

# Utilization of Social Determinants of Health ICD-10-CM Coding in the ED

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# Connecting unmatched insight and expertise

## Data and analytics



**>\$140B**  
in supply  
spend data



**62M**  
patient  
records



**29M**  
inpatient  
encounters



**411M**  
outpatient  
encounters

## Collaboration services



**>90**  
community-  
based  
networks



**25**  
academic  
medical  
center  
networks



**1,300**  
hospitals  
participating  
in performance  
improvement  
offerings

## Advisory expertise



**3rd** largest  
health care consulting firm\*

conducted



**>700** engagements  
in last four years

with



**>550** experts,  
360 with advanced degrees

## Sourcing and supply chain



**\$100B**  
in annual purchases



**>1,200**  
suppliers



**≈2,100**  
national contracts

for

**>725,000**  
product line items

\* Modern Healthcare, August 2019.

# Objective

- Determine how frequently social determinants of health (SDoH) ICD-10-CM codes appear in Emergency Department (ED) claims in the Vizient Clinical Data Base
- Look at variation of utilization across hospitals
- Characterize patients who have SDoH codes
- Identify the level of opportunity that may exist in claims data to identify patients with social determinants of health

# The Role of the ED in Healthcare

Between 1996 and 2010, nearly half of healthcare visits (47.4%) were to Emergency Departments (ED)

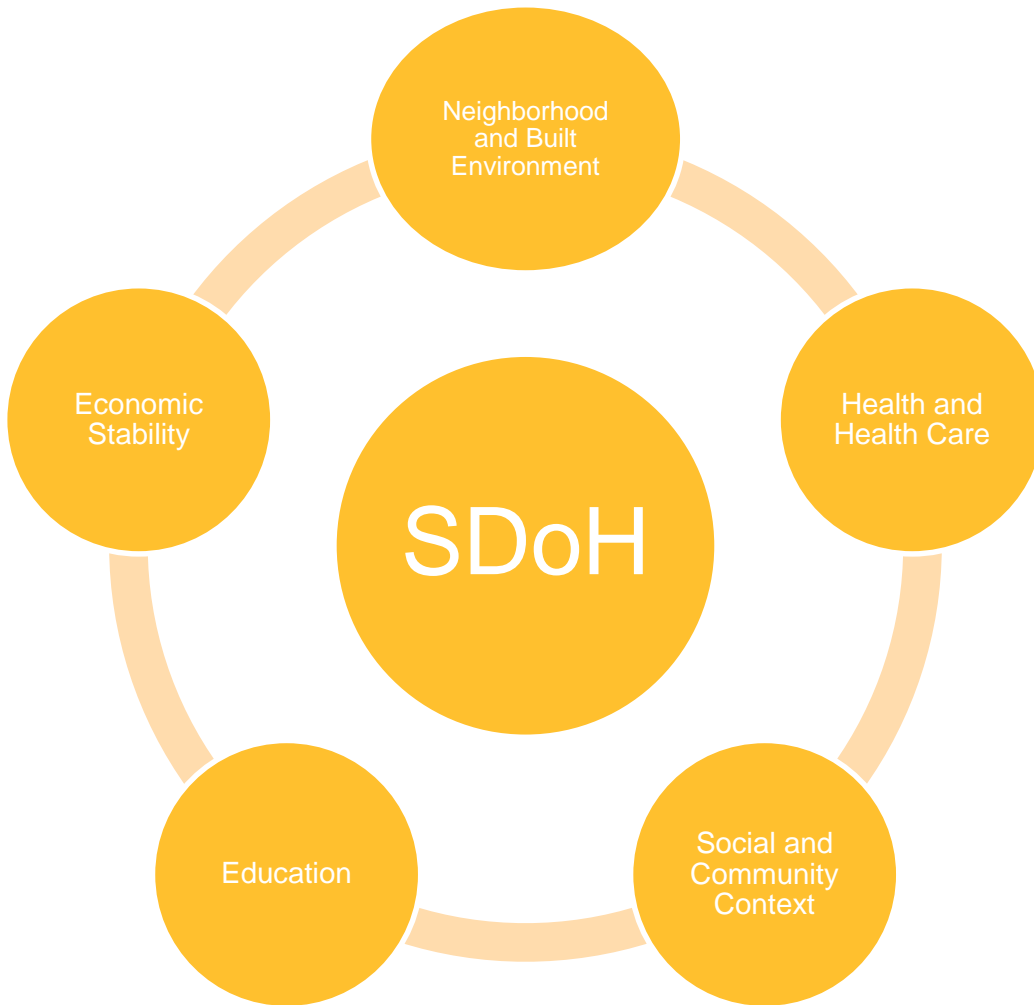
- Disproportionately utilized by African Americans (54% of all visits) and women
- Medicaid represented 27.5% of ED care in 2010

