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CRACKING THE CODE ON SOCIAL DETERMINANTS OF HEALTH DATA

Photo by Mikhail Nilov



Learn more 

A wide range of social, economic and environmental factors significantly influence health outcomes, so attention to social determinants of health (SDoH) is integral to population health improvement and value-based care initiatives.

The unstructured notes in electronic health records (EHRs) are a valuable resource for understanding SDoH, but extracting and using this valuable information to inform healthcare decisions is a challenge.



“There’s this perfect storm of social determinant information just existing everywhere without a consistent way to access that data. That’s why we decided to augment the way we detect SDoH by looking beyond the standardized fields in the EHR.”

– John Adams,
Director of Innovation and Voice of Customer,
Gray Matter Analytics





WHERE IS THE SDOH DATA?

Much of the information about an individual's social context exists outside the structured data fields of EHRs. These narrative clinical notes can provide nuanced, complex qualitative details beyond the specific, quantifiable information for which EHRs are designed. Thus, unstructured data is a valuable resource for understanding the SDOH of individuals and populations.

Examples of unstructured narrative clinical notes reflecting SDOH

- “Patient is living in temporary housing after being homeless for the past month.”
- “Patient lives alone with no family or social support.”
- “Patient is recently unemployed and worried about paying for food and medications.”
- “Patient does not have a reliable form of transportation.”

Studies show that EHR structured data underestimates SDOH¹

- <1% patient cohorts with SDOH were coded appropriately in EHR structured data fields
- 2x SDOH documentation found in unstructured vs. structured data





THE MANY BARRIERS TO SDOH DATA EXTRACTION

Identifying and mitigating SDOH is crucial for better health outcomes and optimal utilization of medical services. However, the barriers to efficiently extracting this data include:

- **Data fragmentation.** SDOH data is scattered across various sources, such as EHRs, social service records and public health databases, making it difficult to get a comprehensive view of an individual's or population's non-clinical circumstances.
- **Lack of standardization.** There is no standard for SDOH collection and documentation, leading to variability in how this information is recognized across different systems.
- **Unstructured data.** Most SDOH information is in unstructured notes, requiring manual processes or advanced tools to extract relevant data.
- **Privacy and confidentiality concerns.** Strict regulations governing the use and sharing of personal health information can limit access to and integration of SDOH data.
- **Incomplete or inaccurate data.** SDOH information is not always captured accurately or consistently by healthcare providers.
- **Interoperability issues.** Incompatible formats and standards across information solutions hinder the exchange and integration of SDOH data.
- **Resource constraints.** The extraction and analysis of SDOH requires significant resources, including financial investment, technology and trained personnel.
- **Cultural and language barriers.** Diverse patient populations may have unique SDOH data that are difficult to capture, overlooked or neglected.



NATURAL LANGUAGE PROCESSING

A transformative tool for surfacing SDoH

“Natural language processing offers the capability to really dig into patient charts and disambiguate the language to standardize data so that providers and payors can better understand their populations.”

– John Adams, Director of Innovation and Voice of Customer, Gray Matter Analytics

Natural language processing (NLP) overcomes the barriers to efficiently extracting SDoH data. It uses sophisticated algorithms to “read” the free text in clinical notes to identify keywords or phrases that indicate SDoH factors. This advanced technology automatically lifts and aggregates relevant information from disparate sources, improving the accuracy and completeness of data capture.²

NLP also can inform screening tool and risk prediction model development. Plus, it can enhance clinical decision support systems by providing a more comprehensive view of an individual’s social and environmental context.³ Through routine application, it can drive systemic changes that improve health equity and outcomes across populations.

With a clearer picture of the social factors affecting people, health systems and payors can develop targeted programs to address them directly through community-based organization partnerships, the integration of social care into healthcare delivery and the design of innovative payment models that incentivize addressing SDoH factors.

Leveraging NLP to enhance the management of patient and member populations under value-based care arrangements and risk contract performance can potentially:

- ⊙ Improve population health outcomes by integrating the critical but often overlooked SDoH data into broader healthcare analysis and planning.
- ⊙ Prevent costly health events by identifying high-risk patients who may benefit from additional resources or interventions.
- ⊙ Enable more accuracy in risk stratification and resource allocation.





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“Our goal is to equip healthcare organizations with resources to gain a deeper understanding of the populations they serve and to improve their performance on value-based contracts. With the CoreTechs® Solution, we empower our partners with actionable insights to move the needle and achieve measurable improvements in performance.”

– Yue-Jing Lee, Senior Director of Value-Based Products, Gray Matter Analytics

LET’S CRACK THE CODE ON YOUR SDOH DATA FOR BETTER PERFORMANCE

Unlock the full potential of your healthcare data with Gray Matter Analytics’ CoreTechs® Analytics Solution, now leveraging NLP for comprehensive and accurate SDOH data capture. Discover how this powerful solution can transform your approach to population health management and drive success in value-based care contracts.

Contact us today to learn more and see this innovative analytics solution in action.



SOURCES

¹ Mehta, S, Lyles, C., et al (2023) 'Social Determinants of Health Documentation in Structured and Unstructured Clinical Data of Patients with Diabetes: Comparative Analysis,' JMIR Medical Informatics, 11. <https://doi.org/10.2196/46159>.

² Eddy, N. (2023, August 23) AI NLP models extract SDoH data from clinical notes, Healthcare IT News, Available at: <https://www.healthcareitnews.com/news/ai-nlp-models-extract-sdoh-data-clinical-notes> (Accessed 23 February 2024).

³ Patra, B., Sharma, M., et al, (2021) 'Extracting social determinants of health from electronic health records using natural language processing: a systematic review,' Journal of the American Medical Informatics Association 28(12). <https://doi.org/10.1093/jamia/ocab170>.



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