Social Determinants of Health Data

An examination of the types of SDOH data, considerations for healthcare use and current efforts to operationalize this data, and business impacts.
The facts

The shift to value-based purchasing in healthcare has intensified the demand for data, particularly on those 60%–80% of factors that influence health outside the clinical setting. This includes Social Determinants of Health (SDOH) and health-influencing behaviors and social needs. Data is key to identifying high-risk populations, diagnosing and treating social needs, and evaluating the effectiveness of interventions.

However, while this data is of great interest, there are several factors that hamper their utilization in healthcare: inconsistent collection, insufficient documentation and a lack of understanding of which pieces of data are high value. Humana believes actionable SDOH data will help us improve the health of our members. As such, we and other stakeholders are actively working to address these gaps.

The following brief will examine the types of SDOH data, considerations for healthcare use, current efforts to operationalize this data, and business impacts.

“With time and resources, collaboration and partnerships can advance interoperability of SDOH data so that regardless of the setting in which people receive services, clinicians and community organizations have access to data that will help them understand and address a person’s needs, improve health, and eliminate health disparities.”

National Quality Partners™ Social Determinants of Health Data Integration Action Team

1http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=90600
What SDOH data is available?

Community data

Federal, state and local governments collect an enormous amount of data on the citizens and infrastructure within their jurisdictions, which provides a view into SDOH. Usually this data is publicly available at an aggregate level.

- **Census Bureau** – As mandated by the U.S. Constitution, the Bureau conducts a Census every ten years, the next being in 2020. The Census informs the number of congressional seats given to each state, and is used for planning decisions about community services and distribution of federal funds for public health, education, transportation and more. The Bureau also conducts a number of other national surveys, including the American Community Survey (ACS) to help local officials, community leaders and businesses understand the changes taking place in their communities. Data from all these surveys can be accessed at data.census.gov.

- **The Centers for Medicare & Medicaid Services (CMS)** – CMS makes a number of Medicare, Medicaid and Affordable Care Act (ACA) individual marketplace data sets available via the Research Data Assistance Center (ResDAC). Different levels of access are provided based on the type of organization requesting access, including academic researchers and for-profit companies. CMS recently announced new, expanded access to a robust collection of Medicaid and Children’s Health Insurance Program (CHIP) data, known as the Transformed Medicaid Statistical Information System (T-MSIS), to promote “research and analysis to improve quality of care, assess beneficiary care costs, and enrollment and improve program integrity.”

**Policy focus: The IMPACT Act**

In 2014, Congress enacted the Improving Medicare Post-Acute Care Transformation (IMPACT) Act to improve the quality of healthcare by providing consumers and the government more information about outcomes and cost. The IMPACT Act requires the U.S. Department of Health and Human Services (HHS) to standardize quality assessments across the spectrum of post-acute care (PAC) providers—skilled nursing facilities (SNF), long-term care hospitals (LTCH), inpatient rehabilitation facilities (IRF), and home health agencies (HHA). It also requires HHS to evaluate how to link payment to quality, and to study the effects a beneficiaries’ socioeconomic status has on quality, resource use, and other measures. In 2019, HHS issued rules incorporating new Standardized Patient Assessment Data Elements (SPADEs) for social risk factors—race, ethnicity, preferred language, interpreter services, health literacy, transportation, and social isolation—beginning Plan Year 2020.

As HHS has implemented the IMPACT Act, a number of requests for information (RFIs) and reports have been released. In November 2018, Humana provided public comments in response to an RFI titled, “Provider and health plan approaches to improve care for Medicare beneficiaries with social risk factors.” In these comments, we discussed our clinical collaborations to address SDOH, particularly through the Bold Goal.