The ED plays a critical role as a healthcare touchpoint, especially for individuals who do not have a high healthcare literacy, are not connected with primary care, or do not have healthcare access during business hours

The ED can be a resource to connect patients with social services and provide education, if higher risk individuals can be identified

Marcozzi et al, 2017

# Social Determinants of Health



- Medical care only represents 10-20% of modifiable contributors to health and healthy outcomes. The other 80-90% are related to social determinants of health
- Utilization of SDoH codes is important to track patients
- Can we explore opportunities within existing claims data to identify areas of opportunity to improve tagging patients with SDoH codes?

HealthyPeople 2020; Hood et al, 2016

# Methods

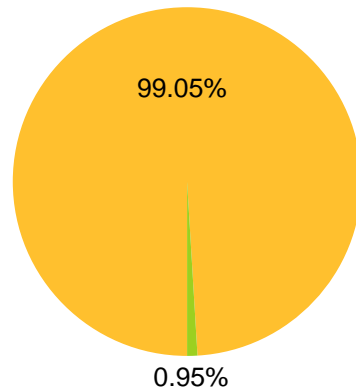
- Retrospective cohort study
- Pulled from the Vizient Clinical Data Base / Resource Manager (CDB/RM)<sup>TM</sup>
- Based on Emergency Department (ED) encounters and patients admitted as an inpatient through the ED
- Encounters between January 2017 and December 2018
- Patients with SDoH ICD-10-CM codes (Z55\*-Z65\*)

# Patients with SDoH ICD-10 Coding in the ED

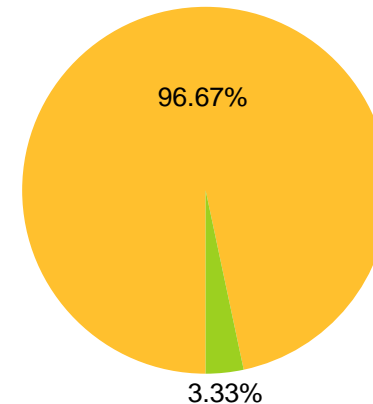
521,866 encounters from 358 hospitals were identified using SDoH ICD-10 codes (Z55\*-Z65\*)

- 304,044 encounters from the ED
  - Represents 0.95% of all ED encounters
- 217,822 encounters were admitted as inpatient through the ED
  - Represents 3.33% of all inpatient encounters with an ED claim

