Alternative Payment Models, Value-Based Payments, and Health Disparities[†]

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August 2022

[†]The opinions expressed in this brief are those of the author and not necessarily the views of the National Association of Insurance Commissioners or its staff. The author would like to thank Jordan AlZuBi for valuable research assistance. The author would like to thank Jeff Czajkowski, Joe Touschner, and the NAIC's Health Innovations Working Group for useful feedback and insights.
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EXECUTIVE SUMMARY

The nexus of race and insurance is one of four regulatory priorities for the National Association of Insurance Commissioners (NAIC) in 2022 and has been a key initiative since 2020. As part of this initiative, the Health Innovations Working Group was charged to "evaluate mechanisms to resolve disparities through improving access to care, including . . . the use of alternative payment models and value-based payments and their impact on exacerbating or ameliorating disparities and social determinants of health." This report is an effort to assist the HIWG in fulfilling this directive.

Health expenditures (in nominal terms) have increased more rapidly in the United States than spending in most other sectors, but also considerably faster than health expenditures in economically comparable countries. Unfortunately, there is no corresponding gain in health outcomes. Indeed, in broad measures like life expectancy, the United States falls behind comparable countries. One of many efforts to "bend the cost curve" in the United States is the institution of alternative payment models (APMs) and value-based payments (VBPs) to improve cost-efficiency and the quality of care.

Payment Models. The traditional payment model in the U.S. is fee for service (FFS), which is characterized by a separate payment for each service rendered in an episode of care. Physicians and other healthcare providers paid on an FFS basis have little incentive to control costs in the absence of an effective VBP system that rewards cost-efficiency. They also have a financial incentive to generate revenue by increasing the number of services provided in a care episode. Because insured patients are prone to demand medical services as long as the benefit of additional services exceeds their out-of-pocket marginal cost of care, which often results in a desire for more medical care than is justified by societal cost, the setting is right for healthcare providers to leverage their agency to provide additional services. At best, this outcome is cost inefficient. But also possible is that additional medical care comes with risks that are not warranted as a value proposition.

While cost-based reimbursement in a traditional FFS model has virtually disappeared from the payer landscape, its close cousins, such as PPOs and EPOs, are little different, the difference being that they receive what are essentially discounted FFS payments. The compensation of physicians under Medicare (Part B) is FFS, although payments are determined via a set fee schedule.

For this report, an APM is any payment model that deviates substantially from FFS, which can be broadly characterized as case-based, capitation, or salary-based. There

are several ways to classify payment models. The reason payment models are very broadly classified in this report is because the incentives or disincentives for improving quality of care and cost efficiency and the potential for the payment models to ameliorate or exacerbate existing health disparities in vulnerable populations are largely the same within these classes. There is little reason for a narrower classification of payment models, which would only muddle the issues.

In case-based models, providers are compensated for the number of care episodes encountered and the diagnoses associated with each care episode at discharge. An episode of care is "a series of separate, but clinically related services delivered over a defined period." Episodes of care are defined for acute rather than chronic conditions.

The provider usually receives a standardized "bundled payment" that compensates them for the usual cost of care. It is intended to cover all health care related to the single healthcare event; that is, all clinically related services for a patient for a distinct diagnostic condition, from the onset of treatment until treatment is complete. Providers are paid a fixed amount per inpatient discharge based on a pre-defined grouping of clinical conditions and services assigned for that case.

With the risk transfer from payer to provider in a case-based model, clinicians are incentivized to provide cost-efficient care. However, they also have a financial incentive to undertreat to extract savings from the program. If actual costs are lower than the risk-adjusted target price, the provider profits. Likewise, if costs exceed the risk-adjusted target price, the provider incurs a monetary loss.

Empirical evidence, which is almost entirely derived from evaluations of Medicare's bundled payment system for Part A, is mixed on the impact of case-based models on cost-efficiency, but the preponderance of the evidence suggests that the model is largely ineffective in slowing the growth of spending. But there is little if any evidence to suggest the quality of care is compromised.

An additional payment model that is volume-based, in part, is capitation. A capitation system compensates providers for the *number of individuals* under the provider's care, regardless of the amount of care the individuals require. Payments come in the form of a fixed payment per beneficiary/enrollee.

Providers reimbursed on a capitation basis are incentivized to increase the *number of individuals* in their organization, not only to increase the volume of capitation payments but also to spread risk across a larger pool. The model incentivizes providers to minimize the provision of services to participants. Further, capitation models may incentivize providers to keep costs below a fixed capitation level through favorable risk selection rather than through the cost-efficient provision of services. That is, they may be encouraged to attract people who are least likely to use medical care while devising ways to avoid enrolling people most in need of services.

Provider compensation can also be salary-based. Strictly salaried providers do not have incentives to increase the volume of patients or services, but, in the absence of an effective VBP, they also have no financial incentive to create value through cost reduction or enhanced quality of care. Research suggests some salaried physicians use resources other than their own time and effort to meet their customers' needs, such as excess referrals to specialists. These alternatives likely would increase costs.

Accountable Care Organizations (ACOs) and Patient-Centered Medical Homes (PCMHs) are additional innovations designed to promote improved quality of care and cost-efficiency, although compensation typically follows one of the payment models described above. Evidence suggests these efforts to coordinate care have been largely successful in decreasing healthcare utilization, increasing preventative care, and improving the maintenance of chronic conditions.

Implications for Socioeconomic and Demographic Disparities. Each of the payment models and VBPs has incentives that could either ameliorate or exacerbate health disparities.

APMs and VBPs were designed to create value rather than to eliminate or mitigate disparities. In some sense, the focus on value is a drawback of these programs when considering health disparities. The incentives to surpass quality metrics or cut costs could lead some providers to avoid delivering health care services to disadvantaged and marginalized populations, who are more likely to have poor treatment outcomes and socioeconomic circumstances that make them more expensive to treat. Still, APMs and VBPs have the potential to reduce disparities because these same patients present the greatest opportunities to realize savings.

The FFS model rewards the provision of high-margin services and large turnover. The margin is a measure of the efficiency with which a provider can turn "sales" into profits. For FFS providers there is a financial *disincentive* to treat disadvantaged and marginalized populations because these populations often need low-margin services such as primary care, monitoring of chronic diseases like hypertension and diabetes, and behavioral health care.

Much of the risk transferred from payers to providers in APMs and VBPs is epidemiologic and heavily influenced by the social determinants of health. APMs that pay for aggregated services, such as a bundled payment for an episode of care or a monthly payment for each patient, need to have a means of adjusting payments to account for patients that need more services.

APMs and VBP systems do make adjustments for patient risk to account for social risk outside the provider's control. Risk adjustment systems assign patients a risk score based on demographic factors and health status. But evidence suggests current risk-adjustment methods may not be sufficiently sophisticated to reliably distinguish poor-quality care or cost inefficiencies from high medical and/or social risk.

As a consequence of ostensibly inadequate risk controls, healthcare providers with high proportions of disadvantaged patients may lose money under APMs and VBP systems through "no fault of their own." Indeed, VBPs have been shown to disproportionately penalize providers that serve the poor.

Conclusion. The incidence of many diseases—particularly chronic diseases—is higher in disadvantaged and marginalized populations, and evidence suggests they often have worse treatment outcomes. The management of chronic conditions and other basic medical needs of vulnerable patients offers a substantial opportunity for cost savings because they can be ameliorated by addressing modifiable factors. While patient management may be comparably unattractive in an FFS payment system due to low margins, this activity should render improved quality at low cost, which is rewarded with APMs and VBPs. However, higher disease incidence and poorer treatment outcomes may incentivize providers to avoid vulnerable patients under APMs and VBP systems. While payments are adjusted for social risk, currently risk-adjustment mechanisms appear to be inadequate to compensate providers appropriately for caring for vulnerable populations. Continued innovation and experimentation with risk-adjustment mechanisms likely would yield improvements in compensation risk, which may, in turn, make APMs and VBPs more viable alternatives to the prevailing FFS model.

Alternative Payment Models, Value-Based Payments, and Health Disparities

The nexus of race and insurance is one of four regulatory priorities for the National Association of Insurance Commissioners (NAIC) in 2022 and has been a key initiative since 2020. The Special (Executive) Committee on Race and Insurance leads the effort. The Health Innovations Working Group (HIWG) was charged by the special committee to "evaluate mechanisms to resolve disparities through improving access to care, including . . . *the use of alternative payment models and value-based payments and their impact on exacerbating or ameliorating disparities and social determinants of health*" (emphasis added).[1] This report is an effort to assist the HIWG in fulfilling this directive. The purpose of the report is to document recent developments and trends in alternative payment models (APMs) and value-based payments (VBPs) and to assess the likely implications for health and healthcare disparities, particularly for racial and ethnic minorities.

The report describes the most common types of payment models, broadly defined, and the financial incentives and disincentives inherent in these models for providing high-quality and cost-efficient care. The bulk of the report analyzes the implications of the traditional payment model, APMs, and VBPs for ameliorating or exacerbating health disparities.

1. Health Expenditures and Outcomes in the United States

The *raison d'etre* for alternative payment models and value-based payments is to improve cost-efficiency and quality of care. For context, this brief section documents and evaluates increasing health expenditures in the United States and compares U.S. health outcomes with other OECD countries, all of which spend less on healthcare, both per capita and as a share of gross domestic product (GDP) than the United States.[2]

1.1 Level and Growth of U.S. Health Expenditures

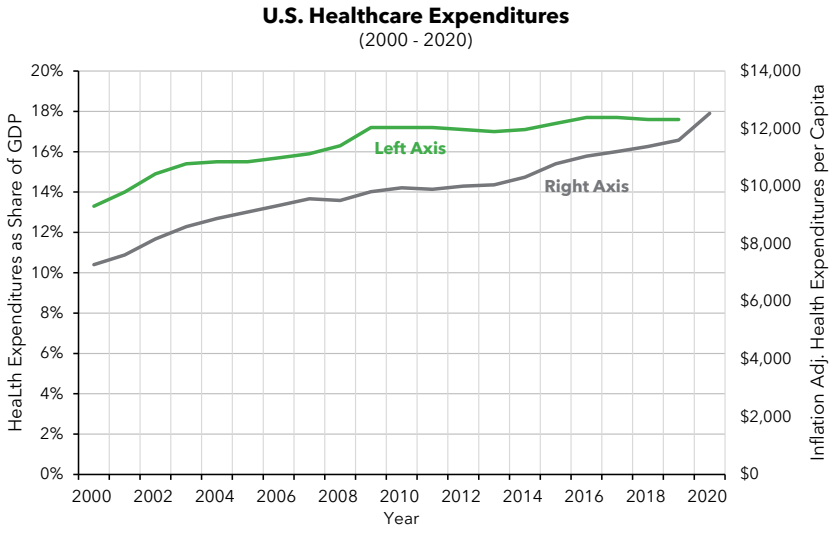
Health expenditures (in nominal terms) have increased more rapidly in the United States than spending in most other sectors, but also considerably faster than health expenditures in the median OECD country. Research suggests the U.S. healthcare system may make more intensive use of its healthcare resources (Dieleman et al., 2017), but devotes less in real resources to healthcare than other OECD countries, both in levels and growth. This feature of the U.S. healthcare system suggests that

[1] All words in NAIC blue are hyperlinks.
[2] Organisation for Economic Co-operation and Development.

prices are responsible for a significant fraction of the growth in U.S. healthcare spending.

