

Social Determinants of Health Data (SDoH)

<Insert Link to SDoH dashboard>

Social Determinants of Health or as they are now starting to be called, Social Drivers of Health (SDoH), are the social conditions or factors that influence an individual's health. It is also described as the environments where people live, learn, work that impact one's health outcomes and risks (CDC, 2022). SDoH data is categorized into Patient Reported Outcomes (PROs) and Clinical Observations. PROs is information provided by the patients themselves regarding their health and wellbeing. This information is collected through patient questionnaires or surveys that ask about quality of life, family circumstances, housing situations and overall health. Clinical observations are not reported by the patients themselves, rather it is information the clinicians have collected through physical examination, communication with the patient, and laboratory testing. This document will focus on patient-level SDoH (not area-level SDoH).

Comprehensive list of SDoH categories:

- Stress and Anxiety (GAD-7)
- Transportation
- Financial Strain
- Food Insecurity
- Social Connection
- Alcohol (AUDIT-C)
- Intimate Partner Violence (IPV)
- Physical
- Depression (PHQ-2 & PHQ-9) and Postpartum Depression
- Housing and Utilities
- Health Literacy
- Veteran

How is SDoH data collected in EPIC@UNC?

SDoH data is collected at EPIC@UNC in three different places. We can see SDoH data as (1) flowsheet measurements (questions) and values (answers provided), (2) the social_hx module of EPIC, and (3) as Smart Data Identifiers. These three source tables are further explained in the sections below.

We standardize SDoH data through Logical Observation Identifiers Names and Codes (LOINC). Standardizing the data helps us put them neatly into our two Common Data Models (CDM): PCORnet and OMOP.

The SDoH variables are stored in four tables in PCORnet: PRO_CM, Diagnosis, Condition, and OBS_GEN. The PHQ-2, PHQ-9, and GAD-7 questionnaires are stored in the PRO_CM table. In OMOP, the SDoH variables are stored in the Observation table, which is driven by the target domain of the LOINC vocabulary.

- 1) **Flowsheets:** SDoH data is captured in EPIC flowsheets, which are EHR tools that help clinicians document PROs and Clinical Observation data. Flowsheets are stored in the IP_FLWSHT_MEAS table. All of the SDoH variables (questions) are going to come from the source column FLO_MEAS_ID while

the answers values will be stored in the source column of MEAS_VALUE. The following tables show the flowsheet questions and answers with its respective LOINC codes.

a) Stress: The following table shows the LOINC coded questions and answers related to stress.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Do you feel stress - tense, restless nervous, or anxious, or unable to sleep at night because your mind is troubled all the time - these days?	1572879823	1	Not at all	LOINC	76542-0	LA6568-5
		2	Only a little	LOINC	76542-0	LA22687-0
		3	To some extent	LOINC	76542-0	LA22686-2
		4	Rather much	LOINC	76542-0	LA22685-4
		5	Very much	LOINC	76542-0	LA13914-9
		98	Patient refused	LOINC	76542-0	

b) Transportation: The following table shows the LOINC coded questions and answers related to transportation.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Has the lack of transportation kept you from medical appointments or from getting medications?	1572879817	2	No	LOINC	93030-5	LA32-8
		1	Yes	LOINC	93030-5	LA30133-5
		98	Patient refused	LOINC	93030-5	LA30122-8
		99	Not asked	LOINC	93030-5	
Has the lack of transportation kept you from meetings, work, or from getting things needed for daily living?	1572879818	2	No	LOINC	93030-5	LA32-8
		1	Yes	LOINC	93030-5	LA30134-3
		98	Patient refused	LOINC	93030-5	LA30122-8
		99	Not asked	LOINC	93030-5	



c) Financial: The table shows the LOINC coded questions and answers related to financial strain.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
How hard is it for you to pay for the very basics like food, housing, medical care, and heating?	1572879810	1	Very hard	LOINC	76513-1	LA15832-1
		2	Hard	LOINC	76513-1	LA14745-6
		3	Somewhat hard	LOINC	76513-1	LA22683-9
		4	Not very hard	LOINC	76513-1	LA22682-1
		5	Not hard at all	LOINC	76513-1	LA31980-8
		98	Patient refused	LOINC	76513-1	
		99	Not asked	LOINC	76513-1	

d) Food: The following table shows the LOINC coded questions and answers related to obtaining food.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Within the past 12 months, you worried that your food would run out before you got the money to buy more.	1572879820	3	Often true	LOINC	88122-7	LA28397-0
		2	Sometimes true	LOINC	88122-7	LA6729-3
		1	Never true	LOINC	88122-7	LA28398-8
		98	Patient refused	LOINC	88122-7	LA30968-4
		99	Not asked	LOINC	88122-7	
Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.	1572879821	3	Often true	LOINC	88123-5	LA28397-0
		2	Sometimes true	LOINC	88123-5	LA6729-3
		1	Never true	LOINC	88123-5	LA28398-8
		98	Patient refused	LOINC	88123-5	LA30968-4
		99	Not asked	LOINC	88123-5	
Within the past 12 months, you worried that your food would	1572879820	1	Never true	LOINC	88122-7	LA28398-8
		2	Sometimes true	LOINC	88122-7	LA6729-3



