

# Z Codes Utilization among Medicare Fee-for-Service (FFS) Beneficiaries in 2017

## Background

Social determinants of health (SDOH) refer to the conditions of an individual's living, learning, and working environments that affect one's health risks and outcomes.<sup>1</sup> SDOH are now widely recognized as important predictors in clinical care and positive conditions are associated with improved patient outcomes and reduced costs.<sup>2</sup> Conversely worse conditions have been shown to negatively affect outcomes, such as hospital readmissions rates, length of stay, and use of post-acute care but SDOH data collection lacks standardization and reimbursement across clinical settings.<sup>3</sup> A 2014 National Academies of Medicine (NAM) report suggested that the collection of SDOH data in an electronic health record (EHR) is necessary to empower providers to address health disparities and to support further research into the health effects of SDOH.<sup>4</sup> Data collection using SDOH screening tools is quite common across settings, but this captured information is not consistently translated to standardized data due to lack of technical specifications based on industry consensus.<sup>5,6</sup>

The published literature on SDOH coding practices in ambulatory care identifies current challenges to consistent data collection. Some of these barriers to SDOH include the lack of a standardized EHR-based screening tool, lack of and multiplicity of codes, and lack of knowledge among providers and medical coders. Reducing reliance on clinicians to capture SDOH, improving provider and medical coder education, and filling gaps in codes, among other policy-based interventions, would likely improve the reporting of SDOH coding across care settings. Given this deficiency, International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) codes present an opportunity to capture standardized data and quantify the proportion of beneficiaries impacted by SDOH by way of the Z codes.

Z codes are a subset of ICD-10-CM codes, used as reason codes to capture "factors that influence health status and contact with health services."<sup>7</sup> They apply to all health care settings and must be accompanied by any performed procedure codes.<sup>8</sup> Within the full set of Z codes, Z55-65 described in Table 1

## Key Findings:

- Among 33.7 million total Medicare FFS beneficiaries in 2017, approximately 1.4% had claims with Z codes.
- The 5 most utilized Z codes were:
  - Z59.0 - Homelessness
  - Z60.2 - Problems related to living alone
  - Z63.4 - Disappearance and death of family member
  - Z65.8 - Other specified problems related to psychosocial circumstances, and
  - Z63.0 - Problems in relationship with spouse or partner
- Of the 467,136 Medicare FFS beneficiaries with Z code claims, 334,373 individuals (72%) had hypertension and 248,726 individuals (53%) had depression.
- Of the 467,136 Medicare FFS beneficiaries with Z code claims, 349,658 individuals (75%) were not dual eligible and 117,478 were dual eligible (25%).
- Of the 467,136 Medicare FFS beneficiaries with Z code claims, 161,559 individuals (35%) were under 65 years of age.
- Z59.0 homelessness was the only Z code with a higher utilization for males than females.
- Significant disparities are observed in Z59.0 - Homelessness among blacks, Hispanics and American Indians/Alaska Natives as well as in Z63.4 - Disappearance and death of family members among American Indians/Alaska Natives.

Data Source:  
Estimates produced using 100 percent Medicare FFS claims data from 2017 for beneficiaries aged 18-75 years living in the contiguous United States.

specifically assess SDOH by identifying individuals with potentially hazardous socioeconomic and psychosocial circumstances.<sup>8</sup> Throughout the remaining figures and text of this report, Z codes will refer specifically to this category of SDOH-associated Z codes. As shown in Table 1, there are nine categories of Z codes related to SDOH and several sub-codes, comprising a total of 97 granular codes.<sup>9</sup> For example, Z55 (problems related to education and literacy) is further broken out into seven sub-codes including:

- Z55.0 Illiteracy and low-level literacy
- Z55.1 Schooling unavailable or unattainable
- Z55.2 Failed school examinations
- Z55.3 Underachievement in school
- Z55.4 Educational maladjustment and discord with teachers and classmates
- Z55.8 Other problems related to education and literacy
- Z55.9 Problems related to education and literacy, unspecified

In light of the growing awareness of the importance of SDOH in patient health outcomes, and the need for the collection and documentation of this data in clinical settings to improve patient care, this study analyzes the utilization of Z codes in 2016 and 2017 among Medicare fee-for-services (FFS) beneficiaries. Z codes did not exist prior to implementation of the ICD-10-CM codes in 2015. Their precursors were V codes, which are described in the ICD-9-CM chapter “Supplementary Classification of Factors Influencing Health Status and Contact with Health Services.” The new more expanded Z codes were first available in 2016 Medicare claims.

The unique beneficiary count for Z code utilization was 446,171 in 2016. In 2017, the beneficiary count increased by 4.69% to 467,136, thus representing 1.4 percent of 33.7 million total beneficiaries in CY2017. While 2016 Medicare FFS claims data was analyzed, this data highlight only presents the more recent 2017 data, due to this marginal increase in Z code utilization. This study first uses claim counts to identify the top five most utilized Z codes in 2017. It then presents unique beneficiary counts for all SDOH Z codes and these five specific Z codes across various demographic characteristics, including chronic conditions, dual eligibility under Medicare and Medicaid, age, sex and race.