U.S. per capita health spending has grown rapidly and consistently over time. Between 2000 and 2019, inflation-adjusted per-capita healthcare expenditure increased from $7,282 to $11,604, or 59 percent (**Figure 1**). During the same period, U.S. total health expenditure as a share of GDP grew from 13.3 percent to 17.6 percent. However, when compared to 2009, inflation-adjusted per capita healthcare expenditure grew 18.2 percent from $9,813, while as a share of GDP, expenditure increased only from 17.2 percent to 17.6 percent. Thus, real healthcare expenditure grew much less rapidly over the period than is often assumed, suggesting that the culprit in rapidly increasing medical expenditure is *prices*; specifically, medical price inflation relative to overall price inflation, as measured by the Consumer Price Index. Anderson et al. (2019) make a similar claim in their article, "It's Still the Prices Stupid: Why the U.S. Spends So Much on Health Care, and a Tribute to Uwe Reinhardt."[3]

Figure 1



Source: Author
Data Sources: National Center for Health Statistics. Health, United States, 2019: Table 14.4. Hyattsville, MD. 2021; U.S. Bureau of Labor Statistics.

Anderson et al. (2019) devote much of their discussion to supply-side issues. The United States has many fewer physicians, nurses, and hospitals relative to population size compared with the median OECD country. Because the United States is not devoting more real resources to medical care, these data reinforce the notion that

[3]Recently deceased Uwe Reinhardt, a pioneer in health economics, had written a similarly titled article along with these authors in 2003 [see Anderson et al. (2003)].

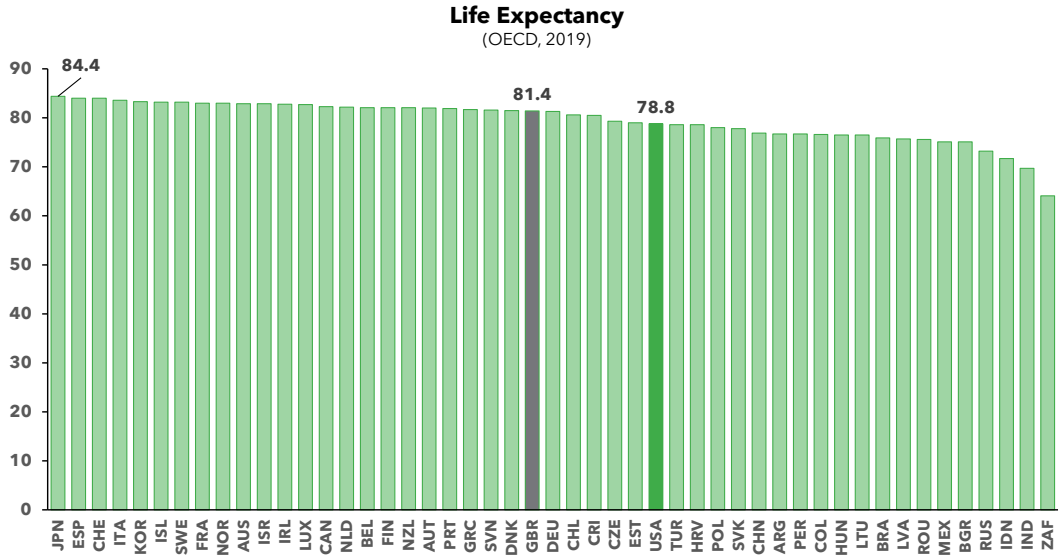
prices are responsible for the rise in health expenditures, especially when compared with other OECD countries.[4]

1.2 Health Outcomes

The previous subsection demonstrated a comparatively high level of and growth in health expenditure in the United States. If health outcomes were a function of health expenditures, then Americans should have a comparatively higher health status.

When compared with other OECD countries, the United States fares relatively poorly in health status, especially when compared with the richest nations. The broadest measure of health status is arguably life expectancy at birth. In 2019 (pre-COVID-19 data are used), life expectancy at birth was 78.8 years, compared with an OECD median of 81.4 years (Great Britain) and a maximum of 84.4 years (Japan) (**Figure 2**).

Figure 2



Source: Author
Data Source: OECD Data, Life Expectancy at Birth

1.3 Cost-Efficiency

The definition of efficiency is output per unit of input. To the extent that cost measures input, the United States appears to have an inefficient healthcare system compared with other developed countries. However, there is no empirical evidence that demonstrates a causal relationship between health spending and health status (above a threshold level). Moreover, if prices are the primary culprit in high levels and growth in health expenditure in the United States, and it seems they are, then the effect of health expenditures on outcomes would be unclear, as only real inputs into health should matter. Indeed, as noted above, research suggests the United States

[4]Data on medical prices in other OECD countries are not readily available.

may make more intensive use of its inputs, meaning the U.S. healthcare system "gets more" out of each unit of input; that is, the inputs themselves may be *more* efficient (Dielman et al., 2017).

There are also other factors relevant to the efficiency of a healthcare system other than medical inputs. For example, socioeconomic disparities factor into healthcare efficiency, as does the level of uninsurance (Bhattacharya et al., 2014).

Nevertheless, to the extent prices are responsible for the increase in U.S. health expenditure, the number of inputs into the healthcare system does not seem to be growing. Thus, the U.S. healthcare system may be efficient in real terms, but it is not cost-efficient relative to most other highly developed countries due to rapidly increasing prices in healthcare.

Fisher et al. (2003) provide interesting evidence of inefficiencies by looking at regional variation in healthcare spending in the United States and the associated outcomes. They find that Medicare enrollees in higher-spending regions receive a larger quantity of care than in lower-spending regions, but they do not have better health outcomes nor express greater satisfaction with care.

2. Disparities in Health Status, Healthcare, and Health Insurance

There are marked disparities in health status, healthcare, treatment outcomes, and rates of uninsurance across socioeconomic and demographic groups. *These disparities have significant implications for the incentives and disincentives inherent in all payment models and VBPs*. Therefore, much of the discussion of health disparities, especially regarding treatment outcomes and epidemiologic risk, is placed in the context of APMs and VBPs later in the report. However, to "set the stage," this section of the report briefly highlights broad disparities in health status. It also highlights disparities in *healthcare* and rates of uninsurance that are not directly tied to specific APMs and VBPs but underscore the health-related difficulties faced by disadvantaged and marginalized groups, particularly racial and ethnic minorities.

2.1 Disparities in Health Status

Health is broadly defined as "a structural, functional and emotional state that is compatible with effective life as an individual and as a member of society" (McCartney et al., 2019, p. 28). Health disparities are "*avoidable* differences among socioeconomic and demographic groups or geographical areas in health status and health outcomes such as disease, disability, or mortality" (emphasis added) (HRSA).

Health disparities in the United States are well-documented (Barr, 2019).[5] Few other areas of health services research have received more attention in recent years. For

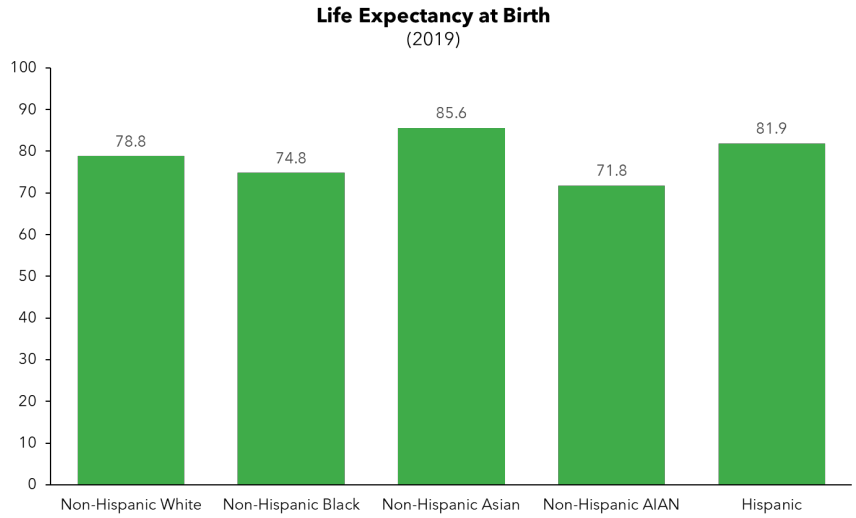
[5]Health disparities across socioeconomic and demographic lines are not limited to the United States. For a discussion of similar issues in Canada, for example, see Veenstra (2011).

example, a July 2022 search of peer-reviewed research articles on PubMed, the premier database of health-related research literature, yielded 67,562 articles published in the last five years that included "race" or "racial" *and* "disparity" or "disparities" in their titles or abstracts (article summaries).[6]

2.1.1 Longevity

The broadest evidence of health disparities is life expectancy.[7] Data on life expectancy at birth suggest the non-Hispanic White population is healthier than the non-Hispanic Black population and considerably healthier than the American Indian/Alaskan Native (AIAN) population. In 2019, life expectancy at birth was 4.0 years shorter for non-Hispanic Blacks than for non-Hispanic Whites (**Figure 3**). The life expectancy gap with the AIAN population was much more substantial. Life expectancy at birth for native Americans was 7.0 years shorter than for non-Hispanic Whites. The average life expectancy at birth for Hispanic and Asian Americans implies they are healthier than non-Hispanic Whites. Life expectancy at birth is 3.1 years greater for Hispanic Americans than for non-Hispanic Whites. Life expectancy at birth is 6.8 years greater for Asian Americans than for non-Hispanic Whites. Put together, Asian-American life expectancy at birth exceeds AIAN life expectancy by *13.8 years*.

Figure 3



Data source: Arias and Xu (2022)

[6]Powered in large part by MEDLINE, PubMed is an public and accessible research literature database maintained by the National Center for Biotechnology Information, National Library of Medicine (NLM), National Institutes of Health (NIH).

[7]Undoubtedly because of the COVID-19 pandemic, life expectancy at birth for the United States decreased 1.8 years from 78.8 years to 77.0 years in 2020.

2.1.2 Mortality Rates

Age-adjusted mortality rates generate similar conclusions.[8] For non-Hispanic males, the Black-White gap in age-adjusted mortality rates for 2020 was 493.8 deaths per 100,000 population (Murphy et al., 2021). The female gap was 202.1 deaths per 100,000 population. Hispanic males have a lower age-adjusted mortality rate than non-Hispanic White males, with 81.2 fewer deaths per 100,000 population. For, females, the gap was −133 deaths.

2.1.3 Hispanic Health

A well-documented epidemiologic "Hispanic paradox" may be a significant explanation for the Hispanic-non-Hispanic White longevity gap (Markides and Coreil, 1986; Sorlie, 1993; Franzini and Keddie, 2001). The paradox is that Hispanic Americans are generally in better health than non-Hispanic Whites *despite generally lower socioeconomic status and access to healthcare*, which are well-known factors in poor health (see, e.g., AHRQ, 2021; Barr, 2019; Adler and Ostrove, 1999). Numerous reasons have been offered for this epidemiologic paradox, but the predominant hypothesis is an "immigration advantage" (Balcazar et al., 2015). For several reasons proffered in the literature [see previously cited papers], Hispanic immigrants are healthier than Americans. However, after 2.5 generations, the health status of Hispanic Americans converges with that of the American population generally (Balcazar et al.).

