

Abstract

Background: The Center for Medicare & Medicaid Services' Center for Medicare & Medicaid Innovation tests service delivery models designed to improve care quality and patient outcomes while reducing or maintaining program costs. Historically, Innovation Center models were not explicitly designed to serve underserved populations, and most evaluations have not focused on health equity-related outcomes. In its 2021 strategy refresh, the Innovation Center prioritized health equity in all of its operations. To support the new goals, we conducted a retrospective analysis of model evaluations to determine the reach of Innovation Center models and assess the degree of and impact of health equity incorporation in model designs and evaluations.

Methods: We reviewed model evaluations underway or recently completed (date range: January 2018 – June 2022) and identified 17 with sufficient information to include in a health-equity focused synthesis. Models were separated into two groups: Group 1: models designed to address the needs of underserved enrollees, and Group 2: models that include underserved enrollees but are designed to address the population at large. Group 2 models were then separated into four categories, based upon the model's health area of focus or payment intervention. Model evaluation reports were reviewed and evaluation leads consulted to determine the reach, impact (i.e. ability to assess and identify results), and experiences of the included models with respect to underserved populations. The most rigorous evaluations with respect to health equity-related outcomes employed a range of methods addressing enrollment, impacts, and experiences, specifically for non-white or lower income populations. Quantitative analyses used sources such as Medicare and Medicaid claims, other administrative data, health-related social needs screening results, and surveys. Many of these evaluations also collected primary data, including perspectives from individuals enrolled in Medicare or Medicaid, that illuminated challenges they faced.

Results: Our analysis identified means for evaluating health equity impacts and revealed gaps. Models designed to address the needs of underserved enrollees (Group 1) reached a higher proportion of racial and ethnic minorities, included the highest proportion of Medicaid enrollees, and all screened for health-related social needs. While Group 2 models were designed to address the population at large, some show potential for improving care and outcomes for underserved populations. Overall, many of the models encountered data challenges to addressing health equity including small population sizes, missing data on key elements (e.g., race) and categorization that does not capture critical subpopulations. Data opportunities include linking data sets to fill information gaps, targeted sampling in primary data collection, and identifying or developing instruments and protocols that account for health equity. Other promising practices include incorporating health equity priorities in model design, requiring participating entities to collect specific measures or beneficiary-level information, and employing multiple research methods in each evaluation to assess the impacts on and experiences of underserved groups.

Conclusions: The Innovation Center's diverse portfolio ranges across populations, demographic subgroups, health care delivery systems, payment structures, and health conditions. Our study provides a foundation for assessing equity in prior health care models and for designing and promoting equitable quality improvement and evaluation.

Introduction

Since its inception in 2010, the Center for Medicare & Medicaid Innovation (Innovation Center) at the Centers for Medicare & Medicaid Services (CMS) has launched over fifty models. Consistent with the authorizing statute, the Innovation Center aims to test and evaluate models with the goal of expanding those shown to be successful.^(1, 2) To date, most models have focused on alternative payment approaches designed to shift from a health care system that rewards volume, towards one that prioritizes and rewards value. Historically, most models have not been explicitly designed to address issues related to health equity, though some models have addressed equity-related care barriers. The Biden-Harris Administration and leadership at the Innovation Center and CMS have identified advancing health equity as a key priority, emphasizing that all new models should consider health equity in design, implementation, and evaluation.^(3, 4)

CMS defines health equity as “the attainment of the highest level of health for all people, where everyone has a fair and just opportunity to attain their optimal health regardless of race, ethnicity, disability, sexual orientation, gender identity, socioeconomic status, geography, preferred language, or other factors that affect access to care and health outcomes.”⁽⁵⁾ Generally, although Innovation Center models implemented in the past have not had an explicit health equity focus, some models have aimed to address barriers faced by underserved populations, and evaluations have examined the inclusion of, and effects on, underserved groups. We reviewed all Innovation Center model evaluation reports available by June 2022 that included analyses related to health equity, which we defined for this synthesis as analyses focused on underserved groups (i.e., groups that have historically experienced disadvantage and inequality). We focused specifically on underserved groups related to race and ethnicity, income, and health-related social needs (HRSN), which are social needs such as food insecurity and housing instability that are linked to poor health outcomes.⁽⁶⁾ The scope of our synthesis was informed by CMMI model data availability at the time of this review. Among Models with health equity related analyses, we

examined rates of enrollment and/or participation, the impacts on health, and experiences of care for these underserved groups. The findings from this review will help inform the Innovation Center's efforts to design more equitable models that include greater representation of underserved groups.

