

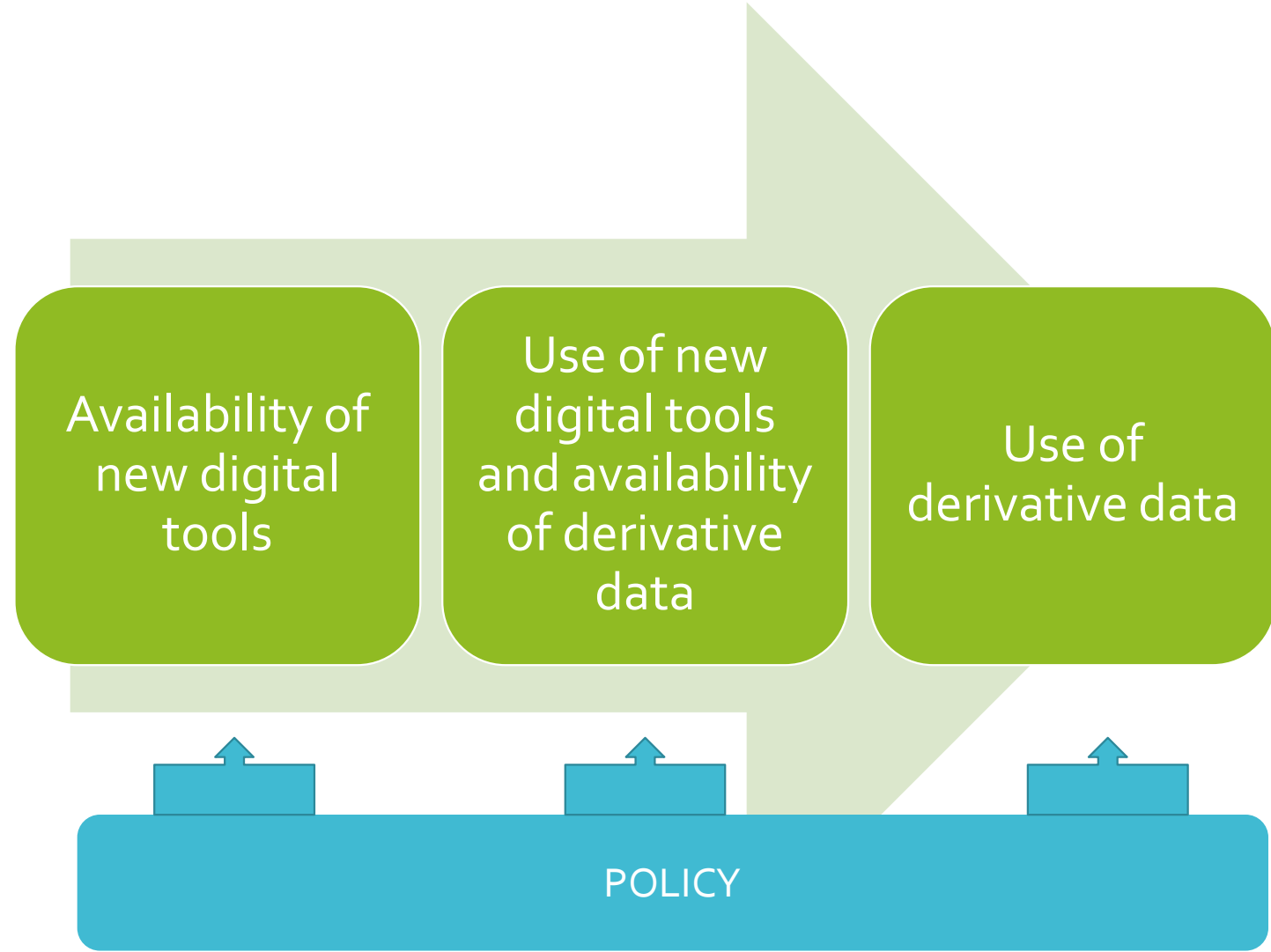
Capturing Social Determinants with Health IT

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Generalized Framework for Maturity of Digital Tools that Capture Data of Interest



