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# Racial and Ethnic Disparities in the Quality of Health Care

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## Keywords

health care disparities, race, ethnicity, health care quality, public health

## Abstract

The annual National Healthcare Quality and Disparities Reports document widespread and persistent racial and ethnic disparities. These disparities result from complex interactions between patient factors related to social disadvantage, clinicians, and organizational and health care system factors. Separate and unequal systems of health care between states, between health care systems, and between clinicians constrain the resources that are available to meet the needs of disadvantaged groups, contribute to unequal outcomes, and reinforce implicit bias. Recent data suggest slow progress in many areas but have documented a few notable successes in eliminating these disparities. To eliminate these disparities, continued progress will require a collective national will to ensure health care equity through expanded health insurance coverage, support for primary care, and public accountability based on progress toward defined, time-limited objectives using evidence-based, sufficiently resourced, multilevel quality improvement strategies that engage patients, clinicians, health care organizations, and communities.



## INTRODUCTION

The 2002 Institute of Medicine report, *Unequal Treatment*, called national attention to racial and ethnic disparities in health care in the United States (78). As a consequence, Congress authorized the Agency for Healthcare Research and Quality (AHRQ) to report annually on national and state health care disparities. The findings of these Quality and Disparities Reports (QDRs) have been sobering. Despite improvement in selected health care disparities, overall progress has been slow (2).

In this article, we critically review racial and ethnic disparities in health care quality in the United States. Recognizing that racial and ethnic health care disparities contribute to overall racial and ethnic health disparities, we aim to disentangle the web of interacting factors that contribute to the health care component. After providing some key definitions, we begin by reviewing findings from the 2014 QDR and a similar report, the 2015 National Impact Assessment of the Centers for Medicare and Medicaid Services (CMS) Quality Measures Report. We then review more fine-grained evidence regarding the source of disparities by selected, widely used quality measures. On the basis of these findings, we propose a set of eight principles that are relevant to health care disparities. We conclude by discussing the potential impact of emerging health care trends on health care disparities.

## DEFINITIONS

### Racial and Ethnic Minority Populations

We use the Centers for Disease Control and Prevention (CDC) definition, which includes Asian Americans, Black or African Americans, Hispanics or Latinos, Native Hawaiians and Other Pacific Islanders, American Indians, and Alaska Natives (24).

### Health Disparities

We use the CDC definition: “Health disparities are differences in health outcomes between groups that reflect social inequalities” (51, p. 1).

### Social Inequality

We use the terms “social inequality” and “social disadvantage” synonymously. We use the definition from Braveman et al. (20): “Social disadvantage refers to the unfavorable social, economic, or political conditions that some groups of people systematically experience based on their relative position in social hierarchies” (p. S151).

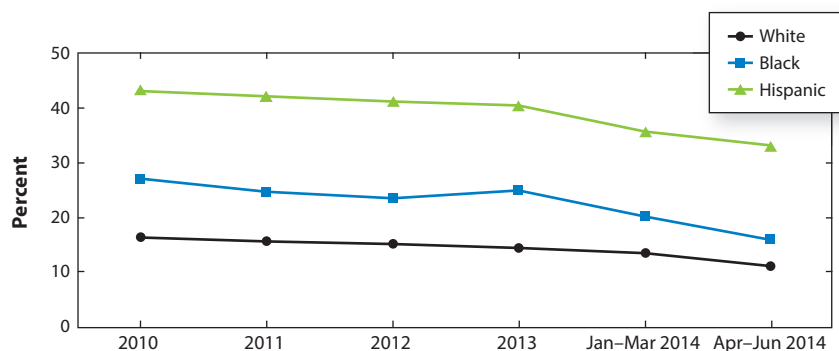
### Health Care Disparities

We use the National Quality Forum definition for health care disparities. “Healthcare disparities are differences in health care quality, access, and outcomes adversely affecting members of racial and ethnic minority groups and other socially disadvantaged populations” (107, p. 45). We recognize health care disparities as important contributors to health disparities along with social determinants of health.

## THE 2014 NATIONAL HEALTHCARE QUALITY AND DISPARITIES REPORT

The AHRQ QDR provides perhaps the most comprehensive assessment of health care disparities in the United States. The QDR operationalizes a disparity based on a 10-percentage-point





**Figure 1**

Adults ages 18–64 who were uninsured at the time of interview, by race/ethnicity, 2010–2014. Figure from the AHRQ 2014 National Healthcare Quality and Disparities Report (2).

difference in the quality of care between the reference group (e.g., non-Hispanic whites or the highest income) and the comparison group to define a disparity. The statistical significance of changes in disparities is assessed using a threshold of  $p < 0.1$  (2).

