

**Background Information Related to Optimizing Efforts to Address
Social Determinants of Health and Equity in the Context of Alternative Payment
Models and Physician-Focused Payment Models
September 15, 2021**

This summary was prepared at the request of the Office of the Assistant Secretary for Planning and Evaluation (ASPE) as background information to assist the Physician-Focused Payment Model Technical Advisory Committee (PTAC) in preparing for a theme-based discussion on the role that addressing social determinants of health (SDOH) and equity can play in optimizing health care delivery and value-based transformation. The discussion will consider efforts to address SDOH and equity in the context of Alternative Payment Models (APMs) and physician-focused payment models (PFPMs).ⁱ The summary is based on information that was publicly available relating to this topic from several selected PTAC proposals and Center for Medicare and Medicaid Innovation (CMMI) models that were identified as being relevant to this theme-based discussion.

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Section I. Introduction and Purpose

Under the bipartisan Medicare Access and CHIP Reauthorization Act (MACRA) of 2015, Congress significantly changed Medicare fee-for-service (FFS) physician payment methods. The law also specifically encouraged the development of Alternative Payment Models (APMs) known as physician-focused payment models (PFPMs) and created the Physician-Focused Payment Model Technical Advisory Committee (PTAC) to review stakeholder-submitted PFPM proposals and make comments and recommendations on them to the Secretary of Health and Human Services (HHS; “the Secretary”).

Since its inception, PTAC has received 35 proposals for PFPMs from a diverse set of physician payment stakeholders, including professional associations, health systems, academic groups, public health agencies, and individual providers.ⁱⁱ PTAC evaluates the PFPM proposals based on the extent to which they meet the Secretary’s 10 regulatory criteria for PFPMs (specified in federal regulations at 42 CFR § 414.1465). Social determinants of health (SDOH) and health equity are not specifically identified by the Secretary as criteria used in PTAC’s evaluation of proposed PFPMs; however, several proposals that were submitted to PTAC between 2016 and 2020 incorporated elements related to SDOH and equity in the context of care delivery functions, performance measurement, and payment methodology.

The purpose of this document is to provide members of PTAC with background information and context on the role efforts to address SDOH and equity can play in optimizing health care delivery and value-based transformation, and how these efforts can be further optimized in the context of APMs and PFPMs. The information in the document is expected to help PTAC members review SDOH and equity components across proposals previously submitted to the Committee, as well as in Center for Medicare and Medicaid Innovation (CMMI) APMs that have been implemented thus far. In addition, the document is intended to inform the Committee’s review of future proposals, as well as future comments and recommendations that PTAC may submit to the Secretary.

This document summarizes and analyzes information from PTAC’s review of the role of SDOH and equity in nine PTAC proposals from previous submitters, and 15 APMs implemented by CMMI, that were selected on the basis of their inclusion of elements related to SDOH and equity. In addition, the document synthesizes findings from a review of select literature on data- and payment-related elements pertaining to SDOH and equity, and the effectiveness of SDOH and equity interventions. Section II provides key highlights of the findings from the analysis. Section III describes the research questions and methods that were used in the analysis. Section IV provides working definitions of key components related to SDOH and equity in the context of APMs and PFPMs. Section V provides background information on the use of SDOH and equity data in value-based payment models. The subsequent sections describe functions and activities related to SDOH and equity in the 15 CMMI APMs (Section VI), and in the nine proposed PFPMs proposed to PTAC (Section VII). Section VIII describes performance

ⁱⁱ The 35 proposals submitted to PTAC represent an unduplicated count (i.e., proposals with multiple submissions are counted only once) of the number of proposals that have been voted and deliberated on by the Committee (28) and the number of proposals that have been withdrawn by stakeholders (seven, including one proposal that was withdrawn prior to any review by the Committee).

measures related to SDOH and equity in these APMs and proposed PFPs, and Section IX highlights findings regarding the effectiveness of recent SDOH and equity initiatives.

Section II. Key Highlights

This section summarizes findings from a review of nine proposed PFPs submitted to and reviewed by PTAC and 15 CMMI models that were selected based on their inclusion of components related to SDOH and equity. These proposed PFPs and CMMI APMs were identified using an SDOH keyword search-based approach. The analysis focuses on functions related to SDOH and equity that were included in the proposed PFPs and APMs, data- and payment-related details, and related performance measures.

Definitions of SDOH, Equity, and Related Terms

Several definitions currently exist for SDOH and equity, some of which can be found in Appendix C. This analysis uses the following working definitions for these key concepts:

- **The Agency for Healthcare Research and Quality’s (AHRQ’s) definition for SDOH:** *“SDOH, although experienced by individuals, exist at the community level. Healthcare systems that learn about the communities their patients live in, and the community-level barriers members can face to becoming and staying healthy, can better adapt their recommendations to people’s lives. SDOH can be categorized into five key areas: social context, economic context, education, physical infrastructure, and healthcare context.”*¹
- **The Centers for Disease Control and Prevention’s (CDC’s) definition for health equity:** *“Health equity is achieved when every person has the opportunity to attain his or her full health potential and no one is disadvantaged from achieving this potential because of social position or other socially determined circumstances.”*²

Three other concepts that are closely related to SDOH and equity are health-related social needs (HRSNs), behavioral health, and health disparities. For the purposes of this document:

- **HRSNs** are defined as *“non-medical patient needs that impact health (such as housing instability, food insecurity, and exposure to interpersonal violence)”*.³
- **Behavioral health, according to AHRQ,** is *“an umbrella term that includes mental health and substance abuse conditions, life stressors and crises, stress-related physical symptoms, and health behaviors. Behavioral health conditions often affect medical illnesses.”*⁴
- **Health disparities, as defined by Healthy People 2020,** are *“a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.”*⁵

Within the broader context of efforts to address SDOH and equity, PTAC is particularly interested in how APMs and PFPs can help to incentivize health care providers to collect data related to SDOH and

equity; use this data to ensure that patients' physical, behavioral health, and social needs are being met; measure the impact of these activities; and address related payment issues. Addressing SDOH is a critical tool that can be used to improve equity and reduce disparities. Addressing SDOH at the community level can help to reduce the number of HRSNs that individuals experience. However, not all methods of improving health equity involve addressing SDOH. For example, additional ways to advance health equity objectives include improving access to and quality of care and collecting the data needed to track outcomes for different groups.

Trends in Reimbursement Mechanisms for SDOH and Equity Initiatives

The movement toward value-based care has provided opportunities for federal, state, and commercial payers to test alternative payment approaches for addressing SDOH as a means for advancing health equity and a holistic approach for addressing patient needs, including social, physical, and behavioral health needs. For example, on the federal front, under Section 1115A of the Social Security Act, CMMI launched the [Accountable Health Communities \(AHC\) model](#) which links Medicare and Medicaid beneficiaries to community services.⁶ Medicare's value-based purchasing (VBP) programs do not currently require use of health equity measures to incentivize reduction of disparities. However, the Centers for Medicare & Medicaid Services (CMS) has developed policy options that include coverage for non-health care services under Medicare Advantage (MA), and the provision of such services is integral for advancing equity.

MA plans can use a "rebate" that represents a share of the difference between the plan's bid and the predetermined county-level benchmark to offer supplemental benefits. However, it was not until 2019 that MA plans were allowed to offer non-medical supplemental benefits, including meal delivery and transportation, in addition to the kinds of supplemental benefits that they were already providing (such as lower cost sharing or lower premiums).⁶ Additionally, the 2018 Bipartisan Budget Act further expanded the acceptable uses of supplemental benefits that may be offered by MA plans "to chronically ill enrollees, [referred to as] Special Supplemental Benefits for the Chronically Ill (SSBCI). SSBCI include supplemental benefits that are not primarily health related and may be offered non-uniformly to eligible chronically ill enrollees," for example, pest control services.⁷ MA plans may also choose to include additional supplemental benefits that are not financed by the rebate in their benefit packages and charge premiums to cover those additional benefits.

State Medicaid agencies have several regulatory options under which to cover SDOH-related services. Key examples include home and community-based services (HCBS) Section 1915 waivers designed to cover the needs of Medicaid beneficiaries who prefer to get long-term care services and supports in their home or community, and Section 1115 Medicaid demonstration waivers which have been used to fund state-based efforts to provide SDOH-related services such as North Carolina's Healthy Opportunity Pilots. Some states, like New York, have also used the Delivery System Reform Incentive Payment (DSRIP) program (which is enabled under Section 1115 waivers), to fund SDOH initiatives implemented by public hospitals and safety-net providers. Increasingly, Medicaid managed care organizations (MCOs) are engaging in activities to address SDOH, such as coordinating with community-based organizations (CBOs) to assess social needs and link members to needed services. To support this work, some Medicaid MCOs maintain a database of community resources).^{6,8}

In recent years, there has been growing interest from commercial insurers in integrating activities to address SDOH. For example, Aetna has created an SDOH index, comprised of median household income, poverty, diversity, disability, education, physical inactivity, family structure, public transport, and employment.⁹ However, SDOH efforts through commercial insurers to date are primarily carried out by their philanthropic arms and do not involve changes in benefit designs or reimbursement policies.⁹

Incorporation of SDOH and Equity in the 15 Selected CMMI APMs

Since its inception in 2010, CMMI has implemented a number of APMs that address, at least in part, SDOH and/or health equity. Each of the 15 CMMI APMs included in this analysis addressed at least two of the five areas/domains of SDOH included in AHRQ's definition (see Exhibit 2 for a list of the CMMI models). Health care and physical infrastructure were the most common SDOH focus areas that were addressed in these CMMI models, whereas education was the least common. The health equity objectives that were addressed in most of the CMMI models centered around improving access to care and maximizing patient-centered care. Additionally, the 15 CMMI APMs' efforts to address SDOH also provided an opportunity to advance health equity by potentially reducing disparities.

Functions associated with addressing SDOH and/or equity. Most of the 15 CMMI APMs had explicit SDOH and equity objectives and requirements built into the initial model design, such as expanding access to care and reducing disparities stemming from unmet HRSNs. Providers across most of the models provided social needs screening and, in many cases, also performed behavioral health evaluations. All but one of the 15 CMMI models ([Integrated Care for Kids](#)) included Medicare beneficiaries as a target population, and half of these models targeted Medicare beneficiaries exclusively. However, the analysis did not reveal any systematic differences in how models targeting Medicare beneficiaries, either in part or exclusively, incorporated SDOH and equity objectives or functions compared to other models.

The most common social needs that were addressed were transportation problems, food insecurity, and housing instability. Several models also incorporated referral services to behavioral health professionals and other community-based social services organizations. Some models also had additional mechanisms for post-referral patient monitoring. Other relatively common SDOH-related functions that were addressed included using interdisciplinary teams (comprised of physicians, behavioral health specialists, social workers, and others) to better address HRSNs, engaging in SDOH-based performance measurement, and supporting the collection and sharing of information on clinical and non-clinical factors that contribute to improved health and treatment outcomes.

With respect to equity-related functions, most models implemented strategies for advancing equitable access to care through specific model features, such as adjusting provider hours to overcome scheduling challenges faced by patients, providing transportation to services, offering in-home care, connecting individuals with community and social services, and delivering services to more remote populations, such as those in rural settings.

Payment approaches to incentivize or reimburse SDOH and/or equity efforts. The 15 CMMI APMs varied in how SDOH- or equity-related activities were addressed in their payment approaches. The most common approach was to provide for per beneficiary per month (PBPM) payments intended to cover SDOH-related activities, and some models even had multiple reimbursement mechanisms for SDOH-

related activities. Among the few models that employed risk adjustment in payment calculations, most accounted for clinical risk factors, but did not include social risk factors. Finally, a few models offered performance-based payments based on providers being evaluated on SDOH- and equity-related measures focused on process, quality, and outcomes.

Incorporation of SDOH and Equity in the Nine Proposed PFPMs

Between 2016 and 2020, PTAC received 35 distinct proposals, and the Committee deliberated and voted on 28 of these proposals in public meetings. This analysis summarizes findings regarding nine of the proposed PFPMs that PTAC deliberated on that included components related to SDOH and/or equity (see Exhibit 6 for a list of the proposed models that were included in the analysis). Similar to the 15 CMMI APMs, each of the nine proposed PFPMs that were submitted to PTAC addressed at least one SDOH domain, with the most common being the health care and social contexts. However, most of the proposed PFPMs did not provide details on the specific types of social needs that were addressed. Similarly, the majority of the proposed PFPMs provided high-level descriptions of proposed activities to address patients' behavioral health, but very few specified the types of behavioral health needs that they proposed to address.

Functions associated with addressing SDOH and/or equity. All of the nine proposed PFPMs included screening for HRSNs by providers or care coordinators who could offer referrals to behavioral health or social services resources in the community as appropriate, or inclusion of social workers and similar professionals as part of care teams. In general, the approaches across the nine proposed PFPMs aimed to integrate the activities of disparate social services organizations with local health care providers to support referral tracking and transition coordination. However, the proposed models did not provide specific details on the proposed screening and referral processes. With regard to equity-related functions, some proposed PFPMs aimed to advance equitable access to care by reducing barriers to access, participation, and engagement in the care delivery process. Others aimed to address equity by incorporating social risk factors into risk adjustment (and thereby preventing the adverse selection of patients by providers). A few models noted using interdisciplinary teams to address HRSNs, for organizing and coordinating medical and non-medical services to meet the needs of individuals with complex care needs.

However, PTAC raised a number of concerns specific to Criterion 9 (Patient Safety) for some of the nine proposed PFPMs, since they did not provide sufficient details regarding how beneficiaries would be protected against concerns related to potential access issues and stinting of care. Concerns were raised regarding access to effective channels of communication with providers outside the immediate care team, and access to an emergency reporting mechanism such as a 1-800 line or some other form of 24/7 access to a provider - these were thought to be lacking in the home-based PFPMs. In some cases PTAC opined that the proposed payment methodology may create perverse incentives within some of the model designs, ranging from unclear attribution methodologies that could lead to exclusion of patients who may benefit from treatment to prospective payments that were not tied to specific treatments or procedures which presents the possibility of stinting care. For all proposed PFPMs, PTAC raised concerns around patient safety that were related to potential barriers to equitable patient-centered care.

Payment approaches to incentivize or reimburse SDOH and/or equity efforts. The proposed PFPMs varied widely in how they structured payments to incentivize addressing SDOH and equity. All proposed models included adjustments for clinical risk factors, and several also proposed adjustment for social risk factors. Most commonly proposed were PBPM payments that partially covered SDOH efforts. Other proposed payment options included monthly or quarterly capitated payments, and performance-based payments where providers were evaluated on SDOH- and equity-related measures related to resolution of HRSNs.

Performance Measures Related to SDOH and Equity in the 15 Selected CMMI Models and Nine Selected PTAC Proposals

In general, given that SDOH and equity were not the primary focal points of either the 15 CMMI APMs or the nine proposed PFPMs, there was little information on performance measures related to SDOH and equity, or on the specifics of data collection and sharing on those measures. In most instances, the types of information concerning data practices did not typically distinguish between SDOH and equity-specific data and other types of data that are routinely gathered.

There was wide variation in SDOH- or equity-specific performance measures across the 15 CMMI APMs that were reviewed for this document. Some performance measures were more general; for example, one model measured an increase in community capacity to respond to HRSNs, but did not specify how this was determined. Other measures, however, were more specific. For instance, another model gathered data on the percentage of patients receiving screenings for HRSNs, as well as the percentage of sites with expanded access to care (defined by after-hours access, alternatives to traditional office visits, and 24/7 access to a care team member). A few models also encompassed performance measures related to behavioral health: for instance, rates of suicide and/or substance use, and the share of patients screened for substance use who received cessation counseling and support, among others. Among the nine proposed PFPMs, only one (*An Innovative Model for Primary Care Office Payment* submitted by Jean Antonucci) specified performance measures related to addressing HRSNs and behavioral health, and proposed to collect data on these measures via a survey administered to patients.

Evidence of Effectiveness of Efforts Related to SDOH and Equity in the Context of APMs and PFPMs

A range of SDOH and equity interventions have been shown to improve health outcomes, and some are appropriate for direct implementation by providers. For example, health care providers may be well-positioned to directly implement interventions that address patients' SDOH in health care contexts – such as providing access to high-quality, culturally and linguistically appropriate, and health-literate care; increasing access to affordable care; and supporting patients' self-management of chronic conditions.^{10, 11} In this context, several health care interventions that are potentially relevant for APMs and PFPMs have been linked to improved health outcomes.

Research has shown that approaches focusing on cultural responsiveness and addressing financial constraints have several benefits. **Culturally and linguistically competent care and tailored educational sessions** have been associated with improvements in chronic disease, psychosocial, and patient and provider behavior outcomes.^{12,13,14} **Programs that aim to reduce out of pocket costs**, such as patient assistance programs, community paramedicine, and expanding access to Medicaid and Accountable

Care Organizations (ACOs), have improved chronic disease outcomes, medication adherence, and quality of care, as well as reduced costs.¹⁴

Programs focused on health literacy, health education, and patient self-management have also been found to improve several health outcomes. **Health literacy and health education interventions** have improved chronic and infectious disease outcomes and pain management.¹⁴ **Programs designed to improve patients' self-management of chronic conditions** have improved chronic disease management outcomes for multiple conditions, dietary outcomes, and medication adherence.¹⁴

Efforts to enhance communication and support patient navigation have also had favorable results. **Technology-related communication tools** have been found to increase cancer screening and vaccinations, as well as improve diabetes outcomes.¹⁴ **Patient navigation interventions** have been found to improve dietary outcomes, cancer screening and its cost-effectiveness, health care utilization, psychosocial outcomes, and behavioral outcomes.¹⁴

An additional role of health care providers can be to screen for HRSNs and then work collaboratively with community-based and social services organizations to coordinate support. **Tailored collaborative care and support programs** had largely positive evidence for depression and anxiety symptoms.¹⁴ **Interventions to minimize transportation barriers** reduced medically unnecessary emergency department (ED) visits.¹⁴

Overall, the evaluation findings for the 15 CMMI APMs that were included in this analysis were mixed. While some CMMI model participants and awardees have published self-evaluations, this discussion exclusively reports findings from [CMMI's independent evaluation contractors](#). On the one hand, the majority of the models appear to have improved care quality and access, or at least did not intensify preexisting challenges. Additionally, providers in most of the models increased the number of social worker and community service staff, which in some CMMI evaluation reports is suggested to have played a role in expanding access to care and patient satisfaction. However, the evaluation findings for some models suggested that they did not provide sufficient financial resources that were required to support the enhanced services related to providing a more patient-centered, value-based approach. Many providers reported that they struggled to provide screenings to identify social and behavioral health needs and other forms of patient-centered care to large patient populations. Challenges associated with limited resources were even more prevalent in rural and historically disadvantaged communities.

Section III. Research Approach

Section III provides a brief review of the research questions and methods that were used in developing this analysis.

III.A. Research Questions

Working closely with staff from the Office of the Assistant Secretary for Planning and Evaluation (ASPE), with input from a subset of Committee members known as a Preliminary Comments Development Team (PCDT)ⁱⁱⁱ, the following high-level list of research questions was developed to inform this summary:

1. How are SDOH defined within the context of optimizing value-based care in APMs and PFPMs?
2. How is equity defined within the context of optimizing value-based care in APMs and PFPMs?
3. How have data related to SDOH and equity been collected, utilized, and incorporated into reimbursement for Medicare FFS, Medicare managed care, Medicaid, Medicaid managed care, Medicare-Medicaid dual eligibles, commercial plans, and APMs?
4. How many PTAC proposals and CMMI models include components that are related to addressing SDOH and equity (i.e., relevant PTAC proposals and CMMI models)?
5. What are the summary characteristics of relevant PTAC proposals and CMMI models (e.g., their clinical focus and setting, payment approaches)?
6. How do relevant PTAC proposals and CMMI models incorporate SDOH and equity? Are there any differences in approaches for models that target Medicare beneficiaries, and models that target other populations?
7. What kinds of data and performance/outcome metrics related to SDOH and equity do relevant PTAC proposals and CMMI models propose to collect?
8. How do relevant PTAC proposals and CMMI models incorporate performance/outcome metrics related to equity and SDOH into their payment approaches?
9. What were PTAC's comments relating to SDOH and equity during their deliberations of relevant PTAC proposals at previous public meetings, or in PTAC's Reports to the Secretary developed for relevant proposals?
10. How are issues related to SDOH and equity potentially relevant for other kinds of PTAC proposals (i.e., in addition to the proposals that were determined to be most relevant)?
11. What are the findings on effectiveness from evaluations of relevant CMMI models?
12. What are the findings on effectiveness of specific types of SDOH- and equity-related interventions?

Appendix A includes a more detailed list of research questions for each section.

III.B. Research Methods

This document presents background information from a targeted internet search, and reviews of PTAC documents, resources related to CMMI models, and a RAND Corporation report that evaluated the current state of evidence from programs and policies targeting SDOH.¹⁴ The targeted internet search synthesized information from publications that describe findings related to how data on SDOH and equity have been collected, utilized, and incorporated into reimbursement for Medicare FFS, Medicare

ⁱⁱⁱ The SDOH and Equity Preliminary Comments Development Team (PCDT) included four PTAC members: Jay Feldstein, DO; Lauran Hardin, MSN, FAAN; Angelo Sinopoli, MD; and Jennifer Wiler, MD, MBA.

managed care, Medicaid, Medicaid managed care, Medicare-Medicaid dual eligibles, commercial plans, and APMs. The following terms were used to conduct this targeted internet search: health equity, health disparities, social determinants of health, and health-related social needs, along with reimbursement, payment, Alternative Payment Model, value-based payment, Medicare, Medicare FFS, Medicaid, commercial insurance, and dual eligibles. The inclusion criteria focused the search on publications from health care agencies and research organizations between 2020 and the present, in the English language, and based in the United States.

In addition to the internet search, functions related to SDOH and equity, data- and payment-related details, and performance measures pertaining to SDOH and equity were searched for and inductively analyzed in: (1) 15 selected models implemented by CMMI that were determined to be relevant for the analysis based on having substantial information related to SDOH; (2) nine selected PTAC proposal submissions that were determined to be relevant for the analysis based on having substantial information related to SDOH; and (3) four other PTAC proposal submissions that were determined to have some information related to equity but none related to SDOH. The determination of “substantial information related to SDOH” was made on the basis of a keyword search approach, wherein searches on various proposal- and model-related documents were conducted using “social,” “SDOH,” “SDH,” “social needs,” “risk factors,” “support services,” and other similar terms. SDOH was prioritized for this determination since addressing SDOH is considered to be a necessary condition for advancing equity.

The analysis of previous PTAC proposals included a thorough review of past proposals, PTAC reports to the Secretary, and content available in other PTAC process documents (e.g., public meeting minutes, Preliminary Review Team [PRT] reports). The analysis of CMMI APMs included a review of publicly available resources, including the description of each selected model on the CMMI website and the most recent CMMI evaluation report for the model when available. For those models for which an evaluation report was not available on the CMMI website, an online internet search was conducted to locate any existing evaluation reports. While some CMMI model participants and awardees have published self-evaluations, this discussion exclusively reports findings from third-party evaluations done by CMMI’s contractors. For CMMI models where a state Medicaid agency was involved, the agency’s website was also briefly reviewed for additional information on the model.

It should be noted that some CMMI models (for example, the Comprehensive Primary Care Plus (CPC+) model) offer multiple tracks for participation as part of their design. Given this, there may be within-model variation in how participants address SDOH- or equity-related functions, or are reimbursed for them, based on their track. For this analysis, as long as a given function, payment methodology, or performance measure was addressed or utilized in any track within the model, that model was characterized as addressing the function or utilizing the methodology or measure. Readers interested in understanding the nuanced differences based on a model’s tracks may refer to published third-party evaluation reports.

Appendix B provides more details on the search strategy.

Section IV. Definitions of SDOH, Equity, and Related Terms

Various public agencies and research organizations define the concepts of SDOH and equity in different ways, and there is no consensus on their definitions. The definitions and their sources are described in Appendix C. The following sections list the working definitions of SDOH and equity that were used as a guiding framework for this document. Also described are additional, related concepts of HRSNs, behavioral health, and health disparities.

IV.A. Defining SDOH

Efforts to improve health in the United States have historically focused on the health care system as the main determinant in health outcomes. In recent years, however, the medical and public health fields have increasingly recognized that improving health requires a larger range of approaches that address other non-medical factors that influence health. These “social determinants of health” have received considerable attention as a foundational concept. This document uses a working definition drawn from AHRQ

“SDOH, although experienced by individuals, exist at the community level. Healthcare systems that learn about the communities their patients live in, and the community-level barriers members can face to becoming and staying healthy, can better adapt their recommendations to people’s lives. SDOH can be categorized into five key areas: social context, economic context, education, physical infrastructure, and healthcare context.”¹

Exhibit 1 outlines the specific factors considered by AHRQ within each of the five SDOH domains. Health care providers can address SDOH in different ways depending on the domain. Interventions that address patients’ SDOH in the *health care context* are ones that can be reasonably designed and implemented by health care providers themselves. For example, health care providers can ensure that the care they provide is culturally and linguistically appropriate (see Section IX for more such examples of interventions). Health care providers are also well-positioned to address patients’ unmet needs in some of the other SDOH domains through referrals. For example, they can help mitigate transportation barriers to address SDOH related to the *physical infrastructure* that patients are subject to, or help with providing access to social supports like food to address SDOH in the *social context*. Providers may also help to mitigate barriers related to literacy and language proficiency for *education*-related SDOH by considering the grade level that is used in drafting their materials, translating their materials into other languages, and providing language translation services. For other domains, even though health care providers may not be able to directly address all of the SDOH, they can still be involved in an advocacy role, by engaging with community leaders.

Exhibit 1. AHRQ’s Five Domains of SDOH

SDOH Domain	Related Factors
Social context	Demographics, social networks, and supports; social cohesion; racial, ethnic, religious, and gender discrimination; community safety; criminal justice climate; and civil participation.
Economic context	Employment, income, and poverty.

SDOH Domain	Related Factors
Education	Quality of day care, schools, and adult education; literacy and high school graduation rates; and English proficiency.
Physical infrastructure	Housing, transportation, workplace safety, food availability, parks and other recreational facilities, environmental conditions, and sufficiency of social services.
Health care context	Access to high-quality, culturally and linguistically appropriate, and health-literate care; access to insurance; health care laws; health promotion initiatives; supply side of services; attitudes toward health care; and use of services.

IV.B. Defining HRSNs

Although all people who live in the same community experience common community-level SDOH as part of the policies, practices, culture, infrastructure, and other traits that make up their environment, individuals have different physical, social, and emotional needs. These individual HRSNs are “*non-medical patient needs that impact health (such as housing instability, food insecurity, and exposure to interpersonal violence)*”.³ Generally, health care systems and providers are equipped to assess and address individual patient needs, rather than community-level SDOH.

A recent study of the prevalence of various social risk factors and needs among a representative sample of community-dwelling Medicare beneficiaries found that in general, more than 40 percent of this population experienced multiple, co-occurring needs. Social isolation was the most commonly experienced factor (by 33 percent of individuals), followed by 7 percent of Medicare beneficiaries experiencing housing needs, 8 percent requiring transportation assistance, and 12 percent experiencing nutrition and medical- and utility-related financial needs (MUFN).¹⁵ Several programs have addressed HRSNs among the Medicare population, and their effectiveness has been evaluated. For example, Selfhelp Community Services, Inc. is an *affordable housing program* that serves nearly 1,500 seniors living in New York City. A three-year retrospective evaluation found that Selfhelp participants experienced fewer hospitalizations and used the emergency room less frequently than a non-participating comparison group of seniors living in the same zip codes.¹⁶ Studies have also evaluated the impacts of *food assistance* (via the Supplemental Nutrition Assistance Program or medically tailored meals provided by Meals on Wheels), and have shown that such types of assistance primarily provided to alleviate food insecurity can result in reduced cost-related medication nonadherence, hospitalizations, emergency department visits, and overall health care costs, for Medicare/senior beneficiaries.^{17,18,19}

IV.C. Defining Equity

This document uses a working definition drawn from the CDC’s description of health equity, according to which:

“Health equity is achieved when every person has the opportunity to attain his or her full health potential and no one is disadvantaged from achieving this potential because of social position or other socially determined circumstances.”²

Health inequities are reflected in differences in length of life; quality of life; rates of disease, disability, and death; severity of disease; and access to treatment. Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins. Differences in health are striking in communities with poor SDOH, such as unstable housing; low-income, unsafe neighborhoods; or substandard education. Therefore, by applying what is known about SDOH, health care systems can not only improve individual and population health but also advance health equity.

IV.D. Defining Health Disparities

This document uses a working definition drawn from Healthy People 2020's description of health disparities, according to which:

"[Health disparities are] a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion."⁵

Examples of disparities in health status include the higher mortality rates among Black infants compared to white infants; the higher prevalence of poor or fair health (versus good, very good, or excellent health) among children in low-income families; and the worse health and functional status of elderly women compared to elderly men.⁵ Disparities can also exist in health care access: for example, differential access by language proficiency or the likelihood of receiving pain medication for major fractures differing by race/ethnicity. Several studies have documented disparities in health outcomes and health care access among Medicare beneficiaries. For example, research has shown the existence of racial/ethnic disparities in cancer survival rates and receipt of optimal treatments for this population.^{20,21,22,23} Studies have also shown the existence of racial disparities in hospital readmission rates of Medicare beneficiaries.^{24,25}

Healthy People 2020 specifies that a phenomenon needs to be linked to a systematic disadvantage or injustice in order to be a health disparity and not a health difference. For example, the higher rates of breast cancer among women compared to men and health advantages for foreign-born Hispanics in the United States over U.S.-born Hispanics are identified as health differences, not health disparities.^{26,27}

IV.E. Defining Behavioral Health

Behavioral health describes the link between behaviors and a person's physical, mental, and spiritual health and well-being. This document uses a working definition drawn from AHRQ, according to which behavioral health is:

"An umbrella term that includes mental health and substance abuse conditions, life stressors and crises, stress-related physical symptoms, and health behaviors. Behavioral health conditions often affect medical illnesses."⁴

Behavioral health reflects all contributors to mental wellness, such as biological factors, behaviors, habits, and other external factors. Studies have shown that high utilizers of health care services and those who suffer from chronic conditions – which are both characteristics of the Medicare population – tend to be more likely to suffer from behavioral health conditions.²⁸ A qualitative evaluation of ninety organizations participating in Medicare ACO demonstration programs from 2012 through 2015 found that across these organizations it was generally recognized that behavioral health conditions contributed to making some beneficiaries “high cost” patients. Accordingly, most of the participating ACOs had implemented changes to their care delivery approaches to better address behavioral health care needs (mostly via integrating behavioral health care providers into primary care and/or using social workers to manage such needs).²⁹

Section V. Background on the Use of SDOH and Equity Data for Reimbursement

To date, many payment model structures have been used to address SDOH, including ACOs, bundled payments, capitation, and global budgets. However, while many organizations and payers are working to incorporate social risk, there has been limited empirical research assessing which strategies are most effective, replicable, and scalable.^{10,30} This section describes current trends in reimbursement strategies for SDOH and equity activities by payer type.

V.A. Federal Payers

For traditional Medicare FFS, there is currently no broad or central mechanism to pay for services that are “not reasonable and necessary” in the diagnosis or treatment of illness or injury or to improve functioning.¹⁰ However, CMMI has been testing alternative payment approaches that address SDOH for Medicare FFS beneficiaries. For example, the Accountable Health Communities Model systematically identifies and addresses HRSNs for Medicare and Medicaid beneficiaries through screening, referrals to CBOs, and community navigation services.⁶ Additionally, all 11 states that received grants under the Round 2 State Innovation Models (SIM) Initiative had plans to establish connections between primary care and CBOs or social services organizations.⁶

CMS has created policy options that include coverage for non-health care services under Medicare Advantage (MA), and the provision of such services is integral to the advancement of equity. In order to participate in MA, private plans have to submit a bid to CMS, based on their expected cost. CMS then compares each plan’s bid to a predetermined county-level benchmark, and if a plan’s bid is below the benchmark, it receives a “rebate” that represents a share of the difference between the plan’s bid and the benchmark. MA plans can then use this rebate toward offering supplemental benefits. However, it was not until 2019 that MA plans were allowed to offer a wider range of “health-related” supplemental benefits, including meal delivery and transportation, in addition to the kinds of supplemental benefits that they were already providing (such as lower cost sharing or lower premiums).⁶ The 2018 Bipartisan Budget Act further expanded the acceptable uses of supplemental benefits that may be offered by [MA] plans to “chronically ill enrollees, [referred to as] Special Supplemental Benefits for the Chronically Ill (SSBCI).⁷ SSBCI include supplemental benefits that are not primarily health related and may be offered non-uniformly to eligible chronically ill enrollees,” for example, pest control services. Plans may also choose to include additional supplemental benefits that are not financed by the rebate in their benefit packages and charge premiums to cover those additional benefits. The beneficiary continues to be

responsible for paying the Medicare Part B premium and may pay premiums to the plan for additional benefits. However, there is no new funding available for MA plans to offer expanded benefits.⁶

Research has shown that between 2018 and 2020, the number of MA plans offering non-medical supplemental benefits doubled. However, some services were offered at a higher rate than others. For example, as of 2020, 45 percent of MA plans offer meal services (primarily motivated by the increased numbers of seniors facing food insecurity), and 34 percent of plans offer transportation services, while only 2 percent of plans cover home modifications.³¹ Participation in the provision of SSBCI also dramatically increased from 245 separate plans in 2020 (the first year of SSBCI benefit availability) to 845 in 2021. The top benefits offered in 2021 were meals, food and produce, social needs benefit, pest control, and non-medical transportation.³² Despite these trends, the absolute rate of offerings still remains low; in 2021, only about 10 percent of MA plans offered at least one new supplemental benefit.³³ Research on the reasons for the low adoption of non-medical supplemental benefits by MA plans is still in a nascent stage, but preliminary findings point to a reluctance to make up-front infrastructure investments to support such offerings (e.g., vendor identification), or limited understanding of these benefits' impact on health outcomes.³¹

For MA plans, there are SDOH- and equity-specific measures currently under development, including the Health Equity Summary Score (HESS), a summary index score that measures health equity-based data across multiple performance and risk factor scores developed by the Office of Minority Health.²⁶

V.B. State Payers

While the question of how to account for social factors within reimbursement structures and APMs is still under debate at the federal level, some states and state-level organizations have begun activities in this space. A recent analysis found that found 18 states and Washington, D.C., have begun taking steps toward establishing statewide VBP SDOH initiatives for Medicaid enrollees. However, most states did not explicitly require or provide financial resources for SDOH services.^{6,8} State Medicaid agencies have several regulatory options under which to cover SDOH-related services, including HCBS Section 1915 waivers, Section 1115(a) demonstration waivers, and DSRIP initiatives under 1115 demonstration waivers.

