keywords/phrases related to self-harm. Exclusion criteria removes common phrases that are not associated with self-harm and denials of self-harm or suicide attempt.

Table 1. Inclusion and exclusion codes and terms for Self Harm v1. This definition identifies visits noting (1) intentional self-harm or (2) self-harm injuries.

Inclusion terms are based on a case definition using chief complaint terms for suicide attempt or self-harm. The inclusion portion of the definition captures all instances and spellings of suicide attempt, self-harm, try/attempt/commit/intentional kill self, end life or suicide, attempt, try, intention hang, shoot, overdose, drug ingestion, poisoning or intentional cut or laceration, or intentional hurt self, inflict harm, self-violence.

Exclusion terms are based on a case definition using chief complaint terms for suicide attempt or self-harm. Visits are excluded if they have chief complaint terms pertaining to no suicide attempt or absence of self-harm.

Terms	Description
<i>Inclusion</i>	
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	
R45.88	Nonsuicidal self-harm
T14.91XA	Suicide attempt, initial encounter
X71_A	Intentional self-harm by drowning and submersion, initial encounters
X72_A	Intentional self-harm by handgun discharge, initial encounters
X73_A	Intentional self-harm by rifle, shotgun and larger firearm discharge, initial encounters
X74_A	Intentional self-harm by other and unspecified firearm and gun discharge, initial encounters
X75_A	Intentional self-harm by explosive material, initial encounters
X76_A	Intentional self-harm by smoke, fire and flames, initial encounters
X77_A	Intentional self-harm by steam, hot vapors and hot objects, initial encounters
X78_A	Intentional self-harm by sharp object, initial encounters
X79_A	Intentional self-harm by blunt object, initial encounters
X80_A	Intentional self-harm by jumping from a high place, initial encounters
X81_A	Intentional self-harm by jumping or lying in front of moving object, initial encounters
X82_A	Intentional self-harm by crashing of motor vehicle, initial encounters
X83_A	Intentional self-harm by other specified means, initial encounters
T45.AX2A	Poisoning by immune checkpoint inhibitors and immunostimulant drugs, intentional self-harm, initial encounter
T3[6-9].[0-9][X0-9]2A	T36: Poisoning by, adverse effect of and underdosing of systemic antibiotics, intentional self-harm, initial encounter
T3[6-9].[0-9]2XA	T37: Poisoning by, adverse effect of and underdosing of other systemic anti-infectives and antiparasitics, intentional self-harm, initial encounter
	T38: Poisoning by, adverse effect of and underdosing of hormones and their synthetic substitutes and antagonists, not elsewhere classified, intentional self-harm, initial encounter
	T39: Poisoning by, adverse effect of and underdosing of nonopioid analgesics, antipyretics and antirheumatics, intentional self-harm, initial encounter
T6[0-5].[0-9][X0-9]2A	T60: Toxic effect of pesticides, intentional self-harm, initial encounter
	T61: Toxic effect of noxious substances eaten as seafood, intentional self-harm, initial encounter
T6[0-5].[0-9]2XA	T62: Toxic effect of other noxious substances eaten as food, intentional self-harm, initial encounter
	T63: Toxic effect of contact with venomous animals and plants, intentional self-harm, initial encounter
	T64: Toxic effect of aflatoxin and other mycotoxin food contaminants, intentional self-harm, initial encounter
	T65: Toxic effect of other and unspecified substances, intentional self-harm, initial encounter
T71.[0-9][0-9]2A	Codes for asphyxiation, intentional self-harm, initial encounter
T[4-5][0-9].[X0-9][X0-9]2A	T40: Poisoning by, adverse effect of and underdosing of narcotics and psychodysleptics [hallucinogens], intentional self-harm, initial encounter
T[4-5][0-9].[X0-9]2XA	T41: Poisoning by, adverse effect of and underdosing of anesthetics and therapeutic gases, intentional self-harm, initial encounter

