Environmental Scan on Addressing the Needs of Patients with Complex Chronic Conditions or Serious Illnesses in Population-Based Total Cost of Care (PB-TCOC) Models

June 4, 2024

This environmental scan 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 addressing the needs of patients with complex chronic conditions or serious illnesses in population-based total cost of care (PB-TCOC) models. This environmental scan provides an overview of high-cost patients (e.g., defining complex chronic conditions and serious illnesses, characteristics of these patients, and methods for prospectively identifying patients); addresses care delivery approaches and challenges (e.g., integration with specialty care, care coordination, and health-related social needs [HRSN]); and discusses payment model participation challenges and lessons learned (e.g., financial incentives, performance measures, and modifications to risk adjustment or benchmarking for patients with complex chronic conditions or serious illnesses). Appendices include additional definitions of complex chronic conditions and serious illnesses and tables detailing features of selected Center for Medicare and Medicaid Innovation (CMMI or the Innovation Center) models, submitted PTAC proposals, and other Centers for Medicare & Medicaid Services (CMS), Medicaid, or commercial programs.[i]

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List of Exhibits

List of Acronyms

AAFP	American Academy of Family Physicians
ACG	Adjusted clinical groups
ACM	Advanced Care Model
ACO	Accountable Care Organization
ACO REACH	Accountable Care Organization Realizing Equity, Access, and Community Health
ACSC	Ambulatory care sensitive conditions
ADI	Area Deprivation Index
AHRQ	Agency for Healthcare Research and Quality
AMA	American Medical Association
APM	Alternative Payment Model
ASPE	Assistant Secretary for Planning and Evaluation
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBO	Community based organizations
CCC	Chronic condition count
CCD	Complex chronic disease
CCI	Charlson Comorbidity Index
CCM	Chronic care management
CCP	Coordinated care plan
CDC	Centers for Disease Control and Prevention
CHIP	Children’s Health Insurance Program
CHW	Community health workers
CJR	Comprehensive Joint Replacement
CKD	Chronic kidney disease
CMMI	Center for Medicare and Medicaid Innovation
CMS	Centers for Medicare & Medicaid Services
CPC	Comprehensive Primary Care
C-SNP	Chronic Conditions Special Needs Plan
C-TAC	Coalition to Transform Advanced Care
ED	Emergency department
EHR	Electronic health record
ESRD	End-stage renal disease
FFS	Fee-for-service
FMAP	Federal Medical Assistance Percentage
FTE	Full-time equivalent
GAO	Government Accountability Office
GUIDE	Guiding an Improved Dementia Experience
HCC	Hierarchical condition categories
HCV	Hepatitis C Virus
HHS	Health and Human Services
HIT	Health information technology
HMH	Hackensack Meridian Health
HMO	Health maintenance organization
HRSN	Health-related social need
IAHPC	International Association for Hospice and Palliative Care

KCC	Kidney Care Choices
LVC	Low-value care
MA	Medicare Advantage
MACRA	Medicare Access and Children’s Health Insurance Program Reauthorization Act
MAO	Medicare Advantage Organization
MA VBID	Medicare Advantage Value-Based Insurance Design
MCC	Multiple chronic conditions
MCCM	Medicare Care Choices Model
MDPP	Medicare Diabetes Prevention Program
MD-TCOC	Maryland Total Cost of Care
MIPS	Merit-Based Incentive Payment System
MSSP	Medicare Shared Savings Program
NCHS	National Center for Health Statistics
NCI	National Cancer Institute
NCQA	National Committee for Quality Assurance
NIH	National Institutes of Health
NQF	National Quality Forum
NYC DOHMH	New York City Department of Health and Mental Hygiene
PAM	Patient Activation Measure
PBP	Plan benefit package
PBPM	Per-beneficiary-per-month
PB-TCOC	Population-based total cost of care
PCDT	Preliminary Comments Development Team
PCF	Primary Care First
PCP	Primary care physician
PCT	Palliative care team
PFPM	Physician-focused payment model
PPO	Preferred provider organization
PQI	Prevention quality indicator
PROM	Patient-reported outcome measure
PRT	Preliminary Review Team
PTAC	Physician-Focused Payment Model Technical Advisory Committee
RFI	Request for Input
RPA	Renal Physicians Association
RTS	Report to the Secretary
SES	Socioeconomic status
SME	Subject matter expert
SNK	Skilled nursing facility
TCM	Transitional care management
U.S.	United States
VA	Veterans Affairs
WHO	World Health Organization

I. Introduction and Purpose

Under the bipartisan Medicare Access and Children's Health Insurance Program (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). Several of the 10 criteria for proposed PFPMs that PTAC uses to evaluate stakeholder-submitted proposals are pertinent to addressing the needs of patients with complex chronic conditions or serious illnesses in population-based models.

Given the increased emphasis on developing larger, population-based APMs that encourage accountable care relationships, PTAC has conducted a series of theme-based discussions between 2022 and early 2024 that have examined care delivery and payment issues as they relate to population-based total cost of care (PB-TCOC) models. A key theme that has emerged during these theme-based discussions relates to the importance of improving care for patients with complex chronic conditions or serious illnesses. Additionally, several previous submitters have included components related to addressing the needs of patients with complex chronic conditions or serious illnesses as part of their proposed models.

Relevant topics identified for investigation in this environmental scan include:

- Characteristics of patients with complex chronic conditions or serious illnesses, including approaches to identifying these high-cost patients;
- Care delivery challenges and approaches, including integration with specialty care, care coordination, and addressing health-related social needs (HRSN); and
- Payment model participation challenges and lessons learned, including performance measurement and financial incentives.

This environmental scan provides PTAC members with background information and context reflecting expert perspectives on issues related to addressing the needs of patients with complex chronic conditions or serious illnesses in PB-TCOC models. The environmental scan is expected to help PTAC members review strategies in proposals previously submitted to the Committee. In addition, the environmental scan can inform the Committee's review of future proposals and future comments and

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[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).

recommendations that Committee members may submit to the Secretary relating to improving care for patients with complex chronic conditions or serious illnesses in population-based models.

This environmental scan also summarizes relevant information from PTAC's review of proposals from previous submitters and findings from relevant literature, selected Center for Medicare and Medicaid Innovation (CMMI) models, and other Centers for Medicare & Medicaid Services (CMS) programs, state models, and demonstrations.

Section II provides key highlights of the findings from the environmental scan. Section III describes the research questions and methods used in the environmental scan. Subsequent sections provide an overview of high-cost patients (Section IV), care delivery challenges and approaches (Section V), payment model participation challenges and lessons learned (Section VI), and areas where additional information is needed (Section VII). Additionally, a list of abbreviations can be found at the beginning of the environmental scan, following the Table of Contents.

II. Key Highlights

The following section provides important definitions and highlights key findings from this environmental scan on addressing the needs of patients with complex chronic conditions or serious illnesses in PB-TCOC models.

II.A. Definitions

There is no consensus on the definitions that may be used for identifying patients with complex chronic conditions or serious illnesses. Definitions vary regarding the number and types of conditions, severity, and duration of illness.

During several of PTAC's previous theme-based discussions, Committee members have noted that a small proportion of Medicare beneficiaries account for a large proportion of Medicare fee-for-service (FFS) spending. For example, 5 percent of beneficiaries accounted for 44% of FFS spending in 2020.[1] Therefore, it is important to be able to identify these patients and develop effective care delivery models for addressing their needs within the context of PB-TCOC models.

Within this context, PTAC has developed the following working definitions for patients with complex chronic conditions or serious illnesses:

- **Patients with complex chronic conditions** are those with more than one morbidity, chronic condition and/or comorbidity (lasting 12 months or more) who usually require a high complexity of treatment involving multiple health care providers across different specialties and settings.
- **Patients with serious illnesses** are patients with advanced illness and patients who are in their last years of life.
- *In addition to their chronic medical conditions, these patients may also experience acute events that can affect their health care needs.*

Additional examples of definitions of complex chronic conditions or serious illnesses are included in **Appendix B.**

II.B. Key Findings

Below are highlights of the key findings from the different sections covered in this environmental scan.

Background on High-Cost Patients

The majority of Medicare spending is associated with a relatively small group of beneficiaries.[2] These high-cost patients are disproportionately non-White, dually eligible for Medicare and Medicaid, and socially vulnerable.[3,4] Patients with complex chronic conditions or serious illnesses are two key clinical segments of high-cost patients.[5] Another clinical segment involves patients who experience a one-time catastrophic health event. Beyond clinical diagnosis, patient complexity is important to consider in identifying these high-needs, high-cost patients.[6] Factors such as functional limitations and socioeconomic conditions influence whether patients will be high-cost during a given year, and whether patients are likely to be persistently high-cost.[7,8]

Care Delivery Challenges and Approaches

Patients with complex chronic conditions or serious illnesses tend to see multiple providers and require care over long periods of time. As a result, providers face special challenges when delivering high-quality, cost-effective care to these patient populations. For example, although primary care physicians (PCPs) are often best situated to manage care for patients with complex chronic conditions or serious illnesses, reimbursement rates to PCPs for Medicare-funded chronic care management (CCM) services are low in comparison with the costs of implementing CCM services.[9] Further, limited interoperability of electronic health records creates challenges related to care coordination for this patient population. Providers have identified several care delivery challenges specific to patients with complex chronic conditions or serious illnesses, including challenges related to PCPs' roles in managing and coordinating care, challenges with integrating specialty care, challenges associated with care coordination, and challenges with care delivery due to HRSNs.

Payment Model Participation Challenges and Lessons Learned

Providers who care for patients with complex chronic conditions or serious illnesses may face challenges in participating in Alternative Payment Models. Existing approaches to provider attribution, benchmarking, and risk adjustment methods may need to be modified for patients with complex chronic conditions or serious illnesses relative to other patients. For example, population-based payment models allow patients to be attributed to specialists who can better coordinate patient care.[10] Additionally, approaches where patients are attributed to a team of providers may better capture care relationships for this patient population. Many of the existing provider payment methods do not reward coordinated, team-based care approaches and do not reimburse services provided by non-physicians. Finally, experts note the importance of measuring health care outcomes for this patient population, given the likelihood that this patient population results in more negative outcomes compared to the general population.

Relevant Features in Previously Submitted PTAC Proposals

Among the 35 proposals that were submitted to PTAC between 2016 and 2020, thirteen proposals included components related to addressing the needs of patients with complex chronic conditions and/or serious illnesses. The Committee found that seven of these proposals met Criterion 7

(Integration and Care Coordination), which is one of the 10 criteria that the Secretary of Health and Human Services (HHS) has established for proposed PFPMs. Two of these proposals focused on increasing access to palliative care, and the other three proposals focused on condition-specific approaches for improving care delivery.

III. Research Approach

This section provides a brief review of the research questions and methods that were used in developing this environmental scan.

III.A. Research Questions

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

- How are/should patients with complex chronic conditions and/or serious illnesses be defined?
- How are patients with complex chronic conditions and/or serious illnesses prospectively identified by payers, Accountable Care Organizations (ACOs), and providers?
- What are the major challenges that affect patients with complex chronic conditions and/or serious illnesses?
- What are challenges associated with identifying and caring for patients with complex chronic conditions and/or serious illnesses?
- Are there major barriers associated with patients with complex chronic conditions and/or serious illnesses participating in APMs? If so, what are these barriers?
- Are there major barriers associated with participation and engagement in APMs from providers serving patients with complex chronic conditions and/or serious illnesses? If so, what are they?
- What are current care delivery approaches for patients with complex chronic conditions and/or serious illnesses?
- Are additional or innovative efforts to improve care coordination needed for patients with complex chronic conditions and/or serious illnesses, compared to a more general patient population? If so, what efforts may be most effective at improving care coordination for patients with complex chronic conditions and/or serious illnesses?
- What types of performance measures should be used for providers treating patients with complex chronic conditions and/or serious illnesses in TCOC models?
- What challenges exist related to developing effective payment models for addressing patients with complex chronic conditions and/or serious illnesses?
- What are examples of APMs, including CMMI models (e.g., Medicare Care Choices Model [MCCM], Medicare Advantage [MA] Value-Based Insurance Design [VBID] Model), that include or focus on patients with complex chronic conditions and/or serious illnesses?
- What are examples of other CMS programs that include or focus on patients with complex chronic conditions and/or serious illnesses (e.g., Chronic Condition Special Needs Plans)?

[iii] A Preliminary Comments Development Team (PCDT) comprised four PTAC members: Walter Lin, MD, MBA (Lead); Lindsay K. Botsford, MD, MBA; Lawrence R. Kosinski, MD, MBA; and Terry Mills Jr., MD, MMM.

- What are examples of previously submitted PTAC proposals that include or focus on patients with complex chronic conditions and/or serious illnesses?
- What are examples of Medicaid programs that have been effective in improving care delivery and performance outcomes for patients with complex chronic conditions and/or serious illnesses?
- What are examples of commercial plans that have been effective in improving care delivery and performance outcomes for patients with complex chronic conditions and/or serious illnesses?

These primary research questions along with secondary research questions, organized by the environmental scan section, are provided in **Appendix A.**

III.B. Research Methods

The environmental scan included information gathered from a targeted review of the literature, an analysis of selected previous PTAC proposals, and an analysis of selected value-based CMS programs and CMMI models.

This environmental scan was specifically focused on three pertinent topics (overview of high-cost patients with complex chronic conditions or serious illnesses, care delivery challenges and approaches, and payment model participation challenges and lessons learned) and selected resources most relevant to these topics, and the research questions were reviewed.

The analysis of selected PTAC proposals (**Appendix D**) included a review of previously submitted proposals, PTAC reports to the Secretary, and content available in other documents related to the PTAC proposal review process documents (e.g., public meeting minutes, Preliminary Review Team [PRT] reports).

The analysis of selected CMMI models (**Appendix C**) and CMS programs (**Appendix E**) was based on a review of publicly available resources, including the description of and technical documents related to each selected program on CMS websites, descriptions on the CMMI website, and recent CMMI model evaluation reports when available.

IV. Background on High-Cost Patients

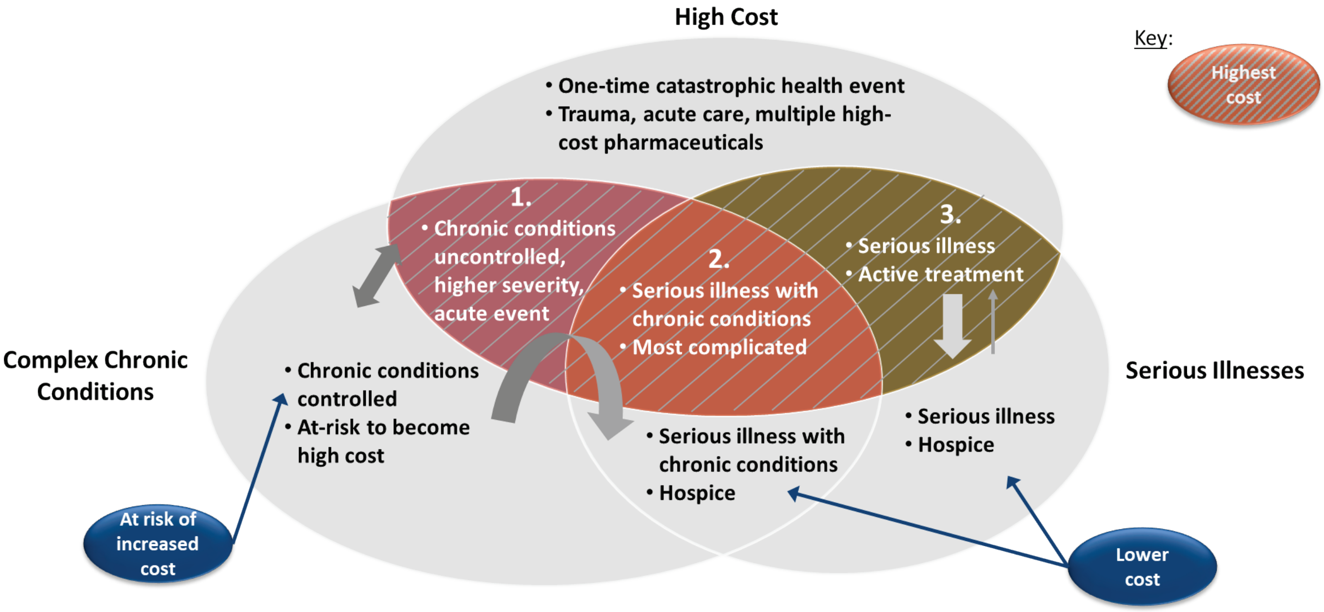
To aid in development of value-based APMs—that is, models aimed at increasing quality while maintaining or reducing health care costs—it is necessary to understand the characteristics of patients who have the most health care needs, use the most health care services and incur the most costs. Analyses of Medicare claims data reveal that this relationship follows a Pareto distribution, whereby the majority of health care spending is incurred by a small proportion of Medicare beneficiaries.[11,12] For example, in 2020, nearly half (44 percent) of Medicare FFS spending is accounted for by only five percent of beneficiaries, and nearly two-thirds (62 percent) of FFS spending is incurred by just 10 percent of beneficiaries.[13]

IV.A. Types of High-Cost Patients

A Kaiser Permanente analysis of the most expensive five percent of patients revealed three heterogeneous groups, each constituting about one-third of high-cost patients: 1) those with one-time catastrophic events (e.g., a major trauma or acute cancer); 2) those with chronic conditions that can be controlled (such as diabetes or stable heart failure); and 3) those with serious medical conditions that require ongoing, expensive treatment (such as serious heart failure).[14] Although not limited to the Medicare population, the Kaiser Permanente taxonomy aligns with findings from studies of high-cost Medicare beneficiaries.[15,16] Moreover, these three high-cost health status groups provide a framework for understanding where APMs may be able to have the most impact on health care costs. For example, focusing on improving care using disease management programs that help patients with multiple chronic conditions manage these conditions and maintain their health may lead to substantial cost savings.[17] In contrast, those with serious illnesses tend to require expensive, ongoing treatment each year, with limited opportunity to achieve cost savings, unless or until those patients transition to palliative or hospice care.[18]

Exhibit 1 identifies three types of high-cost Medicare beneficiaries that may be of particular interest for PB-TCOC models that are seeking to improve outcomes, quality, and care for this patient population.

Exhibit 1. Relationship Between High-Cost Beneficiaries and Those with Complex Chronic Conditions or Serious Illnesses

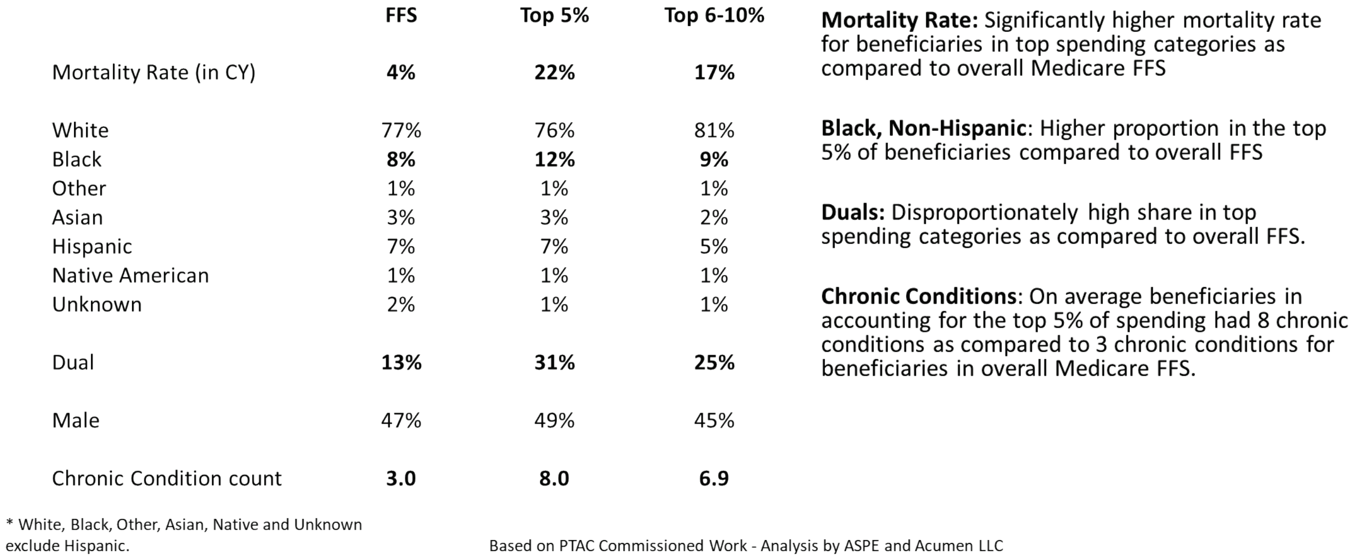


Source: ASPE PTAC June Preliminary Comments Development Team Findings Presentation, June 2024

IV.B. Characteristics of High-Cost Patients

The small group of high-cost beneficiaries, who are heavy users (or “super-utilizers”) of health care services, are disproportionately male, non-White, socially vulnerable, dually eligible for Medicare and Medicaid, and either among the youngest (disabled or with end-stage renal disease [ESRD]) or oldest (frail) beneficiaries.[19,20,21,22] Clinically, high-cost beneficiaries share some characteristics, including having multiple chronic conditions, acute disease exacerbations, and serious illnesses (physical diseases, as well as mental health and substance use disorders).[23,24] Johnson et al. (2015) identified six groups of super-utilizers of health care services: terminal cancer patients, recipients of emergency inpatient dialysis, trauma patients, individuals with serious mental health diagnoses, orthopedic surgery patients (not trauma-related), and patients with multiple chronic diseases.[25] A recent analysis by ASPE and Acumen, LLC has found that Medicare FFS beneficiaries with the highest spending had a higher mortality rate, higher proportion of Black, non-Hispanic beneficiaries, a higher proportion of dual eligible, and a higher number of chronic conditions when compared with the overall FFS total in 2021 (see Exhibit 2).

Exhibit 2. Selected Characteristics of Medicare FFS Beneficiaries with the Highest Spending, 2021



	FFS	**Top 5%**	**Top 6-10%**
Mortality Rate (in CY)	**4%**	**22%**	**17%**
White	77%	76%	81%
Black	**8%**	**12%**	**9%**
Other	1%	1%	1%
Asian	3%	3%	2%
Hispanic	7%	7%	5%
Native American	1%	1%	1%
Unknown	2%	1%	1%
Dual	**13%**	**31%**	**25%**
Male	47%	49%	45%
Chronic Condition count	**3.0**	**8.0**	**6.9**

Mortality Rate: Significantly higher mortality rate for beneficiaries in top spending categories as compared to overall Medicare FFS

Black, Non-Hispanic: Higher proportion in the top 5% of beneficiaries compared to overall FFS

Duals: Disproportionately high share in top spending categories as compared to overall FFS.

Chronic Conditions: On average beneficiaries in accounting for the top 5% of spending had 8 chronic conditions as compared to 3 chronic conditions for beneficiaries in overall Medicare FFS.

* White, Black, Other, Asian, Native and Unknown exclude Hispanic.

Based on PTAC Commissioned Work - Analysis by ASPE and Acumen LLC

IV.C. Identifying the Complexity of Patients with Complex Chronic Conditions or Serious Illnesses

There is no consensus on the definitions that may be used for identifying patients with complex chronic conditions or serious illnesses. Definitions vary regarding the number and types of conditions, severity, and duration of illness. This can contribute to the difficulty in prospectively identifying the most high-risk patients in PB-TCOC models.

The Centers for Disease Control and Prevention (CDC) describes chronic diseases as "conditions that last 1 year or more and require ongoing medical attention or limit activities of daily living or both."[26] Chronic conditions, such as diabetes, heart disease, and chronic lung disease, are extremely common among those aged 65 years and older, with more than two-thirds of Medicare beneficiaries having at least two chronic conditions, and more than a third of beneficiaries having four or more chronic conditions.[27]

However, the number of chronic conditions alone may not reflect the complexity—that is, the resources and costs—required to care for these patients. Sevick et al. (2007) defined a complex chronic disease as "a condition involving multiple morbidities, that requires the attention of multiple health care providers or facilities and possibly community (home)-based care."[28] Complexity for those with multiple chronic conditions also may be related to the number of medications taken. Most adults aged 60–79 years (84 percent) take at least one prescription drug; more than one-third (35 percent) take five or more prescription drugs.[29] Polypharmacy increases the likelihood that patients may experience drug interactions, oversedation, and adverse drug events, all of which could lead to injury, hospitalization, and expensive medical treatment.[30] **Appendix B** provides additional definitions of complex chronic conditions identified in the literature. PTAC has developed the following working definition of patients with complex chronic conditions:

- Patients with more than one morbidity, chronic condition, and/or comorbidity (lasting 12 months or more) who usually require a high complexity of treatment involving multiple health care providers across various specialties and settings.

Kelley et al. (2018) define serious illness as "a health condition that carries a high risk of mortality AND either negatively impacts a person's daily function or quality of life, OR excessively strains their caregivers."[31] Many agencies and organizations use this definition, including CMS, the National Committee for Quality Assurance (NCQA), and the Center to Advance Palliative Care. **Appendix B** provides additional definitions of serious illnesses identified in the literature. PTAC has developed the following working definition of patients with serious illnesses:

- Patients with advanced illness and patients who are in their last years of life.

Additionally, PTAC has noted that:

- In addition to their chronic medical conditions, these patients [with complex chronic conditions or serious illnesses] may also experience acute events that can affect their health care needs.