For example, New York has used the DSRIP program to fund SDOH initiatives implemented by public hospitals and safety-net providers.⁸ Sixteen states utilized Section 1115(a) demonstration waivers in order to implement models that address SDOH. While the implementation of these models varied in size and scope, most programs focused on just a handful of SDOH elements, with the majority including housing as a key priority in their initiatives.³⁴ Of note are the waiver programs of North Carolina and California.

- In 2018, CMS approved **North Carolina's 1115 waiver** for a five-year demonstration to conduct [the Healthy Opportunities Pilots](#) program, which is scheduled to begin in spring 2022.³⁵ The program, which will operate within the North Carolina Medicaid Managed Care program, will establish a comprehensive approach to integrate and test evidence-based non-medical services with the aim of improving health outcomes and health care costs for high-risk patients. During its initial rollout, the program will prioritize housing stability, access to transportation, food

security, and interpersonal safety. Key components of the Healthy Opportunities Pilots plan will include a statewide map of SDOH indicators to inform resource allocation, SDOH patient screenings, an electronic coordinated care network, and a community health worker initiative. If the program is successful, the North Carolina Department of Health and Human Services intends to integrate pilot services statewide for all Medicaid Managed Care beneficiaries.³⁶

- CMS approved **California's 1115 waiver** on December 30, 2015, to implement the Medi-Cal program (California Department of Health Care Services [DHCS]), in order to address SDOH using care coordination activities. In 2018, DHCS introduced [California Advancing and Innovating Medi-Cal](#) (CalAIM), a multi-year initiative with the goal of improving the quality of life and health outcomes of Medi-Cal beneficiaries via comprehensive delivery system, program, and payment reforms. CalAIM provides a framework to employ non-medical interventions focused on a whole-person care approach that targets SDOH as part of the initiative's broader effort to improve care coordination for Medi-Cal beneficiaries. Although the CalAIM program was initially scheduled to commence in January 2021, the start date was postponed to January 1, 2022, due to the COVID-19 public health emergency (PHE).³⁷

Increasingly, state-based Medicaid MCOs (which receive capitated payments) are engaging in activities to address SDOH, such as coordinating with CBOs to link members to needed services, assessing social needs, and maintaining community resource databases.⁶ A recent survey of Medicaid MCOs found that plans reported using data on unmet social needs collected via screenings, but many screening tools were developed internally; this data fragmentation can pose challenges for integrated care delivery for addressing SDOH.⁶ In a 2020 report published by Manatt Health, researchers found that 38 of 39 states and territories included in their analysis had at least one contractual requirement for Medicaid MCO plans related to SDOH. The majority of states included in the study (27) required Medicaid MCOs to screen their members for SDOH, and almost all states in the analysis (35) required MCOs to make referrals to social services. Thirty-seven states required MCOs to coordinate those social services for their members. SDOH requirements appeared most often within the context of care management in these Medicaid managed care contracts.³⁴ Two examples of MCO initiatives are:

- As of July 2021, **AmeriHealth Caritas** – a Medicaid MCO - has 12 Medicaid plans across the country. As part of their Next Generation Model of Care, the plans screen all members for unmet needs in the following five domains: education, health literacy, housing, transportation, and material security (i.e., food, utilities, child care, clothing, phones, and household needs).³⁸ After screening, members are referred to a care manager, connected with a local food bank, connected with other social services organizations, or supported directly by AmeriHealth Caritas' own programs (for example, receiving GED coaching and financial assistance to cover the fees associated with taking the GED exam).³⁹ Using social needs data gathered through screening surveys, as well as claims-based ICD-10 codes, AmeriHealth Caritas also risk-stratifies members to proactively meet their needs and guide investments in the communities it serves to promote equity.⁴⁰ In October 2017, seven AmeriHealth Caritas plans won National Committee for Quality Assurance Multicultural Health Care Distinction awards for their work to provide racially, culturally, and linguistically appropriate care.⁴¹
- **CareSource**, a Medicaid managed care plan available in Ohio, Georgia, and Indiana, developed the CareSource Life Services program to help connect its members to services to meet their unmet SDOH needs.^{42,43} Through this program, members are paired with a Life Coach, who

works with the member for up to 24 months by providing solutions and referrals for non-medical needs identified in the following areas: employment, food assistance, transportation, housing, education or training opportunities, budgeting and finance, legal assistance, and safety and domestic violence.⁴³ In Ohio, CareSource is planning to build upon its CareSource Life Services program by partnering with Healthify to create a statewide network of community-based organizations that provide services to address SDOH. Within this network, organizations can make referrals and review the impact of SDOH interventions. Additionally, CareSource will use Healthify's population analysis modeling to identify high-risk individuals across the state and target outreach to those individuals.⁴⁴ Once established, CareSource plans to expand this network to all those served through its Life Services program.⁴⁴

V.C. Commercial Payers

In recent years, there has been growing interest from commercial insurers in integrating activities to address SDOH. For example, Aetna has created an SDOH index, comprised of median household income, poverty, diversity, disability, education, physical inactivity, family structure, public transport, and employment.⁹ However, SDOH efforts through commercial insurers to date are primarily carried out by their philanthropic arms and do not involve changes in benefit designs or reimbursement policies.⁹

Section VI. Incorporation of SDOH and Equity in Selected CMMI Models

Since its inception in 2010, CMMI has implemented a number of APMs that address, at least in part, SDOH and health equity. In a 2020 report to Congress, CMS noted that an estimated 528,000 providers and 27.9 million patients across all payers were affiliated with one or more CMMI models.⁴⁵ While most of CMMI's models focus on the Medicare or Medicaid population, initiatives like the Vermont and Maryland All-Payer Models have introduced a common payment approach across multiple payers. Several models that were expected to end in 2020 have been extended due to the COVID-19 PHE, and several ongoing models were granted additional flexibilities to respond to the PHE.

This section provides an overview of the 15 CMMI APMs that included substantial information on SDOH (and also provided an opportunity to advance health equity by potentially reducing disparities).

VI.A. Background Characteristics of the 15 Selected CMMI APMs

Exhibit 2 depicts select background characteristics of the 15 selected CMMI APMs. The following is a summary of the clinical focus and settings, patient populations, geographic coverage, and payment mechanisms across the models.

- **Clinical focus and settings.** Approximately half of the included models work across multiple clinical focus areas. Primary care was the most common, with 73 percent of models, or n=11, focused in this area. This was followed by specialty care, comprising 47 percent of models, or n=7. The clinical settings in which the models operate include hospitals (both inpatient and outpatient services), patient homes, community-based locations, and varied practices.
- **Targeted patient populations.** Models serve Medicaid beneficiaries, Medicare beneficiaries, or both, but as mentioned above, three of the models (Maryland All-Payer Model, Maryland Total

Cost of Care [TCOC] Model, and the Vermont All-Payer ACO Model) extended services to all patient populations within their respective state of operation. The specific patient populations targeted by the models were relatively diverse, generally including chronically ill patients, as well as other types of groups such as high-risk and underserved beneficiaries, and patients transitioning between inpatient and outpatient care.

- **Geographic coverage.** The vast majority of models (80 percent, or n=12) operate nationwide, which typically means multiple participating states or organizations. Three of the models are specific to a given state (Maryland All-Payer Model, Maryland TCOC Model, and the Vermont All-Payer ACO Model) and are therefore confined to providing care to patients residing in those particular states. Three of the models also specifically target rural communities.
- **Payment mechanisms.** Payment mechanisms varied greatly across models. Performance-based payments and PBPM payment models that reimburse all physicians involved in care coordination and integration across an episode or condition were the most common payment model methodology. Multiple models include flexible payments to cover the costs of assessing patients for HRSNs or to facilitate coordination between health care and social services organizations (for example, the AHC model, and the Community-based Care Transitions Program (CCTP)).

Exhibit 2. Summary of the Care Delivery and Payment Model Characteristics of the 15 Selected CMMI Models

CMMI Model, Status, and Years Active	Clinical Focus, Providers, and Setting	Patient Population Targeted	Geographic Coverage	Payment Mechanism
<p>Accountable Health Communities (AHC) Model</p> <p>Ongoing</p> <p>2017 – current</p>	<p>Clinical focus: Primary, specialty, and behavioral care</p> <p>Providers: Primary care providers (PCPs), community bridge organizations</p> <p>Setting: Multiple (e.g., hospitals, inpatient and outpatient settings, clinical delivery sites, primary care practices)</p>	<p>High-risk Medicare and Medicaid beneficiaries</p>	<p>Nationwide; 29 participating organizations across 21 states</p>	<p>Funds for this model support the infrastructure and staffing needs of bridge organizations, and do not pay directly or indirectly for any community services.</p> <p>Note: <i>Bridge organizations</i> assist beneficiaries connect with community services and other clinical providers offering HRSNs services. Community services provided might include, for example, transportation or housing assistance. Bridge organizations were primarily health systems and hospitals but also included a range of other organizations such as academic institutions and nonprofits.</p>
<p>Community-based Care Transitions Program (CCTP)^{iv}</p> <p>Completed</p> <p>2012 – 2017</p>	<p>Clinical focus: Care transitions</p> <p>Providers: CBOs, acute care hospitals that partner with CBOs (providers along the continuum of care: PCPs, specialists, ancillary care providers)</p> <p>Setting: Inpatient and outpatient settings; patient home</p>	<ul style="list-style-type: none"> • High-risk Medicare beneficiaries at high risk of readmission • Patients transitioning out of inpatient hospital settings • Medically underserved populations working with selected CBOs 	<p>Nationwide; 18 participating sites across multiple states, small communities, and rural areas were given priority.</p>	<ul style="list-style-type: none"> • FFS • CBOs paid an all-inclusive rate per eligible discharge, determined based on the cost of care transition services provided, which can include services for social needs, at the patient level and systemic changes at the hospital level.

^{iv} The CCTP was created by Section 3026 of the Patient Protection and Affordable Care Act.

CMMI Model, Status, and Years Active	Clinical Focus, Providers, and Setting	Patient Population Targeted	Geographic Coverage	Payment Mechanism
Community Health Access and Rural Transformation (CHART) Model Ongoing 2022 – current	Clinical focus: Primary care Providers: All rural health care providers, PCPs, specialists, ancillary health care professionals Setting: Primary care practices	Rural communities	Rural settings nationwide	<ul style="list-style-type: none"> Community Transformation track participants receive upfront funding, capitated payments, and benefit enhancements. Two-sided risk arrangements for ACOs. Shared savings can be made from: 1) a one-time upfront payment equal to a minimum of \$200 plus \$36 per beneficiary to participating in the Shared Savings Programs (SSPs); and 2) prospective PBPM equal to at least \$8 for 24 months.
Comprehensive Primary Care Plus (CPC+) Model Ongoing 2017 – current	Clinical focus: Primary care Providers: Primary care providers Setting: Primary care practices	All Medicare and Medicaid beneficiaries in participating regions	Nationwide	<ul style="list-style-type: none"> Non-visit based care management fee (CMF) paid via PBPM; Medicare FFS CMFs paid quarterly Performance-based incentive payments <ul style="list-style-type: none"> Payments under the Medicare Physician Fee Schedule with some Medicare FFS payments shifted to quarterly lump comprehensive primary care payments (CPCPs)
Integrated Care for Kids (InCK) Model Ongoing 2020 – current	Clinical focus: Physical and behavioral pediatric health care Providers: Multiple types of health care providers (pediatricians, behavioral health specialists, ancillary care providers) Setting: Multiple (e.g., inpatient and outpatient settings, pediatric care practices)	<ul style="list-style-type: none"> Children under the age of 21 covered by Medicaid Some programs also include Children’s Health Insurance Program beneficiaries and pregnant women over age 21 who are covered by Medicaid. 	Nationwide; eight participating organizations across seven states	State-specific pediatric APMs that incorporate provider accountability, integrated care coordination, and focus on meaningful improvements in care quality and health outcomes

CMMI Model, Status, and Years Active	Clinical Focus, Providers, and Setting	Patient Population Targeted	Geographic Coverage	Payment Mechanism
Independence at Home (IAH) Demonstration^v Ongoing 2012 – current	Clinical focus: Chronically ill Providers: Home-based PCPs Setting: Patient home	Medicare beneficiaries with multiple chronic conditions and functional limitations	Nationwide; nine participating sites across multiple states	<ul style="list-style-type: none"> • Performance-based incentive payments (opportunity to receive incentive payments if practice meets a minimum savings requirement and required standards for a set of quality measures) • FFS (beneficiaries must be enrolled in Medicare FFS to participate in demonstration)
Maryland All-Payer Model Completed 2014 – 2018	Clinical focus: Acute care Providers: Providers within hospitals Setting: Hospital – inpatient and outpatient	All patients receiving services from Maryland hospitals	Maryland	<ul style="list-style-type: none"> • All-payer system with an annual global budget • The Care Redesign Program (a new voluntary program within the Maryland All-Payer Model) offered incentive payments and/or nonmonetary resources to participating hospitals.
Maryland Total Cost of Care (TCOC) Model Ongoing 2019 – current	Clinical focus: Care transitions, palliative care, primary care, community-based care, and emergency care Providers: Health care providers within multiple settings Setting: Multiple (e.g., hospitals, inpatient and outpatient settings, primary care practices, non-hospital service providers)	Patients receiving services in Maryland	Maryland	<ul style="list-style-type: none"> • Annual global budgets paid by FFS • Hospital Payment Program: Population-based payments for all hospital services provided during the year. • Care Redesign Program (CRP): Hospitals make incentive payments to non-hospital health care providers if the incentive payments are less than the attained savings. • PBPM payments to cover care management services, and risk-adjusted performance-based incentive payment to providers

^v The IAH Demonstration was enacted by Section 3024 of the Patient Protection and Affordable Care Act.

CMMI Model, Status, and Years Active	Clinical Focus, Providers, and Setting	Patient Population Targeted	Geographic Coverage	Payment Mechanism
Multi-payer Advanced Primary Care Practice (MAPCP) Demonstration ^{vi} Completed 2011 – 2016	Clinical focus: Primary care Providers: Primary care providers Setting: Multiple (e.g., hospitals, patient home, community-based locations)	Chronically ill patients	Eight participating states	PBPM payments that varied by state
Medicare Coordinated Care Demonstration (MCCD) ^{vii} Completed 2002 – 2014	Clinical focus: Chronic illnesses Providers: Varies by organization (PCPs, specialists, ancillary care providers) Setting: Varies by organization	Medicare FFS beneficiaries with complex chronic conditions	15 pilot sites; mix of urban and rural settings	Monthly PBPM payment
Next Generation ACO (NGACO) Model Ongoing 2016-current	Clinical focus: Primary and specialty care Providers: Primary care providers and specialists Setting: Multiple (e.g., hospitals, inpatient and outpatient settings, primary care practices)	Medicare beneficiaries	Nationwide; 35 accountable care organizations	<ul style="list-style-type: none"> • FFS • FFS plus additional PBPM • Population-based payment model • Capitation

^{vi} The MAPCP Demonstration was conducted under the authority of Section 402 of the Social Security Amendments of 1967.

^{vii} The MCCD was authorized by the President of the United States.

CMMI Model, Status, and Years Active	Clinical Focus, Providers, and Setting	Patient Population Targeted	Geographic Coverage	Payment Mechanism
Oncology Care Model (OCM) Ongoing 2016 – current	Clinical focus: Cancer Providers: Oncologists Setting: Outpatient	Medicare beneficiaries requiring oncology care	Nationwide	<ul style="list-style-type: none"> • Episode-based payment model • Monthly Enhanced Oncology Services (MEOS) Payment (\$160 PBPM) • Performance Based Payment (Shared Savings/Losses) for episodes of chemotherapy
Pioneer ACO Model Completed 2012 – 2016	Clinical focus: Primary and specialty care Providers: Primary care providers and specialists Setting: Multiple (e.g., hospitals, primary care practices)	All patients of participating ACOs	Nationwide	<ul style="list-style-type: none"> • Shared savings/losses payment • Population-based system (if ACO achieved specified level of savings over first two years)
State Innovation Models (SIM) Initiative Completed 2013 – 2020	Clinical focus: Multiple (e.g., primary care, acute care, behavioral health, palliative care) Providers: Varies by state (e.g., primary care providers and specialists) Setting: Multiple (e.g., hospitals, inpatient and outpatient settings, primary care practices)	Varies by state (e.g., Medicaid and Medicare beneficiaries, patients with chronic conditions)	Nationwide; 34 states, three territories, and Washington, D.C.	<ul style="list-style-type: none"> • Varies by state • Most states included some form of value-based payment. • Some states used episode of care models. • Some states used per member per month or FFS models.

CMMI Model, Status, and Years Active	Clinical Focus, Providers, and Setting	Patient Population Targeted	Geographic Coverage	Payment Mechanism
Vermont All-Payer ACO Model Ongoing 2017 – current	Clinical focus: Primary and specialty care Providers: Primary care providers and specialists Setting: Multiple (e.g., hospitals, primary care practices)	All patients receiving care from ACOs in Vermont	Vermont	<ul style="list-style-type: none"> • FFS • FFS plus additional PBPM • Population-based payment model • Capitation • CMS provided Vermont start-up funding of \$9.5M in 2017 to support care coordination and bolster collaboration between practices and community-based providers.

Focusing on specific background characteristics related to SDOH and equity, as seen from Exhibit 3, 10 of the 15 CMMI APMs had explicit SDOH and equity objectives and requirements built into the initial model design: for example, expanding access to care and reducing disparities stemming from unmet HRSNs. Each of the 15 CMMI APMs addressed at least two of the five **domains of SDOH as specified above in AHRQ's definition**. Specifically:

- All of the models addressed the **health care context**, which frequently involved efforts to expand access to care through improved care coordination and increases in staff and staff training to enhance care delivery.
- All but one of the models addressed **physical infrastructure**, which most commonly was in the form of housing, transportation, and food assistance, as well as an improved integration of medical and social services.
- Five models (or 33 percent) addressed the **social context**, which often took the form of increases in social supports and prioritization of traditionally underserved or vulnerable demographics, such as those living in rural communities.
- Six models (or 40 percent) addressed the **economic context**, which tended to be achieved through job training programs.
- Three models (or 20 percent) addressed **education**, which consisted of patient education, coaching, or self-management programs.

Across the above domains, the 15 CMMI APMs targeted a diverse range of **social needs**. The most common social needs targeted include **transportation problems** (67 percent of models, or n=10), **food insecurity** (60 percent of models, or n=9), and **housing instability** (40 percent of models, or n=6), whereas physical inactivity and interpersonal safety were addressed by only one model each. The 15 CMMI models also focused on a variety of **behavioral health needs**. Nearly all of the models (n=13) included a mental health component, and two-thirds of the models (n=10) addressed substance use. Finally, 40 percent of the 15 CMMI models (n=6) also addressed needs related to physical wellness by empowering patients to lead a healthy lifestyle (for example, by engaging in physical activity and modifying behavior toward weight management). Specific functions related to addressing SDOH and equity are discussed in Section VI.B.

Exhibit 3. Summary of the SDOH and Equity Characteristics of the 15 Selected CMMI Models

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Accountable Health Communities (AHC) Model	<ul style="list-style-type: none"> • Help Medicare and Medicaid beneficiaries with unmet HRSNs connect with community resources through screening, referral, and navigation services. • Optimize community capacity to address HRSNs through quality improvement, data-driven decision-making, and coordination and alignment of community-based resources. • Reduce inpatient and outpatient health care use and total costs by addressing unmet HRSNs through referral and connection to community services. 	<ul style="list-style-type: none"> • Economic context • Education • Health care context • Physical infrastructure • Social context 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Education • Employment • Financial strain • Food insecurity • Housing instability • Linguistic barriers • Physical activity • Transportation problems • Utility needs <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Interpersonal safety • Mental health • Network of social and emotional support • Psychosocial conditions • Substance use <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Bridge organizations screened beneficiaries for core HRSNs (housing instability, food insecurity, transportation problems, utility help needs, and interpersonal safety).</p> <p>Referral: Bridge organizations connected eligible beneficiaries to needed community services.</p> <p>Follow-up and resolution: Most bridge organizations employed staff to work solely or primarily on screening, referral, and navigation. Staff provided social needs monitoring and follow-up for up to 12 months to determine if HRSNs were resolved.</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Community-based Care Transitions Program (CCTP) Model	Not specified	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Food insecurity • Transportation problems <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs: Physical activity</p>	<p>Screening: Care transition workers identified support service needs using assessment tools, patient records, communication with staff and family, and observation of the home environment.</p> <p>Referral: Sites contracted specific services such as meals, transportation, or homemaker services; provided services such as transportation vouchers or supplies; and/or connected participants with services as a part of their standard activities.</p> <p>Follow-up and resolution: Not specified</p>
Community Health Access and Rural Transformation (CHART) Model	Enhance beneficiaries' access to health care services by ensuring rural providers remain financially sustainable for years to come and can offer additional services such as those that address social determinants of health, including food and housing.	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Food insecurity • Housing instability • Transportation problems <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Not specified</p> <p>Referral: Not specified</p> <p>Follow-up and resolution: Not specified</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Comprehensive Primary Care Plus (CPC+) Model	Requirements for practices include: <ul style="list-style-type: none"> • Ensure access to care. • Help patients navigate care system. • Educate patients about their conditions and how to manage them. • Develop capacity to address behavioral and HRSNs. 	<ul style="list-style-type: none"> • Economic context • Health care context • Social context 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Financial strain • Food insecurity • Housing instability • Transportation • Utility needs <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health • Interpersonal safety • Network of social and emotional support <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Providers engaged in behavioral health trainings and provided behavioral health and social service needs screenings.</p> <p>Referral: A behavioral health specialist was located on site to provide time-limited therapy for patients or a care manager with behavioral health training supported care management. Typically, a designated staff person linked patients to supportive community-based resources.</p> <p>Follow-up and resolution: A designated staff person was usually assigned to follow up with community service agencies and patients, although this occurred less frequently than referrals.</p>
Independence at Home (IAH) Demonstration	Lower costs of care while improving quality through primary care at home to chronically ill and functionally limited Medicare beneficiaries.	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs: Transportation problems</p> <p>Behavioral Health Needs: Mental health</p> <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Not specified</p> <p>Referral: Not specified</p> <p>Follow-up and resolution: Not specified</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Integrated Care for Kids (InCK) Model	<ul style="list-style-type: none"> • Identify and treat children with behavioral health needs. • Integrate care coordination and case management across physical health, behavioral health, and other community/social services for children with health needs influencing their functioning at school, home, and in their community. 	<ul style="list-style-type: none"> • Economic context • Education • Health care context • Physical infrastructure • Social context 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Education • Financial strain • Food insecurity • Housing instability • Interpersonal safety • Linguistic barriers • Transportation problems <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Adverse childhood experiences • Mental health • Network of social and emotional support • Psychosocial conditions • Substance use <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Coordinators used social, physical, and behavioral health assessments and screenings to identify needs. In some sites, mobile assessment teams administered assessments in homes, schools, and community locations.</p> <p>Referral: Coordinators made referrals to community-based partners and social service organizations based on patient needs.</p> <p>Follow-up and resolution: Some sites are using online platforms to facilitate information sharing across participating providers and to allow families to locate services and communicate with service coordinators and participate in care decision-making.</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Maryland All-Payer Model	Not specified	<ul style="list-style-type: none"> • Economic context • Health care context • Physical infrastructure 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Employment • Housing instability <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health • Substance use • Other unspecified behavioral and psychiatric health needs <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Participating hospitals increased social worker staff and invested in social determinants of health interventions.</p> <p>Referral: Social worker and community services staff engaged with patients regarding care program compliance.</p> <p>Follow-up and resolution: Social worker and community services staff engaged with patients to remain attentive to the social needs of patients that might inhibit treatment compliance and access.</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Maryland Total Cost of Care (TCOC) Model	<ul style="list-style-type: none"> • Decrease opioid and other drug overdose deaths. • Improve hospital quality of care by decreasing potentially avoidable hospital admissions and decreasing disparities in hospital readmissions by patient adversity (a variable HSCRC defines based on Medicaid status, race, and neighborhood deprivation). • Maryland Primary Care Program, which falls under the broader Maryland TCOC Model and is modeled after the CPC+ program,^{viii} seeks to provide more comprehensive care (including behavioral health care), which includes improving access and continuity, care management and coordination, and beneficiary and caregiver experience. 	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs: Food insecurity</p> <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health • Substance use <p>Physical Wellness Needs:</p> <ul style="list-style-type: none"> • Diet • Physical Activity • Diabetes prevention and management • Obesity prevention/weight management 	<p>Screening: Practices screened patients for social needs, but the specific approach was not specified.</p> <p>Referral: Many practices incorporated behavioral health services on site and also referred patients to external behavioral health specialists and social service providers.</p> <p>Follow-up and resolution: Not specified</p>

^{viii} See the Maryland Primary Care Program for further reference <https://health.maryland.gov/mdpcp/Pages/practices.aspx>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Medicare Coordinated Care Demonstration (MCCD)	Not specified	<ul style="list-style-type: none"> • Economic context • Health care context • Physical infrastructure 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Financial strain • Food insecurity • Transportation problems <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Interpersonal safety (intimate partner and family violence) • Mental health (stress, anxiety, and depression) • Psychosocial conditions (bipolar disorders and other psychiatric issues) • Substance use <p>Physical Wellness Needs:</p> <ul style="list-style-type: none"> • Diet • Physical activity • Obesity prevention/weight management 	<p>Screening: The demonstration provides referrals to address social needs, but the approach to identifying these needs was not specified.</p> <p>Referral: Providers reported making referrals for psychiatric and substance use disorder services and other social needs.</p> <p>Follow-up and resolution: Not specified</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Multi-payer Advanced Primary Care Practice (MAPCP) Demonstration	Expand access to advanced primary care (i.e., value-based care).	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs: Transportation problems</p> <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Substance use • Mental health <p>Physical Wellness Needs:</p> <ul style="list-style-type: none"> • Diet • Physical activity • Diabetes prevention and management • Obesity prevention/weight management 	<p>Screening: Providers administered behavioral health screening questionnaires to patients. The approach to assessing transportation problems was not specified.</p> <p>Referral: Providers referred patients to behavioral health resources and social services.</p> <p>Follow-up and resolution: The model describes providing timely follow-up, but does not describe it in detail.</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Next Generation ACO (NGACO) Model	Not specified	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health (depression) • Substance use (opioids) <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Some ACOs added social determinants of health components to their care management services.</p> <p>Referral: Some physicians reported receiving data on depression screenings and referring for services.</p> <p>Follow-up and resolution: Most ACOs reported using team-based care, or a multidisciplinary team that includes some combination of a nurse care manager, physician, social worker, pharmacist, and care coordinators/non-clinical staff coordinating care on behalf of beneficiaries in addition to or instead of a nurse care manager. In some cases, team members provided telephone, in-home, or inpatient follow-up.</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Oncology Care Model (OCM)	Improve access to patient-centered care.	<ul style="list-style-type: none"> • Health care context • Physical infrastructure • Social context 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Food insecurity • Transportation problems <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health • Network of social and emotional support • Psychosocial conditions • Substance use <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Most practices did not use a standardized tool to identify patients with medical or social needs and relied on expert assessments by staff. The majority of practices screened for depression every six months while some did so at every visit. Patients that screened positive for depression were referred to social workers, mental health resources, or an oncologist. Several practices separately screened for distress and psychosocial needs (e.g., transportation, social support, nutrition needs) at every visit.</p> <p>Referral: Beneficiaries with social services needs were referred to social workers and/or community resources.</p> <p>Follow-up and resolution: Mentions “follow-up plans as needed,” but further specifics are not provided.</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Pioneer ACO Model	Not specified	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Depression and other unspecified patient-specific behavioral health needs</p> <p>Physical Wellness Needs:</p> <ul style="list-style-type: none"> • Diet • Physical activity • Obesity prevention/weight management 	<p>Screening: Pioneer ACOs expanded access to behavioral health care by (1) co-locating behavioral health providers with primary care providers; (2) enhancing the availability of licensed social workers; and (3) expanding their referral network and general screening efforts.</p> <p>Referral: Some Pioneer ACOs developed specific steps to follow up for positive depression screens, including provider prompts for referral to in-house or co-located social workers for treatment or referral assistance.</p> <p>Follow-up and resolution: Some Pioneer ACOs developed specific steps to follow up on positive depression screens.</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
State Innovation Models (SIM) Initiative	<p>Varied by state, but common objectives include:</p> <ul style="list-style-type: none"> • Improve population health, which included reducing health disparities (for example, disparities stemming from behavioral health conditions, low incomes). • Reduce spending by populations with behavioral health conditions. • Improve integration of physical and behavioral health. 	<ul style="list-style-type: none"> • Economic context • Education • Health care context • Physical infrastructure • Social context 	<p>Social Needs:</p> <ul style="list-style-type: none"> • Education • Employment • Food insecurity • Housing instability • Transportation problems <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health • Network of social and emotional support • Psychosocial conditions • Substance use <p>Physical Wellness Needs:</p> <ul style="list-style-type: none"> • Diet • Diabetes prevention and management • Obesity prevention/weight management • General promotion of healthy lifestyles 	<p>Screening: Several state models included screening patients for social needs.</p> <p>Referral: Several state models included developing linkage arrangements and referrals to community resources to address social determinants that impact patient health.</p> <p>Follow-up and resolution: Not specified</p>

CMMI Model	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Used By Model Participants
Vermont All-Payer ACO Model	<ul style="list-style-type: none"> • Improve health outcomes and quality of care in relation to substance use disorder (SUD) and suicides. • Expand access to quality care. • The ACO is required to make investments in the social determinants of health. 	<ul style="list-style-type: none"> • Health care context • Physical infrastructure 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health • Psychosocial conditions • Substance use <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Not specified</p> <p>Referral: Not specified</p> <p>Follow-up and resolution: Not specified</p>

VI.B. Common Functions Related to Addressing SDOH and Equity in the 15 Selected CMMI APMs

Functions related to addressing SDOH primarily consisted of social needs screening, making referrals to community-based services, and monitoring the take-up or utilization of services. As seen from Exhibit 4, the majority of models (80 percent, or n=12) implemented HRSN screenings, which often consisted of behavioral health evaluations and/or screenings to identify challenges connected to housing, nutrition, transportation, and interpersonal safety. Screening for unmet needs typically involved providers evaluating data collected via patient records, communication with staff and family, and observations of the home environment. In addition to screenings, most models (80 percent, or n=12) provided referrals to behavioral health professionals and other community-based social services, and seven of the models also introduced mechanisms for post-referral patient monitoring. Patient monitoring often took the form of on-site or in-home follow-up appointments or care team members (e.g., nurses, social workers) reaching out to patients by phone or other online platforms such as that used by the InCK model.

Other relatively common SDOH-related functions included:

- Using interdisciplinary teams to better address HRSNs (in 53 percent of models, or n=8).
- Making an explicit effort to provide patient-centered care cognizant of SDOH factors (in 53 percent of models, or n=8).
- Supporting and sharing information on clinical and non-clinical factors that contribute to improved health and treatment outcomes (in 47 percent of models, or n=7).
- Utilizing SDOH-based performance measures (in 33 percent of models, or n=5).

As noted above, health equity is achieved when every person has the opportunity to attain his or her full health potential, and no one is disadvantaged from achieving this potential because of social position or other socially determined circumstances, including access to treatment. With respect to **equity-related functions**, in the overwhelming majority of models (87 percent, or n=13), strategies were implemented for advancing equitable access to care through specific model features, such as adjusting provider hours to overcome scheduling challenges faced by patients, providing transportation to services, offering in-home care, connecting individuals with community and social services, and delivering services to more remote populations, such as those in rural settings. Efforts to support the self-management of care and expand health literacy also featured as an equity-focused strategy for encouraging care uptake.

All but one of the 15 CMMI models (Integrated Care for Kids) included Medicare beneficiaries as a target population, and half of these models targeted Medicare beneficiaries exclusively. However, the analysis did not reveal any systematic differences in how models targeting Medicare beneficiaries, either in part or exclusively, incorporated SDOH and equity objectives or functions compared to other models.

Further information on the SDOH- and equity-related functions, as well as the efficacy of these model components, is provided in Appendix D.