run out before you got the money to buy more.		3	Often true	LOINC	88122-7	LA28397-0
		98	Patient refused	LOINC	88122-7	LA30968-4
		99	Not asked	LOINC	88122-7	
Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.	1572879821	1	Never true	LOINC	88123-5	LA28398-8
		2	Sometimes true	LOINC	88123-5	LA6729-3
		3	Often true	LOINC	88123-5	LA28397-0
		98	Patient refused	LOINC	88123-5	LA30968-4
		99	Not asked	LOINC	88123-5	

e) Social: The following table shows the LOINC coded questions and answers related to the patient's social life.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Do you belong to any clubs or organizations such as church groups, unions, fraternal or athletic groups, or school groups?	1572879828	1	Yes	LOINC	76511-5	LA33-6
		2	No	LOINC	76511-5	LA32-8
		98	Patient refused	LOINC	76511-5	
		99	Not asked	LOINC	76511-5	
Are you married, widowed, divorced, separated, never married, or living with a partner?	1572879830	3	Married	LOINC	63503-7	LA48-4
		4	Widowed	LOINC	63503-7	LA49-2
		5	Divorced	LOINC	63503-7	LA51-8
		6	Separated	LOINC	63503-7	LA4288-2
		7	Never married	LOINC	63503-7	LA47-6
		8	Living with partner	LOINC	63503-7	LA15605-1
		98	Patient refused	LOINC	63503-7	LA4389-8
In a typical week, how many times do you talk on the	1572879825	1	Never	LOINC	76508-1	
		2	Once a week	LOINC	76508-1	
		3	Twice a week	LOINC	76508-1	



phone with family, friends, or neighbors?		4	Three times a week	LOINC	76508-1	
		5	More than three times a week	LOINC	76508-1	
		98	Patient refused	LOINC	76508-1	
		99	Not asked	LOINC	76508-1	
How often do you get together with friends or relatives?	1572879826	1	Never	LOINC	76509-9	
		2	Once a week	LOINC	76509-9	
		3	Twice a week	LOINC	76509-9	
		4	Three times a week	LOINC	76509-9	
		5	More than three times a week	LOINC	76509-9	
		98	Patient refused	LOINC	76509-9	
How often do you attend church or religious services?	1572879827	99	Not asked	LOINC	76509-9	
		1	Never	LOINC	76510-7	
		2	1 to 4 times per year	LOINC	76510-7	
		3	More than 4 times per year	LOINC	76510-7	
		98	Patient refused	LOINC	76510-7	
How often do you attend meetings of the clubs or organizations you belong to?	1572879829	99	Not asked	LOINC	76510-7	
		1	Never	LOINC	99106-7	
		2	1 to 4 times per year	LOINC	99106-7	
		3	More than 4 times per year	LOINC	99106-7	
		98	Patient refused	LOINC	99106-7	
		99	Not asked	LOINC	99106-7	

- f) Alcohol: The following table shows the LOINC coded questions and answers related to the patient's consumption of alcohol.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column	source_id	source_value	source_answer	target_standard	target_element	target_value



_question					_code	_code
How often do you have a drink containing alcohol?	1572879836	1	Never	LOINC	68518-0	LA6270-8
		2	Monthly or less	LOINC	68518-0	LA18926-8
		3	2-4 times a month	LOINC	68518-0	LA18927-6
		4	2-3 times a week	LOINC	68518-0	LA18928-4
		5	4 or more times a week	LOINC	68518-0	LA18929-2
		98	Patient refused	LOINC	68518-0	
		99	Not asked	LOINC	68518-0	
How many drinks containing alcohol do you have on a typical day when you are drinking?	1572879837	0	Patient does not drink (Starting in November 2021)	LOINC	68519-8	
		1	1 or 2	LOINC	68519-8	LA15694-5
		2	3 or 4	LOINC	68519-8	LA15695-2
		3	5 or 6	LOINC	68519-8	LA18930-0
		4	7 to 9	LOINC	68519-8	LA18931-8
		5	10 or more	LOINC	68519-8	LA18932-6
		98	Patient refused	LOINC	68519-8	
		99	Not asked	LOINC	68519-8	
How often do you have six or more drinks on one occasion?	1572879838	1	Never	LOINC	68520-6	LA6270-8
		2	Less than monthly	LOINC	68520-6	LA18933-4
		3	Monthly	LOINC	68520-6	LA18876-5
		4	Weekly	LOINC	68520-6	LA18891-4
		5	Daily or almost daily	LOINC	68520-6	LA18934-2
		98	Patient refused	LOINC	68520-6	
		99	Not asked	LOINC	68520-6	