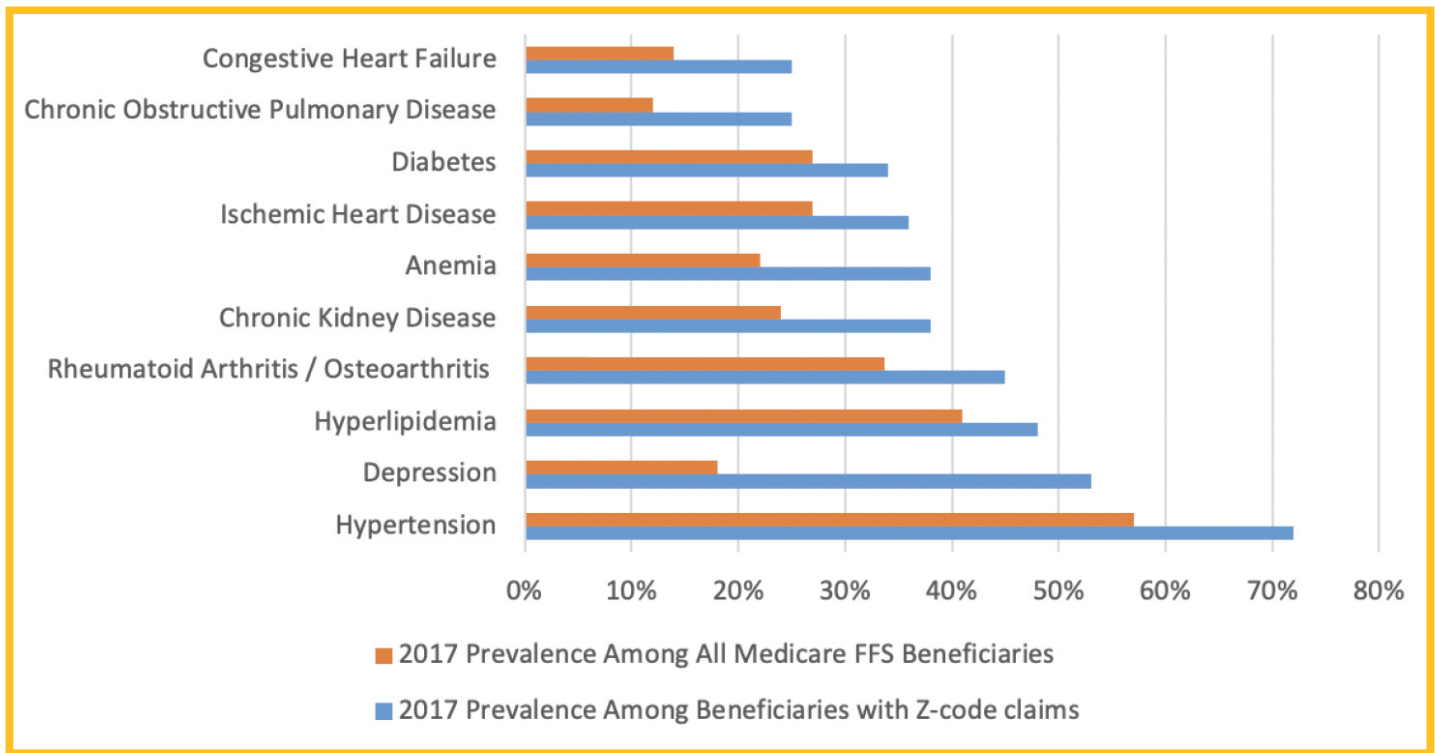
**Table 1. Z Codes and Sub-Codes Related to Social Determinants of Health**

ICD-10	Description	Number of Sub-Codes
Z55	Problems related to education and literacy	7
Z56	Problems related to employment and unemployment	12
Z57	Occupational exposure to risk factors	12
Z59	Problems related to housing and economic circumstances	10
Z60	Problems related to social environment	7
Z62	Problems related to upbringing	24
Z63	Other problems related to primary support group, including family circumstances	14
Z64	Problems related to certain psychosocial circumstances	3
Z65	Problems related to other psychosocial circumstances	8

## Methods

The data source for this study is Medicare claims and enrollment data obtained from the CMS Chronic Condition Data Warehouse (CCW) ([www.ccwdata.org](http://www.ccwdata.org)). Within the CCW environment, SAS Enterprise Guide (V.9.4; SAS, Cary, NC) was used to produce utilization and beneficiary statistics. Specifically, we used complete (100 percent) FFS claims data in the Geographic Variation Database (GVDB), which covers both Medicare Part A inpatient hospital care, post-acute care (such as skilled nursing facility care and home health) and hospice care, and Medicare Part B, which primarily covers physician services, outpatient hospital care, and durable medical equipment, to identify beneficiaries with ICD-10 diagnosis codes within the Z55-65 set related to socioeconomic and psychosocial circumstances, capturing information on SDOH.<sup>10</sup> The CCW contains a unique beneficiary identifier that was used to link claims with individual level beneficiary files containing demographic, enrollment and chronic condition data. The files used were for calendar years 2016 and 2017.

**Figure 2. Top 10 Chronic Conditions among Medicare FFS Beneficiaries with Z Codes in 2017**



Among the 33.7 million total Medicare FFS beneficiaries in 2017, the top 10 chronic conditions were:

- Hypertension (57%)
- Hyperlipidemia (41%)
- Rheumatoid Arthritis/Osteoarthritis (33%)
- Diabetes (27%)
- Ischemic Heart Disease (27%)
- Chronic Kidney Disease (24%)
- Anemia (22%)
- Depression (18%)
- Congestive Heart Failure (14%)
- Chronic Obstructive Pulmonary Disease (12%)

Among the 467,136 Medicare FFS beneficiaries with Z code claims in 2017, the top 10 chronic conditions were:

- Hypertension (72%)
- Depression (53%)
- Hyperlipidemia (48%)
- Rheumatoid Arthritis/Osteoarthritis (45%)
- Chronic Kidney Disease (38%)
- Anemia (38%)
- Ischemic Heart Disease (36%)
- Diabetes (34%)
- Chronic Obstructive Pulmonary Disease (25%)
- Congestive Heart Failure (25%)

Many beneficiaries have more than one chronic condition.

**Figure 3. Dual Status Distribution among Medicare FFS Beneficiaries with Top 5 Z Codes in 2017**