Exhibit 4. Summary of SDOH-Related Functions in the 15 Selected CMMI Models

CMMI Model	Screening for HRSNs (n=12)	Providing referrals to address HRSNs (n=12)	Monitoring progress and following up on identified HRSNs (n=7)	Engaging in SDOH-based performance measurement (n=5)	Supporting and sharing information on factors that contribute to health and success of treatment (n=7)	Using interdisciplinary teams to address HRSNs (n=8)	Improving integration of health care and social services and supports (n=8)	Providing a patient-centered care experience (n=8)
Accountable Health Communities (AHC)	✓	✓	✓	✓	✓	✓	✓	
Community-based Care Transitions Program (CCTP) Model	✓	✓			✓	✓		
Community Health Access and Rural Transformation (CHART) Model								
Comprehensive Primary Care Plus (CPC+) Model	✓	✓	✓	✓	✓			✓
Independence at Home (IAH) Demonstration						✓		✓
Integrated Care for Kids (InCK) Model	✓	✓	✓		✓	✓	✓	✓
Maryland All-Payer Model	✓	✓	✓	✓			✓	✓
Maryland Total Cost of Care (TCOC) Model	✓	✓				✓		✓
Medicare Coordinated Care Demonstration (MCCD)	✓	✓					✓	
Multi-payer Advanced Primary Care Practice (MAPCP) Demonstration	✓	✓	✓	✓			✓	✓
Next Generation ACO (NGACO) Model	✓	✓			✓	✓		✓
Oncology Care Model (OCM)	✓	✓	✓		✓			✓
Pioneer ACO Model	✓	✓	✓			✓	✓	
State Innovation Models (SIM) Initiative	✓	✓		✓	✓		✓	
Vermont All-Payer ACO Model						✓	✓	

VI.C. Common Payment Approaches in the 15 Selected CMMI APMs

The 15 selected CMMI models varied in regard to their respective payment methodologies as shown in Exhibit 5. A few models relied on more traditional payment approaches like FFS (33 percent of models, or n=5), whereas most other models utilized APM approaches that aim to incentivize high-quality, patient-centered care. It was also relatively common for a single model to incorporate multiple payment methodologies. While some models had payment components that were specifically related to SDOH and equity, it was not explicitly stated in others whether SDOH- and equity-related services were factored into payment.

A third of all models, or n=5, adjusted payments for clinical risk factors, but adjustments for social risk factors were virtually absent across models (this approach was uniquely used only by the CHART Model). About 27 percent of models, or n=4, offered performance-based payments with providers being evaluated on SDOH- and equity-related measures. Typically, these measures focused on the provision of social needs screenings and expanded access to care. The AHC Model is one such APM where a key performance measure was the percentage of patients with resolved HRSNs. As another example, three models offered upfront or one-time initial payments to cover SDOH-related activities. For example, in the CCTP Model, CBOs were paid an all-inclusive rate per eligible discharge for providing care transition services, which could include services addressing HRSNs.

Appendix D includes additional details on payment methodologies found in these models.

Exhibit 5. Payment Methodologies Related to Addressing SDOH and Equity Used in the 15 Selected CMMI Models

CMMI Model	PBPM payments intended to cover SDOH-related activities, among others (n=10)	Performance-based payments, with participants evaluated on SDOH- and equity-related measures (n=4)	Monthly or quarterly capitated payments (n=4)	Population-based payments (n=6)	FFS payments as a reimbursement mechanism, with additional payments or flexibilities to cover SDOH-related activities, among others (n=5)	Upfront or one-time payment to cover SDOH-activities, among others (n=3)	Payments adjusted for clinical risk factors (n=5)	Payments adjusted for social risk factors (n=2)
Accountable Health Communities (AHC) Model		✓ ^{ix}						
Community Health Access and Rural Transformation (CHART) Model	✓		✓	✓		✓	✓	✓
Community-based Care Transition Program (CCTP)					✓	✓		
Independence at Home (IAH) Demonstration					✓			
Integrated Care for Kids (InCK) Model								
Maryland All-Payer Model	✓	✓						
Maryland Total Cost of Care (TCOC) Model	✓			✓			✓	✓
Medicare Coordinated Care Demonstration (MCCD)	✓						✓	
Multi-payer Advanced Primary Care Practice (MAPCP) Demonstration	✓						✓	
Comprehensive Primary Care Plus (CPC+) Model	✓							

^{ix} Participants in the AHC model are bridge organizations responsible for linking beneficiaries with community services intended to address HRSNs. Many types of organizations serve as bridge organizations, including health systems, hospitals, nonprofits, health information technology providers, academic institutions, payers, and public health agencies. Funds for this model support the linking activities of bridge organizations; funds do not cover the actual costs associated with the community services to which beneficiaries are linked.

CMMI Model	PBPM payments intended to cover SDOH-related activities, among others (n=10)	Performance-based payments, with participants evaluated on SDOH- and equity-related measures (n=4)	Monthly or quarterly capitated payments (n=4)	Population-based payments (n=6)	FFS payments as a reimbursement mechanism, with additional payments or flexibilities to cover SDOH-related activities, among others (n=5)	Upfront or one-time payment to cover SDOH-activities, among others (n=3)	Payments adjusted for clinical risk factors (n=5)	Payments adjusted for social risk factors (n=2)
Next Generation ACO Model	✓		✓	✓	✓			
Oncology Care Model (OCM)	✓	✓						
Pioneer ACO Model				✓				
State Innovation Models (SIM) Initiative	✓	✓	✓	✓	✓	✓	✓	
Vermont All-Payer ACO Model	✓		✓	✓	✓			

Section VII. Incorporation of SDOH and Equity in Selected PTAC Proposals

Between 2016 and 2020, PTAC received 35 proposals, including 34 proposals that have received any review by the Committee, and 28 proposals that PTAC has deliberated and voted on during public meetings. PTAC evaluates PFPM proposals based on the extent to which they meet the Secretary's 10 regulatory criteria for PFPMs. While none of these criteria have an explicit focus on addressing SDOH or equity, several proposals submitted to PTAC incorporated elements related to SDOH and equity in the context of care delivery functions, performance measurement, and payment methodology.

This section reviews the role that SDOH and equity have played in previously submitted PTAC proposals and provides an overview of the SDOH and equity components that were included in nine proposed PFPMs. The proposals reviewed in this section were selected based on their inclusion of features that explicitly or directly target SDOH and equity.

VII.A. Background Characteristics of the Nine Proposed PFPMs

Exhibit 6 provides an overview of the clinical focus and settings, patient populations, and payment mechanisms across the nine proposed PFPMs.

- **Clinical focus and settings.** The proposed models addressed a wide range of clinical foci. A little over half of all proposals (56 percent, or n=5) addressed primary care and/or specialty care, while other clinical areas included oncology-related care, care for those with chronic conditions or advanced illness, and functional care. The clinical settings of proposals included primary and specialty care practices, patient homes, and hospitals-based outpatient clinics. Not shown, all proposed PFPMs had a nationwide geographic focus.
- **Targeted patient populations.** The specific patient populations targeted by the proposals were quite diverse, and some examples included cancer patients, those referred to specialty care by primary care practices, individuals with advanced or end-of-life illness, and home-bound low-income patients.
- **Payment mechanisms.** Payment mechanisms varied greatly across proposals. Nearly half of all proposed models (44 percent, or n=4) offered performance-based payments for certain efforts, e.g., enhancing utilization of active surveillance as in Large Urology Group Practice Association (LUGPA). Other payment approaches included monthly care management fees, FFS, bundled payments, risk-adjusted payments, and PBPM payments.

As seen in Exhibit 7, all nine proposed PFPMs included an SDOH, equity, or behavioral health model objective or requirement and addressed the **health care and social contexts**. Activities related to these contexts often involved the consideration of demographics in care delivery, systems of social support within the community, and the provision of culturally and linguistically appropriate care. Even though each of the selected PTAC proposals generally described screening efforts to address HRSNs, most of the models (with the exception of Antonucci) did not provide any specific information on the types of social and/or behavioral health needs they addressed. A few proposals noted physical wellness needs of patients, toward supporting behavior change related to diet and physical activity.

Exhibit 6. Summary of the Care Delivery and Payment Model Characteristics of the Nine Selected PTAC Proposals

Submitter Name and Type	Proposal Name	Clinical Focus, Providers, and Setting	Patient Population Targeted	Payment Mechanism
<p>American Academy of Family Physicians (AAFP) <i>(Provider association and specialty society)</i></p>	<p>Advanced Primary Care: A Foundational Alternative Payment Model (APC-APM) for Delivering Patient-Centered, Longitudinal, and Coordinated Care</p>	<p>Clinical Focus: Primary Care Providers: All physicians with a primary specialty of family medicine, general practice, geriatric medicine, pediatric medicine, or internal medicine Setting: Primary care practices</p>	<p>30 million Medicare beneficiaries (if implemented nationally)</p>	<ul style="list-style-type: none"> • Prospective, risk-adjusted primary care global payment for direct patient care • Fee-for-service for services not covered under global fee • Prospective, population-based payment • Performance-based incentive holding physicians accountable for quality and cost
<p>American College of Physicians-National Committee for Quality Assurance (ACP-NCQA) <i>(Provider association and specialty society)</i></p>	<p>The “Medical Neighborhood” Advanced Alternative Payment Model (AAPM) (Revised Version)</p>	<p>Clinical Focus: Primary and Specialty Care Integration Providers: Primary Care Practices in CPC+ and Primary Care First, specialty practices meeting clinical transformation and care coordination criteria for MACRA-recognized Patient Centered Specialty Practices Setting: Primary care and specialty practices</p>	<p>Patients referred to specialty care by primary care practices enrolled in CPC+/Primary Care First</p>	<ul style="list-style-type: none"> • Two-track (Track 1: continued fee-for-service reimbursement; Track 2: Reduced FFS of 75 percent in exchange for quarterly prospective payments based on projected spending) • Monthly care management fee per attributed patient • Potential performance-based adjustment based on spending relative to financial benchmark, adjusted for quality and utilization performance
<p>American Society of Clinical Oncology (ASCO) <i>(Provider association and specialty society)</i></p>	<p>Patient-Centered Oncology Payment (PCOP) Model</p>	<p>Clinical Focus: Oncology Providers: Clinicians, including hematologists and oncologists Setting: Oncology specialty practices</p>	<p>Oncology practice patients</p>	<ul style="list-style-type: none"> • Two-track • Monthly care management payments • Performance incentive payments • Adjusted fee-for-service reimbursement

Submitter Name and Type	Proposal Name	Clinical Focus, Providers, and Setting	Patient Population Targeted	Payment Mechanism
<p>Coalition to Transform Advanced Care (C-TAC) <i>(Coalition)</i></p>	<p>Advanced Care Model (ACM) Service Delivery and Advanced Alternative Payment Model</p>	<p>Clinical Focus: Advanced Illness</p> <p>Providers: Providers with board-certified palliative care experience as part of interdisciplinary care team, RN, Licensed Clinical Social Worker (LCSW), other clinicians as necessary</p> <p>Setting: All sites of care during treatment for advanced illness, including the home</p>	<p>Beneficiaries with advanced illness, focusing on last 12 months of life</p>	<ul style="list-style-type: none"> • Wage-adjusted PBPM payment of indefinite duration • Downside risk for total cost of care and upside risk/bonus for quality performance
<p>Jean Antonucci, MD (Antonucci) <i>(Individual physician)</i></p>	<p>An Innovative Model for Primary Care Office Payment</p>	<p>Clinical Focus: Primary Care</p> <p>Providers: Primary care providers, nurse practitioners</p> <p>Setting: Primary care practices</p>	<p>Medicare patients</p>	<ul style="list-style-type: none"> • Monthly capitation payments (with risk adjustment) • Performance-Based Payments
<p>Johns Hopkins School of Nursing and the Stanford Clinical Excellence Research Center (Hopkins/Stanford) <i>(Academic institution)</i></p>	<p>CAPABLE Provider Focused Payment Model</p>	<p>Clinical Focus: Home health, functional care for elders</p> <p>Providers: RN, occupational therapist</p> <p>Setting: Home</p>	<p>Patients living at home and reporting difficulty in at least one activity of daily living or at least two instrumental activities of daily living, income <200 percent of poverty line or income <135 percent of poverty line</p>	<ul style="list-style-type: none"> • Partial bundled payment • Bonus for meeting quality metrics and eventually moving toward a fully capitated model (recommended among other proposed payment mechanisms)

Submitter Name and Type	Proposal Name	Clinical Focus, Providers, and Setting	Patient Population Targeted	Payment Mechanism
<p>Large Urology Group Practice Association (LUGPA)</p> <p><i>(Provider association and specialty society)</i></p>	<p>LUGPA Advanced Payment Model for Initial Therapy of Newly Diagnosed Patients with Organ-Confined Prostate Cancer</p>	<p>Clinical Focus: Urology/Oncology (treatment of prostate cancer)</p> <p>Providers: Eligible professionals (including urologists) at large and small urology and multispecialty practices</p> <p>Setting: Large and small urology and multispecialty practice</p>	<p>Newly diagnosed prostate cancer patients with localized disease</p>	<ul style="list-style-type: none"> • Monthly care management fee (\$75 per beneficiary for initial and subsequent 12-month episodes) • Performance-based payment for enhancing utilization of active surveillance
<p>New York City Department of Health and Mental Hygiene (NYC DOHMH)</p> <p><i>(Public Health Department)</i></p>	<p>Multi-provider, bundled episode of care payment model for treatment of chronic hepatitis C virus (HCV) using care coordination by employed physicians in hospital outpatient clinics</p>	<p>Clinical Focus: Multispecialty, hepatitis C infection management</p> <p>Providers: Physicians at hospital-based outpatient clinics, supporting wide mix of clinicians, including infectious disease specialists, gastroenterologists, primary care providers</p> <p>Setting: Hospital-based outpatient clinics</p>	<p>Medicare beneficiaries with hepatitis C infection</p>	<ul style="list-style-type: none"> • Outpatient bundled payment • Opportunity for shared savings

Submitter Name and Type	Proposal Name	Clinical Focus, Providers, and Setting	Patient Population Targeted	Payment Mechanism
<p>Personalized Recovery Care (PRC)</p> <p><i>(Regional/local simple specialty practice)</i></p>	<p>Home Hospitalization: An Alternative Payment Model for Delivering Acute Care in the Home</p>	<p>Clinical Focus: Internal Medicine, Cardiology, Pulmonology, Nephrology/Urology, Rheumatology, and Orthopedics</p> <p>Providers: Physicians providing Internal Medicine, Cardiology, Pulmonology, Nephrology/Urology, Rheumatology, Orthopedics services</p> <p>Setting: Home</p>	<p>Commercial and Medicare Advantage patients experiencing certain conditions normally requiring admission to an inpatient hospital – potential to expand to broader Medicare population</p>	<ul style="list-style-type: none"> • Retrospective bundled payment, enabling episodes to be triggered by a non-facility claim • Risk payment determined in comparison to targeted cost of care • Per-episode payment for care in lieu of acute care hospitalization

Exhibit 7. Summary of SDOH and Equity Characteristics of the Nine Selected PTAC Proposals

Submitter Name	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Incorporated into the Model
<p>American Academy of Family Physicians (AAFP)</p>	<p>The model attempts to address HRSNs to support beneficiaries' ability to achieve optimal well-being, and providers are required to make referrals to social services.</p>	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs: General lifestyle choices (not specified further)</p>	<p>Screening: The Minnesota Complexity Assessment Method (used in risk stratification) specifies domains for assessing patient complexity that include social factors.</p> <p>Referral: Providers are required to make referrals to social services included under a care management fee.</p> <p>Follow-up and resolution: Not specified</p>
<p>American College of Physicians National Committee for Quality Assurance (ACP-NCQA)</p>	<p>Submitters note that the proposed risk stratification methodology is meant to prevent adverse selection of patients, ensuring equity of access. The model also mandates adherence to PCSP criteria.</p>	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs:</p> <ul style="list-style-type: none"> • Diet • Physical activity • Obesity prevention/weight management 	<p>Screening: Providers conduct a comprehensive initial patient screening process focused on social and behavioral factors, including family, social, and cultural characteristics.</p> <p>Referral: Providers develop a care plan that includes social services as necessary.</p> <p>Follow-up and resolution: Providers follow up on a care plan that includes social services as necessary.</p>

Submitter Name	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Incorporated into the Model
American Society of Clinical Oncology (ASCO)	Risk stratification takes into account health-related social needs.	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Psychosocial needs</p> <p>Physical Wellness Needs: Diet</p>	<p>Screening: Providers conduct psychosocial distress screening as part of comprehensive team-based care.</p> <p>Referral: Providers make referrals to psychosocial care considered a necessary function under clinical transformation objectives.</p> <p>Follow-up and resolution: The model’s clinical transformation objectives mandate social/community navigation services.</p>
Coalition to Transform Advanced Care (C-TAC)	Model intended to apply to broad range of advanced illness beneficiaries, regardless of condition or socioeconomic background.	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs: Diet</p>	<p>Screening: Not specified</p> <p>Referral: An LCSW is embedded in care team, but no process for referrals is specified.</p> <p>Follow-up and resolution: An LCSW is embedded within the care team and may conduct routine follow-up.</p>

Submitter Name	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Incorporated into the Model
<p>Jean Antonucci, MD (Antonucci)</p>	<p>SDOH metrics incorporated into risk adjustment, promoting access.</p>	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Financial strain</p> <p>Behavioral Health Needs:</p> <ul style="list-style-type: none"> • Mental health (stress) • Psychosocial conditions • Interpersonal safety (exposure to domestic and community violence) • Network of social and emotional support <p>Physical Wellness Needs:</p> <ul style="list-style-type: none"> • Diet • Physical activity 	<p>Screening: The model includes SDOH metrics as part of its quality performance assessment incentivizing providers to identify patient social needs as necessary.</p> <p>Referral: The model includes SDOH metrics as part of its quality performance assessment incentivizing providers to address social needs as necessary, but no process for referrals is specified.</p> <p>Follow-up and resolution: The provider conducts a patient survey as a follow-up to assess experience of care and responsiveness to social and cultural efficacy factors.</p>

Submitter Name	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Incorporated into the Model
Johns Hopkins School of Nursing and the Stanford Clinical Excellence Research Center (Hopkins/Stanford)	<p>The model addresses patient functional needs in the home and includes principles defined as “connect cultures” and “assess the environment” in facilitating functional care that meets patient functional needs. It emphasizes cultural competency in health care, integrating functional care to increase quality of life for older adults, regardless of functional limitation.</p>	<ul style="list-style-type: none"> • Health care context • Physical infrastructure • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs: Not specified</p>	<p>Screening: The model allows for referral to social workers when deemed necessary, but the screening processes are not specified.</p> <p>Referral: The model allows for referral to social workers for additional screening and support, but the processes are not specified.</p> <p>Follow-up and resolution: The model allows for referral to social workers for follow-up, but the processes are not specified.</p>
Large Urology Group Practice (LUGPA)	<p>Model intends to facilitate adoption of Active Surveillance (AS) in a more equitable context, aiming to reduce disparity in AS utilization based on socioeconomic status.</p>	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs: Not specified</p>	<p>Screening: Not specified</p> <p>Referral: The model has a care management fee that covers patient education and social services as necessary, but the referral process is not specified.</p> <p>Follow-up and resolution: The care management team may monitor and follow up on referrals, but the process is not specified.</p>

Submitter Name	SDOH, Equity, and Behavioral Health Model Objectives and Requirements	AHRQ SDOH Domains Being Addressed	Targeted Social, Behavioral Health, and Physical Wellness Needs	Examples of Screening, Referral, Follow-up and Resolution Processes Incorporated into the Model
New York City Department of Health and Mental Hygiene (NYC DOHMH)	<p>The model attempts to address HRSNs to support beneficiaries' ability to achieve optimal well-being with a care coordinator providing referrals for psychosocial needs.</p>	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Psychosocial needs</p> <p>Physical Wellness Needs: Not specified</p>	<p>Screening: A care coordinator screens for psychosocial factors on first engagement with patient.</p> <p>Referral: The coordinator provides referrals for psychosocial issues covered under a target price for bundled payments. Care coordinators may accompany patients to appointments.</p> <p>Follow-up and resolution: Care coordinators may monitor and follow up on referrals, but the process is not specified.</p>
Personalized Recovery Care (PRC)	<p>The model attempts to address HRSNs to support beneficiaries' ability to achieve optimal well-being by using multidisciplinary care teams that include social workers and integrating social services and health care.</p>	<ul style="list-style-type: none"> • Health care context • Social context 	<p>Social Needs: Not specified</p> <p>Behavioral Health Needs: Not specified</p> <p>Physical Wellness Needs: Not specified</p>	<p>Screening: The model utilizes a multidisciplinary care team that includes social workers that may conduct routine screening, but the processes are not specified.</p> <p>Referral: The model utilizes a multidisciplinary care team that includes social workers that may conduct referrals, but the processes are not specified. The model mandates integration of social services, participating providers must provide or contract with social services, and the episodic payment compensates social services.</p> <p>Follow-up and resolution: The model utilizes a multidisciplinary care team that includes social workers that may conduct follow-up, but the processes are not specified.</p>

VII.B. Common Functions Related to Addressing SDOH and Equity in the Nine Proposed PFPMs

The nine proposed PFPMs included some common **SDOH-related functions** as shown in Exhibit 8. All proposed models had a basic structure in place to monitor progress and follow up on HRSNs, and usually, a medical provider or similar professional was available to provide this support. In 78 percent of PTAC proposals, or n=7, providers or care coordinators provided referrals to behavioral health or social services resources in the community to address patients' unmet needs. Eight of the proposed models described efforts to effectively manage patients with multiple chronic diseases and complex social needs. The approaches aimed to integrate the activities of disparate social service organizations with local health care providers to support referral tracking and transition coordination. Finally, two-thirds of the nine proposed PFPMs (66 percent, or n=6) noted using interdisciplinary teams to address HRSNs. These teams were typically used as a mechanism for organizing and coordinating health care and other services to meet the needs of individuals with complex care needs. A few models engaged in SDOH-based performance measurement, provided a patient-centered care experience that considers social and demographic factors, and shared information with other community-based organizations on clinical and non-clinical factors that contribute to health and success of treatment across providers.

From an **equity-function** standpoint, five proposed models described general strategies to advance equitable access to care by reducing barriers to access, participation, and engagement in the care process.

Further information on the SDOH- and equity-related functions, as well as the efficacy of these proposed model components, is provided in Appendix E.

VII.C. Common Payment Approaches in the Nine Proposed PFPMs

The nine proposed PFPMs varied widely in how they structured payments to encourage addressing SDOH and equity, as shown in Exhibit 9. PBPM payments that reimbursed providers for SDOH and equity efforts, at least in part, were the most common payment model methodology, proposed by 78 percent of submitters, or n=7. All of the proposed models included adjustments for clinical risk factors, and slightly more than half (55 percent, or n=5) also proposed adjustments for social risk factors. Other proposed payment approaches included providing monthly or quarterly capitated payments, performance-based payments where providers were evaluated on SDOH and equity-related measures, and population-based payments.

Limited information is available about the impact of the proposed PFPMs' SDOH and equity components on cost of care. For example, findings from an independent evaluation of expenditures for the Health Care Innovation Awards (HCIA) CAPABLE pilot were inconclusive. The independent evaluation estimated an average quarterly Medicare expenditures increase of \$93. However, the evaluation was based on a small sample of 172 participants in a highly controlled demonstration setting.⁴⁶ The submitters provided unpublished cost modeling to the Committee which estimated an annual net savings of \$4.5 billion (in 2015 USD) to Medicare for at least two years following the intervention, or \$237 per member per month (PMPM), corresponding to a 0.74 percent net savings from total direct Medicare spending and 0.17 percent net savings from total direct U.S. health care spending annually. The estimates assume that CAPABLE services are delivered to 30 percent of 18.2 million Medicare beneficiaries with multiple

chronic conditions and functional limitations (who were eligible to participate based on other specified criteria) and that the intervention had 25 percent efficacy compared to the original intervention. However, broad implementation of CAPABLE services could result in use by populations where cost reductions are not achieved even if such reductions are found for current programs.⁴⁷ A propensity-score based analysis estimated an adjusted reduction in quarterly Medicare expenditures of -\$2,765 resulting from this program⁴⁸, and another analysis based on a Markov model with Monte Carlo simulation has estimated a non-significant reduction in monthly Medicaid expenditures for CAPABLE versus a matched comparison group of -\$867.⁴⁹

Exhibit 8. Summary of SDOH-Related Functions of the Nine Selected PTAC Proposals

Submitter Name	Screening for HRSNs (n=9)	Providing referrals to address HRSNs (n=7)	Monitoring progress and following up on identified HRSNs (n=9)	Engaging in SDOH-based performance measurement (n=2)	Supporting and sharing information on factors that contribute to health and success of treatment (n=1)	Using interdisciplinary teams to address HRSNs (n=4)	Improving integration of health care and social services and supports (n=8)	Providing a patient-centered care experience (n=2)
American Academy of Family Physicians (AAFP)	✓	✓	✓	✓	✓		✓	
American College of Physicians National Committee for Quality Assurance (ACP-NCQA)	✓	✓	✓				✓	
American Society of Clinical Oncology (ASCO)	✓	✓	✓				✓	
Coalition to Transform Advanced Care (C-TAC)	✓*	✓	✓			✓	✓	
Jean Antonucci, MD (Antonucci)	✓		✓	✓				✓
Johns Hopkins School of Nursing and the Stanford Clinical Excellence Research Center (Hopkins/Stanford)	✓*	✓	✓			✓	✓	✓
Large Urology Group Practice (LUGPA)	✓*	✓	✓				✓	
New York City Department of Health and Mental Hygiene (NYC DOHMH)	✓	✓	✓			✓	✓	
Personalized Recovery Care (PRC)	✓	✓	✓			✓	✓	

*There was no explicit mention of screening in the proposal, but it was assumed that providers were screening for unmet needs given the mention of referrals and monitoring processes.

Exhibit 9. Payment Methodologies Related to Addressing SDOH and Equity Used in the Nine Selected PTAC Proposals

Submitter Name	PBPM payments intended to cover SDOH-related activities, among others (n=7)	Performance-based payments, with pevaluated on SDOH- and equity-related measures (n=2)	Monthly or quarterly capitated payments (n=4)	Population-based payments (n=1)	FFS payments as a reimbursement mechanism, with additional payments or payment flexibilities to cover SDOH-related activities, among others (n=0)	Upfront or one-time initial payment to cover SDOH-related activities, among others (n=0)	Payments that are risk-adjusted for clinical risk factors (n=9)	Payments adjusted for social risk factors (n=5)
American Academy of Family Physicians (AAFP)	✓	✓	✓	✓			✓	✓
American College of Physicians National Committee for Quality Assurance (ACP-NCQA)			✓				✓	✓
American Society of Clinical Oncology (ASCO)	✓		✓				✓	✓
Coalition to Transform Advanced Care (C-TAC)	✓						✓	
Jean Antonucci, MD (Antonucci)		✓	✓				✓	✓
Johns Hopkins School of Nursing and the Stanford Clinical Excellence Research Center (Hopkins/Stanford)	✓						✓	✓
Large Urology Group Practice (LUGPA)	✓						✓	
New York City Department of Health and Mental Hygiene (NYC DOHMH)	✓						✓	
Personalized Recovery Care (PRC)	✓						✓	

VII.D. PTAC Comments Related to Addressing SDOH and Equity During PTAC's Deliberations on the Nine Proposed PFPMs

PTAC has conveyed some general considerations and comments on SDOH and equity in the context of APMs and PFPMs during its public deliberations on the nine proposed PFPMs. The following is a summary of these considerations and comments:

- **Including payment mechanisms that address SDOH and reduce fragmentation of care.** Committee members recognized the need for higher reimbursement to incorporate social services and family outreach into primary care. PTAC noted the general importance of considering costs of addressing SDOH and social needs in PFPMs.
- **Collecting and utilizing SDOH data.** One Committee member noted a submitter's intent in relying on electronic health records (EHRs) to facilitate the collection and categorization of SDOH data. Committee members also favorably remarked on the novel inclusion of social determinants as part of risk adjustment in the PRT overview of Criterion 4 for a proposed model.
- **Integrating a broad spectrum of social services to address SDOH and equity.** During one proposal's review and deliberation, some Committee members highlighted that a broad care model should be able to address all SDOH, including housing – which one member believed physicians should help identify (specifically, housing issues or opportunities). PTAC also generally described the importance of social services as they link to health care, noting that countries that spend more on social services spend less on health care.
- **Using interdisciplinary care teams.** During proposal review and deliberation, Committee members asked for clarification on the specific role of the physician in addressing SDOH when operating in a multidisciplinary care team, with a submitter responding that the physician's role is to deliver medical care, while other staff members may be better suited to address SDOH. PTAC inquired about trainings on SDOH and addressing social needs for members of a multidisciplinary care team during the review of one proposal, with the submitter responding that training would be required for relevant team members as they believe that health care costs cannot be changed without understanding SDOH within the patient environment, which trainings would facilitate. During the review of another proposal, a Committee member asked if social services would be provided by an external social service agency, or if practices themselves would be responsible for providing these services, with a submitter noting this would vary depending on scale of the practice.
- **Addressing non-medical needs.** During one proposal's review and deliberation, Committee members indicated that the proposed care model helps to fill a gap in meeting important non-medical needs that have health implications for Medicare beneficiaries. However, Committee members expressed concerns regarding possible impacts on total cost of care and research to date that does not show statistically significant reductions in cost.
- **Addressing concerns related to patient safety.** Committee members were concerned about the lack of specificity in some of the nine proposed PFPMs regarding how beneficiaries would be protected against concerns related to potential access issues and stinting of care. For example, details regarding access to effective channels of communication with providers outside the immediate care team, and access to an emergency reporting mechanism such as a 1-800 line or some other form of 24/7 access to a provider, were thought be lacking in the home-based PFPMs. In some cases Committee members opined that the proposed payment methodology

may create perverse incentives within some of the model designs, ranging from unclear attribution methodologies that could lead to exclusion of patients who may benefit from treatment to prospective payments that were not tied to specific treatments or procedures which presents the possibility of stinting care. For all proposed PFPs, Committee members raised concerns around patient safety that were related to potential barriers to equitable patient-centered care.

VII.E. Relevance of SDOH and Equity in Other Proposed PFPs

While this analysis focused on the nine proposed PFPs that were found to include a considerable amount of information related to SDOH and equity, these topics were also relevant for a number of other proposed PFPs that were submitted to the Committee. For example, the following four proposed PFPs did not explicitly focus on SDOH, but addressed equity in some way:

- The *Oncology Bundled Payment Program Using CNA-Guided Care*, submitted by the American Society of Clinical Oncology, notes that the proposed model should be made available to all potential participants regardless of demographic, clinical, or geographic factors, and presents the opportunity for analyses that compare groups that refused or selected certain treatments to understand factors, including potential social factors, that may drive patient decision-making.
- The *Hospital at Home – Plus Provider-Focused Payment Model*, submitted by the Icahn School of Medicine at Mount Sinai, specifically targets underserved patient populations, including individuals living under the federal poverty level and those living alone. Furthermore, the model explicitly aims to provide culturally and ethnically sensitive health care, and strives to produce materials in multiple languages to promote inclusivity.
- Two other PTAC proposals, *Annual Wellness Visit Billing at Rural Health Clinics^x* and *ACCESS Telemedicine: An Alternative Healthcare Delivery Model for Rural Cerebral Emergencies*, submitted by Mercy Accountable Care Organization and University of New Mexico Health Sciences Center (respectively), focus on rural settings where problems of health care access are more severe. *Annual Wellness Visit Billing* strives to increase the affordability and utilization of the annual wellness visit in rural health clinics, and thereby promotes access to affordable health services of decent quality. *ACCESS Telemedicine* has similar goals relating to cerebral emergency care in rural hospitals and other underserved geographic areas, and additionally utilizes a database to collect information on patient demographics, which may include factors relevant to SDOH.

Section VIII. Performance Measures Related to SDOH and Equity in 15 Selected CMMI Models and Nine Selected PTAC Proposals

Strong performance measures are needed to evaluate the effectiveness of SDOH and equity activities in improving health and quality of care and reducing unnecessary utilization and costs. This section

^x This proposal was determined as being not applicable to the Secretary’s proposal evaluation criteria.

outlines measures associated with SDOH and equity from the 15 selected CMMI models and nine selected PTAC proposals.

VIII.A. Performance Measures Used in the 15 Selected CMMI Models That Relate to SDOH and Equity

One-third, or n=5, of the selected CMMI models included performance measures specifically related to SDOH and equity (see Appendix D for a description of performance measures for each CMMI model). Some performance measures were general; for example, the AHC Model looked for an increase in community capacity to respond to HRSNs without indicating how this was determined. Other measures, however, were quite specific. For instance, the CPC+ Model gathered data on the percentage of practices reporting after-hours services and the use of telehealth to expand access to care. In some models, certain practices also included performance metrics in provider contracts, such as in the OCM and Maryland All-Payer Model, in order to improve accountability and motivate physicians and other care providers.

About 40 percent, or n=6, of the selected models contained behavioral health-related performance measures. Most of the performance measures related to behavioral health pertained to mental health and substance use. For instance, the Vermont All-Payer ACO Model measured suicide rates, as well as screenings for mental health needs related to suicide. To address substance use, for example, the SIM Initiative evaluated the percentage of patients receiving cessation counseling after being screened for substance use. Similarly, the Vermont All-Payer Model documented the percent of substance use disorder (SUD) patients being treated and SUD death rates. The Maryland TCOC Model also evaluated overdose rates.