g) Intimate Partner Violence (IPV): The following table shows the LOINC coded questions and answers related to whether the patient experiences IPV.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE



source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Within the last year, have you been humiliated or emotionally abused in other ways by your partner or ex-partner?	1572879812	1	Yes	LOINC	76500-8	LA33-6
		2	No	LOINC	76500-8	LA32-8
	1572879812	98	Patient refused	LOINC	76500-8	
	1572879812	99	Not asked	LOINC	76500-8	
Within the last year, have you been afraid of your partner or ex-partner?	1572879813	1	Yes	LOINC	76501-6	LA33-6
	1572879813	2	No	LOINC	76501-6	LA32-8
	1572879813	98	Patient refused	LOINC	76501-6	
	1572879813	99	Not asked	LOINC	76501-6	
Within the last year, have you been raped or forced to have any kind of sexual activity by your partner or ex-partner?	1572879814	1	Yes	LOINC	76502-4	LA33-6
	1572879814	2	No	LOINC	76502-4	LA32-8
	1572879814	98	Patient refused	LOINC	76502-4	
	1572879814	99	Not asked	LOINC	76502-4	
Within the last year, have you been kicked, hit, slapped, or otherwise physically hurt by your partner or ex-partner?	1572879815	1	Yes	LOINC	76503-2	LA33-6
	1572879815	2	No	LOINC	76503-2	LA32-8
	1572879815	98	Patient refused	LOINC	76503-2	
	1572879815	99	Not asked	LOINC	76503-2	

h) Physical: The following table shows the LOINC coded questions and answers related to the patient's physical activity.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
On average, how many days per week do you engage in moderate to	1572879832	0	0 days	LOINC	89555-7	LA6111-4
		1	1 day	LOINC	89555-7	LA6112-2
		2	2 days	LOINC	89555-7	LA6113-0



strenuous exercise (like walking fast, running, jogging, dancing, swimming, biking, or other activities that cause a light or heavy sweat)?		3	3 days	LOINC	89555-7	LA6114-8
		4	4 days	LOINC	89555-7	LA6115-5
		5	5 days	LOINC	89555-7	LA10137-0
		6	6 days	LOINC	89555-7	LA10138-8
		7	7 days	LOINC	89555-7	LA10139-6
		98	Patient refused	LOINC	89555-7	
		99	Not asked	LOINC	89555-7	
On average, how many minutes do you engage in exercise at this level?	1572879833	0	0 min	LOINC	68516-4	LA6111-4
		1	10 min	LOINC	68516-4	LA13942-0
		2	20 min	LOINC	68516-4	LA19282-5
		3	30 min	LOINC	68516-4	LA28855-7
		4	40 min	LOINC	68516-4	LA28858-1
		5	50 min	LOINC	68516-4	LA28854-0
		6	60 min	LOINC	68516-4	LA28853-2
		7	70 min	LOINC	68516-4	
		8	80 min	LOINC	68516-4	
		9	90 min	LOINC	68516-4	LA28891-2
		10	100 min	LOINC	68516-4	
		11	110 min	LOINC	68516-4	
		12	120 min	LOINC	68516-4	LA32059-0
		13	130 min	LOINC	68516-4	
		14	140 min	LOINC	68516-4	
		15	150+ min	LOINC	68516-4	LA32060-8
		98	Patient refused	LOINC	68516-4	
		99	Not asked	LOINC	68516-4	

i) Depression

i) Postpartum Depression: The following table shows the LOINC coded questions and answers related to a patient's experience with postpartum depression.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code



In the past 7 days, I have been able to laugh and see the funny side of things.	1570500000	0	As much as I always could	LOINC	71344-6	LA18376-6
		1	Not quite so much now	LOINC	71344-6	LA18377-4
		2	Definitely not so much now	LOINC	71344-6	LA18378-2
		3	Not at all	LOINC	71344-6	LA6568-5
In the past 7 days, I have looked forward with enjoyment to things.	1570500001	0	As much as I ever did	LOINC	71345-3	LA18379-0
		1	Rather less than I used to	LOINC	71345-3	LA18380-8
		2	Definitely less than I used to	LOINC	71345-3	LA18381-6
		3	Hardly at all	LOINC	71345-3	LA18382-4
In the past 7 days, I have blamed myself unnecessarily when things went wrong.	1570500002	3	Yes, most of the time	LOINC	71346-1	LA18383-2
		2	Yes, some of the time	LOINC	71346-1	LA18384-0
		1	Not very often	LOINC	71346-1	LA18385-7
		0	No, never	LOINC	71346-1	LA18386-5
In the past 7 days, I have been anxious or worried for no good reason.	1570500003	0	No, not at all	LOINC	71347-9	LA18387-3
		1	Hardly ever	LOINC	71347-9	LA14751-4
		2	Yes, sometimes	LOINC	71347-9	LA18388-1
		3	Yes, very often	LOINC	71347-9	LA18389-9
In the past 7 days, I have felt scared or panicky for no good reason.	1570500004	3	Yes, quite a lot	LOINC	71348-7	LA18390-7
		2	Yes, sometimes	LOINC	71348-7	LA18388-1
		1	No, not much	LOINC	71348-7	LA18391-5
		0	No, not at all	LOINC	71348-7	LA18387-3
In the past 7 days, things have been getting on top of me.	1570500005	3	Yes, most of the time I haven't been able to cope at all	LOINC	71349-5	LA18392-3
		2	Yes, sometimes I haven't been coping as well as usual	LOINC	71349-5	LA18393-1