**Patients in ED with SDoH Code**



**Inpatients with ED claim and SDoH Code**



Source: Vizient CDB/RM™ ■ Patients without SDoH code ■ Patients with SDoH code

# Most Frequently Used SDoH ICD-10 Codes

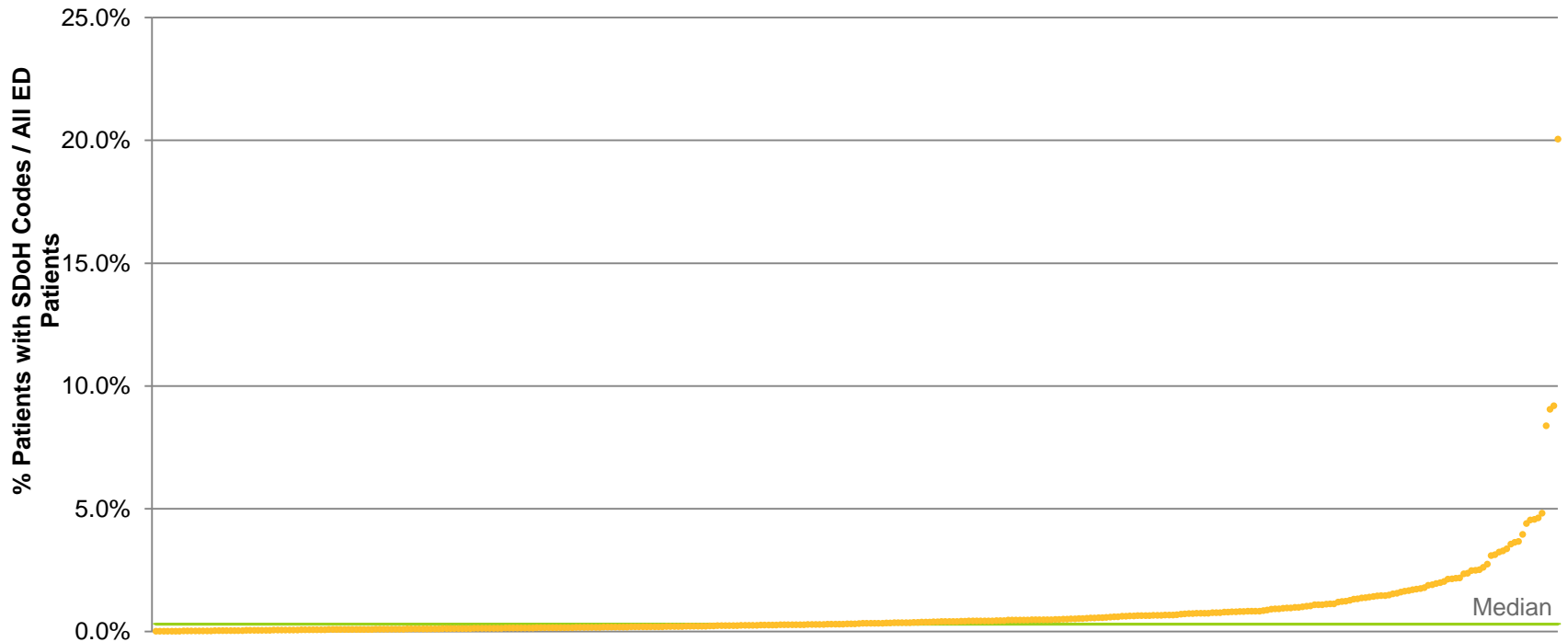
ICD-10-CM SDoH Code	Patients in the ED	Inpatients with ED Claim
Z59 - Problems related to housing and economic circumstances	245,316 (77.3%)	148,124 (58.4%)
Z65 - Problems related to other psychosocial circumstances	20,212 (6.4%)	13,587 (5.4%)
Z63 - Other problems related to primary support group, including family circumstances	17,040 (5.4%)	24,399 (9.6%)
Z56 - Problems related to employment and unemployment	12,492 (3.9%)	18,823 (7.4%)
Z62 - Problems related to upbringing	10,404 (3.3%)	30,573 (12.1%)
Z60 - Problems related to social environment	5,883 (1.9%)	13,992 (5.5%)
Z57 - Occupational exposure to risk factors	4,430 (1.4%)	1,345 (0.5%)
Z55 - Problems related to education and literacy	1,261 (0.4%)	2,542 (1.0%)
Z64 - Problems related to certain psychosocial circumstances	488 (0.2%)	201 (0.1%)