Models employed a range of methods for gathering, storing, and sharing data pertaining to SDOH, equity, and behavioral health performance measures. However, given that SDOH, equity, and behavioral health were not the primary focal points of the models, evaluations did not tend to elaborate on the specifics of data collection, storing, and sharing practices. Furthermore, information concerning data practices did not typically distinguish between SDOH, equity, and behavioral health-specific performance measure data and other types of more general data. Where specified, however, performance measure data were typically collected via surveys, administrative records, claims data, interviews with beneficiaries and providers, and observational data gathered during site visits. Data were most commonly stored in databases that were accessible by both providers and other stakeholders. In regard to data sharing, providers were able to use the information in the databases and corresponding dashboards to identify gaps in care that might have been the result of providers failing to meet performance metrics. In the SIM Initiative, some states introduced collaborative forums or meetings between regulators and payers to discuss newly implemented value-based payment models. Additionally, in the Maryland TCOC Model, data sharing allowed for claims data to be used for tracking progress on performance.

VIII.B. Performance Measures Used in the Nine Selected PTAC Proposals That Relate to SDOH and Equity

This section provides an overview of the performance measures that submitters recommended that are related to SDOH and equity (see Appendix E for a description of performance measures included in each proposed PTAC model). *An Innovative Model for Primary Care Office Payment* submitted by Jean Antonucci included performance measures related to patients' social supports and networks. Providers assessed patients, and those that reported limited social activities and limited social support were asked to describe social factors such as health habits and financial status, and behavioral factors such as stress, emotional problems, and exposure to community or domestic violence. Providers then monitored the identified HRSNs over time. In addition, the proposal *Advanced Primary Care: A Foundational Alternative Payment Model for Delivering Patient-Centered, Longitudinal, and Coordinated Care* submitted by the American Academy of Family Physicians recommended that sites use SDOH metrics in their performance reports, but did not provide additional information.

Section IX. Evidence of Effectiveness of SDOH and Equity Initiatives

Stakeholders engaged in APMs and PFPMs have grown increasingly interested in addressing SDOH as part of their efforts. As these efforts continue, however, a key concern for these stakeholders is identifying which programs and policies are effective, replicable, and scalable for targeting SDOH. A range of SDOH and equity interventions have been shown to improve health outcomes, and **some are appropriate for direct implementation by providers, such as those that address patients' HRSNs in health care contexts** based on AHRQ's SDOH definition (.^{10,11,50,51} In this context, many types of health care interventions have been linked to improved health outcomes, including:

- **Those designed to improve patients' self-management of chronic conditions.** Self-management interventions have been associated with improved chronic disease management outcomes for asthma and respiratory disease, cancer, cardiovascular disease, and diabetes.¹⁴ They were also associated with improved dietary outcomes and medication adherence.¹⁴
- **Those designed to improve health literacy and provide health education.** Health literacy and education interventions improved chronic disease outcomes for asthma and respiratory disease, cancer, cardiovascular disease, and diabetes.¹⁴ These interventions are also associated with improved pain management.¹⁴ With respect to infectious diseases, research has shown that these interventions increased vaccinations among low-income youth and minorities, improved antiretroviral adherence and decreased viral load for HIV, and improved rates of hepatitis B testing among Asian American adults.¹⁴
- **Those focused on technology and communication tools.** Technology-related communication tools have been found to increase cancer screening among African American, Asian American, and Spanish-speaking population, as well as improved influenza vaccination among youth ages 5 to 17 and persons with low incomes.¹⁴ Health information technology (HIT), telemedicine, and secure messaging via EHR for diabetes care resulted in improvement in patients' HbA1c, including for low-income, medically underserved adults .^{14,52}
- **Those supporting patient navigation.** Patient navigation interventions have been found to improve dietary outcomes.¹⁴ They have been linked to improved cost-effectiveness of cancer

screening and improved cancer screening behaviors.¹⁴ They have also been found to improve health care utilization outcomes (e.g., emergency room [ER] visits), especially among older adults.¹⁴ Navigation tailored to Korean Americans was associated with improvements in psychosocial outcomes (e.g., health beliefs, self-efficacy, depression) and self-reported behavioral outcomes and knowledge related to chronic mental illness.¹⁴

- **Those offering culturally and linguistically competent care and education.** Culturally and linguistically competent care and tailored educational sessions have been associated with improvements in diabetes outcomes, psychosocial outcomes (e.g., health beliefs, self-efficacy), cardiovascular risk factors, self-reported behavioral outcomes, and patient and provider behaviors.^{12,13,14}
- **Those that reduced financial barriers and costs to patients.** Programs that aim to reduce out-of-pocket costs have demonstrated benefits. Patient assistance programs (e.g., providing prescription drugs at low or no cost to patients who lack prescription drug coverage) and community paramedicine improved diabetes outcomes and were cost-effective. Programs to reduce out-of-pocket costs for medications related to cardiovascular disease (CVD) and other conditions found such programs were associated with improvements in medication adherence, including among individuals with low incomes and elderly individuals. Expanding access to Medicaid and ACOs improved quality of care for people with diabetes.¹⁴

In addition to the above, health care providers may also be well-positioned to support individual patients in dealing with unmet social needs (e.g., transportation barriers, food insecurity, housing insecurity) by screening for such needs, and then helping their patients access community-based benefits and support services. Research has shown that addressing HRSNs can exert positive impacts on health outcomes, for example:

- Interventions to minimize **transportation barriers** among people with chronic diseases found that transportation services embedded in multi-component interventions involving patient navigation and chronic disease education reduced unnecessary ED visits .^{14,53}
- **Housing** interventions (e.g., rental housing assistance, supportive housing, and housing vouchers) were associated with positive outcomes for HIV-related clinical outcomes, hospital utilization, and birth weight .^{54,55,56,57,58}
- Interventions to **improve access to foods, support healthy eating patterns, and food security** (e.g., via enrollment in the Supplemental Nutrition Assistance Program, culturally tailored programs, food pricing policies, summer feeding and nutrition programs, and meal delivery programs for seniors) were associated with increased intake of nutritious foods, increased willingness to try new fruits and vegetables, and improved diabetes and dietary outcomes .^{59,60,61,62,63,64}
- Physical activity and chronic disease self-management interventions involving **social support** increased physical activity, improved glycemic and lipid levels, and reduced weight .^{13,14,65,66,67}
- Interventions **supporting social, emotional, and cognitive development during early childhood** through home visiting have been shown to reduce child behavioral and mental health problems and increased mental health treatment for children , .^{14,68,69,70,71}

As discussed earlier, the effectiveness of several programs that have addressed HRSNs among the Medicare population has also been evaluated. For example, studies have shown that seniors

participating in an affordable housing program experienced fewer hospitalizations and used the emergency room less frequently than a non-participating comparison group of seniors living in the same zip codes.¹⁶ Studies have also shown that assistance primarily provided to alleviate food insecurity can result in reduced cost-related medication nonadherence, hospitalizations, emergency department visits, and overall health care costs, for Medicare/senior beneficiaries.^{17,18,19}

Finally, at a broader level, health care providers can engage with local community leaders to advocate for policies and interventions toward addressing community-level SDOH and improving population health.⁷² For example:

- **Supportive community-based behavioral interventions** and family-based interventions were associated with reductions in emergency department utilization and hospital readmission for stroke survivors; reductions in behavioral risks related to sexually transmitted diseases and teen pregnancy among youth; reductions in depressive symptoms; and improved pre-term birth and low birth weight outcomes for pre- and post-partum women .^{60,73,74,75,76,77,78,79}
- **Anti-poverty interventions** (e.g., minimum wage increases) were associated with improved birth outcomes, maternal mental health outcomes, and perceptions of health and reduced problem behaviors among children .^{80,81,82,83,84}
- Interventions targeting **environmental conditions** (e.g., smoke-free space policies, built environment strategies to promote safety) showed beneficial effects on respiratory health, injury, and smoking behaviors .^{14,85,86,87,88,89,90,91}

IX.A. Evaluation of Effectiveness of the 15 Selected CMMI Models

This section summarizes evaluation findings for the 15 selected CMMI models. While some CMMI model participants and awardees have published self-evaluations, this section exclusively reports findings from CMMI's independent evaluation contractors. Evaluations focused on the quality of and access to care, as well as financial costs associated with the model in question. To date, 12 of the 15 selected CMMI models have undergone evaluations. The CHART and InCK Models, both of which are still in their preliminary stages, have yet to be evaluated.

The majority of the included models appear to have improved care quality and access, or at least did not intensify preexisting challenges. Many evaluations reported an increase in HRSN screenings, as well as modifications made by providers to accommodate patients unable to seek care due to transportation- or schedule-related issues. The Maryland TCOC evaluation, for example, found that 88 percent of practices had incorporated screenings for unmet HRSNs, an increase of 24 percent.⁹² The TCOC model also observed an 18 percent increase in practices offering after-hours office visits and an 11 percent increase in the number of practices offering telehealth visits. Additionally, the IAH Demonstration, which offered home-based primary care, reported high satisfaction levels by both patients and caregivers in terms of the model's effect on care accessibility.^{93,12} Another common finding across models was the observed increase in social workers and other community service staff, which in some reports is suggested to have played a role in expanding access to care and patient satisfaction, such as in the Pioneer ACO Model.⁹⁴

Not only did providers carry out more screenings, but in some cases, the data gathered during screenings also served to catalyze other SDOH and equity initiatives. For instance, in CCTP, based on the analysis of the screening data, one hospital opened a community resource center to address SDOH.⁹⁵ Similarly, one of the hospitals in the Maryland All-Payer Model that served a disadvantaged neighborhood instituted housing and job training programs that specifically addressed the SDOH in the surrounding community.⁹⁶

Although findings have been largely positive in regard to quality and access to care, findings related to model financing tended to be less positive. A patient-centered, value-based approach comprising enhancements in care quality and expanded access to care typically imposed a net financial strain on providers. The Maryland All-Payer Model and the SIM Initiative are two examples of models for which evaluations explicitly highlighted the tradeoffs between improved access to and quality of care and the financial and personnel shortages associated with patient-centered care.^{96,97} Challenges associated with limited resources were even more prevalent in rural and historically disadvantaged communities. The Oncology Care Model was anomalous in that the evaluation reported a \$576 decrease in total episode payment costs for minority beneficiaries, but did not record changes in the patient-reported care experience.⁹⁸

Lastly, multiple evaluations also cited issues surrounding patient participation and compliance as an obstacle to achieving desired model outcomes. For instance, the Maryland All-Payer Model utilized community health workers to help manage patients with HRSNs such as primary care access limitations⁹⁶; however, some community health workers found that patients refused to allow staff into their homes to carry out necessary activities.

Appendix A. Research Questions, by Section

Section	Research Questions
<p>Definitions of Components Related to Social Determinants of Health (SDOH) and Equity Applied to the Selected Center for Medicare and Medicaid Innovation (CMMI) Models and PTAC Proposals</p>	<ol style="list-style-type: none"> 1) How are SDOH defined within the context of optimizing value-based care in APMs (Alternative Payment Models) and PFPMs (Physician-Focused Payment Models)? <ol style="list-style-type: none"> a) What health-related social needs are most relevant for optimizing value-based care? b) How do behavioral health needs fit within the context of optimizing value-based care? 2) How is equity defined within the context of optimizing value-based care in APMs and PFPMs?
<p>Background on the Use of SDOH and Equity Data for Reimbursement, and Effectiveness of SDOH and Equity Interventions</p>	<ol style="list-style-type: none"> 1) How has data related to SDOH and equity been collected, utilized and incorporated into reimbursement for Medicare fee-for-service (FFS), Medicare managed care, Medicaid, Medicaid managed care, Medicare-Medicaid dual eligibles, commercial plans, and APMs? <ol style="list-style-type: none"> a) Are there any specialties, disciplines, or types of providers where there has been more of a focus on SDOH and equity? 2) What are the findings on effectiveness of specific types of SDOH- and equity-related interventions? <ol style="list-style-type: none"> a) Are certain types of patients more likely to benefit from SDOH- and equity-related interventions? b) Are certain types of SDOH- and equity-related interventions more likely to have an impact on improving quality and reducing cost (in general and/or for certain populations such as Medicare beneficiaries)?
<p>Incorporation of SDOH and Equity in the Selected CMMI Models</p>	<ol style="list-style-type: none"> 1) How many CMMI models include components that are related to addressing SDOH and equity (i.e., relevant CMMI models)? 2) What are the summary characteristics of relevant CMMI models (e.g., their clinical focus and setting, payment approaches, etc.)? <ol style="list-style-type: none"> a) How many of the relevant CMMI models that incorporate SDOH and equity include Medicare beneficiaries in their target populations? 3) How do relevant CMMI models incorporate SDOH and equity? <ol style="list-style-type: none"> a) What health-related social needs of patients do they screen for? b) How do they screen patients, and conduct referrals and follow-up? c) Are there any differences in approaches for models that target Medicare beneficiaries, and models that target other populations? 4) How do relevant CMMI models incorporate performance/outcome metrics related to SDOH and equity into their payment approaches? <ol style="list-style-type: none"> a) How do they adjust their payment methodologies? b) Do relevant CMMI models have mechanisms to avoid penalizing providers who treat high-risk patients? 5) What are the findings on effectiveness from evaluations of relevant CMMI models? <ol style="list-style-type: none"> a) Are some payment models more effective than others in reducing costs and improving quality? b) How did activities related to SDOH and equity play a role in this effectiveness (in general and/or for certain populations such as Medicare beneficiaries)?

Section	Research Questions
Incorporation of SDOH and Equity in the Selected PTAC Proposals	<ol style="list-style-type: none"> 1) How many PTAC proposals include components that are related to addressing SDOH and equity (i.e., relevant PTAC proposals)? 2) What are the summary characteristics of relevant PTAC proposals (e.g., their clinical focus and setting, payment approaches, etc.)? 3) How do relevant PTAC proposals incorporate SDOH and equity? <ol style="list-style-type: none"> a) What health-related social needs of patients do they propose to screen for? b) How do they propose to screen patients, and conduct referrals and follow-up? 4) How do relevant PTAC proposals incorporate performance/outcome metrics related to equity and SDOH into their payment approaches? <ol style="list-style-type: none"> a) How do they adjust their payment methodologies? b) Do relevant PTAC proposals include mechanisms to avoid penalizing providers who treat high-risk patients? 5) What were PTAC’s comments around SDOH and equity during their deliberations of relevant PTAC proposals at previous public meetings, or in PTAC’s reports to the Secretary developed for a given proposal? 6) How are issues related to SDOH and equity potentially relevant for other kinds of PTAC proposals (i.e., in addition to the nine proposals that were determined to be most relevant)?
Performance Measures Related to SDOH and Equity in the Selected CMMI and PTAC Proposals	<ol style="list-style-type: none"> 1) What kinds of data and performance/outcome metrics related to SDOH and equity do relevant PTAC proposals propose to collect? <ol style="list-style-type: none"> a) How do they propose to collect, store, and validate these data? b) How do they propose to share these data among healthcare providers, and with community and/or social services programs? 2) What kinds of data and performance/outcome metrics related to SDOH and equity do relevant CMMI models collect? <ol style="list-style-type: none"> a) How do they collect, store, and validate these data? b) How do they share these data among healthcare providers, and with community and/or social services programs?

Appendix B. Search Strategy, by Section

Section	Search Strategy
Definitions of Components Related to SDOH and Equity Applied to the Selected CMMI Models and PTAC Proposals	Review of existing definitions used within the U.S. Department of Health and Human Services and by foundations and other philanthropy organizations.
Background on the Use of SDOH and Equity Data for Reimbursement	Scan for literature published in 2020 or later related to how SDOH and equity data have been collected, utilized, and incorporated into reimbursement for Medicare fee-for-service (FFS), Medicare managed care, Medicaid, Medicaid managed care, Medicare-Medicaid dual eligibles, commercial plans, and APMs. Review of select websites of entities implementing innovative approaches to addressing SDOH.
Incorporation of SDOH and Equity in the Selected CMMI Models	Review of the Centers for Medicare & Medicaid Services (CMS) Program Statistics and Innovation Center website, most recent CMMI evaluation report for the model (if applicable), and State Medicaid Agency website if one was involved with the model.
Incorporation of SDOH and Equity in the Selected PTAC Proposals	Review of the most recent versions of submitters' proposals, Additional Information from Submitter documents, reports to the Secretary, Preliminary Review Team (PRT) reports, and Public Meeting Transcripts for meetings at which selected proposals were discussed.
Performance Measures Related to SDOH and Equity in the Selected CMMI and PTAC Proposals	<p>Review of the CMS Program Statistics and Innovation Center website, most recent CMMI evaluation report for the model (if applicable), and State Medicaid Agency website if one was involved with the model .</p> <p>Review of the most recent versions of submitters' proposals, Additional Information from Submitter documents, reports to the Secretary, Preliminary Review Team (PRT) reports, and Public Meeting Transcripts for meetings at which selected proposals were discussed for PTAC Proposals.</p>
Background on Effectiveness of SDOH and Equity Interventions	Sourced from <i>Building the Evidence Base for Social Determinants of Health Interventions</i> ¹⁴ and reviews of CMMI models evaluation reports.

Appendix C. Definitions for SDOH and Equity

This table provides additional definitions identified as part of the research process that describe SDOH, health-related social needs (HRSNs), behavioral health, health equity, and health disparities.

Source	Definition
Robert Wood Johnson Foundation^{xi}	<p>“Health equity means that everyone has a fair and just opportunity to be as healthy as possible. This requires removing obstacles to health such as poverty, discrimination, and their consequences, including powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.”</p> <p>“Health equity is the ethical and human rights principle or value that motivates us to eliminate health disparities; health disparities are differences in health or in the key determinants of health (such as education, safe housing, and freedom from discrimination) that adversely affect marginalized or excluded groups. Disparities in health and in the key determinants of health are how we measure progress toward health equity.”</p>
CDC^{xii}	<p>Health equity is achieved when every person has the opportunity to “attain his or her full health potential” and no one is “disadvantaged from achieving this potential because of social position or other socially determined circumstances.”</p> <p>“Resources that enhance quality of life can have a significant influence on population health outcomes. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, local emergency/health services, and environments free of life-threatening toxins. Healthy People 2030 highlights the importance of addressing SDOH by including ‘social and physical environments that promote good health for all’ as one of the four overarching goals for the decade.</p> <p>“We also know that poverty limits access to healthy foods and safe neighborhoods and that more education is a predictor of better health. Differences in health are striking in communities with poor SDOH such as unstable housing, low income, unsafe neighborhoods, or substandard education. By applying what we know about SDOH, we can not only improve individual and population health but also advance health equity.”</p>
The White House^{xiii} (Executive Order 13985: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government)	<p>Equity: The consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.</p>

^{xi} <https://www.rwjf.org/en/library/research/2017/05/what-is-health-equity-.html>

^{xii} <https://www.cdc.gov/socialdeterminants/about.html>

^{xiii} <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/>

Source	Definition
World Health Organization ^{xiv}	<p>“The social determinants of health (SDH) are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems. The SDH have an important influence on health inequities - the unfair and avoidable differences in health status seen within and between countries. In countries at all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health. The following list provides examples of the social determinants of health, which can influence health equity in positive and negative ways:</p> <ul style="list-style-type: none"> • Income and social protection • Education • Unemployment and job insecurity • Working life conditions • Food insecurity • Housing, basic amenities and the environment • Early childhood development • Social inclusion and non-discrimination • Structural conflict • Access to affordable health services of decent quality.”
AHRQ (social determinants of health) ^{xv}	<p>“SDOH, although experienced by individuals, exist at the community level. Healthcare systems that learn about the communities their patients live in, and the community-level barriers members can face to becoming and staying healthy, can better adapt their recommendations to people’s lives. SDOH can be categorized into five key areas:</p> <ul style="list-style-type: none"> • Social context: (e.g., demographics, social networks and supports; social cohesion; racial, ethnic, religious, and gender discrimination; community safety; criminal justice climate; civil participation). • Economic context (e.g., employment, income, poverty). • Education (e.g., quality of day care, schools, and adult education; literacy and high school graduation rates; English proficiency). • Physical infrastructure (e.g., housing, transportation, workplace safety, food availability, parks and other recreational facilities, environmental conditions, sufficiency of social services). • Healthcare context (e.g., access to high-quality, culturally and linguistically appropriate, and health literate care; access to insurance; healthcare laws; health promotion initiatives; supply side of services; attitudes towards healthcare; and use of services).”

^{xiv} https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

^{xv} <https://www.ahrq.gov/sdoh/about.html>

Source	Definition
<p>Healthy People 2030 – HHS ODPHP^{xvi}</p>	<p>“Social determinants of health (SDOH) are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. SDOH can be grouped into 5 domains:</p> <ul style="list-style-type: none"> • Economic Stability • Education Access and Quality • Health Care Access and Quality • Neighborhood and Built Environment • Social and Community Context <p>“In line with this goal, Healthy People 2030 features many objectives related to SDOH. These objectives highlight the importance of ‘upstream’ factors — usually unrelated to health care delivery — in improving health and reducing health disparities.”</p>
<p>AHRQ (behavioral health)^{xvii}</p>	<p>“Behavioral health is an umbrella term that includes mental health and substance abuse conditions, life stressors and crises, stress-related physical symptoms, and health behaviors. Behavioral health conditions often affect medical illnesses.”</p>
<p>AHRQ (social needs)^{xviii}</p>	<p>“While everyone who lives in a community shares exposure to the same SDOH, individuals have varying social needs. For example, one member of the community might be homeless, while another has adequate housing. Increasingly, healthcare systems are trying to assess the specific social needs of their patients and help meet those needs. These can include:</p> <ul style="list-style-type: none"> • Social support (e.g., social isolation). • Communication barriers (e.g., hearing or vision impairment, lack of English proficiency). • Trauma (e.g., adverse childhood experiences, domestic violence, elder abuse). • Educational barriers (e.g., learning difficulties, limited literacy). • Food insecurity (e.g., going hungry, worrying that you won’t have enough food). • Housing insecurity (e.g., homelessness; living in overcrowded, unsafe, or unstable conditions). • Financial strain (e.g., being unable to pay for medicine and other essentials). • Employment insecurity (e.g., being un- or under-employed). • Lack of access to legal services (e.g., combat discrimination, unsafe workplace or housing, criminal defense, immigration status, victim or protection services, guardianship or custody). • Lack of transportation (e.g., inability to get to workplace or healthcare sites). • Physical environment (e.g., lead paint).”

^{xvi} <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>

^{xvii} <https://integrationacademy.ahrq.gov/about/integrated-behavioral-health>

^{xviii} <https://www.ahrq.gov/sdoh/about.html>

Source	Definition
CDC	<p>Health disparities are defined by Healthy People 2020 as “a particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage. Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on their racial or ethnic group; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.” Examples of disparities in health status include the higher mortality rates among Black infants compared to white infants; the higher prevalence of poor or fair health (versus good, very good, or excellent health) among children in low-income families; and the worse health and functional status of elderly women compared to elderly men. Disparities can also exist in health care, such as health care access differing by language proficiency or the likelihood of receiving pain medication for major fractures differing by race/ethnicity. Furthermore, poverty, which varies by race, has been strongly linked to poor health.^{xix}</p> <p>Healthy People 2020 specifies that a phenomenon needs to be linked to a systematic disadvantage or injustice in order to be a health disparity and not a health difference. For example, health advantages for foreign-born Hispanics in the United States over U.S.-born Hispanics^{xx} are identified as health differences, not health disparities.</p>

^{xix} https://www.healthypeople.gov/sites/default/files/Phasel_0.pdf

^{xx} Cantu PA, Hayward MD, Hummer RA, Chiu CT. New Estimates of Racial/Ethnic Differences in Life Expectancy with Chronic Morbidity and Functional Loss: Evidence from the National Health Interview Survey. *Journal of Cross-Cultural Gerontology*. 2018; 28(3):283-297. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4029590/>

Appendix D. Summary of Model and SDOH and Equity-Related Characteristics of 15 Selected CMMI Models

The following table provides specific details on model characteristics (i.e., clinical focus, providers, settings, and payment mechanisms), SDOH and equity functions, and evaluation details and results (i.e., performance measures specific to SDOH and equity, and a summary of evaluation findings where appropriate) for the 15 selected CMMI models.

Overview of Methodology Used to Review the Selected CMMI Models

The available information on each of the 15 selected CMMI models’ summary pages on the CMMI website, the most recent CMMI evaluation report and findings, and State Medicaid Agency websites for applicable models was reviewed. Information found in these materials was used to summarize the models’ main themes related to SDOH domains addressed (based on AHRQ’s framework); targeted social needs; targeted behavioral health needs; SDOH, equity, and behavioral health objectives and requirements of the models; functions; and payment models. The table is arranged alphabetically by model name.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
Accountable Health Communities (AHC) Model, 2017 – current Ongoing Model	<p>Clinical focus: Primary, specialty, and behavioral care</p> <p>Providers: Community bridge organizations</p> <p>Setting: Multiple (e.g., hospitals – inpatient and outpatient, clinical delivery sites, community service provider sites)</p> <p>Patient population: High-risk Medicare and Medicaid beneficiaries</p>	<p>Funds for this model support the infrastructure and staffing needs of bridge organizations, and do not pay directly or indirectly for any community services.</p>	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Engaging in SDOH-based performance measurement • Using interdisciplinary teams to address HRSNs • Improving integration of health care and social services and supports • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment 	<p>Implementing strategies to advance equitable access to care</p>	<ul style="list-style-type: none"> • Number and type of connections to Community Service Providers (CSPs) • Percentage of patients with resolved HRSNs • Demonstrated increase in community capacity to respond to HRSNs 	<ul style="list-style-type: none"> • Bridge organizations and their partners reported improvements in communication regarding referrals and identification of high cost/use beneficiaries and their willingness to accept navigation at higher rates than anticipated. • AHC stakeholders mostly provided positive feedback with respect to the model broadening the scope of health care. • Health screeners experienced challenges balancing engaging large numbers of beneficiaries with patient-centered care. • Challenges dealing with patients with high-risk social needs due to the wide range of resources often involved to support these patients with a low percentage of beneficiaries with resolved HRSNs. • Progress in addressing gaps in community services found to be limited although there were recorded efforts to improve access to health and community services.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
Community Health Access and Rural Transformation (CHART) Model, 2022-Present <i>Ongoing Model</i>	Clinical focus: Primary care Providers: Primary care providers (PCPs) Setting: Primary care practices Patient population: Rural communities	<ul style="list-style-type: none"> Community Transformation track participants receive upfront funding, capitated payments, and benefit enhancements. Two-sided risk arrangements for Accountable Care Organizations (ACOs). Shared savings can be made from: 1) a one-time upfront payment equal to a minimum of \$200 plus \$36 per beneficiary to participating in the Shared Savings Programs (SSPs); and 2) prospective per beneficiary per month (PBPM) equal to at least \$8 for 24 months. 	Not specified	Implementing strategies to advance equitable access to care	Not specified	No evaluation

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Community-based Care Transitions Program (CCTP), 2012 – 2017</p> <p><i>Completed Model</i></p>	<p>Clinical Focus: Care transitions</p> <p>Providers: Community-based organizations (CBOs) or acute care hospitals partnered with CBOs</p> <p>Setting: Inpatient and outpatient settings; patient home</p> <p>Patient population: High-risk Medicare service beneficiaries</p>	<ul style="list-style-type: none"> • FFS • CBOs paid all-inclusive rate per eligible discharge based on the cost of care transition services provided, which could include services for social needs at the patient level and systemic changes at the hospital level. 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment • Using interdisciplinary teams to address HRSNs 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • Participating sites (i.e., CBOs and partner hospitals) conducted root cause analyses to identify medical and social factors that are associated with preventable readmissions to inform intervention strategies. • Based on this analysis, one hospital CEO opened a community resource center to address the social determinants of health, and because this experiment was considered successful, community resource centers will be expanded to more hospitals in the health system.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Comprehensive Primary Care Plus (CPC+) Model, 2017 – current</p> <p><i>Ongoing Model</i></p>	<p>Clinical focus: Primary care</p> <p>Providers: Primary care providers (PCPs)</p> <p>Setting: Primary care practices</p> <p>Patient population: All Medicare and Medicaid beneficiaries in participating regions</p>	<ul style="list-style-type: none"> • Non-visit-based care management fee (CMF) paid via PBPM; Medicare FFS CMFs paid quarterly • Performance-based incentive payments • Payments under the Medicare Physician Fee Schedule with some Medicare FFS payments shifted to a quarterly lump comprehensive primary care payments (CPCPs) 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<ul style="list-style-type: none"> • Percentage of practices reporting after-hours access • Percentage of practices reporting availability of telehealth • Percentage of physicians in CPC+ and comparison practices who reported various strategies for linking patients to supportive community-based resources 	<ul style="list-style-type: none"> • Increase in the number of practices providing patients with after-hours access; however, the evaluation indicated that there remained a need to offer this service to more patients. However, few practices offered alternatives to traditional office visits (e.g., telehealth). • About half of care managers and or care coordinators had behavioral health training. Evaluation identifies the need to increase training. • Increase in practices offering on-site behavioral health counseling. • Increase in number of practices screening for unmet behavioral health and social service needs; nearly all practices integrated a strategy to address behavioral health needs and screen for HRSNs. • 95% of practices reported an improvement in care quality. • More physicians in comparison practices used health IT to identify and track patients with specific conditions, risk states, or medications. • Overwhelming majority of practices indicated that they would be likely or very likely to participate in CPC+ again if given the opportunity.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Independence at Home (IAH) Demonstration, 2012 – current</p> <p><i>Ongoing Model</i></p>	<p>Clinical focus: Chronically ill</p> <p>Providers: Home-based primary care practices</p> <p>Setting: Patient home</p> <p>Patient population: Medicare beneficiaries with multiple chronic conditions and functional limitations</p>	<ul style="list-style-type: none"> • Performance-based incentive payments (opportunity to receive incentive payments if practice meets a minimum savings requirement and required standards for a set of quality measures) • FFS (beneficiaries must be enrolled in FFS Medicare to participate in demonstration) 	<ul style="list-style-type: none"> • Using interdisciplinary teams to address HRSNs • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • Some practices added social workers to help coordinate care for patients, although the evaluation did not link this work to outcomes. • A large majority of patients and their caregivers reported high levels of satisfaction with home-based primary care, found it accessible, and said that clinicians take their opinions into account.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Integrated Care for Kids (InCK) Model, 2020 - current</p> <p><i>Ongoing Model</i></p>	<p>Clinical focus: Physical and behavioral pediatric health care</p> <p>Providers: Multiple</p> <p>Setting: Multiple (e.g., inpatient, outpatient, pediatric care practices)</p> <p>Patient population: Children under the age of 21 covered by Medicaid; Children’s Health Insurance Program (CHIP) beneficiaries; pregnant women over 21 with Medicaid</p>	<ul style="list-style-type: none"> • State-specific pediatric APMs that incorporate provider accountability, integrate care coordination, and focus on meaningful improvements in care quality and health outcomes 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment • Using interdisciplinary teams to address HRSNs • Improving integration of health care and social services and supports • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<p>No evaluation</p>

