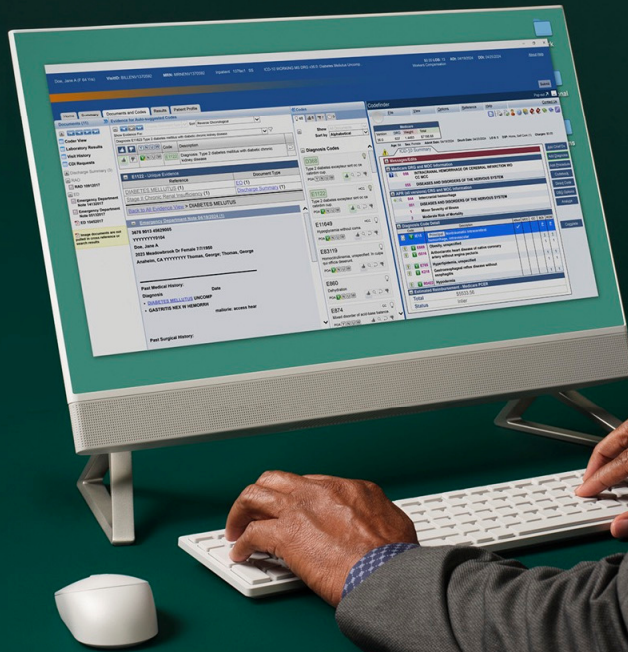


Increasing SDoH Data Code Capture Across Healthcare Systems

Tiffany Harman, RN, MSN



© Solventum 2025. All rights reserved.

Agenda

- Introduction to SDoH Code Capture
- CAC Overview/ NLP overview
- Methods of Expanding SDoH Capture
- Results of Expanded CAC Implementation
- Challenges, Discussion and Conclusion

Introduction to SDoH and Z-codes

Why accurate SDoH documentation matters

SDOH accounts for 50% of health outcomes

Enhance the capture of Social Determinants of Health (SDoH) data using ancillary documents

- case management
- social worker notes
- nursing notes
- flowsheets

Inadequate documentation of SDoH using z codes creates a domino effect that extends beyond the individual chart

- Gaps in the patient's clinical picture
- Missed opportunities for interventions
- Missed opportunities for population health management
- Impedes research and policy
- Financial implications for value-based care

Enhanced SDoH documentation leads to more accurate code capture, eases the burden on medical coders, and advances both patient outcomes and health equity

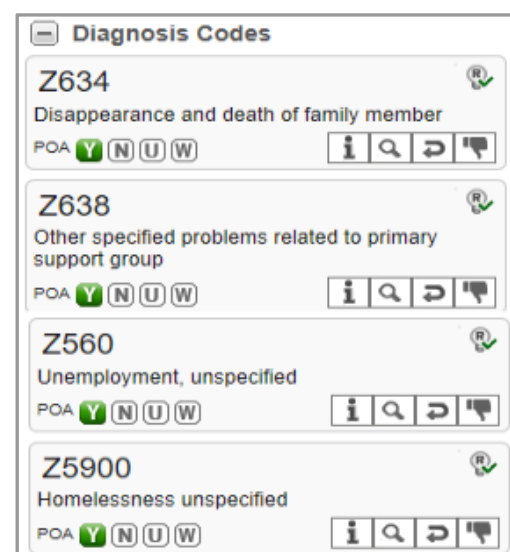
SDoH Z-code categories & sub-code examples Z55-Z65