Source: Vizient CDB/RM™



# Variation in Hospital Coding

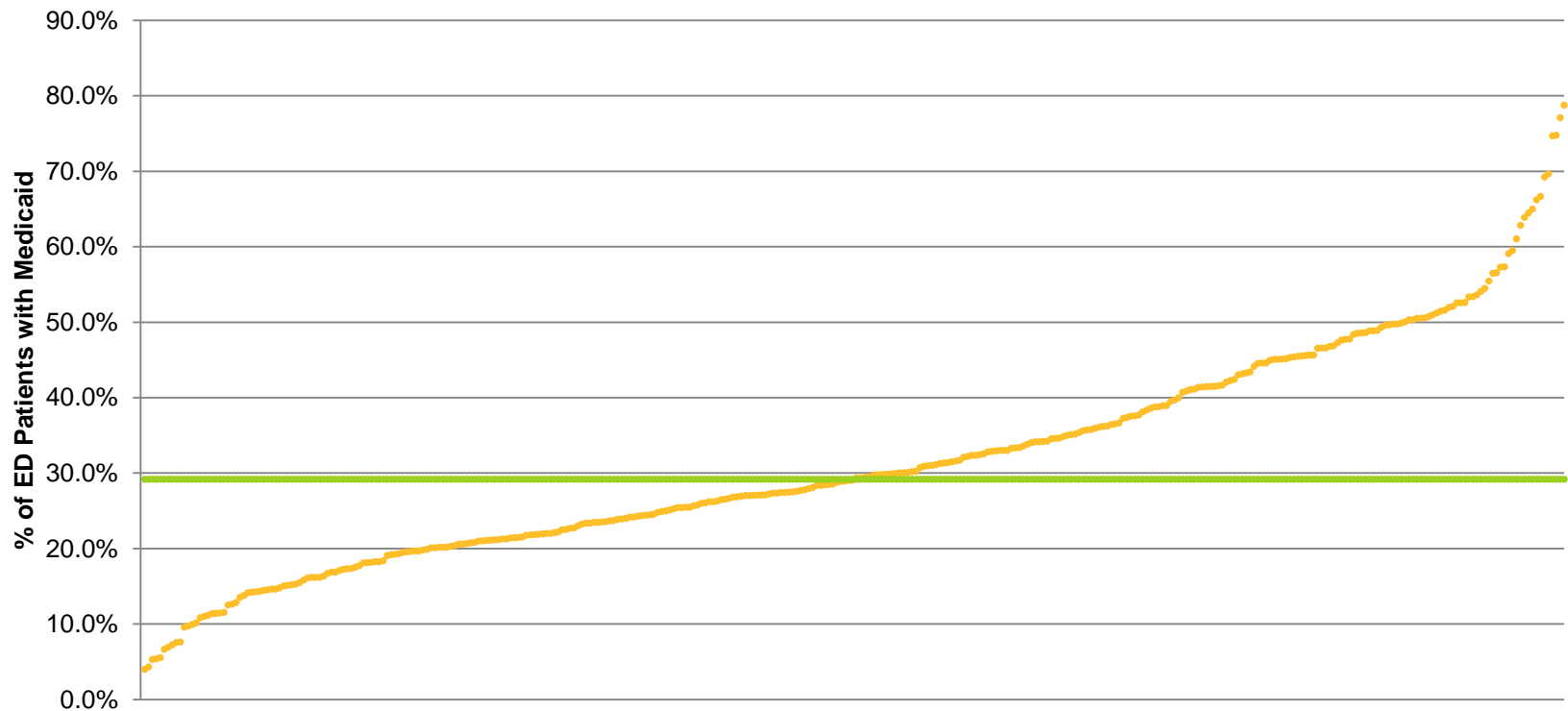
Across the 358 hospitals included in the ED-only analysis, 304,319 (0.1%) of patients in the ED were coded with an SDoH ICD-10 code. By hospital, the proportion of ED patients with an SDoH diagnosis ranged from 0.0-20.1% (median 0.3%).