The key middle step

Availability of
new digital
tools

Use of new
digital tools
and availability
of derivative
data

Use of
derivative data

- Awareness
- Reported use
- Actual use
- Quality

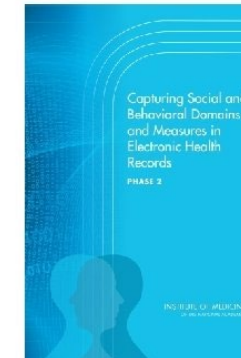
Phase 1: Availability

2009 HITECH Act
→ EHR Adoption
in hospitals &
practices

2016 21st Century
Cures Act →
Interoperability &
Data Standards

2014 IOM/NAM
Report → Expand
scope of EHR
data to include
SDOH

Capturing Social and Behavioral Domains
and Measures in Electronic Health Records



Suggested citation: IOM (Institute of Medicine). 2014. *Capturing Social and Behavioral Domains and Measures in Electronic Health Records: Phase 1 or Phase 2*. Washington, DC: The National Academies Press.

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Standards & Fields to Capture SDOH

United States Core Data for Interoperability (USCDI)

The United States Core Data for Interoperability (USCDI) is a standardized set of health data classes and constituent data elements for nationwide, interoperable health information exchange. Review the USCDI Fact Sheet to learn more.

Allergies and Intolerances

Harmful or undesired physiological responses associated with exposure to a substance.

Substance (Medication)
Substance (Drug Class)
Substance (Non-Medication)
Reaction

Care Team Member(s)

Information on a person who participates or is expected to participate in the care of a patient.

Care Team Member Name
Care Team Member Identifier
Care Team Member Role
Care Team Member Location
Care Team Member Telecom

Clinical Notes

Narrative patient data relevant to the context identified by note types.

Consultation Note
Discharge Summary Note
History & Physical
Procedure Note
Progress Note

Health Insurance Information

Data related to an individual's insurance coverage for health care.

Coverage Status
Coverage Type
Relationship to Subscriber
Member Identifier
Subscriber Identifier
Group Identifier
Payer Identifier

Health Status Assessments

Assessments of a health-related matter of interest, importance, or worry to a patient, patient's family, or patient's healthcare provider that could identify a need, problem, or condition.

Health Concerns
Functional Status
Disability Status
Mental/Cognitive Status
Pregnancy Status
Alcohol Use
Substance Use
Physical Activity
SDOH Assessment
Smoking Status

Patient Demographics/Information

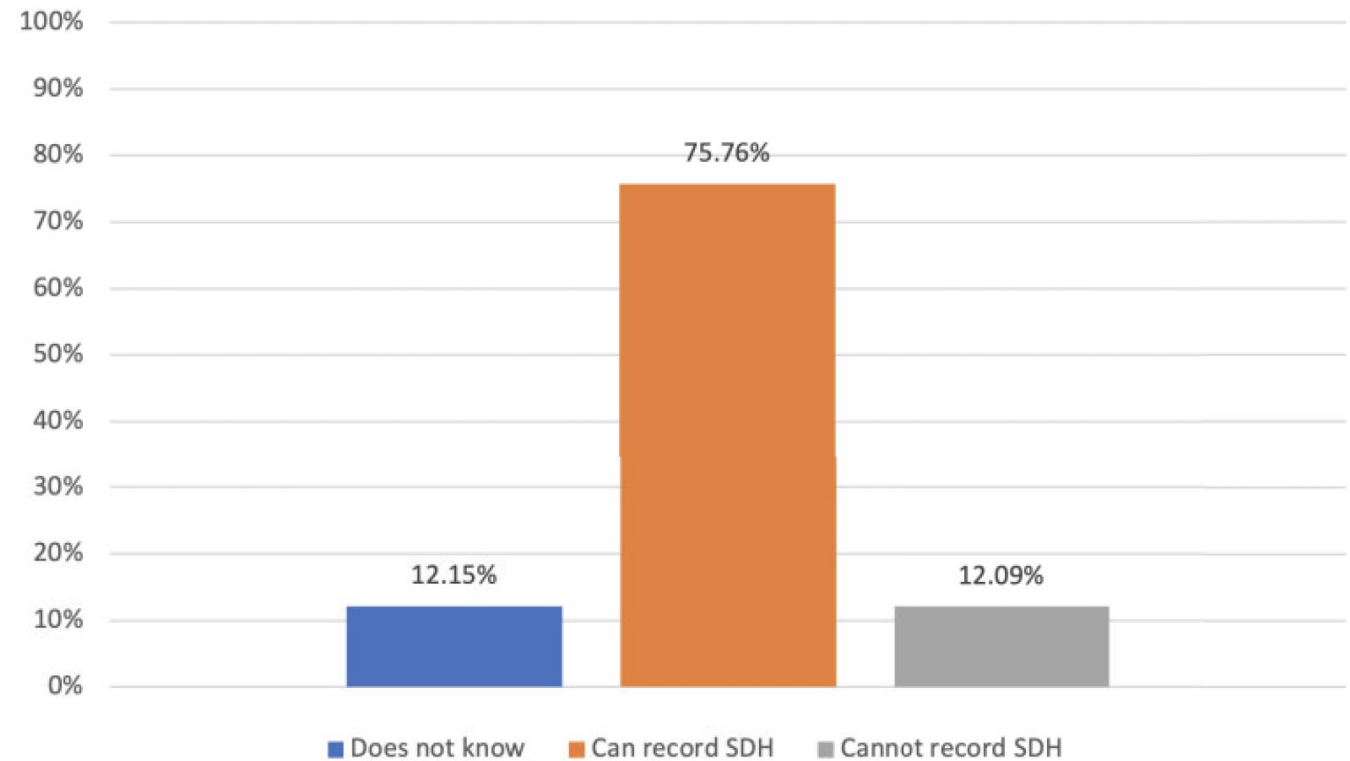
Data used to categorize individuals for identification, records matching, and other purposes.