---

• **Other federal agencies** – Many other agencies make survey and assessment data for geographic areas publicly available, including the Department of Labor’s [Bureau of Labor Statistics](https://www.bls.gov), Department of Education’s [National Center for Education Statistics](https://nces.ed.gov), and the [Social Security Administration](https://www.ssa.gov). Some of these focus explicitly on infrastructure and resource availability, which influence the SDOH of individuals. These include the U.S. Department of Transportation’s [Bureau of Transportation Statistics](https://www.bts.gov) and U.S. Department of Agriculture’s [National Agricultural Statistics Service](https://nass.usda.gov) and [Economic Research Service](https://ers.usda.gov), which houses the [Food Access Research Atlas](https://foodaccessresearch.org) where information about food desert locations can be found. Environmental (air, water and land) quality and risks also impact health, and these impacts often exacerbate health disparities. The [Environmental Protection Agency](https://www.epa.gov), among other agencies, publish data on air pollution and climate change impacts on geographic areas.

---

**Policy focus: Health Opportunity Index**

A number of states, including Virginia, have developed a Health Opportunity Index (HOI), which is a composite measure of social, economic, educational, demographic and environmental factors that relate to a community’s well-being. [Virginia’s HOI](https://hpmoh.org/virginias-ho-index), an online mapping tool developed by the Virginia Department of Health’s Office of Minority Health and Health Equity, allows advocates, citizens and providers to view the many factors that affect health. The HOI consists of 13 indicators chosen following a review of SDOH literature.
Patient data

While the social risk factors of a community can help approximate needs of individuals, it is important to note that individuals living in a high-risk community may not have a social need, and alternately, those living in communities with few social risk factors may still have social needs. This is why patient-or member-level data, if available, is most useful.

- **Healthcare data** – Providers capture a great deal of SDOH data during their interactions with patients. However, opportunities exist for this data to be more structured and better utilized.
  - **Encounter data** – While not widely utilized, likely because they are currently non-reimbursable, there are medical codes to document SDOH. The most well-known are the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes. These “z-codes” (Z55-Z65) identify patients with socioeconomic and/or psychosocial circumstances, such as food insecurity and lack of social support, which may affect their health.

Efforts to promote the utilization of SDOH codes will only succeed if they are standardized, payer-agnostic, and interoperable. The Social Interventions Research and Evaluation Network (SIREN), with funding from the Robert Wood Johnson Foundation, is leading one such initiative. The **Gravity Project** is a national collaborative effort to help reduce barriers to interoperable social risk factors documentation, and Humana is a participant in this effort. The Gravity Project will develop a consensus-based set of code recommendations for capturing and grouping SDOH data elements for interoperable electronic exchange and aggregation and initiate an HL7® Fast Health Interoperability Resource (FHIR®) Implementation Guide based on the defined use cases and associated data sets.

**Policy focus: Z-codes**

While a promising tool for identifying SDOH, supporters of z-codes acknowledge that they’re imperfect. The **ICD-10 Coordination and Maintenance Committee**, a federal interdepartmental committee comprised of representatives from the Centers for Medicare & Medicaid Services (CMS) and the Centers for Disease Control and Prevention’s (CDC) National Center for Health Statistics (NCHS), accepts recommendations for updates to the codes.

In 2019, Blue Cross Blue Shield of Vermont and UnitedHealthcare each proposed new SDOH codes,⁹ and Humana provided comments in support of increasing the breadth and depth of the codes to encompass all SDOH and provide the necessary granularity for diagnosis and treatment.

**For coder tools, provider resources and more information about z-codes:**

- American Hospital Association | ICD-10-CM Coding for Social Determinants of Health
- eHealth Initiative | ICD-10-CM Coding for Social Determinants of Health, including tools for providers and coders

---

Healthcare data (continued)

- **Electronic health records (EHRs)** – SDOH are often documented in case notes during interactions with patients. Natural language processing (NLP) can capture and standardize SDOH data. Some systems, including Epic, have created SDOH modules to facilitate the standardized screening and documentation of social needs.