		1	No, most of the time I have coped quite well	LOINC	71349-5	LA18394-9
		0	No, I have been coping as well as ever	LOINC	71349-5	LA18395-6
In the past 7 days, I have been so unhappy that I have had difficulty sleeping.	1570500006	3	Yes, most of the time	LOINC	71350-3	LA18383-2
		2	Yes, sometimes	LOINC	71350-3	LA18388-1
		1	Not very often	LOINC	71350-3	LA18385-7
		0	Not at all	LOINC	71350-3	LA18387-3
In the past 7 days, I have felt sad or miserable.	1570500007	3	Yes, most of the time	LOINC	71351-1	LA18383-2
		2	Yes, quite often	LOINC	71351-1	LA18396-4
		1	Not very often	LOINC	71351-1	LA18385-7
		0	No, not at all	LOINC	71351-1	LA18387-3
In the past 7 days, I have been so unhappy that I have been crying.	1570500008	3	Yes, most of the time	LOINC	71352-9	LA18383-2
		2	Yes, quite often	LOINC	71352-9	LA18396-4
		1	Only occasionally	LOINC	71352-9	LA18397-2
		0	No, never	LOINC	71352-9	LA18386-5
In the past 7 days, the thought of harming myself has occurred to me.	1570500009	3	Yes, quite often	LOINC	71353-7	LA18396-4
		2	Sometimes	LOINC	71353-7	LA10082-8
		1	Hardly ever	LOINC	71353-7	LA14751-4
		0	Never	LOINC	71353-7	LA6270-8
Edinburgh Postnatal Depression Scale Total	1570500010	0-30	Sum of responses	LOINC	99046-5	

- ii) Patient Health Questionnaire 9 (PHQ-9): The PHQ-9 has nine question items that measure a patient's depression severity. The table below shows the nine questions and answer options with its respective LOINC codes.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE

source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Little interest or pleasure in doing things?	R FLO 1570000014	0	Not at all	LOINC	44250-9	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Feeling down, depressed, or hopeless?	R FLO 1570000015	0	Not at all	LOINC	44255-8	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Trouble falling or staying asleep, or sleeping too much?	R FLO 1570000018	0	Not at all	LOINC	44259-0	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Feeling tired or having little energy?	R FLO 1570000019	0	Not at all	LOINC	44254-1	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Poor appetite or overeating?	R FLO 1570000020	0	Not at all	LOINC	44251-7	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Feeling bad about yourself - or that you are a failure or have let yourself or your family down?	R FLO 1570000021	0	Not at all	LOINC	44258-2	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Trouble concentrating	R FLO 1570000022	0	Not at all	LOINC	44252-5	LA6568-5
		1	Several days	LOINC		LA6569-3



on things, such as reading the newspaper or watching television?		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have have been moving around a lot more than usual.	R FLO 1570000023	0	Not at all	LOINC	44253-3	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
Thoughts that you would be better off dead or hurting yourself in some way?	R FLO 1570000024	0	Not at all	LOINC	44260-8	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
PHQ-9 Scale Total	R FLO 1570000025	0-27	Sum of responses	LOINC	44261-6	

- iii) Patient Health Questionnaire 2 (PHQ-2): The PHQ-2 is a two-item questionnaire assessing a patient's overall depression levels. The PHQ-2 consists of the first two questions of the PHQ-9 questionnaire.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Little interest or pleasure in doing things?	R FLO 1570000014	0	Not at all	LOINC	44250-9	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every	LOINC		LA6571-9



			day			
Feeling down, depressed, or hopeless?	R FLO 1570000015	0	Not at all	LOINC	44255-8	LA6568-5
		1	Several days	LOINC		LA6569-3
		2	More than half the days	LOINC		LA6570-1
		3	Nearly every day	LOINC		LA6571-9
PHQ-2 Scale Total	R FLO 1570000016	0-6	Sum of responses	LOINC	55758-7	