	<p>T42: Poisoning by, adverse effect of and underdosing of antiepileptic, sedative-hypnotic and antiparkinsonism drugs, intentional self-harm, initial encounter</p> <p>T43: Poisoning by, adverse effect of and underdosing of psychotropic drugs, not elsewhere classified, intentional self-harm, initial encounter</p> <p>T44: Poisoning by, adverse effect of and underdosing of drugs primarily affecting the autonomic nervous system, intentional self-harm, initial encounter</p> <p>T45: Poisoning by, adverse effect of, and underdosing of primarily systemic and hematological agents, not elsewhere classified, intentional self-harm, initial encounter</p> <p>T46: Poisoning by, adverse effect of and underdosing of agents primarily affecting the cardiovascular system, intentional self-harm, initial encounter</p> <p>T47: Poisoning by, adverse effect of and underdosing of agents primarily affecting the gastrointestinal system, intentional self-harm, initial encounter</p> <p>T48: Poisoning by, adverse effect of and underdosing of agents primarily acting on smooth and skeletal muscles and the respiratory system, intentional self-harm, initial encounter</p> <p>T49: Poisoning by, adverse effect of and underdosing of topical agents primarily affecting skin and mucous membrane and by ophthalmological, otorhinolaryngological and dental drugs, intentional self-harm, initial encounter</p> <p>T50: Poisoning by, adverse effect of and underdosing of diuretics and other and unspecified drugs, medicaments and biological substances, intentional self-harm, initial encounter</p> <p>T51: Toxic effect of alcohol, intentional self-harm, initial encounter</p> <p>T52: Toxic effect of organic solvents, intentional self-harm, initial encounter</p> <p>T53: Toxic effect of halogen derivatives of aliphatic and aromatic hydrocarbons, intentional self-harm, initial encounter</p> <p>T54: Toxic effect of corrosive substances, intentional self-harm, initial encounter</p> <p>T55: Toxic effect of soaps and detergents, intentional self-harm, initial encounter</p> <p>T56: Toxic effect of metals, intentional self-harm, initial encounter</p> <p>T57: Toxic effect of other inorganic substances, intentional self-harm, initial encounter</p> <p>T58: Toxic effect of carbon monoxide, intentional self-harm, initial encounter</p> <p>T59: Toxic effect of other gases, fumes and vapors, intentional self-harm, initial encounter</p>
T6[0-5].[0-9]2XA	<p>T60: Toxic effect of pesticides, intentional self-harm, initial encounter</p> <p>T61: Toxic effect of noxious substances eaten as seafood, intentional self-harm, initial encounter</p> <p>T62: Toxic effect of other noxious substances eaten as food, intentional self-harm, initial encounter</p> <p>T63: Toxic effect of contact with venomous animals and plants, intentional self-harm, initial encounter</p> <p>T64: Toxic effect of aflatoxin and other mycotoxin food contaminants, intentional self-harm, initial encounter</p> <p>T65: Toxic effect of other and unspecified substances, intentional self-harm, initial encounter</p>
T50.[ABZ][129]2A	<p>T50.A: Poisoning by, adverse effect of and underdosing of bacterial vaccines, intentional self-harm, initial encounter</p> <p>T50.B: Poisoning by, adverse effect of and underdosing of viral vaccines, intentional self-harm, initial encounter</p> <p>T50.Z: Poisoning by, adverse effect of and underdosing of other vaccines and biological substances, intentional self-harm, initial encounter</p>

SNOMED Concepts

82313006	Suicide attempt
891003	Suicide by self-administered drug
44301001	Suicide
53846008	Suicide attempt by adequate means
55554002	Suicide attempt by inadequate means
461211000124103	Suicide attempt by crashing motor vehicle

86849004	Suicidal deliberate poisoning
269725004	Suicide and self-inflicted injury
274228002	Drug overdose - suicide
287181000	Attempted suicide - hanging
287182007	Attempted suicide - suffocation
287190007	Suicide - hanging
460991000124106	Suicide attempt by drug overdose
288311002	Attempt suicide - domestic gas
287185009	Attempted suicide - cut/stab
287183002	Attempted suicide - drowning
287184008	Attempted suicide - firearms
287186005	Attempted suicide - jumping from a high place
36153001	First known suicide attempt
269808005	Attempted suicide - car exhaust
460981000124108	Suicide attempt by acetaminophen overdose
461181000124102	Suicide attempt by alcohol poisoning
461201000124101	Suicide attempt by burning self
461131000124103	Suicide attempt by carbon monoxide inhalation
461161000124107	Suicide attempt by electrocution
461111000124109	Suicide attempt by explosion
461151000124105	Suicide attempt by ingestion of unknown substance
440144004	Injury due to suicide attempt
370908002	Patient suicide, or attempted suicide resulting in serious disability, while being cared for in a healthcare facility
287194003	Suicide - cut/stab
287188006	Suicide - domestic gas
287192004	Suicide - drowning
287193009	Suicide - firearms
287195002	Suicide - jumping from a high place
287191006	Suicide - suffocation
78070009	Suicide by multiple means
287189003	Suicide - car exhaust
23546003	Suicide while incarcerated
461271000124107	Suicide attempt by placing self in path of moving vehicle
248073004	Cutting self
225045006	Cutting own throat
307578000	Cutting own wrists
225050000	Drowning self
225049000	Hanging self
224946001	Self-electrocution
224945002	Self-incineration
224947005	Shooting self
284759005	Stabbing self
224949008	Throwing self in front of train
224948000	Throwing self in front of vehicle