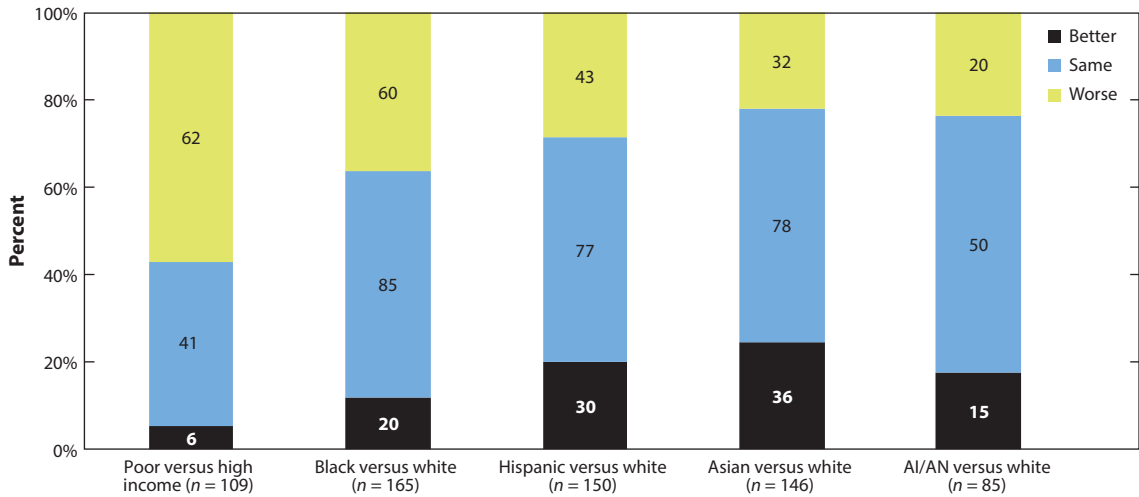
Health care access is a foundational element for health care quality. Addressing disparities in access is a critical step toward improving downstream health care disparities. After years with little improvement among the uninsured, insurance coverage significantly improved following the implementation of key provisions of the Affordable Care Act (ACA). Notably, racial and ethnic disparities in insurance coverage have declined appreciably (**Figure 1**).

The QDR summarized disparities in quality measures across a range of measures, e.g., measures for which quality of care was worse in the socially disadvantaged group. The largest number and percentage of disparities in quality measures were observed between poor and high-income persons (62% of measures showed worse care), followed by black versus white (60% of measures showing worse care), Hispanic versus white non-Hispanic, Asian versus white, and American Indian/Alaska Native versus white (43%, 32%, and 20% of measures showing worse care, respectively) (**Figure 2**). **Figure 3** shows changes over time. Disparities in most measures showed little change. For blacks, Hispanics, and Asians, more measures have improved than have worsened. Among effectiveness measures, disparities tended to be largest among those involving disease control, e.g., HIV viral suppression, and outcomes, admission for congestive heart failure and uncontrolled diabetes, incidence of AIDS, and treatment for depression among individuals with a major depressive disorder.

These findings from the 2014 QDR are somewhat more encouraging than were previous reports. Implementation of the ACA has decreased racial and ethnic disparities in insurance and access, and more measures are improving than worsening for racial and ethnic minority groups. However, many disparities have not changed, and overall progress is modest.

The primary limitation of the QDR is that it provides relatively little insight into the extent to which health care disparities are driven by disparities between states, between health care organizations, or between clinicians rather than by disparities within these entities. Similarly, the analyses do not directly inform which factors associated with race and ethnicity contribute to these disparities. Data are fairly limited for American Indians. Also, data are notably absent for persons receiving health care within jails, prisons, and detention facilities.