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Maryland All-Payer Model (MDAPM), 2014 – 2018</p> <p><i>Completed Model</i></p>	<p>Clinical Focus: Primary and specialty care</p> <p>Providers: Hospitals</p> <p>Setting: Hospital</p> <p>Patient population: All patients hospitalized at Maryland hospitals</p>	<ul style="list-style-type: none"> • All-payer system with an annual global budget • The Care Redesign Program (a new voluntary program w/in the Maryland All-Payer Model) offered incentive payments and/or nonmonetary resources to participating hospitals. 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Engaging in SDOH-based performance measurement • Improving integration of health care and social services and supports • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>The number of hospitals participating in the model that invested in SDOH interventions</p>	<ul style="list-style-type: none"> • The evaluation indicates that nearly all hospitals reported increases in the social worker staff. • 74% of CFOs reported investments in interventions that address SDOH. • Nearly 90% of participants said they offered patient education, coaching, or self-management programs. For example, one of these hospitals reported having instituted programs that identified affordable housing and job training to address SDOH in their community. However, hospital leaders reported that these efforts were often hindered by lack of patient compliance. • Investment in interventions to address social determinants of health was not associated with hospital financial performance and was modestly associated with improvement in patient care performance.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Maryland Total Cost of Care Model, 2019 – current</p> <p><i>Ongoing Model</i></p>	<p>Clinical Focus: Primary and specialty care</p> <p>Providers: Multiple</p> <p>Setting: Multiple (e.g., hospitals – inpatient and outpatient, primary care practices, nonhospital service providers)</p> <p>Patient population: Patients receiving care in Maryland</p>	<ul style="list-style-type: none"> • All-payer annual global budget system • Hospital Payment Program: Population-based payments for hospital services • Care Redesign Program: Hospitals make incentive payments to nonhospital health care provider partners if the incentive payments are less than the attained savings under its fixed global budget. • PBPM payments to cover care management services, and risk-adjusted performance-based incentive payment to providers 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Engaging in SDOH-based performance measurement • Using interdisciplinary teams to address HRSNs • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • Findings after the first year of model implementation: 18% increase in practices offering after-hours visits, 11% increase in practices offering telehealth, 16% increase in practices providing behavioral health support, 24% increase in practices providing HRSNs screenings • Other services such as 24/7 access to a care team member and empanel rates were already high at baseline. • Although almost 90% of practices screened for social needs, about a quarter of practices reported having no established relationship with social service resources and supports, signaling that the practices still have opportunities to move beyond screening patients for unmet health-related social needs toward partnering and connecting patients with social service resources in future years. • Hospital profitability declined marginally after the first year of demonstration.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Medicare Coordinated Care Demonstration (MCCD), 2002-2014</p> <p><i>Completed Model</i></p>	<p>Clinical focus: Chronic illnesses</p> <p>Providers: Varied by organization</p> <p>Setting: Varied by organization</p> <p>Patient population: Medicare FFS beneficiaries with complex chronic conditions</p>	<ul style="list-style-type: none"> • Monthly PBPM payment 	<ul style="list-style-type: none"> • Screening for HRSNs • Improving integration of health care and social services and supports • Providing referrals to address HRSNs 	<p>Not specified</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • The model provided coordination of care with physicians and social services and increased time devoted to addressing psychosocial needs – i.e., issues with substance abuse, intimate partner and family violence, caregiver stress, anxiety, depression, bipolar disorders, and other psychiatric issues (especially of high-risk patients). • The outcomes of these model components are not made explicit; however, non-SDOH/equity-specific indicators (i.e., hospitalizations, expenditures, mortality rates, and outpatient emergency department [ED] visits) were not impacted in a statistically significant way.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Multi-payer Advanced Primary Care Practice (MAPCP) Demonstration, 2011-2016</p> <p><i>Completed Model</i></p>	<p>Clinical focus: Primary care</p> <p>Providers: PCPs</p> <p>Setting: Multiple (e.g., hospital, home, community-based locations)</p> <p>Patient population: Chronically ill patients</p>	<ul style="list-style-type: none"> • PBPM payments (specifics vary by state) 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Engaging in SDOH-based performance measurement • Improving integration of health care and social services and supports • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<ul style="list-style-type: none"> • Percent reductions in health care disparities (based on geography, race, socioeconomic, and other factors) evaluated based on qualitative analysis of beneficiary perceptions and quantitative utilization data stratified by race, income, and other factors • Rate of behavioral health inpatient hospitalizations • Rate of behavioral health emergency room (ER) visits • Rate of appropriate use of antidepressant medication during an acute and a continuous treatment phase 	<ul style="list-style-type: none"> • Some practices hired social workers or behavioral health specialists to administer behavioral health screening questionnaires to patients and refer them to behavioral health resources and social services in the community, although the effectiveness of these efforts is not examined. • Quantitative analysis suggested that the MAPCP Demonstration did not have a statistically significant impact on any of the special populations examined, which included non-white participants.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Next Generation ACO (NGACO) Model, 2016 – current</p> <p><i>Ongoing Model</i></p>	<p>Clinical focus: Primary and specialty care</p> <p>Providers: PCPs and specialists</p> <p>Setting: Multiple (e.g., accountable care organizations, hospitals – inpatient and outpatient)</p> <p>Patient population: Medicare beneficiaries</p>	<ul style="list-style-type: none"> • Normal FFS claims • Normal FFS claims plus an additional PBPM payment • Population-based payment • Capitation 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment • Using interdisciplinary teams to address HRSNs • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • Some ACOs added SDOH components to their care management services, but the implementation and effectiveness of these activities was not examined. • Observed modest but non-significant impacts for NGACOs across all quality of care measures.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Oncology Care Model (OCM), 2016-current</p> <p><i>Ongoing Model</i></p>	<p>Clinical Focus: Cancer</p> <p>Providers: Oncologists</p> <p>Setting: Outpatient</p> <p>Patient population: Medicare beneficiaries requiring oncology care</p>	<ul style="list-style-type: none"> • Episode-based payment model • Monthly Enhanced Oncology Services (MEOS) Payment (\$160 PBPM) • Performance-based payment (shared savings/losses) for episodes of chemotherapy 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Engaging in SDOH-based performance measurement • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment • Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • The evaluation found that several practices separately screen for distress and psychosocial needs (e.g., transportation, social support, nutrition needs). • A decline of \$576 (p<0.05) in total episode payment (TEP) costs for minority beneficiaries. • No differential impacts on TEP for beneficiary subgroups based on age or dual eligibility for Medicaid. • No differences in end-of-life care or patient-reported care experiences, or changes over time, based on beneficiary race, education, or type of cancer.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>Pioneer ACO Model, 2012-2016</p> <p><i>Completed Model</i></p>	<p>Clinical focus: Primary and specialty care</p> <p>Providers: PCPs and specialists</p> <p>Setting: Multiple (e.g., accountable care organizations, hospitals, primary care practices)</p> <p>Patient population: Patients of participating ACOs</p>	<ul style="list-style-type: none"> • Shared savings/losses payments • Population-based payments (if ACO achieved specified level of savings over first two years) 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Using interdisciplinary teams to address HRSNs • Improving integration of health care and social services and supports 	Not specified	Not specified	<ul style="list-style-type: none"> • Pioneer ACOs enhanced beneficiary access to social workers and expanded referral networks to improve connections to community resources. Pioneer ACOs at least mentioned working on improving identification and referrals, though there was no discussion of measuring or improving quality of care for these conditions. • Generated more than \$384 million in savings to Medicare over its first two years—an average of approximately \$300 per-participating-beneficiary-per-year with no adverse effects on quality of care or patient experience. • Physician perceptions of model value were mixed in regard to quality of care; less than 40% of participating physicians indicated that quality of care had improved for their ACO patients.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
<p>State Innovation Models (SIM) Initiative, 2013-2020</p> <p><i>Completed Model</i></p>	<p>Clinical focus: Multiple</p> <p>Providers: Multiple</p> <p>Setting: Multiple</p> <p>Patient population: Multiple</p>	<ul style="list-style-type: none"> • Varied by state • Most states included some form of value-based payment. • Some states used episode of care models. • Some states used per member per month payment models. • Some states used FFS models. 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Engaging in SDOH-based performance measurement • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment • Improving integration of health care and social services and supports 	<p>Implementing strategies to advance equitable access to care</p>	<ul style="list-style-type: none"> • Varied by state • Some measures employed included effective integration of social services with physical health services, increase in care for special population groups such as socially complex patients, and improvements in population health such as decrease in substance use. 	<ul style="list-style-type: none"> • The 11 states that received Round 2 grants each had a plan to connect patients with social services and community-based prevention programs. • Several states reported improvements in the identification and treatment of behavioral health needs. • Many states have also instituted screenings for social determinants of health. • Some states made significant advancements in terms of linking clinical and community-based entities – for example, Iowa and Michigan began implementing a system to screen for SDOH and systematically refer patients to social services. • Many providers felt that they lacked the resources, time, data management systems, money, and/or workforce to effectively/sustainably incorporate behavioral health services. • Providers across states identified the need to find sustainable payment streams to implement and maintain behavioral health integration.

CMMI Model Name and Implementation Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of Evaluation Findings Related to SDOH and Equity
Vermont All-Payer Model, 2017 – current <i>Ongoing Model</i>	<p>Clinical focus: Primary and specialty care</p> <p>Providers: PCPs and specialists</p> <p>Setting: Multiple (e.g., accountable care organizations, hospitals)</p> <p>Patient population: Patients receiving care from ACOs in Vermont</p>	<ul style="list-style-type: none"> • Normal FFS claims • Normal FFS claims plus an additional PBPM payment • Population-based payment • Capitation CMS made available to Vermont start-up funding of \$9.5 million in 2017 to support care coordination and bolster collaboration between practices and community-based providers 	<ul style="list-style-type: none"> • Engaging in SDOH-based performance measurement • Using interdisciplinary teams to address HRSNs • Improving integration of health care and social services and supports 	Implementing strategies to advance equitable access to care	Not specified	No evaluation

Appendix E. Summary of Model and SDOH/Equity-Related Characteristics of the Nine Selected PTAC Proposals

The following table provides specific details on model characteristics (i.e., clinical focus, providers, settings, and payment mechanisms), SDOH and equity functions, and evaluation details and results (i.e., performance measures specific to care coordination); and a summary of PTAC comments on, where available, for nine select proposals that were reviewed by PTAC.

Overview of Methodology Used to Review the Proposals

The following information was reviewed for each submitter's proposal, where available: most recent versions of submitters' proposals, Additional Information from Submitter documents, Public Meeting Transcripts for meetings at which selected proposals were discussed, reports to the Secretary (RTSes), and Preliminary Review Team (PRT) reports. Information found in these materials was used to summarize the models' main themes related to SDOH domains addressed (based on AHRQ's framework); targeted social needs; targeted behavioral health needs; SDOH, equity, and behavioral health objectives and requirements of the models; functions; and payment models. The table is arranged alphabetically by submitter.

Proposal: Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of any of PTAC Comments Related to SDOH and Equity During Public Meetings
<p>American Academy of Family Physicians (AAFP) (Provider association and specialty society) Advanced Primary Care: A Foundational Alternative Payment Model (APC-APM) for Delivering Patient-Centered, Longitudinal, and Coordinated Care 12/19/2017: Recommended for limited-scale testing</p>	<p>Clinical Focus: Primary Care Providers: Primary care providers (PCPs) Setting: Primary care practices Patient population: Medicare beneficiaries</p>	<p>Capitated PBPM with shared risk options for accountability</p>	<ul style="list-style-type: none"> • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Engaging in SDOH-based performance measurement • Supporting and sharing information on clinical and non-clinical factors that contribute to health and success of treatment • Improving integration of health care and social services and supports 	<p>Not specified</p>	<p>Encouraged use of SDOH data where possible in generating clinically actionable performance reports</p>	<ul style="list-style-type: none"> • PTAC notes the novel inclusion of social determinants being part of risk adjustment in the PRT overview of Criterion 4. • One member notes the submitters' intent in relying on electronic health records (EHRs) to facilitate collection and categorization of novel SDOH factors/data.

Proposal: Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of any of PTAC Comments Related to SDOH and Equity During Public Meetings
<p>American College of Physicians (ACP) and the National Committee for Quality Assurance (NCQA) (Provider association and specialty society) The “Medical Neighborhood” Advanced Alternative Payment Model (AAPM) 11/19/2020: Recommended for testing as specified in PTAC comments</p>	<p>Clinical Focus: Primary and Specialty Care Integration Providers: Primary Care Practices in CPC+ and Primary Care First, specialty practices meeting clinical transformation and care coordination criteria for Medicare Access and CHIP Reauthorization Act of 2015 (MACRA)-recognized Patient-Centered Specialty Practices Setting: Primary Care and Specialty Practices Patient population: Patients in CPC+/Primary Care First primary care practices referred to specialty care</p>	<ul style="list-style-type: none"> • Two-track option for continued FFS payments or reduced FFS payments in exchange for prospective payments • Monthly care management fee 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Improving integration of health care and social services and supports 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<p>No PTAC comments during public meetings.</p>
<p>American Society of Clinical Oncology (Provider association and specialty society) Patient-Centered Oncology Payment Model (PCOP) 11/19/2020: Referred for other attention</p>	<p>Clinical Focus: Oncology Providers: Clinicians, including oncologists and hematologists Setting: Oncology specialty practices Patient Population: Oncology practice patients</p>	<ul style="list-style-type: none"> • Care Management fee • Performance-based payments • Two-track option for continued FFS reimbursement 	<ul style="list-style-type: none"> • Improving integration of health care and social services and supports • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs 	<p>Not specified</p>	<p>Not specified</p>	<p>No PTAC comments during public meetings.</p>

Proposal: Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of any of PTAC Comments Related to SDOH and Equity During Public Meetings
<p>Coalition to Transform Advanced Care (C-TAC) (Coalition) Advanced Care Model (ACM) Service Delivery and Advanced Alternative Payment Model 5/7/18: Recommended for limited-scale testing</p>	<p>Clinical Focus: Advanced Illness Providers: Provider with board-certified palliative care experience as part of interdisciplinary care team, RN, licensed clinical social worker (LCSW), other clinicians as necessary Setting: All sites of care during treatment for advanced illness, including the home Patient population: Beneficiaries with advanced illness, focusing on last 12 months of life</p>	<ul style="list-style-type: none"> Wage-adjusted PBPM payment of indefinite duration with downside risk for total cost of care and upside risk/bonus for quality performance 	<ul style="list-style-type: none"> Monitoring progress and following up on identified HRSNs Using interdisciplinary teams to address HRSNs Improving integration of health care and social services and supports 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> PTAC expressed curiosity about the specific role of the physician in a model centered on “different types of health care workers.” Submitter responded that physician exists more on the medical side while other team staff may better address SDOH.
<p>Jean Antonucci, MD (Individual physician) An Innovative Model for Primary Care Office Payment 10/20/18: Recommended for limited-scale testing</p>	<p>Clinical Focus: Primary Care Providers: Primary care providers, nurse practitioners Setting: Primary Care Practices Patient population: Medicare patients</p>	<ul style="list-style-type: none"> Monthly risk-adjusted capitated payments Performance-based payments 	<ul style="list-style-type: none"> Monitoring progress and following up on identified HRSNs Engaging in SDOH-based performance measurement Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>Survey items within “How’s Your Health” survey addressing social limitations and factors related to environment, including exposure to community and/or domestic violence</p>	<p>One PTAC member recognized the need for higher reimbursement to incorporate social services and family outreach into primary care.</p>

Proposal: Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of any of PTAC Comments Related to SDOH and Equity During Public Meetings
<p>Johns Hopkins School of Nursing and the Stanford Clinical Excellence Research Center (Academic institution) CAPABLE Provider Focused Model 9/6/19: Recommended for testing as specified in PTAC comments</p>	<p>Clinical Focus: Home health, functional care for elders Providers: Registered nurses, occupational therapists Setting: Home Patient population: Patients living at home and reporting difficulty in at least one activity of daily living or at least two instrumental activities of daily living, income <200% of poverty line or income <135% of poverty line</p>	<ul style="list-style-type: none"> Partial bundled payment with bonus for meeting quality metrics, eventually moving toward a fully capitated model (recommended among other proposed payment mechanisms) 	<ul style="list-style-type: none"> Providing referrals to address HRSNs Monitoring progress and following up on identified HRSNs Using interdisciplinary teams to address HRSNs Improving integration of health care and social services and supports Providing a patient-centered care experience that considers social and demographic factors 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> PTAC noted the model as being a “social care” model rather than a “medical care” model, and further notes the difficulty of addressing the broader range of care incorporated in a social care model as traditional analysis structure was around payment models as they relate to “typical” medical care. PTAC noted that countries spending more on social care spend less on health care. One member noted that a broad care model should include all social determinants of health, including housing – which physicians should help to identify. One member noted the necessity of including SDOH and social care in the way payment is thought about as a whole, including physician-focused models. One member noted the importance of social services as they link to health care, and was persuaded by the submitter’s testimony into believing so. One member stated “there’s a lot of discussion around social determinants of health and how to address them, and this clearly is one that actually would impact it significantly.”

Proposal: Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of any of PTAC Comments Related to SDOH and Equity During Public Meetings
<p>Large Urology Group Practice Association (LUGPA) (Provider association and specialty society) LUGPA Advanced Payment Model for Initial Therapy of Newly Diagnosed Patients with Organ-Confining Prostate Cancer 2/28/18: Do not recommend</p>	<p>Clinical Focus: Urology/Oncology (treatment of prostate cancer) Providers: Eligible professionals (including urologists) at large and small urology and multispecialty practices Setting: Large and small urology and multispecialty practice Patient population: Newly diagnosed prostate cancer patients with localized disease</p>	<ul style="list-style-type: none"> • Monthly care management fee • Performance-based payment based on enhancing utilization of active surveillance 	<ul style="list-style-type: none"> • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Improving integration of health care and social services and supports 	<p>Implementing strategies to advance equitable access to care</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • One member asked if social services would be provided by an external social service agency, or if practices themselves would be responsible for them. • Submitter noted this would vary depending on scale of the practice.

Proposal: Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of any of PTAC Comments Related to SDOH and Equity During Public Meetings
<p>New York City Department of Health and Mental Hygiene (Public health department) Multi-provider, bundled episode-of-care payment model for treatment of chronic hepatitis C virus (HCV) using care coordination by employed physicians in hospital outpatient clinics 2/28/18:Do Not Recommend</p>	<p>Clinical Focus: Multispecialty, hepatitis C infection management Providers: Physicians at hospital-based outpatient clinics, supporting wide mix of clinicians, including infectious disease specialists, gastroenterologists, primary care providers Setting: Hospital-based outpatient clinics Patient Population: Medicare beneficiaries with hepatitis C infection</p>	<ul style="list-style-type: none"> • Outpatient bundled payment with opportunity for shared savings 	<ul style="list-style-type: none"> • Screening for HRSNs • Providing referrals to address HRSNs • Monitoring progress and following up on identified HRSNs • Using interdisciplinary teams to address HRSNs • Improving integration of health care and social services and supports 	<p>Not specified</p>	<p>Not specified</p>	<ul style="list-style-type: none"> • PTAC drew attention to certain populations, particularly baby boomers, who may be unaware of hep C infection. • Submitter responded noting the two-track bundle is in some way meant to account for patient complexity – one track is more ideal for less complex patients at reduced cost, the other for patients who are more complex or may have gone for a long period undiagnosed.

Proposal: Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Payment Mechanism	SDOH-Related Functions	Equity-Related Functions	Performance Measures Related to SDOH and Equity	Summary of any of PTAC Comments Related to SDOH and Equity During Public Meetings
<p>Personalized Recovery Care, LLC (Regional/local single specialty practice) Home Hospitalization: An Alternative Payment Model for Delivering Acute Care in the Home 5/7/18: Recommended for Implementation</p>	<p>Clinical Focus: Internal Medicine, Cardiology, Pulmonology, Nephrology/Urology, Rheumatology, and Orthopedics Providers: Physicians providing Internal Medicine, Cardiology, Pulmonology, Nephrology/Urology, Rheumatology, Orthopedics services Setting: Home Patient population: Commercial and Medicare Advantage (MA) patients experiencing conditions normally requiring admission to an inpatient hospital</p>	<ul style="list-style-type: none"> Retrospective bundled payment comprised of two parts: risk payment as compared to targeted cost of care, per-episode payment for care in lieu of acute care hospitalization 	<ul style="list-style-type: none"> Screening for HRSNs Providing referrals to address HRSNs Monitoring progress and following up on identified HRSNs Using interdisciplinary teams to address HRSNs Improving integration of health care and social services and supports 	<p>Not specified</p>	<p>Not specified</p>	<ul style="list-style-type: none"> PTAC inquired about trainings for members of the multidisciplinary care team. Submitter responded that training would be required under the belief that health care costs cannot be changed without understanding SDOH within the patient environment.

Appendix F. Annotated Bibliography

Ahn R, Anderson B, Armstrong E, et al. *HCIA Complex/High-Risk Patient Targeting: Third Annual Report*. NORC at the University of Chicago; 2017. <https://downloads.cms.gov/files/cmmt/hcia-chspt-thirdannualrpt.pdf>

Subtopic(s): Incorporation of SDOH and Equity in Selected PTAC Proposals

Type of Source: Evaluation report

Objective: To present findings for 23 HCIA round 1 awardees that serve patients with MCC who are at high risk for hospitalization, re-hospitalization, ED visits, or nursing home stays. One of the interventions was Johns Hopkins University School of Nursing's PILE model- this bibliography entry covers CAPABLE only.

Main Findings: Decreases in hospitalizations and increases in total cost of care in both the Medicare and Medicaid analyses relative to the comparison group; however, results are not statistically significant. The Medicare analyses show nonsignificant increase in ED visits; conversely, a nonsignificant decrease in ED visits is seen in the Medicaid analyses, relative to a comparison group. The survey data reflects an improvement in health-related quality of life, decreased depressive symptoms, and improved fall prevention self-efficacy. The survey had statistically significant reduction for difficulties in ADL and IADL.

Strengths/Limitations: Relatively small sample sizes for both claims analyses may limit analytic power and introduce bias. Propensity score matching methods used to select comparison group may not have been able to adequately capture all aspects of program eligibility.

Generalizability to Medicare Population: High. Study methods utilized Medicare and Medicaid claims data.

Methods: Difference-in-difference analysis using a propensity score-matched comparison group to study Medicare and Medicaid costs and utilization outcomes. Data from an internal Johns Hopkins University School of Nursing survey of participants was used to report on non-claims outcomes.

Aidala AA, Wilson MG, Shubert V, Gogolishvili D, Globerman J, Rueda S, Bozack AK, Caban M, Rourke SB. Housing status, medical care, and health outcomes among people living with HIV/AIDS: A systematic review. *American Journal of Public Health*. 2016;106(1):e1–e23. <https://doi.org/10.2105/AJPH.2015.302905>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To examine the available empirical evidence on the association between housing status (broadly defined), medical care, and health outcomes among people with HIV and analyzed results to inform future research, program development, and policy implementation.

Main Findings: Searches yielded 5,528 references from which the authors included 152 studies, representing 139,757 HIV-positive participants. Most studies were conducted in the United States and Canada. Studies examined access and utilization of HIV medical care, adherence to antiretroviral medications, HIV clinical outcomes, other health outcomes, emergency department and inpatient utilization, and sex and drug risk behaviors. With rare exceptions, across studies in all domains, worse housing status was independently associated with worse outcomes, controlling for a range of individual patient and care system characteristics.

Strengths/Limitations: The authors selected articles if they were quantitative analyses published in English, French, or Spanish that included at least one measure of housing status as an independent

variable and at least one health status, health care, treatment adherence, or risk behavior outcome among people with HIV in high-income countries. They defined housing status to include consideration of material or social dimensions of housing adequacy, stability, and security of tenure.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Two independent reviewers performed data extraction and quality appraisal. They used the Cochrane Risk of Bias Tool for randomized controlled trials and a modified version of the Newcastle Ottawa Quality Appraisal Tool for nonintervention studies. In the quality appraisal, they focused on issues of quality for observational studies: appropriate methods for determining exposure and measuring outcomes, and methods to control confounding.

Agency for Healthcare Research and Quality. Social Determinants of Health. Published January 2020. Accessed July 15, 2021, from <https://www.ahrq.gov/sdoh/about.html>

Subtopic(s): Definitions of SDOH and Equity

Type of Source: Website

Objective: To provide an overview of social determinants of health and the agency's philosophy and approach.

Main Findings: The webpage presents background information about social determinants of health.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The definition has direct relevance for Medicare beneficiaries.

Methods: N/A

Agency for Healthcare Research and Quality. What is Integrated Behavioral Health? Accessed July 15, 2021. <https://integrationacademy.ahrq.gov/about/integrated-behavioral-health>

Subtopic(s): Definitions of SDOH and Equity

Type of Source: Website

Objective: To provide an overview of integrated behavioral health and the agency's philosophy and approach.

Main Findings: The webpage presents background information about integrated behavioral health, including a definition of behavioral health.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The definition has direct relevance for Medicare beneficiaries.

Methods: N/A

Ailawadhi S, Parikh K, Abouzaid S, Zhou Z, Tang W, Clancy Z, Cheung C, Zhou ZY, Xie J. Racial disparities in treatment patterns and outcomes among patients with multiple myeloma: a SEER-Medicare analysis.

Blood Advances. 2019;3(20):2986–2994. <https://doi.org/10.1182/bloodadvances.2019000308>

Subtopic(s): Performance Measures Related to SDOH and Equity

Type of Source: Journal article

Objective: To assess racial disparities in treatment patterns and outcomes among patients with multiple myeloma.

Main Findings: The study observed significant variations in terms of the treatment patterns and economic outcomes among different racial/ethnic groups with multiple myeloma. Overall survival was similar across race, however, African American and Hispanic patients received novel therapies later than white patients. Although the use of novel therapies has increased over time, the increase was more pronounced in whites than in African Americans. Lastly, health care costs were similar between African Americans and whites whereas Hispanic patients had higher total costs than whites.

Strengths/Limitations: The SEER-Medicare database does not contain a clinical measure of disease severity or stage, yet multiple myeloma has several subtypes that range in severity, which may introduce unmeasured bias. Additionally, the study does not capture therapies approved after the data cutoff of 2014 (e.g., daratumumab, panobinostat, and ixazomib) because of the limitations of data availability.

Generalizability to Medicare Population: High – study focused on Medicare patients age 65 or older.

Methods: The study used Medicare claims data from 2007 to 2014 and SEER-Medicare linked data from 2007 to 2013. Patients were required to be continuously enrolled in Medicare parts A, B, and D from six months before the index date (the baseline period) to at least six months after the index date or death, whichever occurred first. Patients were excluded if they were participating in a clinical trial during the study period or had other lymphatic or hematopoietic cancers recorded in the database at any time. Wilcoxon rank-sum tests were used for continuous variables and χ^2 tests for categorical variables. Kaplan-Meier analyses were used to analyze time to event outcomes.

Aldehaim AY, Alotaibi FF, Uphold CR, Dang S. The impact of technology-based interventions on informal caregivers of stroke survivors: A systematic review. In *Telemedicine and e-Health*. 2016;22(3):223–231. <https://doi.org/10.1089/tmj.2015.0062>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To provide a systematic review of the impact of technology-based intervention on outcomes related to care providers for those who survived a stroke.

Main Findings: Four studies have assessed the primary outcome, two of which reported significant decreases in caregivers' depressive symptoms. Two studies had measured each of the following outcomes: burden, problem-solving ability, health status, and social support; they revealed no significant differences following the intervention. Only one study assessed caregivers' preparedness and showed improved post-test scores. Health care services use by the care recipient was assessed by one study, and the results indicated significant reduction in emergency department visits and hospital readmissions.

Strengths/Limitations: N/A

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Literature was identified in the PubMed, PsycINFO, Scopus, and Cochrane databases for evidence on technology-based interventions for stroke survivors' caregivers. The search was restricted for all English-language articles from 1970 to February 2015 that implied technology-based interventions.

AmeriHealth Caritas. Awards and Accreditations. Published 2001-2021. Accessed July 22, 2021. <https://www.amerhealthcaritas.com/our-story/awards-accreditations.aspx>.

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website

Objective: To provide an overview of awards and accreditations for AmeriHealth Caritas.

Main Findings: The website provides background information on AmeriHealth Caritas' Next Generation Model of Care.

Strengths/Limitations: N/A

Generalizability to Medicare Population: AmeriHealth Caritas is a Medicaid Managed Care Organization (MCO).

Methods: N/A

AmeriHealth Caritas. Bridging the Gaps of Health Disparities. Published online 2019. Accessed July 22, 2021. <https://www.amerhealthcaritas.com/assets/pdf/amerihealth-caritas-sdoh-whitepaper.pdf>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: White Paper

Objective: To describe how AmeriHealth Caritas addresses health care and the social determinants of health.

Main Findings: AmeriHealth Caritas has engaged in several efforts to move beyond clinical care to incorporate health-related social needs, use data to support a member-by-member approach, and build a network of support to address social determinants of health.

Strengths/Limitations: N/A

Generalizability to Medicare Population: AmeriHealth Caritas is a Medicaid MCO.

Methods: N/A

AmeriHealth Caritas. Medicaid Managed Care. Published 2001-2021. Accessed July 22, 2021. <https://www.amerhealthcaritas.com/health-care-solutions/medicaid-managed-care.aspx>.

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website

Objective: To provide an overview of Medicaid managed care for AmeriHealth Caritas.

Main Findings: The website provides background information on AmeriHealth Caritas' innovative managed care approach.

Strengths/Limitations: N/A

Generalizability to Medicare Population: AmeriHealth Caritas is a Medicaid MCO.

Methods: N/A

AmeriHealth Caritas Pennsylvania. Mission GED. Published 2001-2021. Accessed July 22, 2021. <https://www.amerhealthcaritaspa.com/member/eng/programs/mission-ged/index.aspx>.

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website

Objective: To provide an overview of AmeriHealth Caritas Pennsylvania's Mission GED project.

Main Findings: The website provides background information on AmeriHealth Caritas Pennsylvania's Mission GED program and associated resources.

Strengths/Limitations: N/A

Generalizability to Medicare Population: AmeriHealth Caritas is a Medicaid MCO.

Methods: N/A

Artiga S, Hinton E. Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity. Kaiser Family Foundation. Published 2018. Accessed July 19, 2021. <https://www.kff.org/racial-equity-and-health-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Issue Brief

Objective: To provide an overview of social determinants of health and discuss emerging initiatives to address them.

Main Findings: A growing number of initiatives are emerging to address social determinants of health. Some of these initiatives seek to increase the focus on health in non-health sectors, while others focus on having the health care system address broader social and environmental factors that influence health. In addition to the growing movement to incorporate health impact/outcome considerations into non-health policy areas, there are also emerging efforts to address non-medical, social determinants of health within the context of the health care delivery system.

Strengths/Limitations: Moderate. The study focuses on a population that may align with the Medicare population.

Generalizability to Medicare Population: N/A

Methods: N/A

Bensken, WP, Alberti, PM, Koroukian, SM. Health-Related Social Needs and Increased Readmission Rates: Findings from the Nationwide Readmissions Database. *Journal of General Internal Medicine*. 2021;36:1173–1180. <https://doi-org.ezproxyhhs.nihlibrary.nih.gov/10.1007/s11606-021-06646-3>

Subtopic(s): Definitions of SDOH and Equity

Type of Source: Journal Article

Objective: To assess the rate of 30-, 60-, and 90-day readmissions by the level of ICD-10-identified social need. In addition, the authors examined the associations between demographics, social need, hospital characteristics, and comorbidities on 30-day readmissions.

Main Findings: From 13,217,506 patients, only 2.4 percent had at least one HRSN diagnosis. Among patients without HRSNs, 11.5 percent had a 30-day readmission, compared to 27.0 percent of those with one domain, increasing to 63.5 percent for patients with codes in five domains. Similar trends were observed for 60- and 90-day readmissions; 78.7 percent of patients with documented HRSNs in all five domains were hospitalized again within 90 days. The adjusted odds ratio for readmission for individuals with all five domains was 12.55 (95 percent CI: 9.04, 17.43). Housing and employment emerged as two of the most commonly documented HRSN, as well as having the largest adjusted odds ratio.

Strengths/Limitations: There is a dose-response relationship between the number of HRSN diagnoses and hospital readmission. This work calls attention to the need to develop interventions to reduce readmissions for those at social risk and demonstrates the significance of ICD-10 Z-codes in health outcomes studies.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Retrospective study using the 2017 Nationwide Readmission Database. The authors identified five domains of HRSNs from ICD-10 diagnosis codes, including employment, family, housing, psychosocial, and socioeconomic status (SES), and identified how many and which an individual was coded with during the year.

Benston EA. Housing Programs for Homeless Individuals With Mental Illness: Effects on Housing and Mental Health Outcomes. *Psychiatric Services*. 2015;66(8):806–816.

<https://doi.org/10.1176/appi.ps.201400294>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To review the best available research in the United States on permanent supportive housing programs for homeless individuals with mental illness and the effect of these programs on housing status and mental health.

Main Findings: The studies found that a majority of participants placed in experimental housing programs with case management support remained in housing for at least one year or experienced more days housed than homeless relative to a comparison group. Although this finding is in line with previous literature reviews on permanent supportive housing, this analysis found limitations in each of the 14 reviewed studies, such as attrition, selection and response bias, imprecise definitions and implementation of housing programs, and a lack of appropriate controls. Only three of the reviewed studies reported using a housing fidelity assessment tool to test whether the housing intervention was faithful to theoretical standards, and conceptions and implementation of housing varied widely across studies, threatening internal and external validity.

Strengths/Limitations: This review of the best studies on permanent supportive housing identified a small base of research with limited usefulness for decision-makers seeking empirical evidence to justify policy choices. The research cannot yet pinpoint which factors drive positive housing and clinical outcomes. Research problems involving attrition, lack of detail on housing conditions and supports, selection bias, and lack of standardized program models and definitions limit internal validity, the ability to generalize findings, and efforts to replicate research conditions.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: The literature search (1980–2013) yielded 14 studies (randomized controlled trials and quasi-experimental studies).

Billieux A, Verlander K, Anthony S, Alley D. Standardized Screening for Health-Related Social Needs in Clinical Settings: The Accountable Health Communities Screening Tool. *NAM.edu/Perspectives*. 2017.

Accessed July 19, 2021. <https://nam.edu/wp-content/uploads/2017/05/Standardized-Screening-for-Health-Related-Social-Needs-in-Clinical-Settings.pdf>

Subtopic(s): Definitions of SDOH and Equity

Type of Source: Journal Article

Objective: To describe a 10-item screening tool to identify patient needs developed by CMS.

Main Findings: The AHC HRSN screening tool, however, was specifically developed to identify HRSNs that negatively impact health and health care utilization, and, importantly, can be addressed

through community interventions. Furthermore, the tool is unique in that it combines screening across five key domains of HRSNs into only 10 questions. Few social need screening tools achieve the same breadth with similar brevity. The AHC HRSN screening tool's breadth increases the likelihood that significant needs will be identified, as well as presents an opportunity to evaluate the impact of assessing multiple domains at one time. Meanwhile, the tool's brevity and simplicity enable it to be integrated into crowded clinical workflows while remaining accessible to a diverse group of patients.

Strengths/Limitations: The tool's questions focus solely on the core and supplemental HRSN domains addressed in the AHC Model and do not represent a comprehensive screen of all HRSNs.

Generalizability to Medicare Population: The tool can be used with the Medicare population.

Methods: N/A

Braverman P, Arkin E, Orleans T, Proctor D, Plough A. *What Is Health Equity? And What Difference Does a Definition Make?* Princeton, NJ: Robert Wood Johnson Foundation; 2017.

<https://www.rwjf.org/en/library/research/2017/05/what-is-health-equity-.html>

Subtopic(s): Appendix C. Definitions for SDOH and Equity

Type of Source: Report

Objective: To stimulate discussion and promote greater consensus about the meaning of health equity and the implications for action.

Main Findings: The report provides a definition of health equity to guide action and research, key steps toward health equity, principles to guide efforts toward health equity, terms that often arise in discussions of health equity, and examples of efforts advancing health equity.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The definitions and examples provided have direct relevance for the Medicare population.

Methods: N/A

Butel J, Braun KL. The Role of Collective Efficacy in Reducing Health Disparities. *Family & Community Health*. 2019;42(1):8–19. <https://doi.org/10.1097/FCH.000000000000206>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To review the role of collective efficacy (CE) in reducing health disparities.