IV.D. Cost Variation among High-Cost Patients

Health care costs vary extensively among patients with complex chronic conditions or serious illnesses. One factor affecting this cost variation is the condition itself. For example, in their study of super-utilizers of health care, Johnson et al. (2015) found that average annual per-person costs ranged from $87,000 among those with serious mental health diagnoses to nearly $400,000 among those receiving emergency inpatient dialysis.[32] A second important factor in cost variation is whether the person has functional limitations, such as needing assistance bathing, dressing, or preparing food. Hayes et al. (2016) found that, among adults with three or more chronic conditions, those who also had functional limitations had significantly higher health care spending than did those without functional limitations.[33]

A third factor influencing patients' health care costs is the trajectory or stage of disease. For those with chronic conditions, costs are typically lower when the patient's conditions are well-managed or controlled versus when their conditions are poorly managed and/or marked by acute exacerbations, which may require emergency department or hospital care.[34] Among patients with serious illnesses, costs are likely to be high during the time when the patient is focused on active and aggressive treatment, but costs may decline as there is an increased focus on palliative care and ultimately hospice care.[35]

Although some health care costs are unavoidable, other spending is considered potentially preventable. Certain acute and chronic conditions, such as hypertension, diabetes, and congestive heart failure—collectively known as ambulatory care sensitive conditions (ACSCs)—may incur higher health care costs if they are not properly managed through primary care.[36] In 2017, an estimated 15.4 percent of hospital stays among Medicare patients were considered potentially preventable, accounting for $22.2 billion in Medicare costs.[37] Khullar et al. (2015) found that an estimated 72 percent of potentially preventable Medicare FFS spending occurs among high-cost beneficiaries (those in the top decile), with most of this spending attributable to inpatient stays (58 percent), physician services (22 percent), and skilled nursing facilities (11 percent).[38] Moreover, 44 percent of high-cost beneficiaries had at least one potentially preventable event (preventable emergency department visit, preventable hospitalization, or unplanned readmission).[39]

APMs can help to shift incentives and encourage care delivery approaches that improve quality and reduce spending for patients who already are high-cost—including those with complex chronic conditions or serious illnesses—and/or prevent patients who are not currently high-cost from becoming high-cost. The at-risk group includes individuals who may develop complex chronic conditions or serious illnesses, or those who already have well-controlled chronic conditions but are at risk of acute exacerbations and advancement to more serious stages of disease. Both high-cost and at-risk patients can be challenging to identify. Moreover, the high-cost cohort can change over time. Indeed, Figueroa et al. (2019) found that just over one-fourth (28.1 percent) of Medicare beneficiaries remained in the top 10 percent most expensive beneficiaries for three consecutive years.[40]

IV.E. Identifying High-Cost Patients

Commonly used approaches for identifying high-risk patients involve stratifying patients into health risk categories based on clinical diagnoses, sometimes in conjunction with basic demographic characteristics such as age and sex.[41,42] For example, CMS' hierarchical condition categories (HCCs) and Johns Hopkins' adjusted clinical groups (ACGs) rely on clinical diagnosis codes and demographic data to predict future health care utilization. The Charlson Comorbidity Index (CCI) does not incorporate demographic data but instead calculates a weighted risk score based exclusively on the number and severity of comorbid conditions. Other risk-adjustment approaches, such as the chronic condition count (CCC), utilize only the number of chronic conditions or comorbidities to predict high-needs patients.

However, physicians have noted that such clinically-based algorithms are too simplistic. In interviews with primary care physicians, Loeb et al. (2015) found that physicians considered patients with chronic conditions to be complex if they had additional characteristics such as socioeconomic challenges or mental illness.[43] In one study, patients with less ability to manage their health and health care, as measured by the Patient Activation Measure (PAM), had a higher likelihood of being subsequently diagnosed with a chronic condition.[44] Kelley et al. (2016) used several prospective identification methods to classify adults aged 50 years and older with serious illnesses based on condition, functional impairment, and health care utilization.[45] Those who had a serious illness along with both functional limitations and a prior 12-month hospital admission had the highest Medicare costs in the following year. In another study, Medicare beneficiaries residing in the most socioeconomically disadvantaged neighborhoods, as measured by the Area Deprivation Index (ADI), had higher Medicare FFS costs in the following year compared with those living in non-disadvantaged neighborhoods.[46]

In one component of CMMI's Comprehensive Primary Care (CPC) initiative, practices risk stratified their patients to identify those with high-need conditions, such as complex chronic conditions or serious illnesses, that require additional care management support.[47] Practices were able to identify their own risk stratification method. These practices used four approaches: practice-developed score or algorithm (44 percent of practices), pre-existing clinical algorithm from the American Academy of Family Physicians (AAFP, 32 percent of practices), algorithm based on claims or electronic health record (EHR) data (15 percent of practices), or clinical intuition (11 percent of practices).[48] Those practices that used clinical intuition had the highest number and proportion of high-risk patients receiving care management support per full-time-equivalent (FTE) physician. This suggests that some practices felt that a larger proportion of patients were at high risk using a qualitative approach that may have been more holistic and multi-faceted.

V. Care Delivery Challenges and Approaches

Despite a growing number of patients with complex chronic diseases in the United States,[49] current practice in typical inpatient and outpatient care delivery settings focuses on the diagnosis and treatment of acute conditions rather than complex chronic conditions.[50] Important differences exist between acute and chronic diseases, and these differences inform treatment approaches. For example, whereas acute illnesses tend to have a short onset and are short in duration, chronic diseases tend to develop slowly and last for long periods of time.[51] As a result, treatment for chronic conditions is typically focused on slowing the progression of the illness and, to the extent possible, reducing functional limitations due to the illness.[52] Further, these patients typically require multifaceted, longitudinal care from multiple providers across multiple settings. Due to the nature of chronic conditions or serious illness, there is a substantial burden placed on patients, as well as their family members and/or caregivers.[53] Providers serving patients with complex chronic conditions or serious illnesses face unique challenges when delivering high-quality, cost-effective care.

V.A. Role of Primary Care

PCPs are often best situated to manage care for patients with complex chronic conditions or serious illnesses because PCPs provide the majority of Medicare-funded CCM services.[54] CCM services include maintaining comprehensive electronic care plans, managing care transitions, and sharing patient health information. Less than 10 percent of CCM services are provided by specialty practitioners.[55] However, even among PCPs, adoption of Medicare's CCM codes has been low. On average, practices provide CCM services to less than 15 percent of eligible beneficiaries.[56]

PCPs face challenges when managing care for patients with complex chronic conditions or serious illnesses. One challenge faced by PCPs is low reimbursement rates for CCM services, which may not cover the costs to support CCM service delivery. To better incentivize provision of CCM services in primary care, CMS could increase the reimbursement rate for CCM codes.[57]

There is a dearth of clinical guidelines and recommendations for managing patients with multiple chronic conditions. As a result, providers tend to rely on single disease-specific guidelines when treating patients with multiple conditions.[58] Current guidelines focus on single diseases in part because the clinical trials on which they are based often exclude individuals with multiple chronic conditions.[59] Advising patients to follow all recommendations for all individual disease guidelines is unrealistic and suboptimal for patients with multiple chronic conditions. For example, a patient with multiple chronic conditions could be prescribed dozens of drugs, be advised to make numerous lifestyle modifications, and be expected to attend an unrealistic number of primary care, specialist, and intervention appointments for their various chronic conditions. Thus, clinical guidelines for managing multiple chronic conditions are needed. The guidelines could focus on common clusters of chronic conditions[60] and should identify the appropriate number and types of visits (and to which providers) to effectively manage the needs of patients with complex chronic conditions or serious illnesses.

Additional research shows that PCPs report not having adequate time to provide effective care for patients with complex chronic conditions or serious illnesses.[61] PCPs generally cannot provide effective care for these patient populations during standard 15-to-20-minute consultations.[62] Extended consultation times are needed for these patients, as longer consultations have been associated with the provision of less prescribing, more preventative health advice, increased patient satisfaction,[63] and reduced provider stress.[64]

Further, patients receiving low-value care (LVC), health care services that a particular patient does not need or will not benefit from, continues to be an issue. LVC services explain two percent of overall health care spending per year ($76 to $101 billion) and 10 percent of wasteful or inefficient health care spending.[65] Many approaches to reduce LVC have been implemented with varying success. Verkerk et al. (2022) evaluated eight de-implementation projects (e.g., aimed at reducing LVC services) in the Netherlands from 2016 through 2018 and determined that the following approaches helped reduce LVC: educating providers on LVC and its potential harms; selecting “clinical champions” within the provider organization who frequently discuss LVC and offer support to colleagues; providing feedback to clinicians and comparing performance among peers; and educating patients on LVC.[66] Barriers to reducing LVC include the limited time providers have to communicate with patients (e.g., the time to explain to the patient the importance of checking their own skin to decrease follow-up doctor visits) and the potential decreased revenue to a provider or provider organization created by a FFS environment.[67]

V.B. Integration with Specialty Care

The integration of specialists into the care team is a core component of effectively caring for patients with complex chronic conditions or serious illnesses. Successful coordination between specialists and other care team members can lead to better patient outcomes.[68] However, the integration of specialists into the care team has proven difficult to achieve. A study on care coordination among PCPs caring for patients with chronic conditions showed that many PCPs felt dissatisfied with their efforts to co-manage care with specialists.[69] PCPs also reported difficulty accessing specialists.[70] Multiple studies have shown that patients undergoing cancer treatment report role confusion and poor communication between their PCPs and specialists. These challenges can lead patients to believe that their needs may be unmet and can lead to insufficient condition and treatment information being shared with patients.[71]

Opportunities exist for health systems to improve specialist integration into the care team and improve care coordination between specialists and other care team members. Defining PCPs and specialists’ roles and responsibilities in coordinating care can improve provider satisfaction.[72] Virtual team models can successfully connect PCPs with specialists to discuss patients with complex chronic conditions, which can help to delineate providers’ roles in the patients’ care journeys and improve communication among providers.[73] Effective communication between specialists and PCPs minimizes the likelihood that patients receive conflicting information and instructions from different clinicians[74] and may lead to improved patient outcomes. PCPs who care for patients with chronic conditions and frequently share patient information with specialists tend to have lower patient emergency department (ED) use when compared with PCPs who share patient information less frequently with specialists.[75]

V.C. Care Coordination

Coordinating care for patients with complex chronic conditions or serious illnesses can be challenging because these patients typically see multiple providers who work in different settings. Furthermore, efforts to coordinate care are hindered by ambiguity about staff and provider roles,[76] limited interoperability of EHRs,[77] and low reimbursement rates for care management activities.[78] Fragmentation and poor care coordination can lead to an exacerbation of patients' conditions[79] and increase patient and caregiver burden. Poor clinical management of patients' complex care needs can reduce patients' quality of life, increase out of pocket expenses, and lead to poorer symptom control.[80] It can also increase caregiver responsibility and stress.[81] These patients are at increased risk of receiving duplicate services, being given inconsistent treatment plans, and/or experiencing breaks in needed treatment, adverse drug interactions, avoidable hospitalizations, and costly care.[82,83] The possibility of adverse drug events can be especially high for older adults with multiple chronic conditions.[84] For additional information about challenges in care coordination, see PTAC's *Environmental Scan on Care Coordination in the Context of Alternative Payment Models (APMs) and Physician-Focused Payment Models (PFPMs).*

Because care delivery settings commonly operate independently within unintegrated silos, patients with complex chronic conditions or serious illnesses tend to experience fragmented care during transitions between care settings.[85] Patients transitioning from inpatient to post-acute or palliative care face additional care coordination challenges, in part due to differing clinical priorities and provider cultures. Preferences related to discharge documentation, medication and treatment plans, and communication styles often differ between inpatient and outpatient providers.[86] In addition, inpatient providers may lack an understanding of the post-acute and palliative care settings to which patients are discharged. Acute care providers may also view communication at discharge as lower priority in comparison to other job responsibilities.[87] While transitional care management (TCM) services were introduced in 2013 so that providers could assist patients during care transitions, an ASPE analysis using 2019 data showed that TCM services were not used frequently.[88] Challenges related to care transitions are discussed further in PTAC's *Environmental Scan on Improving Management of Care Transitions in Population-Based Models.*

Opportunities for APMs and PB-TCOC models to improve care coordination and address the needs of these patients include adopting a multidisciplinary, culturally competent, team-based care approach. Adopting a team-based approach to care that includes non-physician members, such as nurses, social workers, and community health workers, can improve care coordination and promote continuous care. Models should engage both patients and their families to manage the chronic conditions. In addition, improvements in health information technology (HIT) will allow providers timely access to and sharing of patient data.[89]

V.D. Health-Related Social Needs

The prevalence of complex chronic conditions or serious illnesses differs across populations, likely in part due to differences in care access.[90] Well-documented disparities in access to health care occur among populations with low socioeconomic status (SES),[91] racial and ethnic groups,[92] persons with disabilities,[93] and individuals living in rural areas.[94] Patients with complex chronic conditions or serious illnesses who face difficulty accessing care may experience a more rapid deterioration of their illnesses.

Other needs and social risk factors, including health literacy,[95] social support,[96] housing conditions,[97] and food access,[98] can further challenge care delivery for patients with complex chronic conditions or serious illnesses. For example, limited health literacy can prevent patients with multiple chronic conditions from effectively self-managing their conditions.[99] HRSNs such as a unstable housing, not having access to nutritious food, and unreliable transportation may also increase the likelihood of patients developing additional or worsening existing conditions and illnesses.[100,101]

There are multiple challenges associated with integrating HRSNs into a health care strategy. Addressing HRSNs is an ongoing process for each beneficiary and can be a long-term commitment. An evaluation of CMMI's Accountable Health Communities model found that only one-third of beneficiaries who received navigation services for HRSNs reported that any of their HRSNs were resolved after one year.[102] Choosing an appropriate screening tool to identify HSRNs for a given patient, ideally one that can integrate with existing systems, can be difficult, and patients may not be comfortable sharing data on potentially sensitive or stigmatized topics such as transportation and housing in a clinical setting.[103] Further, community-based organizations (CBOs) may not have adequate capacity to respond to increased demand for services or may not have efficient systems that can process and manage a large number of referrals. Research shows that financial investments are likely needed to increase capacity to address HRSNs in many areas.[104,105]

HHS created a strategic framework for multiple chronic conditions, which includes addressing disparities and emphasizes that programs and initiatives should be tailored to reduce differences in care access and health outcomes for patients with multiple chronic conditions.[106] Initiatives and programs should consider targeting populations with low health care access to improve equity of care for the patient population. The Pennsylvania Rural Health Model does this by specifically addressing the needs of rural communities,[107] a population that experiences high rates of multiple morbidity and limited health care access.[108] Interventions to address patients' HSRNs are especially critical to reduce such disparities.

Extending care beyond the clinical setting through partnerships with CBOs and services can address patients' non-medical needs.[109] Successful and sustainable programs to address HRSNs build strong ties and rely on close communication between providers and CBOs, knowledge of the HRSN landscape at the local level, awareness of current efforts to address HRSNs in the community, and community partnerships.[110,111] In recent years, CMS has released multiple iterations of guidance on best practices to address HRSNs through the existing Medicaid benefit structure.[112,113,114,115] State Medicaid agencies are encouraged to address HRSNs through sections 1915 and 1115 demonstrations, state plan amendments, and Medicaid managed care plans via "in lieu of" services. States can provide nutrition support, housing services, and case management, as well as other services on a case-by-case basis. In 2023, most states with Medicaid managed care had at least one managed care organization contracted to provide services related to HRSNs, either through screening, referrals, community health workers (CHWs), or partnerships with CBOs.[116]

Despite the effectiveness of community-based approaches to manage patients and deliver preventive care, services provided outside the health care delivery system are typically not reimbursed. APMs that invest a portion of savings in community-based programs and resources could improve these critical partnerships, potentially leading to long-term cost savings.[117] Further, to improve equity, PB-TCOC models must address patients' HRSNs in model design.[118] For example, models could provide funding for CHWs to connect patients to social services such as food stamps and transportation resources.[119]

V.E. Additional Opportunities to Improve Care Delivery

In addition to the opportunities to address care delivery challenges described in the preceding sections of this environmental scan, there are other services and alternative ways of delivering existing services to patients with complex chronic conditions or serious illnesses. Such approaches can improve care and reduce spending in APMs. Examples of these types of services include but are not limited to the following:

- Providing electronic consultations and telehealth visits with specialists, which are particularly useful for patients living in rural areas with shortages in the availability of specialists;
- Proactively monitoring patients' symptoms, which allows physicians to rapidly respond to exacerbations and reduce the need for ED visits and hospital admissions;
- Delivering home-based services to reduce the likelihood of hospitalizations and stays in skilled nursing facilities (SNFs); and
- Providing palliative care services to patients with advanced illnesses to help control the severity of symptoms and potentially reduce the need for expensive treatments that are not consistent with patients' goals.[120]

VI. Payment Model Participation Challenges and Lessons Learned

As described in the previous section, patients with complex chronic conditions or serious illnesses require multifaceted care from multiple providers, and providers often face unique challenges in delivering coordinated, high-quality, cost-effective care. Additionally, providers who care for this patient population may face challenges in participating in various payment models.

VI.A. Care Delivery Challenges and APM Participation Challenges

In addition to challenges related to care delivery for patients with complex chronic conditions or serious illnesses, providers delivering care to these patients face barriers themselves with participation and engagement in APMs. Patients with complex chronic conditions are typically integrated into APMs either as a population of interest within a broader population-based model framework (e.g., the High Needs ACOs in the ACO Realizing Equity, Access, and Community Health [REACH] model)[121] or within a disease-specific model that aims to address a specific population with a shared disease or medical condition (e.g., the Guiding an Improved Dementia Experience [GUIDE] model).[122]

In its 2021 Strategy Refresh, CMMI identified multiple barriers for provider participation in APMs, including the proliferation of APMs resulting in conflicting or opposing incentives for providers, the complexity of model design and payment structures, administrative burden, and the additional investments in infrastructure (e.g., EHR enhancements) needed to participate.[123] In 2022, CMMI released additional strategies to increase access to coordinated and integrated specialty care in population-based models, including: 1) improving performance data and data sharing between specialty and primary care providers; 2) aligning incentives between specialists and ACO initiatives; 3) developing models wherein a specialist assumes primary responsibility for beneficiaries with serious illnesses; and 4) integrating specialists into primary care delivery pathways (e.g., through use of billing codes).[124]

Additionally, in 2021, the Government Accountability Office (GAO) reported that it was challenging for providers in rural, provider shortage, or underserved areas to participate in APMs, which was also acknowledged by CMMI in its 2021 Strategy Refresh.[125] Challenges cited for these providers include a lack of available upfront funding for transitioning to an APM taking on financial risk; lack of adequate data analytics and HIT capabilities to accurately assess their performance; low capacity of already-overburdened staff to manage APM activities; and lack of models that meet the needs of patients in these areas. Smaller independent practices face additional barriers to APM participation, as they do not have access to the larger infrastructure networks and pooled resources that larger practices or medical centers typically do.[126]

VI.B. Attributing Beneficiaries to APMs

Patient attribution—the process of determining which provider is accountable for a patient's health care and costs—is an important part of population-based APMs. Attribution identifies the patient population for which the provider assumes financial responsibility. The experience of this population then serves as the basis for measuring performance of the provider, setting reporting requirements, and determining payment for the provider.[127] There are a variety of attribution methods used to identify the patient-provider relationship in APMs, and, as providers are responsible for outcomes for their attributed patients, the method used can affect performance measurement and reporting.[128] Although many attribution methods were designed specifically for primary care, the same attribution methods are commonly used for multispecialty and integrated care delivery systems.[129]

Attributing patients with complex chronic conditions or serious illnesses to a single primary care provider who is responsible for overseeing their care may not be the most appropriate method, as these patients tend to see multiple providers and require care over long periods of time.[130] Different provider attribution methods may be needed for patients with complex chronic conditions or serious illnesses compared with patients in the general population. For example, some population-based payment models allow patients to be attributed to specialists who can be at the center of care coordination, which may better serve patients with complex chronic conditions or serious illnesses.[131]

The timing of attribution also has implications for patients with complex chronic conditions or serious illnesses. Retrospective attribution, where providers are assigned responsibility for patients at the end of a performance year based on care received within that performance year, is able to capture acute exacerbations of chronic conditions and episodes of serious illnesses during a performance year and patients newly diagnosed with a serious illness or complex condition.[132] With prospective attribution, wherein patients are attributed to providers based on care received during a period leading up to the performance year, providers are more easily able to identify patients and provide targeted care to those patients.[133] But if a patient's care patterns change during the year (e.g., in response to an acute exacerbation of a chronic condition), they may not be attributed to the provider from whom they received the majority of their care in the year.[134]

Some insurance plans, such as health maintenance organizations (HMOs), use relatively simple attribution methods where patients choose a provider from a list when they enroll in the plan. However, this type of attribution method may not be best suited for patients with complex care needs, who may not have one physician designated as their primary physician.[135] In addition, HMOs often require patients to see a primary care physician for a referral every time the patient needs to visit a new specialist, which can increase patient burden for patients who see multiple specialists.[136] Other types of insurance plans such as preferred provider organizations (PPOs) may be associated with less burden for these patients, as PPOs do not require referrals to see a new specialist.[137]

VI.C. Developing Appropriate Financial Benchmarks and Risk Adjustment Methodologies

APMs often base payment on provider performance, which can be assessed by comparing a provider's (or group of providers') performance to benchmarks for specific quality and/or cost outcomes. Financial benchmarks in APMs that include patients with complex chronic conditions or serious illnesses should adequately reflect the high cost of care needed for these patients. If benchmarks are set too low and do not reflect the higher cost of care needed for more complex patients, providers may be incentivized to provide fewer services to not lose out on potential shared savings. Effective risk adjustment approaches are needed so that providers are not penalized for providing care to sicker or higher acuity populations, as patients with complex chronic conditions or serious illnesses tend to have multifaceted risk.[138] If benchmarks are not appropriately risk adjusted, providers may be accountable for lower acuity patients and avoiding high acuity patients. Safeguards and other strategies can be used to address issues caused by "cherry-picking" patients.

Some CMMI APMs modify benchmarks and risk adjustment models to better account for patients with complex chronic conditions or serious illnesses. For example, in the Primary Care First (PCF) model, practices are stratified into four risk groups using CMS-HCC risk scores for attributed patients, with practices that serve patients with higher risk scores receiving larger population-based payments.[139] In the GUIDE model, which aims to support care for patients with dementia, patients are assigned to complexity tiers which determine per beneficiary per month (PBPM) payments, with higher PBPM payments for more complex patients.[140] In CMMI ACO models, benchmarks are calculated separately for beneficiaries with ESRD, reflecting the higher acuity and projected costs for those beneficiaries.[141,142,143]

Additionally, CMS developed a new CMMI-HCC concurrent risk score for use in the ACO REACH model's High Needs track. [144] The CMMI-HCC risk score is based on the CMS-HCC prospective risk score, which uses a beneficiary's demographics and chronic conditions in the prior year to predict Medicare spending in the following year.[145] By using a concurrent methodology (i.e., estimating a risk score for a year based on care received within the year), the CMMI-HCC risk score can capture rapid health deteriorations within a performance year that would not be captured prospectively, such as unexpected acute health events or exacerbations that are difficult to prevent or predict. High Needs ACOs serve beneficiaries with complex chronic conditions or serious illnesses and "highly variable, high-expenditure needs," and the concurrent CMMI-HCC risk score aims to establish a less risky financial position for these ACOs, as reliable and accurate estimates of these beneficiaries' spending are difficult to generate prospectively.[146]

VI.D. Measuring Performance

Measuring care outcomes for patients with complex chronic conditions or serious illnesses is especially important given the likelihood that this patient population results in more negative outcomes compared to the general population. The National Quality Forum (NQF)'s Multiple Chronic Conditions Measurement Framework, launched in 2012, provides a broad structure for ensuring that needs of patients with complex chronic conditions are being reflected accurately in performance measurement strategies.[147] The NQF Framework establishes a standardized definition of multiple chronic conditions as "two or more concurrent chronic conditions that collectively have an adverse effect on health status, function, or quality of life and that require complex healthcare management, decision-making, or coordination." It also emphasizes the importance of measuring care transitions, inappropriate care, patient-centered outcomes, patient engagement, and patient experience.

The NQF Framework identifies six priority measurement domains for patients with multiple chronic conditions: 1) affordable care; 2) patient safety; 3) person- and family-centered care; 4) health and well-being; 5) effective prevention and treatment; and 6) effective communication and care coordination.[148] Because patients with multiple chronic conditions or serious illnesses in PB-TCOC models likely have multiple providers and are receiving coordinated care from multidisciplinary teams, outcomes may best be measured at the organization level to reflect the combined efforts of the organizational care team.[149]

To successfully employ these priority measurement domains, value-based care programs and APMs first need to prioritize bringing the experience of patients with complex chronic conditions or serious illnesses into the design phase of the model.[150] If these patients are not considered in the APM design, the measures selected may not be relevant for these patients, and interpretation of these performance measures may be complex. For instance, if the number of patients with complex chronic conditions or serious illnesses enrolled in a model is too small to reliably evaluate, measuring performance using the approach applied to the population at large may not be feasible.