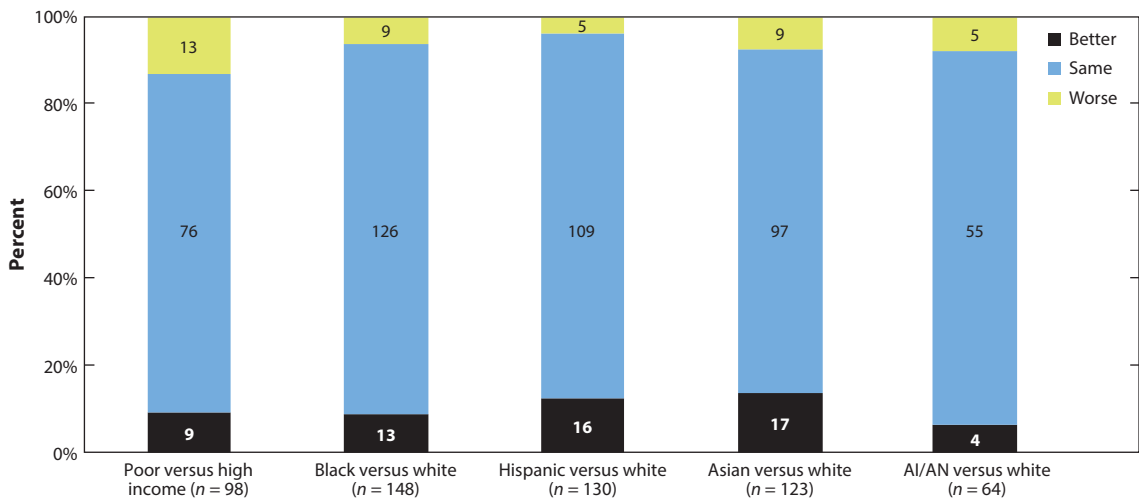


**Figure 2**

Number and percentage of quality measures for which members of selected groups experienced better, same, or worse quality of care compared with the reference group. Abbreviation: AI/AN, American Indian/Alaska Native. Figure from the AHRQ 2014 National Healthcare Quality and Disparities Report (2).

## NATIONAL IMPACT ASSESSMENT OF THE CMS QUALITY MEASURES REPORT

The CMS Quality Measures Report provides the most comprehensive assessment of health care disparities among Medicare recipients. The CMS examined racial and ethnic disparities for hospital, ambulatory, and post-acute settings among Medicare beneficiaries (25). Unlike the QDR,



**Figure 3**

Number and percentage of quality measures for which disparities related to race, ethnicity, and income were improving, not changing, or worsening through 2014. Abbreviation: AI/AN, American Indian/Alaska Native. Figure from the AHRQ 2014 National Healthcare Quality and Disparities Report (2).



which includes all persons, the CMS sample includes only those receiving care covered by Medicare (i.e., beneficiaries 65 and older and those with qualifying disabilities and/or end-stage renal disease). The CMS report used methods similar to those in the QDR but with several differences. The CMS report defined a disparity on the basis of a 5-percentage-point difference and statistical significance ( $p < 0.05$ ). The CMS defined an improvement in a disparity on the basis of a 1% absolute improvement coupled with a corresponding difference in the slope, i.e., trend lines, between groups ( $p < 0.05$ ).

Among 27 CMS hospital quality measures, there were race disparities in 12 (44%). Among these 12 measures, 11 (92%) showed improvement between 2006 and 2012. For those of Hispanic ethnicity, disparities were seen in 10 (37%) of these quality measures; among these 10, all showed improvement.

Among nursing home quality measures, disparities by race were seen for influenza and pneumococcal vaccination; these showed improvement over time. In contrast, among 27 ambulatory measures for managed care (**Table 1**), 19 (70%) showed disparities, whereas 14 (74%) of these showed improvement.

These CMS findings are important in several respects. They document the existence of racial and ethnic disparities among Medicare patients for many quality measures. They confirm that disparities are more prevalent among ambulatory measures, where organizations and clinicians have relatively less influence on the measure. Similarly, rates of improvement in reducing disparities are greater for disparities in hospitals than for those in ambulatory care quality measures. These data are limited, however. They do not provide insight into whether these disparities are driven primarily by differences in quality *between* organizations or between patients *within* organizations. They do not show the relative size of these disparities or the size of the improvements in disparities. Most importantly, the CMS has not yet defined time-limited objectives for tracking progress toward elimination of these disparities. The limitations notwithstanding, these findings show that progress in reducing health care disparities is possible.

## DISPARITIES IN COMMON QUALITY MEASURES

To address some of the limitations of the QDR and the CMS report, we assessed disparities in health care as documented in published studies using common quality measures. We identified quality measures within the following categories: (a) experience of care, (b) preventive care, (c) chronic disease control, (d) hospitalizations, (e) obstetrics, and (f) behavioral health. The sheer magnitude of publications precluded a systematic review. We conducted a series of searches in PubMed that matched the quality measure with race or ethnicity with a focus on articles published in the last 10 years. We next identified relevant citations from key articles (backward search) and used Google Scholar to identify relevant articles that cited key papers (forward search). We supplemented findings with searches focused on mediating variables, such as socioeconomic status (SES), insurance, and geography.

### Experience of Care

Patients' experience of care is a core element of quality. The Consumer Assessment of Healthcare Providers and Systems (CAHPS) is a validated and widely used suite of survey items to assess patients' experience of care. Existing national surveys show that the uninsured group reports the worst experience, whereas those with private insurance report the best experiences (130).