Main Findings: All studies showed improvements in CE, and most found reduction in disparities, but operationalization of CE varied. Findings support a model of how CE can address health disparities, which can guide standardization of CE interventions and measures.

Strengths/Limitations: Only eight articles reporting on interventions aiming to reduce health disparities by improving CE were found for this systematic literature review, which suggests additional study is needed.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Systematic review of the literature, which included procedures for identification and screening (208 non-duplicated records), eligibility (removal for incorrect topics, populations, and interventions, as well as lack of CE measures or results), and inclusion.

Methods: N/A

California Department of Health Care Services. California Advancing and Innovating Medi-Cal. Published 2021. Accessed July 15, 2021. <https://www.dhcs.ca.gov/provgovpart/Pages/CalAIM.aspx>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website

Objective: To provide an overview of California Department of Health Care Services' CalAIM initiative.

Main Findings: CalAIM is a multi-year initiative by DHCS to improve the quality of life and health outcomes of the population by implementing broad delivery system, program, and payment reform across the Medi-Cal program. The major components of CalAIM build upon the successful outcomes of various pilots (including but not limited to the Whole Person Care [WPC] Pilots, Health Homes Program [HHP], and the Coordinated Care Initiative) from the previous federal waivers and will result in a better quality of life for Medi-Cal members, as well as long-term cost savings/avoidance.

Strengths/Limitations: N/A

Generalizability to Medicare Population: CalAIM is a part of the California Medi-Cal (Medicaid) care delivery system.

Methods: N/A

Cantu PA, Hayward MD, Hummer RA, Chiu CT. New estimates of racial/ethnic differences in life expectancy with chronic morbidity and functional loss: evidence from the National Health Interview Survey. *Journal of Cross-Cultural Gerontology*. 2013;28(3):283-297. doi:10.1007/s10823-013-9206-5 <https://doi.org/10.1007/s10823-013-9206-5>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement, and Effectiveness of SDOH and Equity Interventions

Type of Source: Journal Article

Objective: To document the mortality, chronic morbidity, and physical functioning experiences of U.S. Hispanics, non-Hispanic whites, and non-Hispanic Blacks 50 years of age and older in the United States. Hispanics are classified by nativity to better assess an important source of heterogeneity in population health within that population.

Main Findings: The results not only highlight the mortality advantages of foreign-born Hispanics, but also document their health advantages in terms of morbidity and physical functioning beyond age 50. Nativity is a highly important factor differentiating the health and mortality experiences of Hispanics: U.S.-born Hispanics have a health profile more indicative of their minority status, while foreign-born Hispanics have much more favorable mortality and health profiles. Differences in smoking across racial/ethnic/nativity groups is suggested as an important reason behind the apparent health advantages of foreign-born Hispanics relative to whites, as well as relative to their U.S.-born counterparts.

Strengths/Limitations: Although the analysis advances what is known about the health and mortality of older Hispanics, Hispanics are a highly heterogeneous group. The Hispanic paradox originally was conceptualized to speak to Mexican American health; however, Mexican Americans are not sufficiently represented in the data to support such an analysis. The addition of more years of National Health Interview Survey (NHIS) data, however, should permit a finer parsing of Hispanics by national origin in future studies.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Drawing on mortality and morbidity data from the NHIS, demographic models of healthy life expectancy are used to derive estimates of life expectancy, life expectancy with and without chronic morbidity conditions, and life expectancy with and without functional limitations.

Cardoza VJ, Documét PI, Fryer CS, Gold MA, Butler J. Sexual Health Behavior Interventions for U.S. Latino Adolescents: A Systematic Review of the Literature. *Journal of Pediatric and Adolescent Gynecology*. 2012;25(2):136–149. <https://doi.org/10.1016/j.jpag.2011.09.011>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To identify sexual health behavior interventions targeting U.S. Latino adolescents.

Main Findings: Sixty-eight articles were identified. Fifteen were included in this review that specifically addressed Latino adolescent sexual health behavior. Among the reviewed interventions, most aimed to prevent or reduce STI and HIV/AIDS incidence by focusing on behavior change at two levels of the social ecological model: individual and interpersonal. Major strengths of the articles included addressing the most critical issues of sexual health; using social ecological approaches; employing different strategies to deliver sexual health messages; and employing different intervention designs in diverse geographical locations with the largest population of Latino communities. Most of the interventions targeted female adolescents, stressing the need for additional interventions that target Latino adolescent males.

Strengths/Limitations: More research is needed to produce new or validate existing, age-specific, and culturally-sensitive sexual health interventions for Latino male and female adolescents. Further, this research should also be conducted in areas of the U.S. with the newest Latino migration.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: A systematic literature review of peer-reviewed articles published between 1993 and 2011, conducted in any type of setting.

CareSource. Healthify Partnership Addresses Social Determinants of Health. Published 2021. Accessed July 22, 2021. <https://caresourcestakeholderreport.com/healthify-partnership-addresses-social-determinants-of-health/>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website

Objective: To provide an overview of CareSource’s Healthify partnership.

Main Findings: CareSource partnered with Healthify, a nationwide organization devoted to identifying social needs, searching for social services, and coordinating care for members with an integrated network of community partners. This new network serves CareSource’s Ohio members initially and will expand to support the entire CareSource Life Services program.

Strengths/Limitations: N/A

Generalizability to Medicare Population: CareSource is a Medicaid managed care plan available in Ohio, Georgia, and Indiana.

Methods: N/A

CareSource. Life Services. Published 2021. Accessed July 22, 2021. <https://caresourcestakeholderreport.com/life-services/>.

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website

Objective: To provide an overview of CareSource's life services.

Main Findings: CareSource Life Services is an initiative to change managed health care, integrating social determinants of health with comprehensive health care to create more stable, fulfilling lives for members.

Strengths/Limitations: N/A

Generalizability to Medicare Population: CareSource is a Medicaid managed care plan available in Ohio, Georgia, and Indiana.

Methods: N/A

CareSource. Medicaid. Published 2021. Accessed July 22, 2021.

<https://www.caresource.com/plans/medicaid/>.

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website

Objective: To provide an overview of CareSource Medicaid plans.

Main Findings: The webpage provides an overview of available CareSource Medicaid plans.

Strengths/Limitations: N/A

Generalizability to Medicare Population: CareSource is a Medicaid managed care plan available in Ohio, Georgia, and Indiana.

Methods: N/A

Centers for Disease Control and Prevention. Social Determinants of Health. Last updated 2021. Accessed August 31, 2021. <https://www.cdc.gov/socialdeterminants/about.html>

Subtopic(s): Definitions of SDOH and Equity

Type of Source: Website

Objective: To provide an overview of social determinants of health and the agency's philosophy and approach.

Main Findings: The webpage presents background information about social determinants of health.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The definition has direct relevance for Medicare beneficiaries.

Methods: N/A

Centers for Medicare & Medicaid Services. Center for Medicare and Medicaid Innovation. *CMS Innovation Center – Fifth Report to Congress*. Department of Health and Human Services; 2020.

<https://innovation.cms.gov/data-and-reports/2021/rtc-2020>

Subtopic(s): Incorporation of SDOH into CMMI Models

Type of Source: Report

Objective: To provide a report to Congress on the activities of the CMS Innovation Center.

Main Findings: This is the fifth report to Congress submitted by the CMS Innovation Center; it focuses on activities conducted between October 1, 2018, and September 30, 2020. It also highlights certain important activities announced between September 30, 2020, and December 31, 2020, that had not yet started during the period of report. Between October 1, 2018, and September 30, 2020,

the CMS Innovation Center tested, announced, or issued Notices of Proposed Rulemaking for a total of 38 payment and service delivery models and initiatives under Section 1115A authority. In addition, it conducted six congressionally mandated or authorized demonstration projects. The CMS Innovation Center also played a central role in the implementation of the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) during the period of the report.

Strengths/Limitations: N/A

Generalizability to Medicare Population: N/A

Methods: N/A

Centers for Medicare & Medicaid Services: Medicare Drug & Health Plan Contract Administration Group. Implementing Supplemental Benefits for Chronically Ill Enrollees. 2019. Baltimore, MD: U.S. Department of Health and Human Services. https://www.cms.gov/Medicare/Health-Plans/HealthPlansGenInfo/Downloads/Supplemental_Benefits_Chronically_III_HPMS_042419.pdf

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Memorandum

Objective: To inform Medicare Advantage organizations about Special Supplemental Benefits for the Chronically Ill (SSBCI).

Main Findings: This memorandum provides guidance for MA organizations regarding the process and expectations surrounding developing items and services as SSBCI. The memorandum also provides examples of non-primarily health-related items and services, including meals, food and produce, transportation for non-medical needs, pest control, indoor air quality equipment and services, social needs benefits, complementary therapies, services supporting self-direction, structural home modifications, and general supports for living. The memorandum also addresses requirements for determining SSBCI eligibility.

Strengths/Limitations: N/A

Generalizability to Medicare Population: High. This memorandum specifically focuses on benefits for the Medicare population.

Methods: N/A

Chaudoir SR, Wang K, Pachankis JE. What Reduces Sexual Minority Stress? A Review of the Intervention “Toolkit.” *Journal of Social Issues*. 2017;73(3):586–617. <https://doi.org/10.1111/josi.12233>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To review the “toolkit” of psychosocial interventions available to reduce sexual minority stress effects.

Main Findings: Interventions were implemented in a variety of social contexts, from education to mental and medical health care delivery to parent-child relationships. Interventions utilized a heterogeneous range of modalities to create change, from policy development and implementation to role-playing activities to didactic lectures.

Strengths/Limitations: Education Resource Information Center was not an included database; keywords were searched only in article abstracts.

Generalizability to Medicare Population: Limited. The study focuses on sexual minorities and has no Medicare-specific slant.

Methods: Systematic review.

Chen M, Tan X, Padman R. Social determinants of health in electronic health records and their impact on analysis and risk prediction: A systematic review. *Journal of the American Medical Informatics Association*. 2020;27(11):1764-1773. <https://doi.org/10.1093/jamia/ocaa143>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To identify and analyze the extant literature to examine the integration of SDOH domains into electronic health records (EHRs), their impact on risk prediction, and the specific outcomes and SDOH domains that have been tracked.

Main Findings: 79 percent of reviewed articles integrated SDOH information from external data sources into EHRs, while the rest extracted SDOH information from unstructured clinical notes in the EHRs. All but one study using external area-level SDOH data reported minimum contribution to performance improvement in predictive models. Studies incorporating individual-level SDOH data reported improved predictive performance of service referrals, medication adherence, and 30-day readmission risk.

Strengths/Limitations: Findings reported only from the published literature; unpublished studies remained uncaptured. It was not possible to systematically apply a quality assessment tool to the included studies, so none were excluded.

Generalizability to Medicare Population: Moderate. The Medicare and Medicaid EHR Incentive Programs have implemented meaningful use criteria that may pertain to SDOH data.

Methods: Systematic review.

Chuang YC, Cubbin C, Ahn D, Winkleby MA. Effects of neighbourhood socioeconomic status and convenience store concentration on individual level smoking. *Tobacco Control*. 2005;14(5):337-337. <https://doi.org/10.1136/jech.2004.029041>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To assess the effects of neighborhood-level socioeconomic status (SES) and convenience store concentration on individual level smoking, after consideration of individual level characteristics.

Main Findings: Lower neighborhood SES and higher convenience store concentration, measured by density and distance, were both significantly associated with a higher level of individual smoking after taking individual characteristics into account.

Strengths/Limitations: The authors did not have longitudinal neighborhood measurements, which may have generated selection bias. Length of time a participant has spent in their neighborhood was not measured. Unofficial convenience stores were not included.

Generalizability to Medicare Population: Moderate. There may be overlap between the smoking populations examined in this study and the Medicare population.

Methods: Cross-sectional analysis.

Clark NM, Griffiths C, Keteyian SR, Partridge MR. Educational and behavioral interventions for asthma: Who achieves which outcomes? A systematic review. *Journal of Asthma and Allergy*. 2010;3:187-197. <https://doi.org/10.2147/JAA.S14772>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To review randomized controlled trial (RCT) data for outcomes and processes associated with asthma educational and behavioral interventions provided by different types of health professionals.

Main Findings: The extent to which and how different providers achieve asthma outcomes through educational and behavioral interventions is emerging from recent studies, with health care use and symptom control evolving as the gold standard for intervention outcomes. Self-management and clinician-patient communication skills are program components associated with success across outcomes and providers.

Strengths/Limitations: The number of studies in each provider category was uneven and often very small. No multifactorial research designs were used in the included studies to uncover which element of the intervention produced the outcome.

Generalizability to Medicare Population: Moderate. There is likely overlap between the asthma patient population and the Medicare population.

Methods: Systematic review.

Coulter R, Egan J, Kinsky S, Friedman M, Eckstrand K, Frankeberger J, Folb B, Mair C, Markovic N, Silvestre A, Stall R, Miller E. Mental health, drug, and violence interventions for sexual/gender minorities: A systematic review. *Pediatrics*. 2019;144(3). <https://doi.org/10.1542/peds.2018-3367>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To systematically review interventions and their effectiveness in preventing or reducing substance use, mental health problems, and violence victimizations among sexual and gender minority youth (SGMY).

Main Findings: Very few interventions were identified (12 in total), leading the authors to conclude that the current state of interventions is insufficient to reduce substance use, mental health problems, and violence victimization among SGMY. Those interventions that were identified all improved mental health outcomes, and two reduced substance use while one reduced bullying victimization.

Strengths/Limitations: There is a small collection of diverse interventions for reducing substance use, mental health problems, and violence victimization among SGMY.

Generalizability to Medicare Population: Limited. The study focuses on youth.

Methods: Systematic review.

Crook HL, Zhao AT, Saunders RS. Analysis of Medicare Advantage Plans' Supplemental Benefits and Variation by County. *JAMA Network Open*. 2021;4(6):e2114359.

doi:10.1001/jamanetworkopen.2021.14359

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives, Incorporation of SDOH and Equity in CMMI Models

Type of Source: Journal Article

Objective: To examine the uptake of newly allowable supplemental benefits by Medicare Advantage plans in 2021 and to understand geographic differences in benefit offerings between areas.

Main Findings: 10.1 percent of MA plans offered at least one new primarily health-related supplemental benefit in 2021, 22.1 percent offered COVID-19-specific supplemental benefits, and

11.1 percent offered special supplemental benefits for the chronically ill (SSBCI). Additionally, counties with plans offering supplemental benefits were more urban, had higher MA penetration, and were slightly higher on the social vulnerability index.

Strengths/Limitations: Potential undercounting of benefits in 2019 due to a lack of standardized naming conventions prior to 2020. Plan benefit offerings may not be reflective of actual beneficiary use.

Generalizability to Medicare Population: High. The study specifically examines benefits for the Medicare population.

Methods: Cross-sectional analysis.

Crook HL, Zheng J, Blesser WK, Whitakers RG, Mosand J, Saunders RS. How Are Payment Reforms Addressing Social Determinants of Health? Policy Implications and Next Steps. Milbank Memorial Fund. 2021. Accessed July 19, 2021. https://www.milbank.org/wp-content/uploads/2021/02/Duke-SDOH-and-VBP-Issue-Brief_v3-1.pdf

Subtopic(s): Background on the Use of SDOH and Equity Data for Reimbursement

Type of Source: Issue Brief

Objective: To summarize the current landscape of payment reform initiatives addressing SDOH, drawing on results from a systematic review of peer-reviewed and grey literature supplemented with scans of state health policies and proposed payment reform models.

Main Findings: Payment models incorporating SDOH are a nascent but emerging area; these models have the potential to generate effective and sustainable innovations that reduce health disparities and improve patient well-being. More evidence is needed to show how best to address social needs through value-based purchasing (VBP) models.

Strengths/Limitations: Most relevant evidence is generated through less rigorous study designs, and most studies focused on process measures as opposed to outcomes.

Generalizability to Medicare Population: High. Payment reforms may address SDOH through means by which traditional Medicare cannot.

Methods: Combined systematic review and policy scan.

Egede LE, Zheng D, & Simpson K. Comorbid Depression is Associated With Increased Health Care Use and Expenditures in Individuals With Diabetes. *Diabetes Care*. 2002; 25 (3): 464-70. <https://doi.org/10.2337/diacare.25.3.464>

Subtopic(s): Definitions of SDOH, Equity, and Related Terms

Type of Source: Journal Article

Objective: To determine the odds of diagnosed depression in individuals with diabetes and the relation between depression and health care use expenditures

Main Findings: Individuals with diabetes were twice as likely as the comparison group sample to have been diagnosed with depression. Patients with both diabetes and depression have had higher ambulatory care use (12 vs. 7, $P < 0.0001$) and filled more prescriptions (43 vs. 21, $P < 0.0001$) than those without depression.

Strengths/Limitations: More information is needed on the potential reasons for the relationship between depression and diabetes.

Generalizability to Medicare Population: Moderate. Though the study does not focus on Medicare beneficiaries, findings on the relationship between diabetes and depression may align with the Medicare population.

Methods: Researches used the 1996 Medical Expenditure Panel Survey to compare data on health care use and expenditures between adults with and without diabetes and with and without depression, adjusting for demographic variations and inflation.

Elder RW, Lawrence B, Ferguson A, Naimi TS, Brewer RD, Chattopadhyay SK, Toomey TL, Fielding JE. The Effectiveness of Tax Policy Interventions for Reducing Excessive Alcohol Consumption and Related Harms. *American Journal of Preventive Medicine*, 2010;38(2):217–229.

<https://doi.org/10.1016/j.amepre.2009.11.005>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To assess the effectiveness of alcohol tax policy interventions for reducing excessive alcohol consumption and related harms.

Main Findings: Nearly all included studies found an inverse relationship between tax or price of alcohol and indices of excessive drinking or alcohol-related health outcomes.

Strengths/Limitations: Many included studies had two to four limitations identified by the authors which may limit result quality.

Generalizability to Medicare Population: Moderate. Alcohol-related health outcomes and related issues are present within the Medicare population.

Methods: Systematic review.

Engelberg Anderson JK, Jain P, Wade AJ, Morris AM, Slaboda JC, Norman GJ. Indicators of potential health-related social needs and the association with perceived health and well-being outcomes among community-dwelling medicare beneficiaries. *Quality of Life Research*. 2020;29(6):1685–1696.

<https://doi.org/10.1007/s11136-019-02410-7>

Subtopic(s): Defining HSRNs

Type of Source: Journal Article

Objective: To assess the prevalence of potential HRSNs across several domains (transportation, social isolation) and explore associations with health and well-being outcomes in a sample of Medicare beneficiaries.

Main Findings: Over 40% of Medicare beneficiaries has at least 1 pHRSN indicator, meaning they are more vulnerable and may be limited in their ability to age in place. Better measures and methods are needed to identify, monitor, and address HRSNs among the growing aging population, which may include leveraging existing community-based services through coordinated care.

Strengths/Limitations: All data was self-reported, and NHATS (data employed in analysis) does not include specific measures of pHRSNs that are directly comparable to those used in social needs screeners.

Generalizability to Medicare Population: High; The study population was specific to Medicare beneficiaries and the challenges posed in aging in place.

Methods: Cross-sectional ecological analysis

Feltner C, Wallace I, Berkman N, Kistler CE, Middleton JC, Barclay C, Higginbotham L, Green JT, Jonas DE. Screening for Intimate Partner Violence, Elder Abuse, and Abuse of Vulnerable Adults: Evidence Report and Systematic Review for the US Preventive Services Task Force. *JAMA*. 2018;320(16):1688–1701. <https://doi.org/10.1001/jama.2018.13212>

Subtopic(s): Definitions of SDOH and Equity

Type of Source: Journal Article

Objective: To systematically review the evidence on screening for intimate partner violence (IPV), elder abuse, and abuse of vulnerable adults for populations and settings relevant to primary care in the United States.

Main Findings: Although available screening tools may reasonably identify women experiencing past 12-month IPV, RCTs of screening in adult women do not show a reduction in IPV exposure or improvement in quality of life over three to 18 months. Interventions for women with screen-detected IPV show inconsistent results; limited evidence from some RCTs suggested that home visiting interventions and behavioral counseling interventions that address multiple risk factors may lead to reduced IPV among pregnant or postpartum women. No eligible studies assessed screening or treatment for elder abuse and abuse of vulnerable adults.

Strengths/Limitations: RCTs of IPV screening and treatment interventions were heterogeneous in terms of setting, intervention content, and intensity. The authors were not able to pool study results due to heterogeneity. Strength of evidence was low or insufficient for benefits of treatment (depending on the outcome); evidence was graded as insufficient for birth outcomes because of imprecision, unknown consistency, few events from one subgroup analysis, and uncertainty about whether results could be attributed to IPV counseling. No studies assessed screening or treatment for elder abuse and abuse of vulnerable adults. Most screening tools were assessed in only one study; several enrolled participants from emergency department settings and may have unclear applicability to primary care settings.

Generalizability to Medicare Population: High. The study focuses on an older adult population that may align with the Medicare population.

Methods: Data sources included PubMed/MEDLINE, the Cochrane Library, Embase, and trial registries through October 4, 2017; reference lists of retrieved articles; outside experts; reviewers; and active surveillance of literature since August 2018. Two investigators independently selected English-language studies using a priori criteria. Eligible studies included RCTs of screening or treatment for abuse victimization, studies evaluating accuracy of screening tests to detect abuse, and cohort studies with a concurrent control group assessing the harms of screening or treatment for abuse.

Frank LD, Iroz-Elardo N, MacLeod KE, Hong A. Pathways from built environment to health: A conceptual framework linking behavior and exposure-based impacts. *Journal of Transport and Health*. 2019;12:319–335. <https://doi.org/10.1016/j.jth.2018.11.008>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To simultaneously assess how behavioral and exposure-based impacts of the built environment interact.

Main Findings: Land use and transportation supporting health behaviors was the most studied pathway, with exposure to harmful substances and stressors and potential differential impacts by travel mode being the second.

Strengths/Limitations: Few studies examine mechanisms that spatially link built environment and health outcomes, including chronic disease. Limited longitudinal evidence is available.

Generalizability to Medicare Population: Moderate. The studied associations are relevant to the Medicare population.

Methods: Research synthesis, systematic review.

Fullerton CA, Henke RM, Crable ER, Hohlbauch A, & Cummings N. The Impact of Medicare ACOs on Improving Integration and Coordination of Physical and Behavioral Health Care. *Health Affairs*. 2016; 35(7). <https://doi.org/10.1377/hlthaff.2016.0019>

Subtopic(s): Definitions of SDOH, Equity, and Related Terms

Type of Source: Journal Article

Objective: To explore the extent to which the ACOs recognized and focused on behavioral health as an important contributor to improving quality of care and generating savings, the approaches ACOs used to address behavioral health care, and any challenges they faced.

Main Findings: Organizations participating in Medicare ACO demonstrations had varying levels of engagement in improving behavioral health care. Organizations noted a lack of behavioral health care providers, data to inform decision-making, and long-term financial models as the biggest challenges to improving behavioral health care.

Strengths/Limitations: N/A, not specifically articulated

Generalizability to Medicare Population: Strong; the study includes an examination of organizations participating in Medicare ACOs.

Methods: Qualitative data collection and analysis

Garces E, Thomas D, Currie J. Longer-term effects of Head Start. *American Economic Review*. 2002; 92(4):999-1012. <https://doi.org/10.1257/00028280260344560>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To provide evidence on the longer-term effects of Head Start, and early intervention program for poor preschool-age children.

Main Findings: Whites who attended Head Start are, relative to their siblings who did not, significantly more likely to complete high school, attend college, and possibly have higher earnings in their early twenties. African-Americans who participated in Head Start are less likely to have been booked or charged with a crime. There is some evidence of positive spillovers from older Head Start children to their younger siblings.

Strengths/Limitations: N/A, not specifically articulated

Generalizability to Medicare Population: Limited. The intervention targets children.

Methods: Cohort analysis.

Garcia ER, Yim IS. A systematic review of concepts related to women's empowerment in the perinatal period and their associations with perinatal depressive symptoms and premature birth. *BMC Pregnancy and Childbirth*. 2017;17(Suppl 2). <https://doi.org/10.1186/s12884-017-1495-1>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To systematically review and critically discuss the literature that investigates the effects of empowerment, empowerment-related concepts, and empowerment interventions on reductions in perinatal depressive symptoms, preterm birth (PTB), and low birth weight (LBW).

Main Findings: The majority of studies found that, for the most part, measures of empowerment and interventions supporting empowerment are associated with reduced perinatal depressive symptoms and PTB/LBW rates. However, findings are equivocal and a small portion of studies found no significant association between empowerment-related concepts and perinatal depressive symptoms and PTB or LBW.

Strengths/Limitations: No included studies included a measure of empowerment, and many intervention studies did not assess empowerment, limiting conclusions that may be drawn about the role of maternal empowerment interventions in maternal and infant health.

Generalizability to Medicare Population: Limited. There is low likelihood that there is significant overlap in the maternal/infant population and the Medicare population.

Methods: Systematic review.

Giese JK. Evidence-based pediatric asthma interventions and outcome measures in a healthy homes program: An integrative review. *Journal of Asthma*. 2019;56(6):662–673.

<https://doi.org/10.1080/02770903.2018.1472279>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To explore the effectiveness of home-based education and environmental measures and to explore specific indicators and tools to measure pediatric asthma control and program effectiveness.

Main Findings: Home-based asthma education and environmental interventions have proven to be effective. The programs reviewed varied in types of interventions, intensity and duration, the type of provider, length of follow-up, and outcome measures. Successful programs were patient-centered, included a home assessment and individualized education and interventions, and were collaborative. Multiple outcome indicators such as health care utilization, asthma control, missed days of school or productivity, asthma symptoms, and verification of environmental remediation have been utilized.

Strengths/Limitations: Of 71 articles retrieved, only 27 met inclusion criteria. Quality appraisal indicated significant limitations in some included studies.

Generalizability to Medicare Population: Limited. The study focuses on children with poorly controlled asthma.

Methods: Systematic review.

Gittelsohn J, Trude A, CB, Kim H. Pricing Strategies to Encourage Availability, Purchase, and Consumption of Healthy Foods and Beverages: A Systematic Review. *Preventing Chronic Disease*. 2017;14.

<https://doi.org/10.5888/pcd14.170213>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To assess the effect of food-pricing interventions on retail sales and on consumer purchasing of healthy foods and beverages.

Main Findings: Sixteen pricing intervention studies that sought to improve access to healthy food and beverage options reported increased stocking and sales of promoted food items. Most studies (n = 23) reported improvement in the purchasing and consumption of healthy foods or beverages or decreased purchasing and consumption of unhealthy foods or beverages. Most studies assessed promotions of fresh fruits and vegetables (n = 20); however, these foods may be hard to source, have high perishability, and raise concerns about safety and handling. Few of the pricing studies reviewed discouraged purchasing and consumption of unhealthy foods (n = 6).

Strengths/Limitations: Many included studies had limitations, including lack of formative research, process evaluation, or psychosocial and health assessments of the intervention's impact; short intervention duration; or no assessment of food substitutions or the effects of pricing interventions on food purchasing and diets.

Generalizability to Medicare Population: Moderate. The pricing interventions may target the older adult/Medicare population to influence food purchasing behavior.

Methods: Systematic review.

Gomez-Bernal F, Madva EN, Puckett J, Amonoo HL, Millstein RA, Huffman JC. Relationships Between Life Stressors, Health Behaviors, and Chronic Medical Conditions in Mid-Life Adults: A Narrative Review. *Psychosomatics*. 2019;60(2):153–163. <https://doi.org/10.1016/j.psych.2018.12.007>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To explore stressors affecting midlife adults and understand their impact on health behaviors and the development of chronic medical conditions, and to identify midlife-specific interventions that mitigate the impact of stressors on the health of this population.

Main Findings: This review revealed that interpersonal stress (e.g., caregiving and loneliness), occupational stress, and financial stress are highly prevalent in midlife and have a substantial impact on the health and health behaviors of this population. Many of these stressors converge, intensifying associated distress and health impact. Although not always targeted specifically to this population, interventions focused on diminishing these stressors have showed promising results, particularly group interventions and those focused on positive psychological well-being and mindfulness.

Strengths/Limitations: Limited research is available on midlife-specific interventions focusing on identified stressors.

Generalizability to Medicare Population: Limited. The study focuses on the midlife population, which may be outside of the Medicare age range.

Methods: Systematic review.

Gordon-Larsen P, Nelson MC, Page P, Popkin BM. Inequality in the built environment underlies key health disparities in physical activity and obesity. *Pediatrics*. 2006;117(2):417-424. <https://doi.org/10.1542/peds.2005-0058>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To assess the geographic and social distribution of physical activity (PA) facilities and how disparity in access might underlie population-level PA and overweight patterns.

Main Findings: Higher-SES block groups had a significantly greater relative odds of having one or more facilities. Low-SES and high-minority block groups were less likely to have facilities. Relative to zero facilities per block group, an increasing number of facilities was associated with decreased overweight and increased relative odds of achieving > or = five bouts per week of moderate-vigorous PA.

Strengths/Limitations: Availability is just one dimension that should be addressed in addressing disparities; affordability, quality, and accessibility are considered important by the authors but are not examined.

Generalizability to Medicare Population: Limited. The study focuses on adolescent population.

Methods: Cross-sectional ecological analysis.

Gottlieb LM, Wing H, Adler NE. A Systematic Review of Interventions on Patients' Social and Economic Needs. *American Journal of Preventive Medicine*. 2017;53(5):719-729.

<https://doi.org/10.1016/j.amepre.2017.05.011>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To examine how often and how rigorously interventions bridging social and medical care have been evaluated.

Main Findings: Forty studies involved non-experimental designs. There was wide heterogeneity in outcome measures selected. More studies reported findings associated with process (69 percent) or social or economic determinants of health (48 percent) outcomes than health (30 percent) or health care utilization or cost (27 percent) outcomes. Studies reporting health, utilization, or cost outcomes reported mixed results.

Strengths/Limitations: Review did not include studies limited to SDOH screening in clinical settings, and the review included interventions that were primarily focused on social and economic interventions, rather than those that included a combination of social, behavioral, and medical interventions.

Generalizability to Medicare Population: Moderate. The Interventions addressed a wide array of populations that may have significant overlap with the Medicare population.

Methods: Systematic review.

Gusmano MK, Rodwin VG, Weisz D. Medicare Beneficiaries Living In Housing With Supportive Services Experienced Lower Hospital Use Than Others. *Health Affairs*. 2018;37(10):1562–1569.

<https://doi.org/10.1377/hlthaff.2018.0070>

Subtopic(s): Defining HRSNs

Type of Source: Journal Article

Objective: To establish evidence on the extent to which housing with supportive social services can maintain population health and reduce the use of expensive hospital series.

Main Findings: In examining a nonprofit, community-based program in Queens, NY that supplied affordable housing with supportive social services and evaluating the program's ability to reduce hospital use, hospital discharge rates were 32% lower, hospital length-of-stay one day shorter, and ACSC rates 30% lower among residents in the intervention group. This suggests investments in

housing with supportive social services have the potential to reduce hospital use and reduce spending for vulnerable older patients.

Strengths/Limitations: Researchers were unable to account directly for effect of different disease prevalence rates between intervention and comparison groups on hospital use, length of stay, and ACSC rates. It is also possible that unobserved differences between those who self-select into the intervention group may explain the differences in hospital use.

Generalizability to Medicare Population: Reasonably high. The study population was older adults, and Medicare claims data was employed in analysis.

Methods: Retrospective cohort analysis of Medicare claims data.

Haber S, Beil H, Morrison M, et al. Evaluation of the Maryland All-Payer Model: Volume I: Final Report. 2019. <https://downloads.cms.gov/files/md-allpayer-finalevalrpt.pdf>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Evaluation Report

Objective: To evaluate the Maryland All-Payer Model.

Main Findings: Significant transformation occurred among Maryland hospitals over the five years of model implementation, and the model reduced both total expenditures and total hospital expenditures for Medicare beneficiaries. Maryland's All-Payer Model reduced expenditures for hospital services without shifting costs to other parts of the health care system outside of the global budgets, although site of care changed slightly for Medicare. Beneficiaries with multiple chronic conditions and beneficiaries dually eligible for Medicare and Medicaid had greater reductions in expenditures and utilization than their subgroup counterparts.

Strengths/Limitations: Limited examination of the impact of SDOH- or equity-related interventions on targeted outcomes.

Generalizability to Medicare Population: High. The model specifically addresses the Medicare population.

Methods: Qualitative and quantitative evaluation methods.

Hassol A, West N, Newes-Adeyi G, et al. Evaluation on the Oncology Care Model: Performance Periods 1-5. 2021. <https://innovation.cms.gov/data-and-reports/2021/ocm-evaluation-pp1-5>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Evaluation Report

Objective: To evaluate the Oncology Care Model.

Main Findings: TEP increased from about \$28,500 before OCM to about \$33,200 during performance periods 1–5. TEP in OCM episodes increased by \$297 (1 percent) less than in comparison episodes. During higher-risk episodes, which made up about two-thirds of all episodes and averaged about \$46,500, payments rose by \$503 less in OCM episodes than in comparisons. Treatment during higher-risk episodes often involves many costly components (e.g., surgery, radiation therapy, advanced imaging, and costly drugs), some of which may be amenable to reductions. The payment reductions for higher-risk episodes were partially offset, however, by increased payments for lower-risk episodes. For lower-risk episodes, which made up about one-third of all episodes and averaged about \$7,500, payments increased by \$151 more for OCM episodes than for comparisons. Treatment during lower-risk episodes mainly involves long-term hormonal

therapy with periodic prescription refills or infrequent injections, and there may be fewer opportunities to reduce Medicare payments.