2.1.4 Socioeconomic Status

A critically important contributor to racial and ethnic health disparities is the social determinants of health (SDOH). Evidence from health statistics and research are consistent that all else equal, those with low socioeconomic status (SES) have worse health status and treatment outcomes than high SES individuals (see, e.g., Barr, 2019; Adler and Newman, 2002; Braveman et al., 2011; Galea et al., 2011). SES refers generally to "an individual's rank or status in a social hierarchy" (Krieger et al., 1997) but has traditionally been defined as a combination of income, education, and occupational prestige (Glymour et al. 2014). Link and Phelan (1995) attribute disparities in health status to SES itself; that is, SES is a "fundamental cause" of health status separate from these generally recognized three components of SES.

Most social epidemiologists distinguish disparities across socioeconomic strata from those along racial and ethnic lines (Williams et al., 2010; Laveist, 2005). An important

[8]The numbers of deaths per 100,000 population are influenced by the age distribution of the population. Two populations with the same age-specific mortality rates for a particular cause of death will have different overall death rates if the age distributions of their populations are different. Age-standardized mortality rates adjust for differences in the age distribution of the population by applying the observed age-specific mortality rates for each population to a standard population (World Health Organization, Age-Standardized Mortality Rate).

reason for this dichotomy is that racial and ethnic disparities in health status and outcomes appear even after controlling for SES. Similarly, socioeconomic variance in health status and outcomes exists within racial and ethnic groups. Still, disentangling race/ethnicity from SES is difficult. Fiscella et al. (2000) note that "[a]cting through the agents of poorer housing and nutrition, lower educational and economic opportunity, and greater environmental risks, both lower socioeconomic position and minority race/ethnicity are associated with poorer health and shortened survival" (p. 2579).

2.1.5 Urban-Rural Disparities

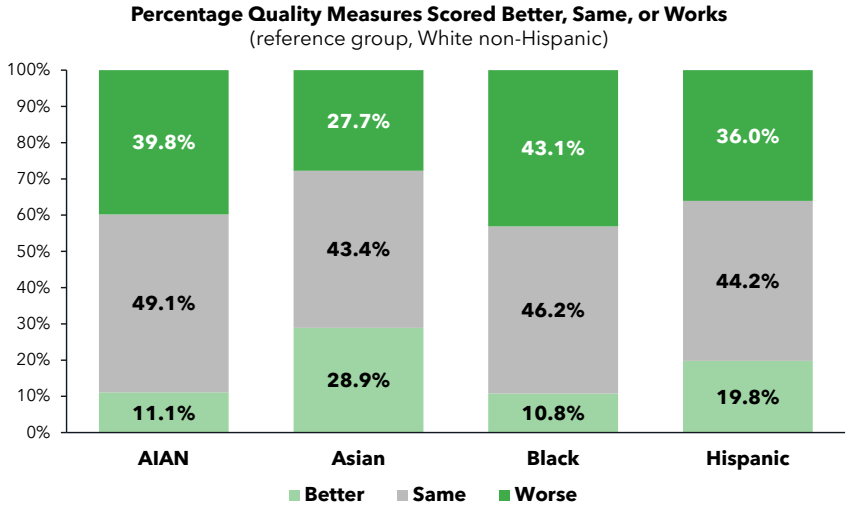
Finally, there are geographical disparities in health status. All else equal, urban residents are healthier than rural residents. Unlike disparities among socio-economic and demographic groups, the urban-rural disparity is widening over time (Singh and Siahpush, 2014; Millar and Vasan, 2021). Disparate rates of educational attainment, increased poverty and unemployment, and fewer economic opportunities generally all contribute to the divide. Gomez-Vidal and Gomez (2021) assert that the lack of municipal status is an SDOH due to social conditions that generate cumulative health risks for residents. Lack of access to care is a substantial concern. Many rural areas suffer from a paucity of medical professionals in the region (Edmiston and AlZuBi, 2022). The problem is compounded by the dire financial straits of rural hospitals, which have been closing at alarming rates (Kauffman et al., 2016; McCarthy et al., 2021).

2.2 Disparities in Healthcare

While disparities in *healthcare* have declined over time, they persist across numerous domains within the healthcare system. The Agency for Healthcare Research & Quality's (AHRQ) *Quality and Disparities Report* (QDR) provides perhaps the most comprehensive assessment of health care disparities in the United States (Fiscella and Sanders, 2016). The QDR characterizes a disparity based on a 10-percentage-point difference in the quality score between a reference group and a comparison group.[9] In the latest available data, using this standard, non-Hispanic Black patients received lower quality scores than non-Hispanic White patients on about 43 percent of 195 healthcare quality measures tracked by the AHRQ (2021) (**Figure 4**). Similar disparities were reported for AIAN patients (about 40 percent) and Hispanic patients (36 percent). Asian patients received lower quality scores on 27.7 percent of tracked measures but received higher quality scores than White, non-Hispanic patients on 28.9 percent of quality measures.

[9]A difference of 10 percentage points or greater is necessary to ensure statistical significance.

Figure 4



Source: Author
Data Source: AHRQ (2021)

The quality differential in healthcare among races is pervasive [see Fiscella et al. (2000, 2016) and references therein]. Elderly Black individuals, compared with Whites, are seen less often by specialists, receive less appropriate preventive care, experience lower-quality hospital care, and receive fewer expensive technological procedures. A voluminous research literature shows that hospitalized Black patients receive less intensive care across numerous procedures and have been reported to receive less aggressive treatment, for example, for cancer and HIV. Healthcare disparities in other racial and ethnic minorities are significant as well. There are also marked disparities in healthcare *utilization* by racial and ethnic minorities, which invariably leads to worse health outcomes.

Using fictitious patient histories (including patient pictures), Shulman et al. (1999) provide evidence that physicians were significantly more likely to recommend cardiac catheterization for White patients with angina (clinically diagnosed chest pain) than for Black patients. Shulman et al. do not differentiate their results by race and gender of the physician but note they were "overwhelmingly" White.[10]

Fiscella et al. (2000, 2016) assert that SES often is a more powerful determinant of healthcare use than race and ethnicity. Fiscella et al. (2016), using the AHRQ QDR, find greater disparities between low-income and high-income patients than Black patients and White patients.

[10]This association does not imply overt racism on the part of physicians. An association does not imply a causal mechanism. A number of confounding factors, for example, could, in theory, cause a significant statistical correlation between variables that is spurious; that is, when there is no true relationship. Nevertheless, the concern is outcomes, and the outcomes imply less intensive care for Black patients.

2.3 Health Insurance and Health Disparities

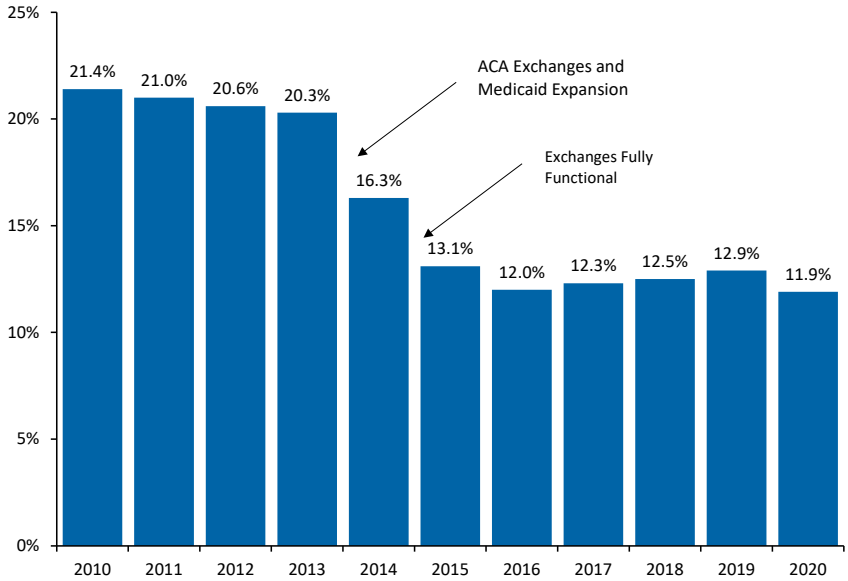
Research makes a convincing case that health outcomes are strongly associated with health insurance coverage. A landmark 2002 Institute of Medicine (IOM) report on the effects of health insurance coverage on health outcomes of working-age (18-64) adults provides volumes of compelling evidence that the uninsured are more likely to suffer from adverse health outcomes or die prematurely than their insured counterparts (IOM, 2002). The report argues that "the *ultimate result* [of health insurance coverage] is improved health outcomes" (p. 6, emphasis added). The study further suggests that "increased health insurance coverage would likely reduce racial and ethnic disparities in the use of appropriate health care services and may also reduce disparities in morbidity and mortality among ethnic groups" (p. 7). In a review of the research literature, Woolhandler and Himmelstein (2017) find that the accumulated evidence since the 2002 IOM report "supports and strengthens" the conclusions of the original report (p. 429).

The Patient Protection and Affordable Care Act of 2010 (ACA) made significant progress in increasing insurance rates, particularly once the individual exchanges were implemented in 2014 and increasing numbers of states expanded their Medicaid programs (**Figure 5**).[11] Between 2013, the year before implementation (of most components), and 2016, the uninsurance rate for working-age adults fell from 20.6 percent to 12.2 percent (KFF, undated). Nevertheless, millions of Americans remain without health insurance, and stark disparities in health insurance coverage persist across socioeconomic and demographic groups.

The ACA has reduced racial and ethnic disparities in health insurance coverage, but not markedly (Buchmueller et al., 2016). In 2020, 14.3 percent of Black working-age adults were uninsured, up significantly from 13.5 percent in 2018 (Keisler-Starkey and Burch, 2021). The uninsurance rate for Hispanic working-age adults in 2020 was 24.9 percent (24.6 percent in 2018). By comparison, the uninsurance rate for working-age adults who are White and non-Hispanic was 7.7 percent (7.6 percent in 2018). On the downside, the 12 states that have not expanded eligibility for Medicaid to low-income adults collectively have higher populations of people of color, and the undocumented generally are not eligible for public coverage programs (Allsbrook and Keith, 2021; KFF, 2021a).

[11]To further reduce the number of uninsured, ACA was revised in 2014 to facilitate insurance coverage of individuals after losing employment (Mojtabai, 2019).

Figure 5



Data Sources: U.S. Census Bureau, American Community Survey, 1-Yr Estimates; Keisler-Starkey and Burch (2021).
Notes: Percent of adults 18-64 without health insurance coverage (19-64 after 2016). The 2020 estimate is from Keisler-Starkey and Burch (2021).

3. Payment Models[12]

A payment model is the process in which physicians, hospitals, and other health care providers are compensated for the care they provide. Each payment model has a set of implicit incentives and disincentives for reducing costs or improving the quality of care. Often the goals of cost reduction and improved quality of care are conflicting. While the focus of this report is the implications of APMs for ameliorating or exacerbating health disparities, it first describes the incentives and disincentives of the predominant payment models, broadly defined, to produce a better quality of care that is cost-efficient.

Most physicians and other healthcare providers are motivated by much more than financial incentives, and for most, the quality of care they provide is of paramount importance. Nevertheless, financial incentives and disincentives for quality of care, cost-efficiency, and appropriate treatment of vulnerable populations are pervasive across payment models, and the intent of the report is to identify these financial incentives and disincentives, not to imply that they are significant motivating factors for all healthcare providers.

[12]The NAIC's Center for Insurance Policy and Research (CIPR) has previously published research that explores incentives and disincentives in alternative payment models in previous research. See CIPR Research Study—Rising Health Care Costs: Drivers, Challenges, and Solutions (Installment 3 of 3).