Blacks and Latinos often report care experiences similar to those of non-Latino whites (36, 135). Asian Americans, particularly those with limited English proficiency, report lower rates in some surveys (56, 103). Lower ratings by Asians may reflect differences in survey response



**Table 1 Racial and ethnic disparities and improvement in these disparities for Medicare Part C, 2006–2012**

Program	Measure	Disparity?	Improving?
Part C HEDIS	Breast cancer screening, women 52–69	Yes	Yes
Part C HEDIS	Colorectal cancer screening	Yes	Yes
Part C HEDIS	Cholesterol screening for patients with heart disease	No	NA
Part C HEDIS	Cholesterol screening for patients with diabetes	No	NA
Part C HEDIS	Glaucoma testing	Yes	Yes
Part C HEDIS	Adults' access to prevent/ambulatory health services (65+)	Yes	Yes
Part C HEDIS	Adult BMI assessment	No	NA
Part C HEDIS	Osteoporosis management in women who had a fracture	Yes	Yes
Part C HEDIS	Eye exam to check for damage from diabetes	Yes	Yes
Part C HEDIS	Kidney function testing for members with diabetes	Yes	Yes
Part C HEDIS	Plan members with diabetes whose blood sugar is under control	Yes	Yes
Part C HEDIS	Plan members with diabetes whose cholesterol is under control	Yes	Yes
Part C HEDIS	Controlling blood pressure	Yes	Yes
Part C HEDIS	Rheumatoid arthritis management	Yes	Yes
Part C HOS	Improving bladder control	Yes	No
Part C HOS	Improving or maintaining mental health	No	NA
Part C HOS	Monitoring physical activity	No	NA
Part C HOS	Osteoporosis testing in older women	Yes	No
Part C HOS	Improving or maintaining physical health	Yes	Yes
Part C HOS	Reducing the risk of falling	No	NA
MA CAHPS	Annual flu vaccine	Yes	Yes
MA CAHPS	Customer service	Yes	No
MA CAHPS	Ease of getting needed care and seeing specialists	Yes	No
MA CAHPS	Getting appointments and care quickly	Yes	No
MA CAHPS	Members' Overall Rating of Health Plan	No	NA
MA CAHPS	Overall Rating of Health Care Quality	No	NA
MA CAHPS	Pneumonia Vaccine	Yes	Yes

Abbreviations: CAHPS, Consumer Assessment of Healthcare Providers and Systems; HEDIS, Healthcare Effectiveness Data Information and Set; HOS, Health Outcomes Survey; MA, Medicare Advantage; NA, not applicable (for measures where no initial disparity was identified, no assessment of improvement is possible).

Data from the 2015 National Impact Assessment of Quality Measures Report (31).

tendencies (125). The relative contribution of between-provider and within-provider differences in experience of care differs by study and by minority group (66, 118, 146).

## Preventive Care

Preventive care is usually provided during primary care encounters. Any barrier to primary care such as insurance, distance, or language typically reduces preventive care (138). The uninsured and patients without a usual source of primary care have much lower rates of preventive care (119, 122). Blacks, Latinos, American Indians, and some Asian groups generally have lower rates of cancer screening (131). Rural residents have lower cancer screening rates, but among rural residents, African American women report higher rates than white women (13). Some of the biggest gaps in cancer screening are between insured and uninsured patients and between high-performing and low-performing states (101), including states that have and have not expanded Medicaid (123). Self-reports from the 2013 national survey show rates of breast and cervical cancer screening of



38.5% and 62%, respectively, among the uninsured compared with rates of 79.9% and 86.6%, respectively, among the privately insured (122). State-level differences likely reflect differences in Medicaid eligibility, access to primary care, and probably regional attitudes. Differences in cancer screening by race or ethnicity among persons with similar types of insurance are relatively small (10, 148, 149).

Compared with reports from non-Latino white patients, minority patients report less often that their providers recommend a colonoscopy, but these disparities disappear in some studies after accounting for patient-level factors (1). Furthermore, patient differences in provider recommendations may reflect the source of care, less use of care, and fewer opportunities or actual differences by the same provider for patients of different race/ethnicity. Disparities in preventive care were not seen during direct observation of primary care visits by a research nurse who was physically present during visits and recorded the recommendations made (151).

Child and adolescent vaccinations show similar patterns; i.e., rates are highest among non-Latino whites as compared with minority populations. However, the largest disparities in immunizations are seen between states (23, 44). These effects likely reflect differences in state mandatory and exemption policies. There are small disparities in patient reports by race of provider recommendations for human papilloma virus immunization (155). Programs for uninsured children substantially reduce insurance and SES effects.

Adults show generally similar immunization patterns, with the highest rates among non-Latino whites (96, 152). Influenza disparities partly reflect differences in attitudes toward influenza vaccines (154) and active vaccination seeking (59). Differences in sources of care may also contribute (67). Being insured is strongly associated with adult immunization (119). No differences by race in immunization recommendations were seen among directly observed patient encounters (151).

National office visit data show racial/ethnic disparities in screening for tobacco use during office encounters; non-Latino whites had higher screening rates than did Latinos (79). National data from 2010 showed lower smoker counseling rates among Latinos than among non-Latino whites (34). African Americans report lower use of pharmacotherapy and greater skepticism toward those types of medications (121). Among directly observed primary care visits, rates of health habit counseling were higher among blacks than whites (151).