First Name
Last Name
Middle Name (including middle initial)
Name Suffix
Previous Name
Date of Birth
Date of Death
Race
Ethnicity
Tribal Affiliation
Sex
Sexual Orientation
Gender Identity
Preferred Language
Current Address
Previous Address
Phone Number
Phone Number Type
Email Address
Related Person's Name
Relationship Type
Occupation
Occupation Industry

Patient Summary and Plan

Phase 1: Availability

- In a 2019 national survey of ambulatory physicians, **75% were aware** that their EHR could record SDOH data



Phase 2: Use (Ambulatory)

Ambulatory Physicians (2022 survey data)

- **All*:**
 - **81.5%** documented SDH via **clinical notes**
 - **61%** documented SDH via **structured fields**
 - 48.1% used a checkbox or button
 - 45.8% used a diagnosis code
- **Family Medicine**:**
 - **61.5%** documented SDH via **clinical notes**
 - **52.3%** documented SDH via **structured fields**
 - 46.7% used a checkbox or button
 - 35.9% used a diagnosis code

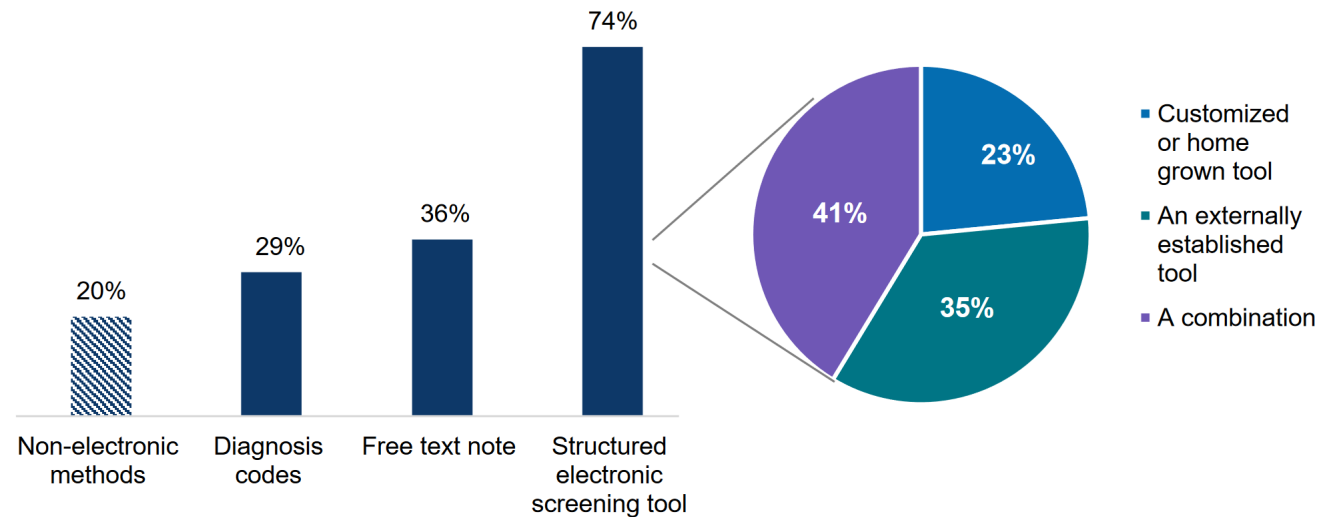
* UCSF-collected data that sampled all ambulatory specialties with low response rate; ** ABFM-collected data limited to family medicine physicians with 100% response rate (publication in process)

Phase 2: Use (Hospitals)

Hospitals (2022 survey data)

- **83% reported collecting data on patients health-related social needs, and 54% said they did so “routinely”**

Figure 2: Methods and types of tools used to collect social needs data among hospitals that reported collecting social needs data, 2022.