Source: Vizient CDB/RM™

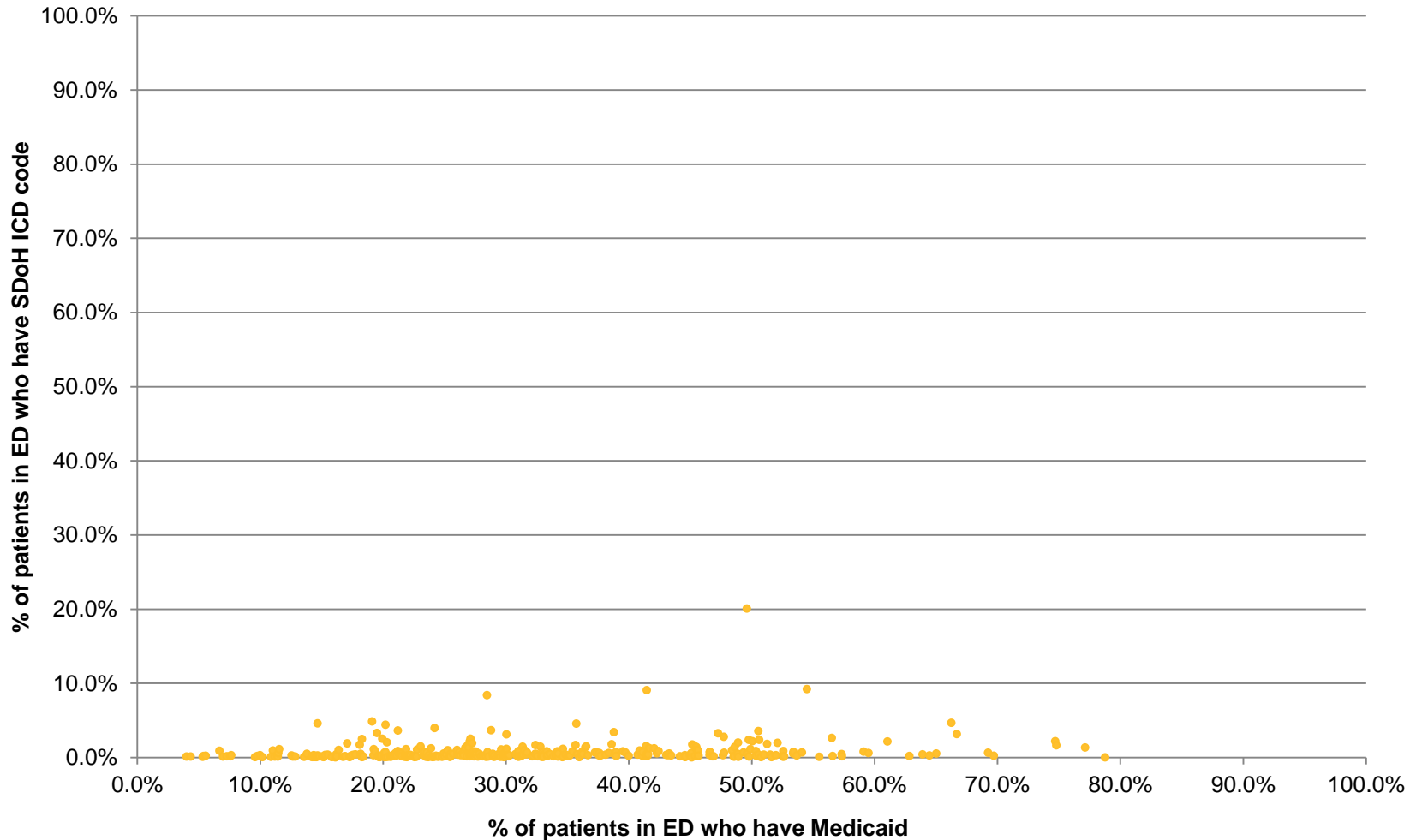
# Opportunity: Coding SDoH for Medicaid Patients