3.1 The Fee for Service Model

The traditional payment model is fee for service (FFS, described below), and it remains the standard payment model. An alternative payment model (APM) is *defined for this report* as any model that meaningfully deviates from the FFS model.

Under the FFS model, as defined for this report, provider compensation is determined by the quantity of *specific services* they deliver. For example, for a given episode of care, costs for physician fees, administered medications, and supplies would be billed separately. Or if multiple physicians are engaged, each physician would bill separately.

The definition of FFS in this report differs from the classification of payment models used by the Health Care Payment Learning & Action Network (HCP-LAN). The HCP-LAN classifies payment systems into four categories within its "APM Framework" (MITRE Corporation, 2017). Category 1 is "Fee for Service with No link to Quality & Value." Any payment model for which there are no explicit incentives for "performance based on cost and quality metrics" qualifies as Category 1.

Although Category 1 is specifically identified by the HCP-LAN as "fee for service," they consider *any volume-based payment system* to be FFS.[13] Thus, a bundled payment system, such as the base payment model used to compensate most Medicare (Part A) providers by CMS, would be included in Category 1 and therefore not differentiated from fee *per* service [see MITRE Corporation (2017, p. 24)]. CMS offers a variety of incentives for enhanced quality and reduced costs, but these are not an attribute of the payment system itself.

A problem with the HCP-LAN categorization is that not all volume-based systems have the same set of incentives or disincentives for improving quality of care or cost-efficiency. For example, as described later in the report, there is a financial incentive to overtreat in the FFS model and to undertreat in a bundled payment system. Moreover, the implications for health disparities across different volume-based payment systems can differ markedly.

3.1.1 Incentives for Quality of Care and Cost-Efficiency

Physicians and other healthcare providers paid on an FFS basis have little incentive to control costs in the absence of an effective VBP system that rewards cost-efficiency

[13]Category 2 is "Fee for Service Linked to Quality and Value," the links being foundational payments for infrastructure and operations, pay for reporting, and/or pay for performance (e.g., a bonus for quality). Category 3 is "APMs Built on Fee-for-Service Architecture," which includes plans that share savings on the upside or share both upside and downside risk. Category 4 is population-based payment, such as capitation (e.g., a fee per member per month, as in most HMOs). Capitation models (member-based payments) are classified by the HCP-LAN as Category 4 because they receive "population-based payment." However, as I argue below, capitation models are also volume-based, if to a lesser degree than FFS and bundled payment systems.

(there are problems associated with such VBPs when considering health disparities, which are discussed later in the report). FFS providers have a financial incentive to generate revenue by increasing the number of services provided in a care episode. Insured patients are prone to demand additional medical services if the personal benefit of the additional services exceeds their out-of-pocket marginal cost of care. This natural consumer behavior often results in a desire for more medical care than is justified by the true cost. This (*ex-post*) moral hazard creates an environment conducive for healthcare providers to leverage their agency to provide additional services. At best, this outcome is cost inefficient. But also possible is that additional medical care comes with risks that are not warranted as a value proposition.

A case in point for which there is ubiquitous research evidence is the effect of direct-to-consumer (DTC) advertisements on patient requests for prescription drugs. Kravitz et al. (2005) study the influence of DTC advertisements for antidepressants in a randomized control trial (RCT).[14] Antidepressant prescribing rates were highest for visits in which patients made general requests for medication (76%), lowest for visits in which patients made no medication request (31%), and intermediate for visits in which patients made brand-specific requests linked to direct-to-consumer advertising (53%).

Insurers are aware of this *ex-post* moral hazard and can design their coverage to avoid it. For example, in some PPO and EPO systems and under all Point of Service (POS) plans, a primary care physician (PCP) serves as a gatekeeper and must approve specialist care and certain treatments by referral.[15] Preauthorization for specified types of care is increasingly common.[16] But these efforts are fallible, and physicians have little or no financial incentive to reduce costs under most FFS systems. Also possible is that patients will not avail themselves of effective and cost-efficient services that are not covered by their insurance, which is also an inefficient use of healthcare resources.

Huckfeldt et al. (2017) provide more direct evidence of the effect of financial incentives in an FFS system. Post-acute care under Medicare is generally FFS. Huckfeldt et al. compared traditional Medicare FFS with Medicare Advantage plans (Medicare Part C), which provide Medicare Part A and Part B benefits administered by private insurers. Medicare Advantage plans typically are Health Maintenance Organizations (HMOs), which are capitation plans (fixed fee per beneficiary; see

[14]The RTC is often thought to be the "gold standard" for collecting experimental evidence. That said, the method is not without its limitations and proper conditions must be met for it to be effective in identifying a causal relationship (Grossman and Mackenzie, 2005; Schultz et al., 1995).
[15]Unlike a PPO or EPO, a POS plan always requires beneficiaries to have a primary care physician (PCP) and, more uniquely, requires referrals to specialists. The PCP is the "point of service." In broad terms, a POS is less flexible than a PPO but is often less costly.
[16]Preauthorization is a cost-control process that requires healthcare providers to obtain advance approval from a health plan before a specific service is rendered to qualify for coverage

below). Huckfeldt et al. find a lower intensity of post-acute care for Medicare Advantage patients compared with Medicare FFS patients for three high-volume conditions: lower extremity joint replacement, stroke, and heart failure. Importantly, Medicare Advantage patients exhibited better medical outcomes than Medicare FFS, including those discharged from the same hospital.

3.2.2 Negotiated Rates

Generally, under the FFS model, fees are pre-negotiated through provider networks such as preferred provider organizations (PPOs) or Exclusive Provider Organizations (EPOs).[17] The distinction of a PPO or EPO from a conventional FFS model is that the latter reimburses the provider based on the charge assessed; that is, on a cost basis. In a conventional FFS model, patients are free to choose any provider or service they wish if the care is deemed medically necessary by a physician, and prices are not formally negotiated. By contrast, PPOs and EPOs, which are managed care plans, negotiate discounts with select (network) physicians, hospitals, and other healthcare providers. PPO and EPO providers essentially receive discounted FFS payments.

Conventional FFS payment models have effectively disappeared from the healthcare reimbursement landscape. In 2021, conventional FFS systems accounted for less than one percent of healthcare insurance plans (KFF, 2021c) (**Figure 6**).

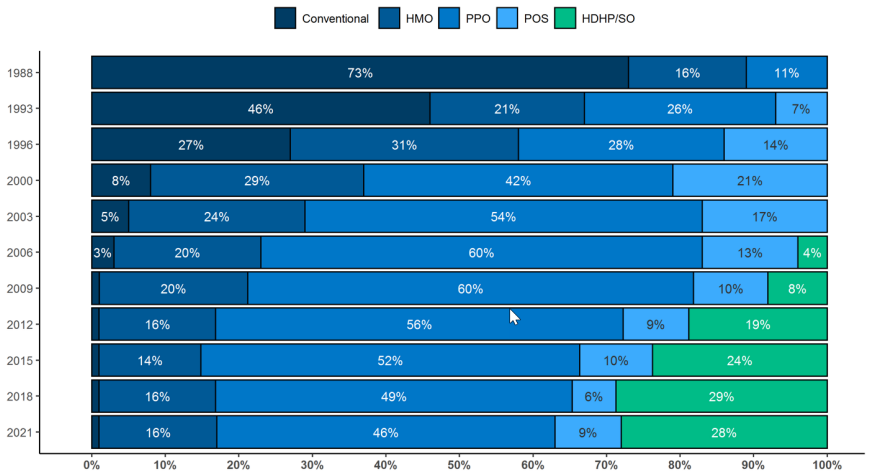
3.2.3 Medicare Part B and Post-Acute Care

The compensation of physicians under Medicare (Part B) and for post-acute care is FFS, although payments generally are determined *via* a fee schedule (see CMS, Physician Fee Schedule). In addition to physicians, clinicians subject to a Medicare fee schedule include physician assistants, nurse practitioners, clinical nurse specialists, and certified nurse anesthetists.

(continued)

[17]PPOs and EPOs differ in a couple of ways. First, a PPO will pay for out-of-network costs, but the coinsurance rate is higher out of network. An EPO will not cover out-of-network costs except in emergency situations. A primary care physician often is required in an EPO plan, but a PCP is not required in a PPO plan. There may also be other, more subtle differences. EPOs generally have lower premiums than an equivalent PPO plan.

Figure 6



Source: KFF, 2021 Employer Health Benefits Chart Pack.
Notes: HDHP/SO is a high-deductible health plan with a savings option. KFF does not distinguish specifically the type of payment used within these plans, but they likely are all FFS-type systems, such as PPOs. There are several distinctions between Point of Service (POS) plans and PPO/EPO plans, although there are many similarities.

3.3 Alternative Payment Models

The impetus for the development and application of alternative payment models was to improve the quality of care and promote cost efficiency. Each payment model has implicit and/or explicit incentives and disincentives for promoting cost efficiency and improving the quality of care.

Importantly, *APMs were not designed or implemented to address health disparities*, and it is not clear (to this author) that the impact of APMs on health and healthcare disparities was thoroughly considered when most APMs were originally designed. Again, the goal for APMs is to improve the quality of care generally and to reduce costs. The impact of traditional and alternative payment models on health disparities is an indirect outcome of the incentives and disincentives inherent in the models. Nevertheless, most third-party payers are advancing health equity initiatives, if not within the models themselves. A significant example is the CMS Framework for Health Equity.

3.3.1 Genesis of a Consensus

Medicare ushered in a new era in healthcare compensation in the United States in 1983 when it significantly changed the payments landscape with a case-based Prospective Payment System (PPS) [IPPS for inpatient care and OPPS for outpatient

care] (Iglehart, 1983; Mayes, 2006).[18] With roughly 20 percent of U.S. healthcare dollars going to Medicare, it is the largest single purchaser of healthcare in the United States and naturally serves as a "transformative force" (Seshamani et al., 2022).[19]

Although APMs have existed for decades and became prominent in the healthcare sector with the 1980s reform in Medicare, recently a stronger consensus has evolved among patients, patient advocates, policymakers, and third-party payers, as well as many healthcare practitioners, that a further transition away from the FFS model to APMs is increasingly necessary to "bend the cost curve" and improve treatment outcomes. Driving the consensus is increasing evidence of "unwarranted variation in the quality and costs of care…escalating spending on specific types of care…and the need to improve care coordination for patients as they cross different care settings" (Liao et al., 2020, p. 552).

3.3.2 Types of Alternative Payment Models.

From a broad perspective, there are three types of payment models, all of which are, to different degrees, volume-based (**Table 1**). That is, there are financial rewards for increasing the quantity of care provided. Along with FFS are case-based compensation—usually in the form of bundled payments—and capitation. In addition, there are coordinated care systems for which any payment model is feasible but which are usually FFS.

There are several taxonomies in use for payment models. In addition to the HCP-LAN classification, discussed above, Quinn (2017) describes 8 "payment methods" in healthcare. The categories used in this report are inclusive of Quinn's other taxonomies. For example, Quinn differentiates payment per day, per service, per dollar of cost, and per dollar of charges, all of which are covered in the definition of FFS used in this report. The reason payment models are very broadly classified in this report is because the incentives or disincentives for improving quality of care and cost efficiency and the potential for the payment models to ameliorate or exacerbate existing health disparities in vulnerable populations are largely the same within these classes. There is little reason for a narrower classification of payment models, which would only muddle the issues.

[18]The shift to bundled payments based on diagnosis was a response to a call in the Tax Equity and Fiscal Responsibility Act (TEFRA) in 1982 for the development of a prospective payment system (see Iglehart, 1983).