Chief Complaint*

Suicide/suicidal attempt
Intentional and cut/laceration/hurt self

Try/commit/attempt and kill self/end life/suicide/hang/shoot/overdose/OD/poisoning/poison ingestion

Self-harm/self injury/self inflicted harm/harm to self/self directed violence

Exclusion**

Chief Complaint *+

Deny attempt/suicide/self-harm, deny being suicidal

Nonsuicidal/no suicide/suicidal/not suicidal/suicide/non-suicidal/suicide

No/not attempt
end of life
end of battery life
No/not self-harm
Unintentional/accidental suicidal/suicide
Unintentional cut self, unintentional hurt self, unintentional overdose/OD
Accidental cut self, accidental hurt self, accidental lacera(tion)
not want die/not try die/not want kill self/not try kill self/deny kill self/wasn't try kill self
Wasn't try end life/not try end life/didn't try die/didn't try kill self/didn't try end life/wasn't try die/didn't want die/didn't want kill self/didn't want end life/not want end life/did not intend to kill self
deny/denying/denies/denied harm self
Accidental
Suture removal, wound complication/check/care/recheck/infection/infected/drainage/eval
shooting pain
Hang a picture/robe/cloth/deer/curtain/nail
Food poisoning

*Spelling variations of each phrase/term, including spelling mistakes, are included in the final definition.

**Exclusions must only be applied if visits have these terms and the visit is not included based on discharge diagnosis codes only, specifically, codes for a suicide attempt or self-harm event.

+The definition combines terms to return results that are in line with the intention of the query