Source: 2022 American Hospital Association (AHA) Information Technology Supplement Survey.

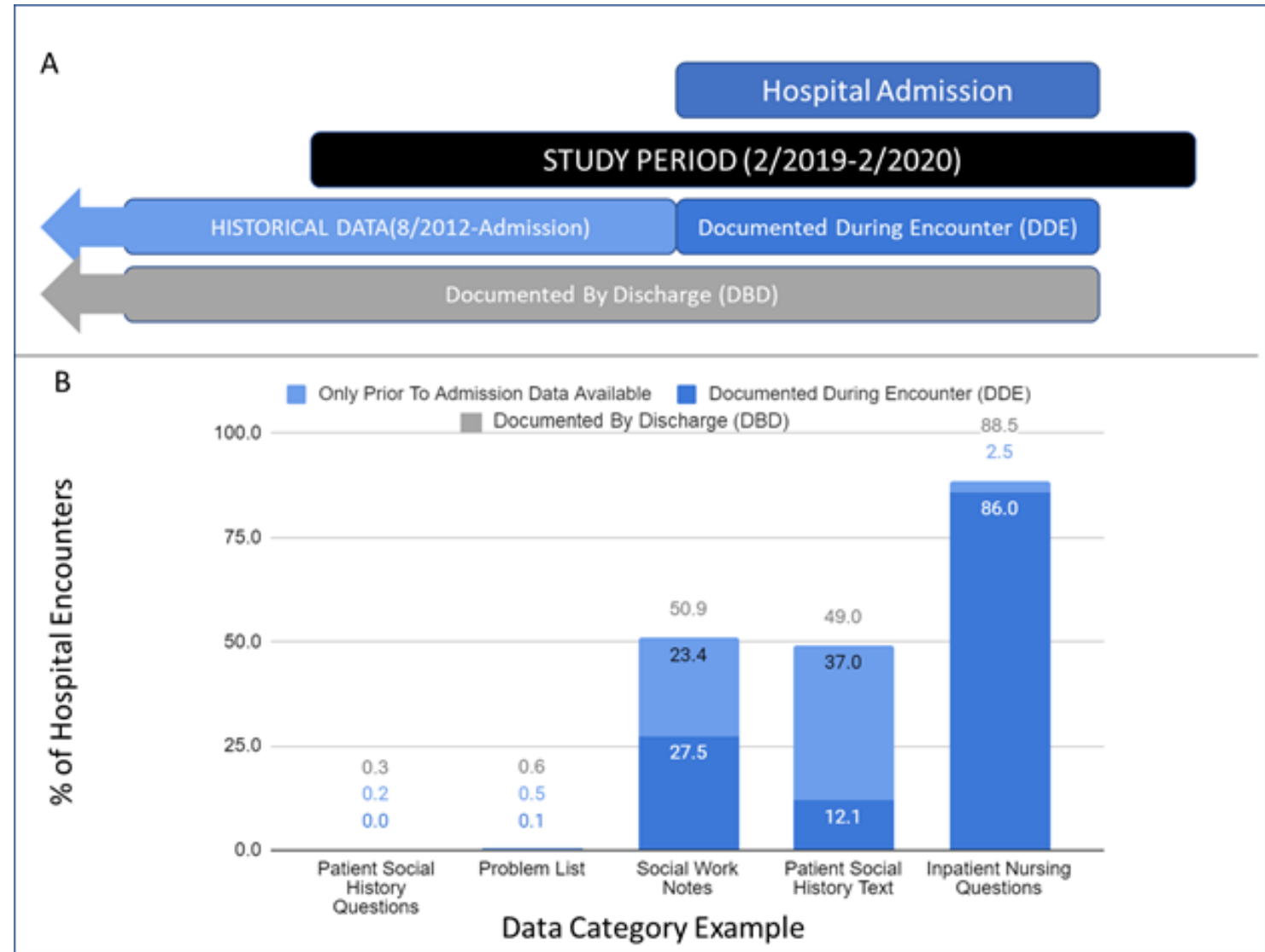
Notes: Data in the bar graph reflect responses to the survey question “How are data on individual patient’s health related social needs recorded at your hospital?” Respondents were instructed to check all that apply and thus responses do not sum to 100 percent. Missing responses were excluded from the denominator (N=18). Data in the pie chart reflect responses to the survey question, “If you use a screening tool, what type of screening tool?” Therefore, the denominator only includes respondents who used a structured electronic screening tool to collect social needs data. Missing and don’t know responses were excluded from the denominator (N=202). See [Appendix Table A1](#) to view