Background

CMS is required to conduct an evaluation of each model that considers the impact of the model on quality of care, including patient-level outcomes and patient-centeredness criteria, and changes in spending. Evaluation findings are considered in the determination of whether a model meets the statutory requirements for expansion.⁽¹⁾ Therefore, all the Innovation Center model evaluations are comprehensive and include subgroup analyses to the extent practical and feasible. Subgroup analyses aim to assess the differential effect of a model on subpopulations with shared characteristics such as Medicaid enrollment, particular demographic characteristics (e.g., race/ethnicity and rurality), and specific HRSNs (e.g., food insecurity). If a model has been designed to enroll sufficient sample sizes of subpopulations, the evaluation may include subgroup analyses. However, subgroup analyses are not always feasible and can be particularly challenging depending on the model design. Most Innovation Center models do not mandate provider participation, and providers caring for underserved populations have historically had lower participation rates. Limited participation from providers caring for underserved populations may preclude or limit subgroup analyses of underserved populations.

Methodology

For this review, we identified the Innovation Center model evaluations that included analyses related to underserved populations. We then examined findings related to health equity among these model evaluations and identified overall findings to guide future model development.

We began by developing a comprehensive list of all Innovation Center model evaluations underway or recently completed (date range: January 2018 – June 2022). We then narrowed the list of eligible evaluations to include only those with health equity related analyses. We defined health equity analyses as analyses of underserved groups, focusing specifically on the following categories: race/ethnicity, low-income, and HRSNs. For low-income, we used Medicaid enrollment and dual status (individuals eligible for both Medicare and Medicaid) as a proxy. Consistent with the current Medicare enrollment race/ethnicity categories, we identified Hispanic as its own category; therefore, all enrollees identified as White or Black in these analyses are considered non-Hispanic (for further details on race/ethnicity data, please see the ‘Race and Ethnicity’ subsection of the Findings section below).⁽⁷⁾

Next, we separated the model evaluations into two groups: Group 1: Evaluations of models designed to address the needs of underserved groups, and Group 2: Evaluations of models that include underserved groups but are designed to address the population at large. Because Group 2 consists of different types of models, we assigned each model in Group 2 to one of four categories, (Accountable Care Organizations, Bundled Payment models, Primary Care models, and other), depending on the type of health or payment intervention. Tables 1A and 1B present the complete list of models included in our review, along with their groups and categories.

Next, we reviewed existing evaluation reports and interviewed the Federal Evaluation Leads who oversee the evaluation of Innovation Center models to identify and understand the impacts of the models on underserved populations. Specifically, we examined the following domains:

- Reach: Are models including underserved populations? If so, which populations, to what extent, and in what context?

- **Ability to Assess Impact:** What model data is available to assess the cost, utilization, and quality impacts for underserved populations across models and for specific types of Models? Where data is available, what is the impact on outcomes for underserved groups?
- **Experiences:** What are the experiences of underserved individuals served by providers or other entities participating in Innovation Center models?

Lastly, we identified the overall and Model specific findings based on our review of the evaluation reports and interviews with the Federal Evaluation Leads.

Overall Findings

As of September 2021, the 17 Model evaluations listed in Tables 1A and 1B include or plan to include a subgroup impact analysis of at least one beneficiary subgroup in the following list: dual status/income (i.e., people dually enrolled in both Medicare and Medicaid or enrollees with low income (71%), race/ethnicity (59%), or HRSNs (18%). Tables 1A and 1B show the type of subgroup impact analysis each Model has undertaken or plans to undertake during the evaluation period.

Reach: Taken together, the model evaluations reviewed in this synthesis include participants from around the country (Figure 1). However, whether a Model reaches underserved populations depends on a variety of factors, especially the demographic characteristics of the areas in which participants provide care.

- **Race and Ethnicity:** Medicare enrollment data on race and ethnicity, obtained from the Social Security Administration (SSA), currently identifies people as White, Black, Asian/Pacific Islander, American Indian/Alaska Native, Hispanic/Latino, Other, or Unknown.^(7, 8) Medicaid race and ethnicity categories include White, Black, Asian, American Indian and Alaska Native, Hawaiian/Pacific Islander, Multiracial, and Hispanic.^(7, 9) Sample sizes for Asian, North

American Native or American Indian and Alaska Native, Hawaiian/Pacific Islander, and Multiracial enrollees are often too small to assess in models and are thus collapsed into the 'other' race category.

Most models that focus on Medicare populations include Black individuals in similar proportions to the overall Medicare population (about 10 percent).⁽¹⁰⁾ The Part D Enhanced Medication Therapy Management Model (EMTM), a Model that offered certain Medicare Part D plans an opportunity to enhance medication management services, included the highest proportion of Black individuals (12%) while the Medicare Advantage Value Based Insurance Design (VBID), a Model that aims to improve care for those enrolled in Medicare Advantage plans, includes the lowest proportion of Black individuals (4%).

