USCDI V4 Draft: **Education**

**Data Element Description:**

The knowledge and skills gained through education, the credentialing linked to the completion of various levels of schooling, and the quality of education. (Institute of Medicine, Capturing Social and Behavioral Domains in Electronic Health Records, Phase 2, p. 68 (2014).)

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| Submitted By: Mark Savage for Gravity Project / Gravity Project |
| Data Element Information |
| Use Case Description(s) |
| Use Case Description | ADD: Differences in SDOH contribute to the stark and persistent disease disparities in the United States among racial, ethnic, and socioeconomic groups, systematically limiting opportunities for members of some groups to be healthy. While public health crises and economic uncertainty may focus attention on disparities, health inequities have persisted across generations because of structural policies and practices that have systematically limited health access and opportunities. It is crucial to capture data elements on risks and drivers of inequity for leading health conditions (such as Education level) as often captured in the social history for patient management and of importance for population health supports. The healthcare and public health missions and duties are supported by electronic health information (EHI) measurements around health behaviors, social determinants, equity, and outcomes. These data elements support equity and well-being benefiting individual and population level health. They address domains including SDOH drivers, risk factors and protective behaviors (e.g., physical activity as a vital sign and food as medicine), vulnerability indices, systematic race and ethnicity reporting, and medical outcomes of consequence.Healthy People 2030. Social determinants of health have a major impact on people's health and well-being — and they're a key focus of Healthy People 2030.Healthy people 2030 domains for SDOH (as well as some other domains of interest to us) include: Economic Stability; Education Access and Quality; Health Care Access and Quality; Neighborhood and Built Environment; Social and Community Context. People with higher levels of education are more likely to be healthier and live longer. Healthy People 2030 focuses on providing high-quality educational opportunities for children and adolescents — and on helping them do well in school as it impacts their health outcomes throughout life. Therefore, this data element is important for informing future public health action. It is critical to focus on achieving health equity by reducing disparities. • Document SDOH data relevant to (1) Food Insecurity, (2) Housing Instability and Homelessness, (3) Inadequate Housing, (4) Transportation Insecurity, (5), Financial Strain, (6) Social Isolation, (7) Stress, (8) Interpersonal Violence, (9) Education, (10) Employment, and (11) Veteran Status in conjunction with the patient encounter• Document and track SDOH-related interventions related to (1) Food Insecurity, (2) Housing Instability and Homelessness, (3) Inadequate Housing, (4) Transportation Insecurity, (5), Financial Strain, (6) Social Isolation, (7) Stress, (8) Interpersonal Violence, (9) Education, (10) Employment, and (11) Veteran Status to completion• Gather and aggregate SDOH data related to (1) Food Insecurity, (2) Housing Instability and Homelessness, (3) Inadequate Housing, (4) Transportation Insecurity, (5), Financial Strain, (6) Social Isolation, (7) Stress, (8) Interpersonal Violence, (9) Education, (10) Employment, and (11) Veteran Status for uses beyond the point of care |
| Estimated number of stakeholders capturing, accessing using or exchanging | ADD:The data exchange will benefit 329.5 million entire (US population number (2020)). SDOH cross-cuts all people, all practices as well as organizations, federal agencies, and partners. It is of priority to the federal government, HHS, healthcare and public health and the people served. This data class (and the elements contained within it) are pertinent to all stakeholders that directly partner with patients toward improving patient health and stakeholders who gather, aggregate, and use data to make decisions on policy, programs, and resources toward the improved health of populations (Gravity).Level 2 – elements pertain to most or all patients, providers or requestors.The list below contains 8 categories of organizations that each represent dozens and in some cases hundreds of stakeholders that would heavily capture, access, use, or