Phase 2: Use

A Deeper Dive at UCSF – measures of SDOH documentation

	Hospital Encounter
	Measure 1: Documented by Discharge (Any time prior to discharge time)
	Measure 2: Documented During Encounter (Between encounter admission and discharge time)
	Percent of encounters with...
Problem List	At least one social risk-related Z-code on the problem list
Patient Social History Questions	At least one structured SDOH question populated in the patient history
Inpatient Nursing Questions	At least one housing question populated in the inpatient nursing flowsheet
Patient Social History Text	Social documentation free text populated in the patient history
Social Work Notes	At least one social work note created

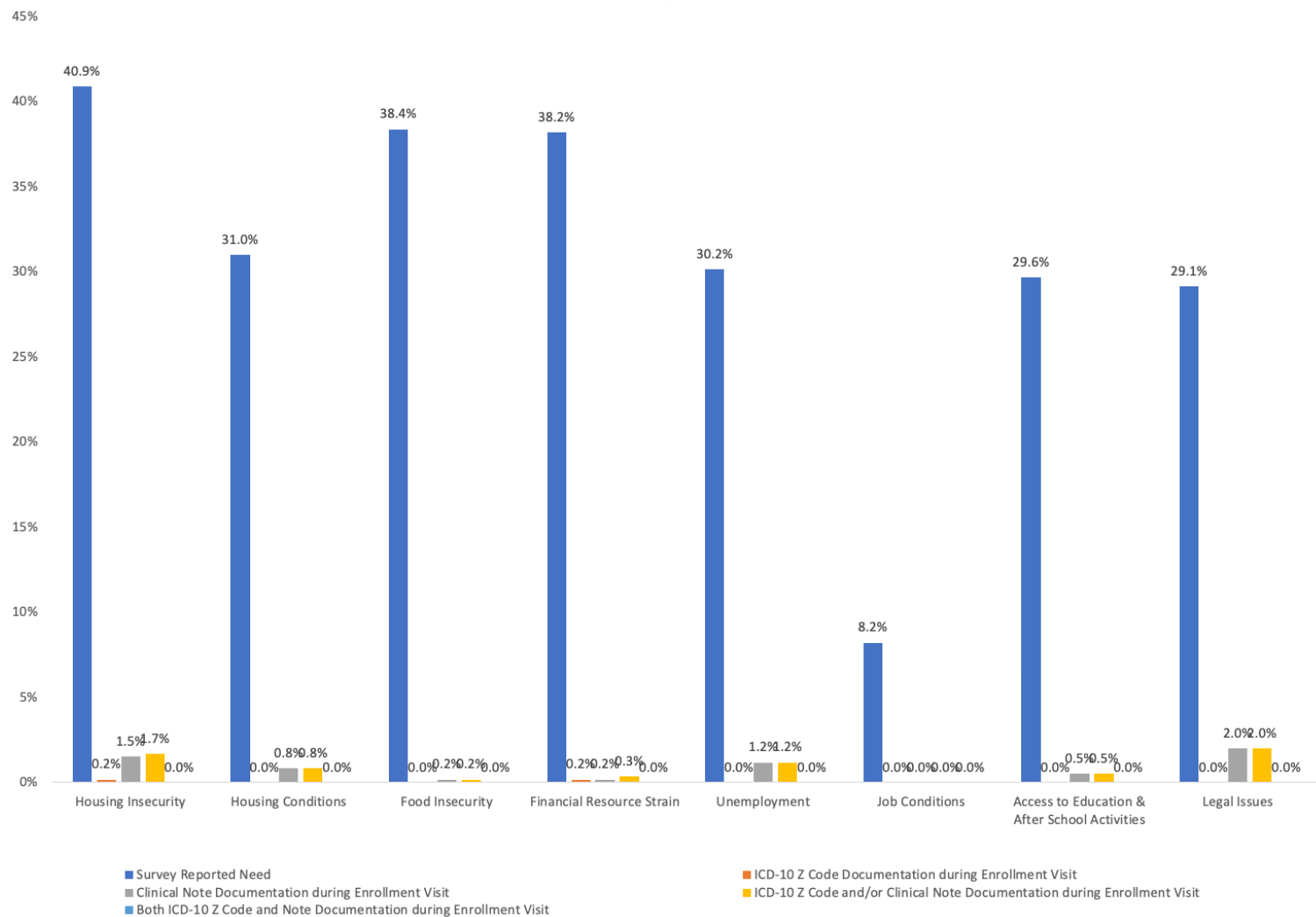
Phase 2: Use A Deeper Dive at UCSF – measures of SDOH documentation