Medicaid has been used a proxy for low income and social economic status – which could also be captured with SDoH ICD codes



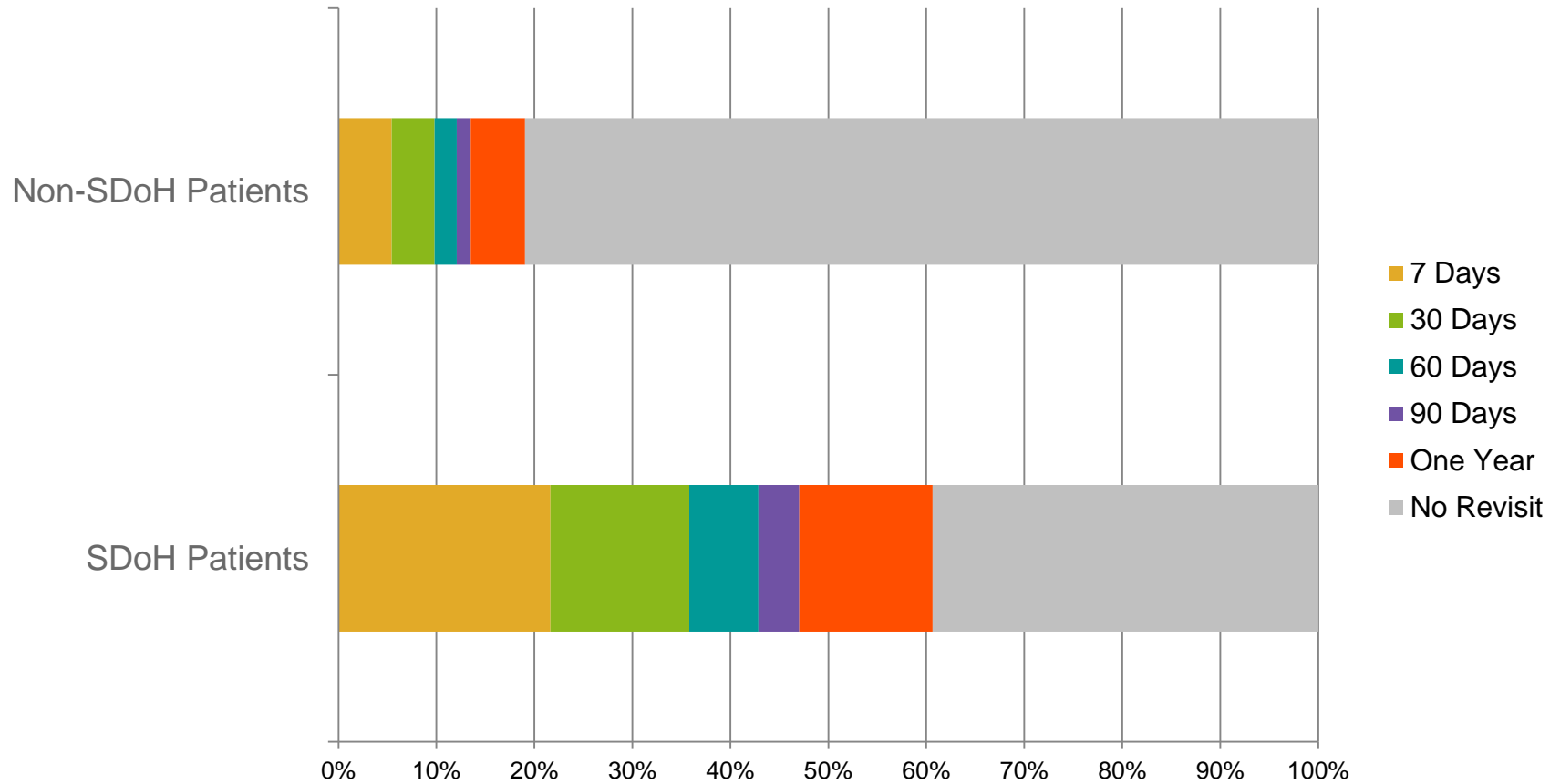
Source: Vizient CDB/RM™

# Opportunity: Coding SDoH in Medicaid Patients



Source: Vizient CDB/RM™