Ethnicity data, when available, is limited to identifying Hispanic enrollees, who are not disaggregated by factors such as country of origin or language proficiency. About 10% of enrollees in Medicare are Hispanic.⁽¹⁰⁾ However, most models include fewer Hispanic individuals than the general Medicare population, with the highest proportion of Hispanic individuals in the Home Health Value Based Purchasing (HHVBP) Model (7%), a Model that aimed to improve in-home care for individuals receiving home health services, and the lowest in the VBID Model (2%). Of the predominantly Medicare models, only Next Generation Accountable Care Organization (NGACO), Comprehensive Care for Joint Replacement (CJR), the Oncology Care Model (OCM), VBID, and HHVBP report the percentage of Hispanic individuals.

Group 1 models served more individuals receiving Medicaid and generally include a higher percentage of racial and ethnic minorities relative to Group 2 models. Among Medicaid-focused models, the Strong Start for Mothers and Newborns Initiative (Strong Start), a model that aimed to improve birth outcomes, included the largest percentage of Black individuals (40%). The Accountable Health Communities (AHC) Model's Assistance Track, which

screens individuals for HRSNs and provides navigation to resolve identified needs, has the lowest percentage of Black individuals among the Medicaid-focused models (21%).

Within models, the degree of racial and ethnic diversity among individuals served often depends on local demographics. For example, the percent of Black individuals in the Financial Alignment Initiative (FAI), which is designed to improve care for those dually enrolled in Medicare and Medicaid, range from 6% in Washington to 48% in South Carolina.

- **Medicaid/Low-Income:** Among models in Group 2, people who are dually enrolled in both Medicare and Medicaid, also known as dually-eligible individuals, range from about 8% to about 46% of the populations served. Models in Group 1 (models designed for underserved populations) include the highest percentage of individuals with Medicaid. For example, AHC focuses on meeting health-related social needs, and about two thirds of those served are Medicaid-eligible. Strong Start, the Maternal Opioid Misuse Model (MOM), and the Integrated Care for Kids Model (InCK) focus(ed) on pediatric and/or maternity care. These models only include(d) individuals with Medicaid or Children’s Health Insurance Program (CHIP) coverage.
- **Health-Related Social Needs (HRSNs):** All models in Group 1 screen(ed) for HRSNs. Among these models, food insecurity is generally the need reported most frequently.

Ability to Assess Impact: Model evaluations with impact analyses for underserved populations show no consistent pattern of favorable or unfavorable effects on health care cost and utilization, and no evidence indicates unfavorable effects on quality of care. We caution, however, that while all models are monitored for unintended consequences, most models are not designed or adequately powered to identify adverse impacts on subgroups. Small sample sizes among subgroups hinder such analyses, creating challenges to interpreting impacts even when findings from subgroup analyses are available.

Experiences: All models examine the experiences of those served, most commonly through patient surveys. Underserved individuals are included in all model-specific analyses. Group 1 models provide the most information regarding experiences of individuals from underserved populations; However, because many of these models are early in the implementation process, we cannot yet draw any conclusions.

Findings by Model for Group 1: Models that Target Underserved Populations

Individuals with social needs are more likely to have health needs. Existing research demonstrates that physical environment, social determinants, and behavioral factors drive 80% of health outcomes.⁽¹¹⁾ All Group 1 models screen for social needs, serve populations that have HRSNs as well as medical needs, and generally enroll higher proportions of racial and ethnic minorities than Group 2 models. As part of their interventions, these models attempt(ed) to connect individuals with resources to meet identified social needs.

AHC: The Accountable Health Communities Model aims to reduce health care utilization and spending by screening individuals for five core social needs (food, housing quality and stability, transportation, utilities, and interpersonal violence) and providing referral and navigation services to resolve needs.⁽¹²⁾ Screening data shows about 53% to 82% of those served across participant organizations reported food insecurity (mean prevalence 69%), making food insecurity the most commonly reported need from 2018-2019. Recent eligibility data shows that compared to individuals screened, those eligible for navigation (i.e., community-dwelling individuals who present with a core HRSN and have 2 or more emergency department (ED) visits) are more likely to be from underserved racial and ethnic groups and have Medicaid coverage (see Table 1). Among individuals with Medicaid, 59% overall met criteria for navigation, but 64% of racial and ethnic minorities met the criteria. The Medicare population shows similar differences: 21% of

screened individuals with Medicare only or dual Medicare-Medicaid coverage are racial or ethnic minorities, but racial or ethnic minorities comprise 45% of enrollees eligible for navigation.