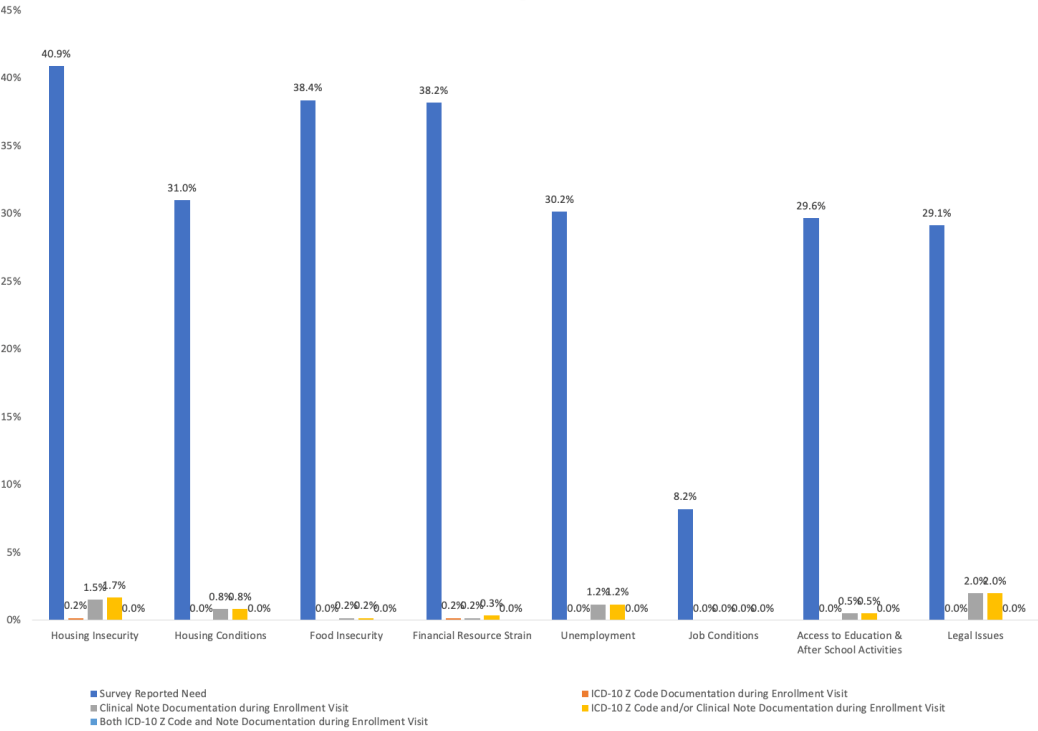
Phase 2: Use A Deeper Dive at UCSF – measures of accuracy/ completeness

Accuracy/Completeness (to what extent does documentation represents the true prevalence of social risk?)