| | | | |
|--|--|---|--|
| Z55 Education and literacy | Z550 Illiteracy and low-level literacy | Z60 Social environment | Z600 Problems of adjustment to life-cycle transitions |
| | Z551 Schooling unavailable and unattainable | | Z602 Problems related to living alone |
| Z56 Employment & unemployment | Z560 Unemployment, unspecified | Z61-Negative life events in childhood | Z611 Removal of child from home |
| | Z561 Change of job | | Z619 Negative life event in childhood, unspecified |
| Z57 Occupational exposure to risk factors | Z570 Occupational exposure to noise | Z62 Upbringing | Z620 Inadequate parental supervision and control |
| | Z571 Occupational exposure to radiation | | Z621 Parental overprotection |
| Z58 Physical environment | Z586 Inadequate drinking-water supply | Z63 Primary support group & family circumstances | Z630 Problems in relationship with spouse or partner |
| | Z5881 Basic services unavailable in physical environment | | Z631 Problems in relationship with in-laws |
| Z59 Housing & economic circumstances | Z5900 Homelessness unspecified | Z64 certain psychosocial circumstances | Z640 Problems related to unwanted pregnancy |
| | Z5901 Sheltered homelessness | | Z641 Problems related to multiparity |
| | | Z65 other psychosocial circumstances | Z650 Conviction in civil and criminal proceedings without imprisonment |
| | | | Z651 Imprisonment and other incarceration |

What is Computer Assisted Coding (CAC)

Computer-Assisted Coding System reviews documents, annotations and auto-suggested codes for accurate, complete and compliant facility coding.

- CAC utilizes Natural Language Processing
- Auto-suggested diagnosis and procedure codes
- Utilized in the inpatient and outpatient settings



CAC and NLP for social risk

- Data science technology where 'engines' are designed to read the narrative text to identify and tag specific coded values
- Used to convert narrative text or structured data into codes for medical coders
- Computer Assisted Coding (CAC) utilizes natural language processing (NLP) to automate identification of SDoH Z-codes from diverse clinical documentation for review by medical coders.

Examples:

Ancillary: Case management narrative

18 y/o old single female admitted with DKA. Patient is currently **living in a hotel.**

Autosuggested: **Z59.01 Sheltered homelessness**

Flowsheet: Health Related Social Needs questionnaire

Have there been times that your food ran out, and you didn't have money to get more: Yes

Auto suggested: **Z59.41 Food Insecurity and Z59.86 Financial insecurity**

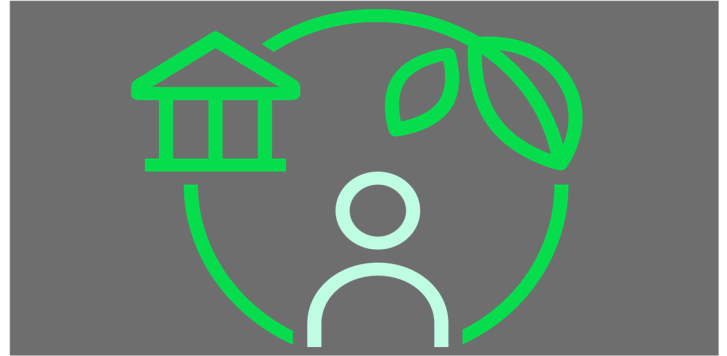


Methods of Expanding SDoH Capture

Methods: two groups



- Group 1, Standard CAC
 - 3 similar sized healthcare systems
 - Provider **only** documents capturing SDoH
 - Data range: 3 months



- Group 2, Expanded CAC
 - 3 similar sized healthcare systems
 - Provider documents capturing SDoH
 - System configured for ancillary documents containing SDoH
 - Data range: 3 months

Methodology



Dataset AWS Quicksight

- Pre/Post implementation capture (using range Z550-Z659)
- Accepted codes will increase
- Human Added codes will decrease
- Precision & Recall within the Z code range will increase



Document Scoping

- Ancillary documents containing the social risk narrative
 - Social worker
 - Nursing notes
 - Flowsheets



Configure

- Configure the ancillary documents to only auto-suggest the ICD z code range (Z550-Z659)
- Configure the NLP to add social risk terms