APMs that measure performance based on total cost of care come with the risk of stinting where patients to do not get necessary care based on accountable entities' incentive to manage costs. This can be a particularly problematic issue for patients with complex chronic conditions or serious illnesses who often have a high level of need and require costly care.[151] Organizations in PB-TCOC models may be disincentivized to provide a higher level of costly care for these patients so that they perform better against financial benchmarks.[152,153] APMs use a number of strategies to ensure that care stinting is not occurring, including simultaneous monitoring of spending and quality measures, using risk stratification or risk adjustment when developing benchmarks to ensure that cost benchmarks reflect the acuity of a specific population, and assessing performance by comparing care delivery patterns to a reference population.[154,155,156,157]

Three CMMI APMs (ACO REACH, the Medicare Shared Savings Program [MSSP], and Merit-Based Incentive Payment System [MIPS]) use a quality measure which aligns with the NQF Framework definition of multiple chronic conditions: Risk-Standardized, All-Cause Unplanned Admissions for Multiple Chronic Conditions.[158] For all three of these APMs, their performance on this measure is tied to financial incentives through pay-for-reporting, pay-for-performance, and/or performance adjustments.[159,160,161]

Use of patient-reported outcome measures (PROMs), a key concept in the NQF Framework, is also common in CMMI programs; there are 57 PROMs integrated into 21 CMS programs, five of which are APMs (ACO REACH, the Comprehensive Joint Replacement [CJR] model, the Maryland Total Cost of Care [MD-TCOC] model, MIPS, and PCF).[162] ACO REACH, CJR, MD-TCOC, and PCF all use a form of the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey to measure patient experience. Two APMs integrate non-CAHPS measures of patient experience: the Kidney Care Choices (KCC) model includes a measure of depression response and PAM score, and MIPS includes one person-centered primary care measure and 17 functional status scores. As part of its 2021 Strategy Refresh, CMMI has also reaffirmed its commitment to person-centered care, a key component of the NQF Frameworks, by incorporating patient and caregiver perspectives and "measuring what matters" by including at least two PROMs in new APMs, supporting PROM development, using PROMs as pay-for-performance quality measures, and aligning PROMs across CMMI models and programs.[163,164]

VI.E. Payment Methodology

Experts note that many existing provider payment methods, including FFS, capitation, and some pay-for-performance programs, are not well aligned with the coordinated, team-based approach to care commonly needed by patients with complex chronic conditions or serious illnesses.[165] In particular, FFS payment approaches may incent providers to deliver a greater quantity of clinical services.

APMs move away from traditional FFS payments and aim to create incentives for delivery of high-quality, coordinated care via financial incentives. Broadly, payment models used for populations of patients with complex chronic conditions or serious illnesses are the same as used for less acute patients, which include shared savings and losses, performance-based adjustments, flat payments for infrastructure and services, PBPM payments, global budgets, capitated payments, and coverage expansion to additional services.[166]

However, experts identify many barriers to effective payment reform and APM participation for providers responsible for caring for patients with complex chronic conditions or serious illnesses. First, health care delivery is fragmented for patients with complex health care needs, especially when care is delivered across multiple physicians and settings.[167] Additionally, there is a lack of payment for non-physician providers (e.g., nurses, peer educators) and services needed to support care coordination, follow-up, e-consults, and education for patients with complex health care needs.[168] For patients who require palliative care, there is generally a lack of payment to support community-based palliative care services in combination with treatment.[169] And as many providers are still operating within a FFS environment, high-quality, efficient care could result in potential revenue reductions for some providers (e.g., decreasing hospitalizations and ED visits among patients with chronic health conditions could lead to reduced revenues for hospitals), which may disincentivize the shift to APMs or value-based care more broadly.[170]

Some challenges related to financial incentives can differ by provider characteristics, including provider type. For example, a specialist may help an ACO receive a shared savings bonus, but there is typically not a mechanism in place to ensure that the specialist receives a portion of the bonus.[171] Under the capitation payment method, providers may choose to withhold services and avoid delivering care to patients when the patients' actual cost of services would exceed the provider's monthly payment.[172] These unintended consequences can lead provider groups to encourage patients with complex health care needs to de-select their providers.[173] Additional work is needed to understand how different value-based payment models impact equity among different subgroups of clinically high-risk patients.

VII. Relevant Features in Previously Submitted PTAC Proposals

This section summarizes findings from an analysis of components and themes related to patients with complex chronic conditions and serious illnesses in previously submitted PTAC proposals. Among the 35 proposals that were submitted to PTAC between 2016 and 2020, thirteen proposals included components related to addressing the needs of patients with complex chronic conditions and/or serious illnesses. The Committee found that seven of these proposals met Criterion 7 (Integration and Care

Coordination), which is one of the 10 criteria that the Secretary of Health and Human Services (HHS) has established for proposed PFPMs.

Exhibit 3 includes the results of an analysis of the model features and characteristics of the following five selected proposals that focus on patients with complex chronic conditions or serious illnesses:

- American Academy of Hospice and Palliative Medicine (AAHPM)
- Coalition to Transform Advanced Care (C-TAC)
- Hackensack Meridian Health and Cota (HMH/Cota)
- New York City Department of Health and Mental Hygiene (NYC DOHMH)
- Renal Physicians Association (RPA)

Two of these proposals focused on increasing access to palliative care, and the other three proposals focused on condition-specific approaches for improving care delivery.

Exhibit 3. Components of Selected PTAC Proposals that are Relevant to Patients with Complex Chronic Conditions or Serious Illnesses

Proposal	Clinical Focus	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses
American Academy of Hospice and Palliative Medicine	Serious illness and palliative care	**Overall Model Design Features:** PACSSI proposes palliative care medical home services for high-need patients not yet eligible or not wanting hospice care. **Care Coordination and/or Care Transition Approaches:** Use of interdisciplinary care teams; availability of multiple specialists; development of coordinated care plan; use of health information technology (HIT) **Financial Incentives to Enhance Participation by Providers**: Tiered monthly payments to replace E/M payments.
Coalition to Transform Advanced Care (C-TAC)	Advanced illness	**Overall Model Design Features:** ACM proposes advance care planning services through an interdisciplinary team and coordination of care with patients' regular providers. **Care Coordination and/or Care Transition Approaches:** Interdisciplinary teams and comprehensive care management **Financial Incentives to Enhance Participation by Providers**: PBPM payments with potential for quality-based bonus payment. Further, a partial advanced APM incentive where providers with a 75% enrollment of patients with advanced illness will receive a 5% bonus payment for professional fees.

Proposal	Clinical Focus	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses
Hackensack Meridian Health and Cota (HMH/Cota)	Cancer care	**Overall Model Design Features:** Oncology Bundled Payment Program proposes to use Cota Nodal Address (CNA)-Guided Care to diagnose patients and assess treatment needed. **Care Coordination and/or Care Transition Approaches:** Use of the EHR system (Epic) by all participating providers; team of care coordinators within PCP practices; care management module (Healthy Planet) for all patient care plans **Financial Incentives to Enhance Participation by Providers:** Bundled payment to cover all aspects of patients' oncology care
New York City Department of Health and Mental Hygiene (NYC DOHMH)	Hepatitis C virus (HCV)	**Overall Model Design Features:** The Project INSPIRE Model proposes integrated medical, behavioral, and social services for patients with HCV. **Care Coordination and/or Care Transition Approaches:** This model utilizes care coordinators who document HCV treatment, including initiating care coordination, developing a care coordination plan, and attaining sustained virologic response (SVR). **Financial Incentives to Enhance Participation by Providers**: Bundled payment and potential shared savings
Renal Physicians Association (RPA)	End-stage renal disease (ESRD)	**Overall Model Design Features:** The Incident ESRD Clinical Episode Payment Model proposes care coordination and renal transplantation, if applicable, for dialysis patients transitioning from chronic kidney disease (CKD) to ESRD (6 month episodes of care). **Care Coordination and/or Care Transition Approaches:** Care coordination between PCP and specialists, including vascular surgeons; coordinating dialysis care in outpatient settings **Financial Incentives to Enhance Participation by Providers:** Shared savings for the 6-month episode of care; bonus payment for patients receiving a kidney transplant

Appendix D includes additional information about the model features and characteristics of the five selected proposals that focus on patients with complex chronic conditions or serious illnesses:

The other eight PTAC PFPM proposals that included components related to addressing the needs of patients with complex chronic conditions and/or serious illnesses are:

- American Society of Clinical Oncology (ASCO)
- Innovative Oncology Business Solutions, Inc. (IOBS)
- American College of Allergy, Asthma, & Immunology (ACAAI)
- Community Oncology Alliance (COA)

- Digestive Health Network, Inc. (DHN)
- Dialyze Direct
- Illinois Gastroenterology Group (IGG)/SonarMD, LLC.
- Large Urology Group Practice Association (LUGPA)

VIII. Areas Where Additional Information is Needed

This section includes a summary of some areas for consideration to guide future research on addressing the needs of patients with complex chronic conditions or serious illnesses in PB-TCOC models. **Appendix F** further describes areas for future exploration and research.

Definitions of Complex Chronic Conditions and Serious Illnesses

While many agencies and organizations have adopted the definition of serious illness by Kelley et al.,[174] there is not currently a standardized definition in place for complex chronic conditions. Many agencies (e.g., CMS, CDC, Veterans Affairs [VA], Agency for Healthcare Research and Quality [AHRQ]) use their own definitions, and definitions may vary broadly. For example, organizations differ on the duration of chronic conditions (e.g., three months, six months, one year) and number of chronic conditions (e.g., two or more, multiple, or not specified).

How to Identify these Patients Prospectively

Additional work is needed about the development and evaluation of innovative identification methods of patients with complex chronic conditions or serious illnesses, particularly related to identifying patients at risk of rising cost. For example, methods using artificial intelligence could improve the identification of higher-risk patients.

Appendix A. Research Questions by Environmental Scan Section

Section	Research Questions
Section IV. Overview of High-Cost Patients	• How are/should patients with complex chronic conditions and/or serious illnesses be defined? ○ How do patients with complex chronic conditions differ from patients with serious illnesses, and how much overlap exists between these patients? ○ How are conditions and associated symptoms identified in data, including claims (e.g., claim type, diagnosis code), clinical registries, assessments (e.g., the Minimum Data Set [MDS] 3.0), medical record abstraction, and EHRs? ○ In what settings are these different data sources used? Are standardized patient data needed for multiple providers caring for patients with complex chronic conditions and/or serious illnesses in PB-TCOC models? If so, how? Are there current examples of the collection and use of standardized patient assessment data and performance measures (e.g., post-acute care settings, other)? ○ What are the characteristics of the patients who account for the top five percent of Medicare spending? ○ How does spending (Medicare Parts A and B, out-of-pocket spending) vary in this population? How does spending vary by condition or subspecialty? ○ What are the primary drivers of spending and utilization for patients with complex chronic conditions and/or serious illnesses? • How are patients with complex chronic conditions and/or serious illnesses prospectively identified by payers, ACOs, and providers? ○ What are some factors that may predict the likelihood of disease progression/level of care required for patients with complex chronic conditions and/or serious illnesses? ○ What are common risk stratification approaches (e.g., traditional approaches versus machine learning risk stratification approaches)? • What are challenges associated with identifying and caring for patients with complex chronic conditions and/or serious illnesses? ○ Challenges with patient identification (e.g., data sources, risk stratification) ○ Challenges with clinical care (e.g., multiple specialties, care coordination and transitions) ○ Challenges with certain populations (e.g., disadvantaged populations, health-related social needs)

Section	Research Questions
Section V. Care Delivery Challenges and Approaches	• What are the major challenges that affect patients with complex chronic conditions and/or serious illnesses? ○ What is the desired relationship between management of complex chronic conditions and primary care? What is the current state of this relationship, and what steps are needed to get to the desired state? ○ What is the desired relationship between management of serious illnesses and primary care? What is the current state of this relationship, and what steps are needed to get to the desired state? ○ What is the patient and caregiver burden associated with avoidable exacerbations of complex chronic conditions and/or serious illnesses? ○ How do social determinants of health exacerbate challenges related to delivering care to patients with complex chronic conditions and/or serious illnesses? • Are there major barriers associated with patients with complex chronic conditions and/or serious illnesses participating in APMs? If so, what are these barriers? ○ Does integrated care work for this population? What are current examples of integrated care models for this population? ○ When is it appropriate for these patients to be part of a larger model, and when is it appropriate for these patients to be in a model only for the given patient population (e.g., seriously ill, specific chronic conditions)? Are there instances where both are appropriate? • Are there major barriers associated with participation and engagement in APMs from providers serving patients with complex chronic conditions and/or serious illnesses? If so, what are they? ○ How do providers engage with specialists to facilitate a team-based care approach? • What are current care delivery approaches for patients with complex chronic conditions and/or serious illnesses? ○ Care delivery approaches across the patient's care journey ○ Current approaches used in APMs • Are additional or innovative efforts to improve care coordination needed for patients with complex chronic conditions and/or serious illnesses, compared to a more general patient population? If so, what efforts may be most effective at improving care coordination for patients with complex chronic conditions and/or serious illnesses?

Section	Research Questions
Section VI. Payment Model Participation Challenges and Lessons Learned	• What types of performance measures should be used for providers treating patients with complex chronic conditions and/or serious illnesses in TCOC models? ○ Frameworks, measure characteristics ○ Quality measures, outcome measures, patient experience measures • What challenges exist related to developing effective payment models for addressing patients with complex chronic conditions and/or serious illnesses? ○ Attribution, benchmarking, risk-adjustment ○ Incentives for improving patient outcomes • What are examples of APMs, including CMMI models (e.g., MCCM, MA VBID Model), that include or focus on patients with complex chronic conditions and/or serious illnesses? • What are examples of other CMS programs that include or focus on patients with complex chronic conditions and/or serious illnesses (e.g., Chronic Condition Special Needs Plans)? • What are examples of previously submitted PTAC proposals that include or focus on patients with complex chronic conditions and/or serious illnesses? • What are examples of Medicaid programs that have been effective in improving care delivery and performance outcomes for patients with complex chronic conditions and/or serious illnesses? • What are examples of commercial plans that have been effective in improving care delivery and performance outcomes for patients with complex chronic conditions and/or serious illnesses?

Appendix B. Examples of Definitions of Complex Chronic Conditions and Serious Illnesses

There is no consensus on the definitions that may be used for identifying patients with complex chronic conditions or serious illnesses. Definitions vary regarding the number and types of conditions, severity, and duration of illness. The following are examples of some of the definitions that are used for complex chronic conditions and serious illnesses.

B.I. Complex Chronic Conditions

Centers for Disease Control and Prevention (CDC). "Chronic diseases are defined broadly as conditions that last 1 year or more and require ongoing medical attention or limit activities of daily living or both."[175]

U.S. National Center for Health Statistics (NCHS), CDC. "A chronic disease […] is a disease lasting three months or longer. About 40 million Americans are limited in their usual activities due to one or more chronic health conditions."[176]

Agency for Healthcare Research and Quality (AHRQ). "A chronic condition is defined as a condition that lasts 12 months or longer and meets one or both of the following tests: (a) it places limitations on self-care, independent living, and social interactions; (b) it results in the need for ongoing intervention with medical products, services, and special equipment."[177]

Centers for Medicare & Medicaid Services (CMS). "The Multiple Chronic Conditions Measurement Framework defines multiple chronic conditions (MCC) as having two or more concurrent chronic conditions that collectively have an adverse effect on health status, function, or quality of life and that require complex healthcare management, decision-making, or coordination."[178]

National Quality Forum (NQF). "[Multiple Chronic Conditions are] persons having two or more concurrent chronic conditions that collectively have an adverse effect on health status, function, or quality of life and that require complex healthcare management, decision-making, or coordination."[179]

Department of Veterans Affairs (VA). "Chronic conditions are broadly defined to include physical illnesses or impairments and comorbid conditions with consequences such as increased risk of mortality."[180]

"A Complex Chronic Disease (CCD) is a condition involving multiple morbidities, that requires the attention of multiple health care providers or facilities and possibly community (home)-based care. A patient with CCD presents to the health care system with unique needs, disabilities, or functional limitations."[181]

The World Health Organization (WHO). "Noncommunicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. The four main types – cardiovascular diseases, cancer, diabetes and chronic respiratory diseases – impose a major and growing burden on health and development."[182]

Robert Wood Johnson Foundation. "Health conditions that last a year or more and require ongoing medical attention and/or limit activities of daily living. This definition includes people with chronic illnesses or disabilities, or both."[183]

J. Flowers Health Institute. "A complex medical condition often refers to the following:

1. A health problem that affects multiple body systems.
2. A condition that has multiple symptoms."[184]

Multiple Chronic Conditions Resource Center. "Multiple Chronic Conditions (MCC) means that a person is living with two or more chronic conditions at the same time."[185]

Dr. Chris Feudtner. "Any medical condition that can be reasonably expected to last at least 12 months (unless death intervenes) and to involve either several different organ systems or 1 organ system severely enough to require specialty pediatric care and probably some period of hospitalization in a tertiary care center."[186]

Sevick et al. (2007). "A Complex Chronic Disease (CCD) is a condition involving multiple morbidities, that requires the attention of multiple health care providers or facilities and possibly community (home)-based care. A patient with CCD presents to the health care system with unique needs, disabilities, or functional limitations."[187]

National Cancer Institute (NCI), National Institutes of Health (NIH). "A disease or condition that usually lasts for 3 months or longer and may get worse over time. Chronic diseases tend to occur in older adults and can usually be controlled but not cured. The most common types of chronic disease are cancer, heart disease, stroke, diabetes, and arthritis."[188]

American Medical Association (AMA). "Chronic diseases are long-term health conditions that can have a significant impact on a person's quality of life. Some of the most common chronic diseases include diabetes, heart disease and cancer. Chronic pain is also a prevalent issue, a common chronic disease affecting millions of people worldwide, and can be caused by a variety of factors, including injury, illness or an underlying medical condition."[189]

Australian Institute of Health and Welfare. "An illness that is prolonged in duration, lasts longer than 6 months, is often not spontaneous to resolve, and is rarely completely cured. Chronic diseases are complex and varied in terms of their nature, how they are caused and their impact on the community. While some chronic diseases make large contributions to premature death, others contribute more to disability. Features common to most chronic diseases include:

- complex causality, with multiple factors leading to their onset
- a long development period, for which may there may be no symptoms
- a prolonged course of illness, perhaps leading to other health complications
- associated with functional impairment or disability."[190]

B.II. Serious Illnesses

Dr. Amy Kelley et al. "Serious illness is a condition that carries a high risk of mortality, negatively impacts quality of life and daily function, and/or is burdensome in symptoms, treatments or caregiver stress."

- "Condition and/or Functional Limitation (most broad): one or more severe medical conditions (Condition) and/or receiving assistance with any of the six basic activities of daily living (ADL), that is, eating, bathing, dressing, toileting, transferring, and walking (Functional Limitations) (i.e., serious illness is a severe diagnosis and/or functional impairment). Drawing upon existing literature and input from several clinical experts in geriatrics and palliative care, whose patient population spans the full range of seriously ill older adults, severe medical conditions included the following: cancer (metastatic or hematologic), renal failure, dementia, advanced liver disease or cirrhosis, diabetes with severe complications (ischemic heart disease, peripheral vascular disease, renal disease), amyotrophic lateral sclerosis (ALS), acquired immune deficiency syndrome, hip fracture, chronic obstructive pulmonary disease or interstitial lung disease only if using home oxygen or hospitalized for the condition, and congestive heart failure only if hospitalized for the condition. These medical conditions "carry a high risk of mortality" as described in the conceptual definition and are identifiable within claims data with the markers of disease severity specified above."
- "Condition and/or Functional Limitation and Utilization: one or more severe medical conditions and/or receiving assistance with any ADL and one or more hospital admission in the last 12 months and/or residing in a nursing home (Utilization) (i.e., serious illness is functional impairment and/or severe medical condition, along with significant health care utilization)."
- "Condition and Functional Limitation and Utilization (most restricted): one or more severe medical conditions and receiving assistance with any ADL and one or more hospital admission in the last 12 months and/or residing in a nursing home (i.e., serious illness is severe medical condition and functional impairment with significant health care utilization).[191]

Centers for Medicare & Medicaid Services (CMS). "An individual is considered to be terminally ill if the medical prognosis is that the individual's life expectancy is 6 months or less if the illness runs its normal course."[192]

"Serious illness defined as at least one of the following characteristics:

- Medical complexity
- High hospital utilization
- Signs of frailty."[193]

The Commonwealth Fund. "We considered someone to have serious illness if, within the past three years, they had two or more hospital stays and visits with three or more doctors."[194]

International Association for Hospice and Palliative Care (IAHPC). "Terminal condition […] defined as a progressive condition that has no cure and that can be reasonably expected to cause the death of a person within a foreseeable future."[195]

Sincera. “Serious illness is often defined as illness that could result in death in one to two years, but where a cure may still be possible.”[196]

Office of Human Resources Management. “Serious health condition means an illness, injury, impairment, or physical or mental condition which requires:

- Overnight hospitalization (including prenatal care), including the period of incapacity or subsequent treatment in connection with the overnight care
- Continuing treatment (for a chronic or long-term condition) under the care or supervision of a health care provider. Included under this heading are chronic conditions (e.g., asthma, epilepsy, etc.) that continue over an extended period of time and may cause episodic rather than a continuing period of incapacity and conditions that are not usually incapacitating but would result in a period of incapacity of more than 3 consecutive calendar days if medical treatment were omitted (e.g., chemotherapy, kidney dialysis, pregnancy, etc.). Note that incapacity means the inability to work, attend school, or perform regular daily activities (eating, washing, walking, shopping, etc.,) because of a serious health condition or treatment for or recovery from a serious health condition.”[197]

Law Insider. “Serious illness means an accident, injury, illness, disease, or physical or mental condition that: poses imminent danger of death; requires inpatient care in a hospital, hospice, or residential medical facility; or requires continuing in-home care under the direction of a physician or health care provider.”[198]

Appendix C. Summary of Model Features and Characteristics of Selected CMMI Models that Focus on Patients with Complex Chronic Conditions or Serious Illnesses

Overview of Methodology Used to Review the Selected CMMI Models

An initial list of 15 CMMI models were identified that address chronic conditions or serious illnesses. Findings from an analysis of four selected CMMI models are summarized in the following table.

The available information on each of the four selected CMMI models' summary pages on the CMMI website was reviewed. This included model overviews, informational webinars, evaluation reports and findings (as applicable), summaries, fact sheets, and press releases. Information found in these materials was used to summarize the models' main design features, including benefit components, flexibilities, care coordination approaches, financial incentives, performance measures, and modifications to risk adjustment or benchmarking for patients with complex chronic conditions or serious illnesses.

Exhibit C1. Characteristics of CMMI Models that Focus on Patients with Complex Chronic Conditions or Serious Illnesses

Model Name	Clinical Focus, Providers, Setting, Patient Population	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses	Lessons Learned Related to Patients with Complex Chronic Conditions or Serious Illnesses
Guiding an Improved Dementia Experience (GUIDE) Model [(GUIDE)] ***Announced – Applications under review***	**Clinical Focus:** Dementia **Providers:** Medicare Part B-enrolled provider or supplier **Setting:** At home **Patient Population:** Medicare beneficiaries with dementia	**Overall Model Design Features:** The GUIDE Model is focused on improving dementia care quality through defining a standardized approach to dementia care delivery, providing an alternative payment methodology, addressing unpaid caregiver needs, providing respite services, and screening for HRSNs. **Eligibility Criteria:** Medicare Part B-enrolled providers and suppliers (excluding durable medical equipment [DME] and laboratory suppliers) are eligible to participate in the GUIDE Model. Beneficiaries must have dementia, be enrolled in Medicare Part B, and have not elected the Medicare hospice benefit. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** CMS will provide a PBPM payment to support a team-based collaborative care approach, which includes services for chronic care management. **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** Participants will assign patients with dementia as well as their caregivers to a care navigator for both clinical and non-clinical services (e.g., meals via community-based organizations). **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Robust, person-centered assessments and 24/7 access to a support line and care navigators to help access services and supports. Also provides enhanced access to resources for caregivers, such as training programs. **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses:** CMS will provide three types of payment: 1) infrastructure payment (safety net providers can receive a one-time infrastructure payment for program development activities); 2) PBPM payment (to provide care management, coordination, caregiver training, and other support services); and 3) respite care payment (providers can bill for respite services).	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Quality of life outcome (survey); use of high-risk medications; total per capita cost; long-term nursing home rate; caregiver burden **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** PBPM rates will be adjusted based on geographic location, health equity adjustment (HEA), and a performance-based adjustment (PBA). **Modifications to Performance-Based Payment to Address This Population:** The PBA will increase or decrease participants' PBPM payment, depending on how they performed on the model's performance metrics during the previous performance year. **Modifications to Benchmarking to Address This Population:** N/A	*This model is not yet active.*

Model Name	Clinical Focus, Providers, Setting, Patient Population	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses	Lessons Learned Related to Patients with Complex Chronic Conditions or Serious Illnesses
Medicare Advantage (MA) Value-Based Insurance Design (VBID) **(MA VBID)** *Ongoing* Years active: 2017-present	**Clinical Focus:** Chronic conditions **Providers:** Medicare Advantage Organizations (MAOs) **Setting:** Broad **Patient Population:** Medicare Advantage beneficiaries with low socioeconomic status and chronic health condition(s)	**Overall Model Design Features:** The MA VBID Model allows MAOs to design benefits based on chronic condition, socioeconomic characteristics, or ADI. It also incentivizes the use of Part D prescription drug benefits through rewards and incentives (RI). There is also an optional Medicare hospice benefit. **Eligibility Criteria:** Coordinated Care Plans and Special Needs Plans (SNPs) are eligible to participate in the MA VBID Model. Further, the MAO's contract offering the plan benefit package (PBP) has not been under sanction by CMS and has a minimum three-star overall quality Star Rating for the most recent year. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Supplemental benefits offered must address HRSNs, such as food, transportation, and housing. The hospice benefit helps patients who need end-of-life care transition to hospice care. **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** Flexibilities include health- and non-health- related supplemental services and items; care management or disease management programs; reduced cost sharing for Part C services and Part D drugs. **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Care management programs **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses:** MAOs may provide reduced cost sharing to beneficiaries based on chronic condition or socioeconomic status. MAOs may also offer rewards and incentives specific to participation in a transition of care program.	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Advance Care Plans (ACPs); number of beneficiaries who participated in a wellness and health care planning (WHP) discussion; experience of care; beneficiary cost-sharing amounts for palliative care; election rate of hospice care; proportion of beneficiaries admitted to hospice for less than seven days; days spent at home in last six months of life; proportion admitted to intensive care in last 30 days of life; pre-hospice consultation process; access to hospice providers; proportion of lengths of stay beyond 180 days; transitions from hospice care, followed by death or acute care; visits in the last days of life; hospice supplemental benefits; Part D duplicative drug utilization; utilization of unrelated care; hospice utilization; beneficiary and provider complaints; transitional concurrent care services **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** N/A **Modifications to Performance-Based Payment to Address This Population:** N/A **Modifications to Benchmarking to Address This Population:** N/A	In 2020, MAOs participating in the MA VBID Model showed increased beneficiary drug adherence; in 2021, MAO participants had increased Star Ratings. However, there was also an increase in risk scores and inpatient stays in 2020. Data on model effectiveness are limited. The biggest implementation challenges included meeting model-specific reporting requirements and working with vendors.[iv]