FAI: The Financial Alignment Initiative aims to better align financial incentives in the Medicare and Medicaid programs by integrating primary and acute care, behavioral health services, and long-term services and supports. The goal of FAI is to improve care experiences for individuals dually enrolled in both Medicare and Medicaid.⁽¹³⁾ Within the 11 capitated FAI Models, in which there are three-way agreements between the State, CMS, and health plans, individuals undergo an initial health risk assessment that includes an assessment of social risk factors. Care coordinators offer resources that include referrals for home-delivered meals, moving assistance, transportation, home modifications, and/or home service coverage (e.g., pest control). For individuals experiencing homelessness, referrals include assistance to access permanent supporting housing and cell phones to facilitate communication with their care coordinator.

Racial demographics vary widely, depending on the state implementing FAI, as shown in Table 3. FAI Model evaluations report only on descriptive use of services by race and ethnicity because low sample sizes preclude impact analyses for racial and ethnic subgroups. Descriptive utilization analyses show that, in most states, Black individuals eligible for FAI have higher numbers of inpatient admissions and emergency department (ED) visits than other racial and ethnic groups.⁽¹³⁻²²⁾

InCK: The Integrated Care for Kids Model aims to reduce expenditures and improve quality of care for children covered by Medicaid via prevention, early identification, and treatment of behavioral and physical health needs.⁽²³⁾ The InCK Model is early in implementation so descriptive statistics and quantitative impacts are not yet available. The information that is available shows that the racial and ethnic composition of participants' patient populations varies by awardee; however, for four of the seven awardees, the majority of the children who will be

served are Black or Hispanic. InCK awardees screen for needs in the following Core Child Services (CCS) domains in addition to physical and behavioral health needs: food, housing, Title V related (maternal-child health services), education, functional impairment, and childcare/early education.⁽²⁴⁾ Pre-implementation case studies reveal emerging health equity issues, such as lack of access to care and transportation barriers.

Strong Start: The Strong Start Model aimed to provide enhanced prenatal care to Medicaid and CHIP enrollees with the goal of improving quality of care and reducing rates of preterm birth and low birthweight.⁽²⁵⁾ The Model also aimed to improve outcomes for birthing parents and infants and to reduce costs to Medicaid during pregnancy, birth, and the infant's first year. The Strong Start Model screened individuals for needs related to food, transportation, childcare, interpersonal violence, depression, and anxiety, among other factors. Almost all Strong Start Model sites offered coordination of clinical appointments; assistance with accessing programs such as Medicaid transportation, WIC and SNAP; referrals for safe housing; and resources to meet needs for infant care supplies or supplemental food.

Evaluation results showed that Strong Start included a wide range of demographic groups among its patient population.⁽²⁶⁾ Existing research shows that people who identify as Black consistently have high rates of preterm birth relative to people who identify as White or Hispanic.⁽²⁷⁾ While only 23% of infants whose births are covered by Medicaid are Black, almost 40% of pregnant individuals enrolled in Strong Start identified as Black and 30% identified as Hispanic. Strong Start evaluation findings showed that those who received prenatal care in Freestanding Birth Centers and Group Prenatal Care had better outcomes at lower cost relative to individuals in Medicaid with similar demographic characteristics and medical risks who received typical care. A separate analysis of Strong Start Model participants found improvements in outcomes were relatively equal among Black, White, and Hispanic individuals; however, this

analysis did not include an external comparison group. Thus, our overall findings suggest that while improvements were encouraging, preexisting health equity gaps remained.

MOM: The Maternal Opioid Misuse Model aims to improve the quality of care and outcomes for Medicaid-covered pregnant and postpartum individuals with opioid use disorder (OUD).⁽²⁸⁾ Individuals in the Model struggle to access treatment programs for SUD and OUD because many programs do not accept Medicaid or do not accept anyone who is pregnant. MOM awardees must provide evidence-based OUD treatment that includes access to medication for OUD (methadone or bupropion). Most MOM awardees also provide peer recovery coaches, who offer support to individuals based on lived experience specifically related to pregnancy and parenting with OUD. Most MOM awardees are also working to centralize care and integrate data across providers.

MOM is early in the implementation period, so enrollment and impact results are not yet available. Pre-implementation case studies provide some insights into equity related issues related to reaching racial and ethnic minority populations. For example, care delivery partners indicate that they may not be reaching eligible non-White individuals. Most pregnant people accessing OUD services are White, even in diverse areas, which raises concerns around access to care. Access to care can be especially challenging because of stigma associated with having an SUD while pregnant and because individuals fear prosecution for child abuse if they use substances perceived as harmful to a fetus. The MOM evaluation will continue to explore these and other issues.