Strengths/Limitations: Limited examination of the impact of SDOH- or equity-related interventions on targeted outcomes.

Generalizability to Medicare Population: High. The model specifically addresses the Medicare population.

Methods: Qualitative and quantitative evaluation methods.

Healthy People 2020. Secretary's Advisory Committee on Health Promotion and Disease Prevention Objectives for 2020. Published 2014. Accessed August 31, 2021.

Subtopic(s): Definitions of SDOH and Equity

Type of Source: Report

Objective: To facilitate the development and implementation of national health promotion and disease prevention goals and objectives, and inform the development of initiatives that will occur during initial implementation of the goals and objectives.

Main Findings: During the first phase of the Advisory Committee's work (January 2008-October 2008), the Advisory Committee produced recommendations for the Healthy People 2020 form (i.e., medium or format), framework (i.e., vision statement, mission statement, overarching goals, graphic model), and guidelines for implementation. The recommendations are summarized in this report.

Strengths/Limitations: N/A

Generalizability to Medicare Population: High. The definition has direct relevance for Medicare beneficiaries.

Methods: N/A

Inserro A. Examining SDOH in a commercially insured health care workforce. *AJMC*. 2021.

<https://www.ajmc.com/view/examining-sdoh-in-a-commercially-insured-health-care-workforce>.

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Journal Article

Objective: To summarize an employer's approach to using payer's data to see how its workforce was affected by social determinants of health

Main Findings: Low-income members had more potentially preventable chronic conditions—diabetes, hypertension, and obesity than high-income members. They had more potentially avoidable care, such as emergency department visits or hospitalizations. They had higher 30-day readmission rates, but lower 90-day and 180-day readmission rates.

Strengths/Limitations: The article is limited to an early pilot with a large, self-insured employer.

Generalizability to Medicare Population: N/A

Methods: The pilot program utilized Aetna's SDOH index, comprised of median household income, poverty, diversity, disability, education, physical inactivity, family structure, public transport, and employment. The dataset uses US Census tract data and CDC data.

Kaplan GA, Shema SJ, Leite CM. Socioeconomic determinants of psychological well-being: the role of income, income change, and income sources during the course of 29 years. *Annals of Epidemiology*. 2008;18(7):531-537.

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: Examine the cumulative impact of different income measures on psychological well-being among adults.

Main Findings: Mean income over the course of almost three decades was strongly associated with all five scales of psychological well-being. Psychological well-being increased with the number of waves in which profit income was reported and with income increases over time. For all scales except Autonomy, psychological well-being decreased with the number of waves receiving need-based benefit and with decreasing income over time.

Strengths/Limitations: The study is limited to data collected over the course of 29 years (1965-1994) from Alameda County Study participants.

Generalizability to Medicare Population: High. The long-term findings have relevance for the Medicare population.

Methods: The authors used data collected over the course of 29 years (1965-1994) from Alameda County Study participants to study the association between average income, income changes, profit and benefit incomes, and five scales of psychological well-being: Purpose in Life, Self-acceptance, Personal Growth, Environmental Mastery, and Autonomy. In age-adjusted models, the psychological well-being measures were each regressed on each of the income measures. Potential confounders (sex, education, race/ethnicity, social isolation, depression, and perceived health) were also examined.

Kornfield T, Kazan M, Frieder M, Duddy-Tenbrunsel R, Donthi S, Fix A. Medicare Advantage Plans Offering Expanded Supplemental Benefits: A Look at Availability and Enrollment. The Commonwealth Fund. 2021. <https://www.commonwealthfund.org/publications/issue-briefs/2021/feb/medicare-advantage-plans-supplemental-benefits>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives, Incorporation of SDOH and Equity in CMMI Models

Type of Source: Issue Brief

Objective: To measure the availability and enrollment in Medicare Advantage plans offering new types of supplemental benefits in 2019 and 2020.

Main Findings: Access to broader supplemental benefits is growing but still not widespread. Plans offering additional, primarily health-related supplemental benefits increased substantially between 2018 and 2020, including meal provision (20 percent of plans to 46 percent of plans), transportation (19 percent to 35 percent), in-home support services (8 percent to 16 percent), and acupuncture (11 percent to 20 percent). Uptake of SSBCI was relatively more limited, but also indicates steady growth. Only 6 percent of MA plans offered SSBCI in 2020, but initial analysis of 2021 data shows 16 percent of plans offering SSBCI.

Strengths/Limitations: This study reviewed only pre-existing CMS data. More work is needed to understand current obstacles in expanding programs to meet the needs of high-need, high-cost beneficiaries.

Generalizability to Medicare Population: High. The study specifically examines benefits for the Medicare population.

Methods: Analysis and comparison of the CMS CY 2018, 2019, and 2020 Plan Benefit Comparison data, analysis of 2018-2020 CMS enrollment data, and analysis of 2018 and 2019 participation and benefit data under the MA-Valued-Based Insurance Design (VBID) model.

L&M Policy Research. Evaluation of CMMI Accountable Care Organization Initiatives: Pioneer ACO Final Report. 2016. <https://innovation.cms.gov/files/reports/pioneeraco-finalevalrpt.pdf>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Report

Objective: To report on findings from the Pioneer ACO demonstration.

Main Findings: Pioneer ACOs identified a number of key activities, including provider engagement, care management, health information technology, and beneficiary engagement. The presence of embedded care managers in the clinic setting was associated with improved quality of care. There was a higher level of beneficiary satisfaction related to access to timely care, provider communication, and shared decision-making in larger ACOs.

Strengths/Limitations: Evaluation did not discuss spending and utilization outcomes.

Generalizability to Medicare Population: High. The demonstration focused on Medicare beneficiaries.

Methods: Evaluation methods included analyses of claims data, patient surveys, site visits, interviews, focus groups, and provider surveys.

Lam C, Cronin K, Ballard R, Mariotto A. Differences in Cancer Survival among White and Black Cancer Patients by Presence of Diabetes Mellitus: Estimations Based on SEER-Medicare-Linked Data Resource. *Cancer Medicine*. 2018;7(7):3434–44. <https://europepmc.org/article/MED/29790667>.

Subtopic(s): Performance Measures Related to SDOH and Equity

Type of Source: Journal article

Objective: To assess differences in cancer survival between black and white cancer patients with diabetes.

Main Findings: Black patients had the highest diabetes prevalence, particularly among women. Risk of a cancer-specific death were increased across most cancer sites for patients with diabetes regardless of race. Among men the largest effect of having diabetes on cancer-specific deaths were observed for black men diagnosed with Non-Hodgkin lymphoma and prostate cancer. Diabetes prevalence was higher for black females compared to white females and often higher when compared to white and black males. Among women the largest effect of having diabetes on cancer-specific deaths were observed for black women diagnosed with corpus/uterus, Hodgkin lymphoma, and ER+ breast cancer.

Strengths/Limitations: The study highlights a lack of data such as that pertaining to patient biology, specific cancer-related and diabetes-related treatment, and lifestyle-related health behaviors that may influence diabetes and cancer outcomes. Researchers were able to adjust for stage and initial cancer treatment according to SEER data, although some components of cancer treatment, such as chemotherapy, hormonal therapy and some forms of radiation therapy, are underreported in these data. They were therefore unable to fully control for the treatment effect. Additionally, findings may not provide a fully accurate representation of cancer-specific deaths due to the fact that the study did not assess deaths due to competing risks (e.g., death due to diabetes).

Generalizability to Medicare Population: High – study focused on Medicare patients age 66 or older.

Methods: The study used the SEER-Medicare linked database to identify patients age 66 or older diagnosed with cancer between 2000 and 2011. Cancer-specific survival estimates were calculated

by diabetes status adjusted by age, stage, comorbidities, and cancer treatment, and stratified by cancer site and sex with whites without diabetes as the reference group

Li E, Kimmey L, Cheh V. Evaluation of the Independence at Home Demonstration: An Examination of the First Five Years. 2020. <https://innovation.cms.gov/files/reports/iah-yr5evalrpt.pdf>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Report

Objective: To report on findings from the Independence at Home demonstration.

Main Findings: The results of the evaluation may suggest that the IAH incentive structure is not a sufficiently strong intervention for improving care patterns in IAH practices that deliver home-based primary care to chronically ill and functionally limited Medicare beneficiaries. It might be reasonable to see few or no notable results in Year 1 or 2 of the demonstration, as any changes made by IAH practices in response to the payment incentive may not have had time to reduce expenditures. However, after examining data through Year 5, there is little evidence to suggest that the payment incentive in the IAH demonstration decreased Medicare spending.

Strengths/Limitations: Evaluation did not discuss spending and utilization outcomes. There was limited examination of the impact of SDOH- or equity-related interventions on targeted outcomes.

Generalizability to Medicare Population: High. The study focused in part on Medicare beneficiaries.

Methods: Evaluation methods included analyses of claims data, patient surveys, site visits, interviews, focus groups, and provider surveys.

Li Y, Cen X, Cai X, Thirukumaran CP, Zhou J, Glance LG. Medicare Advantage Associated With More Racial Disparity Than Traditional Medicare For Hospital Readmissions. *Health Affairs*. 2017;36(7):1328-1335. doi:10.1377/hlthaff.2016.1344

Subtopic(s): Definitions of SDOH, Equity, and Related Terms

Type of Source: Journal Article

Objective: To compare the racial disparities in 30-day readmissions between traditional Medicare and Medicare Advantage beneficiaries who underwent one of six major surgeries.

Main Findings: Medicare Advantage beneficiaries were associated with greater racial disparity compared to traditional Medicare beneficiaries.

Strengths/Limitations: The study has a small sample of patients who underwent one of six surgery types in New York State in 2013. Future studies are needed to explore this topic in other geographic areas and at different times.

Generalizability to Medicare Population: Strong. The study focuses on the Medicare population.

Lie DA, Lee-Rey E, Gomez A, Bereknyci S, Braddock CH. Does cultural competency training of health professionals improve patient outcomes? A systematic review and proposed algorithm for future research. *Journal of General Internal Medicine*. 2011;26(3):317–325. <https://doi.org/10.1007/s11606-010-1529-0>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To conduct a systematic review addressing the effects of cultural competency training on patient-centered outcomes; assess quality of studies and strength of effect; and propose a framework for future research.

Main Findings: Seven studies met inclusion criteria. Three involved physicians, two involved mental health professionals and two involved multiple health professionals and students. Two were quasi-randomized, two were cluster randomized, and three were pre/post field studies. Study quality was low to moderate with none of high quality; most studies did not adequately control for potentially confounding variables. Effect size ranged from no effect to moderately beneficial (unable to assess in two studies). Three studies reported positive (beneficial) effects; none demonstrated a negative (harmful) effect.

Strengths/Limitations: There is limited research showing a positive relationship between cultural competency training and improved patient outcomes. There remains a need to guide educators in designing and evaluating curricula to rigorously demonstrate the impact on patient outcomes and health disparities.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Four authors independently rated studies for quality using validated criteria and assessed the training effect on patient outcomes. Due to study heterogeneity, data were not pooled; instead, qualitative synthesis and analysis were conducted.

Lindberg RA, Shenassa ED, Acevedo-Garcia D, Popkin SJ, Villaveces A, Morley RL. Housing Interventions at the Neighborhood Level and Health. *Journal of Public Health Management and Practice*. 2010;16(5 Suppl):S44–S52. <https://doi.org/10.1097/PHH.0b013e3181dfbb72>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To review evidence linking neighborhood-level housing interventions, such as housing programs or policies, to health outcomes.

Main Findings: One of the 10 interventions reviewed--the Housing Choice Voucher Program--had sufficient evidence for implementation or expansion. The evidence showed that voucher holders are less likely to suffer from overcrowding, malnutrition due to food insecurity, and concentrated neighborhood poverty than non-voucher holders. Of the other reviewed interventions, two needed more field evaluation and seven needed more formative research. None were determined to be ineffective.

Strengths/Limitations: Although many of the reviewed interventions lacked sufficient evidence for widespread implementation solely based on their health benefits, this evidence review shows that many interventions positively affect other areas of social, economic, and environmental well-being.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: A panel of subject matter experts systematically reviewed the evidence.

Lloren A, Liu S, Herrin J, Lin Z, Zhou G, Wang Y, Kuang M, Zhou S, Farietta T, McCole K, Charania S, Dorsey Sheares K, Bernheim S. Measuring hospital-specific disparities by dual eligibility and race to reduce health inequities. *Health Services Research*. 2019;54(S1):243-254. <https://doi.org/10.1111/1475-6773.13108>

Subtopic(s): Definitions of SDOH, Equity, and Related Terms

Type of Source: Journal Article

Objective: To propose and evaluate a metric for quantifying hospital-specific disparities in health outcomes that can be used by patients and hospitals.

Main Findings: Both dual eligibility and African American Medicare beneficiaries were associated with higher readmission rates within hospitals for acute myocardial infarction, heart failure, or pneumonia.

Strengths/Limitations: Their model approach can be adapted and used to assess disparities for other outcome measures and social risk factors.

Generalizability to Medicare Population: Strong. The study uses Medicare patient data.

Methods: Developed models for calculating risk-standardized readmission rates with a hospital-specific random coefficient for either patient dual eligibility or African American race to measure variation and performance in hospital-specific disparities. Researchers used inpatient admissions data for Medicare patients with acute myocardial infarction, heart failure, or pneumonia.

Machta R, Peterson G, Rotter J, Stewart K, Heitkamp S, Platt I, Whicher D, Calkins K, Kranker K, Barterian L, McCall N. *Evaluation of the Maryland Total Cost of Care Model: Implementation Report*. 2021.

<https://innovation.cms.gov/data-and-reports/2021/md-tcoc-imp-eval-report>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Report

Objective: To report on findings from the evaluation of the Maryland Total Cost of Care Model.

Main Findings: This engagement and care transformation can potentially improve targeted outcomes, capitalizing on the substantial room for improvement present at the start of the model. Although the state made progress in reducing avoidable hospital use and reducing hospital spending growth during the MDAPM, there remains meaningful room to further reduce avoidable acute care. This is especially true given the state's interest in being a national leader in payment reform to reverse traditional FFS incentives and to drive avoidable utilization well below national averages. Further, there are substantial opportunities for improvement in areas newly targeted in the model, including reducing non-hospital spending, improving care coordination across providers, improving ambulatory care to reduce avoidable admissions, and reducing BMI and diabetes incidence.

Strengths/Limitations: Limited examination of the impact of SDOH- or equity-related interventions on targeted outcomes.

Generalizability to Medicare Population: High. The study focuses on Medicaid beneficiaries.

Methods: Evaluation methods included analyses of claims data, patient surveys, site visits, interviews, focus groups, and provider surveys.

Marie-Mitchell A, Kostolansky R. A Systematic Review of Trials to Improve Child Outcomes Associated With Adverse Childhood Experiences. *American Journal of Preventive Medicine*. 2019;56(5):756–764.

<https://doi.org/10.1016/j.amepre.2018.11.030>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: Summarize current evidence from RCTs for the efficacy of interventions involving pediatric health care to prevent poor outcomes associated with adverse childhood experiences measured in childhood.

Main Findings: A total of 22 articles describing results of 20 RCTs were included. Parent mental illness/depression was the most common adverse childhood experience measured in childhood (C-

ACE) measured, followed by parent alcohol or drug abuse, and domestic violence. Most interventions combined parenting education, social service referrals, and social support for families of children aged 0-5 years. Five of six studies that directly involved pediatric primary care practices improved outcomes, including three trials that involved screening for C-ACEs. Eight of 15 studies that measured child health outcomes, and 15 of 17 studies that assessed the parent-child relationship, demonstrated improvement.

Strengths/Limitations: Some evidence that multicomponent interventions that utilize professionals to provide parenting education, mental health counseling, social service referrals, or social support can reduce the impact of C-ACEs on child behavioral/mental health problems and improve the parent-child relationship for children aged 0-5 years.

Generalizability to Medicare Population: Limited. The study focuses on a population that is not likely to align with the Medicare population.

Methods: Investigators searched PubMed, PsycInfo, SocIndex, Web of Science, Cochrane, and reference lists for English language RCTs involving pediatric health care and published between January 1, 1990, and December 31, 2017. Studies were included if they were (1) an RCT; (2) on a pediatric population; and (3) recruited or screened based on exposure to C-ACEs. Investigators extracted data about the study sample and recruitment strategy, C-ACEs, intervention and control conditions, intermediate and child outcomes, and significant associations reported.

Martino SC, Sargeeta A, Harrison J, Kim A, & Elliot MN. Developing Health Equity Measures. RAND. 2021. Accessed July 19, 2021. <https://aspe.hhs.gov/sites/default/files/private/pdf/265566/developing-health-equity-measures.pdf>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Report

Objective: To explore a health equity measurement approach for Medicare's VBP program.

Main Findings: Of the 10 approaches evaluated, the CMS Office of Minority Health's (OMH's) Health Equity Summary Score (HESS) received the highest ratings from the technical expert panel overall. Given the high ratings it received, the HESS may be closest to meeting the full scope of goals outlined by the Assistant Secretary for Planning and Evaluation (ASPE) for incorporating a measure of health equity into a Medicare VBP or quality reporting program.

Strengths/Limitations: N/A

Generalizability to Medicare Population: High. The health equity measures described would be applicable to the Medicare population.

Methods: The authors conducted a literature review to identify health equity measurement approaches developed or used for the purpose of systematic performance assessment and convened a technical expert panel to consider the use of these health equity measurement approaches in VBP programs, quality reporting efforts, and confidential reports. They then synthesized feedback from the technical expert panel to identify the most promising health equity measurement approaches.

McElfish PA, Purvis RS, Esquivel MK, Sinclair KA, Townsend C, Hawley NL, Haggard-Duff LK, Kaholokula JK. Diabetes Disparities and Promising Interventions to Address Diabetes in Native Hawaiian and Pacific Islander Populations. *Current Diabetes Reports*. 2019;19(5). <https://doi.org/10.1007/s11892-019-1138-1>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: Review culturally-adapted diabetes interventions focused on addressing disparities among NHPI communities.

Main Findings: Recent culturally-adapted diabetes interventions have shown promise in addressing these disparities among Native Hawaiian and Pacific Islander (NHPI) communities. The interventions showed success by utilizing a community-based approach that honored NHPs' collectivist culture, addressed social determinants of health that influence disease control and prevention, and utilized NHPI community health workers (CHWs) and peer educators for key roles in implementation of the intervention.

Strengths/Limitations: The review is limited to interventions that have emerged from academic centers with an explicit focus on the NHPI population and not a more systematic review.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Searched six databases relevant to the health and social sciences. Applied combinations of select keyword terms, specific inclusion criteria, and studies between 1997 and 2012.

Mitchell SA, Kneipp, SM, Giscombe CW. Social Factors Related to Smoking among Rural , Low-Income Women: Findings from a Systematic Review. *Public Health Nursing*. 2015;33(3):214–223.

<https://doi.org/10.1111/phn.12233>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To systematically review the literature in order to evaluate congruency of findings from descriptive, qualitative, and association studies that focus on factors influencing smoking and smoking cessation with findings from smoking cessation interventions that specifically included low-income, rural women.

Main Findings: Qualitative studies found social support received from an individual's social network was viewed as most beneficial when considering or maintaining smoking cessation. Randomized controlled trials included in this review tended to implement social supports through more peripheral resources or resources with little personal connection to the sample and failed to produce significant results. There is a limited body of research on smoking cessation interventions that include low-income, rural women. With respect to research that is available, study findings lack congruency; the authors therefore suggest that future research can be improved by designing interventions that incorporate a richer understanding of the social and cultural meanings of smoking in low-income, rural women.

Strengths/Limitations: Slightly outdated; the review does not include studies published after 2012. Findings limited to rural communities, meaning that intervention external validity may not hold up in non-rural settings.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Searched six databases relevant to the health and social sciences. Applied combinations of select keyword terms, specific inclusion criteria, and studies between 1997 and 2012.

Moffa M, Cronk R, Fejfar D, Dancausse S, Padilla LA, Bartram J. A systematic scoping review of environmental health conditions and hygiene behaviors in homeless shelters. *International Journal of Hygiene and Environmental Health*. 2019;222(3):335–346. <https://doi.org/10.1016/j.ijheh.2018.12.004>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To report on the status of environmental health conditions and hygiene behaviors in homeless shelters in relation to health outcomes. The report considers interventions aimed at improving these environmental health conditions, hygiene behaviors, and the associated health outcomes while also highlighting challenges to successful intervention implementation.

Main Findings: The review consisted of 28 studies. Insufficient ventilation systems, unhygienic bedding, and overcrowding were the most documented environmental health and hygiene deficiencies in homeless shelters, and [tuberculosis](#) infections and skin diseases were the most documented associated health outcomes among clients. Studies frequently recommended or described implementation of behavioral and administrative controls, ventilation system improvements, and ultraviolet germicidal irradiation fixtures.

Strengths/Limitations: Most studies focused on tuberculosis and were conducted in high-income countries; findings not limited to the United States.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Searched PubMed, Web of Science, Scopus, and EBSCOhost for peer-reviewed studies and grey literature. Studies were included if they reported primary data on one or more environmental health conditions or hygiene behavior in homeless shelters.

Mohan G, Chattopadhyay S. Cost-effectiveness of Leveraging Social Determinants of Health to Improve Breast, Cervical, and Colorectal Cancer Screening: A Systematic Review. *JAMA Oncology*. 2020.

<https://doi.org/10.1001/jamaoncol.2020.1460>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To systematically review economic evaluations of interventions that consider social determinants of health with the purpose of improving screening for breast, cervical, and colorectal cancer.

Main Findings: Study findings suggest that interventions leveraging social determinants of health to enhance breast, cervical, and colorectal cancer screening are cost-effective for underserved, vulnerable populations in the United States. Based on the 30 evaluations considered, the median intervention cost per participant was \$123.87, the median incremental cost per additional person screened was \$250.37, and the median incremental cost per quality-adjusted life-year gained was \$3,120.00.

Strengths/Limitations: Review limited to breast, cervical, and colorectal cancer patients.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Searched MEDLINE, Embase, PsycINFO, Cochrane Library, Global Health, Scopus, Academic Search Complete, Business Source Complete, EconLit, CINAHL (Cumulative Index to Nursing and Allied Health Literature), ERIC (Education Resources Information Center), and Sociological Abstracts for studies that leveraged SDOH to improve breast, cervical, and colorectal screening in the U.S. Sources included in the systematic review had to have been published between 2004 and 2019. Studies also had to have reported on intervention cost, incremental cost per

additional person screened, and/or incremental cost per quality-adjusted life-year. Risk of bias and quality assurance/reporting accuracy were also assessed.

Moreland AD, McRae-Clark A. Parenting outcomes of parenting interventions in integrated substance-use treatment programs: A systematic review. *Journal of Substance Abuse Treatment*. 2018;89:52–59. <https://doi.org/10.1016/j.jsat.2018.03.005>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives, Performance Measures Related to SDOH and Equity

Type of Source: Journal article

Objective: To evaluate parental outcomes on integrated programs that include a parenting intervention and moderators of parenting and parental substance use/relapse.

Main Findings: The review found that substance use decreased in relation to interventions. Findings pertaining to parenting behavior and mental health were mixed; however, evaluation measures were not standard across studies.

Strengths/Limitations: The review included studies on a relatively wide range of populations. For example, some studies focused on young children whereas others were exclusive to older children. Caution is therefore required when generalizing findings. The paper reviews both randomized controlled trials and uncontrolled studies; however, qualitative research is excluded from the analysis. Additionally, the fact that measures often varied across studies makes it more difficult to draw conclusions across studies. Lastly, although interventions generally recorded a decrease in substance use, it is unclear the extent to which parenting interventions directly influence substance use; most of the parenting interventions were not specifically intended for parents with substance use challenges (but rather high-risk populations more broadly).

Generalizability to Medicare Population: Low. The study focuses on a population that is unlikely to align with the Medicare population.

Methods: Searched PsycINFO, PubMed, and Google Scholar to identify research published between 1996 and 2016 that aligned with keyword search terms. To be included, studies had to address at least one additional concern beyond substance use (e.g., mental health) and use quantitative data (qualitative studies were not included).

National Academies of Sciences, Engineering, and Medicine. Integrating social care into the delivery of health care: moving upstream to improve the nation's health. Washington, DC: National Academies Press; 2019. <http://nationalacademies.org/hmd/Reports/2019/integrating-social-care-into-the-delivery-of-health-care>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives, Incorporation of SDOH and Equity in CMMI Models

Type of Source: Report

Objective: To report on the outcomes of an 18-month study lead by an 18-person committee of experts seeking to examine the potential for integrating services addressing social needs and SDOH into the delivery of health care.

Main Findings: The committee established five interrelated elements/capabilities fundamental to the integration of social care into health care:

Awareness of the social risks faced by patients and communities;

Capacity to adjust care to accommodate the social barriers faced by a particular patient or community;

Ability to assist patients in accessing the necessary social care resources;

Understanding of social care assets in a given community and then the alignment of these preexisting assets and health care systems; and

Advocacy of policies that facilitate the creation and redeployment of necessary resources.

Additionally, the committee maintains that the successful integration of social care into health care requires an adequately staffed and trained workforce, appropriate health information technologies, and new financing models.

Strengths/Limitations: In gathering evidence from which to base recommendations, the committee did not conduct a systematic literature review, though the committee's report did undergo review by an independent, external group of experts.

Generalizability to Medicare Population: High. The findings are generalizable to all patients; however, the report includes specific steps that CMS can take to facilitate the committee's recommendations.

Methods: The committee conducted a search of peer-reviewed literature, reports from governmental agencies and private organizations, books, websites, and presentations to the committee.

Nelson HD, Bougatsos C, Blazina I. Screening Women for Intimate Partner Violence: A Systematic Review to Update the U.S. Preventive Services Task Force Recommendation. *Annals of Internal Medicine*. 2012;156(11):796. <https://doi.org/10.7326/0003-4819-156-11-201206050-00447>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To review new evidence on the effectiveness of screening and interventions for women in health care settings in reducing intimate partner violence (IPV) and related health outcomes, the accuracy of screening instruments, and adverse effects of screening and interventions.

Main Findings: One study found that a screening intervention reduced IPV and improved health outcomes for both the treatment and control groups, but no statistically significant differences between groups. Fifteen studies evaluated 13 distinct screening instruments; six instruments proved to be highly accurate. Four trials of counseling reported reduced IPV and improved birth outcomes for pregnant women, reduced IPV for new mothers, and reduced pregnancy coercion and unsafe relationships for women in family planning clinics. Fourteen studies indicated minimal adverse effects with screening, but some women experienced discomfort, loss of privacy, emotional distress, and concerns about further abuse. Report concluded that screening instruments appear to effectively identify women experiencing IPV and generally do not result in adverse effects.

Strengths/Limitations: Review does not include studies published post-2012. Of the studies included, generalizability is limited due to attrition, self-reported measures, and lack of true control groups.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Searched MEDLINE, PsycINFO, Cochrane Central Register of Controlled Trials and Cochrane Database of Systematic Reviews, Scopus, and reference lists for English-language trials between the 2002 and 2012. Selected studies considered at least one of the following topics:

efficacy of screening and interventions, diagnostic accuracy of screening instruments, and adverse effects related to screenings and interventions.

Newlin K, Dyess SM, Allard E, Chase S, Melkus GD. A Methodological Review of Faith-Based Health Promotion Literature: Advancing the Science to Expand Delivery of Diabetes Education to Black Americans. *Journal of Religion and Health*. 2012;51(4):1075–1097. <https://doi.org/10.1007/s10943-011-9481-9>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To systematically review the faith-based health promotion literature relevant to Black Americans with type 2 diabetes with the goal of advancing the science of faith-based intervention and expanding the effective delivery of diabetes self-management education to Black Americans.

Main Findings: Of the 14 studies reviewed, most incorporated collaborative research approaches, pre-experimental designs, similar recruitment and retention strategies, and culturally informed/behaviorally oriented interventions that included social support resources. Findings suggest that faith-based organizations could serve as a vehicle for the successful delivery of diabetes self-management education.

Strengths/Limitations: The review was restricted to quantitative studies and does not cover research published post-2010. Most studies reviewed did not include theoretical frameworks, and many lacked metrics for key behavioral factors (e.g., social supports, cultural sensitivity), which presents challenges when attempting to link interventions to observed outcomes.

Generalizability to Medicare Population: Limited. There is brief mention of Medicare as the benchmark setter for third-party payers reimbursing outpatient diabetes self-management education.

Methods: Sources were gathered using the MEDLINE, CINAHL, and PsycINFO databases. The review was limited to quantitative studies published between 1990 and 2010.

Newman N, Ferguson M, Dutton MJ, Mann C. In Pursuit of Whole Person Health: Leveraging Medicaid Managed Care & 1115 Waivers to Address SDOH. Manatt. October 28, 2020. Accessed July 22, 2021. <https://www.manatt.com/insights/newsletters/manatt-on-health-medicaid-edition/in-pursuit-of-whole-person-health-leveraging-medic>.

Subtopic(s): Use of SDOH and Equity Data for Reimbursement, and Effectiveness of SDOH and Equity Interventions

Type of Source: Report

Objective: To explore how states are using two key tools—Medicaid managed care contracts and 1115 waivers—to address the unmet social needs of people with Medicaid coverage.

Main Findings: It is now commonplace for states to require MCOs to make efforts to address the unmet social needs of their members. Of the 39 states and territories in the analysis, 38 include at least one contractual requirement related to SDOH. Many states use their contracts to target SDOH initiatives to specific subpopulations, with women, children, and members with high needs the most common. Sixteen states are leveraging 1115 waivers to test out new SDOH models, primarily via pilot programs.

Strengths/Limitations: The report provides a comprehensive overview of MCO activities across participating states.

Generalizability to Medicare Population: The report focuses on approaches to leveraging Medicaid managed care.

Methods: Review of documents and administrative information.

Nichols D, Farrell K, Morrison M, Berkman N, Gavin N. State Innovation Models (SIM) Round 2: Model Design Final Report. 2017. Research Triangle Park, NC: RTI International.

<https://innovation.cms.gov/files/reports/sim-designrd2-final.pdf>

Subtopic(s): Incorporation of SDOH and Equity in CMMI Models

Type of Source: Report

Objective: To review the CMMI State Innovation Models (SIM) Initiative designs to understand which health care delivery systems and payment models have been proposed, the geographic and population reach of the models, and how the models address the policy and regulatory requirements associated with round two model funding.

Main Findings: Across states, models aimed to improve population health, reduce spending or increase value of spending, and enhance care quality and health system performance. All models relied on one or more of four delivery systems and payment models: patient-centered medical homes (10 states), health homes (nine states), accountable care organizations (eight states), and episodes of care (five states). Other models such as global-funding approaches were also employed. All states proposed strategies to improve health information exchange and the overwhelming majority of states sought to ensure an adequate health workforce. Most state models were limited to Medicaid and public employee plans. About half of states specifically target vulnerable populations, and 15 states aim to improve the delivery of behavioral health. Multi-stakeholder committees were the most common approach to oversee model activities.

Strengths/Limitations: Report does not address the actual implementation or efficacy of models. Not all models provide details regarding funding-related activities such as sources and budget estimates.

Generalizability to Medicare Population: Moderate. Some of the models reviewed were specific to or inclusive of Medicare beneficiaries.

Methods: To address the evaluation research questions, the research team analyzed data from each of the State Health System Innovation Plans (SHSIPs) and reviewed supporting state documents, state model design applications, quarterly reports of models, and SHSIP websites. These data sources were used to create data abstractions from which cross-state themes could be derived.

NORC at the University of Chicago. Innovative Approaches to Addressing Social Determinants of Health for Medicare Advantage Beneficiaries. Commissioned by Better Medicare Alliance's Center for Innovation in Medicare Advantage. 2021. <https://bettermedicarealliance.org/wp-content/uploads/2021/08/Innovative-Approaches-to-Addressing-SDOH-for-MA-Beneficiaries-FINAL.pdf>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Report

Objective: To examine current approaches to addressing social determinants of health in Medicare Advantage and provide policy recommendations for future efforts.

Main Findings: Health plans have focused on addressing social needs of their beneficiaries by identifying reliable sources for data on beneficiary social needs and incorporating the information into clinical programs; delivering services or connecting beneficiaries to services that address social

needs; and tracking health outcomes and return on investment (ROI) associated with interventions. The research identifies several policy recommendations that would enhance the growth and sustainability of health plans and partner organizations to meet the social needs of their beneficiaries.

Strengths/Limitations: N/A

Generalizability to Medicare Population: High. The report focuses on innovation within Medicare Advantage.

Methods: The study included a review of published literature related to SDOH data programs and interventions within Medicare Advantage; interviews with leaders and experts from health plans, Medicare-focused health care providers, CBOs that partner with health plans, and vendors; and consultation with Medicare policy experts.

North Carolina Department of Health and Human Services. DHHS Announces Three Regions for Medicaid Health Opportunities Pilots – A Major Milestone for Nation’s First Comprehensive Medicaid Program to Address Non-Medical Drivers of Health. May 27, 2021. Accessed July 15, 2021.

<https://www.ncdhhs.gov/news/press-releases/2021/05/27/dhhs-announces-three-regions-medicaid-healthy-opportunities-pilots-major-milestone-nations-first>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website.

Objective: To describe the North Carolina Department of Health and Human Services’ selection of organizations to serve three regions of the state in an effort to test evidence-based, non-medical interventions designed to reduce costs and improve the health of Medicaid beneficiaries.

Main Findings: The program will create a systematic approach to integrating and financing non-medical services that address housing stability, transportation access, food security, and interpersonal safety into the delivery of health care.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The initiative is implemented under the North Carolina Medicaid Managed Care program.