Model Name	Clinical Focus, Providers, Setting, Patient Population	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses	Lessons Learned Related to Patients with Complex Chronic Conditions or Serious Illnesses
Medicare Care Choices Model (MCCM) *No longer active* Years active: 2016-2021	**Clinical Focus:** Palliative care for beneficiaries with advanced illnesses **Providers:** PCPs **Setting:** Hospice care facilities **Patient Population:** Medicare and dually eligible beneficiaries with terminal illnesses	**Overall Model Design Features:** MCCM allowed Medicare beneficiaries to obtain palliative care from hospice providers (e.g., pain and symptom management, spiritual services, counseling) while still receiving care for their condition or illness from other Medicare providers (which beneficiaries usually cannot receive once they elect to receive hospice services). **Eligibility Criteria:** Eligible hospices were required to be Medicare certified and had at least one interdisciplinary provider team. Beneficiaries must have had a diagnosis of one of the following terminal illnesses: advanced cancer, chronic obstructive pulmonary disease, congestive heart failure, or human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS); must not have enrolled in hospice within 30 days of enrolling in MCCM; and must live at home (e.g., not receive assistive services). **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Hospices had some flexibility in designing their care choices programs but had to provide care coordination and case management, 24/7 access to hospice team, shared decision-making, person- and family-centered care planning, counseling, and symptom management. **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** Beneficiaries can access palliative care services while still receiving care for their terminal condition from other Medicare providers. **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Information is shared among the participating hospice's interdisciplinary team to ensure the delivery of coordinated care. **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses:** PBPM payments to participating hospices	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Quality measures: pain screening and management encounters; shortness of breath screening and management encounters; psychological/emotional well-being screening and management encounters; bowel regimen for opioid use encounters; spiritual or religious discussions; advance care planning discussions; hospice-registered nurse provided encounters; number of MCCM encounters delivered in-person; number of MCCM encounters delivered in the home **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** N/A **Modifications to Performance-Based Payment to Address This Population:** N/A **Modifications to Benchmarking to Address This Population:** N/A	Evaluation results estimate reduced Medicare expenditures by $7,604 per beneficiary, or 13% in total. Two-thirds (64%) of eligible beneficiaries chose MCCM over other options. However, participating hospices noted that the PBPM payments of $400 were not high enough to cover all costs. The model enabled earlier receipt of hospice services, which possibly increased hospice utilization and resulted in savings. This suggests that offering options for palliative care may improve Medicare beneficiaries' quality of life and reduce costs.[v]

[iv] Centers for Medicare & Medicaid Services. The Innovation Center. Evaluation of Phase II of the Medicare Advantage Value-Based Insurance Design Model Test: First Two Years of Implementation (2020–2021). October 2022. https://www.cms.gov/priorities/innovation/data-and-reports/2022/vbid-1st-report-2022

[v] Centers for Medicare & Medicaid Services. The Innovation Center. Evaluation of the Medicare Care Choices Model; Fifth and Final Annual Evaluation Report. November 2023. https://www.cms.gov/priorities/innovation/data-and-reports/2023/mccm-fifth-annrpt

Model Name	Clinical Focus, Providers, Setting, Patient Population	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses	Lessons Learned Related to Patients with Complex Chronic Conditions or Serious Illnesses
Medicare Diabetes Prevention Program (MDPP) Expanded Model *Ongoing* Years active: 2018-present	**Clinical Focus:** Diabetes (Type 2) **Providers:** MDPP supplier organizations (e.g., health organizations, hospitals, community organizations) **Setting:** Broad **Patient Population:** Pre-diabetic patients at risk of type 2 diabetes	**Overall Model Design Features:** MDPP provides interventions to try to prevent type 2 diabetes in patients with signs of pre-diabetes. Patients receive 16 "core" sessions over six months focused on dietary changes, physical activity, and healthy lifestyle habits. Core sessions are followed by six follow-up sessions over six months. **Eligibility Criteria:** MDPP supplier organizations must be enrolled in Medicare and receive Diabetes Prevention Recognition Program (DPRD) certification from the CDC. Beneficiaries must meet a minimum body mass index and at least one blood test requirement. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** MDPP supplier organizations are required to provide core and ongoing maintenance sessions to beneficiaries. These sessions focus on good nutritional habits and physical activity. Patients also receive education on how to manage chronic conditions. **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** Suppliers offer individual make-up sessions, as well as virtual platforms for beneficiaries as needed. **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Suppliers do not implement care coordination approaches. Communication with primary care providers is limited. **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses:** To incentivize participation, reimbursement rates for core and maintenance sessions were increased in 2022 compared to 2021. Further, providers are incentivized to help patients reach their weight loss goals (e.g., 9% weight loss results in higher reimbursement than a 5% weight loss).	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Number of sessions attended; amount of weight loss **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** N/A **Modifications to Performance-Based Payment to Address This Population:** Provider reimbursement is based on attendance and weight loss metrics. **Modifications to Benchmarking to Address This Population:** N/A	An evaluation reported that 57% of beneficiaries live > 25 miles from an MDPP supplier so improving access to MDPP suppliers is important. Further, while some MDPP suppliers have reported patient weight loss, patient participation rates are too low to extrapolate results.[vi]

[vi] Centers for Medicare & Medicaid Services. The Innovation Center. Evaluation of the Medicare Diabetes Prevention Program; Second Evaluation Report. November 2022. https://www.cms.gov/priorities/innovation/data-and-reports/2022/mdpp-2ndannevalrpt

Appendix D. Summary of Model Features and Characteristics of Proposals Reviewed by PTAC as of September 2020 that Focus on Patients with Complex Chronic Conditions or Serious Illnesses

Overview of Methodology Used to Review the Proposals

The following information was reviewed for each submitter's proposal, where available: proposal and related documents, Preliminary Review Team (PRT) Report, and Report to the Secretary (RTS). Information found in these materials was used to summarize the proposals' main design features, including benefit components, flexibilities, care coordination approaches, financial incentives, performance measures, and modifications to risk adjustment or benchmarking for patients with complex chronic conditions or serious illnesses.

Seven previously submitted PTAC proposals were identified that include components related to chronic conditions or serious illnesses and meet Criterion 7 (Integration and Care Coordination). Findings from the review of five of these proposals is summarized in the following table.

Exhibit D1. Characteristics of PTAC PFPM Proposals that Focus on Patients with Complex Chronic Conditions or Serious Illnesses

Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Components Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses
American Academy of Hospice and Palliative Medicine *(Provider association/specialty society)* [Patient and Caregiver Support for Serious Illness (PACSSI)] Recommended for limited-scale testing, 3/26/2018	**Clinical Focus:** Serious illness and palliative care **Providers:** Palliative care teams (PCT) **Setting:** Inpatient; outpatient; other palliative care settings **Patient Population:** Patients with serious illness	**Overall Model Design Features:** PACSSI proposes palliative care medical home services for high-need patients not yet eligible or not wanting hospice care. **Eligibility Criteria:** PCTs must follow National Consensus Project for Quality Palliative care guidelines and be able to respond 24/7 to patient needs. Beneficiaries must have a serious illness or multiple chronic conditions, functional limitations, and high utilization of health care services. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** PCTs will provide goals of care, develop a coordinated care plan, respond to the patient on a 24/7 basis, and coordinate services with other providers. **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** N/A **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Use of interdisciplinary care teams; availability of multiple specialists; development of coordinated care plan; use of (HIT **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses**: Tiered monthly payments to replace evaluation and management (E/M) payments.	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Quality Measures: For years 1 and 2, completion of four applicable palliative care activities within 15 days of PACSSI enrollment: comprehensive assessment; screening for pain, dyspnea, nausea, and constipation; documentation of a discussion regarding emotional needs; and documentation of a discussion about advance care planning; Beginning year 3, completion of six applicable palliative care activities within 15 days of PACSSI enrollment: same four listed above, as well as documentation of a discussion of spiritual concerns and completion of a structured assessment of caregiver needs and distress. Patient Experience Measures: Measures from patient admission survey: Likelihood of patient recommendation; timeliness of response to urgent needs; adequacy of treatment for pain and symptoms; patient's perceptions regarding quality of communication; Post-death survey for PACSSI enrollees; Hospice CAHPS survey for PACSSI enrollees transferring to hospice and dying within seven days of disenrollment from PACSSI. Utilization Measures: Percentage of patients who died who received hospice care; percentage of patients who died and were enrolled in hospice more than seven days before death; percentage of patients who died and did not have any days in an intensive care unit (ICU) during the 30 days before death. **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** Patients are assigned to one of two tiers (moderate- and high-complexity) based on diagnosis of serious illness; function; and health care utilization. PCTs receive higher payment amounts for serving tier 2 patients. Further, monthly payments are adjusted based on current Geographic Practice Cost Indices and patient's primary site of care (home versus facility). **Modifications to Performance-Based Payment to Address This Population:** Two tracks: Track 1- PCTs can receive positive or negative payment incentives up to 4% of care management fees based on performance. Track 2- PCTs are responsible for shared savings and shared risk adjusted based on performance. **Modifications to Benchmarking to Address This Population:** Benchmarks would be established based on data analysis of the performance measures during the first two years of the model.

Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	**Clinical Focus, Providers, Setting, and Patient Population**	**Components Relevant to Patients with Complex Chronic Conditions or Serious Illnesses**	**Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses**
Coalition to Transform Advanced Care (C-TAC) *(Coalition)* **Advanced Care Model (ACM) Service Delivery and Advanced Alternative Payment Model** Recommended for limited-scale testing, 3/26/2018	**Clinical Focus:** Advanced illness **Providers:** Palliative care providers (board-certified in palliative care and other specialties involved in advanced illness care) **Setting:** Inpatient; outpatient; home **Patient Population:** Patients with advanced illness, in their last 12 months of life	**Overall Model Design Features:** ACM proposes advance care planning services through an interdisciplinary team and coordination of care with patients' regular providers. **Eligibility Criteria:** Provider/entity must have a network of providers with experience in treating patients with advanced illness. Beneficiaries must meet criteria in two of the following categories: acute care utilization, functional decline, nutritional decline, and performance scale. Further, providers of the patient must answer "no" to the question, "would you be surprised if the patient died in the next 12 months?" **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Interdisciplinary teams, advance care planning, and 24/7 access to a provider **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** N/A **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Interdisciplinary teams and comprehensive care management **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses**: PBPM payments with potential for quality-based bonus payment. Further, a partial advanced APM incentive where providers with a 75% enrollment of patients with advanced illness will receive a 5% bonus payment for professional fees.	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Quality: ACM Team Visit within 48 hours of hospital discharge; timeliness of advance care planning; medication reconciliation post-discharge; proportion of patients who died and who were admitted to the ICU in the last 30 days of life; proportion of patients who died who were admitted to hospice for three days or more; ACM provider attestation that patient's care plan is consistent with preferences. Spending: total cost of care in the last 12 months of life; Patient Experience: Timeliness of care; getting help for symptoms (pain, anxiety and sadness, trouble breathing); effective communication composite; care coordination; patient overall satisfaction; patient engagement composite; shared decision-making; caregiver support composite; quality of care transitions from ACM to hospice composite **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** The use of episode-based regression analyses of previous encounters of advanced illness to set risk adjusted spending goals **Modifications to Performance-Based Payment to Address This Population:** Quality bonus payment from shared savings **Modifications to Benchmarking to Address This Population:** Benchmarks would be based on trended historical benchmarks.

Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Components Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses
Hackensack Meridian Health and Cota (HMH/Cota) *(Regional/local multispecialty practice or health system)* Oncology Bundled Payment Program Using CNA-Guided Care Recommended for limited-scale testing, 9/8/2017	**Clinical Focus:** Cancer care **Providers:** Oncologists (medical, radiation, and surgical) and other affiliated physicians **Setting:** Inpatient; outpatient; home **Patient Population:** Oncology patients (breast, colon, rectal, and lung cancer)	**Overall Model Design Features:** Oncology Bundled Payment Program proposes to use Cota Nodal Address (CNA)-Guided Care to diagnose patients and assess treatment needed. **Eligibility Criteria:** The proposed model is for Medicare providers in the HMH health system who have Medicare patients with breast, colon, rectal, or lung cancer. Beneficiaries must receive care within HMH; have a recent diagnosis of breast, colon, rectal, or lung cancer; and have a CNA. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** CNA-Guided Care to diagnose and inform treatment needed based on data **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** CNA-Guided Care can provide alternative options of care if needed (e.g., patient wants treatment options other than chemotherapy). **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Use of the EHR system (Epic) by all participating providers; team of care coordinators within PCP practices; care management module (Healthy Planet) for all patient care plans **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses**: Bundled payment to cover all aspects of patients' oncology care	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Quality: surgery, oncology, and genetics measures for breast cancer; surgery and oncology measures for colorectal cancer; surgery and oncology for lung cancer; oncology, infection monitoring, Cota analytics, risk management, finance monitoring, reliability for all disease groups. Utilization: physician visits, services. Spending: total cost of care; Patient Experience: patient-reported outcomes from Press Ganey, College of Surgeons, Oncology Care Model (OCM), Group Practice Reporting Outcome (GPRO), and national guidelines concerning pain management and guidelines, Nurse Communication quarterly Press Ganey report, Doctor Communication quarterly Press Ganey report, Responsiveness of Hospital Staff quarterly Press Ganey report, Pain Management quarterly Press Ganey report, Communication About Medicines quarterly Press Ganey report, Discharge/Home Care Information quarterly Press Ganey report, Hospital CAHPS 3 Item Care Transition Measure quarterly Press Ganey report, Overall Rating Hospital quarterly Press Ganey report, Quietness of Hospital Environment quarterly Press Ganey report, Willingness to Recommend Hospital quarterly Press Ganey report **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** Will use CNA to adjust for relative patient risk **Modifications to Performance-Based Payment to Address This Population:** Providers may receive higher compensation if performance measures are met. **Modifications to Benchmarking to Address This Population:** Will use a three-year retrospective baseline

Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Components Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses
New York City Department of Health and Mental Hygiene (NYC DOHMH) *(Public health provider)* **Multi-provider, bundled episode-of-care payment model for chronic hepatitis C virus (HCV) using care coordination by employed physicians in hospital outpatient clinics** Not recommended, 12/18/2017	**Clinical Focus:** Hepatitis C virus (HCV) **Providers:** Primary care and internal medicine physicians (infectious disease specialists, gastroenterologists) **Setting:** Hospital-based outpatient clinics **Patient Population:** Patients with HCV	**Overall Model Design Features:** The Project INSPIRE Model proposes integrated medical, behavioral, and social services for patients with HCV. **Eligibility Criteria:** There are no explicit requirements listed for providers; however, the model targets physicians at hospital-based outpatient clinics; beneficiaries must have at least two chronic diseases. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Provide integrated/coordinated care, medication adherence support, and telehealth services **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** N/A **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** This model utilizes care coordinators who document HCV treatment, including initiating care coordination, developing a care coordination plan, and attaining sustained virologic response (SVR). **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses**: Bundled payment and potential shared savings	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Quality: risk-adjusted facility-based SVR score; Utilization: ED visit rate. Spending: Part B payments **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** The SVR score is adjusted for demographic and clinical attributes. **Modifications to Performance-Based Payment to Address This Population:** Bonus from shared savings; greatest bonuses to those providers who cure HCV patients with fibrosis or cirrhosis **Modifications to Benchmarking to Address This Population:** N/A

Submitter, Submitter Type, Proposal Name, and PTAC Recommendation and Date	Clinical Focus, Providers, Setting, and Patient Population	Components Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses
Renal Physicians Association (RPA) *(Provider association and specialty society)* Incident ESRD Clinical Episode Payment Model Recommended for implementation, 12/18/2017	**Clinical Focus:** ESRD **Providers:** Nephrologists, PCPs **Setting:** Dialysis centers **Patient Population:** Patients with incident ESRD	**Overall Model Design Features:** The Incident ESRD Clinical Episode Payment Model proposes care coordination and renal transplantation, if applicable, for dialysis patients transitioning from chronic kidney disease (CKD) to ESRD (six-month episodes of care). **Eligibility Criteria:** Beneficiaries must have ESRD and be transitioning to dialysis. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Care coordination, patient education, access to dialysis modality options, and advance care planning **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** Offer medical management as an alternative to patients who may not benefit from dialysis **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Care coordination between PCP and specialists, including vascular surgeons; coordinating dialysis care in outpatient settings **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses**: Shared savings for the six-month episode of care; bonus payment for patients receiving a kidney transplant	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Quality measures: Advanced Care Planning; Catheter % for in-center hemodialysis (ICHD) (90- and 180-day); Optimal start: day 1 of outpatient dialysis with no catheter in place (ICHD/home hemodialysis [HHD]) or initiate dialysis on peritoneal dialysis (PD); Fistula rate of all permanent vascular access for ICHD and HDD (180 day); Home dialysis % (PD and HHD); Referral to transplant; Patient Centeredness: Karnofsky Functionality Score. Spending measure: Medicare Part A and Part B spending. Patient experience measure: Patient-Reported Outcomes Measurement Information Systems (PROMIS) **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** HCC scores relative to an average risk patient **Modifications to Performance-Based Payment to Address This Population:** Score on quality measures will decide amount of shared savings received **Modifications to Benchmarking to Address This Population:** Will use historical expenditures, specific to each participant's Healthcare Referral Region, of patients' first six months on dialysis

Appendix E. Summary of Model Features and Characteristics Related to Other Programs that Focus on Patients with Complex Chronic Conditions or Serious Illnesses

Overview of Methodology Used to Review the Other Programs

Other programs included a CMS program – Chronic Condition Special Needs Plans (C-SNPs); a Medicaid program – Health Homes; and a commercial program – Humana Chronic Kidney Disease. The available information on the C-SNPs', Health Homes', and Humana's websites was reviewed. This included a program overview, evaluation reports and findings, summaries, fact sheets, press releases, and, for C-SNPs, the Medicare Managed Care Manual. Information found in these materials was used to summarize the program's main design features, including benefit components, flexibilities, care coordination approaches, financial incentives, performance measures, and modifications to risk adjustment or benchmarking for patients with complex chronic conditions or serious illnesses.

Exhibit E1. Characteristics of Other Programs that Focus on Patients with Complex Chronic Conditions or Serious Illnesses

Program Name	Clinical Focus, Providers, Setting, Patient Population	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses	Lessons Learned Related to Patients with Complex Chronic Conditions or Serious Illnesses
Chronic Condition Special Needs Plans (C-SNPs) *Ongoing* Years active: 2008-present	**Clinical Focus:** Severe or disabling chronic conditions **Providers:** Medicare Advantage Organizations (MAOs) **Setting:** Outpatient; inpatient **Patient Population:** Patients with severe or disabling chronic conditions	**Overall Model Design Features:** C-SNPs are special needs plans (SNPs) for beneficiaries with select severe or disabling chronic conditions. There are 15 chronic conditions for which MAOs can offer a C-SNP in the following ways: 1) for one of the 15 approved chronic conditions; 2) for a predetermined group of conditions that are clinically linked; or 3) for a group of one or more of the conditions as decided by the MAO. **Eligibility Criteria:** MAOs must offer a plan benefit package (PBP) beyond what is required in Medicare Parts A and B and beyond care coordination requirements for coordinated care plans (CCPs); MAOs must also offer Part D prescription drug coverage. Beneficiaries must have at least one of the 15 approved chronic conditions and "have one or more comorbid and medically complex chronic conditions that is life threatening or significantly limits overall health or function, have a high risk of hospitalization or other adverse health outcomes, and require intensive care coordination." **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Supplemental health benefits, specialized provider networks, screenings, social services, and wellness programs **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** N/A **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Part D prescription drug coverage **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses:** MAOs may offer no or lower cost sharing to the beneficiary.	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Follows the MA Star Ratings Program – there are three SNP-specific measures: SNP Care Management; Care for Older Adults – Pain Assessment; and Care for Older Adults – Medication Review. **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** HCC risk scores based on individuals with similar risk profiles and chronic health conditions **Modifications to Performance-Based Payment to Address This Population:** Follows the MA Star Ratings Program: Star Ratings are used to determine 1) whether a plan is eligible for a bonus payment; and 2) the percentage increase in payment benchmarks and rebate amounts. Plan contracts must obtain a 4-, 4.5-, or 5-Star Rating. **Modifications to Benchmarking to Address This Population:** N/A	A study published in the Journal of the American Medical Association (JAMA) found that beneficiaries in C-SNPs had lower hospitalization and mortality rates compared with similar patients not in C-SNPs.[vii]

[vii] Becker BN, Luo J, Gray KS, Colson C, Cohen DE, McMurray S, Gregory B, Lohmeyer N, Brunelli SM. Association of Chronic Condition Special Needs Plan With Hospitalization and Mortality Among Patients With End-Stage Kidney Disease. JAMA Network Open. 2020 Nov 2;3(11):e2023663. doi:10.1001/jamanetworkopen.2020.23663.

Program Name	Clinical Focus, Providers, Setting, Patient Population	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses	Lessons Learned Related to Patients with Complex Chronic Conditions or Serious Illnesses
Health Homes (Medicaid program) *Ongoing* Years active: 2011-present	**Clinical Focus:** Chronic conditions **Providers:** Physicians, clinical practices, home health agencies, community health centers **Setting:** Inpatient; outpatient; home **Patient Population:** Patients with multiple (or at risk of multiple) chronic conditions	**Overall Model Design Features:** Health Homes is an optional Medicaid Plan benefit where states can form Health Homes to coordinate care for Medicaid beneficiaries with chronic conditions. **Eligibility Criteria:** Medicaid beneficiaries must either have two or more chronic conditions, one chronic condition and be at risk for a second, or have one "serious and persistent mental health condition." **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Comprehensive care management, care coordination, transitional care and follow-up, family support, and referral to community services **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** N/A **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Health Homes provide integrated and coordinated care for all care – primary, acute, behavioral health, and long-term services and supports. **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses:** States collect a 90% Federal Medical Assistance Percentage (FMAP) for certain health home services.	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** Adult body mass index (BMI) assessment; prevention quality indicator (PQI) 92: chronic condition composite; care transition - transition record transmitted to health care professional; follow-up after hospitalization for mental illness; plan - all cause readmission; screening for clinical depression and follow-up plan; initiation and engagement of alcohol and other drug dependence treatment; controlling high blood pressure **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** N/A **Modifications to Performance-Based Payment to Address This Population:** Providers required to report quality measures to receive payment **Modifications to Benchmarking to Address This Population:** N/A	Participants reported more core quality measures in 2022 than in 2021.[viii] Further, in 2022, there were 38 Health Home programs, up from 37 in 2021. Seventeen of them were for serious mental illness; eight were for chronic conditions, and seven were hybrid. All 38 reported at least one measure.[ix]

[viii] Centers for Medicare & Medicaid Services. Medicaid & CHIP. Quality of Care for Children and Adults in Medicaid Health Home Programs: Overview of Findings from the 2022 Health Home Core Set. March 2024. https://www.medicaid.gov/media/172621

[ix] Centers for Medicare & Medicaid Services. Medicaid & CHIP. Quality of Care for Children and Adults Enrolled in Medicaid Health Homes: Findings from the 2022 Health Home Core Set; Chart Pack. March 2024. https://www.medicaid.gov/media/172626

Program Name	Clinical Focus, Providers, Setting, Patient Population	Components and Financial Incentives Relevant to Patients with Complex Chronic Conditions or Serious Illnesses	Performance Measurement Features for Patients with Complex Chronic Conditions or Serious Illnesses	Lessons Learned Related to Patients with Complex Chronic Conditions or Serious Illnesses
Humana Chronic Kidney Disease Programs **(Commercial program)** *Ongoing* Years active: 2019-present	**Clinical Focus:** Chronic kidney disease **Providers:** Physicians, specialists **Setting:** Broad **Patient Population:** Patients with chronic kidney disease	**Overall Model Design Features:** Humana chronic kidney disease programs provide patients with a care manager to support the patient with all care delivery needs. **Eligibility Criteria:** Patients must meet ESRD eligibility requirements. **Benefit Components for Patients with Complex Chronic Conditions or Serious Illnesses:** Care coordination, medication reviews and adherence support, social and behavioral support, chronic disease education, palliative care coordination, dialysis education, telehealth services **Flexibilities for Patients with Complex Chronic Conditions or Serious Illnesses:** N/A **Care Coordination and/or Care Transition Approaches for Patients with Complex Chronic Conditions or Serious Illnesses:** Care manager **Financial Incentives to Enhance Participation by Providers Caring for Patients with Complex Chronic Conditions or Serious Illnesses:** N/A	**Measures Specific to Patients with Complex Chronic Conditions or Serious Illnesses:** N/A **Modifications to Risk Tracks or Risk Adjustment to Address This Population:** N/A **Modifications to Performance-Based Payment to Address This Population:** N/A **Modifications to Benchmarking to Address This Population:** N/A	N/A

Appendix F. Areas for Future Exploration and Research

Please note the items listed below may be better addressed through the Request for Input (RFI), subject matter expert (SME) discussions or listening sessions, roundtable panel discussions, or another research approach. They are captured here for further exploration.

I. Additional work is needed to develop a standardized definition of complex chronic conditions that could be adopted by all or many agencies and organizations to promote better identification, care delivery, and improved outcomes for patients with complex chronic conditions or serious illnesses.

II. Future work is needed to evaluate the performance of innovative identification methods of patients with complex chronic conditions or serious illnesses, particularly related to identifying patients at risk of rising cost. For example, methods using artificial intelligence could improve the identification of higher-risk patients.