exchange the individual data elements in this data class.This data class (and the eleven data elements contained within it) are pertinent to all stakeholders that directly partner with patients toward improving patient health and stakeholders who gather, aggregate and use data to make decisions on policy, programs, and resources toward the improved health of populations.A qualitative study of EHR vendors making active and current use of SDOH data contains a more in depth description of the stakeholders described below:Freij, Maysoun et al. “Incorporating Social Determinants of Health in Electronic Health Records: Qualitative Study of Current Practices Among Top Vendors.” JMIR medical informatics vol. 7,2 e13849. 7 Jun. 2019, doi:10.2196/13849• Providers and provider associations: clinical, community-based, long-term and post-acute, medical homes, accountable care organizations, health systems, and hospitals• Payers: federal, state, commercial, and employers• Patients/Beneficiaries• Patient/Beneficiary advocates: patient/beneficiary representatives and/or delegates, caregivers, family members, and other advocates• Government agencies, payors, providers, researchers, and policymakers:o Centers for Disease Control and Prevention, National Center for Health Statisticso CMS: Office of Minority Health, Center for Medicaid and CHIP Services, Center for Clinical Standards and Quality, CMS Innovation Centero Department of Defenseo Department of Educationo Department of Housing and Urban Developmento Department of Laboro Department of Transportationo Health Resources and Services Administrationo HHS Administration of Children and Familieso HHS Administration of Community Livingo HHS Agency for Healthcare Research & Qualityo HHS Office of the Assistant Secretary for Planning & Evaluationo HHS Office of the National Coordinator for Health ITo Indian Health Serviceo National Institutes of Health: Office of Minority Health and Health Disparitieso Social Security Administrationo State Medicaid offices, state health and public health departments, and state health information exchange organizationso Substance Abuse and Mental Health Services Administrationo Veterans Health Administration• Vendors:o EHR systems, PHR systems, mobile health systems and apps, health information exchange systems, home- and community-based service information systems, care management and care coordination systemso Telehealth technologieso Digital health technologieso Device manufacturerso Data warehouse/data mart• Standards-related organizations: standards developing organizations, vocabulary/terminology organizations• Privacy and security professionalsOver time, we estimate that virtually all providers, payers, and community-based organizations that provide services to address SDOH risk, and relevant quality and governmental agencies, would capture, access, use or exchange this data class or data elements. |
| Link to use case project page | [https://confluence.hl7.org/display/GRAV/Gravity+Use+Case+Package](https://confluence.hl7.org/display/GRAV/Gravity%2BUse%2BCase%2BPackage) |
| Supporting Attachments | [Gravity Project to ONC on SDOH Data Class for USCDI v2 (10-23-2020).pdf](https://www.healthit.gov/isa/sites/isa/files/webform/uscid_webform/1701/Gravity%20Project%20to%20ONC%20on%20SDOH%20Data%20Class%20for%20USCDI%20v2%20%2810-23-2020%29.pdf) |
| Healthcare Aims | * Improving patient experience of care (quality and/or satisfaction)
* Improving the health of populations
* Reducing the cost of care
* Improving provider experience of care
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| Maturity of Use and Technical Specifications for Data Element |
| Applicable Standard(s) | ADD* [Current educational attainment (NHANES) LOINC® code 63504-5](https://r.details.loinc.org/LOINC/63504-5.html?sections=Comprehensive)

https://www.healthit.gov/isa/representing-level-educationYes, a vocabulary/terminology standard and/or technical specification exists for each proposed data element. The Gravity Project attaches a letter with an overview.For (1) Food Insecurity: LOINC, SNOMED-CT, ICD-10-CM, and CPT/HCPCS terminologies are specified by value set in NLM’s Value Set Authority Center (VSAC).For (2) Housing Instability and Homelessness, (3) Inadequate Housing, (4) Transportation Insecurity, (5), Financial Strain, (6) Social Isolation, (7) Stress, (8) Interpersonal Violence, (9) Education, (10) Employment, and (11) Veteran Status:• The corresponding value sets are under development by the Gravity Project;• The value sets will be complete prior to publishing of USCDI v2.0;• Even if a particular value set might be incomplete, the value set will be citable.The technical specifications for value sets under each data element are described below:• Assessments: LOINC• Health Concerns/Problems/Diagnoses: SNOMED-CT, ICD-10-CM• Goals: LOINC• Procedures/Interventions: SNOMED-CT (clinical), CPT/HCPCS (billing)• Outcomes: LOINC (NCQA measures)• Consent (where needed): based on existing HL7 code systems<https://www.vsac.org/> |