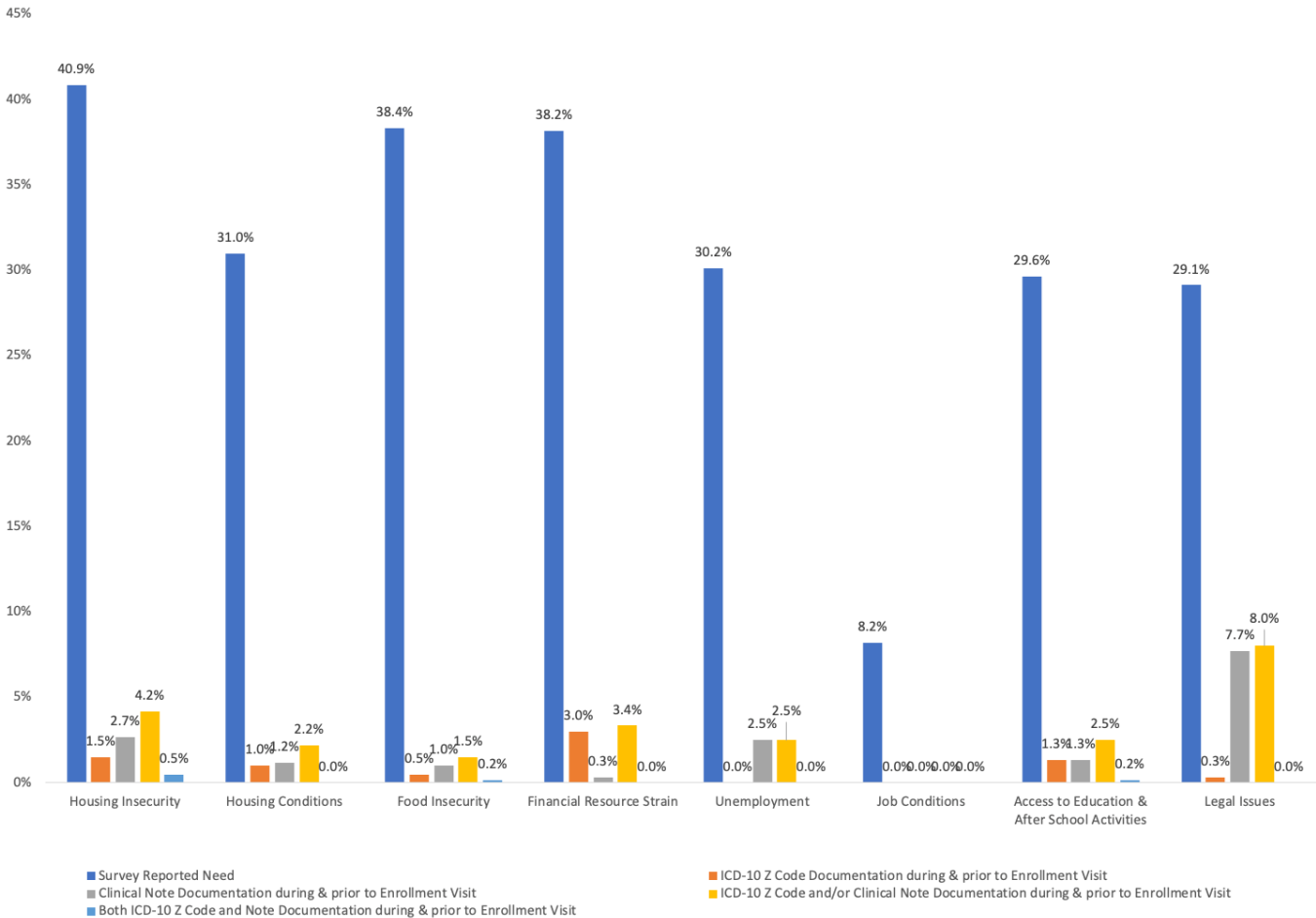
- Unique study @ pediatric urgent care center at an urban safety net clinic in which caregivers completed an 18-item survey of social risk factors about which they were currently concerned



Documented *during* encounter



Documented *during or prior to* encounter



From individual-level social risk data in EHR to area-level social risk data as proxies (and also for pop health)

- *Geocoding patient addresses* allow integration into the EHR of community-level data sources such as the US Census.

- In 2014, the Institute of Medicine suggested using “neighborhood and community composition” as a proxy for individual-level indicators that cannot be directly collected from patients.

- Three examples:

- The Social Vulnerability Index

- The Area Deprivation Index

- The Neighborhood Stress Score

Comparison of ADI and SVI items.