III. Clinical guidelines for managing multiple chronic conditions are needed, potentially focusing on common clusters of chronic conditions. Guidelines could help to identify the appropriate number and types of visits (and to which providers) for effectively managing the needs of patients with complex chronic conditions or serious illnesses.

IV. Care models designed for patients with serious illnesses typically do not include elements such as telehealth, caregiver support, decision support tools, or bereavement. Additional work is needed to incorporate these elements into models and understand the impact these elements may have on addressing the needs of patients with complex chronic conditions or serious illnesses.

V. Additional work is needed to understand how different value-based payment models impact equity among different clinically high-risk groups.

Appendix G. Annotated Bibliography

Abt Associates. Findings From the AHRQ Transforming Primary Care Grant Initiative: A Synthesis Report. Published July 2015. Accessed September 3, 2024. https://www.ahrq.gov/sites/default/files/wysiwyg/professionals/systems/primary-care/tpc/tpc-synthesis-report.pdf.
Subtopic: Payment Model Participation Challenges and Lessons Learned
Type of Source: Report
Objective: To assess findings from 14 Transforming Primary Care Practice grants awarded by AHRQ examining the success and outcomes of patient-centered care home (PCMH) redesigns.
Main Findings: Key themes emerged from the grants, including transformation is an ongoing process and does not end with PCMH recognition; motivation and readiness to transform vary across practices; changes in practice culture and mental models are crucial; contextual factors play a role in the success of transformation efforts; care coordination and team-based care are key elements; and practice transformation involves inherent tradeoffs.
Strengths/Limitations: All grant reports and subsequently published journal articles were assessed along with interviews with each grant Principal Investigator. Grant awardee practice sizes and locations varied across the studies.
Generalizability to Medicare Population: Moderate; this report evaluates primary care transformation, which can benefit Medicare beneficiaries with chronic disease.
Methods: A retrospective, mixed methods approach was used. A conventional content analysis identified qualitative themes.

Adams PF, Kirzinger WK, Martinez ME. Summary health statistics for the U.S. population: national health interview survey, 2012. *Vital Health Stat*. 2013;10(259). http://www.cdc.gov/nchs/data/series/sr_10/sr10_259.pdf
Subtopic(s): Appendix B: Examples of Definitions of Complex Chronic Conditions and Serious Illnesses
Type of Source: Report
Objective: To report health statistics for the U.S. population, including respondent-assessed health status, limitations in activities, health care access and utilization, and health insurance coverage.
Main Findings: Approximately 12 percent of the sample experienced limitations in usual activities due to chronic health conditions. Approximately 2 percent of the sample required help with activities of daily living and approximately 4 percent of the sample required help with instrumental activities of daily living.
Strengths/Limitations: Self-reported information may be inaccurate because respondents and proxies are unaware of the information, have forgotten the information, prefer not to disclose the information to the interviewer, or misunderstand the interview question.
Generalizability to Medicare Population: Weak; the sample included people of all ages.
Methods: The 2012 National Health Interview Survey, a household, multistage probability sample survey, was used to examine health statistics of the U.S. population. Household interviews were completed for 108,131 people living in 42,366 households. Estimates were disaggregated by sex, age, race, Hispanic origin, education, family income, poverty status, health insurance coverage, and place and region of residence.

Agarwal SD, Barnett ML, Souza J, Landon BE. Adoption of Medicare's transitional care management and chronic care management codes in primary care. *JAMA*. 2018;320(24):2596. doi:10.1001/jama.2018.16116

> **Subtopics:** Key Highlights; Care Delivery Challenges and Approaches
> **Type of Source:** Journal Article (Research Letter)
> **Objective:** To investigate how often primary care practices billed transitional care management (TCM) and chronic care management (CCM) services from 2012-2016.
> **Main Findings:** Adoption of services were generally low. There were 10,384 primary care practices nationally billing for TCM services and 3,347 for CCM services. The median primary care practice earned $904 for TCM and $981 for CCM services, translating to approximately $4,520 and $4,905 in additional annual revenue.
> **Strengths/Limitations:** The use of Medicare claims data may have overestimated the number of eligible beneficiaries qualifying for these services.
> **Generalizability to Medicare Population:** Moderate; this study suggests that while transitional care and chronic care management are needed services within the Medicare population, initial utilization of these billable services was low due to low revenue and primary care investments required to provide these services.
> **Methods:** A random 20 percent sample of Medicare beneficiaries' claims data was examined using the procedural codes for TCM and CCM. Rates of use and earnings from each service were calculated by practice.

Ansah JP, Chiu CT. Projecting the chronic disease burden among the adult population in the United States using a multi-state population model. *Front Public Health*. 2023;10:1082183. doi:10.3389/fpubh.2022.1082183

> **Subtopic:** Care Delivery Challenges and Approaches
> **Type of Source:** Journal Article
> **Objective:** To project an empirically based estimate of American adults 50 years and older with chronic disease by age, sex, and race.
> **Main Findings:** The model predicts that by 2050, most adults 50+ will have one or more chronic conditions. Females are more likely to have one chronic condition, and men have multimorbidity.
> **Strengths/Limitations:** A strength includes using twenty years of data to inform the multi-state population model. A limitation was that the chronic conditions list included only nine conditions.
> **Generalizability to Medicare Population:** Strong; the model projects chronic disease burden among adults aged 50+ over the next thirty years, which can help inform Medicare policies and clinical practices.
> **Methods:** A multi-state population model was developed to simulate the U.S. adult population and track their transition between the health states of healthy, one chronic condition, and multimorbidity. Each health state was stratified by age, sex, and race. The nine chronic conditions used in the model were from the Health and Retirement Survey.

Bardach SH, Schoenberg NE, Tarasenko YN, Fleming ST. Rural residents' perspectives on multiple morbidity management and disease prevention. *J Appl Gerontol.* 2011;30(6):671-699. doi:10.1177/0733464810378106

> **Subtopic:** Care Delivery Challenges and Approaches
> **Type of Source:** Journal Article

Objective: To assess rural residents' perspectives on management and prevention of multiple morbidity.
Main Findings: Rural patients and providers expend a substantial amount of effort engaging in multiple morbidity management-related activities, which can preclude prevention-related activities.
Strengths/Limitations: This study relied on the perspectives of a relatively small sample of residents living in Appalachia. In addition, the study focused specifically on colorectal cancer screening; findings may not be generalizable to management and prevention activities for other health conditions.
Generalizability to Medicare Population: Moderate; most but not all participants had Medicare or Medicaid.
Methods: Rural residents with multiple morbidities were interviewed to understand their perspectives on disease management and prevention of colorectal cancer. Interviews were qualitatively coded to extract key themes.

Bayliss E, Balasubramanian B, Gill JM, Stange KC. Perspectives in primary care: implementing patient-centered care coordination for individuals with multiple chronic medical conditions. *Ann Fam Med*. 2014;12:500-503. doi:10.1370/afm.1725

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article (Editorial)
Objective: To present evidence-based practices recommended to incorporate into multiple chronic medical conditions (MMC) care coordination, a billable Medicare service that began in 2015.
Main Findings: Highlighted practices for care coordination include establishing patient-centered goals, optimizing information transfer, developing a communication process between patient and care teams, managing communication between primary care providers and specialists, linking patients with community resources, monitoring for changes in mood and emotional state, and maximizing in-person delivery of care coordination.
Strengths/Limitations: The literature presented was not gathered systematically.
Generalizability to Medicare Population: Strong; most Medicare beneficiaries have one or more chronic conditions, and strategies supporting care coordination are relevant to clinical care.
Methods: This editorial summarized literature supporting optimal patient outcomes associated with MCC care coordination.

Berkowitz SA, Hulberg AC, Placzek H, et al. Mechanisms associated with clinical improvement in interventions that address health-related social needs: a mixed-methods analysis. *Popul Health Manag*. 2019;22(5):399-405. doi:10.1089/pop.2018.0162

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To assess whether health-related social needs (HRSNs)-based interventions improved unmet needs specific to food insecurity, cost-related medication underuse, and transportation barriers to medical appointments.
Main Findings: There were significant improvements in food insecurity and cost-related medication underuse resulting from the interventions linking individuals in need to community services.
Strengths/Limitations: Limitations included a small sample size, limited outcomes, and no control group (unethical to do so). Strengths were the mixed methods approach and diverse data sources (Electronic health records, case records, primary data collection).

Generalizability to Medicare Population: Moderate; linkage interventions that improve HSRNs can help support Medicare beneficiaries managing chronic conditions.
Methods: A mixed methods approach was used to assess a prospective cohort of linkage interventions and participant case records.

Boyd CM, Darer J, Boult C, Fried LP, Boult L, Wu AW. Clinical practice guidelines and quality of care for older patients with multiple comorbid diseases: implications for pay for performance. *JAMA*. 2005;294:716-24. doi:10.1001/jama.294.6.716

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To assess clinical practice guidelines (CPGs) concerning older adults with comorbidities and to test how using multiple, single-disease CPGs would impact the recommended treatment for a hypothetical 79-year-old woman with five moderately severe comorbidities.
Main Findings: CPGs often influence the quality of care standards in pay-for-performance programs, yet single-disease guidelines do not address the needs of older adults with multiple chronic conditions. The hypothetical patient would be recommended to take 12 separate medications at 19 doses per day due to using five separate CPGs.
Strengths/Limitations: The study reviewed a limited number of CPGs.
Generalizability to Medicare Population: Strong; many Medicare beneficiaries have multiple chronic conditions, and the limitations of using single-diseased CPGs in treatment may have unintended consequences that impact health outcomes.
Methods: The most recently published clinical guidelines for nine chronic conditions often treated in primary care were reviewed by two investigators based on the standards for developing and rating the quality of clinical practice guidelines. The hypothetical treatment plan used the treatment recommendations from differing guidelines.

Buttorff C, Ruder T, Bauman M. Multiple chronic conditions in the United States. RAND Corporation. Published 2017. Accessed September 11, 2024. https://www.rand.org/content/dam/rand/pubs/tools/TL200/TL221/RAND_TL221.pdf.

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Report
Objective: To provide information on the prevalence of multiple chronic conditions and associated health care utilization and spending.
Main Findings: In 2014, 60 percent of Americans had at least one chronic condition and 42 percent of Americans had multiple chronic conditions. These individuals tend to use and spend more on health care services compared to individuals who do not have chronic conditions.
Strengths/Limitations: The data did not include persons living in institutions (e.g., long-term nursing care facilities) who could have more chronic conditions compared to persons who do not live in institutions. In addition, the data were based on self-reported chronic conditions but not all individuals may insight into their health condition(s). Thus, findings may underestimate the prevalence of chronic conditions in the United States. The data source used has been shown to underestimate total spending on health care services.
Generalizability to Medicare Population: Moderate; the analysis examined health care spending across payers including Medicare, other public payers, and private payers.

Methods: AHRQ's Medical Expenditure Panel Survey data from 2008 to 2014 were analyzed to extract the prevalence of multiple chronic conditions and associated health care utilization and spending.

Centers for Medicare & Medicaid Services. Assessing equity to drive health care improvements: learnings from the CMS Innovation Center. Accessed September 11, 2024. https://www.cms.gov/priorities/innovation/data-and-reports/2023/assessing-equity-hc-improv-wp.

Subtopic: Payment Model Participation Challenges and Lessons Learned
Type of Source: White Paper
Objective: To examine the extent to which health equity is incorporated into CMS Innovation Center model designs and evaluations.
Main Findings: Innovation Center models designed to address the needs of underserved communities reached a greater proportion of racial and ethnic minorities, included the largest proportion of Medicaid enrollees, and screened for health-related social needs. Challenges to addressing health equity included small population sizes and incomplete data. Moving forward, the authors recommended incorporating health equity priorities into model design and requiring model participants to collect specific types of data. In addition, the authors recommended the development of measures and protocols that account for health equity.
Strengths/Limitations: One limitation relates to the large amount of incomplete data on critical populations (e.g., race and ethnicity, sexual orientation and gender identity) in Medicare and Medicaid data sets.
Generalizability to Medicare Population: Strong; the analysis focused specifically on CMS Innovation Center models.
Methods: The authors conducted a retrospective analysis of CMS Innovation Center model evaluations. Seventeen models underway or recently completed between January 2018 and June 2022 were included in the analysis.

Centers for Medicare & Medicaid Services. Innovation Center strategy refresh. Published 2021. Accessed September 13, 2024. https://www.cms.gov/priorities/innovation/strategic-direction-whitepaper.

Subtopic: Payment Model Participation Challenges and Lessons Learned
Type of Source: White Paper
Objective: To describe the CMS Innovation Center's 10-year plan for value-based care delivery, including driving accountable care, increasing equity, supporting care innovation, addressing affordability, and achieving system transformation.
Main Findings: N/A
Strengths/Limitations: N/A
Generalizability to Medicare Population: Strong; the white paper focused on value-based care delivery plans for Medicare beneficiaries.
Methods: The authors conducted a mixed methods review of Medicare/Medicaid payment models including savings and policy analysis.

Clarke JL, Bourn S, Skoufalos A, Beck EH, Castillo DJ. An innovative approach to health care delivery for patients with chronic conditions. *Popul Health Manag*. 2017;20(1):23-30. doi:10.1089/pop.2016.0076

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To introduce the Mobile Integrated Healthcare model, an innovative model to improve care transitions, longitudinal care, and unplanned episodes for people with chronic conditions.

Main Findings: The Mobile Integrated Healthcare model aims to close care gaps by providing round-the-clock, interprofessional team-based care in patients' homes or workplaces.
Strengths/Limitations: This work was not an evaluation of the model and did not report any outcomes associated with the model.
Generalizability to Medicare Population: Moderate; although the work was not focused specifically on the Medicare population, the authors stated that the model is readily adaptable to meet the needs of populations in any locality.
Methods: This article provided an overview of challenges and barriers related to care transitions for patients with chronic illnesses, described potential strategies and interventions developed to address the challenges and barriers, and summarized the central elements of the Mobile Integrated Healthcare model.

Cohen-Mekelburg S, Kurlander J, Steppe E, Saini S. Bridging the divide—understanding primary care and specialty care perspectives on chronic disease co-management: a national survey. *J Gen Intern Med*. 2021;36:2164-2166. doi:10.1007/s11606-020-05877-0

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To examine physicians' perceptions of responsibilities, perceived roles, and communication across three complex conditions: moderate-to-severe ulcerative colitis treated with azathioprine, hepatitis C-related cirrhosis and ascites, and insulin-dependent diabetes.
Main Findings: Nearly three-quarters quarters of physicians reported a clear delineation of responsibilities between primary care physicians and specialists. Most primary care physicians reported that care coordination within their practices was effective, but fewer felt satisfied with the quality of communication and co-management with specialists. Few primary care physicians reported that specialists were easy to access.
Strengths/Limitations: Surveys were completed by primary care physicians, so results may be limited to the primary care physician's perspective. Given the use of the three chronic conditions as case examples, results may not generalize to other chronic conditions.
Generalizability to Medicare Population: Moderate; the Medicare population was not the focus of the article, but the findings on physicians' perspectives on chronic disease management is applicable to some Medicare beneficiaries.
Methods: A national online survey was administered to members of the American College of Physicians. Survey questions focused on physicians' roles, comfort levels in managing disease aspects, provider-provider communication, and access to specialists.

Colla CH, Ganguli I. Low-value care: a multilayer problem requiring multilayer solutions. *Ann Intern Med.* 2024;177(5):676-677. doi:10.7326/M24-0862

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To summarize factors that influence the use of and solutions for low-value care.
Main Findings: System, clinician, and patient factors that influence low-value care. Many solutions to reduce low-value care have been unsuccessful. Generally, the most successful solutions have used multicomponent interventions.
Strengths/Limitations: N/A; this article provided a summary of existing research.
Generalizability to Medicare Population: Moderate; findings are generally applicable to the Medicare population. The editorial summarized existing research that used Medicare claims data to understand how physicians' clinical settings may drive low-value care.
Methods: This editorial provided a summary of existing research on low-value care.

Crumley D, Spencer A, Ralls M, Howe G. Building a Medicaid strategy to address health-related social needs. Center for Health Care Strategies, Inc. Published 2021. Accessed September 13, 2024. https://www.chcs.org/media/Tool-Building-a-Medicaid-Strategy-to-Address-HRSNs_042921.pdf.

Subtopic: Background on High-Cost Patients
Type of Source: Report
Objective: To provide guidance to state Medicaid agencies on how to develop a cohesive strategy to address health-related social needs (HRSNs).
Main Findings: With support from the Episcopal Health Foundation, the Center for Health Care Strategies designed a guide to help state Medicaid agencies (1) design a strategy to address HRSNs within broader efforts to advance health equity and address social determinants of health (SDOH) and (2) advance the strategy using managed care organizations and value-based payment initiatives. Steps for HRSN strategy planning include assessing the landscape, setting goals, and strengthening community resources. Guidance is provided on HRSN screening.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Weak; the tool was designed to support state Medicaid agencies.
Methods: N/A

Dinh TTH, Bonner A. Exploring the relationships between health literacy, social support, self-efficacy and self-management in adults with multiple chronic diseases. *BMC Health Serv Res*. 2023;23(1):923. doi:10.1186/s12913-023-09907-5

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To examine the effect of health literacy, social support, and self-efficacy on self-management of chronic conditions.
Main Findings: Greater self-management scores were found among adults older than 65 years and among women. Self-management scores were also positively related to several health literacy domains, social support, and self-efficacy levels. Variables with the strongest association with self-management included the following health literacy domains: appraisal of health information, social support for health, and healthcare provider support.
Strengths/Limitations: The study design was cross-sectional. Results should be interpreted as associations, not as causal relationships.
Generalizability to Medicare Population: Weak; the sample included adults ages 20-89 years old from a large public hospital in Hanio, Vietnam.
Methods: A cross-sectional survey design was used to measure health literacy, social support, self-efficacy, and chronic disease self-management behaviors. Adults diagnosed with at least two chronic diseases participated in the study. Linear regression was used to identify predictors of self-management.

Douthit N, Kiv S, Dwolatzky T, Biswas S. Exposing some important barriers to health care access in the rural USA. *Public Health*. 2015;129(6):611-620. doi:10.1016/j.puhe.2015.04.001

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To understand barriers of seeking and accessing health care in rural areas in the United States.
Main Findings: There are substantial differences in health care access across rural and urban areas. Relative to urban residents, rural residents tend to have poorer health. Cultural and financial constraints are associated with reluctance to seek health care in rural areas. A lack of

services, trained physicians, public transport, and access to internet services further impacts reluctance to seek health care in rural areas.
Strengths/Limitations: The authors noted that more consistent definitions for "rural areas" should be established. The literature search found few studies based in the central states of the United States.
Generalizability to Medicare Population: Moderate; the literature review included several research articles focused on Medicare beneficiaries.
Methods: A literature review was conducted to examine publications before and after the Patient Protection and Affordable Care Act was passed in 2010. The search identified 34 research articles that met the search criteria.

DuGoff EH, Dy S, Giovannetti ER, Leff B, Boyd CM. Setting standards at the forefront of delivery system reform: Aligning care coordination quality measures for multiple chronic conditions. *J Healthc Qual.* 2013;35(5):58-69. doi:10.1111/jhq.12029

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To understand how accountable care organization programs, the Independence at Home demonstration, and Community-based Care Transitions program measure aspects of care coordination among patients with multiple chronic illnesses.
Main Findings: The three care coordination programs differ in their use of quality measures. Continuity of care is generally assessed across the programs. Less frequently assessed aspects of care coordination include care transitions, patient-centeredness, and cross-cutting care across multiple conditions.
Strengths/Limitations: The study limited its review to measures that are tied to incentives and related to care coordination. Therefore, the study did not include measures of caregiver stress, symptom management, or beneficiary needs and goals. At the time of publication, some potentially relevant measures were not yet publicly available.
Generalizability to Medicare Population: Strong; the study focused on quality measures used in Medicare programs.
Methods: The authors first identified all quality measures for use across the programs. Then, the authors categorized the measures to determine whether the measures captured each care coordination activity (communication, continuity of care, patient centered, care transitions) or if the measures were cross-cutting.

Duseja R, Andress J, Sandhu AT, et al. Development of episode-based cost measures for the US Medicare Merit-based Incentive Payment System. *JAMA Health Forum*. 2021;2(5):e210451. doi:10.1001/jamahealthforum.2021.0451

Subtopic: Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To describe the creation of episode-based cost measures and their significance in transitioning from a system focused on volume-based transactions to value-based purchasing.
Main Findings: The shift to value-based purchasing necessitates an accurate assessment of clinician impact on quality and costs. Episode-based cost measures are crucial to evaluate clinician influence on health care costs, especially for high-priority conditions and procedures. Merit-based Incentive Payment System (MIPS) Value Pathways, introduced by CMS, will align

the episode-based cost measures with corresponding quality measures and provide additional incentives for shifting from fee-for-service to value-based care.

Strengths/Limitations: The authors note that the full impact of MIPS and episode-based cost measures on cost of care is yet to be seen because MIPS is still in its early stages. This early-stage evaluation suggests that ongoing monitoring and adjustment may be necessary as the program matures.

Generalizability to Medicare Population: Strong; the article focused its discussion on beneficiary populations under MIPS.

Methods: N/A. The report describes the development of measures.

Evaluation of the Community-Based Care Transitions Program: Final Evaluation Report. Econometrica, Inc. Published November 2017. Accessed September 6, 2024. https://downloads.cms.gov/files/cmmi/cctp-final-eval-rpt.pdf.

Subtopic: Care Delivery Challenges and Approaches

Type of Source: Report

Objective: To evaluate the Community-Based Care Transitions Program (CCTP) based on the following four criteria: Was the CCTP associated with lower readmission rates and lower Medicare expenditures for the beneficiaries directly served by the CCTP? How were CCTP characteristics associated with lower readmission rates? Which CCTP components were associated with lower readmission rates? Did CCTP have an impact on readmission rates and Medicare expenditures?

Main Findings: Common implementation challenges such as maintaining staffing were found across the CCTP sites. Participants from all sites exhibited lower readmission rates and Medicare part A and B expenditures comparatively. Sites that were integrated with hospital partners had more successful program implementation.

Strengths/Limitations: Definite estimates of the effect of CCTP were not possible to obtain in the analysis.

Generalizability to Medicare Population: Strong; the report is centered around Medicare patients readmitted to the hospital within 30 days of being discharged.

Methods: The evaluation used a variety of Medicare datasets to compare differences in outcomes between participants and comparable nonparticipants in the CCTP.

Feudtner C, Feinstein JA, Zhong W, Hall M, Dai D. Pediatric complex chronic conditions classification system version 2: updated for ICD-10 and complex medical technology dependence and transplantation. *BMC Pediatr*. 2014;14:199. doi:10.1186/1471-2431-14-199

Subtopic: Appendix B. Examples of Definitions of Complex Chronic Conditions and Serious Illnesses

Type of Source: Journal Article

Objective: To update the pediatric complex chronic conditions (CCC) classification system in order to accommodate implementation of the International Classification of Diseases (ICD)-10 system.

Main Findings: Relative to the original CCC classification system, the updated CCC classification system is more comprehensive. The updated system has new CCC diagnoses, a category of neonatal CCCs, and domains for technology dependent and post-transplant-related conditions.

Strengths/Limitations: One strength of the updated CCC classification system is that it can be implemented for either the ICD-9 or the ICD-10 coding scheme.

Generalizability to Medicare Population: Weak; the CCC classification system was developed for use in pediatric health care.
Methods: The authors updated the CCC classification system in several steps. They reviewed publications that used or evaluated the first version of the CCC system, translated ICD-9 to ICD-10 codes, reviewed all codes in the ICD-9 and ICD-10 taxonomies to identify neonatal conditions, technology dependence, and transplantation status, and used the second version of the CCC system to classify cases across multiple data sets to identify any codes in the updated system that were incorrectly specified or omitted. To evaluate the updated CCC system, the authors assessed comparability between ICD-9 and ICD-10 codes, examined temporal trends of the classifications, and compared the proportion of categories in the updated CCC system to the original system.

Figueroa JF, Zhou X, Jha AK. Characteristics and spending patterns of persistently high-cost Medicare patients. *Health Aff*. 2019;38(1):107-114. doi:10.1377.hlthaff.0218.05160

Subtopic: Background on High-Cost Patients
Type of Source: Journal Article
Objective: To quantify the number of fee-for-service (FFS) beneficiaries who remained in the top 10 percent of Medicare spending over time and identify characteristics and spending patterns of those beneficiaries.
Main Findings: Approximately 28 percent of patients who were high cost in 2012 continued to be high cost in 2013 and 2014. Compared to beneficiaries who were not considered high cost in 2012-2014 (i.e., never high cost), persistently high-cost beneficiaries tended to be younger, members of racial/ethnic minority groups, eligible for Medicare based on having end-stage renal disease, and dually eligible for Medicaid. These beneficiaries had more relative spending on outpatient care and medications.
Strengths/Limitations: The authors noted that administrative claims data may lack precision with estimating the presence and severity of disease. In addition, because Medicaid spending was not included in the analysis, total costs may be underestimated for dually eligible beneficiaries.
Generalizability to Medicare Population: Strong; the analysis focused specifically on characteristics and spending among Medicare FFS beneficiaries.
Methods: A 20 percent sample of patient-level, Medicare administrative claims data for the period 2012-2014 was used. Differences in demographic characteristics, comorbidities, and spending were examined among beneficiaries classified as persistently high cost, transiently high cost (i.e., high cost in the first year of the study period or in two of the three years), and never high cost.