| Additional Specifications | The Gravity Project is currently developing the Implementation Guide as an HL7 Accelerator Project, and the Implementation Guide will be complete and available before ONC publishes the USCDI v2. |
| Current Use | This data element has been used at scale between multiple different production environments to support the majority of anticipated stakeholders |
| Supporting Artifacts | Most major EHR vendors collect and record SDOH data elements that are implemented as custom, non-interoperable fields. The lack of a standard creates risks to individual patients by creating gaps in medical histories for patients that move between service providers. The following citations describe examples of how different vendors and health networks have implemented and used these data elements in production, at scale, as part of their routine healthcare operations.Nicole Friedman & Matthew Banegas, Toward Addressing Social Determinants of Health: A Health Care System Strategy, 22 Permanente J. \_\_ (Oct. 22, 2018) (“The novel electronic health record-based tools developed by KPNW [Kaiser Permanente Northwest] have led to standardized, measurable, and actionable SDH data being used to tailor and target specific resources to meet the identified needs of our patients.”), available at <https://doi.org/10.7812/TPP/18-095.>Maysoun Freij, Prashila Dullabh, Sarah Lewis, Scott R. Smith, Lauren Hovey, Rina Dhopeshwarkar, Incorporating Social Determinants of Health in Electronic Health Records: Qualitative Study of Current Practices Among Top Vendors, 7 JMIR Med. Inform. e13849 (June 7, 2019) (in a study of EHR vendors with large market shares, “Vendors indicate they are actively developing products to facilitate the collection and use of SDH data for their clients and are seeking solutions to data standardization and interoperability challenges through internal product decisions and collaboration with policymakers. Due to a lack of policy standards around SDH data, product-specific decisions may end up being de facto policies given the market shares of particular vendors. However, commercial vendors appear ready to collaboratively discuss policy solutions such as standards or guidelines with each other, health care systems, and government agencies in order to further promote integration of SDH data into the standard of care for all health systems”), available at [https://medinform.jmir.org/2019/2/e13849/.](https://medinform.jmir.org/2019/2/e13849/)Freij M, Dullabh P, Lewis S, Smith SR, Hovey L, Dhopeshwarkar R. Incorporating Social Determinants of Health in Electronic Health Records: Qualitative Study of Current Practices Among Top Vendors. JMIR Med Inform. 2019 Jun 7;7(2):e13849. doi: 10.2196/13849. PMID: 31199345; PMCID: PMC6592390, available at [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6592390/.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6592390/) |
| Number of organizations/individuals with which this data element has been electronically exchanged | 5 or more. This data element has been tested at scale between multiple different production environments to support the majority of anticipated stakeholders. |
| Supporting Artifacts | The data elements cited have been successfully exchanged in volume between various EHRs, payers and other interested parties. Specifically, there is large scale exchange of these elements with CCDA and FHIR API (specifically Observations, Procedures and Conditions).Electronic exchange of SDOH information is widespread and used at scale as part of routine healthcare operations at many organizations. However, published documentation of standardized electronic exchange is not widespread since there is no standard and vendor customizations that include Social Determinants of Health documentation and exchange interfaces are not typically made public. The examples below demonstrate verifiable exchange between several relevant organizations.Veterans Affairs provides read-only EHR access to Veteran Service Organizations to facilitate services for veterans that fall outside of typical clinical care. In the absence of standard methods of exchange, this provides organizations insight into custom documentation of Social Determinants of Health conditions that are documented as part of routine clinical care for veteran patients.