In general, insurance is a major contributor to disparities in preventive care, but education, income, cultural attitudes, language, and a usual source of care are also factors (91, 95, 111). Differences in patient reports in provider recommendations by race or ethnicity are relatively infrequent and small.

## Chronic Disease Control

Significant disparities by race and ethnicity are seen in quality of care for chronic disease control. Minority patients have worse control for high blood pressure, blood sugar, low-density lipoprotein (LDL) cholesterol, and HIV (88, 115, 139, 156). Among enrollees in Medicare Advantage, blacks had lower rates of control for high blood pressure, blood sugar, and LDL cholesterol than did non-Latino whites (9). Latinos had slightly lower rates of control for blood pressure and blood sugar than did non-Latino whites. Interestingly, Asians/Pacific Islanders had better rates for blood pressure and cholesterol control than did non-Latino whites. Enrollment of blacks in lower-performing health insurance plans explained about half the disparity. Disparities were notably smaller among plans located in the West; disparities were absent among enrollees in Kaiser (9).

Multiple factors contribute to these differences in chronic disease control. Factors include patient nonadherence related to costs (53), health literacy (110), perceived discrimination (22), beliefs about medication (3, 87), untreated mental and substance use disorders, and no or poor insurance



coverage (132). Disparities in disease control are smaller among those with Medicare compared with those in the general population where insurance coverage is less consistent (99). Differences in clinician treatment intensity do not appear to be a consistent contributor to disparities in disease control (70, 97, 143). In contrast, patient–clinician communication, e.g. differences in respect and caring, likely contributes to these disparities through patient adherence (63). Given the multiplicity of factors at different levels, i.e., patient, provider, and system, addressing disparities in disease control often requires complex, multilevel interventions (57).

### **Hospitalization**

There is a growing push among payers for assessment of meaningful outcomes, e.g., hospitalization or mortality rather than care processes (15). Minority populations often fare worse for these outcomes, meaning that they are hospitalized and rehospitalized more often. Specifically, African Americans have higher rates of all-cause rehospitalization (80) and higher hospitalization and rehospitalization for potentially avoidable causes, e.g., asthma (4, 84, 109), diabetes (77, 94), heart failure (28), and postsurgery complications (142).

It is difficult to disentangle patient factors (often unmeasured) from hospital-level effects. Nonetheless, blacks obtain care from hospitals with slightly lower-quality scores and higher mortality rates (65). Black low-birthweight infants and black trauma patients in Pennsylvania are seen in hospitals with higher risk-adjusted mortality rates (54, 74). Blacks who are discharged from minority-serving hospitals often have higher rates of readmission (142).

### **Obstetrical Care**

There are modest and mixed findings regarding disparities in vaginal birth after caesarean, non-indicated early-term birth, and primary caesarean section (76, 85, 102); steroids during preterm labor (90, 120); and surfactants for preterm infants (71, 75). It is not clear if disparities reflect within- or between-provider effects or unmeasured morbidity. Disparities in receipt of postpartum maternal care are larger than the hospital-based disparities (14, 38, 117).

### **Behavioral Health Care**

Robust evidence indicates that minority populations use behavioral health services, including mental and substance use disorder treatment, less often than do non-Latino whites (6, 98, 104, 105, 126). Insurance, costs, cultural attitudes, and language barriers represent key drivers of these disparities (108, 145). Encounter-based disparities in diagnosis and treatment also contribute (5, 100, 141), along with differences in patient adherence to psychopharmacotherapy (72). The lack of behavioral treatment within these institutions (39, 153) represents a neglected source of disparities in behavioral health care, given that jail and prison populations are largely minority (147).

## **PRINCIPLES FOR UNDERSTANDING HEALTH CARE DISPARITIES**

We synthesize the findings presented above with other relevant research and summarize them through a series of principles relevant to health care disparities.

### **Principle 1. Minority Race and Ethnicity Are Associated with Multiple Dimensions of Social Disadvantage that Affect Health Care Outcomes**

Minority race and ethnicity are associated with social disadvantage, particularly for groups historically subjected to slavery and forced relocation (e.g., African Americans and American Indians)



(37). Racism directed toward historically socially marginalized groups contributes to social disadvantage and worse health (19). Race and ethnicity are often associated with multiple other dimensions of social disadvantage, including poverty, residential segregation, limited education, lack of employment, debt, low health literacy and low numeracy, and limited English proficiency (19). Greater cumulative social disadvantage is associated with worse health (52). African Americans, American Indian and Alaska Natives residing on reservations, and Pacific Islanders experience significantly worse health and lower life expectancies than whites do. Similar health disparities are seen for indigenous groups in other countries (18). Social disadvantage may confound the relationship between safety net health care organizations and quality outcomes measures, even after accounting for patient diagnoses (12).