Fiscella K, Epstein RM. So much to do, so little time: care for the socially disadvantaged and the 15-minute visit. *Arch Intern Med*. 2008;168(17):1843-1852. doi:10.1001/archinte.168.17.1843

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To describe how short office visits can discriminate again socially disadvantaged patients and provide an overview of how the patient-centered medical home addresses disparities in health care.
Main Findings: Providing adequate preventive and chronic disease care requires more time than two primary care visits per year. One innovative solution to close the gap between disadvantaged patients' needs and the time and resources to meet those needs is the patient-

centered medical home model. Patient-centered medical homes redefine the roles of health care teams and patients by providing access to primary health care teams built around patients' needs. The model requires payment reform, as fee-for-service payments poorly fit primary care.
Strengths/Limitations: N/A; the authors discussed potential solutions to reduce health care disparities among patients who are socially disadvantaged.
Generalizability to Medicare Population: Moderate; CMS is testing the patient-centered medical home model in several demonstrations.
Methods: The authors discussed the potential impact the patient-centered medical home model can have on health care for patients who are socially disadvantaged.

Friedman A, Howard J, Shaw EK, Cohen DJ, Shahidi L, Ferrante JM. Facilitators and barriers to care coordination in patient-centered medical homes (PCMHs) from coordinators' perspectives. *J Am Board Fam Med*. 2016;29(1): 90-101. doi:10.3122/jabfm.2016.01.150175

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To understand care coordinators' experiences in patient-centered medical homes across the United States.
Main Findings: Coordinators identified barriers and facilitators in their work at the organization/system level, the interpersonal level, and the individual level. Facilitators of care coordinators' work included co-location and full integration into practices. Barriers included large caseloads and data management responsibilities. Several experiences were considered both barriers and facilitators, such as the availability of community resources interactions with clinicians and health care facilities and interactions with patients.
Strengths/Limitations: The authors noted that the research design limited their ability to systematically count themes in the qualitative data. In addition, use of an online discussion forum required participants to feel comfortable using the internet, potentially introducing sampling bias.
Generalizability to Medicare Population: Moderate; the study does not talk specifically about Medicare beneficiaries, but findings are likely applicable to the experiences of care coordinators caring for Medicare patients.
Methods: Qualitative data were collected from 25 care coordinators of patient-centered medical homes across the United States. The study used a private, asynchronous online discussion forum to collect data on care coordinators' experiences.

Galama TJ, Van Kippersluis H. A theory of socio-economic disparities in health over the life cycle. *Econ J*. 2019;129(617):338-374. doi:10.1111/ecoj.12577

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To introduce a life-cycle model that explains disparities in health across socioeconomic groups.
Main Findings: The model incorporates the following key mechanisms involved in the formation and evolution of disparities in health: health, longevity, wealth, earnings, education, work, job-related physical and psychosocial health stressors, leisure, health investment (e.g., exercise), and healthy and unhealthy consumption.
Strengths/Limitations: N/A; this article was theoretical in nature.
Generalizability to Medicare Population: Weak; the model does not consider the Medicare population.

Methods: The authors reviewed the literature to understand key mechanisms through which socioeconomic characteristics interact with health. These mechanisms were incorporated into the proposed model.

Giovannetti ER, Dy S, Leff B, et al. Performance measurement for people with multiple chronic conditions: Conceptual model. *Am J of Manag Care*. 2013;19(10):e359-e366.

Subtopic: Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To summarize the development of a conceptual model for Performance Measurement for People with Multiple Chronic Conditions (PM-MCC).
Main Findings: The PM-MCC Model can be used by measure developers, researchers, policy makers, and health plans to implement measurement sets that evaluate and improve health care for patients with multiple chronic conditions. The model focuses on the patient and their family's preferences for care. The model considers preferences for care within the context of multiple care sites (e.g., home-based primary and skilled nursing care), multiple providers, the types of care delivered (e.g., screening, prevention, treatment), and the domains of measurement that apply across sites and types of care (e.g., health and well-being, patient safety, affordable care).
Strengths/Limitations: One strength of the PM-MCC Model is its suitability to guide Accountable Care Organization performance measure development and prioritization because the model cuts across conditions, sites of care, and types of care. One limitation of the model includes the lack of data sources designed to track patients' goals and preferences for care and a lack of data sources designed to support performance measurement for people with multiple chronic conditions.
Generalizability to Medicare Population: Moderate; the article does not reference Medicare specifically; however, the conceptual model can be applied to Medicare.
Methods: The measurement model was developed using reviews of existing performance measurement frameworks, reviews of the literature on multiple chronic conditions, feedback from subject matter experts, and public comment.

Haas LR, Takahashi PY, Shah ND, et al. Risk-stratification methods for identifying patients for care coordination. *Am J of Manag Care*. 2013;19(9):725-732.

Subtopic: Background on High-Cost Patients
Type of Source: Journal Article
Objective: To assess the performance of different risk-adjustment and stratification instruments to predict utilization and costs.
Main Findings: The Adjusted Clinical Groups model best predicted hospitalizations and the top 10 percent of patients with the highest cost.
Strengths/Limitations: The authors noted that none of the models explained more than half of the variability in the outcomes. Thus, additional factors may help to identify patients in need of care coordination.
Generalizability to Medicare Population: Moderate; the study evaluated the performance of Hierarchical Condition Categories, a strategy implemented by CMS.
Methods: A retrospective cohort analysis was conducted. Six models were evaluated: Adjusted Clinical Groups, Hierarchical Condition Categories, Elder Risk Assessment, Chronic Comorbidity Count, Charlson Comorbidity Index, and Minnesota Health Care Home Tiering. Logistic regression modeling was used to predict health care utilization and costs.

Hajat C, Stein E. The global burden of multiple chronic conditions: a narrative review. *Prev Med Rep*. 2018;12:284-293. doi:10.1016/j.pmedr.2018.10.008

Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To provide a literature review on the burden of multiple chronic conditions (MCCs).
Main Findings: Approximately 16-57 percent of adults in developed counties have MCCs. Health care costs increase substantially for each additional condition. Clinical practice guidelines and interventions for MCCs are lacking.
Strengths/Limitations: The studies described in the article were limited by the heterogeneity in research study designs and definitions used for MCCs.
Generalizability to Medicare Population: Moderate; the literature review considered the proportion of Medicare beneficiaries with MCCs and described several studies that analyzed Medicare claims data.
Methods: The authors conducted a review of existing literature through May 15, 2017.

Hales CM, Servais J, Martin CB, Kohen D. Prescription drug use among adults aged 40-79 in the United States and Canada. *NCHS Data Brief.* 2019.347:1-8. https://www.cdc.gov/nchs/data/databriefs/db347-h.pdf. Accessed September 12, 2004.

Subtopic: Background on High-Cost Patients
Type of Source: Report
Objective: To describe patterns of prescription drug use among adults in the United States and Canada.
Main Findings: Prescription drug use was similar in the United States and Canada. In both countries, approximately 7 in 10 adults used at least one prescription drug in the past 30 days, and approximately 1 in 5 adults used at least five prescription drugs. Among adults aged 40-59 in the United States, the most used drugs included antidepressants, lipid-lowering drugs, and angiotensin converting enzyme inhibitors. Among adults aged 60-79 in the United States, the most used drugs included lipid-lowering drugs, antidiabetic agents, and beta blockers.
Strengths/Limitations: Regarding the most common prescription drug use in the past 30 days, the authors noted that the estimates for Canadian adults aged 40-59 may be unreliable and therefore should be used with caution.
Generalizability to Medicare Population: Weak; nationally representative estimates were produced using data from both the United States and Canada.
Methods: Cross-sectional surveys from the National Health and Nutrition Examination Study (NHANES) and Canadian Health Measures Survey (CHMS) were used. These data sources provide nationally representative estimates of the noninstitutionalized populations of the United States and Canada.

Hayes SL, Salzberg CA, McCarthy D, et al. High-need, high-cost patients: who are they and how do they use health care? *The Commonwealth Fund Issue Brief*. 2016. https://www.commonwealthfund.org/publications/issue-briefs/2016/aug/high-need-high-cost-patients-who-are-they-and-how-do-they-use. Accessed September 9, 2024.

Subtopic: Background on High-Cost Patients
Type of Source: Report
Objective: To understand the demographic characteristics of high-need and high-cost patients, defined as having three or more chronic conditions and a functional limitation compromising the

ability to perform personal care or daily tasks. Better insight into this population supports future intervention development to reduce healthcare costs.
Main Findings: High-need, high-cost patients were most likely to be 75 and older, female, non-Hispanic white, have no high school degree, fair or poor health status, have income below the 200% federal poverty line, and use public insurance. They also had higher health care spending, out-of-pocket costs, emergency department visits, and hospital stays compared to the total adult population and those with three or more chronic conditions but no functional limitations. They also had the highest utilization of doctors' visits and home health care use.
Strengths/Limitations: Potential limitation is the underrepresentation of patients unable to seek care due to barriers such as financial, functional, or transportation.
Generalizability to Medicare Population: Strong; this paper can help inform future interventions to support this high-need population and target Medicare and Medicaid healthcare spending.
Methods: A retrospective cohort analysis of the 2009-2011 Medical Expenditure Panel Survey (MEPS)- household component.

Health Care Payment Learning & Action Network. Alternative Payment Model (APM) framework. Published 2017. Accessed April 30, 2024. https://hcp-lan.org/workproducts/apm-refresh-whitepaper-final.pdf.

Subtopic: Payment Model Participation Challenges and Lessons Learned
Type of Source: White Paper
Objective: To update the previous Alternative Payment Model (APM) Framework.
Main Findings: The APM Framework is used to implement APMs and evaluate progress toward health care payment reform. A multi-stakeholder advisory group met to update the 2016 APM Framework's principles based on changes that took place since the original publication of the framework. The previous version of the framework needed to be updated due to several changes that took place since publication, such as the publication of CMS' final rule on the Merit-based Incentive Payment System (MIPS) and Advanced APMs under the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA).
Strengths/Limitations: N/A
Generalizability to Medicare Population: Strong; the white paper discussed a framework that supports implementation and evaluation of APMs that are directly relevant to Medicare beneficiaries.
Methods: N/A

Health Care Payment Learning & Action Network. Accelerating and aligning population-based payment: patient attribution. Published 2016. Accessed March 5, 2024. https://hcp-lan.org/pa-whitepaper/.

Subtopics: Key Highlights; Payment Model Participation Challenges and Lessons Learned
Type of Source: White Paper
Objective: To provide guidance on the patient attribution process within the context of population-based payment models.
Main Findings: Ten recommendations to guide the patient attribution process were generated for use nationally. The recommendations were developed for use at the provider group or delivery system level. Recommendations included but were not limited to encouraging patient choice of a primary care provider, using claims or encounter-based approaches when patient attestation is not available, and defining eligible providers at the start of the performance period.

Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; the aim of this work is to align payment approaches within and across public and private sectors in the health care system.
Methods: The Population-Based Payment Work Group began this work by reviewing the literature to identify key aspects of patient attribution. Following the literature review, the Work Group, comprised of public and private stakeholders, developed the recommendations.

Hibbard JH, Greene J, Sacks RM, Overton V, Parrotta C. Improving population health management strategies: Identifying patients who are more likely to be users of avoidable costly care and those more likely to develop a new chronic disease. *HSR.* 2017;52(4):1297-1309. doi:10.1111/1475-6773.12545
Subtopic: Background on High-Cost Patients
Type of Source: Journal Article
Objective: To assess whether the Patient Activation Measure (PAM) can be used to identify patients who are more likely to use avoidable and costly care as well as patients who are more likely to develop new chronic conditions.
Main Findings: PAM scores predicted utilization and health outcomes. Patients with lower PAM scores (i.e., lower activation) had higher odds of utilization and were more likely to develop a new chronic condition.
Strengths/Limitations: The study design does not allow the assessment of casual relationships. The authors also noted that the study was conducted in a single innovative health care delivery system in Minnesota where the quality measures were generally higher than state and national levels. Thus, findings may not be generalizable to other delivery systems.
Generalizability to Medicare Population: Weak; the sample included patients within a single accountable care organization in Minnesota and may not be generalizable to the larger Medicare population.
Methods: A secondary analysis was conducted using electronic health record data from a large accountable care organization. Using regression modeling, PAM scores from 2011 were used to predict utilization and new chronic conditions in 2012, 2013, and 2014.

Hohmann N, McDaniel C, Mason SW, et al. Patient perspectives on primary care and oncology care coordination in the context of multiple chronic conditions: a systematic review. *RSAP.* 2020;16(8):1003-1016. doi:10.1016/j.sapharm.2019.11.014
Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To understand care coordination needs among patients with both cancer and multiple chronic conditions.
Main Findings: Twenty-two articles were retained from the literature search. Four major themes emerged from the literature review and qualitative analysis, which were used to develop the framework for providers serving patients with cancer and multiple chronic conditions: communication, defining provider care roles, information access, and individualized patient care.
Strengths/Limitations: The authors noted that the existing literature is inconsistent in how patient views are defined.

Generalizability to Medicare Population: Moderate; although the article did not focus specifically on Medicare beneficiaries with cancer and multiple chronic conditions, the framework developed for patient-centered care coordination can be applied to the Medicare population.
Methods: A literature review was conducted. Qualitative data were evaluated to create a framework for providers to reference while developing care coordination strategies for patients with cancer and multiple chronic conditions.

Houlihan J, Leffler S. Assessing and addressing social determinants of health. *Primary Care: Clinics in Office Practice*. 2019;46(4):561-574. doi:10.1016/j.pop.2019.07.013
Subtopic: Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To provide an overview of key strategies to address the social needs of patients and communities.
Main Findings: Addressing social determinants of health is key to the success of value-based payment models. Incorporating social factors into health management strategies and model design can also lead to return on investment.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; throughout the review, the authors discussed CMS' efforts to manage social determinants of health as a way to control health care costs.
Methods: The authors conducted a review of existing research.

Hui D, Nooruddin Z, Didwaniya N, et al. Concepts and definitions for "actively dying," "end of life," "terminally ill," "terminal care," and "transition of care": a systematic review. *J Pain Symptom M*. 2014;47(1):77-89. doi:10.1016/j.jpainsymman.2013.02.021
Subtopic: Appendix B. Examples of Definitions of Complex Chronic Conditions and Serious Illnesses
Type of Source: Journal Article
Objective: To conceptualize and define the following common terms used in palliative care: actively dying, end of life, terminally ill, terminal care, and transition of care.
Main Findings: The definitions for actively dying, end of life, terminally ill, and terminal care all involved a diagnosis of a progressive, irreversible disease with a limited prognosis of months or less. However, the literature lacked consensus on the exact timeframe. Transition of care was defined in terms of changes in place of care, level of the professions providing care, and goals of care. Dictionaries, textbooks, and organizational websites rarely defined the terms. The authors developed a conceptual framework to show the meaning and connections between the five key terms.
Strengths/Limitations: The systematic review limited its focus to articles that conceptualized or defined the five terms and did not include gray literature, abstracts, or statutory laws from counties outside the United States. In addition, the review did not consider other distinct but related terms.
Generalizability to Medicare Population: Moderate; the authors included an article that discussed the Medicare hospice benefit's definition for terminal illness.

Methods: The authors conducted a systematic review of peer-reviewed articles that conceptualized or defined the five key terms from 1948 to 2012. The authors also searched for the terms in dictionaries, textbooks, and organizational websites.

Johnson TL, Rinehart DJ, Durfee J, et al. For many patients who use large amounts of health care services, the need is intense yet temporary. *Health Aff*. 2015;34(8):1312-1319. doi:10.1377/hlthaff.2014.1186

Subtopic: Background on High-Cost Patients
Type of Source: Journal Article
Objective: To assess the persistence of super-utilizers at the individual level and quantify the cost trends of super-utilizers over time.
Main Findings: Three percent of the sample met super-utilizer criteria yet accounted for 30 percent of the charges during the study period. Super-utilizers use of services was not stable at the individual level; they cycled in and out of super-utilizer status over time. Eighty-two percent of super-utilizers had multiple chronic conditions including mental health conditions.
Strengths/Limitations: The study focused on super-utilizers in a single integrated health system in a midsized city in the United States. Results may not be generalizable to other health systems or locations.
Generalizability to Medicare Population: Moderate; the sample included insured and uninsured super-utilizers in an urban safety-net integrated delivery system in Colorado and may not be generalizable to the greater Medicare population.
Methods: Cross-sectional and longitudinal analyses were conducted to generate descriptive statistics on super-utilizers and their costs.

Joynt KE, Figueroa JF, Beaulieu N, Wild RC, Orav EJ, Jha AK. Segmenting high-cost Medicare patients into potentially actionable cohorts. *Healthcare*. 2017;5:62-67. doi:10.1016/j.hjdsi.2016.11.002

Subtopics: Key Highlights; Background on High-Cost Patients
Type of Source: Journal Article
Objective: To quantify health care costs and patterns of spending among patients of different clinically meaningful subgroups.
Main Findings: High-cost patients were less likely to be white and more likely to be dually eligible for Medicare and Medicaid. Patients classified in the “frail elderly” group and patients classified in the “under 65, disabled, end-stage renal disease” group spent the most relative to the other subgroups.
Strengths/Limitations: The incidence of chronic illness may have been underestimated because claims data were used to determine whether patients had chronic illnesses. In addition, total spending may have been underestimated for individuals who were dually eligible because the authors could not assess spending from supplemental plans or from Medicaid.
Generalizability to Medicare Population: Strong; Medicare fee-for-service claims were used to segment patients into different subgroups and assess their spending profiles.
Methods: The study used Medicare fee-for-service claims from 2011 and 2012 to segment beneficiaries into six subgroups: under 65-disabled/end-stage renal disease; frail elderly; major complex chronic illness; minor complex chronic, illness; simple chronic illness; and relatively healthy. Patients in the highest 10 percent of spending were considered high-cost.

Kaufman BG, Bleser WK, Saunders R, et al. Prospective or retrospective ACO attribution matters for seriously ill patients. *Am J Manag Care*. 2020;26(12):534-540. doi:10.37765/ajmc.2020.88541

Subtopic: Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To determine the impact attribution methods in the Medicare Shared Savings Program (MSSP) have on Medicare beneficiaries with serious illness.
Main Findings: Relative to retrospectively attributed Medicare accountable care organization (ACO) populations, prospectively attributed Medicare ACO populations had more decedents and higher Medicare per-beneficiary per-year expenditures.
Strengths/Limitations: There is substantial churn in patients with serious illnesses over time. Findings from this study are limited to the subgroup of MSSP-attributed patients with serious illness and continuous fee-for-service eligibility during the study period.
Generalizability to Medicare Population: Strong; using 100 percent Medicare Beneficiary Summary and MSSP Beneficiary files for years 2014-2016, the study focused specifically on the impact of attribution methods on seriously ill Medicare fee-for-service beneficiaries.
Methods: The study used a cross-sectional design to examine survival, patient characteristics, and Medicare spending for Medicare fee-for-service beneficiaries with serious illness.

Kelley AS, Bollens-Lund E. Identifying the population with serious illness: the “denominator” challenge. *J Pall Med*. 2018;21(S2):S7-S16. doi:10.1089/jpm.2017.0548

Subtopic: Background on High-Cost Patients
Type of Source: Journal Article
Objective: To define serious illness and examine the sensitivity and specificity of different operational definitions of serious illness.
Main Findings: The tested operational definitions of serious illness had low sensitivity and high specificity across outcomes that could serve as proxies for unmet care needs: total Medicare costs, hospitalization, mortality, and survey-based measures of potential care need (e.g., functional and cognitive impairment, caregiver strain). A valid and reliable measure of care needs for patients with serious illness is needed.
Strengths/Limitations: There are limitations in the data available for population identification.
Generalizability to Medicare Population: Strong; the data were drawn from the Medicare enrollment file.
Methods: The authors first reviewed the literature on serious illness and then asked a group of experts to reach consensus on a definition of serious illness. To test the sensitivity and specificity of different operational definitions of serious illness, the authors used data from the 2011 National Health and Aging Trends Study.

Kelley AS, Covinsky KE, Gorges RJ, et al. Identifying older adults with serious illness: a critical step toward improving the value of health care. *HSR.* 2017;52(1):113-131. doi:10.1111/1475-6773.12479

Subtopics: Key Highlights; Background on High-Cost Patients
Type of Source: Journal Article
Objective: To evaluate the potential to prospectively capture older adults with serious illness using clinical criteria with three definitions of serious illness.
Main Findings: Out of 11,577 eligible subjects, Criteria A resulted in 5,297 subjects, Criteria B in 3,151, and Criteria C in 1,447. One-year outcomes among these groups showed Criteria C subjects having the highest hospital admissions, Medicare expenditures, and mortality, followed by Criteria B and A, respectively.

Strengths/Limitations: A limitation is that results are unable to be generalized to the Medicare population due to the design and sampling technique. Further, ICD9 codes may not capture the severity of illness among subjects.
Generalizability to Medicare Population: Strong. This study supports prospectively identifying high-need and high-cost patients with serious illness for interventions.
Methods: The Health and Retirement Study (HRS) was used to test the varying definitions of serious illness. Each Criterion group's 1-year outcomes were examined (e.g., hospital admissions, total spending, mortality).

Khullar D, Zhang Y, Kaushal R. Potentially preventable spending among high-cost Medicare patients: implications for healthcare delivery. *J Gen Inten Med*. 2020;35(10):2845-2852. doi:10.1007/s11606-020-05691-8
Subtopic: Background on High-Cost Patients
Type of Source: Journal Article
Objective: To understand potentially preventable spending among high-cost Medicare patients as well as each high-cost category of patients.
Main Findings: Among high-cost patients (i.e., patients with the highest 10 percent of spending), preventable spending accounted for approximately 13.3 percent of the overall spending in 2014. Whereas high-cost patients had on average $11,502 in potentially preventable spending, non-high-cost patients had on average $510 in potentially preventable spending. The highest proportion of potentially preventable spending overall was among the high-cost patients in the seriously ill, frail, or serious mental illness categories.
Strengths/Limitations: Patients who died during the study period were excluded from the analysis. In addition, findings may not be applicable to Medicaid beneficiaries, Medicare Advantage beneficiaries, or commercially insured populations as the analysis was limited to Medicare fee-for-service and dual-eligible beneficiaries.
Generalizability to Medicare Population: Moderate; although this study analyzed data from Medicare beneficiaries, the beneficiaries were located in the New York metropolitan area. Results may not be generalizable to the overall Medicare population.
Methods: This study used a cross-sectional design. A total of 556,053 Medicare fee-for-service and dual-eligible beneficiaries in the New York metropolitan area in 2014 were grouped into ten high-cost categories. The non-mutually exclusive categories included: seriously ill; multiple chronic conditions; single high-cost chronic condition; single condition with high pharmacy cost; end-stage renal disease; chronic pain; frailty; serious mental illness; opioid use disorder; and social vulnerability.

Krahn GL, Walker DK, Correa-De-Araujo R. Persons with disabilities as an unrecognized health disparity population. *Am J Public Health*. 2015;105(S2):S198-S206. doi:10.2105/AJPH.2014.302182
Subtopic: Background on High-Cost Patients
Type of Source: Journal Article
Objective: To provide recommendations for future research and policy to address health inequities among individuals with disabilities.
Main Findings: Recommendations to inform future research and policy include increased access to healthcare; use of data to support decision-making in policy and practice; increased workforce capacity, explicit consideration of people with disabilities in public health programs; and improved preparation and coordination for emergencies.
Strengths/Limitations: N/A

Generalizability to Medicare Population: Moderate; the authors focused their literature review on disparities among people with disabilities in the United States. The developed recommendations are applicable to the United States health care system.
Methods: A review of existing literature was conducted to define the population, describe the history of discrimination and exclusion in the population, understand differences in health outcomes, and develop recommendations to reduce disparities.

Krieger J, Higgins DL. Housing and health: Time again for public health action. *A J Public Health*. 2002;92(5):758-768. doi:10.2105/AJPH.92.5.758
Subtopic(s): Background on High-Cost Patients
Type of Source: Journal Article
Objective: To summarize evidence showing a link between housing conditions and health, understand public health's role in addressing housing issues, describe current public health activities to address housing issues, and provide recommendations for public health action.
Main Findings: Evidence suggests that the quality of housing may be related to morbidity from infectious diseases, chronic illnesses, injuries, poor nutrition, and mental health disorders. There is also evidence showing neighborhood-level effects on health, such as cardiovascular disease and depression. Adequate resources are needed to expand capacity, including making housing codes healthier, expanding healthy home programs, including housing quality and resident satisfaction with housing in community health assessments, engaging in cross-sectoral planning and collaboration, and having public health workers advocate for housing policies.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; the authors focused their literature review on the link between housing quality and health in the United States. The developed recommendations are applicable to the United States health care system.
Methods: A review of existing literature was conducted to understand the connection between housing quality and morbidity and develop recommendations to addressing housing issues.

Lee ES, Koh HL, Ho EQ, et al. Systematic review on the instruments used for measuring the association of the level of multimorbidity and clinically important outcomes. *BMJ Open*. 2021;11. doi:10.1136/bmjopen-2020-041219
Subtopic(s): Background on High-Cost Patients
Type of Source: Journal Article
Objective: To identify instruments that measure the association between level of multimorbidity and clinically important outcomes.
Main Findings: Thirty-three instruments were identified and described in the literature. Disease count was the most commonly used instrument and was associated with the essential outcomes from the core outcomes set of multimorbidity research: mortality, mental health, and quality of life.
Strengths/Limitations: The study did not review the validity and reliability of the instruments and it excluded gray literature. One strength of the study includes the involvement of a health science librarian in the search strategy.
Generalizability to Medicare Population: Weak; although CMS's hierarchical condition categories (HCC) model was included in the review, the study did not focus specifically on the Medicare population.
Methods: A systematic review was conducted on instruments that measure the relationship between level of multimorbidity and health outcomes in community-dwelling individuals.

Linzer M, Bitton A, Tu SP, Plews-Ogan M, Horowitz KR, Schwartz MD. The end of the 15–20 minute primary care visit. *J Gen Intern Med*. 2015;30(11):1584-1586. doi:10.1007/s11606-015-3341-3

Subtopic(s): Care Delivery Challenges and Approaches

Type of Source: Journal Article

Objective: To summarize the consequences of short patient visits on both patients and providers and to offer suggestions for broad system change.