- j) Housing: The following table shows the LOINC coded questions and answers related to the patient's housing situation.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
In the last 12 months, was there a time when you were not able to pay the mortgage or rent on time?	1570008805	1	Yes	LOINC	98976-4	LA33-6
		2	No	LOINC	98976-4	LA32-8
In the last 12 months, how many places have you lived?	1570008806		0-2	LOINC	98977-2	
			3 or greater	LOINC	98977-2	
In the last 12 months, was there a time when you did not have a steady place to sleep or slept in a shelter (including now)?	1570008807	1	Yes	LOINC	98978-0	LA33-6
		2	No	LOINC	98978-0	LA32-8

- k) Utilities: The following table shows the LOINC coded questions and answers related to how the patient manages their utilities.



SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
In the past 12 months has the electric, gas, oil, or water company threatened to shut off services in your home?	1570000075	1	Yes	LOINC	96779-4	LA33-6
		2	No	LOINC	96779-4	LA32-8
		3	Already Shut Off	LOINC	96779-4	LA-32002-0

- I) Health Literacy: The following table shows the LOINC coded questions and answers related to the patient's health literacy.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?	1570630335	1	Never	LOINC	93157-6	LA6270-8
		1	Rarely	LOINC	93157-6	LA10066-1
		1	Sometimes	LOINC	93157-6	LA10082-8
		1	Often	LOINC	93157-6	LA10044-8
		1	Always	LOINC	93157-6	LA9933-8
		1	Patient declines to respond	LOINC	93157-6	
		1	Patient unable to respond	LOINC	93157-6	LA30257-2

2). SOCIAL_HX (Clarity source table): The SOCIAL_HX table or known as the Social History module is a tab in the EPIC EHR system. The SOCIAL_HX table contains social history data for each history encounter stored in the system. This table has one row per history encounter. These are the following categories (source columns) that social history questions are grouped under.

- a) DAILY_STRESS_C (Clarity source column): This item stores responses to the social determinants of health question about daily stress.

SOURCE			TARGET		
	EPIC			QUESTION	ANSWER



	ANSWER			CODE	CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
This item stores responses to the social determinants of health question about daily stress..	1	Not at all	LOINC	76542-0	LA6568-5
	2	Only a little	LOINC	76542-0	LA22687-0
	3	To some extent	LOINC	76542-0	LA22686-2
	4	Rather much	LOINC	76542-0	LA22685-4
	5	Very much	LOINC	76542-0	LA13914-9
	98	Patient refused	LOINC	76542-0	
	99	Not asked	LOINC	76542-0	

- b) FOOD_INSECURITY_SCARCE_C: This item stores responses to the social determinants of health question about whether or not the patient had run out of food and was not able to buy more.

SOURCE			TARGET		
	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
This item stores responses to the social determinants of health question about whether or not the patient had run out of food and was not able to buy more.	3	Often true	LOINC	88123-5	LA28397-0
	2	Sometimes true	LOINC	88123-5	LA6729-3
	1	Never true	LOINC	88123-5	LA28398-8
	99	Not asked	LOINC	88123-5	
	98	Patient refused	LOINC	88123-5	LA30968-4

- c) FOOD_INSECURITY_WORRY_C: This item stores responses to social determinants of health question about whether the patient worried about food running out in the past year or not.

SOURCE			TARGET		
	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
	3	Often true	LOINC	88122-7	LA28397-0

This item stores responses



to the social determinants of health question about whether the patient worried about food running out in the past year or not.	2	Sometimes true	LOINC	88122-7	LA6729-3
	1	Never true	LOINC	88122-7	LA28398-8
	98	Patient refused	LOINC	88122-7	LA30968-4
	99	Not asked	LOINC	88122-7	

- d) MED_TRANSPORT_NEEDS_C: This item stores responses to social determinants of health question about whether the patient had difficulty regarding transportation for medical appointments and medicine.

SOURCE			TARGET		
	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
This item stores responses to the social determinants of health question about whether the patient had difficulty regarding transportation for medical appointments and medicine.	2	No	LOINC	101351-5	LA32-8
	1	Yes	LOINC	101351-5	LA30133-5
	98	Patient refused	LOINC	101351-5	LA30122-8
	99	Not asked	LOINC	101351-5	

- e) OTHER_TRANSPORT_NEEDS_C: This item stores responses to social determinants of health question about whether the patient had difficulty regarding transportation for things other than medical appointments and medicine.

SOURCE			TARGET		
	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
This item stores responses to the social determinants of health question about whether the patient had difficulty regarding transportation for things other than medical appointments and medicine.	2	No	LOINC	101351-5	LA32-8
	1	Yes	LOINC	101351-5	LA30134-3
	99	Not asked	LOINC	101351-5	
	98	Patient refused	LOINC	101351-5	LA30122-8

- f) FIN_RESOURCE_STRAIN_C: This item stores responses to social determinants of health question about financial resource strain.