### **Principle 2. Health Care Disparities Arise from the Failure of Health Care Systems to Respond to the Needs of Socially Disadvantaged Patients**

From a health care systems perspective, health care disparities represent system failures at multiple interrelated levels, e.g., macro politics and policies, health systems, teamwork and care processes, and clinician behavior. Conversely, equity in health care implies health care that is responsive to the unique needs, culture, and preferences of patients and families. Equitable care is the hallmark of genuine patient centered care.

### **Principle 3. Social Disadvantage Is Associated with Worse Health Care Access, Unaffordability, and Lower-Quality Care**

Social disadvantage is associated with being uninsured, underinsured, and unable to afford health care costs in the United States (2, 134). Social disadvantage is also associated with geographic and structural barriers to health care, particularly primary care. Similar effects are seen globally (150). Many rural and inner-city areas lack adequate health care. Some physician practices do not accept Medicaid insurance (112). Many US hospital systems operate dual systems of care: care by faculty for private patients and care by residents for those on Medicaid and those with no insurance (8, 114).

### **Principle 4. Constraints on Clinician and Patient Decision Making Affect Health Care Disparities**

Health care is based largely on a series of cascading decisions made by patients and their providers (43). These decisions reflect different cognitive processes (81). The first process enables implicit and often reflexive, affect-laden decisions, e.g., “I never get flu shots.” Reflexive decision making overlaps with a second process, habits, i.e., repetitive nonreflective behavior. Habits that shape health may underlie some care decisions (93). A third process reflects explicit, deliberative, and effortful decision making (46). During explicit, naturalistic decision making, patients, often with input from family and friends, weigh the gist of trade-offs of uncertain benefits and harms and certain costs (116). Decision making is constrained by context, including available resources, particularly affordability. For example, a physician might not refer an uninsured patient for a specialty consultation if the community lacks systems of care for uninsured patients. Similarly, a patient may not obtain a specialty consultation if he or she cannot afford the out-of-pocket fees or if the specialist is located too far away. In summary, social disadvantage may impede clinician and patient decision making through multiple pathways, including constrained choices. Although context differs widely across the world, the principle of constraints on decision making is universal.



## **Principle 5. Bias Produces Health Care Disparities Through Multiple Pathways**

Various types of cognitive bias affect human decision making (81). Racial and ethnic bias is a particularly insidious bias that can result in discriminatory actions (41). Implicit bias can affect legislation, policies, allocation of resources within institutions, and individual clinician behavior (41, 68, 140). Implicit clinician racial bias has garnered the most attention. For routine care, there is relatively little evidence that physician bias affects recommendations for patients based on race and ethnicity (16, 33, 58, 61, 124). Clinician habits may mitigate implicit clinician bias when care is highly routinized. In contrast, for complex decisions involving uncertainty and trust in patients' reports, such as in the management of chronic pain or chest pain, physicians may exhibit racial bias in decision making (7, 129). This bias may extend to how much information a physician provides to minority patients (92). Moreover, physicians' implicit racial bias has been associated with less patient-centered communication and informed decision making with minority patients (16, 33, 60). Physician biases likely contribute to greater unnecessary health care for whites compared with minority patients (86). Implicit biases may be transferred to medical students through the "hidden curriculum," based on offhanded stereotypical comments by faculty (144).

## **Principle 6. Differences Between and Within Geographic Areas, Health Care Organizations, and Physicians Contribute to Health Care Disparities**

Differences both between provider entities (type I health care disparity) and within provider entities (type II health care disparity) contribute to health care disparities, though the salience of each differ depending on the disparity, geography, and health care organization. Patterns of racial and socioeconomic residential segregation result in a concentration of disadvantage at different levels, e.g., state, organization, and individual provider. This confluence of concentration of high health care need and low resources amplifies the impact of social disadvantage and contributes to health care disparities. States differ widely in the care provided for disadvantaged patients; upper Midwest states perform the best, and the southern and south central states perform the worst (128). Most cancer care disparities reported in the Veterans Affairs (VA) system result from differences between VA centers (127). Disparities in hospital quality measures reflect primarily differences between minority-serving and other hospitals (65, 133). These differences based on sources of care extend to health plans (9), surgeons (62), and patients' perceptions of their experience of care (118). Differences in resources contribute to differences in sources of care (157). Providers who care for large numbers of African American patients report fewer resources and less access to specialists (11). Organizational segregation of care represents a type of between difference within the same organization. Nearly 40 years ago, Egbert & Rothman reported that blacks with private insurance or Medicare were more likely to be operated on by residents than by attending surgeons within the same hospital (42). Today, black, Hispanic, and Asian patients are more likely to be operated on by senior residents than by attending surgeons operating alone. We do not know, however, whether these disparities reflect primarily between- or within-hospital differences (26). Nonetheless, compared with attending surgeons operating alone, senior residents have higher rates of major and minor complications (26). Similarly, minority medical patients continue to be cared for more often by trainees rather than by staff physicians within hospital systems (157). Although standard quality metrics of medical care provided by residents and metrics of care provided by staff physicians are often comparable (157), care continuity is worse owing to constraints on residents' schedules and tenure. Segregation of clinic and private patients suggests an implicit valuation of patients, potentially fostering biases in attitudinal and behavioral norms among clinicians, staff, and trainees. Thus, structural bias, i.e., dual and unequal systems of care, and implicit cognitive biases reinforce each other.