In sum, the models in Group 1 include(d) individuals who have lower incomes, most of whom are enrolled in Medicaid, and have multiple and concurrent social and health needs. These models also include substantial numbers of Black and Hispanic individuals. Because most of these models are earlier in the implementation phase and/or evaluation analyses have not yet

been completed, we do not have detailed findings on how these models affect the populations they aim to help. We expect to learn more as implementation continues and evaluation analyses are completed.

Findings by Model for Group 2: Models Designed to Address the Population at Large

For Group 2 Models, we describe the results of our review separately for each category of models below.

Accountable Care Organization Models

The two ACO models meeting our inclusion criteria are the Next Generation Accountable Care Organization (NGACO) Model and the Comprehensive End-stage Renal Disease Care (CEC) Model.

NGACO: The Next Generation Accountable Care Organization Model tests whether strong financial incentives and greater patient engagement and care management improves health outcomes and decreases Medicare expenditures.⁽²⁹⁾ NGACO evaluation results to date show that in their market areas, NGACOs have a higher percentage of White individuals (83%) relative to Black (6%), Hispanic (4%), and Asian (4%) enrollees. These proportions of racial and ethnic minorities served by participants in the Model are lower than the proportions observed in the eligible populations in NGACO markets. NGACO participants also serve a lower percentage of dually eligible individuals with disabilities (11%) compared to Medicare fee-for-service (FFS) enrollees (15%) in the NGACO market areas. The disproportionate percentage of White, urban, non-dually eligible individuals, and individuals without disabilities in NGACOs suggests several possible explanations. For example, it's possible that providers with more historically underserved patient populations are less likely to enter the NGACO Model. It's also possible that accountable care organizations are less likely to engage providers serving underserved patients.

Impact analyses find that the NGACO Model reduces gross Medicare spending for White individuals overall but not for individuals who identify as any other race or ethnicity, or as dually eligible. However, Black individuals and individuals who are dually eligible have higher baseline spending in the NGACO Model compared to other individuals (including White non-Hispanic individuals, individuals in other racial and ethnic groups, and individuals who are not dually eligible). This higher baseline spending may reflect the higher prevalence of chronic conditions among those who are Black or dually eligible individuals.^(30, 31)

CEC: The Comprehensive End-stage Renal Disease Care Model aimed to improve care for Medicare individuals with end-stage renal disease (ESRD) through partnerships with health care providers and suppliers to test whether the creation of ESRD Seamless Care Organizations (ESCOs), or specialty-oriented accountable care organizations, can reduce Medicare expenditures while maintaining or improving quality of care.⁽³²⁾ There were two waves of the CEC Model, with 37 ESCOs participating across both waves. About 39% and 41% of individuals in waves 2 and 1, respectively, were Black, and 13% and 16% of individuals in waves 2 and 1, respectively, were another race.

The higher proportion of Black individuals with ESRD in CEC is consistent with the higher proportion of Black Medicare individuals with ESRD in the overall Medicare population. Impact analyses for CEC find that dually-eligible individuals are associated with the largest decrease in total Medicare Part A and B payments and readmissions relative to the comparison group.⁽³³⁾ Hispanic ethnicity is associated with the largest decrease in hospitalizations relative to the comparison group. Individuals whose race was categorized in the data as 'other' are associated with a decrease in ED visits relative to the comparison group. These subgroup analyses for race and ethnicity do not have separate matched comparison groups, so these findings should be interpreted with caution.

Bundled Payment Models

This review includes three bundled payment models: The Bundled Payments for Care Improvement Model (BPCI), CJR, and OCM.

BPCI: Under the Bundled Payments for Care Improvement Initiative, which ended in September 2016, organizations entered into payment arrangements that included financial and performance accountability for episodes of care, with the goal of improving care coordination, increasing quality of care, and reducing Medicare costs.⁽³⁴⁾ The Model generally led to declines in episode costs, mainly due to reductions in institutional post-acute care.