[19]Medicaid accounts for an additional 16 percent of total national health expenditure; thus, these public programs together account for more than one-third of all health expenditures in the United States.

Table 1
Classification of Payment Models Used in the Report

Payment Model	Payment Method	Example Programs
Fee for Service (FFS)	Separate payment per service rendered in an episode of care.	PPO, EPO, POS, Medicare Part B, Medicare post-acute care
Case-Based	Usually, a bundled payment per episode of care.	Medicare Part A
Capitation	Flat payment per covered member in the program, irrespective of healthcare utilization.	Most Health Maintenance Organizations (HMOs)
Salary-Based	Physicians and other providers are strictly paid a salary for the services they provide.	Hospitalist physicians, Some HMOs
Coordinated Care	Usually FFS; could be an APM	Accountable Care Organizations (ACOs); Patient-Centered Medical Homes (PCMHs)
Note: Details of each of these payment models are discussed in this section of the report.		

The essential difference among payment methods is the unit of payment, which divides financial risk between payer and provider (Quinn, 2017). These risks can be epidemiologic (prevalence of medical conditions) or performance-based (treatment of medical conditions). The division of risks conforms well with the classification of payment models used in this report. For example, the predominant risk with FFS is performance risk, while epidemiologic risk is a significant concern in a capitation-based system. But the essence of alternative payment models is to transfer risk from payers to providers.

3.3.3 Case-Based Models

In case-based models, providers are compensated for the quantity of *care episodes* encountered and the diagnoses associated with each care episode at discharge.

Episodes of Care. An episode of care is "a series of separate, but clinically related services delivered over a defined time period" (Centers for Medicare and Medicaid Services [CMS], 2009). Episodes of care are defined for acute rather than chronic conditions.

Episodes can be difficult to define because opinions differ regarding which services should be grouped (CMS, 2009). Moreover, because they are usually defined by a specific condition, episodes may not capture important interactions among conditions due to comorbidities. The influence of comorbidities on cost-of-care and treatment outcomes largely drove the transition in Medicare from DRGs to MS-DRGs. However, Ryan et al. (2019) show that, at least for arthroplasty (joint replacement), many variables other than those considered in the MS-DRG classification are

indicative of increased cost. Specifically, only 4 of 17 factors they found to be associated with increased cost were considered in the CMS complexity classification. Payment variation is largely driven by the procedures performed, complications, patient complexity, post-acute care use, and readmissions (Institute for Healthcare Policy & Innovation, 2018).

Bundled Payments. Under the case-based model, the provider receives a standardized "bundled payment" that compensates them for the usual cost of care. It includes all health care related to the single healthcare event; that is, all clinically related services for a patient for a distinct diagnostic condition, from the onset of treatment until treatment is complete. The bundled payment is a fixed amount per inpatient discharge based on a pre-defined grouping of clinical conditions and services assigned for that case. Ostensibly, the case-based design incentivizes providers to coordinate care over the entire care episode and to provide care in a cost-efficient manner. Medicare's PPS methodology for acute care is case-based (except for physicians' fees and the cost of post-hospital care).[20]

At the heart of Medicare's initial case-based PPS was the diagnosis-related group (DRG) which groups patients into a limited number of distinct and medically meaningful diagnostic categories (Mayes, 2006).[21] Since then, Medicare has transitioned to Medicare Severity Diagnosis Related Groups (MS-DRGs), which number over 1,000. MS-DRGs are based on the principal diagnosis at discharge and up to 24 secondary diagnoses, including comorbidities and/or complications. Other MS-DRG assignment factors are the procedures provided during the inpatient episode and the patient's gender, age, and discharge status. Socioeconomic and demographic factors are not included. The key is that the MS-DRGs are pre-defined (CMS, Medicare Learning Network, "Medicare Payment Systems, Acute Care Hospital Inpatient Prospective Payment System)." Each MS-DRG has a payment weight assigned to it, based on the average resources used to treat Medicare patients in that MS-DRG.[22]

Incentives for Cost-Efficiency and Quality of Care. With the risk transfer from payer to provider in a case-based model, clinicians are incentivized to provide cost-efficient care. However, they also have a financial incentive to undertreat to extract savings from the program. If actual costs are lower than the risk-adjusted target price, the

[20]The Centers for Medicare and Medicaid Services (CMS) uses separate PPSs for reimbursement to acute inpatient hospitals, home health agencies, hospice care providers, hospital outpatient facilities, inpatient psychiatric facilities, inpatient rehabilitation facilities, long-term care hospitals, and skilled nursing facilities (see CMS, "Prospective Payment Systems – General Information"). Small rural hospitals generally are classified as Critical Access Hospitals (CAHs) under the Medicare Rural Hospital Flexibility (Flex) Program (see National Rural Health Center, 2020) and are reimbursed on a cost basis (see CMS, "Critical Access Hospitals"). See also National Rural Health Resource Center (2021).
[21]See Baker (2002) for details on DRG development.
[22]For more details on MS-DRGs, see CMS, "MS-DRG Classifications and Software" and associated links.

provider profits. Likewise, if costs exceed the risk-adjusted target price, the provider incurs a monetary loss.

Weeks (2016) suggests, as reflected by the classification of the case-based model as a volume-based payment model in this report, that although bundled payments incentivize lower spending *per episode of care*, the reduced charges could be recovered by increasing the *number of episodes of care* initiated, which would be reflected in greater healthcare utilization.

This concern is most relevant for the most profitable procedures or hospital care, such as lower extremity joint replacement (LEJR) (Liao et al, 2020). The presence of volume increases under bundled payments could undermine the bundled payment model's role in shifting away from volume-based FFS reimbursement. However, Navathe et al. (2018) find a "*nonmeaningful* 0.32% differential change in LEJR procedural volume" in a Medicare bundled payment program versus an alternative market over 2 years, a finding that was "robust to alternate explanations," (meaning other explanations are viable) [as cited in Liao et al. (2020, p. 559); emphasis added]. In a systematic review of 20 studies on the impact of CMS bundled payment models, Agarwal et al. (2020) did not identify significant increases in utilization under bundled payments programs.

Empirical Evidence on Cost-Efficiency and Quality of Care. Agarwal et al. (2020) find mixed results for studies that evaluated spending for acute care inpatient hospitalizations, with a modal result of no significant difference in costs per episode.[23] No studies that evaluate spending in long-term acute care hospitals show a significant difference in costs with bundled payment participation. In summarizing their findings, the authors report finding that "bundled payment resulted in a significant decline in Medicare episode payments in six of sixteen studies that evaluated spending" and "[n]otably, all six studies examined orthopedic surgery" (p. 55). Further, "[t]here were no significant differences in episode payments for spinal fusion procedures, revision joint arthroplasty, or medical conditions" (p. 55). Finally, from a quality perspective, "[c]hanges in quality of care, measured by complication rates, emergency department visits, and mortality, were not associated with bundled payment participation" (p.55).

In a published comment on Press et al. (2016; cited above), Weeks (2016) notes: "Given the relatively unrestrained growth in per-capita Medicare costs since DRGs were implemented, growth that drives the need to develop alternative payment mechanisms, DRGs do not seem to have been an effective mechanism for reining in costs" (p. 2470).

[23]The covered studies included results from three CMS bundled payments programs: Acute Care Episode Demonstration (ACE), Bundled Payments for Care Improvement (BPCI), and Comprehensive Care for Joint Replacement.

Yee et al. (2020) find more promising results for bundled payments, concluding that bundled payments can "help slow the growth of payer spending" and that "there is no overwhelming evidence of compromised quality" (p. 909).

3.3.4 Capitation Models

An additional payment model that is volume-based, in part, is capitation. A capitation system compensates providers for the *number of individuals* under the provider's care, regardless of the amount of care the individuals require. Payments come in the form of a fixed payment per beneficiary/enrollee. Group model Health Maintenance Organizations (HMOs) are characterized by capitation payments. In the group model HMO, physicians belong to multi-specialty physician group practices. The HMO pays the group in bulk, and the physicians decide how the compensation is distributed within the group.[24]

Incentives for Cost-Efficiency and Quality of Care. Providers reimbursed on a capitation basis are incentivized to increase the *number of individuals* in their organization, not only to increase the volume of capitation payments but also to spread risk across a larger pool. The model also incentivizes providers to minimize the provision of services to participants. Further, capitation models may incentivize providers to keep costs below a fixed capitation level through favorable risk selection rather than through the cost-efficient provision of services. That is, they may be encouraged to attract people who are least likely to use medical care while devising ways to avoid enrolling people most in need of services.

Empirical Evidence on Cost-Efficiency and Quality of Care. Butler et al. (1997) provide empirical evidence that HMO physicians are more likely to classify medical claims as compensable under workers' compensation than are providers paid in an FFS model. The form of compensation of the treating physician would not affect the inherent risk of the workplace, so the results from Butler et al. suggest the capitation model can also incentivize provider-payers to shift costs to third parties. Under an FFS payment system, the cost to the physician is the same, irrespective of whether the patient seeks to claim workers' compensation. But for HMO physicians, costs that would be borne by the physician (or HMO) are passed off.

3.3.5 Salary-Based Payment

Provider compensation can also be salary-based such as would generally be the case with a hospitalist and in some (e.g., staff model) HMOs.[25] Over 60 percent of physicians receive salaries, but most physicians report being paid by multiple

[24]There is substantial diversity in the financial structure of HMOs, a full discussion of which is outside the scope of this article. See Falkson and Srinivasan (2021) for an overview of HMO structures.
[25]A hospitalist is a physician "whose primary professional focus is the general medical care of hospitalized patients" (Pantilat, 2006). A patient may have a primary care physician (PCP) but receive care under the management of a hospitalist (and not the PCP) during an inpatient episode.

methods. Strictly salaried providers do not have incentives to increase the volume of patients or services, but they also have little incentive to create value through cost reduction or enhanced quality of care. Research suggests some salaried physicians use resources other than their own time and effort to meet their customers' needs, such as excess referrals to specialists (Lee, 2019). These alternatives likely would increase costs.

3.3.6 Coordinated Care

Accountable Care Organizations (ACOs) and Patient-Centered Medical Homes (PCMHs) are additional innovations designed to promote improved quality of care and cost-efficiency, although compensation typically follows one of the payment models described above.

Accountable Care Organizations. ACOs were ushered in by the ACA and usually operate under Medicare's Shared Savings Program (MSSP). An ACO is a group of physicians, hospitals, and other providers who voluntarily join as a legal entity and contract with insurers to coordinate care for a defined patient population. An ACO that keeps spending below a financial benchmark while meeting quality standards shares the savings with a payer. But they also bear the risk of sharing losses with the payer. Although the ACO resembles capitation, most make volume-based payments (such as FFS) to providers.

Jacobs et al. (2022) look at the mean performance rate of MSSP ACOs relative to the mean performance rate of group practices in the Merit-Based Incentive Payment System (MIPS) (a VBP program). They find ACOs perform better in care coordination and have engineered savings from fewer unnecessary hospitalizations, fewer emergency department visits, and fewer days in skilled nursing facilities. Navathe et al. (2021) compared simultaneous inclusion in a bundled payments program and an ACO to inclusion in a bundled payments program alone. They find that simultaneous inclusion in both an ACO and a bundled payment program was associated with lower institutional post-acute care spending and readmissions for medical episodes and lower readmissions (but not spending) for surgical episodes.