## **Principle 7. There Is a Continuum of the Relative Proximal Influence of Clinician and Patient Factors on Disparities in Quality Measures**

Although disparities result from interactions between systems and patients and clinicians and patients, the relative proximal influence of clinician (type A disparity) and patient factors (type B disparity) differ depending on the measure. For example, prophylaxis of venous thromboembolism (VTE) is under the control of the clinician. In contrast, measures that reflect patient adherence and self-management of conditions that impact outcomes, e.g., hospitalizations and deaths, are sensitive to patient social advantage and constraints (55). No doubt, clinician and patient behaviors are strongly influenced by factors at the level of the organization, the health care environment, and the macro environment. In one study, organizational policy, i.e., mandatory clinical decision support, eliminated racial disparities in VTE prophylaxis (89). In another study, the elimination of copayments for cardiovascular therapy substantially reduced racial and ethnic disparities in patient adherence and cardiovascular outcomes (30). Clinician and patient factors interact with each other, as exemplified by clinician–patient communication (type C disparity). Nonetheless, determining the relative influence of clinician and patient proximal factors indicates the starting points for interventions.

## **Principle 8. Health Care Disparities Can Be Successfully Addressed**

Evidence presented above shows that health care disparities are not immutable. Progress is achievable. The elimination of racial disparities in kidney transplantation and percutaneous coronary revascularization for acute coronary syndrome among Medicare beneficiaries are notable successes (25, 136). Adaptation of quality improvement (QI) approaches has been successful in addressing disparities (27, 29). For type I disparities, universal QI approaches coupled with adequate resources may reduce disparities from between-organization differences in quality. For type II disparities, targeted QI informed by detailed analysis of care processes can address disparities by focusing primarily on clinicians (type A), on patients (type B), or on both. Success requires the following:

1. Routine monitoring of health care disparities as a core element of organizational QI (50). Monitoring requires the routine, standardized collection of patient race and ethnicity data with linkage to quality measures (64).
2. Organizational commitment to the identification and elimination of health care disparities as an integral component of QI. Racial and ethnic diversity across organizations, including leadership, can improve sensitivity and commitment to health care disparities (40).
3. Use of QI structures and processes to identify health care disparities and corresponding breakdowns in care processes. Teams should include relevant technical and cultural expertise, including the voices of patients.
4. Design of appropriate interventions based on the care processes and the emerging literature on successful interventions (35, 47, 73). Many interventions require multilevel approaches, including community engagement (57). Use of iterative approaches such as a user-centered design can help ensure that the intervention is culturally acceptable, appropriate, and feasible for those affected (69).
5. Implementing, assessing, and modifying the intervention. Use of established implementation strategies that are appropriately adapted may increase implementation success (113).
6. Steps to ensure sustainability of the intervention(s). Sustainability depends on implementation factors (acceptability, adoption, appropriateness, feasibility, and cost), the level of integration into routine care, and continued organizational prioritization (106).



## EMERGING TRENDS

No doubt, the ACA has had a favorable impact on health care disparities. Expansion of Medicaid in 27 states and health exchange subsidies to low-income families have reduced racial and ethnic disparities in health insurance in the United States by 30–40% (83). Continued progress in addressing health care disparities will depend on a number of emerging trends. The first is a polarization in public attitudes, by political ideology, race, and ethnicity, toward the ACA (49). This public divide constrains state Medicaid expansion and allocation of resources toward improving equity.

A second trend affecting health care disparities is the growing cost of health care, particularly for medications. Although the ACA improves health care access for many low-income adults, the ACA also institutionalizes tiers of health insurance coverage (e.g., bronze, silver, gold, and platinum). These varying levels of coverage mean that families with lower income who choose lower tiers will continue to be exposed to higher health care costs. Similarly, the growing popularity of high-deductible health plans by employers will have similar effects (32), particularly for lower-income patients. Nearly half of Americans (47%) report that they could not cover an emergency expense costing \$400 without selling something or borrowing money (17). Yet, this amount represents less than one-third of the average health insurance deductible in 2015 (82). One in three Americans report going without medical care in the previous year owing to unaffordable costs (17). Nuanced approaches may be needed to address cost-driven health care disparities, including minimizing the costs for primary care and high-value medications.