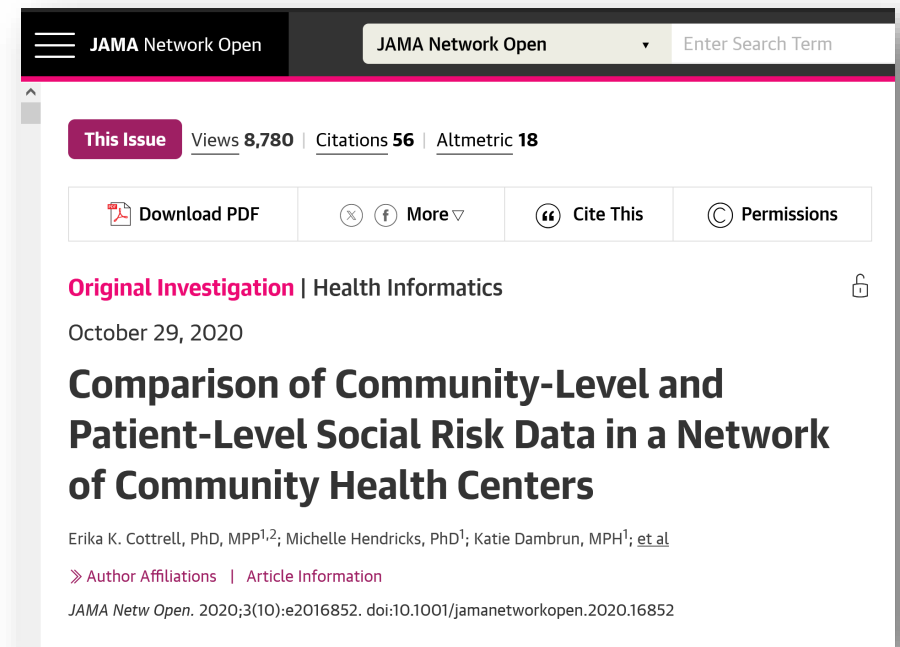
Employment	Unemployment	•	•
	White collar occupation	• ^b	
Education	High school diploma or higher	• ^b	
	≤ High school diploma		•
	<9 years of education	•	
Housing	Owner-occupied housing	• ^{b c}	
	Median monthly mortgage	• ^{b c}	
	Median gross rent	• ^b	
	Median home value	• ^{b c}	
Household	Single-parent households	•	•
Characteristics	Age 65+ years (older adults)		•
	Age ≤17 years (children)		•
	Persons with a disability		•
	Households w/out a telephone	•	
	Households w/out a motor vehicle	• ^c	•
	Housing w/out complete plumbing	• ^c	
Housing Type	Multi-unit (10+) structures		•
	Crowding (>1 person/room)	• ^c	•
	Mobile homes		•
	Persons in group quarters		•
Minority Status and Language	Non-Hispanic White		•
	Speak English “less than well”		•

Abbreviations: ADI, area deprivation index; SVI, social vulnerability index.

From
individual-level
social risk data
in EHR to area-
level social risk
data as proxies

(and also for
pop health)

- Cross-sectional study including 36,578 patients from OCHIN.
 - 10,858 (29.7%) screened positive for 1 or more social risks
 - **42% of patients with at least 1 social risk lived in neighborhoods not defined as disadvantaged.**
-
- Cross-sectional study including a national sample of Medicare Advantage members (N=77,503; Humana).
 - Assess how well the highest quartile (cold spot) of three different area-level social risk measures—the Social Deprivation Index, Area Deprivation Index, and Neighborhood Stress Score—corresponds with six individual-level social risks and three risk combinations among.
 - **Agreement between area and individual-level social risks ranged from 53% to 77%.**



Quality of SDoH Data in EHRs



- **Conformance** speaks to whether the dataset's reported values meet structural standards and formats.
- **Completeness** looks at whether or not the data are **actually present**.
- **Plausibility** asks if the data values are **believable and accurate**.

In the 76 studies, most common issues were completeness (15 studies) and plausibility (accuracy – 25 studies) for individual-level SDoH data

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Summary

Current State of SDOH Data Capture in Hospital and Ambulatory EHRs

- **Awareness** → VERY HIGH
- **Reported use** → HIGH ACROSS ALL METHODS OF DOCUMENTATION COMBINED
 - ~80% for hospitals
 - ~60% for ambulatory
 - However – lots of methods are in use (not standardized) & only about 1/3 using structured diagnosis codes
- **Actual use**
 - Evidence is limited
 - At our health system (UCSF), levels of documentation look very low unless mandated (then very high) or free-text (moderate)
- **Quality**
 - Completeness and plausibility shortcomings
 - From our health system in one setting, levels of SDOH documentation dramatically underrepresent self-reported levels
 - Area-level proxy measures are noisy alternatives

References

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