In a systematic review of studies evaluating the impacts of ACOs on care and outcomes across payer types (Medicare and non-Medicare), Kaufman et al. (2019) find that the "most consistent outcomes associated with Medicare ACOs are reduced inpatient and ED use, as well as improved measures of adult preventive care and chronic disease management" (p. 269). They conclude that "the incentives for efficiency within ACO contracts have not negatively affected common care quality measures or patient satisfaction" (p. 270). However, Kaufman et al. recognize that little is known about commercial ACOs and that there is a need for "high-quality evaluations of non-Medicare ACOs" (p. 269). Their analysis was limited by a lack of prospective trials and the inability to synthesize the results of observational studies

into a meta-analysis (statistical analysis of the results of multiple empirical studies) due to differences in the programs that were evaluated, study populations, and outcome measures.

Patient-Centered Medical Homes. A PCMH is similar in many ways to an ACO in that both are characterized by multidisciplinary, coordinated care and a focus on primary care. But rather than sharing gains or losses, financial incentives in the PCMH generally come in the form of "enhanced" payments.

Veet et al. (2020) conduct a systematic review of the impact of PCMH implementation and find variable impacts on the key outcomes they consider. Studies of integrated delivery and finance system (IDFS) PCMH models reported declines in emergency department use, primary care use, and cost relative to other systems following PCMH implementation, which include government and non-IDFS private systems. The IDFS model is characterized by vertical integration of the health plan and providers into a unified organization, which is "touted as providing better coordinated, higher quality care" (p. 1277).

3.4 Value-Based Payments

A value-based payment (VBP) rewards providers financially for achieving quality goals and delivering more cost-efficient care, and providers can be penalized for failing to do so. A VBP can be an adjunct to any payment model, including FFS. Because APMs and VBPs are conceptually similar, they are not differentiated in some of the discussions of the implications for racial and ethnic health disparities, as the incentives are the same in many cases.

CMS regularly develops programs that seek to promote quality care and cost efficiency, which rely largely on value-based payments or penalties.

The Resource-Based Relative Value Scale (RBRVS), which is also used by most non-Medicare payers, is "based on the principle that payments for physician services should vary with the resource costs for providing those services" (AMA, undated). It is "intended to improve and stabilize the payment system while providing physicians an avenue to continuously improve it." Resource costs are based on three components: physician work, practice expense, and professional liability insurance. In addition, an estimated sustainable growth rate (SGR) applies a conversion factor to applicable payments to physicians for the following year. The SGR ensures that physician payments cannot grow faster than economic growth overall.

Bazemore et al. (2018) criticize CMS attempts to "refine physician payments" through the RBRVS and SGR. They suggest that these programs "failed to generate 'sustainable growth' while radically growing the specialty to primary care income gap" (p. 323).

4. Potential for Ameliorating or Exacerbating Health Disparities

Each of the payment models and VBP programs has inherent incentives that could either ameliorate or exacerbate health disparities. As noted early in the report, APMs and VBPs were designed to *create value* rather than to *eliminate or mitigate disparities*. The focus on increasing value often is the challenge in these programs when considering health disparities. The incentives to surpass quality metrics or cut costs could lead some providers to avoid delivering health care services to disadvantaged and marginalized populations.

The incentive to avoid treating disadvantaged patients arises largely from their greater incidence of disease, particularly chronic conditions like hypertension and diabetes. Moreover, they tend to have poorer treatment outcomes and face socioeconomic circumstances that make them more expensive to treat. Still, APMs and VBPs have the potential to reduce disparities because these same patients present the greatest opportunities to realize savings (Joynt Maddox, 2018).

There is little reason to suspect avoidance or differential treatment of disadvantaged or marginalized patients in salary-based models due to incentives inherent in the payment system.

4.1 Explicit and Implicit Bias

To put this section in context, the section begins with a brief discussion of findings from the literature on personal biases toward disadvantaged groups outside of the financial incentives implicit in the payment models and VBPs to which they are subject.

The medical profession generally strives for the equal treatment of all patients, regardless of their socioeconomic and demographic profile. Explicit (conscious) bias on the part of health professionals is uncommon, but it exists. More common is implicit (unconscious) bias, which is endemic in American society, and we should not assume—or expect—that it is not an issue in the healthcare sector as well. Indeed, research suggests that it is not at all uncommon among health professionals.

Whether explicit or implicit, bias potentially could have profound effects on treatment outcomes and health disparities. A significant literature document differential treatment rates by race. Examples include differential treatment in cardiac care (Werner et al., 2005) and organ transplantation (Liu et al., 2011).

Medical schools and other institutions that train healthcare professionals are increasingly incorporating modules of diversity, health equity, and cultural competency, although they sometimes are deemed to be insufficient (Fernandez, 2019; Elliott, 2021).

4.1.1 Explicit Bias

Explicit bias; that is deliberate, conscious negative attitudes towards people with specific socioeconomic and demographic characteristics, has a dubious history in the medical profession—what Sir William Osler once called "a bigoted, intolerant spirit" [1897, as cited in deShazo et al. (2021)]. Explicit bias is increasingly rare in healthcare settings, yet research suggests it does persist on some level.

Van Ryn and Burke (2000) surveyed numerous physicians for clues to explicit bias. Questions regarded perceptions about independence, responsibility, rationality, intelligence, lifestyle choices, compliance with medical advice, and other personal attributes. The authors make strong and generalized conclusions about physicians that this report believes to be unwarranted based on the evidence they provide. For example, the authors state that "[p]hysicians tend to perceive African-Americans and members of low SES groups more negatively on a number of dimensions than they do Whites or members of the middle and highest third in SES" (p. 822). Nevertheless, van Ryan and Burke do provide compelling evidence of explicit bias in some of their survey respondents. The most significant of the differential results van Ryan and Burke report are that Black patients were half as likely as Whites patients to be perceived by physicians as "very intelligent" or to pursue an "active lifestyle."

Undoubtedly, explicit bias has diminished since van Ryn and Burke's (2000) article was published over 20 years ago. But more recent literature suggests that explicit bias remains a problem in the health professions, although it does not seem to be endemic (deShazo et a., 2021).

Even in the absence of bias by healthcare professionals, perceptions of bias by patients, whether warranted or not, would diminish the quality of physician-patient interactions and perhaps alter treatment outcomes, aggravating health disparities. Perceptions of bias are most pronounced among Whites who have low educational attainment, lack health insurance, or have cost-related barriers (Stepanikova and Oates, 2017). Interestingly, higher SES Black patients are more likely to perceive racial discrimination than low SES Black patients.

Of course, physicians sometimes must face "racist patients" (Paul-Emile et al., 2016). There are several factors to be considered in these cases in terms of whether a patient's request should be accommodated; for example, minority patients with a history of discrimination, patients with mentally disabling conditions like dementia, and patients with religious requirements (such as a Muslim woman who demands a female practitioner for religious reasons). Whereas outright bigotry presents more of a problem for hospitals and medical professionals. There is vast literature on patient biases and the implications of those biases for treatment and medical ethics, but a thorough discussion of these issues is outside the scope of this report.

4.1.2 Implicit Bias

Hall et al. (2015) suggest that most health care providers have some degree of implicit bias; that is, a bias that is outside of their conscious awareness. The bias generally manifests in positive attitudes toward Whites and negative attitudes toward people of color. Even though cultural stereotypes may not be conscious, their mere existence can influence how information about an individual is processed and therefore could influence decision-making, and looking forward, health disparities.

In their review of the literature, Chapman et al. (2013) note that the uncertainty and time pressure surrounding the diagnostic process may promote reliance on stereotypes for efficient decision-making [see also references therein]. Further, physician training often emphasizes group-level information, like population risk factors, and may expose trainees to minorities in unfavorable circumstances of illness or addiction, reinforcing stereotypes. After documenting substantial evidence of implicit bias among physicians, Chapman et al. discuss additional research that "supports a relationship between patient care and physician bias in ways that could perpetuate health care disparities" (p. 1507) [see also references therein]. They conclude with: "Despite the best intentions of physicians to provide equal treatment to all, disparities linger and may lead to unacceptable increases in morbidity and mortality for some" (p. 1508).

4.2 Disparities in Incidence of Disease and Treatment Outcomes

Vulnerable populations, such as people living in poverty and people with disabilities, disproportionately incur high health care costs and tend to have poorer health outcomes. *This reality has significant implications for the impact of APMs and VBPs on existing health disparities because it can lead to comparatively worse treatment outcomes and higher costs for the same treatment.* Research shows, for example, that healthcare for people who are dually enrolled in Medicare and Medicaid costs more than those who are Medicare only, even after accounting for coexisting conditions (Samson et al., 2018 and references therein).

The incidence of specific diseases and the outcomes of those diseases vary significantly across races. Racial and ethnic minorities have disproportionately poorer health status than do non-Hispanic Whites. The proximate cause of health disparities is, in large part, disparities in socioeconomic conditions, although disparities also appear within socioeconomic groups. Disparities in the severity and progression of illness are significant even for outcomes that are less prevalent in the Black population. Research suggests that traditionally disadvantaged and marginalized groups tend to have worse health outcomes even with the same treatment.

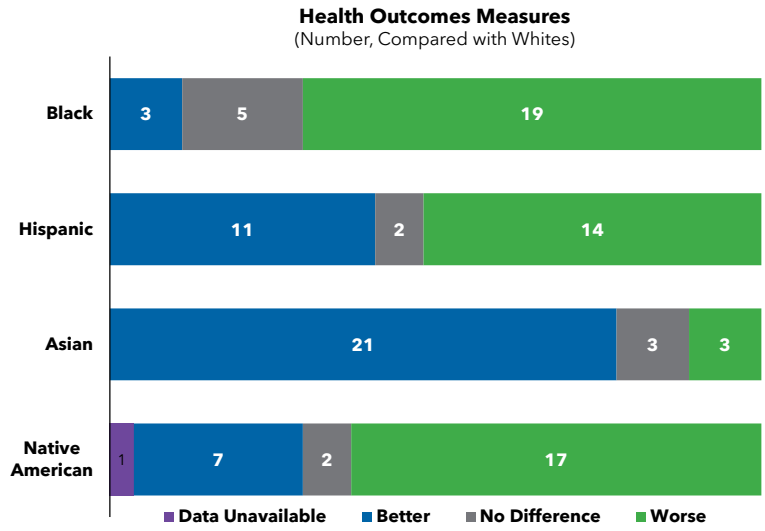
Both emergency department visits and hospitalizations are more common among individuals with diabetes. Non-Hispanic Blacks and Hispanics also have the highest

rates of hospitalization for diabetes. Moreover, both diabetes and hypertension often complicate other illnesses and injuries, therefore raising the cost of treatment for those cases. Diabetes and hypertension usually can be controlled well with comparatively much lower-cost pharmaceutical and lifestyle regimens. More intense monitoring and aggressive management of these chronic conditions would result in fewer emergency department visits and hospitalizations, which would reduce the costs associated with these conditions dramatically. One study suggests that an increase of 10 percent in the medication possession ratio (total usage over a year/requirement for a year with strict adherence) for diabetics could halve the cost.

4.2.1 Incidence of Disease and Treatment Outcomes Generally

Black individuals have higher mortality rates than Whites for 10 of the 15 leading causes of death, while mortality rates are not consistently higher than Whites for other racial minorities (Williams, 2012). Moreover, across 27 specific health measures, Black treatment outcomes are worse than those for Whites for 19, or roughly 70 percent (KFF, 2019) (**Figure 7**). Treatment outcomes are worse for Hispanics and Native Americans than those for non-Hispanic Whites across 14 and 17 measures, respectively.