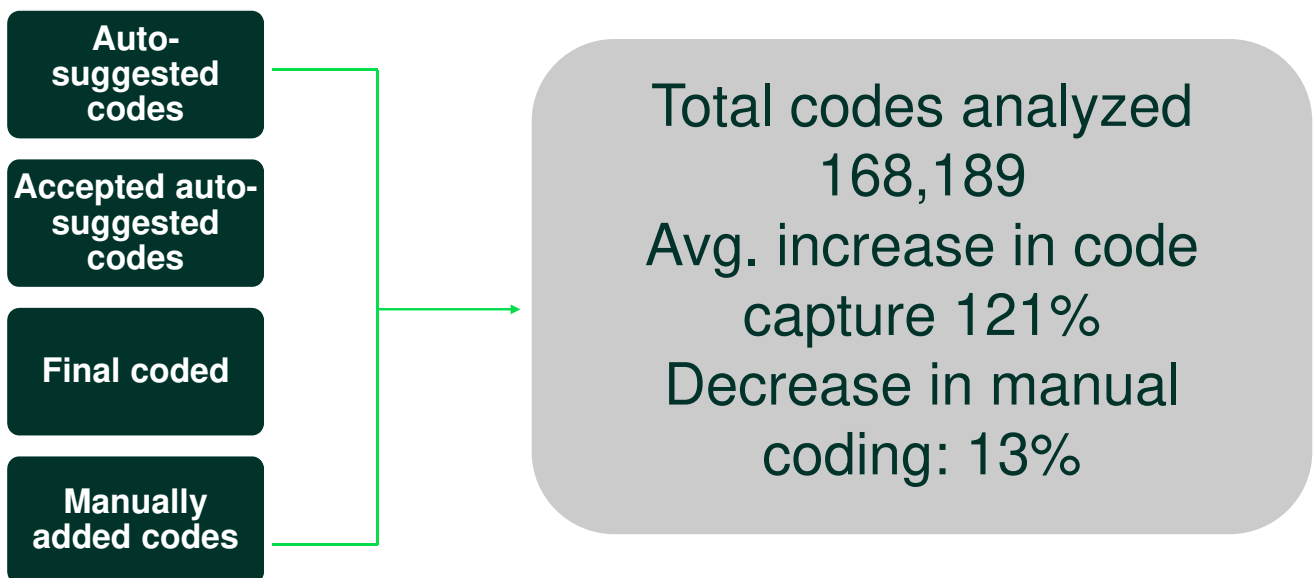


Test and Production

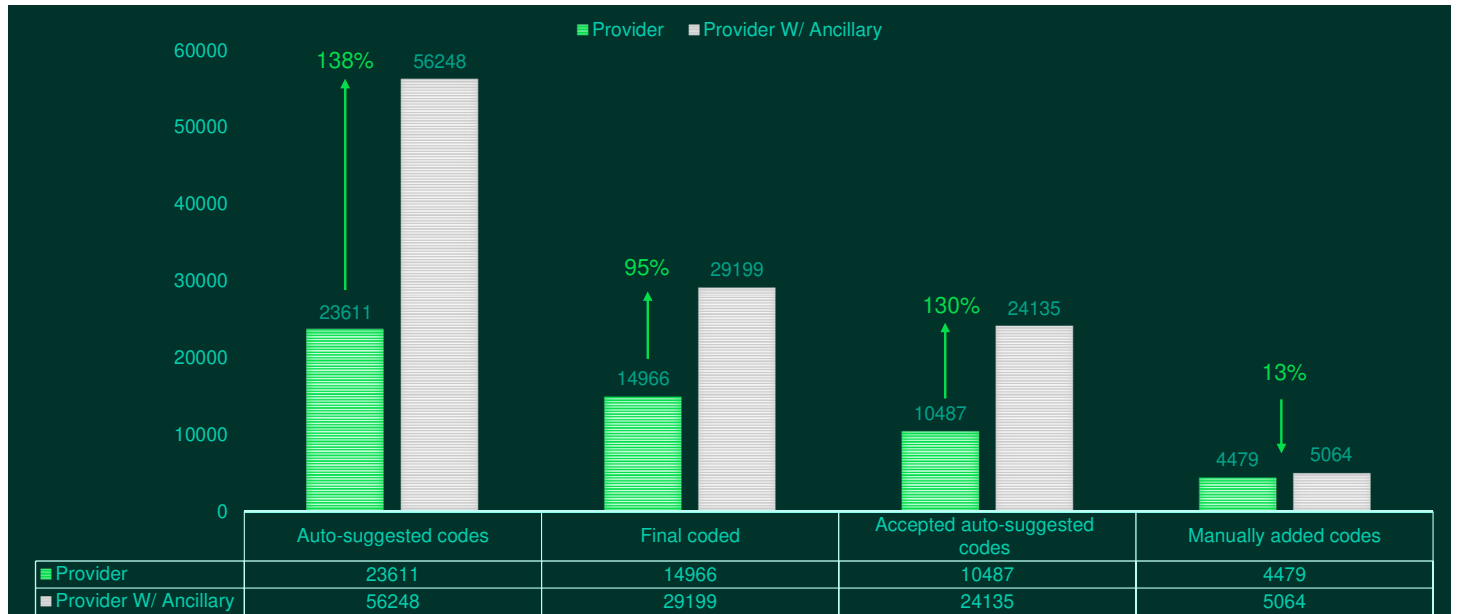
- Test new configuration in and then put the same configuration in production