- **Social need assessments** – Increasingly, individuals are being screened for social needs in the clinical setting. While recent research has found that the majority of patients feel such screenings are appropriate, fewer, though still a majority, are comfortable with social risk data being recorded in their EHR.\(^\text{10}\) In addition, while a number of screening tools are being used in the clinical setting, more research is needed on the reliability and validity of these comprehensive screening tools.\(^\text{11}\)


Humana focus: Comprehensive Social Needs Survey Channel Test
At Humana, we know that SDOH don’t happen in silos. And although it is our goal to understand the comprehensive social needs of our members, at present, Humana does not systematically screen members in this way. In October 2019, the Bold Goal team launched the Comprehensive Social Needs Survey Channel Test to screen over 100,000 members for social needs. This allowed us to accomplish a number of objectives:

1. Feed Humana’s SDOH data ecosystem by surveying members on a comprehensive set of social need domains, including financial strain, housing insecurity and quality, and transportation access. This data will enable us to gain important, new insights into the prevalence of these social needs, how certain social needs may be comorbid, and how social needs impact healthcare cost, utilization and quality.

2. Evaluate multiple comprehensive screening tools based on Humana business needs and member willingness to complete full survey and select tool to recommend to use across enterprise.

3. Evaluate member willingness to complete a survey of 12–16 questions with multi-channel outreach campaign, including Interactive Voice Response (IVR), email and SMS text.

Comprehensive social need screening tools evaluated

| The Accountable Health Communities (AHC) Health-Related Social Needs Screening Tool developed by the Center for Medicare and Medicaid Innovation (CMMI) | Protocol for Responding to and Assessing Patients’ Assets, Risks, and Experiences (PRAPARE) developed by the National Association of Community Health Centers | Senior-Specific Social Needs Screener developed by University of California Irvine Health School of Medicine and the West Health Institute |

- **Consumer data** – A number of vendors, including AmeriLINK, sell demographic, lifestyle and attitudinal data about individuals. While this data can provide insight into an individual’s social risk, data such as credit scores and criminal history can very sensitive. Social, app and mobile data is also available, though many are still uncomfortable with this degree of monitoring and data sharing (see recent controversy regarding Google’s Project Nightingale).

Humana focus: Data governance
Humana’s Digital Health and Analytics (DHA) team will use SDOH as an initial use case for its data lake platform. A data lake is a storage repository that has a vast amount of raw data. Again, SDOH data may come from a number of sources in a variety of formats—community- or member-level, structured or unstructured, and internally or externally collected. With Bold Goal serving as data stewards, this data will be located, certified for quality, and ingested into the data lake. Fit-for-purpose data products will then be available for any number of use cases to support business operations, analytics and product development. This rigorous data governance process will not only ensure the quality of SDOH data, but also see that this data can be confidently and consistently applied across Humana to improve the care we provide to members.
• **Social program participation** – Individuals with social needs are likely enrolled in any number of federal or state social safety net programs, including the Supplemental Nutrition Assistance Program (SNAP), Social Security Disability Insurance (SSDI) and the Housing Choice Voucher Program (Section 8). However, this data is limited in that it is largely siloed and/or restricted, so it cannot currently be utilized to assess patient or member social risk.

### A closer look: SDOH and Privacy

The *Health Insurance Portability and Accountability Act* (HIPAA) Privacy Rule regulates the use and disclosure of Protected Health Information (PHI) by covered entities (generally, health plans, payers and healthcare providers). However, HIPAA, enacted in 1996, did not account for the digitization of healthcare, the subsequent explosion of health and SDOH data and analytics, and the incorporation of social health and services into care coordination—nor did it anticipate the opioid crisis.

In December 2018, HHS Office of Civil Rights (OCR), which is charged with enforcing the Privacy Rule, released a Request for Information (RFI) seeking input on how to potentially modify this and other rules to promote coordinated, value-based healthcare. Among other questions, the RFI asked if HHS should change HIPAA rules to allow more sharing of PHI with social service agencies, and if so, what limitations should be placed on this.12

Humana’s response highlighted our partnerships with community-based organizations (CBOs) to call on HHS to simplify the regulations and provide them in plain language. This would not only reduce the burden on CBOs, but also encourage covered entities to share as much PHI as necessary to address the health-related social need. We also encouraged HHS to specifically consider how regulations may facilitate creation of Social Health Access Referral Platforms (see below for more information on these).