Figure 7



Data Source: KFF, Key Facts on Health and Health Care by Race and Ethnicity

4.2.2 COVID-19

Most recently, voluminous research shows that racial minorities (including Asians) were not only more likely to contract COVID-19 but also experienced disproportionately more severe cases, as measured, for example, by the proportion of hospitalizations, ICU admissions, and mortality (Magesh et al., 2021; Raharja et al., 2021; Mude et al. 2021; Sze et al., 2020; Lopez et al., 2021; Webb et al., 2020;

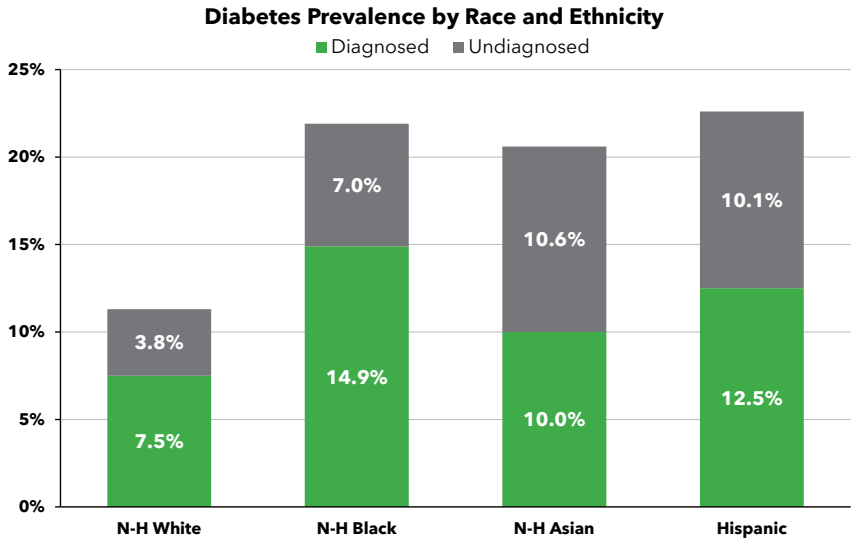
Laurencin and McClinton, 2020). Andrasfay and Goldman (2021) project that the decline in life expectancy at birth due to COVID-19 will be 0.68 years for the White population but 2.10 years for the Black population and 3.05 years for the Hispanic population.

4.2.3 Chronic Disease

Disparities across races and ethnicities are especially prominent in chronic diseases. Consider the cases of chronic diabetes, hypertension, and kidney disease. Members of racial and ethnic minority groups, particularly the non-Hispanic Black population, are disproportionally affected by these conditions compared with non-Hispanic Whites.

Diabetes. According to data from a large survey that included a measure of hemoglobin A1c, the incidence of diabetes is 11.3 percent in the Non-Hispanic White Population, of which about two-thirds of cases are diagnosed (Menke et al., 2015) (**Figure 8**). By comparison, the incidence of diabetes in the Black Non-Hispanic population is almost two-fold larger at 21.8 percent, with a roughly similar share of cases having been diagnosed. The prevalence of diabetes in the Hispanic population is even higher (22.6 percent), and barely half of those cases are diagnosed. Diabetes in the non-Hispanic Asian population (20.6 percent) is roughly the same as that of the non-Hispanic Black and Hispanic populations, but in the case of Asian diabetics, less than half of cases are diagnosed.

Figure 8



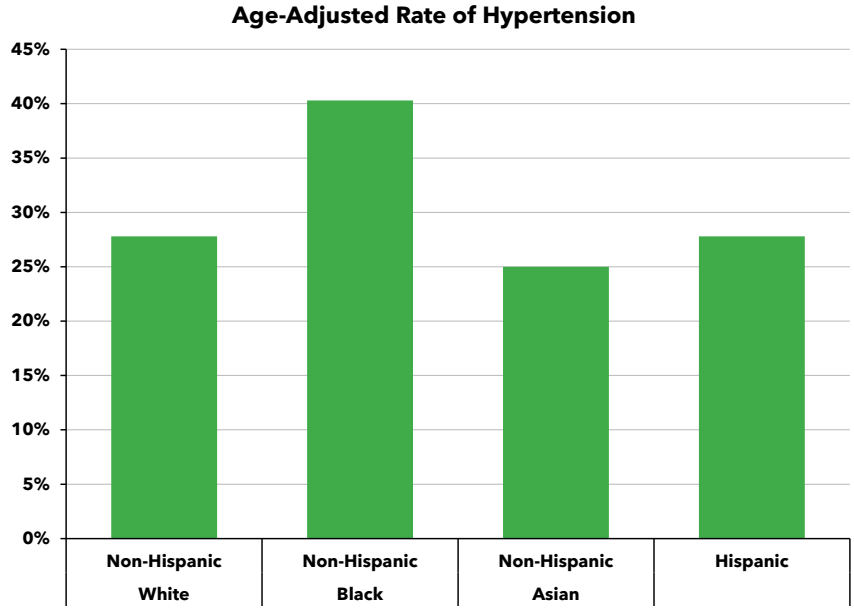
Source: Author
Data Source: Menke et al. (2015)

Not only is diabetes more prevalent in disadvantaged populations, but there is "strong evidence" that race, ethnicity, and the SDOH "significantly influence outcomes for patients with diabetes" (Walker et al., 2016, p. 371). Walker et al.

attribute the disparities to several influences that include psychosocial, neighborhood, and behavioral factors.

Hypertension. The Black population in the United States has the highest rate of hypertension worldwide, approaching 60 percent of adult males and 56 percent of adult females, compared with 46 percent prevalence in aggregated U.S. adults (Deere and Ferdinand, 2020). Prevalence for Hispanics and non-Hispanic Asians are 34 percent and 37 percent, respectively. The prevalence pattern is similar when adjusting for age (the Hispanic population, and to some extent the non-Hispanic Black population, have a lower age profile than non-Hispanic Whites) (**Figure 9**). Causes of Black hypertension disparities are multifaceted but include the SDOH and pathophysiology, "affording prevention and effective interventions" (Menke, 2015, p. 345) [see also Schultz et al. (2018)].

Figure 9



Source: Deere and Ferdinand (2020).

Kidney Disease. Health disparities are perhaps no more pronounced than with kidney disease. The causal factor is the complex interrelationship between social disadvantage, comorbidities, genetics, and structural racism (Tummalapalli and Ibrahim, 2021). While the rate of chronic kidney disease (CKD) in the United States is lower in the Black population than in the non-Hispanic White population, the progression of CKD is significantly elevated in Black patients (Clark-Cutaia et al., 2021). Medicare's annual expenditures suggest that Black individuals are approximately 3.7 times more likely to have end-stage renal disease (ESRD).

The evidence suggests the disparity in kidney disease progression and mortality is unequivocally due to the SDOH. Clark-Cutaia et al. (2021), in a review of the research

literature, find that although nephrology care prior to ESRD diagnosis is strongly associated with decreased mortality after initiation of dialysis, Black patients are 33 percent less likely to receive nephrology care in the year before beginning dialysis. Moreover, Black patients who see a nephrologist are less likely to receive a predialysis treatment regimen. Finally, even though Black patients with CHD disproportionately bear the burden of ESRD, they are less likely to be identified as kidney transplant candidates and less likely to be listed for transplant. Clark-Cutaia et al. note further that there are few disparities in CKD between Hispanics and non-Hispanic Whites, Hispanic patients are 50 percent more likely to have ESRD.

A delay in the onset of ESRD is essential to the prognosis of chronic kidney disease. De Vries et al. (2016) find that a one-year delay in ESRD results in a gain of 0.6 QALYs.[26] Moreover, the study suggests societal savings from the earlier intervention range from €8,000 in the UK to €17,000 in Germany.

4.3 Payment Models in the Face of Disparities in Incidence and Treatment Outcomes of Disease

As demonstrated above, because of disparities in health status and the socioeconomic environment in which they often live, traditionally disadvantaged and marginalized groups have higher-than-average medical needs and incur disproportionately high health costs. However, this reality potentially makes APMs more attractive because the highest-cost beneficiaries present the greatest opportunities for savings, particularly for maladies with modifiable costs such as emergency department visits for chronic conditions such as hypertension and diabetes or unmet mental health needs (Joynt Maddox, 2018).

The FFS model has the potential to exacerbate health disparities through disincentives to treat disadvantaged and marginalized populations. Although APMs and VBPs have the potential to reduce racial and ethnic health disparities, APM designs and VBPs can disincentivize providers from serving these often disadvantaged and marginalized populations.

4.3.1 Low-Margin Care

Consider first the standard payment model, FFS without effective VBPs. The FFS model inherently rewards the provision of high-margin services and large turnover. The margin is a measure of the efficiency with which a provider can turn "sales" into profits. For FFS providers there is a financial disincentive to treat disadvantaged and

[26]A quality-adjusted life year (QALY) discounts a life year (LY) gained by treatment, say at a rate of $0 < \gamma \leq 1$ to reflect any reduced quality of life associated with the additional LYs gained. For example, if a treatment would extend life by 10 years but cause immediate blindness, then each LY gained would be adjusted downward such that QALY = γLY < LY. At writing, the Euro was roughly on par with the USD, with € = 1.02 USD.

marginalized populations because, as demonstrated in section 4.2, these populations often are most in need of services such as the monitoring of these disparate impact chronic diseases, which is low-margin care. Primary care and behavioral healthcare also are critical needs for these populations, and these are among the lowest-margin services.

4.3.2 Competition Among Physicians

Another issue raised in Mead et al. (2016) is cognizance of the risk of losing a patient to another physician by making a referral—in this case for cardiac rehabilitation. One cardiologist was quoted as stating "[cardiologists are] not going to send someone to cardiac rehab if the program's run by another cardiologist . . . what if the patient bonds with them?" (p. 261), and another stated, "But, you know, nobody loves sending patients to another cardiologist's office. Because I did lose one patient that way" (p. 261). While this evidence is anecdotal and therefore cannot be generalized to all cardiologists (or physicians), the statements suggest that the motivation for retaining patients, ostensibly for financial reasons, could potentially result in suboptimal treatment for patients.

4.3.3 Risk Adjustment

Much of the risk transferred from payers to providers in APMs and VBPs is epidemiologic and heavily influenced by the SDOH. As a consequence of ostensibly inadequate risk controls, healthcare providers with high proportions of disadvantaged patients may lose money under APMs and VBP systems through "no fault of their own" (Joynt Maddox, 2018). Thus, APMs that pay for aggregated services, such as a bundled payment for an episode of care (case-based) or a monthly payment for each member (capitation), as well as VBPs, need to have a means of adjusting payments to account for patients that need more services (AMA, 2019).

APMs and VBP systems do make adjustments for patient risk to account for social risk that is outside the provider's control. Risk adjustment systems assign patients a risk score based on demographic factors and health status. But evidence suggests current risk-adjustment methods may not be sufficiently sophisticated to reliably distinguish poor-quality care or cost inefficiencies from high medical and/or social risk. For example, evidence suggests avoidance of vulnerable patients due to inadequate risk adjustments could be manifested by "cherry-picking," either which kind of provider to work for (provider selection), such as with an HMO or ACO, or which patients to care for (patient selection).