• <https://www.reginfo.gov/public/do/DownloadDocument?objectID=25768001>OCHIN – non-profit healthcare innovation center that provides EHR services to Community Health Centers nationwide (<https://ochin.org/ochin-facts>). In particular, the organization supports exchange of Social Determinants of Health Data elements• Supports 500 organizations nationwide• Supports 20,000 health care providers• Serves 105 Federally Qualified Health Centers• Securely exchanged 151 million clinical summaries across the U.S.Gold R, Bunce A, Cowburn S, Dambrun K, Dearing M, Middendorf M, Mossman N, Hollombe C, Mahr P, Melgar G, Davis J, Gottlieb L, Cottrell E. Adoption of Social Determinants of Health EHR Tools by Community Health Centers. Ann Fam Med. 2018 Sep;16(5):399-407. doi: 10.1370/afm.2275. PMID: 30201636; PMCID: PMC6131002.• Level 1 – exchanged between 2 or 3 different EHR/HIT systems• This study facilitated exchange between medical clinics and 3 Community Health Centers based on health data collected on 1,130 patientsGold R, Cottrell E, Bunce A, Middendorf M, Hollombe C, Cowburn S, Mahr P, Melgar G. Developing Electronic Health Record (EHR) Strategies Related to Health Center Patients' Social Determinants of Health. J Am Board Fam Med. 2017 Jul-Aug;30(4):428-447. doi: 10.3122/jabfm.2017.04.170046. PMID: 28720625; PMCID: PMC5618800.• Level 1 – exchanged between 2 or 3 different EHR/HIT systems• Reports development of collection, summary, and referral tools for Community Health Centers supporting conditions arising from Social Determinants. |
| Potential Challenges |
| Restrictions on Standardization (e.g. proprietary code) | There are no restrictions on the standardization of these data elements. The data elements are open source.Licensed terminologies:• CPT: American Medical Association issues licenses for this content. Different pricing models apply to different types of organizations and the intended use of the product.• ICD-10-CM: World Health Organization owns the copywrite and can grant licenses for the use of ICD-10 worldwide for commercial and non-commercial uses. Commercial users will already be in posetion of a license to use these codes. Non-commercial entities will be able to register for use of these codes at no charge.• SNOMED-CT: owned maintained and distrubted by the International Health Terminolology Standards Development Organization, a not-for-profit association. SNOMED-CT is distributed at no cost in accordance with the member rights and responsibilities outlined in the IHTSDO’s articles. |
| Restrictions on Use (e.g. licensing, user fees) | None. |
| Privacy and Security Concerns | Existing requirements and issues for HIPAA-covered and non-HIPAA-covered entities will apply, as well as any different requirements under state laws. |
| Estimate of Overall Burden | With minor exception, all Certified EHRs currently need to support collection, use, and exchange of these data through the social, psychological, and behavioral data module in the 2015 Edition of Certified Health IT.• If this requirement results in any documentation burden for providers across the health care system, this burden would be mitigated by strong evidence that documenting and addressing conditions related to social determinants of health results in a dramatic reduction in hospital readmission rates and improved care coordination among providers.Burdens avoided• SDOH reduces hospital readmission. Individuals impacted by SDOH have 25% higher rate of hospital readmission within 30 days than individuals without these factors.o Fuller, R. L., Atkinson, G., McCullough, E. C. & Hughes, J. S. (2013). Hospital Readmission Rates: The Impacts of Age, Payer, and Mental Health Diagnoses. Journal of Ambulatory Care Management, 36(2), 147–155. doi: 10.1097/JAC.0b013e3182866c1c.• SDOH reduces hospital costs by 11% due to improved care coordination between medical and social service providers.o Zachary Pruitt, Nnadozie Emechebe, Troy Quast, Pamme Taylor, and Kristopher Bryant.Population Health Management.Dec 2018.469-476.<http://doi.org/10.1089/pop.2017.0199> |
| Other Implementation Challenges | This can include concepts such as regulatory impact analysis, development burden/cost, cultural barriers, etc. Again, it may not be fully known to the submitter. |