Results of Expanded CAC Implementation

Increase in SDoH code capture



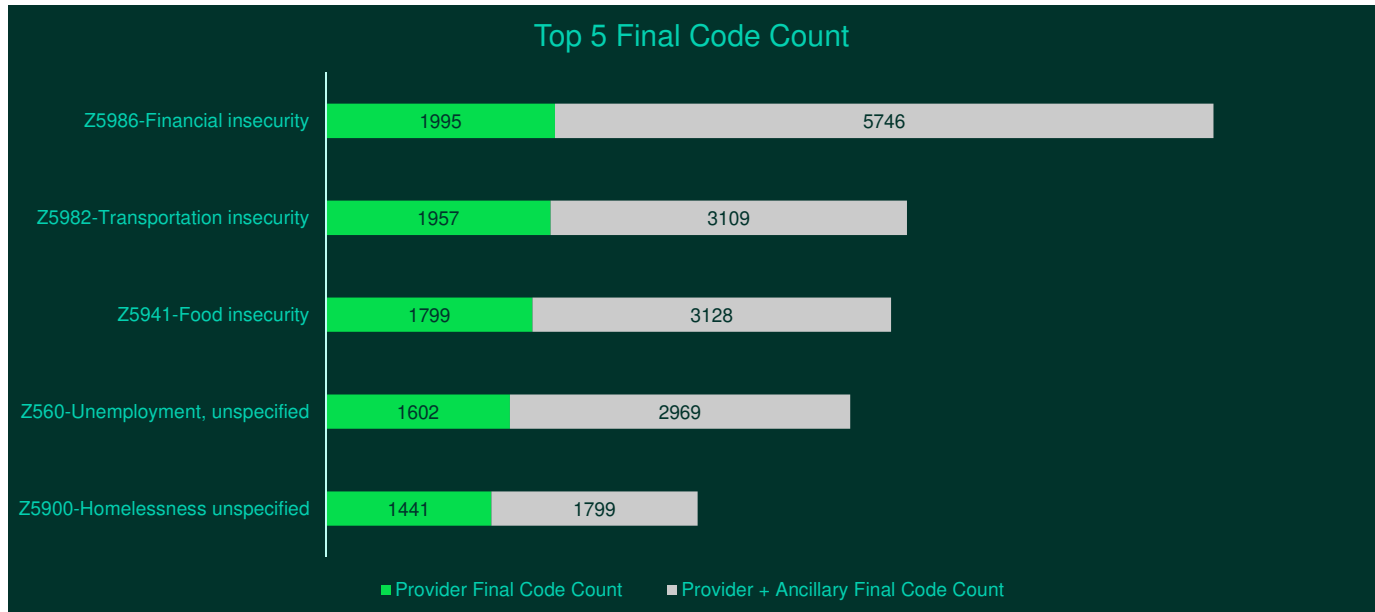
SDoH code capture comparison



SDoH code capture by category

| Code Category | Provider + Ancillary | Provider | % ↑ ↓ |
|--|----------------------|----------|-------|
| Z59 = HOUSING & ECONOMIC CIRCUMSTANCES: | 20358 | 9328 | 118% |
| Z60 = SOCIAL ENVIRONMENT | 2707 | 1440 | 88% |
| Z63 = OTHER PROBLEMS W/PRIMARY SUPPORT GROUP | 2459 | 1221 | 101% |
| Z56 = EMPLOYMENT & UNEMPLOYMENT | 2116 | 1705 | 24% |
| Z62 = UPBRINGING | 893 | 648 | 38% |
| Z65 = OTHER PSYCHOSOCIAL CIRCUMSTANCES | 417 | 178 | 134% |
| Z55 = EDUCATION & LITERACY | 208 | 404 | -49% |
| Z57 = EXPOSURE TO OCCUPATIONAL RISK FACTORS | 25 | 20 | 25% |
| Z58 = PHYSICAL ENVIRONMENT | 12 | 15 | -20% |

SDoH top 5 final Z code capture



Nebraska Medicine

Coder Feedback – Here's what the coders are saying:



I really appreciate the robust auto-suggested SDoH codes from Solventum! At Nebraska Medicine, we treat a very wide variety of patients from all over the city, state and region. Practically any imaginable type of patient, with all sorts of impacting SDOH. Foreign language speakers, homeless, lack of transportation, complex social situations, incarceration, etc. CAC auto-suggest rate on SDOH is not only a big time-saver for me as a coder, but I can't imagine the SDOH codes I would potentially miss if I had to scour through the entire chart myself to find them.

- Melissa Bugay RHIT

Having the SDOH identified in the record and having autosuggestion available has simplified the abstraction of these codes for our team. The system has improved our capture rate without impacting our team's productivity.

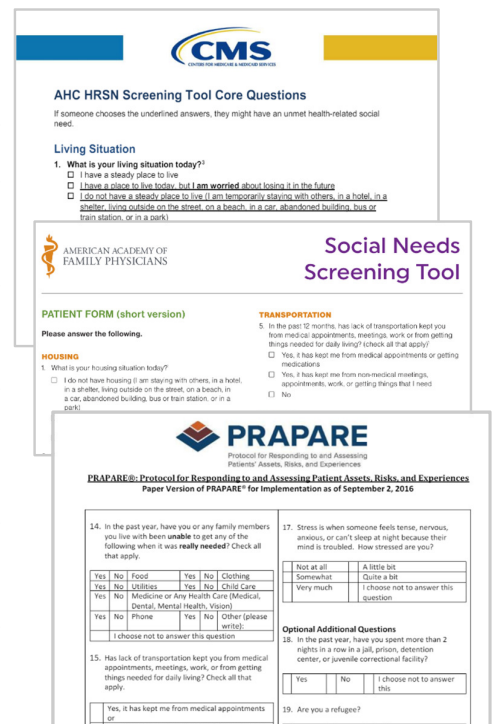
- Mary Vivian-Leidy RHIA, CCS, CPC, CIC, COC, CRC, CDEI, CGSC