Table 2. ESSENCE syntax, Self Harm v1

Run on Discharge Diagnosis parsed and apply to Chief Complaint history:
(,^;T45AX2A^,OR,^;R4588^,OR,^;T1491XA^,OR,^;82313006;^,OR,^;891003;^,OR,^;44301001;^,OR,^;53846008;^,OR,^;55554002;^,OR,^;461211000124103;^,OR,^;86849004;^,OR,^;269725004;^,OR,^;274228002;^,OR,^;287181000;^,OR,^;287182007;^,OR,^;287190007;^,OR,^;460991000124106;^,OR,^;288311002;^,OR,^;287185009;^,OR,^;287183002;^,OR,^;287184008;^,OR,^;287186005;^,OR,^;36153001;^,OR,^;269808005;^,OR,^;460981000124108;^,OR,^;461181000124102;^,OR,^;461201000124101;^,OR,^;461131000124103;^,OR,^;461161000124107;^,OR,^;461111000124109;^,OR,^;461151000124105;^,OR,^;440144004;^,OR,^;370908002;^,OR,^;287194003;^,OR,^;287188006;^,OR,^;287192004;^,OR,^;287193009;^,OR,^;287195002;^,OR,^;287191006;^,OR,^;78070009;^,OR,^;287189003;^,OR,^;23546003;^,OR,^;461271000124107;^,OR,^;X7[1-9]__A;^,OR,^;X8[0-3]__A;^,OR,^;T3[6-9][X0-9]2A;^,OR,^;T[4-5][0-9][X0-9]2A;^,OR,^;T6[0-5][X0-9]2A;^,OR,^;T71[X0-9][X0-9]2A;^,OR,^;T3[6-9][X0-9]2XA;^,OR,^;T[4-5][0-9][X0-9]2XA;^,OR,^;T6[0-5][X0-9]2XA;^,OR,^;T50[ABZ][129]2A;^,OR,^;248073004;^,OR,^;225045006;^,OR,^;307578000;^,OR,^;225050000;^,OR,^;225049000;^,OR,^;224946001;^,OR,^;224945002;^,OR,^;224947005;^,OR,^;284759005;^,OR,^;224949008;^,OR,^;224948000;^,),OR,(,^suicidal attem[pt]^,OR,^suicide attem[pt]^,OR,(,^attem[pt]^,OR,^try^,ANDNOT,(,^a-z]try^,or,^try[a-z]^,),OR,^tried^,ANDNOT,(,^a-z]tried^,or,^tried[a-z]^,),OR,^trying^,ANDNOT,^a-z]trying^,OR,^intentional^,ANDNOT,(,^not intentional^,OR,^unintentional^,),OR,^commit^,OR,^comit^,),and,(,^kill^sel[FV]^,OR,^end life^,OR,^end h[ie][sr] life^,OR,^end their life^,OR,^SU[SC]CIDE^,OR,^SUI[SC]IDE^,OR,^SIU[CS]IDE^,OR,^SU[SC][IU]DE^,OR,^hang^,ANDNOT,^a-z]hang^,OR,^shoot^,OR,^overdose^,OR,^OD^,ANDNOT,(,^a-z]OD^,or,^OD[a-z]^,),OR,^poisoning^,ANDNOT,^food poisoning^,OR,^poison ingestion^,),),OR,(,^intentional^,ANDNOT,(,^not intentional^,OR,^unintentional^,ANDNOT,(,^a-z]lacera^,OR,^hurt^sel[fv]^,),),OR,(,^self[-]injury^,OR,^self[-]inflicted harm^,OR,^harm to self^,OR,^Self[-]Directed Violence^,OR,^Self[-]harm^,OR,^selfharm^,),),ANDNOT,(,^nonsuicidal^,OR,^NO ATTEM[PT]^,OR,^NO ATEM[PT]^,OR,^NOT ATEM[PT]^,OR,^NOT ATTEM[PT]^,OR,^end of life^,OR,^end of battery life^,OR,^D[EN][EN]IE[SD]^attem[pt]^,OR,^deny^attem[pt]^,OR,^D[EN][EN]IE[SD]^atem[pt]^,OR,^deny^atem[pt],OR,^den y^suicid^,OR,^D[EN][EN]IE[SD]^suicid^,OR,^D[EN][EN]IE[SD]^self[-]harm^,OR,^deny^self[-]harm^,OR,^no self[-]harm^,OR,^not self[-]harm^,OR,^D[EN][EN]IE[SD]^selfharm^,OR,^deny^selfharm^,OR,^no selfharm^,OR,^not selfharm^,OR,^unintentional suicid^,OR,^accidental suicid^,OR,^non-suicid^,OR,^non suicid^,OR,^no suicid^,OR,^not suicid^,OR,^not a suicid^,OR,^not want^die^,OR,^not try^die^,OR,^not want^kill^sel[fv]^,OR,^not try^kill^sel[fv]^,OR,^not try^end^life^,OR,^didn^t try^die^,OR,^didn^t try^kill^sel[fv]^,OR,^didn^t try^end^life^,OR,^wasn^t try^die^,OR,^wasn^t try^ kill^sel[fv]^,OR,^wasn^t try^end^life^,OR,^didn^t want^die^,OR,^didn^t want^kill^sel[fv]^,OR,^didn^t want^end^life^,OR,^not want^die^,OR,^not want^kill^sel[fv]^,OR,^not want^end^life^,OR,^D[EN][EN]IE[SD]^harm^self^,OR,^deny^harm^self^,OR,^DENIE[SD] BEING SUICIDAL^,OR,^DID NOT INTEN[DT] TO KILL H^SEL[VF]^,OR,(,^hang^,ANDNOT,(,^a-z]hang^,AND,(,^picture^,OR,^robe^,OR,^cloth^,OR,^deer^,OR,^curtain^,OR,^nail^,),),OR,^accidental^cut^h^sel[vf]^,OR,^a ccidental^hurt^h^sel[vf]^,OR,^unintentional^cut^h^sel[vf]^,OR,^unintentional^hurt^h^sel[vf]^,OR,^unintentional^overdo se^,OR,^unintentional^OD^,OR,^shooting pain^,OR,^accidental^lacera^,OR,^accidental^,ANDNOT,^not accidental^,OR,^suture remov^,OR,(,^wound^,and,(,^complication^,or,^check^,or,^care^,or,^recheck^,or,^infection^,or,^infected^,or,^drainage^,or,^eval^,),),)

Plain Language Syntax Description

The **Chief Complaint History** field (also labeled as Chief Complaint Updates when exported from ESSENCE) and the **Discharge Diagnosis Parsed** field are used to query both the discharge diagnosis codes and chief complaint free text, with exclusions applied, when necessary, to develop the syndrome definition.

- Inclusion based on discharge diagnosis codes:

- o The visit is included if it contains:
 1. A discharge diagnosis code of suicide attempt (that is, T14.91A or SNOMED code indicating suicide attempt) OR,
 2. A discharge diagnosis code of self-harm injury, initial encounter OR,
 3. A discharge code of R4588 (nonsuicidal self-harm; this may or may not present with an initial injury code)
- o There are no exclusion terms applied to the above

- Inclusion based on chief complaint terms for suicide attempt or self-harm:
 - o The visit is included if it contains:
 1. **Chief complaint terms** for suicide attempt
OR
 2. **Chief complaint terms** for self-harm
 - o The above must exclude:
 1. **Concurrent chief complaint terms** denying intention to self-harm or attempt suicide.
 2. **Concurrent chief complaint terms** associated with hanging objects, accidentally hurting oneself, unintentional overdose, or shooting pain.