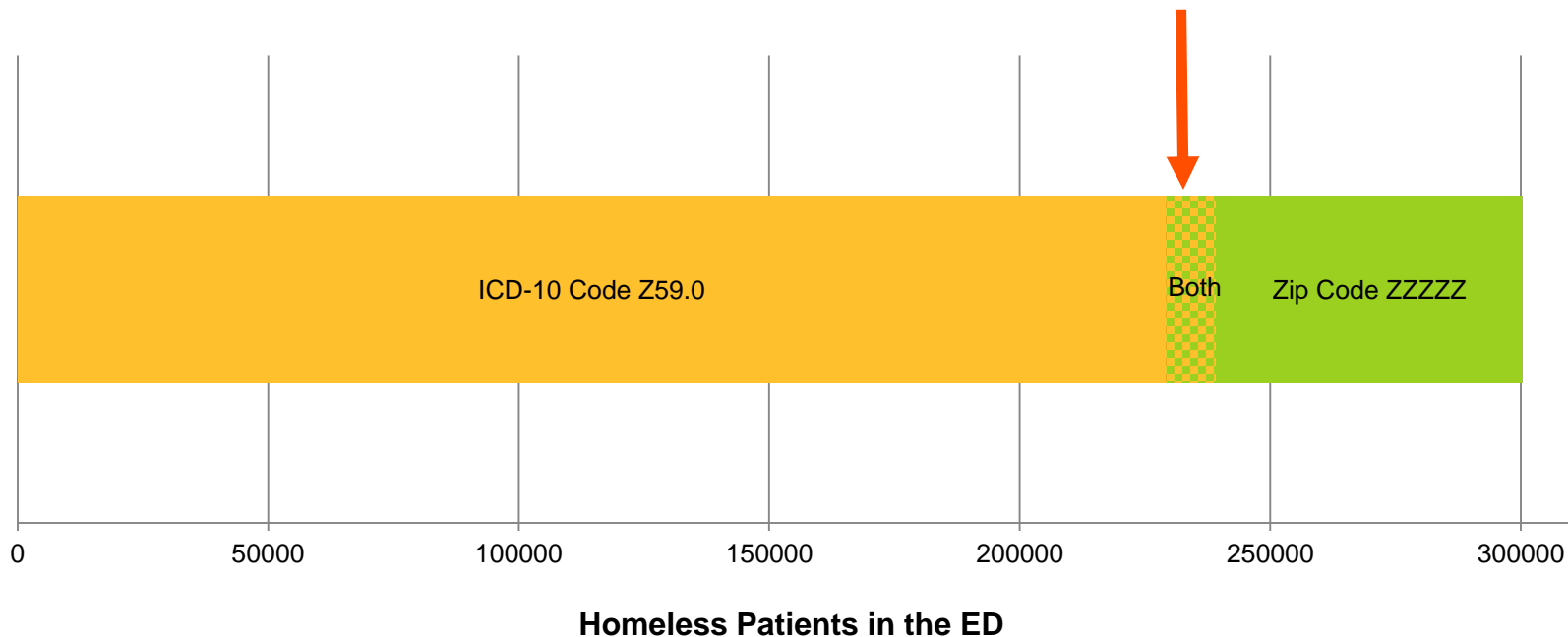
# Opportunity: Repeat Visits (ED or Inpatient)



Source: Vizient CDB/RM™

# Opportunity: Capturing Homelessness

25.5% of patients in the ED who had a zip code of homeless (ZZZZZ) did not have a corresponding ICD-10 code Z59.0 for homelessness.