As the industry awaits more explicit guidance on the incorporation of SDOH data and CBOs into healthcare, the eHealth Initiative has released a document, *Guiding Principles for Ethical Use of Social Determinants of Health Data*, to provide some direction. The document, which was developed as part of an SDOH collaborative, provides an ethical framework for use of SDOH data in:

- Care coordination
- Recognizing risk through SDOH analytics
- Mapping community resources and identifying gaps
- Service and impact assessment
- Customizing health services and interventions

What Humana is doing

In its seminal report, *Integrating Social Care into the Delivery of Health Care: Moving Upstream to Improve the Nation’s Health*, the National Academies of Sciences, Engineering, and Medicine identified data and digital tools, such as predictive analytics, geocoding and hotspotting, and natural language processing (NLP), as necessary for successful integration. The authors identified a number of current limitations to fully deploying the power of SDOH data, but also identified areas of opportunity and focus, many of which Humana is already working on. These include:

- Investment in modern technology infrastructure for social care providers to facilitate interoperability and data sharing with healthcare.
- Rigorous research utilizing SDOH data to “inform a collective understanding of best practices and outcomes of efforts to integrate social care with healthcare.”
- Creation of data standards for SDOH to promote standardization and interoperability (discussed above).

Investment in modern technology infrastructure | Tools to assess and address social needs

**Social Health Access Referral Platforms (SHARPs)**

As Humana and other healthcare organizations increasingly integrate social health into care models, we are working not only to document social needs, but to facilitate referrals to social service and CBOs as well—and learn the outcome of those referrals. In order for health outcomes to be attributed to the social intervention, documentation of this full care continuum is critical. However, most CBOs lack the digital infrastructure to provide this level of reporting.

These needs are different from those met by **Health Information Exchanges (HIEs)**, which allow community healthcare providers to share data about a patient population with complex health and social needs—for example, individuals with chronic medical and behavioral health conditions who are experiencing homelessness. HIEs can support care continuity for high-need patients through a master patient index with attributes and consent forms, as well as a care plan, analytics and reporting. However, HIEs are usually limited to healthcare data, and users are healthcare organizations.

That is why communities are banding together, often with investment from for-profit healthcare entities, to create partnerships and establish a common network to address the social needs of their residents. Many vendors, such as **Unite Us**, **NowPow** and **Signify Health**, have created these platform tools and are gaining greater presence in communities every day. Humana has termed these new entities SHARPs. These platforms allow providers, case managers, social workers and staff of CBOs access to the tools necessary to perform the following functions:

1. Navigate on behalf of an individual seeking assistance;
2. Facilitate referral(s) to program(s);
3. Track utilization of program(s); and
4. Understand the impact of program participation on an individual’s health.
Humana’s Bold Goal team, as a part of the Agile Work Initiative, is partnering with communities and vendors to purchase use of SHARPs, with the goal of aligning sectors to increase capacity, and improve efficiency, and better address community needs. In 2019, Humana joined with Metro United Way and numerous other partners to launch United Community with SHARP platform, Unite Us. A number of additional Bold Goal communities will launch SHARPs by the end of 2020.

**Policy focus: North Carolina Medicaid**

The State of North Carolina is using a Medicaid Section 1115 waiver to implement a number of statewide initiatives addressing SDOH. NCCARE360, built in partnership with Unite Us, is the first statewide resource platform to better integrate Health and Human Services by allowing all service providers to send and receive referrals, communicate and track outcomes. A number of states are likely to replicate this model for their Medicaid programs.