SOURCE			TARGET		
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	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
This item stores responses to the social determinants of health question about financial resource strain.	1	Very hard	LOINC	76513-1	LA15832-1
	2	Hard	LOINC	76513-1	LA14745-6
	3	Somewhat hard	LOINC	76513-1	LA22683-9
	4	Not very hard	LOINC	76513-1	LA22682-1
	5	Not hard at all	LOINC	76513-1	LA31980-8
	98	Patient refused	LOINC	76513-1	
	99	Not asked	LOINC	76513-1	

- g) CLUB_MEMBER_C: This item stores responses to social determinants of health question about whether the patient is a member of any clubs or organizations.

SOURCE			TARGET		
	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
This item stores responses to the social determinants of health question about whether the patient is a member of any clubs or organizations.	1	Yes	LOINC	76511-5	LA33-6
	2	No	LOINC	76511-5	LA32-8
	98	Patient refused	LOINC	76511-5	
	99	Not asked	LOINC	76511-5	

- h) LIVING_WITH_SPOUSE_C: This item stores responses to social determinants of health question about whether or not the patient is currently living with spouse or partner.

SOURCE			TARGET		
	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_value	source_answer	target_standard	target_element_code	target_value_code
This item stores the response to social determinants of health question about whether or not the patient is currently living with spouse or partner.	1	Yes	LOINC	63503-7	
	2	No	LOINC	63503-7	
	3	Married	LOINC	63503-7	LA48-4
	4	Widowed	LOINC	63503-7	LA49-2
	5	Divorced	LOINC	63503-7	LA51-8



	6	Separated	LOINC	63503-7	LA4288-2
	7	Never married	LOINC	63503-7	LA47-6
	8	Living with partner	LOINC	63503-7	LA15605-1
	99	Not asked	LOINC	63503-7	
	98	Patient refused	LOINC	63503-7	LA4389-8

(3) Smart Data Identifiers: The SMRTDTA_ELEM_DATA table stores metadata (context, linked records, time of entry, etc) concerning SmartData element values entered by users through SmartForms. SmartTools or other documentation tools that file discrete data to SmartData elements. The accrual element values entered by end users are stored in the SMRTDTA_ELEM_VALUE table.

- a) Isolation: The table below shows the Smart Data Elements (questions) related to a patient's feeling of loneliness and isolation.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
How often do you feel lonely or isolated from those around you?	EPIC#MDS0700	0	Never	LOINC	93159-2	LA6270-8
		1	Rarely	LOINC	93159-2	LA10066-1
		2	Sometimes	LOINC	93159-2	LA10082-8
		3	Often	LOINC	93159-2	LA10044-8
		4	Always	LOINC	93159-2	LA9933-8
		7	Patient declines to respond	LOINC	93159-2	
		8	Patient unable to respond	LOINC	93159-2	LA30257-2

- b) Transportation: The table below shows the Smart Data Elements (questions) related to a patient's access to reliable transportation.

SOURCE				TARGET		
	FLWSHEET ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
Has lack of transportation kept you from medical	EPIC#MDSA1250A	A	Yes, it has kept me from medical appointments	LOINC	101351-5	LA30133-5



appointments, meetings, work, or from getting things needed for daily living?			or from getting my medications			
	Epic#MDSA1250B	B	Yes, it has kept me from non-medical meetings, appointments, work, or from getting things that I need	LOINC	101351-5	LA30134-3
	EPIC#MDSA1250C	C	No	LOINC	101351-5	LA32-8
	Epic#MDSA1250X	X	Patient unable to respond	LOINC	101351-5	LA30435-4
	EPIC#MDSA1250Y	Y	Patient declines to respond	LOINC	101351-5	LA33608-3

- c) Health Literacy: The table below shows the Smart Data Elements (questions) related to a patient's health literacy.

SOURCE				TARGET		
	FLowsheet ID	EPIC ANSWER			QUESTION CODE	ANSWER CODE
source_column_question	source_id	source_value	source_answer	target_standard	target_element_code	target_value_code
How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?	Epic#MDSB1300	0	Never	LOINC	93157-6	LA6270-8
		1	Rarely	LOINC	93157-6	LA10066-1
		2	Sometimes	LOINC	93157-6	LA10082-8
		3	Often	LOINC	93157-6	LA10044-8
		4	Always	LOINC	93157-6	LA9933-8
		7	Patient declines to respond	LOINC	93157-6	
		8	Patient unable to respond	LOINC	93157-6	

How is SDoH data standardized in electronic health records?