Source: Vizient CDB/RM™

# Significance

Addressing SDoH has been found to reduce healthcare costs by 10%.

Previous studies have shown that the SDoH codes are rarely utilized on the inpatient side for discharges other than related to mental health and alcohol and substance use. Code assignment is based on provider documentation, but could be extended to all of the clinicians involved to capture social information not just medical diagnoses.

By increasing coding around SDoH, EDs may be better able to identify patients with higher needs to connect them with resources and address health needs, barriers to healthcare and reduce costs.

Pruitt et al, 2018

# Future Work

## Inside Vizient:

Vizient has a vested interest in investing time into Health Equity and Social Determinants of Health across the company

- Health equity is a domain we rate our members on for our annual Quality and Accountability Study
- Health Equity Council across Vizient

## Outside Vizient:

The American Medical Association and UnitedHealthcare have proposed 23 new SDoH ICD-10 codes with a committee decision expected this month

- If approved, codes would be implemented in October 2020

Thank you!

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# Appendix



# References

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# Demographics

	SDoH in the ED	Non-SDoH in the ED
Age in years (Mean, SD)	42.8 (15.1)	37.7 (22.6)
Sex		
Male	204,319 (67.2%)	13,509,959 (44.3%)
Female	99,654 (32.8%)	16,994,613 (55.7%)
Race/Ethnicity		
Non-Hispanic White	137,847 (45.3%)	14,532,024 (47.6%)
Non-Hispanic Black	110,552 (36.4%)	8,491,586 (27.8%)
Hispanic	30,481 (10.0%)	4,508,778 (14.8%)
Other	31,191 (10.3%)	2,985,869 (9.8%)

# Opportunity: Targeting By Encounter Topic

For all SDoH patients, the top principal diagnosis categories (based on H-CUP clinical classification software for ICD-10) were:

CCS Category	SDoH Patients	All ED Patients
Alcohol-related disorders	24,520 (8.1%)	1.4%
Mood disorders	24,418 (8.0%)	0.9%
Schizophrenia and other psychotic disorders	18,797 (6.2%)	0.6%
Administrative/social admission	18,301 (6.0%)	0.6%
Substance-related disorders	17,912 (5.9%)	0.9%
Suicide and intentional self-inflicted injury	12,033 (4.0%)	0.6%
Other connective tissue disease	11,479 (3.8%)	2.5%
Nonspecific chest pain	9,107 (3.0%)	3.9%
Residual codes; unclassified	8,078 (2.7%)	1.5%
Anxiety disorders	7,278 (2.4%)	0.8%

Source: Vizient CDB/RM™

# Proposed ICD-10 SDoH Codes

Z-Code	Description
Z55.5	Less than a high school degree
Z55.6	High school diploma or GED
Z56.83	Unemployed and seeking work
Z56.84	Unemployed but not seeking work
Z56.85	Employed part time or temporary
Z56.86	Employed full time
Z59.41	Lack of adequate food
Z59.42	Food insecurity
Z59.43	Lack of safe drinking water
Z59.61	Unable to pay for prescriptions
Z59.62	Unable to pay for utilities
Z59.63	Unable to pay for medical care
Z59.64	Unable to pay for transportation for medical appointments or prescriptions

Z-Code	Description
Z59.65	Unable to pay for phone
Z59.66	Unable to pay for adequate clothing
Z59.67	Unable to find or pay for child care
Z59.69	Unable to pay for other needed items
Z59.91	Worried about losing housing
Z60.81	Unable to deal with stress
Z60.82	Inadequate social interaction - limited to once or twice a week
Z60.83	Can hardly ever count on family and friends in times of trouble
Z60.84	Feeling unsafe in current location
Z60.85	Stressed quite a bit or very much
Z60.86	Stressed somewhat
Z71.85	Counseling for socioeconomic factors
Z91.110	Patient's noncompliance with dietary regimen due to financial hardship

Yousif, 2019