Much is still unknown about how to most effectively select and implement SHARP platforms. Ideally, in order to minimize the burden on CBOs, there would be one SHARP in a community rather than different platforms for different payers or health systems. CBO and social service agency buy-in and participation is essential. Once a SHARP is selected, much investment and work remains before the first patient is referred. There is an investment in network infrastructure and user licenses, and all parties must agree to data sharing and consent protocols. Finally, more time is needed to evaluate return on investment and patient health outcomes. SIREN has created a primer on the current features and functionalities of these technologies and distills lessons learned and recommendations on how to implement a community resource referral platform.

**SHARP care model**

---


A closer look: SHARP vendors

While Humana has termed all these vendors “SHARPs,” there are differences in their models and business strategy that would influence a community or healthcare organization’s selection.

- **NowPow**, which has networks in 10 states and the District of Columbia, offers deep roots with health systems in Chicago and New York City. According to the company, their software draws on diagnostic codes in EHRs to identify patients’ most urgent nonmedical issues, such as food insecurity or asthma-exacerbating mold in a person’s living space, and then uses proprietary algorithms to recommend CBOs that can help with those particular needs. The proof of concept for NowPow, CommunityRx, was funded by a 3-year CMMI Health Care Innovation Award in 2012. CMMI’s independent evaluator, RTI International, found that over a three-year period following the intervention, primary care use was higher and hospital admissions were lower for Medicare patients, while emergency department admissions were lower among Medicaid patients when compared to controls.

- **Signify Health**, a health-tech company that helps monitor patients outside of the hospital, acquired TAV Health in 2019, which has been rebranded as Signify Community. This acquisition will enable Signify Health to create a complete health record for patients, including social and environmental factors. Signify Health was founded in 2017 through the merger of CenseoHealth and Advance Health. Humana partners with another area of the company, Signify Health Risk Evaluations, to complete annual in-home wellness assessments for MA members. Signify Health is continuing to expand their capabilities: in October 2019, they announced plans to merge with Remedy Partners, a software company that collaborates with healthcare organizations to launch bundled payment programs. The merged company will leverage clinical, behavioral and social data to create a unified value-based payment platform for health plans, health systems and others.

- **Unite Us**, enables real-time coordination and outcomes tracking between health and social service providers. Key differentiators are their dynamic platform that offers screening and decision support, electronic referral and care plan management, bidirectional communication, and outcomes tracking and their strategic partnerships with clients such as Kaiser Permanente, CVS Health/Aetna, and the state of North Carolina. As of December 2019, Unite Us operates 55 networks in 23 states.

---

16[https://www.nowpow.com/grounded-in-science/](https://www.nowpow.com/grounded-in-science/)
**zoom in™ SDOH data visualization tool**

*zoom in™* is an innovative SDOH mapping tool created by Humana’s Bold Goal team in collaboration with the Enterprise Data and Analytics team and vendor, RS21.²⁰ Pulling together dozens of indicators from national public data sources, zoom in™ offers advanced heat map functions with select curated views, as well as options for the user to layer in additional SDOH indicators to generate more complex composite heat maps at a neighborhood level. Users may also search by address to view summary data points relative to high risk for SDOH. The tool also features a community resource directory, providing key assets nearest to addresses, including community centers and food pantries. Importantly, zoom in™ is a free, public, web-based tool that can be used by providers and CBOs, as well as Humana teams and associates.

**SDOH insights dashboard**

There is much energy within Humana to screen members for social needs and connect them with resources to address those needs, and the Bold Goal team is working to capitalize on it. Collaborating with DHA, the Bold Goal team is building a dashboard to track screenings and interventions, then connect these interventions to clinical outcomes and business insights. The dashboard is built with Power BI—an easy-to-use, powerful technology platform that provides an impressive array of data management tools to facilitate the access, presentation and utilization of data. These advanced capabilities, including data visualization, source consolidation and auto-updates, will help Humana measure the impact of our SDOH strategies and identify areas of opportunity.