1. LOINC Codes

Logical Observation Identifiers Names and Code ([LOINC](#)) is a universal and standardized way to identify clinical observations, lab tests and measurements. The questions and answer choice options in the Epic Flowsheet are LOINC coded, which allows the IDSci team to transform Epic Clarity patient data into the PCORnet Common Data Model where they end up in the OBS_GEN or the PRO_CM tables. LOINC coded Flowsheet questions cover a wide range of SDoH topics such as transportation, food insecurity, intimate partner violence, and physical activity.

LOINC is also the standard vocabulary for the SDoH variables in the OMOP common data model. These variables will most likely end up in the Observation table. The LOINC vocab has a [beta version of the SDoH group](#) and a [Parent SDoH Group](#).

2. ICD-10-CM

International Classification of Diseases, 10th Edition, Clinical Modification diagnosis codes (ICD-10-CM) is a detailed coding system to classify medical conditions and health related conditions. ICD-10-CM is organized into subgroups. T codes, Y codes and Z codes are ICD-10-CM subgroups that describe SDoH related patient conditions. You can search for all the current codes on the CDC National Center for Health Statistics [ICD-10-CM Browser tool](#).

T Codes: In ICD-10-CM diagnosis codes, the codes in Group T fall under the category "Injuries, Poisonings, and Certain Other Consequences of External Causes (Injury, Poisoning and Certain Other Consequences of External Causes - ICD-10 Codes- Codify by AAPC, 2023)." To find specific descriptions of T Group Codes, follow this [link](#).

Subcategories	SDoH T Codes	SDoH T Code Description
T74.0 Neglect or abandonment, confirmed	T74.01XA	Adult neglect or abandonment, confirmed, Initial encounter
	T74.01XD	Adult neglect or abandonment, confirmed, subsequent encounter
	T74.01XS	Adult neglect or abandonment, confirmed, sequela
T74.1 Physical abuse, confirmed	T74.11XA	Adult physical abuse, confirmed, Initial encounter
	T74.11XD	Adult physical abuse, confirmed, subsequent encounter
	T74.11XS	Adult physical abuse, confirmed, sequela
T74.2 Sexual abuse, confirmed	T74.21XA	Adult sexual abuse, confirmed, Initial encounter
	T74.21XD	Adult sexual abuse, confirmed, subsequent encounter
	T74.21XS	Adult sexual abuse, confirmed, sequela



T74.3 Psychological abuse, confirmed	T74.31XA	Adult psychological abuse, confirmed, Initial encounter
	T74.31XD	Adult psychological abuse, confirmed, subsequent encounter
	T74.31XS	Adult psychological abuse, confirmed, sequela
T74.9 Unspecified maltreatment, confirmed	T74.91XA	Unspecified adult maltreatment, confirmed, Initial encounter
	T74.91XD	Unspecified adult maltreatment, confirmed, subsequent encounter
	T74.91XS	Unspecified adult maltreatment, confirmed, sequela
T76.0 Neglect or abandonment, suspected	T76.01XA	Adult neglect or abandonment, suspected, Initial encounter
	T76.01XD	Adult neglect or abandonment, suspected, subsequent encounter
	T76.01XS	Adult neglect or abandonment, suspected, sequela
T76.1 Physical abuse, suspected	T76.11XA	Adult physical abuse, suspected, Initial encounter
	T76.11XD	Adult physical abuse, suspected, subsequent encounter
	T76.11XS	Adult physical abuse, suspected, sequela
T76.2 Sexual abuse, suspected	T76.21XA	Adult sexual abuse, suspected, Initial encounter
	T76.21XD	Adult sexual abuse, suspected, subsequent encounter
	T76.21XS	Adult sexual abuse, suspected, sequela
T76.3 Psychological abuse, suspected	T76.31XA	Adult psychological abuse, suspected, Initial encounter
	T76.31XD	Adult psychological abuse, suspected, subsequent encounter
	T76.31XS	Adult psychological abuse, suspected, sequela
	T76.32XA	Child psychological abuse, suspected, Initial encounter
	T76.32XD	Child psychological abuse, suspected, subsequent encounter
	T76.32XS	Child psychological abuse, suspected, sequela



T76.9 Unspecified maltreatment, suspected	T76.91XA	Unspecified adult maltreatment, suspected, Initial encounter
	T76.91XD	Unspecified adult maltreatment, suspected, subsequent encounter
	T76.91XS	Unspecified adult maltreatment, suspected, sequela

Y Codes:

Y Codes are a subset of ICD-10 CM codes that describe the external causes of morbidity (External Causes of Morbidity - ICD-10 Codes- Codify by AAPC, 2022). The subcategories for the Y Codes are listed below.