Main Findings: For patients, short visits with their provider result in fewer issues being addressed. This problem can lead to decreased patient satisfaction, increased emergency room usage, and non-adherence to treatment plans. For providers, time pressures during patient visits can lead to emotional exhaustion and the fear of making errors. Several suggestions for broad system change include having flexible encounter times in primary care, which will require changes in workflow and payment; recalibrating the value of cognitive care codes; changing the culture among practice leaders; and using management approaches to streamline primary care visits.

Strengths/Limitations: N/A

Generalizability to Medicare Population: Strong; the authors provided background information on Medicare's relative value unit (RVU) payment model and provided suggestions to improve primary care based on current models.

Methods: N/A

Lochner KA, Cox CS. Prevalence of multiple chronic conditions among Medicare beneficiaries, United States, 2010. *Prev Chronic Dis*. 2013;10. doi:10.5888/pcd10.120137

Subtopic(s): Background on High-Cost Patients

Type of Source: Journal Article

Objective: To understand the prevalence of multiple chronic conditions in Medicare beneficiaries.

Main Findings: The prevalence of multiple chronic conditions increased with age. Approximately 68 percent of Medicare beneficiaries had two or more chronic conditions, and over one-third of Medicare beneficiaries had four or more chronic conditions. Non-Hispanic black and Hispanic women had the highest prevalence of four or more chronic conditions.

Strengths/Limitations: One limitation of the study includes the reliance on administrative claims data to identify chronic conditions. Chronic conditions can be misclassified in administrative claims data. The study did not consider the prevalence of multiple chronic conditions among beneficiaries enrolled in Medicare Advantage plans.

Generalizability to Medicare Population: Strong; the analysis focused on chronic health conditions among Medicare fee-for-service beneficiaries and the impact chronic health conditions have on the Medicare system.

Methods: CMS claims data for Medicare beneficiaries enrolled in fee-for-service in 2010 were analyzed. Fifteen chronic conditions were considered among 31 million Medicare beneficiaries. The term multiple chronic conditions was defined as having two or more chronic conditions.

Lockhart E, Hawker G, Ivers NM, et al. Engaging primary care physicians in care coordination for patients with complex medical conditions. *Can Fam Physician*. 2019; 65:e155-e162.

Subtopic(s): Care Delivery Challenges and Approaches

Type of Source: Journal Article

Objective: To examine the engagement of primary care physicians (PCPs) in a voluntary care coordination initiative called the Seamless Care Optimizing the Patient Experience (SCOPE).

Main Findings: The SCOPE project aimed to improve care and reduce acute care use by creating links between small group practices, local hospitals, and community resources. The project provided a platform for PCPs to access information and resources. Several factors influenced PCPs' readiness to engage in the initiative, including strained relationships between PCPs and specialists and PCPs' feelings of responsibility, isolation, and burnout.
Strengths/Limitations: The study had a relatively small sample size of 22 PCPs. PCPs in rural areas were not interviewed as the sample consisted of PCPs in a metropolitan area.
Generalizability to Medicare Population: Weak; the participants and care coordination initiative were in the Canadian province of Toronto, Ontario.
Methods: A qualitative analysis of semi-structured interviews with PCPs was conducted. Interview transcripts were qualitatively analyzed using a grounded theory-informed approach.

Loeb D, Binswanger IA, Candrian C, Bayliss EA. Primary care physician insights into a typology of the complex patient in primary care. *Ann Fam Med*. 2015;13:451-455. doi:10.1370/afm.1840

Subtopics: Key Highlights; Background on High-Cost Patients
Type of Source: Journal Article
Objective: To investigate if newer models of caring for complex patients that incorporate factors such as mental health, social influences, and financial issues, in addition to the patient clinical profile, are supported by primary care physicians.
Main Findings: The physicians described complex patients multidimensionally and viewed complex patients as those having "person-specific factors that interfere with the delivery of usual care and decision making." The results support the use of updated models of patient complexity.
Strengths/Limitations: A strength of the study was the use of systematic nonprobabilistic sampling, which yielded a balanced distribution of participants' years in practice and type of practice. A limitation was all physicians were from the same healthcare system.
Generalizability to Medicare Population: Strong. Complex care patients are relevant to the Medicare program and recommended models of care.
Methods: Qualitative, one-on-one, semi-structured interviews were performed among 15 internal medicine physicians to gain insight into experiences treating complex patients.

McCoy RG, Bunkers KS, Ramar P, et al. Patient attribution: why the method matters. *Am J Manag Care*. 2018;24(12):596-603.

Subtopic(s): Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To assess the impact of five commonly used patient attribution methods on measured health care cost, quality, and utilization metrics within an integrated health care delivery system
Main Findings: The different attribution methods resulted in a lot of variation in terms of the cost and utilization, but not the quality of health care. The Dartmouth method attributed the most patients whereas the HealthPartners method attributed the least. Additionally, the HealthPartners, private payer, and Minnesota community measurement methods all attributed patients based on most of their visits; these patients were also older and had higher utilization costs.
Strengths/Limitations: Study is only based on a single health care system, which limits generalizability.

Generalizability to Medicare Population: Moderate; while the whole study is not directly related to Medicare Populations the Dartmouth Patient Attribution method relates to ACOs and thus Medicare populations.
Methods: The researchers used five patient attribution methods: 1) Dartmouth Method 2) public health plan method 3) private health plan method 4) HealthPartners method 5) Minnesota Community Measurement method on patient data from Mayo Clinic Rochester and provided descriptive statistics of the data.

McDermott KW, Jiang HJ. Characteristics and costs of potentially preventable inpatient stays, 2017. Agency for Healthcare Research and Quality. Published June 2020. Accessed September 13, 2024. https://hcup-us.ahrq.gov/reports/statbriefs/sb259-Potentially-Preventable-Hospitalizations-2017.jsp.
Subtopic(s): Background on High-Cost Patients
Type of Source: Report
Objective: To understand the characteristics and costs of potentially preventable hospitalizations in the United States.
Main Findings: Approximately 3.5 million potentially preventable adult inpatient stays resulted in $33.7 billion in hospital costs in 2017. For adults, heart failure was the most common and expensive reason for a potentially preventable stay. In addition, the rate of potentially preventable inpatient stays increased with age and decreased with income. Over 15 percent of the adult inpatient stays with a primary expected payer of Medicare were potentially preventable.
Strengths/Limitations: The authors mentioned that small differences can be statistically significant with large sample sizes and therefore they only discussed percentage differences greater than or equal to 10 percent.
Generalizability to Medicare Population: Moderate; the analyses examined total stays and costs of potentially preventable adult inpatient stays in 2017 by primary expected payer, including Medicare, Medicaid, private payers, self-pay/no charge, and other payers.
Methods: The analysis provided weighted national estimates of potentially preventable inpatient stays using the Healthcare Cost and Utilization Project State Inpatient Databases from 36 U.S. states in 2017. Estimates are reported separately for adults and children. Volume and cost estimates were reported by primary expected payer.

Mechanic R, Fitch A. Working with ACOs to address social determinants of health. *Health Aff*. 2023. doi:10.1377/forefront.20230109.448380
Subtopic(s): Background on High-Cost Patients
Type of Source: Journal Article
Objective: To summarize lessons learned from accountable care organization (ACO) managers responsible for advancing their ACOs' efforts to integrate medical and social care.
Main Findings: The first lesson learned emphasized the importance and cost associated with collecting social needs data. The second lesson learned was related to the need for health system investments to allow ACOs to build partnerships with community-based organizations (CBOs). The third lesson learned discussed the lack of funding in CBOs to meet the demand from health care organizations. The fourth lesson learned was related to the need for more direct payment for social care to support the integration of health and social services.
Strengths/Limitations: N/A

Generalizability to Medicare Population: Strong; the article discussed challenges Medicare ACOs face with integrating medical and social care.

Methods: ACO managers reported their efforts to integrate medical and social care.

MedPAC. A Data Book: Health Care Spending and the Medicare Program. July 2023. https://www.medpac.gov/wp-content/uploads/2023/07/July2023_MedPAC_DataBook_SEC.pdf

Subtopic(s): Key Highlights; Background on High-Cost Patients

Type of Source: Report

Objective: To provide information on national health care spending and Medicare spending; Medicare beneficiary demographics; Medicare beneficiary and other payer financial liability; dual-eligible beneficiaries; Alternative Payment Models; acute inpatient services; ambulatory care; post-acute care; Medicare Advantage; prescription drugs; and other services (e.g., dialysis, hospice, clinical laboratory).

Main Findings: N/A

Strengths/Limitations: N/A

Generalizability to Medicare Population: Strong; the Data Book is focused on the Medicare population.

Methods: The annual Data Book developed by MedPAC contains information from MedPAC's March and June reports to Congress as well as other information.

Mercer SW, Fitzpatrick B, Gourlay G, Vojt G, McConnachie A, Watt GC. More time for complex consultations in a high-deprivation practice is associated with increased patient enablement. *Br J Gen Pract*. 2007;57(545):960-966. doi:10.3399/096016407782604910

Subtopic(s): Care Delivery Challenges and Approaches

Type of Source: Journal Article

Objective: To assess the impact of increasing consultation length in general practice on patient enablement within an area of socioeconomic deprivation.

Main Findings: The intervention increased the length of consultations by an average of 2.5 minutes. Following the introduction of longer consultations, providers' stress decreased, and patient enablement increased.

Strengths/Limitations: The authors noted that one strength of the study is conducting research in a setting that is less likely to be researched. Their study demonstrated that research in this setting is feasible. As a limitation, the measure used to assess provider stress has not been validated.

Generalizability to Medicare Population: Low; the study was conducted in a socioeconomically disadvantaged practice in Glasgow, Scotland.

Methods: A pre/post longitudinal design was used to assess the effect of providing patients with longer consultations on patient and provider perspectives. Qualitative interviews were conducted with providers to understand their perspectives on the longer consultations. Over 300 adult patients participated in the one-year study, which took place in a socioeconomically deprived practice in Glasgow, Scotland.

Miller HD. Patient-centered payment for care of chronic conditions. *JACM*. 2023;46(2):89-96. doi:10.1097/JAC.0000000000000455

Subtopic(s): Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To describe a patient-centered payment system where separate payments support different phases of chronic condition care.
Main Findings: A patient-centered payment system could provide payments to support the following phases of chronic condition care: diagnosis, care planning, initial condition management, and monthly condition management. This system could replace fee-for-service payment systems without placing physicians at risk.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; the proposed payment system could replace fee-for-service payment systems.
Methods: N/A

Moore Foundation. Payment models for advancing serious illness care. Published 2016. Accessed March 5, 2024. https://workforcesummit.ucsf.edu/sites/g/files/tkssra1166/f/Discern%20Serious-Illness-Care-Payment-Models-White-Paper-2016-09-27%20%281%29.pdf.

Subtopic(s): Background on High-Cost Patients; Care Delivery Challenges and Approaches; Payment Model Participation Challenges and Lessons Learned
Type of Source: White Paper
Objective: To assess the extent to which payment models provide the resources and flexibility needed to support community-based serious illness programs and to propose the next steps to advance payment model design for serious illness care.
Main Findings: Approximately two-thirds of the payment models focused specifically on people with serious illnesses. These models included more care delivery elements, incentives, and measures. Programs need flexibility to provide care in community settings using a multidisciplinary, team-based approach. Models should be performance-based and provide providers with resources to support care transformation, such providing advanced payments. The authors listed the following steps to support progression towards high quality payment models: engage stakeholders to inform model development; enhance data availability and alignment; define milestones for implementation and spread of the models; and establish mechanisms for monitoring.
Strengths/Limitations: Whereas some payment model categories included many models (e.g., there were seven post-acute care-based models), other payment model categories included only a few models (e.g., there were three primary care-based models).
Generalizability to Medicare Population: Moderate; when searching for payment models, the authors considered CMMI initiatives, Medicare quality reporting programs, pay for performance programs, and private sector health plan models.
Methods: An environmental scan was conducted to identify 31 payment models that support community-based serious illness programs. The payment models were grouped into seven categories (e.g., primary care-based models, specialty care-based models, and post-acute care-based models). A conceptual framework was developed to assess the payment models and identify advantages and limitations of the different types of models.

National Quality Forum. Improving attribution models: final report. Published 2018. Accessed April 30, 2024.https://www.qualityforum.org/Publications/2018/08/Improving_Attribution_Models_Final_Report.aspx.

Subtopic(s): Payment Model Participation Challenges and Lessons Learned
Type of Source: Report
Objective: To understand attribution challenges, outline guidance on attribution model design, and provide recommendations for refining the Attribution Model Selection Guide.
Main Findings: The literature review identified 171 attribution models. Approximately 89 percent of the models used retrospective attribution with assignment based on the provider or other attributable entity responsible for a plurality of administrative claims. Additional studies included models that used statistical methods to use the electronic health record, registration, scheduling, and billing data to identify patients prospectively. Survey data from measure developers indicated a need for more guidance and examples for the type of evidence and testing they can provide to support an attribution model. Interviews noted challenges related to accessing data to determine attribution, reflecting team-based care in current models, and attributing patients who may need care from multiple clinicians and settings.
Strengths/Limitations: The study had a relatively small sample size. For example, eight participants completed the survey, and five stakeholders were interviewed.
Generalizability to Medicare Population: Moderate; although not exclusively, the study considered attribution models in nationwide programs where Medicare fee-for-service was the payer type.
Methods: A literature review was conducted to identify attribution models used in health care. Qualitative data analysis was performed on key informant interviews focused on topics related to attribution that may not be available in the literature (e.g., consumer experiences). A survey was conducted to collect feedback from measure developers on the use of the Attribution Model Selection Guide.

National Quality Forum. Multiple chronic conditions measurement framework. Published 2012. Accessed April 30, 2024.
https://www.qualityforum.org/Publications/2012/05/MCC_Measurement_Framework_Final_Report_document.aspx.

Subtopic(s): Payment Model Participation Challenges and Lessons Learned; Appendix B: Examples of Definitions of Complex Chronic Conditions and Serious Illnesses
Type of Source: Report
Objective: To develop a measurement framework for people with multiple chronic conditions.
Main Findings: The framework serves as a guide for National Quality Forum-endorsement decisions regarding measures that address the population with multiple chronic conditions. Key measurement concepts include optimizing, maintaining, or preventing decline in function; seamless care transitions; patient important outcomes; avoidance of inappropriate care; access to a usual source of care; transparency about total cost of care; shared accountability; and shared decision making.
Strengths/Limitations: N/A

Generalizability to Medicare Population: Moderate; key measurement concepts and guiding principles for measuring care could be applied to Medicare beneficiaries with multiple chronic conditions.
Methods: A multistakeholder Steering Committee informed the development of the person-centric measurement framework for people with multiple chronic conditions.

Nevola A, Morris ME, Colla C, Tilford JM. Risk-based contracting for high-need Medicaid beneficiaries: the Arkansas PASSE program. *Health Policy Open*. 2020;2:100023. doi:10.1016/j.hpopen.2020.100023

Subtopic(s): Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To describe the provider-led Arkansas Shared Savings Entity (PASSE) program, a program for people with behavioral health conditions or intellectual and developmental disabilities.
Main Findings: The PASSE program improved beneficiary outcomes through expanded care coordination, service flexibility, community investment incentives, accountability for cost, quality, and targets across physical and behavioral health and long-term care. The PASSE program also fostered competition and increased provider ownership. However, there may not be sufficient incentives to change provider behavior.
Strengths/Limitations: Blending elements of payment reform has been shown to improve care for populations with behavioral health conditions or intellectual and developmental disabilities and may extend to other high-risk populations. The program is new and needs additional experience before determining true outcomes of the systems change. There is also selection bias through choosing informants and evidence scanning.
Generalizability to Medicare Population: Moderate; the program is focused on the Medicaid population.
Methods: Key informant interviews and an environmental scan of the literature were conducted.

NORC at the University of Chicago and the Department of Health and Human Services' Office of Health Policy of the Office of the Assistant Secretary for Planning and Evaluation (ASPE). Environmental scan on care coordination in the context of alternative payment models (APMs) and physician-focused payment models (PFPMs). Published 2021. Accessed September 12, 2024. https://aspe.hhs.gov/sites/default/files/private/pdf/261946/Jun-2021-CC-Escan.pdf.

Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: Report
Objective: To provide background information to assist PTAC in understanding perspectives on the role of care coordination in optimizing health care delivery and value-based transformation in the context of APMs and PFPMs.
Main Findings: The environmental scan showed there is no universal definition of care coordination, though there are several common functional domains associated with care coordination. The scan found that states often differ in their approaches to care coordination in Medicaid/Medicare programs. Most CMMI payment models include care coordination, however, they vary in how the services are reimbursed.

Strengths/Limitations: There is limited research on care coordination and the time span of care for patients with chronic conditions.
Generalizability to Medicare Population: Strong; the environmental scan provides an overview of the effectiveness of care coordination on CMS programs, providers, and enrollees.
Methods: A list of research questions related to care coordination was drafted. A literature review was conducted to answer the research questions.

NORC at the University of Chicago. Analysis of 2019 Medicare fee-for-service (FFS) claims for chronic care management (CCM) and transitional care management (TCM) services. Published 2022. Accessed September 13, 2024. https://aspe.hhs.gov/sites/default/files/documents/31b7d0eeb7decf52f95d569ada0733b4/CCM-TCM-Descriptive-Analysis.pdf.

Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: Report
Objective: To assess the utilization of chronic care management (CCM) and transitional care management (TCM) services in Medicare fee-for-service.
Main Findings: Use of CCM and TCM services among Medicare fee-for-service beneficiaries was low. Approximately four percent of beneficiaries potentially eligible for CCM received CCM services, and approximately 17.9 percent of beneficiaries potentially eligible for TCM received TCM services. Women, older beneficiaries, and beneficiaries living in metropolitan areas received CCM and TCM services at higher rates. In addition, patients aligned to accountable care organizations were more likely to receive CCM and TCM services compared with patients not aligned to accountable care organizations.
Strengths/Limitations: The analysis based its determination of whether a beneficiary was potentially eligible for CCM and TCM solely on claims; physicians' assessments of a patients' suitability for CCM or TCM were not considered in the analysis.
Generalizability to Medicare Population: Strong; the analysis focused on care coordination services provided to Medicare fee-for-service beneficiaries.
Methods: 100 percent Medicare fee-for-service claims from years 2018 and 2019 were used in the analysis. Results for CCM and TCM use were generated using 2019 claims.

NORC at the University of Chicago. The Pennsylvania Rural Health Model: First Annual Report. Published 2021. Accessed September 12, 2024. https://innovation.cms.gov/data-and-reports/2021/parhm-ar1-full-report.

Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: Report
Objective: To provide an overview of and evaluate the Pennsylvania Rural Health Model (PARHM).
Main Findings: The Rural Health Redesign Center Authority's establishment may improve communication and alignment among stakeholders and participating hospitals and payers. The model contributes to short-term financial stability, but independent rural hospitals still grapple with long-term sustainability.
Strengths/Limitations: The report was published during the early stages of the evaluation and presents emerging hypotheses that will be fully tested later as data are collected and analyzed.

Generalizability to Medicare Population: Weak; though a Medicare model, the PARHM deals with rural hospitals in Pennsylvania and is not generalizable to the broader Medicare population.
Methods: This study conducted a descriptive assessment of financial performance and interim Medicare spending.

Ogelsby AK, Secnik K, Barron J, Al-Zakwani I, Lage MJ. The association between diabetes related medical costs and glycemic control: A retrospective analysis. *Cost Eff and Resourc Alloc*. 2006:4(1). doi:10.1186/1478-7547-4-1
Subtopic(s): Background on High-Cost Patients
Type of Source: Journal Article
Objective: To quantify the association between direct medical costs attributable to type 2 diabetes and the level of glycemic control.
Main Findings: Direct medical costs attributable to type 2 diabetes were 16 percent lower for individuals with good glycemic control compared with fair control and 20 percent lower for individuals with good glycemic control compared with poor control. Prescription drug costs were lowest among individuals with good glycemic control.
Strengths/Limitations: The analysis used data from a single health plan in the Southeastern United States and results may not be generalizable to other populations.
Generalizability to Medicare Population: Moderate; over half of the sample (54 percent) was insured by Medicare.
Methods: A longitudinal analysis was conducted using health plan administrative data. Participants were categorized into groups of good, fair, and poor glycemic control based on mean HbA1c values. Generalized linear modeling was used to examine group differences.

Pearl R, Madvig P. Managing the most expensive patients: a new primary-care model can lower costs and improve outcomes. *Harv Bus Rev*. January-February 2020;68-76. https://hbr.org/2020/01/managing-the-most-expensive-patients Accessed September 11, 2024.
Subtopic(s): Key Highlights; Background on High-Cost Patients
Type of Source: Journal Article
Objective: To propose an approach used at Kaiser Permanente to manage multiple chronic conditions.
Main Findings: The approach provides coaching and support to patients whose chronic conditions can be improved. Technology and low-cost medical staff (e.g., medical assistants) are integrated in primary care practices to help patients manage their conditions. The approach not only demonstrated better quality of care but reduced costs.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; the authors suggest there is strong evidence that the model of care, particularly the leveraged-primary care model, can be widely adopted.
Methods: Kaiser Permanente examined electronic health record data on utilization and care among patients in California. The organization developed a model for treating patients with multiple but manageable chronic diseases.

Ploeg J, Northwood M, Duggleby W, et al. Caregivers of older adults with dementia and multiple chronic conditions: exploring their experiences with significant changes. *Dementia*. 2020;19(8):2601-2620. doi:10.1177/1471301219834423

Subtopic(s): Care Delivery Challenges and Approaches

Type of Source: Journal Article

Objective: To understand changes in caring roles among caregivers of older adults with dementia and to understand how the caregivers cope with the changes.

Main Findings: The following themes emerged from the changes reported by caregivers: everything falls on you – all the responsibilities, too many feelings, and no time for me. Caregivers reported coping with the changes by seeking support, engaging in self-care, and adapting their caregiving approach.

Strengths/Limitations: The authors noted that the caregiver sample was mostly Caucasian and included a small number of individuals with inadequate financial means, limiting the generalizability of the results.

Generalizability to Medicare Population: Moderate; the study focused on the experiences of caregivers of older adults with dementia and multiple chronic conditions and is relevant to the Medicare population.

Methods: Semi-structured interviews were conducted with 72 caregivers of individuals with dementia and multiple chronic conditions. Content analysis was conducted to identify themes among the caregivers' responses.

Pooler JA, Hartline-Grafton H, DeBor M, Sudore RL, Seligman HK. Food insecurity: a key social determinant of health for older adults. *J Am Geriatr Soc*. 2019;67(3):421-424. doi:0.1111/jgs.15736

Subtopic(s): Background on High-Cost Patients

Type of Source: Journal Article

Objective: To summarize strategies clinicians can use to help address food insecurity among older adult patients.

Main Findings: Clinicians can address food insecurity among older adult patients by screening the patients for food insecurity, connecting the patients who screen positive with a program that supports food insecurity (e.g., Supplemental Nutrition Assistance Program [SNAP], Congregate Meal Program, Senior Farmers Market Nutrition Program), and advocating for policies, programs, and practices that will help address food insecurity among older people.

Strengths/Limitations: N/A

Generalizability to Medicare Population: Weak; although some Medicare enrollees may be impacted by food insecurity, the article focused specifically on food insecurity among older adults in the United States and may not be generalizable to all Medicare enrollees.

Methods: N/A

Powers BW, Yan J, Zhu J, et al. Subgroups of high-cost Medicare Advantage patients: an observational study. *J Gen Intern Med*. 2018;34(2):218-225. doi:10.1007/s11606-018-4759-1

Subtopic(s): Background on High-Cost Patients

Type of Source: Journal Article

Objective: To identify clinically and operationally meaningful subgroups within high-cost Medicare Advantage (MA) patients and assess patterns of utilization, spending, and mortality among the subgroups.

Main Findings: The highest-cost MA patients accounted for 55 percent of total spending in 2014. The average annual spending for these patients was $55,696 per patient. Defined by condition-specific profiles and illness trajectories, ten distinct subgroups were identified among the highest-cost MA patients. Examples of the subgroups include acute exacerbations of chronic disease, end-stage renal disease (ESRD), vascular disease, orthopedic trauma, surgical infections, and other complications. There were different patterns of utilization, spending, and mortality across the subgroups. For example, the percentage of patients who were persistently high cost ranged from 11.8 percent among the orthopedic trauma subgroup to 100 percent among the ESRD subgroup.

Strengths/Limitations: The study population included patients enrolled in MA plans offered by one health insurer. Findings may not generalize to other populations enrolled in MA plans or Medicare fee-for-service. In addition, the authors noted that they were unable to consider patient-level data on social determinants of health when identifying the subgroups of high-cost MA patients.

Generalizability to Medicare Population: Moderate; the article focused on subgroups of MA patients under one health insurer in California, Arizona, and Virginia and may not be generalizable to the entire Medicare population.

Methods: Cluster analysis was used to identify subgroups of MA patients with the top 10 percent of spending. Rates of utilization, spending, and mortality were examined across the subgroups.

Rattray NA, Sico JJ, Cox LM, Russ AL, Matthias MS, Frankel RM. Crossing the communication chasm: challenges and opportunities in transitions of care from the hospital to the primary care clinic. *JQPS*. 2017;43(3):127-137. doi:10.1016/j.jcjq.2016.11.007

Subtopic(s): Care Delivery Challenges and Approaches

Type of Source: Journal Article

Objective: To understand barriers and facilitators of communication between primary care providers during transitions of care for patients with acute stroke/transient ischemic attack (TIA).

Main Findings: Factors that influenced communication among providers during care transitions included concise and complete medication and treatment plans, reliable, standardized discharge documentation, and the use of multiple modes of communication. The transient nature of providers at teaching hospitals challenged provider communication. Effective interventions to address key communication challenges were summarized.

Strengths/Limitations: This study included a small sample of primary care providers from a single Veteran Affairs Medical Center. Findings may not be generalizable to other health systems or providers. The authors noted that the study did not consider patient perspectives; results are limited to only provider perspectives.