4.3.4 Non-Risk Factors

Another potential problem in the ACO space, although not specifically related to risk, is a rural "glitch" (Cavanaugh et al., 2022). The problem arises in areas without an abundance of healthcare providers compared with ACOs. An ACO's progress in cost

savings is measured against the entire region, usually, the county in which it is located (in most performance measures). So, as the ACO lowers costs, it brings down its own benchmark.

Evidence abounds of the effects of the unintended incentive of APMs and VBPs to treat vulnerable populations on access to care for those populations.

4.3.5 Empirical Studies Evaluating the Impact of APMs and VBPs on Disparities

Some demonstrations have shown that APMs have the potential to ameliorate socioeconomic demographic disparities, particularly in population-based models. But more commonly, the incentives in APMs are misaligned, which can exacerbate disparities. The primary culprit is the risk adjustment mechanisms currently in use, which seem to be insufficient to avoid incentivizing provider behavior that could maintain or even exacerbate existing health disparities. On the VBP front, the preponderance of the evidence suggests that, although they may be effective in their original intent—to improve quality of care and cost efficiency—they commonly penalize providers who care for disadvantaged and vulnerable populations. Indeed, there is little to no evidence that VBPs are designed in a way that would ameliorate health disparities.

Fee for Service. There is little direct evidence on FFS from the empirical research, as FFS models generally are used as "controls" in the literature, to which APMs are compared.

Although the work is largely anecdotal, one identified study provides evidence of financial inducements for physician behaviors. In a mixed-methods (qualitative and quantitative) study of racial and ethnic disparities in cardiac rehabilitation utilization, Mead et al. (2016) quote a physician as stating "It's partly economic too because physicians tend to get reimbursed more for what they do in those kinds of acute situations than they do chronic, ongoing . . ." (p. 261).

Bundled Payments. Song et al. (2017) evaluate health care quality and spending among enrollees in areas with lower versus higher socioeconomic status in Massachusetts after an FFS system was replaced by an Alternative Quality Contract (AQC), a population-based payment model with substantial incentives tied to quality. There was no difference in the improvement in outcome measures between the low-income and high-income subgroups, nor were there differences in costs. Song et al. conclude that "[l]arger or comparable improvements in quality among enrollees in areas with lower socioeconomic status suggest a potential narrowing of disparities" (p. 74).

However, the American Medical Association (AMA) reports that most risk adjustment systems only predict about 20 percent to 30 percent of the variation in services and spending across patients (2019). The AMA asserts that risk adjustments "do not

consider the complexity of a patient's disease nor social risk factors that are outside of the physician's control, such as lack of transportation or food insecurity" (lines 15-17). Moreover, they argue that these risk-adjustment methods are designed to predict spending on a large insured patient population, not to adjust for differences in patient needs. Reports to Congress in 2016 and 2020 both emphasized a "consistent finding that social risk adjustment in current programs *would be unlikely to substantially improve financial circumstances for safety-net providers*" (Sheingold et al. (2021; emphasis added).

Nephrology was an early laboratory for APMs as part of the CMS End-Stage Renal Disease (ESRD) Prospective Payment System (PPS), ESRD Quality Improvement Program (QIP), and under the ACA, ESRD Seamless Care Organizations (ESCOs), which are similar to ACOs and are specifically designed to manage the care of those with dialysis-dependent ESRD (Tummalapalli and Ibrahim, 2021).[27] Early adoption of APMs for ESRD is not surprising, given its high cost. Wang et al. (2016) estimate an annual cost to Medicare from ESRD of $65,142 per patient.

In a study of monthly cohorts with a sample of nearly 7,400 maintenance hemodialysis patients, Turenne et al. (2015) report evidence that Medicare monthly expenditures are 21 percent higher for Black dialysis patients than for patients in other racial groups.[28] Moreover, (independent) dialysis facilities serving fewer patients with employer-based insurance have a higher prevalence of inadequately low hemoglobin levels under the ESRD PPS compared with similar facilities with more commercially insured patients. This evidence suggests that bundled payments may have contributed to socioeconomic disparities in anemia management (Tummalapalli and Ibrahim, 2021). Thus, financial disincentives for the use of these medications under the expanded bundle may pose greater risks for black dialysis patients compared with other race groups (Tummalapalli and Ibrahim).

ACOs. Data and research show that ACOs are less likely to form in high-poverty areas than in more affluent areas. This evidence is consistent with provider selection. ACO-attributed patients are less likely than non-ACO-attributed patients to be Black, disabled, or socioeconomically vulnerable, and patients with higher clinical risk scores are more likely to exit than those with lower clinical risk scores, which is suggestive of patient selection.

[27]See "What is an ESCO" and "Comprehensive ESRD Care Model" (CMS) for additional details of ESCOs and other CMS ESRD programs.

[28]Cost differences can be explained in larger part by the need for higher doses of injectable and IV medications. For example, higher doses of erythropoiesis-stimulating agents (ESAs), which account for about two-thirds of Medicare costs for ESRD, were required to achieve recommended hemoglobin (Hgb) targets for Black patients, and they required higher doses of vitamin D receptor analogues to manage mineral metabolism [see references in Turene et al. (2015)].

As an example of cherry-picking, consider Medicare's Bundled Payments for Care Improvement (BPCI) Initiative. Controlling for other factors, fewer patients with high clinical risk factors are admitted to BPCI hospitals for lower extremity joint replacement, potentially reflecting an evolving patient mix.

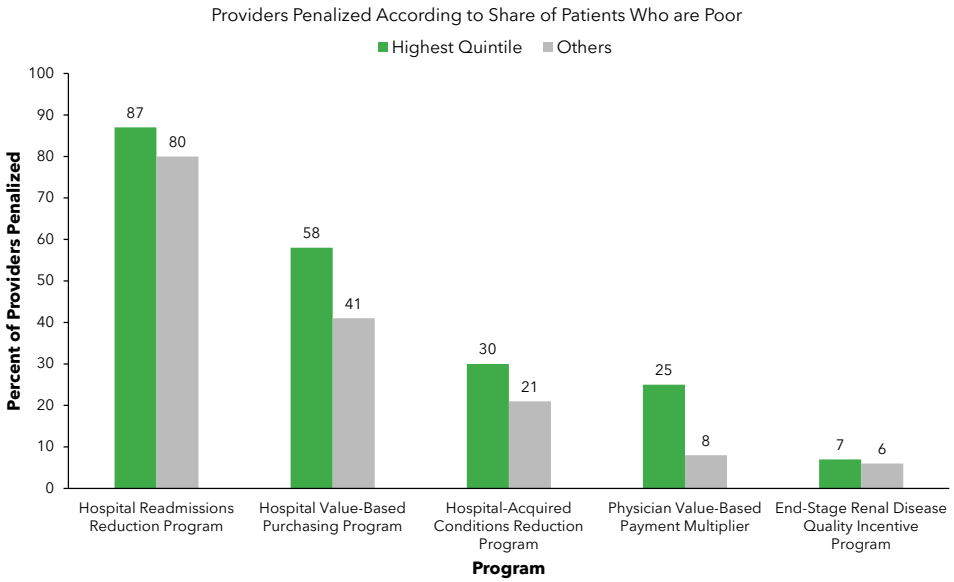
Risk adjustment appears to be problematic in ACOs in other ways as well. The problem is the failure to apply a risk score *cap* to county populations to which the performance of ACOs are compared (Cavanaugh et al., 2022). ACOs in areas that are getting older and sicker and which disproportionately serve Medicaid patients and those with disabilities and renal failure are "unfairly penalized" because county costs are fully risk-adjusted, but ACO costs are risk-adjusted up to a maximum of 3 percent.

CMS is in the "pre-implementation" stage of the ACO REACH Model (Accountable Care Organization Realizing Equity, Access, and Community Health), an evaluation program to "test an ACO model than can inform the Medicare Shared Savings Program [MSSP] and future models by making important changes of the to the GDPC Model [Global and Professional Direct Contracting Model]" (CMS, Innovation Models).[29] The test program is set to commence in January 2023. Among its three primary goals of ACO REACH is to bring ACO benefits to underserved communities. ACO REACH will require all model participants to develop and implement a "robust health equity plan" to identify underserved communities and implement initiatives to "measurably reduce health disparities within their beneficiary populations" (CMS, ACO REACH). CMS arguably recognizes incentives for ACOs to avoid locating in areas with vulnerable populations, although they do not say so explicitly on their website. For example, the ACO REACH landing page refers to the new health equity initiative as "'Reaching' Beyond GDPC."

Value-Based Payments. VBPs have been clearly shown to disproportionately penalize providers that serve the poor, at least in some programs. Consider Medicare's Physician VBP Modifier, and suppose physicians are allocated to quintiles based on the proportion of their Medicare patients who are dually eligible for Medicare and Medicaid (which proxies for socioeconomic status). In this scenario, 25 percent of physicians in the top quintile would be penalized under the VBP system, compared with 8 percent of all other physicians. Similar results are found across other VBP programs (**Figure 10**). As APM and VBP design currently stand, health care providers have incentives to avoid treating disadvantaged and marginalized populations, including racial and ethnic minorities.

[29] GPDC Model participants are listed, with links to the organizations, on the CMS website.

Figure 10



Source: Joynt Maddox (2018)
Notes: Share of poor served is determined by the Disproportionate Share Hospital (DSH) Index and/or share of patients dually enrolled in Medicare and Medicaid.

Qi et al. (2019) study Medicare's Quality Incentive Program (QIP), which is a VBP targeted at dialysis facilities. They find that facilities located in low-income ZIP codes and with higher proportions of Black patients or those dually enrolled in Medicare and Medicaid had lower performance scores and higher rates of penalization under the program. Turene et al. (2015) note that the treatment outcomes have not differed markedly for Black dialysis patients and patients of other race groups. But they also note there has been a meaningful shift from financial incentives to disincentives for using injectable drugs under the bundled payment system which, coupled with prior evidence of higher drug utilization and costs for treating these conditions in Black patients, suggests the potential of the program to exacerbating racial disparities in care. A similar conclusion was reached by the U.S. Government Accountability Office.

5. Summary and Conclusions

This report highlighted the comparatively high level and growth of healthcare expenditures in the United States relative to its highly developed counterparts and showed that, despite comparatively high levels of healthcare expenditures, the United States fares poorly in health outcomes relative to these same counterparts. To place the analysis in context, the report then discussed broad measures of health disparities across race, ethnicity, and sociodemographic status. The report then turned to a detailed description of the prevailing fee-for-service model and alternative payment models, including evidence of their efficacy in increasing cost-efficiency and/or the quality of care. Finally, the report examined the implications of

alternative payment models and value-based payments for ameliorating or exacerbating existing health disparities.

The incidence of many diseases—particularly chronic diseases—is higher in disadvantaged and marginalized populations, and evidence suggests they often have worse treatment outcomes. The management of chronic conditions and other basic medical needs of vulnerable patients offers a substantial opportunity for cost savings because they can be ameliorated by addressing modifiable factors. While patient management may be comparably unattractive in an FFS payment system due to low margins, this activity should render improved quality at low cost, which is rewarded with APMs and VBPs. However, higher disease incidence and poorer treatment outcomes may incentivize providers to avoid vulnerable patients under APMs and VBP systems. While payments are adjusted for social risk, currently risk-adjustment mechanisms appear to be inadequate to compensate providers appropriately for caring for vulnerable populations. Continued innovation and experimentation with risk-adjustment mechanisms likely would yield improvements in compensation risk, which may, in turn, make APMs and VBPs more viable alternatives to the prevailing FFS model.

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