Y Codes	Subcategories	SDoH Y codes	SDoH Code Meaning
Y07	Perpetrator of assault, maltreatment and neglect	Y07.01	Husband, perpetrator of maltreatment and neglect
		Y07.02	Wife, perpetrator of maltreatment and neglect
		Y07.03	Male partner, perpetrator of maltreatment and neglect
		Y07.04	Female partner, perpetrator of maltreatment and neglect

Z Codes:

Z codes are a subset of the ICD-10-CM codes that represent “factors influencing health status and contact with health services” (CMS MACBIS T-MSIS Reporting Reminder: Reporting ICD-10-CM Diagnosis Codes With Clarification on “Z Codes” for Social Determinants of Health (SDOH) | Medicaid). Z codes are used to report a wide range of issues relevant to employment, education, occupational exposure to chemicals, housing and family circumstances. To learn more about SDoH ICD-10 CM Z Codes, click [here](#). Z codes are typically used by a health care team to standardize SDoH data in the EHR and refer patients to social services. Click [here](#) to learn about the uses of SDoH Z codes.

The table below shows the nine categories that SDoH Z codes fall under and its respective subcodes.

Z Code Subcategories	Subcategories	SDoH Z codes	SDoH Z codes
Z55	Problems related to education and literacy	Z55.5	Less than a high school diploma
		Z55.8	Other problems related to education and literacy
Z56	Problems related to employment and unemployment	Z56.0	Unemployment, unspecified



Z57	Occupational exposure to risk factors		
Z58	Problems related to physical environment		
Z59	Problems related to housing and economic circumstances	Z59.00	Homelessness unspecified
		Z59.01	Sheltered homelessness
		Z59.02	Unsheltered homelessness
		Z59.1	Inadequate housing
		Z59.41	Food insecurity
		Z59.48	Other specified lack of adequate food
		Z59.811	Housing instability, housed, with risk of homelessness
		Z59.812	Housing instability, housed, homelessness in past 12 months
		Z59.819	Housing instability, housed unspecified
		Z59.82	Transportation insecurity
		Z59.86	Financial insecurity
Z60	Problems related to social environment	Z60.2	Problems related to living alone
		Z60.4	Social exclusion and rejection
		Z60.8	Other problems related to social environment
Z62	Problems related to upbringing		
Z63	Other problems related to primary support group,	Z63.8	Other specified problems related to primary support group



	including family circumstances		
Z64	Problems related to certain psychosocial circumstances		
Z65	Problems related to other psychosocial circumstances	Z65.9	Problem related to unspecified psychosocial circumstances
Z73	Problems related to life management difficulty	Z73.3	Stress, not elsewhere classified
Z91	Personal risk factors, not elsewhere classified	Z91.A10	Caregiver's noncompliance with patient's dietary regimen due to financial hardship
		Z91.A20	Caregiver's intentional underdosing of patient's medication regimen due to financial hardship
		Z91.11	Patient's noncompliance with dietary regimen
		Z91.110	Patient's noncompliance with dietary regimen due to financial hardship
		Z91.120	Patient's intentional underdosing of medication regimen due to financial hardship
		Z91.190	Patient's noncompliance with other medical treatment and regimen due to financial hardship
		Z91.410	Personal history of adult physical and sexual abuse
		Z91.411	Personal history of adult psychological abuse
		Z91.412	Personal history of adult neglect
		Z91.419	Personal history of unspecified adult abuse



		Z91.82	Personal history of military deployment
		Z91.89	Other specified personal risk factors, not elsewhere classified

Future SDoH Data Sources:

We can link to the following SDoH data sources in the future:

1. [Agency for Healthcare Research and Quality](#) created an SDoH database that contains reliable SDoH variables across domains, such as social context, economic context, education, physical infrastructure and healthcare context.
2. [“CDC PLACES: Local Data for Better Health”](#) provides health data for all counties, places, census tracts and ZIP Code Tabulation Areas in the United States.
3. [“County Health Ranking & Roadmaps”](#) has a model that shows how SDoH factors impact health and areas where we can improve health outcomes.
4. [Community Resilience Estimates](#) (CRE) provides important metrics for how at-risk neighborhoods in the United States are to the impact of disasters. This resource also provides data on COVID-19 in every neighborhood.
5. [National Oceanic and Atmospheric Administration](#) (NOAA) provides tools about weather and national disasters and how it impacts communities in the United States.
6. [Common Core of Data](#) (CCD) is the Department of Education's database about education in the United States school districts.
7. The Health Resources & Services Administration ([data.HRSA.gov](#)) created multiple tools about health care services, such as the Health Equity Mapping Tool and Health Center Patient Survey dashboard and Uniform Data System.
8. [CDC/ATSDR Social Vulnerability Index](#) uses U.S. census variables to identify communities that need support during periods of disaster.
9. [CDC and OMH Minority Health Social Vulnerability Index](#) is used to identify racial and ethnic minority communities that are at the greatest risk for disproportionate impact.
10. [The Opportunity Atlas](#) is a dataset that answers the question which neighborhoods in the United States offer children the best chance to rise out of poverty

- **For more information, please contact Sofia Dard or Marshall Clark.**

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