Generalizability to Medicare Population: Moderate; although the study did not focus specifically on the perspectives of providers who treat Medicare beneficiaries, its findings, and recommended interventions to address communication challenges benefit many providers.

Methods: Semi-structured interviews were conducted with 21 primary care providers, including physicians, nurses, and pharmacists. Providers were from both inpatient and outpatient settings. Thematic analysis and consensus-based coding of the interview responses identified barriers and facilitators to effective communication during care transitions.

Reddy A, Sessums L, Gupta R, et al. Risk stratification methods and provision of care management services in comprehensive primary care initiative practices. *Ann Fam Med*. 2017;15(5):451-454. doi:10.1370/afm.2124

Subtopic(s): Background on High-Cost Patients
Type of Source: Journal Article
Objective: To explore risk stratification methods used in primary care practices in the Comprehensive Primary Care (CPC) initiative and identify which method best connects high-risk patients with care management services.
Main Findings: Four risk stratification methods were reported by the CPC practices, including a practice-developed algorithm; the American Academy of Family Physicians' clinical algorithm; payer claims and electronic health records; and clinical intuition. Whereas the practice-developed algorithm tended to identify the greatest number of high-risk patients per primary care physician, clinical intuition tended to connect the greatest number of patients to care management services.
Strengths/Limitations: Although the sample of CPC practices was relatively large and geographically diverse, the sample was not nationally representative of primary care practices.
Generalizability to Medicare Population: Moderate; the study focused on risk stratification methods used by practices in the CPC initiative, a CMS Innovation Center multi-payer initiative.
Methods: CPC practices' descriptions of their risk stratification approaches were categorized using qualitative coding. The risk stratification methods were assessed on their association with delivery of care management services.

Renaud J, McClellan SR, DePriest K, et al. Addressing health-related social needs via community resources: Lessons from accountable health communities. *Health Aff*. 2023;42(6):832-840. doi:10.1377/hlthaff.2022.01507

Subtopic(s): Background on High-Cost Patients
Type of Source: Journal Article
Objective: To understand the use of community services and resolution of health-related social needs (HRSNs) among Accountable Health Communities (AHC) Model beneficiaries with HRSNs and at least two emergency department visits in the last 12 months.
Main Findings: Food insecurity, housing insecurity, transportation needs, and utility needs were among the most reported HRSNs. Navigation did not increase beneficiaries' connections to community service providers or HRSN resolution; there were no significant group differences in the use of community services or rates of needs resolution between AHC Model beneficiaries and beneficiaries in a randomized control group. Beneficiaries faced challenges with accessing community services even when initial connections were made. For example, some community service providers restricted eligibility based on factors such as age, income, and health status. In addition, even when beneficiaries successfully accessed community services, some services

were insufficient to meet their needs. Thus, some beneficiaries received support outside of the AHC Model.

Strengths/Limitations: The authors noted that the beneficiary survey respondents may not be representative of all beneficiaries eligible for navigation in the AHC Model.

Generalizability to Medicare Population: Moderate; the study focused on whether a CMS Innovation Center model, the AHC Model, was helping to address beneficiaries' needs. Most of the survey respondents had only Medicaid and were younger than 64 years old.

Methods: A subset of beneficiaries in the AHC Model with HRSNs and at least two emergency department visits in the past 12 months were surveyed to understand their use of community services and determine whether their needs were resolved. Interviews were conducted with key informants from bridge organizations in the AHC Model.

Rosano A, Loha CA, Falvo R, et al. The relationship between avoidable hospitalization and accessibility to primary care: a systematic review. *Eur J Pub Health.* 2012;23(3): 356-360. doi:10.1093/eurpub/cks053

Subtopic(s): Background on High-Cost Patients

Type of Source: Journal Article

Objective: To assess factors related to the association between avoidable hospitalization and access to primary health care in multiple countries.

Main Findings: The review identified 51 relevant peer-reviewed articles published in multiple countries. In general, findings demonstrated a lower risk of hospitalization for ambulatory care sensitive conditions in areas with greater access to primary health care. Appropriate interpretation of the studies depends on adjusting for socioeconomic status.

Strengths/Limitations: The authors suggested that there was heterogeneity in study designs and outcomes across the 51 articles. This heterogeneity could lead to spurious and misleading conclusions. Grey literature was not considered in the review.

Generalizability to Medicare Population: Weak; the systematic review considered research published in multiple countries, including the United States, Spain, Canada, Brazil, the UK, Australia, Italy, and New Zealand. Many of the studies included in the review were conducted in countries that used a private insurance model.

Methods: A systematic review was conducted on peer-reviewed articles published between 1990 and October 2010.

RTI International. Accountable health communities (AHC) model evaluation: second evaluation report. Published 2023. Accessed September 13, 2024. https://www.cms.gov/priorities/innovation/data-and-reports/2023/ahc-second-eval-rpt.

Subtopic(s): Background on High-Cost Patients

Type of Source: Report

Objective: To evaluate the Accountable Health Communities (AHC) Model.

Main Findings: Beneficiaries who were eligible for navigation tended to be low-income and enrolled in Medicaid only or dually enrolled in Medicare and Medicaid. Nearly two-thirds of the beneficiaries did not have resolved HRSNs after receiving navigation as navigation was not found to improve their connections with community services or HRSN resolution. Several beneficiary-level challenges with using community services included a lack of transportation; ineligibility for

services; waitlists; and a lack of community resources. The model reduced emergency department visits for beneficiaries in the Assistance Track.
Strengths/Limitations: Data used in the report were not from the same period. The size of the Alignment Track was not large enough to detect statistically significant differences in outcomes.
Generalizability to Medicare Population: Weak; the AHC Model is designed for high-risk individuals with HRSNs and multiple emergency department visits and may not be generalizable to the broader Medicare population.
Methods: Descriptive analyses were conducted using AHC screening, referral, and navigation data. Measures included but were not limited to demographic information, insurance type, HRSNs identified through screening, and navigation outcomes. Data from screenings made through December 31, 2021 were included in the report.

Sandhu AT, Heidenreich PA, Borden W, et al. Value-based payment for clinicians treating cardiovascular disease: a policy statement from the American Heart Association. *Circ*. 2023;148(6):543-563. doi:10.1161/CIR.0000000000001143
Subtopic(s): Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To review value-based payment and recommend best practices for future program design and implementation.
Main Findings: Principles to guide future development of value-based payment models include finding a balancing between lowering cost and improving quality of care; recognizing that equity is central to quality; shifting from fee-for-service toward more flexible funding that allows clinicians to focus on treating patients using team-based care; and channeling clinicians' intrinsic motivation to improve their performance and reduce burden.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Strong; the article is focused on CMS value-based payment.
Methods: N/A

Sapra KJ, Yang W, Walczak NB, Cha SS. Identifying high-cost Medicare beneficiaries: impact of neighborhood socioeconomic disadvantage. *Pop Health Mgmt*. 2020;23(1). doi:10.1089/pop.2019.0016
Subtopic(s): Key Highlights; Background on High-Cost Patients
Type of Source: Journal Article
Objective: To understand whether using data on neighborhood socioeconomic disadvantage and individual clinical risk improves the identification of high-cost Medicare beneficiaries.
Main Findings: Beneficiaries living in neighborhoods with the greatest disadvantage had higher costs in the subsequent year compared with beneficiaries living in neighborhoods with the least disadvantage. Clinical risk strengthened this disparity, such that the relationship between neighborhood socioeconomic disadvantage and cost was greatest among the most clinically complex beneficiaries compared with less clinically complex beneficiaries.
Strengths/Limitations: The analysis focused solely on the Maryland Medicare population and may not be generalizable to the national Medicare beneficiary population.
Generalizability to Medicare Population: Strong; the analysis was focused on the total cost of care among Medicare fee-for-service beneficiaries.

Methods: This longitudinal study used data from 615,637 Maryland Medicare fee-for-service beneficiaries in 2015 and 2016. The primary outcome was the total cost of care. Regression modeling was used to examine the relationship between neighborhood socioeconomic disadvantage and total cost of care in the subsequent year. An interaction between neighborhood socioeconomic disadvantage and clinical risk predicting total cost of care was tested.

Sevick MA, Trauth JM, Ling BS, et al. Patients with complex chronic diseases: perspectives on supporting self-management. *J Gen Intern Med*. 2007;22(Suppl):438-444. doi:10.1007/s11606-007-0316-z

Subtopic(s): Background on High-Cost Patients; Appendix B. Examples of Definitions of Complex Chronic Conditions and Serious Illnesses

Type of Source: Journal Article

Objective: To describe strategies health care professionals can use to support patients with self-managing complex chronic diseases.

Main Findings: Approaches for health care professions to support patients with self-management of complex chronic diseases include the following: negotiate the goals of care by encouraging patient participation and collaborative goal-setting; communicate with patients; engage patients in behavior change; reduce information processing burden placed on patients; and minimize the negative impact of self-management of complex chronic diseases on health-related quality of life (e.g., a sense of well-being).

Strengths/Limitations: N/A

Generalizability to Medicare Population: Moderate; although the article was not tailored to the Medicare population, the strategies described in the article could be implemented by health care professionals who treat Medicare beneficiaries.

Methods: N/A; this article summarized strategies health care professionals can use to support patients with complex chronic diseases.

She Z, Gaglioti AH, Baltrus P, et al. Primary care comprehensiveness and care coordination in robust specialist networks results in lower emergency department utilization: a network analysis of Medicaid physician networks. *JPC*. 2020;11. doi:10.1177/2150132720924432

Subtopic(s): Care Delivery Challenges and Approaches

Type of Source: Journal Article

Objective: To examine the effect of network characteristics in primary and specialty physician networks on emergency department visits among patients with chronic ambulatory care-sensitive conditions.

Main Findings: Primary care physicians whose continuity patients did not visit a specialist had 86 percent fewer emergency department visits per patient in their panel compared with primary care physicians whose patients saw a specialist. Of the primary care physicians connected to specialists in the network, the primary care physicians with a greater number of specialist collaborators had lower patient panel emergency department rates. In addition, among primary care physicians connected to specialists in the network, the primary care physicians with a high degree of centrality had lower patient panel emergency department rates.

Strengths/Limitations: The use of a cross-sectional design limits the ability to make causal claims regarding the relationship between primary care physician network characteristics and emergency department rates. In addition, the study examined Texas Medicaid patients and may not represent patients in other states or physician networks.

Generalizability to Medicare Population: Weak; the analysis focused on Medicaid physician networks in Texas.

Methods: A cross-sectional social network analysis was conducted to assess the impact of primary care and specialty physician networks on adult Medicaid beneficiaries with ambulatory care-sensitive conditions. The analysis used 2009 Texas Medicaid Analytic eXtract (MAX) files. Regression modeling was used to examine the effect of network characteristics on emergency department visits per patient in the panel.

Sheridan P, LeBrett WG, Triplett DP, et al. Cost savings associated with palliative care among older adults with advanced cancer. *Am J Hosp Palliat Care*. 2021;38(10):1250-1257. doi:10.1177/1049909120986800

Subtopic(s): Background on High-Cost Patients

Type of Source: Journal Article

Objective: To examine the effect of palliative care on total cost of care in a nationally representative sample of oncology patients.

Main Findings: Relative to usual care, receiving a palliative care consultation reduced total cost by 25 percent.

Strengths/Limitations: The study did not use random assignment. In addition, a palliative care consultation cannot be validated using claims. As a result, the frequency of palliative care may be underestimated. The study population included a disproportionate number of lung cancer patients and findings may not generalize to other types of cancer.

Generalizability to Medicare Population: Moderate; the study focused on total costs among Medicare beneficiaries with advanced cancer and therefore may not generalize to all Medicare beneficiaries.

Methods: A matched cohort study was conducted on patients with cancer. Patients who received palliative care consultation were matched with similar patients who did not receive palliative care consultation. Direct costs were compared to understand the impact of palliative care consultations.

Trombley MJ, McClellan SR, Kahvecioglu DC, et al. Association of Medicare's bundled payments for care improvement initiative with patient-reported outcomes. *Health Serv Res*. 2019;54(4):793-804. doi:10.1111/1475-6773.13159

Subtopic(s): Payment Model Participation Challenges and Lessons Learned

Type of Source: Journal Article

Objective: To understand the impact of the Bundled Payments for Care Improvement (BPCI) initiative on patient-reported care experience, overall satisfaction with recovery since leaving the hospital, and changes in functional status.

Main Findings: Beneficiaries treated by BPCI hospitals were less likely to report a positive care experience or high satisfaction relative to beneficiaries treated by comparison hospitals. There was no group difference in self-reported functional status after hospital discharge.

Strengths/Limitations: The authors noted a low response rate on the surveys, such that approximately half of the sampled beneficiaries completed the survey. Survey respondents tended to be healthier than non-respondents.

Generalizability to Medicare Population: Moderate; the study focused on the experiences of beneficiaries treated by hospitals participating in the BPCI initiative and findings may not be generalizable to all Medicare beneficiaries treated by all hospitals.
Methods: Medicare claims data were used to estimate risk-adjusted differences in patient-reported measures of care experience and functional status change among beneficiaries treated by hospitals participating in BPCI Model 2 and comparison hospitals.

Tynan A, Draper DA. Getting what we pay for innovations lacking in provider payment reform for chronic disease care. *Center for Studying Health System Change*. 2008;(6):1-8.
Subtopic(s): Care Delivery Challenges and Approaches; Payment Model Participation Challenges and Lessons Learned
Type of Source: Journal Article
Objective: To summarize the landscape of payment reform for chronic disease care.
Main Findings: Current efforts to reform physician and hospital payment are limited to small-scale pilot programs. Barriers to reforming payment for chronic disease care include fragmented care delivery, a lack of payment for non-physician providers, potential for revenue loss among some providers, and a lack of a reform champion.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; respondents discussed demonstrations that may be applicable to the Medicare population, including the Medicare Physician Group Practice demonstration and patient-centered medical homes.
Methods: In 2007 and 2008, semi-structured interviews were conducted with market observers (e.g., executive medical directors of national and regional health plans, employer groups, purchasers of health care). Interview questions were focused on understanding respondents' perspectives on current payment methods and incentives, pilot programs, and key considerations in reforming payment methods for chronic disease care.

United States Government Accountability Office. Medicare: information on the transition to alternative payment models by providers in rural, health professional shortage, or underserved areas. GAO-22-104618. Published 2021. Accessed September 12, 2024. https://www.gao.gov/assets/gao-22-104618.pdf.
Subtopic(s): Payment Model Participation Challenges and Lessons Learned
Type of Source: Report
Objective: To describe participation in Advanced Alternative Payment Models (APMs) among providers in rural or shortage areas, challenges the providers face when transitioning to APMs, and actions CMS has taken to support the providers in their transition to APMs.
Main Findings: A smaller proportion of providers in rural or health professional shortage areas participated in Advanced APMs from 2017 through 2019 compared with providers not located in these areas. Providers in rural or underserved areas face financial (e.g., lack of capital to finance costs of transitioning to an APM), technological (e.g., challenges with meeting requirements related to data analysis), and other challenges when transitioning to APMs, including Advanced APMs.
Strengths/Limitations: N/A

Generalizability to Medicare Population: Strong; the report focused on provider participation in CMS payment models, including APMs and Advanced APMs. Medicare beneficiaries are included in APMs.
Methods: The Government Accountability Office used CMS data to assess participation in APMs among providers in rural areas, shortage areas, or medically underserved areas. Interviews were conducted with CMS officials and 18 representatives from stakeholder organizations.

Urbanski D, Reichert A, Amelung V. Discharge and Transition Management in Integrated Care. In Amelung V, Stein V, Suter E, Goodwin N, Nolte E, Balicer R, eds. *Handbook Integrated Care.* Springer International Publishing. 2021:437-451. doi:10.1007/978-3-030-69262-9_26
Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: Book Chapter
Objective: To define discharge management and describe its role in health care systems.
Main Findings: Discharge management entails the transfer of patients between sectors of care delivery, providers, and/or settings. Discharge management plays a key role in providing integrated care in health systems. Reimbursement systems such as bundled payments are key to a functioning discharge management system. Although sustaining successful discharge management requires resources, it has the potential to increase efficiency of health systems and lead to reduced costs.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; the Medicare population was not considered in this chapter, but the content in this chapter could be applicable to the Medicare population.
Methods: N/A

Verkerk, EW, van Dulmen SA, Westert GP, et al. Reducing low-value care: what can we learn from eight de-implementation studies in the Netherlands? *BMJ Open Quality*. 2022;11:e001710. doi:10.1136/bmjoq-2021-001710
Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To assess the effectiveness of eight de-implementation projects in hospitals and primary care to reduce low-value care, described as overuse, ineffective, or harmful medical practices.
Main Findings: Five project sites demonstrated a reduction in low-value care, while three found no effect. Factors that supported the reduction of low-value care included focusing on improving patient care, patient knowledge of ineffective care, and clinician collaboration and support. Factors that hindered de-implementation included a lack of clinician knowledge and trust, patient misinformation, and limited time.
Strengths/Limitations: The prospective design of the study was a strength. A limitation was the inconsistent use of control groups throughout the project sites, as three of the five sites with reductions in low-value care did not use control groups.
Generalizability to Medicare Population: Moderate; while the lessons learned in facilitating change and reducing low-value care are applicable to the Medicare population, these

evaluations were conducted in the Netherlands, which does not reflect the design or delivery of the U.S. health care system.
Methods: Eight multicenter de-implementation projects in the Netherlands were evaluated between 2016 and 2018. The projects aimed to reduce low-value care. Quantitative project outcomes were examined, and qualitative analyses were conducted on the project teams' experiences.

Wallace E, Salisbury C, Guthrie B, Lewis C, Fahey T, Smith S. Managing patients with multimorbidity in primary care. *BMJ*. 2015;350:h176-h176. doi:10.1136/bmj.h176

Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To review available evidence and provide guidance to practitioners delivering care to patients with multimorbidity, or two or more chronic medical conditions.
Main Findings: Recommendations include developing clinical guidelines that address common clusters of chronic conditions instead of individual diseases, targeting generic outcomes common across multiple diseases, monitoring for polypharmacy risk, and increasing the time spent consulting with patients.
Strengths/Limitations: One limitation was that the targeted literature review was not systematically performed or documented.
Generalizability to Medicare Population: Moderate; the review can support health care practitioners treating Medicare beneficiaries with multimorbidity.
Methods: A review of evidence-based practice points easily implemented in general practice was performed.

Wallis CJD, Poon SJ, Lai P, Liliana P, Buntin MB. Trends in Medicare spending across strata of resource utilization among older individuals in the United States. *EClinicalMedicine*. 2021;36. doi:10.1016/j.eclinm.2021.100873

Subtopic(s): Background on High-Cost Patients
Type of Source: Journal Article
Objective: To test if the growth in Medicare spending from 2007 to 2018 among high-cost individuals differed from the rest of the Medicare population.
Main Findings: Spending increased among all beneficiaries, with the lowest expenditure category of beneficiaries having the highest annual spending increases. In addition to focusing on high-cost spenders, focusing on low-cost individuals to contain costs is also worthwhile as they are a fast-rising cost for Medicare.
Strengths/Limitations: Medicare Part D data was missing from the study sample, and the analysis did not consider factors such as sex, ethnicity, age, comorbidities, and geographic area.
Generalizability to Medicare Population: Strong; understanding the patterns of spending among Medicare beneficiaries is critical to designing future cost containment interventions.
Methods: Total and per-capita government expenditures were examined among fee-for-service U.S. Medicare enrollees from the 2007-2018 Master Beneficiary Summary Files.

Warshaw G. Introduction: advances and challenges in care of older people with chronic illness. *Generations: Journal of the American Society on Aging*. 2006;30:5-10. https://www.jstor.org/stable/26555464 Accessed September 13, 2024.

Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: To summarize advances and challenges in caring for older adults with chronic illness.
Objective: Journal Article
Main Findings: Chronic illness is more common in older adults compared with younger adults and places burden on patients, families, and society. Evidence-based, disease-specific guidelines for managing chronic illnesses are typically developed to aid in the management of single illnesses. Practice innovations in chronic illness management include demonstration projects by the Centers for Medicare & Medicaid Services. Additional innovations include collaborative treatment planning for older adult patients in primary care; a program at the University of Colorado Health Sciences Center testing interventions to improve care transitions; and the Program of All-Inclusive Care for the Elderly (PACE), which aims to help older adults remain in the community by providing acute and long-term care delivered by an interdisciplinary team.
Strengths/Limitations: N/A
Generalizability to Medicare Population: Moderate; the article is focused on chronic illness care among older adults in the U.S. and may be applicable to the Medicare population.
Methods: N/A

Wilson AD, Childs S. Effects of interventions aimed at changing the length of primary care physicians' consultation. *Cochrane Database of Syst Rev*. 2006;(1):CD003540. doi:10.1002/14651858.CD003540.pub2

Subtopic(s): Care Delivery Challenges and Approaches
Type of Source: Journal Article
Objective: To evaluate the effectiveness and efficiency of interventions designed to change the length of primary care physician consultations.
Main Findings: Five articles met the inclusion criteria. Increasing the length of appointments resulted in modest changes to the average length of the consultations. Evidence suggested that blood pressure was more frequently checked, and smoking was discussed more often when more time was available for the consultation. Increasing the length of consultations did not lead to changes in problem recognition, examination, prescribing, referral or investigation rates, or patient satisfaction. None of the studies assessed whether increased consultation times improved patient behavior or reduced total spending.
Strengths/Limitations: The number of articles that met the inclusion criteria was small. All articles had methodological weaknesses. For example, the articles lacked randomization, and some were underpowered.
Generalizability to Medicare Population: Weak; all five articles that met the inclusion criteria were conducted in the UK and findings may not be generalizable to the Medicare population.
Methods: A review of the literature was conducted to identify randomized controlled trials and controlled clinical trials of interventions aimed at changing the length of primary care physician consultations. Results are presented as a narrative summary.

Wyatt KD, Stuart LM, Brito JP, et al. Out of context: clinical practice guidelines and patients with multiple chronic conditions: a systematic review. *Med Care*. 2014;52(Supplement 2): S92-S100. doi:10.1097/MLR.0b013e3182a51b3d

Subtopic(s): Care Delivery Challenges and Approaches

Type of Source: Journal Article

Objective: To assess the quality of clinical practice guideline development for the care of people with multiple chronic conditions.

Main Findings: Twenty-eight guidelines were identified in the literature. Most guidelines had major methodological limitations. For example, patients and/or methodologists were not included in the development process. In addition, many of the guidelines did not consider the interplay of multiple chronic conditions, socio-personal context, and/or patient preferences.

Strengths/Limitations: The authors did not contact the developers of the guidelines to collect more information about the guidelines. In addition, the rubric used in the study only had face validity.

Generalizability to Medicare Population: Weak; the study focused specifically on clinical practice guidelines developed for patients with type 2 diabetes. Findings may not be generalizable to patients with other chronic conditions or the overall Medicare population.

Methods: A systematic review was conducted to identify clinical practice guidelines for patients with type 2 diabetes published between 2006 and 2012. A rubric was created by two of the authors to capture elements of recommendations for managing patients with type 2 diabetes.

Yearby R. Racial disparities in health status and access to healthcare: the continuation of inequality in the United States due to structural racism. *American J Econ Sociol*. 2018;77(3-4):1113-1152. doi:10.1111/ajes.12230

Subtopic(s): Background on High-Cost Patients

Type of Source: Journal Article

Objective: To describe how structural racism in the United States has caused racial disparities in access to health care and health status between African Americans and Caucasians.

Main Findings: Racial segregation has led to an unequal distribution of resources across education, housing, employment, and health care. Although racial discrimination in health care institutions has led to racial health disparities, factors that have led to racial health disparities are not limited to health care. Structural racism is a multifaceted issue and therefore requires a multifaceted solution. The author suggested that everyone that receives federal funding under Medicare and Medicare Acts should be required to comply with Title VI and be penalized for non-compliance. In addition, the author recommended the federal government implement policies that aim to improve African Americans' health status and increase health care access.

Strengths/Limitations: N/A

Generalizability to Medicare Population: Moderate; although the article was not focused specifically on Medicare beneficiaries, the health disparities identified in the article and the solutions to address the disparities could be applicable to many Medicare beneficiaries.

Methods: N/A

Zhang Y, Grinspan Z, Khullar D, et al. Developing an actionable patient taxonomy to understand and characterize high-cost Medicare patients. 2020;8(1):100406. *Healthcare*. doi:10.1016/j.hjdsi.2019.100406

Subtopic(s): Key Highlights; Background on High-Cost Patients

Type of Source: Journal Article

Objective: To create a taxonomy of patient categories for Medicare patients in the top 10 percent of total spending.

Main Findings: Average Medicare spending for high-cost patients was more than eight times greater than average Medicare spending for non-high-cost patients. High-cost patients were more likely to be older, male, African American, and have more chronic conditions compared with non-high-cost patients. Most high-cost patients had multiple chronic conditions and/or were seriously ill. The ten categories captured over 99 percent of high-cost patients. The likelihood of being a high-cost patient differed across the categories. Nearly 73 percent of high-cost patients were mapped into more than one category.

Strengths/Limitations: Results may not be generalizable to the overall Medicare population or to patients covered by insurers other than Medicare. Patients were excluded from the analysis if they died during the study period.

Generalizability to Medicare Population: Moderate; the study focused on Medicare fee-for-service patients in the New York metropolitan area and findings may not be generalizable to the overall Medicare population.

Methods: Claims and community-level social determinants of health data from 2013 were analyzed. Ten overlapping categories were identified: multiple chronic conditions; seriously ill; frail; serious mental illness; single condition with high pharmacy cost; chronic pain; end-stage renal disease; single high-cost chronic condition; opioid use disorder; and socially vulnerable. Demographic characteristics and comorbidities were compared between the high-cost (i.e., top 10 percent of total spending) and non-high-cost patients.

Appendix H. References

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