Challenges, Discussion and Conclusions

Challenges with z coding

SDoH Questions

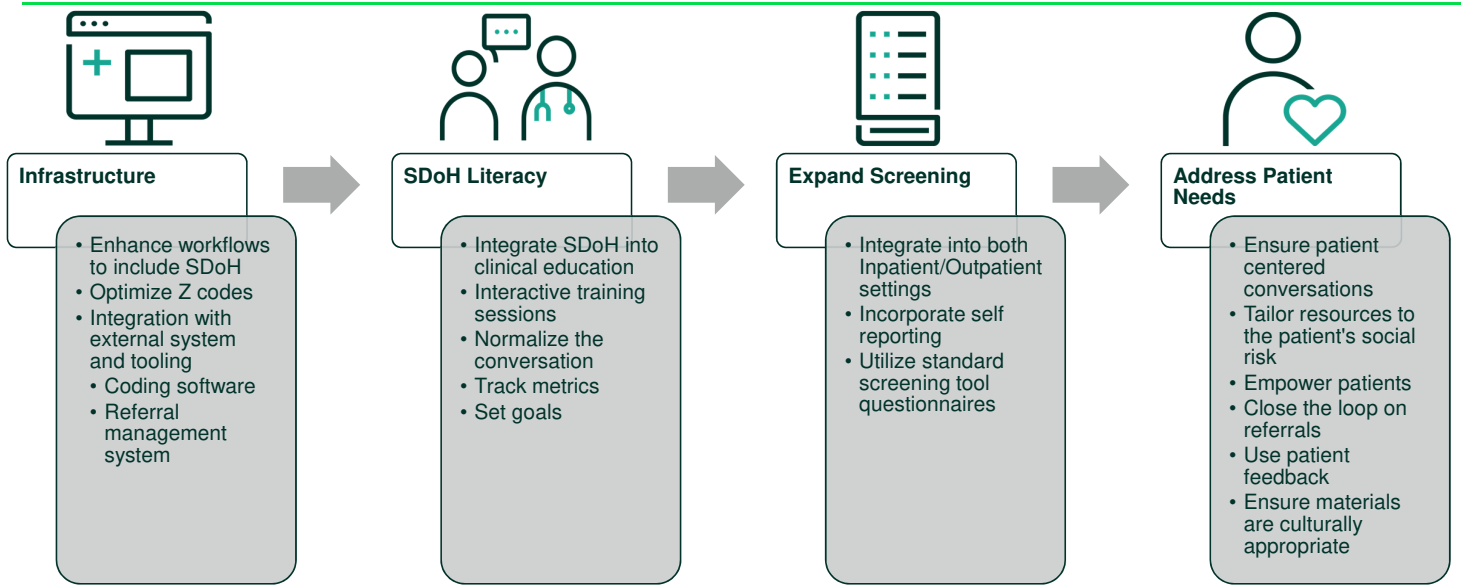
| Question | Challenges with Z codes |
|--|---|
| <i>Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.</i> | Temporal ambiguities-may not align to the current episode of care |
| <i>'worried' in the question ...worried about gas, electric being shut off</i> | These types of questions can be problematic because 'worry' may not equate to a current issue or problem. |
| <i>Do you have trouble getting medicines, medical supplies, or paying for medication co-pays on a regular basis?</i> | Too many variables: Is this out-of-stock medication, lack of social support, or lack of financial support based on the question being an 'OR' question. |
| <i>Do you have a doctor or clinic where you usually go for medical care?</i> Answer: No | Could this be by patient choice instead of an issue with the medical care facility? |
| <i>How hard is it for you to pay for the very basics, like food, housing, medical care, and heating?</i> | Too broad to get a z code |



The image displays three overlapping screenshots of patient screening tools:

- AHC HRSN Screening Tool Core Questions:** A form from CMS (Center for Medicare & Medicaid Services) with the title "AHC HRSN Screening Tool Core Questions". It includes a "Living Situation" section with questions like "What is your living situation today?" and options such as "I have a steady place to live" and "I do not have a steady place to live".
- Social Needs Screening Tool:** A form from the American Academy of Family Physicians. It includes a "TRANSPORTATION" section with a question: "In the past 12 months, has lack of transportation kept you from medical appointments, meetings, work or from getting things needed for daily living?"
- PRAPARE:** A form titled "PRAPARE: Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences". It includes questions about family members' ability to get needed items and stress levels.

What actions can improve Z code capture



Conclusion

- Importance of SDoH Data:** Crucial for improving healthcare delivery and outcomes. Helps address non-clinical factors impacting patient health.
- Z-Codes Utilization:** Enables better identification of social risk and supports more comprehensive patient care.
- Impact of CAC and NLP:** Computer-Assisted Coding and Natural Language Processing improve accuracy.
- Improved SDoH Code Capture:** Configuring ancillary documents increases SDoH code capture.
- Reduced Workload for Coders:** Less manual effort locating social risk z-codes post-deployment.
- Ensuring Accurate Code Assignment:** More consistent and simplified coding process.
- Impact on Patient Outcomes:** Comprehensive SDoH capture promotes equity and better health outcomes.

The logo consists of a stylized, bright green Greek letter sigma (Σ) symbol. It is composed of a single continuous line that forms a loop at the bottom and curves upwards and to the right at the top.

solventum