²⁰https://rs21.io/#!/
Rigorous research using SDOH data | Innovative payment models

**Social risk adjustment**
As a greater breadth of SDOH data is incorporated into the data lake from sources such as the Comprehensive Social Need Channel Test, Humana will develop new predictive models and segmentation. Work is already underway to develop a social risk index, utilizing a combination of neighborhood- and patient-level social risk data. This index has a number of internal and external applications, including identifying members at high social risk and prioritizing those members for screening and intervention. It may also be the basis of new, innovative payment models that will align incentives to focus care and resources on socially fragile populations by incorporating social risk.

---

**Policy focus: Massachusetts risk adjustment**
Massachusetts factors SDOH elements—housing instability and “neighborhood stress”—into its Medicaid Payment Model for Managed Care Organizations (MCOs) and Accountable Care Organizations (ACOs).

The Neighborhood Stress Score is a composite of 7 census data variables:

- % families with incomes < 100% federal poverty level (FPL)
- % < 200% FPL
- % adults unemployed
- % households receiving public assistance
- % households with no cars
- % single-parent households
- % adults 25+ with no high school degree

The State has found that this model of risk adjustment demonstrates that adding social determinants and related variables strengthens the predictive power of risk adjustment, and improves the accuracy of the payments to MCOs and financial targets set for ACOs.21

---

**Value-based payment**
A recent cross-sectional study found that most U.S. hospitals and physician practices do not report screening members for the five social needs prioritized by CMS (food insecurity, housing instability, utility needs, transportation needs and experience with interpersonal violence). While the shift to value-based care will likely encourage healthcare providers to address social needs in a more deliberate way, there are still a number of barriers. One option to expedite this transformation is for payers to support providers financially in implementing screening and referral processes for addressing social needs.22 Humana is currently negotiating a number of value-based arrangements to incentivize providers for screening and documenting social needs, providing much needed data on SDOH prevalence and clinical impacts.

---

Humana priorities to pursue

In order to continue improving SDOH data and quality in the coming months and years, Humana is prioritizing the following pursuits:

- **Leveraging insights from the Comprehensive Social Needs Survey Channel Test** for innovative benefits and quality improvement initiatives that address SDOH as barriers to health.

- **Improving SDOH measurement and interoperability with a common, structured methodology across line-of-business, region and program in order to assess and document members’ social needs** (as highlighted by the development of the SDOH Insights Dashboard).

- **Streamlining the communication of identified member social needs or risks with the entire care team, with member permission, to avoid the need of each member of the care team to screen for SDOH while informing them about potential barriers to health.** This would be facilitated by use of a common, structured methodology for documentation of needs and interventions.

- **Advocating for the recommendations of the National Academies in the report on Integrating Social Care into the Delivery of Health Care in support of the goal of developing “a digital infrastructure that is interoperable between healthcare and social care organizations.”**

  These recommendations largely call for action by HHS and its agencies and include:

  - Building of the internal capacity necessary for social care organizations and consumers to interoperate and interact with each other and the healthcare system
  
  - Adoption of secure, interoperable digital systems that will allow all partners to share the administrative and other data necessary to enable consumers to seamlessly obtain and maintain the full range of available healthcare and social care services
  
  - Support of states and regions as they identify the appropriate interoperable platforms for their communities (see SHARPs above) to allow the health and social care systems and consumers to share the structured data necessary for care coordination, avoidance of error, and a reduced burden on organizations and people being served
  
  - Facilitation of data sharing at the community level across diverse domains such as health care, housing and education to support social care and healthcare integration
  
  - Dissemination of educational tools and guidance on the data security and privacy issues that arise when collecting and sharing personally identifiable information
Contact

Stephanie Franklin, MPS, PMP  
Population Health Strategy Lead  
Bold Goal, Population Health Strategy | Office of Health Affairs and Advocacy  
O 502.476.1770  
C 502.295.5605  
sfranklin20@humana.com  

PopulationHealth.Humana.com