There were two subgroup impact estimates available through the Model evaluation: 1) claims-based impact estimates for dually eligible individuals and 2) beneficiary survey-based impact analyses for dually eligible individuals and racial and ethnic minority groups. Similar to the overall patient population in the Model, there was no evidence to suggest any impact (favorable or unfavorable) of BPCI on claims-based outcomes associated with quality (ED visits, unplanned readmissions, or all-cause mortality 90 days after discharge) for individuals with dual eligibility.⁽³⁵⁾ Furthermore, for dually eligible individuals, the model reduced episode costs and these reductions were generally in line with the overall impact, suggesting the Model affected dually eligible individuals in similar ways as all individuals.⁽³⁶⁾

Patient surveys were used to understand self-reported experiences of care with major joint replacement of the lower extremity, sepsis, congestive heart failure, and simple pneumonia and respiratory infection episodes. These four clinical episodes were among the largest in the BPCI Model. Overall results showed no impact of the Model on self-reported functional status for individuals that were dually eligible or racial/ethnic minorities. However, in some types of episodes (i.e., individuals with sepsis), survey responses indicated a less favorable perception of care experience and overall satisfaction among dually eligible and racial/ethnic minority individuals compared with similar individuals in the comparison group. In other types of episodes (i.e., simple

pneumonia and respiratory infection), survey responses indicated a more favorable perception of care experience among dually eligible BPCI individuals.⁽³⁷⁾

CJR: The Comprehensive Care for Joint Replacement Model is a mandatory model that aims to improve care for Medicare patients undergoing total ankle replacements in the inpatient setting or hip and knee replacements in inpatient or outpatient settings.⁽³⁸⁾ Enrollment data show that about 6% of individuals are Black, 6% are Hispanic, and 85% are White. While the proportion of Black and Hispanic individuals is lower than in the general Medicare population, these numbers reflect the general trend in lower extremity joint replacements (LEJR), in which historically underserved populations have lower rates of LEJR compared to White individuals.⁽³⁹⁾

Preliminary evaluation analysis suggests that underserved groups show similar changes in patterns of care and quality outcomes as the overall patient population enrolled in the Model, though some findings indicate that Black patients may have greater improvements in outcomes than other racial or ethnic groups. The reduction in episode payments was \$1,031 greater for Black patients compared to White patients. Additionally, the CJR Model results in a significant 0.41 percentage point greater reduction in all-cause mortality for Black patients relative to White patients. Preliminary beneficiary survey results also suggest that Black survey respondents are more satisfied than White respondents regarding the extent to which providers listened to their preferences. Evaluators continue to examine whether CJR changed access to care for certain subpopulations. Patient mix analyses have shown changes in the patient population over the course of the Model, indicating that fewer Black or dually eligible enrollees had lower extremity joint replacements at CJR participant hospitals over time.

OCM: Oncology Care Model was designed to provide high quality, coordinated oncology care at lower cost to Medicare.⁽⁴⁰⁾ Nine percent of patients who received care under OCM practices were Black, 5% were Hispanic, 83% were White, and 3% were other race. Patients who

received care from OCM practices were more likely to live in metropolitan areas with more resources.

OCM is an episode-based model, so the evaluation compared qualifying six-month cancer episodes for participants in the model relative to similar episodes from non-participants. Overall, OCM's effect on underserved populations was largely neutral, with a few significant impacts related to health care use for racial and ethnic groups. The observed significant impacts do not show a consistent pattern, with some favorable impacts and some unfavorable impacts for racial and ethnic subgroups.⁽⁴¹⁾ Specifically, analyses show that unplanned readmission rates declined in general across all race and ethnic subgroups in both OCM and comparison episodes, but slightly less so for Black individuals in OCM episodes than for Black individuals in the comparison group (specifically, by 90 unplanned readmissions per 10,000 episodes). Moreover, OCM lead to modest but significant improvements in adherence to chronic myeloid leukemia and prostate cancer drugs among Black individuals in OCM relative to Black individuals in the comparison group. There were no differences in drug adherence observed for other racial subgroups. The evaluation results also suggested slightly worse patient-reported care experiences reported by Hispanic individuals in OCM relative to Hispanic individuals in the comparison group, but not for White or Black enrollees. Overall, the effect sizes for these impacts were small, and patient-reported care experiences were high for all sampled individuals.

Primary Care Models

Two primary care Models met inclusion criteria for this review: The Independence at Home (IAH) demonstration and the CPC+ Model.

IAH: The Independence At Home demonstration is an ongoing Congressionally mandated demonstration that aims to reduce Medicare spending and improve quality of care by providing a payment incentive to deliver primary care services at home for eligible Medicare FFS

individuals.⁽⁴²⁾ To be eligible, individuals must have at least two chronic conditions, need assistance with at least two activities of daily living, and have had recent hospital and acute rehabilitation services. Given the patient eligibility criteria, which identify individuals with more health and physical assistance needs than the general Medicare population, there are higher proportions of dually eligible individuals (39%) participating in this demonstration than in most Innovation Center models to date. Race and ethnicity data show that in the latest performance year, 22% of individuals are Black, 72% are White, and 5% are another race and ethnicity. Dually eligible individuals in IAH received more care outside of institutional settings compared to non-dually eligible individuals, but greater care in these external settings did not have an effect on total Medicare and Medicaid spending.