Methods: N/A

North Carolina Department of Health and Human Services. Healthy Opportunities. Accessed July 15, 2021. <https://www.ncdhhs.gov/about/department-initiatives/healthy-opportunities>

Subtopic(s): Use of SDOH and Equity Data for Reimbursement

Type of Source: Website.

Objective: To describe the North Carolina Department of Health and Human Services’ Healthy Opportunities pilot program.

Main Findings: In an effort to improve the health, safety, and well-being of North Carolinians, DHHS is addressing the conditions in which people live with an initial focus is on housing stability, food security, transportation access, and interpersonal safety.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The initiative is implemented under the North Carolina Medicaid Managed Care program.

Methods: N/A

Nurmagambetov TA, Barnett SB, Jacob V, Chattopadhyay SK, Hopkins DP, Crocker DD, Dumitru GG, Kinyota S. Economic value of home-based, multi-trigger, multicomponent interventions with an environmental focus for reducing asthma morbidity: A community guide systematic review. *American Journal of Preventive Medicine*. 2011;41(2 SUPPL. 1):S33–S47.

<https://doi.org/10.1016/j.amepre.2011.05.011>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To identify the economic value of the interventions included in a prior review of home-based, multi-trigger, multicomponent interventions with an environmental focus and present ranges for the key economic outcomes.

Main Findings: Cost-benefit and cost-effectiveness studies suggest that the above mentioned interventions offer a good value for intervention cost. Program costs per participant per year ranged from \$231–\$14,858. Benefit–cost ratios ranged from 5.3–14.0 (i.e., for every dollar spent, the monetary value of the resulting benefits, such as averted medical costs or averted productivity losses, was \$5.30–\$14.00). Incremental cost-effectiveness ratios ranged from \$12–\$57 (i.e., interventions achieved each additional symptom-free day for net costs varying from \$12–\$57).

Strengths/Limitations: Review is limited to research published prior to 2008. Not all of the 13 studies reviewed included all of the cost-benefit and cost-effectiveness results used to draw conclusions for the purpose of this study (i.e., the sample size from which conclusions are made is relatively small).

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: A total of 1,551 studies were identified in the search period (1950 to June 2008); 13 studies were included in this review.

Office of Disease Prevention and Health Promotion. Social Determinants of Health. Accessed July 19, 2021. <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>

Subtopic(s): Appendix C: Definitions of SDOH and Equity

Type of Source: Website

Objective: To provide an overview of social determinants of health and the agency’s philosophy and approach.

Main Findings: The webpage presents background information about social determinants of health, including a definition, relevant domains, and Healthy People 2030’s role in addressing social determinants of health.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The definition has direct relevance for Medicare beneficiaries.

Methods: N/A

Peacock S, Konrad S, Watson E, Nickel D, Muhajarine N. Effectiveness of home visiting programs on child outcomes: A systematic review. *BMC Public Health*. 2013;13(17). <https://doi.org/10.1186/1471-2458-13-17>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To systematically review the effectiveness of paraprofessional home-visiting programs on developmental and health outcomes of young children from disadvantaged families.

Main Findings: Intervention-driven improvements to the development and health of young children were observed for certain groups. These include: (1) prevention of child abuse in some cases, particularly when the intervention is initiated prenatally; (2) developmental benefits in relation to cognition and problem behaviors, and less consistently with language skills; and (3) reduced incidence of low birth weights and health problems in older children, and increased incidence of appropriate weight gain in early childhood. In general, however, the review concludes that home-visiting programs are limited in improving the lives of socially high-risk children who live in disadvantaged families.

Strengths/Limitations: Report does not include studies published after 2012. The sample of studies meeting the validity tool threshold was relatively small (n = 21), especially given that not all studies were conducted in the U.S.

Generalizability to Medicare Population: Limited. The study focuses on a population that is unlikely to align with the Medicare population.

Methods: Searched multiple databases (e.g., MEDLINE, Cochrane) from 1990 to 2012, as well as reference lists to enhance comprehensiveness of search. Studies were analyzed in duplicate. The studies included were English language publications of paraprofessional home-visiting programs that evaluated outcomes for children (birth to age six) from disadvantaged families.

Pega F, Carter K, Blakely T, Lucas PJ. In-work tax credits for families and their impact on health status in adults. *Cochrane Database of Systematic Reviews*. 2013;2013(8).

<https://doi.org/10.1002/14651858.CD009963.pub2>

Subtopic(s): Evaluation of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To evaluate the impacts of in-work tax credits (IWTCs) for families on health outcomes in working-age adults (18 to 64 years).

Main Findings: According to the study authors, the small and methodologically limited existing body of evidence with a high risk of bias offers no evidence for an effect of IWTCs interventions on health status (except for mixed evidence for tobacco smoking) in adults.

Strengths/Limitations: Report does not include studies published post-2012. Only five studies were reviewed. Of the five primary outcomes evaluated, a couple of the metrics were self-reported (e.g., "self-rated general health"), which could introduce bias.

Generalizability to Medicare Population: Limited. The study focuses on a population that is unlikely to align with the Medicare population.

Methods: Searched 16 academic databases (e.g., Cochrane Public Health Group), as well as six grey literature databases for records published between 1980 and 2012. The search also included key organizational websites, hand-searched reference lists of included records and relevant journals, and contacted academic experts. To be included in the review, studies had to be a randomized or quasi-randomized controlled trial and cohort, controlled before-and-after (CBA), and interrupted time series (ITS) studies of IWTCs in working-age adults. Two review authors independently extracted data and assessed the risk of bias in included studies.

Physician-Focused Payment Model Technical Advisory Committee. *REPORT to the SECRETARY of HEALTH and HUMAN SERVICES: Comments and Recommendation on Community Aging in Place – Advancing Better Living for Elders (CAPABLE) Provider-Focused Payment Model*. Office of the Assistant Secretary for Planning and Evaluation; 2019.

<https://aspe.hhs.gov/sites/default/files/private/pdf/261881/ReporttotheSecretaryHopkinsStanford.pdf>

Subtopic(s): Incorporation of SDOH and Equity in Selected PTAC Proposals

Type of Source: Report

Objective: To report PTAC's recommendation and deliberation on the CAPABLE PFPM to the Secretary of the U.S. Department of Health and Human Services.

Main Findings: PTAC unanimously recommends the CAPABLE proposal for testing to inform payment model development. PTAC finds the proposal to meet 7 of 10 criteria, and deserves priority consideration on the scope, patient choice, and patient safety criteria. The proposal was determined to address an important gap in Medicare FFS by improving beneficiary health and well-being by enabling beneficiaries to live safely and independently at home.

Strengths/Limitations: N/A

Generalizability to Medicare Population: High. This is a report on a PFPM directly targeting Medicare beneficiaries.

Methods: N/A

Pooler JA, Srinivasan M. Association Between Supplemental Nutrition Assistance Program Participation and Cost-Related Medication Nonadherence Among Older Adults With Diabetes. *JAMA Internal Medicine*. 2019;179(1):63–70. <https://doi.org/10.1001/jamainternmed.2018.5011>

Subtopic(s): Defining HRSNs

Type of Source: Journal article

Objective: To examine whether participation in the Supplemental Nutrition Assistance Program (SNAP) is associated with a reduced likelihood of low-income older adults with diabetes (aged 65+) needing to forgo medications because of cost.

Main Findings: Participants in SNAP had a moderate decrease in cost-related medication nonadherence compared with eligible nonparticipants (5.3 percentage point reduction; 95% CI, 0.5-10.0 percentage point reduction; P = .03). Similar reductions were observed for subgroups that had prescription drug coverage (5.8 percentage point reduction; 95% CI, 0.6-11.0) and less than \$500 in out-of-pocket medical costs in the previous year (6.4 percentage point reduction; 95% CI, 0.8-11.9), but not for older adults lacking prescription coverage or those with higher medical costs. Findings suggest participation in SNAP may improve adherence to treatment regimens among older adults with diabetes.

Strengths/Limitations: NHIS dataset utilized in analysis is cross-sectional, limiting the ability to determine the association of SNAP with cost-related medication nonadherence. Propensity score-matching framework was unable to control for unobserved confounders that may be correlated with both SNAP participation and cost-related medication nonadherence. The authors experimented with alternative comparison groups likely to be more similar to the treatment group with regards to unobserved confounders, and results remained robust. Self-reported measures (medication nonadherence and SNAP participation) may be subject to measurement error, potentially biasing results. Reasons outside of cost were not examined with regards to medication nonadherence.

Generalizability to Medicare Population: High. The study population consisted of older adults aged 65+, which aligns with the Medicare population.

Methods: Repeated cross-sectional population-based secondary data analysis

Rivera RL, Maulding MK, Eicher-Miller HA. Effect of Supplemental Nutrition Assistance Program-Education (SNAP-Ed) on food security and dietary outcomes. *Nutrition Reviews*. 2019;77(12):903–921. <https://doi.org/10.1093/nutrit/nuz013>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To review research concerning SNAP-Ed’s effectiveness at improving food security and nutritional outcomes.

Main Findings: Review found there to be relatively strong evidence for SNAP-Ed as an effective approach for providing food security (e.g., observed improvements in management of food resources). Evidence for dietary outcomes was also generally positive (e.g., increases in participants indicating the addition of fruits and vegetables to diet).

Strengths/Limitations: Lack of consistency across studies in regard to measurement tools and outcomes. Although sample of studies reviewed in relation to food security was small, the randomized, controlled, and longitudinal nature of the studies enhances their causal validity. However, evidence related to dietary outcomes was not always drawn from RCTs or panel studies, and a single outcome (e.g., intention to change nutrition-related behaviors) was often limited to the findings from a single study.

Generalizability to Medicare Population: Limited. The study focuses on a population that is unlikely to align with the Medicare population.

Methods: Substantive inclusion criteria applied, searched peer-reviewed journal articles (via academic databases) and their reference lists, as well as government reports published before 2018. Fourteen articles met the inclusion criteria.

Ruiz S, Snyder LP, Rotondo C, Cross-Barnet C, Colligan EM, Giuriceo K. Innovative Home Visit Models Associated With Reductions In Costs, Hospitalizations, And Emergency Department Use. *Health Affairs*. 2017;36(3):425-432. https://www.healthaffairs.org/doi/10.1377/hlthaff.2016.1305?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%20pubmed

Subtopic(s): Incorporation of SDOH and Equity in CMMI Models, Evaluation of the Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To evaluate the efficacy of home-based care provided by practice-extender teams (e.g., RNs, lay health workers).

Main Findings: Five CMMI models were evaluated, two of which led to significant reductions in Medicare expenditures, and three of which decreased utilization (i.e., emergency department visits, hospitalizations, or both) for beneficiaries relative to comparators. The findings are suggestive of the potential value of home visits by practice-extender teams to reduce Medicare expenditures and service use.

Strengths/Limitations: Medicare claims were the primary data source so analysis was limited to variables provided in the dataset (e.g., disease severity and functional status data were not available). The findings are limited to the experience of FFS Medicare beneficiaries. Lastly, each

home visit model evaluated served a heterogeneous population (e.g., varying diagnoses, etc.). The analytic samples were therefore unlikely to fully represent the experiences of all enrolled beneficiaries in the five models.

Generalizability to Medicare Population: High – paper evaluated five CMMI funded models that targeted FFS Medicare beneficiaries with chronic conditions.

Methods: The study population included participants in each model who were enrolled for any part of the period July 2012–December 2015, as well as nonparticipant comparators matched to each participant. Quantitative analysis included both difference-in-differences and time-series models. Qualitative analysis included telephone interviews with model leadership, site visits (focus groups or interviews with staff and participants), and direct observation of home visits.

Ruiz D, McNealy K, Corey K, Simmerman J, Zurovac J, McLaughlin C, Barna M, Mleczko M. Final Evaluation Report: Evaluation of the Community-based Care Transitions Program. 2017.

<https://downloads.cms.gov/files/cmml/cctp-final-eval-rpt.pdf>

Subtopic(s): Incorporation of SDOH and Equity in CMMI Models, Evaluation of the Effectiveness of SDOH and Equity Initiatives

Type of Source: Evaluation report

Objective: To report on findings from the CCTP demonstration.

Main Findings: CCTP participants had lower readmission rates and Medicare expenditures relative to matched comparison. CCTP participants exhibited readmission rates that were 1.8 percentage points lower than matched comparisons, and their Medicare expenditures were \$634 lower.

Strengths/Limitations: The cross-sectional regression analyses cannot be used to show impact of the CCTP due to the inability to observe patient-level pre-CCTP outcomes or identify a baseline cohort of potential CCTP participants.

Generalizability to Medicare Population: High. The demonstration focused on Medicare beneficiaries.

Methods: Evaluation methods included analyses of claims data, provider interviews, patient and provider focus groups, and site visits.

Sahyoun NR, Vaudin A. Home-Delivered Meals and Nutrition Status Among Older Adults. *Nutrition in Clinical Practice*. 2014;29(4):459–465. <https://doi.org/10.1177/0884533614536446>

Subtopic(s): Evaluation of the Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To summarize the literature on the relationship between home-delivered meal programs (i.e., the Older Americans Act home-delivered meal program) and health outcomes.

Main Findings: Studies suggest that the home-delivered meal program is well targeted, efficient, and well liked; provides quality food to needy individuals; and helps individuals remain living independently. Additionally, research indicates that the program has improved dietary intake and decreased institutionalization of older adults and resulting health care expenditures. That being said, available funding does not match the increased demand for this program.

Strengths/Limitations: Researchers shared the challenges around evaluating the home-delivered meal program due to the program's multifactorial influence on health outcomes. The report indicates that their analysis was limited due to the small body of research employing rigorous

research designs. Report does not provide description of their inclusion criteria or assessment methodology.

Generalizability to Medicare Population: Moderate. Home-delivered meals programs often provide services to Medicare eligible individuals.

Methods: Not provided in paper.

Samuel LJ, Szanton SL, Cahill R, Wolff JL, Ong P, Zielinskie G, Betley C. Does the Supplemental Nutrition Assistance Program Affect Hospital Utilization Among Older Adults? The Case of Maryland. *Population Health Management*. 2018;21(2):88–95. <https://doi.org/10.1089/pop.2017.0055>

Subtopic(s): Defining HRSNs

Type of Source: Journal article

Objective: To examine whether Supplemental Nutrition Assistance Program participation and benefit levels are associated with reduced subsequent hospital and emergency department utilization in low-income older adults.

Main Findings: SNAP participation and each \$10 increase in monthly benefits are associated with a reduced likelihood of hospitalization, but not emergency department use. Authors estimate enrolling 47% of the 2012 population who were eligible nonparticipants in SNAP could have been associated with \$19 million in hospital cost savings.

Strengths/Limitations: SNAP participants may differ from nonparticipants on unmeasured characteristics, which may have biased associations and the study cost savings calculations.

Generalizability to Medicare Population: High. The study focused on older adults and utilized Medicare claims data to establish associations of SNAP participation with hospital/ED utilization.

Methods: Retrospective cohort analysis.

Sandel M, Baeder A, Bradman A, Hughes J, Mitchell C, Shaughnessy R, Takaro TK, Jacobs DE. Housing interventions and control of health-related chemical agents: a review of the evidence. *Journal of Public Health Management and Practice*. 2010;16(5 Suppl):S24-S33.

<https://doi.org/10.1097/PHH.0b013e3181e3cc2a>

Subtopic(s): Evidence of the Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To review and assess evidence on the effectiveness of housing interventions that affect health outcomes associated with exposure to chemical agents, such as pesticides, lead, volatile organic compounds, as well as radon gas.

Main Findings: The review suggests that housing improvements are likely to help reduce radon-induced lung cancer, cardiovascular mortality related to secondhand smoke, and neurological effects from exposure to pesticides and lead paint. Investing in housing interventions may yield important savings from reduced disease and injury from avoidable exposures to chemical agents.

Strengths/Limitations: Review limited to pre-2010. Only four of the 14 interventions reviewed had been implemented and contained sufficient evidence available for assessment.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: The review included both published literature and peer-reviewed reports from the U.S. Environmental Protection Agency. Fourteen interventions were selected for inclusion.

Silverman K, Holtyn AF, Subramaniam S. Behavior analysts in the war on poverty: Developing an operant antipoverty program. *Experimental and Clinical Psychopharmacology*. 2018;26(6):515–524. <https://doi.org/10.1037/pha0000230>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To review research on the *therapeutic workplace* that focuses on the development of employment-related behaviors and employment in low-income adults who have long histories of drug addiction.

Main Findings: Lack of participant adherence to program is a common obstacle to achieving intended outcomes. There is evidence for successful intervention, however, when participation is high. Participation is proven to be higher when incentives or stipends are made available to participants.

Strengths/Limitations: Low participation in intervention makes it difficult to distinguish between observed outcomes being due to a misguided therapeutic workplace theoretical framework and lack of fidelity to program intervention.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: Not provided in paper.

Slopen N, Fenelon A, Newman S, Boudreaux M. Housing Assistance and Child Health: A systematic Review. *Pediatrics*. 2018;141(6). <https://doi.org/10.1542/peds.2017-2742>

Subtopic(s): Evaluate the Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To summarize and evaluate research in which authors examine housing assistance and child health.

Main Findings: Across studies, the relationship between housing assistance and child health remains unclear, with about 40 percent of examined outcomes revealing no association between housing assistance and health. Many of the observed relationships within the quasi-experimental and association studies were in favor of housing assistance (50.0 percent and 37.5 percent, respectively), and negative outcomes were less common and only present among association studies.

Strengths/Limitations: Potential publication bias due to the tendency to not publish null findings; majority of studies were cross-sectional, thereby inhibiting potential to make causal claims; and there was considerable variation in outcomes, measurement quality, and methods to address confounding.

Generalizability to Medicare Population: N/A

Methods: Searched PubMed, Web of Science, PsycINFO, and PAIS for articles published between 1990 and 2017. To be eligible for inclusion, studies had to contain assessments of public housing, multifamily housing, or vouchers in relation to a health outcome in children (ages 0–21). The review included 14 studies that examined a range of health outcomes.

Spencer RA, Komro KA. Family Economic Security Policies and Child and Family Health. *Clinical Child and Family Psychology Review*. 2017;20(1):45–63. <https://doi.org/10.1007/s10567-017-0225-6>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: Examine the effects of family economic security policies (i.e., minimum wage, earned income tax credit, unemployment insurance, Temporary Assistance to Needy Families) on child and family health outcomes, summarize policy generosity across states in the U.S., and discuss directions and possibilities for future research.

Main Findings: There is increasing evidence that family economic security policies impact health outcomes and behaviors of adults and children. Policies which are more restrictive are associated with poorer health behaviors and outcomes; however, the strength of the evidence differs across each of the four policies. There is significant diversity in state-level policies, and it is plausible that these policy variations are contributing to health disparities across and within states.

Strengths/Limitations: Most studies reviewed did not examine interactions between the various economic policies or control for other family economic security policy changes.

Generalizability to Medicare Population: Limited. The study focuses on a population that is unlikely to align with the Medicare population.

Methods: A panel of subject matter experts systematically reviewed the evidence.

State Health Access Data Assistance Center. *Risk Adjustment Based on Social Factors: State Approaches to Filling Data Gaps*. University of Minnesota State Health Access Data Assistance Center. 2020.

https://www.shvs.org/wp-content/uploads/2020/08/FINAL_SHVS-Risk-Adjustment-Brief.pdf

Subtopic(s): Use of SDOH and Equity Data for Reimbursement, and Effectiveness of SDOH and Equity Interventions

Type of Source: Issue Brief

Objective: Examine examples from two state Medicaid programs' and one nonprofit's quality measurement and reporting organization of the data sources they use to identify patients' social risk factors when risk-adjusting payments or quality measure performance.

Main Findings: A key challenge to incorporating social risk factors into risk-adjustment methodologies is filling data gaps, since health care historically hasn't systematically collected data on issues such as food insecurity, transportation access, and housing stability. However, the examples in this brief illustrate innovative approaches to addressing that challenge using administrative/claims data, survey data, and new data collection.

Strengths/Limitations: The brief presents a limited set of case examples.

Generalizability to Medicare Population: High. The discussion of incorporation of risk adjustment based on social factors is applicable to the Medicare population.

Methods: The authors reviewed publicly available documentation and articles on the three profiled examples of risk adjustment based on social risk factors. They also conducted supplemental interviews with Medicaid staff from Minnesota's Department of Human Services and staff from Minnesota Community Measurement.

Suzuki I, Cullen KJ, Mehra R, Bentzen S, Goloubeva OG. Racial disparities in outcome among head and neck cancer patients in the united states: an analysis using seer-medicare linked database. *Journal of Clinical Oncology*. 2018;37(15):6051–6051. https://doi.org/10.1200/JCO.2019.37.15_suppl.6051

Subtopic(s): Performance Measures Related to SDOH and Equity

Type of Source: Journal article

Objective: To highlight racial disparities in outcomes for head and neck cancer patients using the SEER-Medicare linked database.

Main Findings: The study demonstrates that African Americans have inferior outcomes compared to Caucasian Americans despite similar treatments, comorbidities, age at diagnosis, stage at presentation, tumor location, year of diagnosis and sex. Findings were statistically significant.

Strengths/Limitations: The study is relatively recent, and although the dataset was considerably reduced in order to avoid biasing results, the high number of exclusion criteria limit the likelihood of confounders having influenced results.

Generalizability to Medicare Population: High – study focused on Medicare patients age 66 or older.

Methods: The study used the SEER-Medicare linked database to identify patients age 66 or older diagnosed with head or neck cancer as their first cancer between 1992 and 2011. The dataset was further refined to exclude potential confounders such as those with metastatic disease, salivary cancers, or patients who had not received treatment within the first 180 days of diagnosis, amongst others. Overall survival parameters were estimated across ethnic groups using the Cox regression model stratified by site and stage of cancer at diagnosis, adjusted for clinical and demographic characteristics, and propensity score weighted.

Szanton SL, Alfonso YN, Leff B, Guralnik J, Wolff JL, Stockwell I, Gitlin LN, Bishai D. Medicaid Cost Savings of a Preventive Home Visit Program for Disabled Older Adults. *Journal of the American Geriatrics Society*. 2018;66(3):614-620. <https://pubmed.ncbi.nlm.nih.gov/29165789/>

Subtopic(s): Incorporation of SDOH and Equity in CMMI Models, Evaluation of the Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal article

Objective: To determine whether the Community Aging in Place, Advancing Better Living for Elders (CAPABLE) program saves Medicaid more money than it costs to provide.

Main Findings: The average Medicaid spending per CAPABLE participant was \$867 less per month than that of their matched comparison counterparts (observation period average 17 months, range 1-31 months). The largest differential reduction in expenditures were for inpatient care and long-term services and supports. CAPABLE appears to be associated with lower likelihood of inpatient and long-term service use and lower overall Medicaid spending. The study concludes that the magnitude of reduced Medicaid spending could pay for CAPABLE delivery and provide further Medicaid program savings due to averted services use.

Strengths/Limitations: The study was specific to low income elderly individuals so caution is required when assessing the impact of the model on all Medicare beneficiaries. The CAPABLE program only lasted five months, which may not have been a long enough period for the intervention to have made a full impact on participant outcomes.

Generalizability to Medicare Population: High – study included dually eligible Medicaid and Medicare beneficiaries age 65 and older.

Methods: Single-arm clinical trial (N = 204) with a comparison group of individuals (N = 2,013) dually eligible for Medicaid and Medicare matched on baseline geographic and demographic characteristics, chronic conditions, and healthcare use. Quantitative analysis was performed using finite mixture model regression estimates in a Markov model.

Taylor JS, He W, Harrison R, Zhao H, Sun CC, Lu KH, Giordano SH, Meyer LA. Disparities in treatment and survival among elderly ovarian cancer patients. *Gynecologic Oncology*. 2018;151(2):269–274.
<https://doi.org/10.1016/j.ygyno.2018.08.041>

Subtopic(s): Performance Measures Related to SDOH and Equity

Type of Source: Journal article

Objective: To study the correlation between race and receipt of optimal treatment for ovarian cancer and the effect of this treatment on overall survival.

Main Findings: Compared to Caucasian women, non-white women are less likely to receive the same standard of care for treating their ovarian cancer. White patients were more likely to receive both chemotherapy and surgery. Receipt of just one treatment or neither was correlated with a higher risk of death suggesting that non-white women are more likely to die from their ovarian cancer than are white women.

Strengths/Limitations: One potential limitation often associated with registry and claims data analysis is the inability to establish causation as to why or why not a patient received a particular service – in this case, chemotherapy and/or surgery. The researchers also acknowledge the challenge associated with controlling for all confounding variables such as socioeconomic factors related to race.

Generalizability to Medicare Population: High – study focused on female Medicare patients aged 66 or older.

Methods: The study used the SEER-Medicare linked database to identify women age 66 or older with advanced ovarian cancer between 2002 and 2011. Patients with unclear histology, diagnosed on autopsy and without Medicare Parts A and B were excluded. The analysis used a Chi-square test for categorical variables, F test for continuous variables, and multivariable logistic regression to identify characteristics associated with receipt of surgery and chemotherapy. Kaplan–Meier analysis was used to compare overall survival rates. Cox Proportional Hazards regression was performed to identify factors associated with 5-year survival.

Thomas KS, Dosa D. Results from a pilot randomized control trial of home-delivered meal programs. Meals on Wheels America. 2015. Accessed August 25, 2021.

<https://www.mealsonwheelsamerica.org/docs/default-source/News-Assets/mtam-full-report---march-2-2015.pdf?sfvrsn=6>

Subtopic(s): Defining HRSNs

Type of Source: Special Report

Objective: To characterize the population of older adults on waiting lists for home-delivered meals and compare their health and health-related needs to the population of older adults living in the community, and to determine the feasibility of conducting a randomized controlled trial to evaluate the different home-delivered meals modalities.

Main Findings: When contrasted against a nationally representative comparison sample of aging Americans, the needs of 626 people on Meals on Wheels waiting lists were significantly more likely to report poorer self-rated health, screen positive for depression and anxiety, report recent falls, require assistance with shopping or preparing food, and have hazards both inside and outside the home. Over a 15-week period, the pilot study to evaluate a home-delivered meals program recognized those receiving home-delivered meals had greater improvement in anxiety, self-rated

health, isolation, loneliness, and had reduced rates of hospitalizations and falls compared to the group that did not receive meals.

Strengths/Limitations: Sample size was potentially underpowered, and findings are based on self-reported measures indicating the potential for recall and response bias.

Generalizability to Medicare Population: Moderate. There may be overlap between the population utilizing the Meals on Wheels program or otherwise the population needing food support and the Medicare population.

Methods: Three-arm, parallel, fixed, single-blinded randomized control trial.

Tristão Parra M, Porfírio G, Arredondo EM, Atallah ÁN. Physical Activity Interventions in Faith-Based Organizations: A Systematic Review. *American Journal of Health Promotion*. 2018;32(3):677–690.

<https://doi.org/10.1177/0890117116688107>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: To review and assess the effectiveness of physical activity interventions delivered in faith-based organizations.

Main Findings: Researchers found that, of the 18 studies included in review, interventions delivered in faith-based organizations increased physical activity and positively influenced measures of health and fitness.

Strengths/Limitations: Due to study heterogeneity, researchers were not able to conduct a meta-analysis of the literature.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: The review draws on results from a review of peer-reviewed literature of both randomized and nonrandomized controlled trials exploring the impact of physical activity interventions delivered by faith-based organizations for adults.

Tsega M, Lewis C, McCarthy D, Shah T, Coutts K. Review of Evidence for Health-Related Social Needs Interventions. New York, NY: Commonwealth Fund. 2019.

<https://www.commonwealthfund.org/sites/default/files/2019-07/COMBINED-ROI-EVIDENCE-REVIEW-7-1-19.pdf>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Review Article

Objective: Review the impact of investments in social services on health care costs and utilization among high-need, high-cost patients.

Main Findings: Researchers found strong evidence that providing housing and ensuring that people have access to healthy foods significantly lower health care utilization, thereby reducing costs. There was also moderate evidence that providing transportation to non-emergency care can reduce health care costs. There was limited but promising evidence on return-on-investments around offering legal aid and home modifications.

Strengths/Limitations: Researchers used a broad definition for selecting articles for review given the formative stage of the available evidence.

Generalizability to Medicare Population: Moderate. The study focuses on a population that may align with the Medicare population.

Methods: The review draws on results from a review of peer-reviewed and grey literature on the costs of social service interventions and/or health care utilization outcomes for adult patients of clients.

Towe VL, Leviton L, Chandra A, Sloan JC, Tait M, Orleans T. Cross-sector collaborations and partnerships: essential ingredients to help shape health and well-being. *Health Affairs*. 2016;35(11):1964-1969.

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: Analyze examples of cross-sector collaborations and explore the challenges of how partner sectors outside the health system can lead collaborations.

Main Findings: Based on their review, researchers identified the following areas as opportunities for improvements: cross-sector collaborations should ensure that cross-sector collaborations are integrated; these collaborations should be mindful of any lack of equity in representation; and there should be increased focus on how to support sector partners (e.g., financial or other incentives) to prioritize health and well-being outcomes.

Strengths/Limitations: This review includes a limited number of case examples.

Generalizability to Medicare Population: N/A

Methods: Researchers identified the three primary drivers of the Action Area in the Culture of Health Action Framework and offer suggestions and opportunities for future research.

Turner L, Calvert HG. The Academic, Behavioral, and Health Influence of Summer Child Nutrition Programs: A Narrative Review and Proposed Research and Policy Agenda. *Journal of the Academy of Nutrition and Dietetics*. 2019;119(6):972–983. <https://doi.org/10.1016/j.jand.2019.02.006>

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Journal Article

Objective: The aims of this narrative review are to present existing knowledge about the characteristics of summer nutrition programs and their influence on students, to identify knowledge gaps, and to identify future research needs.

Main Findings: Summer nutrition programs reduced food insecurity among at-risk populations (i.e., children 18 years or younger in low-income communities). Researchers found little evidence of the influence of summer programs on students' dietary intake or weight outcomes.

Strengths/Limitations: This review included a limited set of case examples.

Generalizability to Medicare Population: Limited. The study focuses on a population that is unlikely to align with the Medicare population.

Methods: The review draws on results from a review of peer-reviewed and grey literature on the Summer Food Service Program.

Williams MV, Perez L, Siddiqi S, Qureshi N, Sousa J, Huntington A. Building the Evidence Base on Social Determinants of Health Interventions. 2021. Manuscript in preparation. This research was funded by the U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation under Contract Number HHSP233201500038I and carried out by RAND Health Care.

Subtopic(s): Evidence of Effectiveness of SDOH and Equity Initiatives

Type of Source: Report

Objective: To review evidence on the effectiveness of interventions designed to address social determinants of health.

Main Findings: The report reviews and summarizes evidence on the effectiveness of interventions designed to address the social determinants of health in the domains of economic stability, education, neighborhood and built environment, social and community context, and health care. The report highlights improvements in health outcomes in the areas of asthma and respiratory disease, behavioral health, cancer, cardiovascular disease, child and adolescent health and development, diabetes, general health, health behaviors, infectious disease, injury prevention, maternal health, obesity, and pain.

Strengths/Limitations: N/A

Generalizability to Medicare Population: High. The review highlights several interventions that successfully address the social determinants of health that are relevant for implementation with the Medicare population.

Methods: Systematic review.

World Health Organization. Social Determinants of Health. Published online 2021. Accessed July 19, 2021. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

Subtopic(s): Appendix C: Definitions of SDOH and Equity

Type of Source: Website

Objective: To provide an overview of social determinants of health.

Main Findings: The webpage presents background information about social determinants of health and the World Health Organization's definition and approach to addressing them.

Strengths/Limitations: N/A

Generalizability to Medicare Population: The definition has direct relevance for Medicare beneficiaries.

Methods: N/A

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- ¹ Agency for Healthcare Research and Quality. Social Determinants of Health. Published January 2020. Accessed July 15, 2021, from <https://www.ahrq.gov/sdoh/about.html>
- ² Centers for Disease Control and Prevention. Social Determinants of Health. Last updated 2021. Accessed August 31, 2021. <https://www.cdc.gov/socialdeterminants/about.html>
- ³ Billioux A, Verlander K, Anthony S, Alley D. Standardized Screening for Health-Related Social Needs in Clinical Settings: The Accountable Health Communities Screening Tool. *NAM.edu/Perspectives*. 2017. Accessed July 19, 2021. <https://nam.edu/wp-content/uploads/2017/05/Standardized-Screening-for-Health-Related-Social-Needs-in-Clinical-Settings.pdf>
- ⁴ Agency for Healthcare Research and Quality. What is Integrated Behavioral Health? Accessed July 15, 2021. <https://integrationacademy.ahrq.gov/about/integrated-behavioral-health>
- ⁵ Healthy People 2020. Secretary's Advisory Committee on Health Promotion and Disease Prevention Objectives for 2020. Published 2014. Accessed August 31, 2021.
- ⁶ Bensken, WP, Alberti, PM, Koroukian, SM. Health-Related Social Needs and Increased Readmission Rates: Findings from the Nationwide Readmissions Database. *Journal of General Internal Medicine*. 2021;36:1173–1180. <https://doi-org.ezproxys.hhs.nihlibrary.nih.gov/10.1007/s11606-021-06646-3>
- ⁷ Centers for Medicare & Medicaid Services: Medicare Drug & Health Plan Contract Administration Group. Implementing Supplemental Benefits for Chronically Ill Enrollees. 2019. Baltimore, MD: U.S. Department of Health and Human Services. https://www.cms.gov/Medicare/Health-Plans/HealthPlansGenInfo/Downloads/Supplemental_Benefits_Chronically_Ill_HPMS_042419.pdf
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