CPC+: The Comprehensive Primary Care Plus Model aimed to strengthen primary care through regionally based multi-payer payment reform and care delivery transformation in 18 regions across the nation.⁽⁴³⁾ The CPC+ Model tested whether multipayer payment reform, actionable data-based feedback, robust learning activities, and support for health information technology enabled primary care practices to transform care delivery and improve patient outcomes. Demographic data indicates that most patients served by CPC+ were White (84%), while 9% were Black and 7% were another race or ethnicity. Most practices in CPC+ screened for social needs, but this screening was not always a model requirement, and practices did not report results to the Innovation Center. The CPC+ Model evaluation conducted some subgroup analysis based on race and dual-eligibility status to examine potential differences in outcomes relative to individuals who were White or had Medicare only. Results showed no differences in key outcomes, such as total costs or quality of care.

Evaluators conducted a separate study to look at the CPC+ Model applicant characteristics compared to non-CPC+ applicant practice characteristics.⁽⁴⁴⁾ Results suggested

that practices that served more dually eligible and Black individuals were less likely to participate in CPC+ than other practices, even when accounting for demographic characteristics of residents in the practice location.

Conclusions

Our review yields three primary insights: 1) The variable quality of race/ethnicity data in Medicare and Medicaid claims data presents a challenge for understanding whether models reach and enroll underserved individuals; 2) Model designs have not always considered needs specific to underserved individuals; and, 3) Model designs that do not prioritize the inclusion of underserved individuals may have small sample sizes for these populations that limits the ability to draw conclusions.

Although most Innovation Center models designed prior to 2021 did not have an explicit health equity focus, these models still offer valuable lessons for program design, implementation, and evaluation. Our review shows that Group 1 models enroll the highest proportion of individuals from underserved populations, including the greatest number of individuals with Medicaid, as well as larger proportions of racial and ethnic populations relative to Group 2. However, many of these models are still early in their implementation phase and health equity-related evaluation findings are not yet available.

Among Group 1 models, participating practices all use HRSN screening and referrals to identify and address non-medical needs. Although practices that conduct screening generally aim to make community connections and develop referral networks, communities usually do not have adequate resources to meet their populations' needs. Models focused on care coordination and referrals may have difficulties affecting outcomes without corresponding attention to building community-level infrastructure to meet identified needs (e.g., access to behavioral health resources and specialist care, availability of food resources and housing). Among Group 2

models, some show potential for improving care and outcomes for underserved populations, however we cannot draw definitive conclusions from our evaluations.

Limitations of secondary data substantially curtail our ability to assess impacts on some of the most underserved populations. Race and ethnicity data is incomplete in both Medicare and Medicaid datasets, both because the data is missing entirely for a substantial proportion of individuals and because the racial and ethnic categories are limited.⁽⁷⁾ For instance, existing research shows that Black immigrant populations often have better outcomes than Black populations who have been in the United States for generations, but administrative claims data does not allow researchers to distinguish these populations from one another.^(45, 46) Similar issues exist among Asian and Hispanic populations, within which subpopulations may experience substantial inequities that cannot be identified through claims or other administrative data sources. In addition, even within broad racial/ethnic categories, imputing data can only work when the populations served are sufficiently large. To date, this has often not been the case, particularly for Group 2 models. Other critical populations, such as sexual orientation and gender identity minorities and religious minorities, are generally not identifiable at all in claims data.

Despite these challenges, progress continues in our ability to identify underserved beneficiaries, appropriately incentivize and reach subpopulations most in need of services, and draw conclusions based on the impacts of models on particular populations.⁽⁴⁾ The Innovation Center is carefully considering key features (e.g., risk stratification, eligibility criteria, and incentives) from the start of model design, which may help to increase the reach of models and increase participation of providers who serve underserved populations. The Innovation Center is exploring additional incentives or recruitment strategies to encourage participation among providers in more diverse areas and/or those serving a large proportion of patients with high levels of social need. For example, the newly announced Enhancing Oncology Model offers additional payment to oncology practices that serve dually enrolled Medicare and Medicaid individuals.⁽⁴⁷⁾

The Innovation Center is also working to improve data quality in claims and administrative data, including the quality of race and ethnicity data. Imputation within these data sets can aid evaluations of health equity in outcomes within larger populations. Moreover, program and evaluation teams are working together to identify elements in claims or other administrative data that can answer health equity-related questions relevant to specific models. In addition, model design plans and/or updates are focusing on health equity questions that can be addressed through existing data sources. More accurate and more granular data is often available from providers, and the Innovation Center is requiring additional data from participants to identify and address health inequities. Moreover, CMS is offering health equity related technical assistance to improve equity related data collection and analyses.⁽⁴⁸⁾

Thoughtful model design is critical to reaching underserved populations and identifying model impacts on underserved groups. Considering health equity early in the model design process will allow us to draw more definitive and valid conclusions about results and the drivers of these results. Additionally, consideration of the extent to which health care professionals located in and serving underserved and rural communities can participate successfully in Innovation Center models, as well as any potential biases that may exclude certain populations, can yield helpful insight on the health equity implications of models for patients and providers.⁽⁴⁹⁾ Many of these aspects are reflected in the Innovation Center's recent Strategy Update, specifically the second objective focused on advancing health equity.⁽⁵⁰⁾ As CMS continues its strategic mission towards achieving greater health equity, a multipronged strategy that considers health equity early in the model design phase, additional data requirements, and use of multiple research methods to examine impacts on underserved subgroups will allow us to identify priority populations and address the inequities they may experience. Ultimately, we hope these strategies will work in concert to identify the potential paths to more equitable outcomes.

Table 1A. Subgroup Impact Analyses in Group 1 Models: Models Designed to Address the Needs of Underserved Enrollees, by Underserved Subgroups

	Dual Status or Income	Race and Ethnicity	Health Related Social Needs
Accountable Health Communities (AHC)	X	X	X
Financial Alignment Initiative (FAI)	*		
Strong Start for Mothers and Newborn Initiative (Strong Start)	*		
The Maternal Opioid Misuse Model (MOM)	*	X	X
Integrated Care for Kids (InCK)	*	X	X

Notes: Subgroup impact analyses employ regression estimation techniques to test whether outcomes for subgroups are significantly different relative to a comparator (e.g., other populations or outcomes at baseline). The three subgroup analyses include dual status/income (n=12), race/ethnicity (n=10), and HRSN (n=6). The table includes model evaluations that plan to conduct subgroup analyses but have no publicized results to date.

*Dual Status or Income impact analyses were not conducted in models where all participants were enrolled in Medicaid.

Table 1B. Subgroup Impact Analyses in Group 2 Models: Models Designed to Address the Population At Large, by Underserved Subgroups

	Dual Status or Income	Race and Ethnicity	Health Related Social Needs
Accountable Care Organizations			
Next Generation Accountable Care Organization (NGACO)	X	X	
Comprehensive End Stage Renal Disease Care (CEC)	X	X	
Bundled Payment Models			
Bundled Payments for Care Improvement (BPCI)	X	X	
Comprehensive Care for Joint Replacement (CJR)	X	X	
Oncology Care Model (OCM)	X	X	
Primary Care Models			
Independence at Home (IAH)	X		
Comprehensive Primary Care Plus (CPC+)	X		
Other*			
Medicare Care Choice Models (MCCM)	X	X	
Medicare Advantage Value Based Design (VBID)	X	X	
Home Health Value Based Purchasing (HHVBP)	X		
Part D Enhanced Medication Therapy Management (EMTM)	X		
Million Hearts Cardiovascular Disease Risk Reduction Model (Million Hearts)			

Notes: Subgroup impact analyses employ regression estimation techniques to test whether outcomes for subgroups are significantly different relative to a comparator (e.g., other populations or outcomes at baseline). The three subgroup analyses include dual status/income (n=12), race/ethnicity (n=10), and HRSN (n=6). The table includes model evaluations that plan to conduct subgroup analyses but have no publicized results to date.

Table 2. AHC Medicaid-Only Screened Enrollees vs Navigation-Eligible Enrollees

	Screened (%)	Navigation-Eligible (%)
Black	17	27
Hispanic	32	28
Other	10	9

Source: Accountable Health Communities Evaluation Report⁽⁵¹⁾

Table 3. Proportion of Racial and Ethnic Minorities in FAI Across Participating States

Asian	Hispanic	Black
2-8%	1- 21%	6-48%

Source: Financial Alignment Initiative Evaluation Reports⁽¹³⁻²²⁾

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Authors:

Bisma Ali Sayed, PhD¹; Nancy Chiles Shaffer, PhD²; Sarah E Lewis, PhD, MSPH¹; Caitlin Cross-Barnet, PhD¹; Julia Zucco, PhD¹; Jessica McNeely, PhD¹; Susannah Woodman, MSW, MPH¹

Affiliations:

¹Center for Medicare & Medicaid Innovation, Centers for Medicare & Medicaid Services, U.S. Department of Health and Human Services.

²Centers for Medicare & Medicaid Services, U.S. Department of Health and Human Services.

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