A third trend is the emergence of new health care delivery models that improve health care value and population health. Accountable care organizations (ACOs) and bundled payment models offer the potential for health care that is potentially more responsive to the needs of socially disadvantaged patients and for improved health care equity (48). Kaiser Permanente has demonstrated that selected health care disparities can be eliminated within high-quality, integrated health care systems that prioritize equity (9). The population focus of ACOs creates some incentive for addressing social determinants of health through partnerships with community-based organizations. Whether ACOs will ultimately reduce health care disparities will likely depend on the organizational priority given to promoting equitable outcomes.

A fourth trend reflects a growing recognition for engaging patients and communities as equal partners in improving health and health care. Multilevel interventions are often needed to address complex care processes and patient health behaviors and outcomes (57). Patient, community, and health system engagement is typically needed to address contributors to health care disparities that operate at different levels and ensure patient voice and cultural sensitivity. With some notable exceptions (e.g., federally qualified health centers), few health care organizations recruit underserved patients to their governing boards. Improving patient voice within health care institutions may help reduce power imbalances and produce more responsive systems of care. Systematic review of the evidence regarding the engagement of patients is encouraging (21). This engagement principle extends the concept of organizational cultural diversity from entry-level positions to the executive leadership and governing board. Moreover, as health care moves toward accountability for defined populations and begins to address the social determinants of health, equitable partnerships with community-based organizations will be key to ensuring that ACOs respond to the needs of culturally diverse populations.

A final trend reflects the transformation of primary care. A previous review of health care disparities by Starfield et al. (137) underscored the foundational role of primary care for improving equity in health care, including federally qualified health centers that care for many underserved, uninsured patients. Ensuring equity requires systems that optimize the core elements of primary care: accessibility, continuity, comprehensiveness, coordination, and whole-person accountability,



particularly informed and shared patient decision making (45). This requires sufficient investment in primary care to develop high-functioning culturally diverse, multidisciplinary health care teams that are responsive to the medical, behavioral, and social needs and values of socially disadvantaged patients.

## CONCLUSIONS

Racial and ethnic disparities in the quality of health care reflect the intersection of social disadvantage with the responsiveness of health care systems to the various dimensions of social disadvantage. Although progress has been historically slow, recent evidence shows that health care disparities can be addressed effectively. Principles for understanding the many sources of health care disparities can guide QI interventions to eliminate these disparities. Continued progress in eliminating disparities will require a national commitment to ensuring health care equity through expanded health insurance coverage, resource investment, public accountability based on progress according to time-limited defined objectives, and multilevel, sufficiently resourced, QI strategies that engage patients, communities, clinicians, and health care organizations.

## DISCLOSURE STATEMENT

The authors are not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

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## LITERATURE CITED

1. Ahmed NU, Pelletier V, Winter K, Albatineh AN. 2013. Factors explaining racial/ethnic disparities in rates of physician recommendation for colorectal cancer screening. *Am. J. Public Health* 103:e91–99
2. AHRQ (Agency Healthc. Res. Quality). 2015. *2014 National Healthcare Quality and Disparities Report*. Rockville, MD: AHRQ, US Dep. Health Hum. Serv. <http://www.ahrq.gov/sites/default/files/wysiwyg/research/findings/nhqdr/nhqdr14/2014nhqdr.pdf>
3. Aikens JE, Piette JD. 2009. Diabetic patients' medication underuse, illness outcomes, and beliefs about antihyperglycemic and antihypertensive treatments. *Diabetes Care* 32:19–24
4. Akinbami LJ, Moorman JE, Simon AE, Schoendorf KC. 2014. Trends in racial disparities for asthma outcomes among children 0 to 17 years, 2001–2010. *J. Allergy Clin. Immunol.* 134:547–53.e5
5. Akincigil A, Olsson M, Siegel M, Zurlo KA, Walkup JT, Crystal S. 2012. Racial and ethnic disparities in depression care in community-dwelling elderly in the United States. *Am. J. Public Health* 102:319–28
6. Alegría M, Canino G, Rios R, Vera M, Calderon J, et al. 2002. Inequalities in use of specialty mental health services among Latinos, African Americans, and non-Latino whites. *Psychiatr. Serv.* 53:1547–55
7. Anderson KO, Green CR, Payne R. 2009. Racial and ethnic disparities in pain: causes and consequences of unequal care. *J. Pain* 10:1187–204
8. Atlas SJ, Grant RW, Ferris TG, Chang Y, Barry MJ. 2009. Patient-physician connectedness and quality of primary care. *Ann. Intern. Med.* 150:325–35
9. Ayanian JZ, Landon BE, Newhouse JP, Zaslavsky AM. 2014. Racial and ethnic disparities among enrollees in Medicare Advantage plans. *N. Engl. J. Med.* 371:2288–97
10. Ayanian JZ, Landon BE, Zaslavsky AM, Newhouse JP. 2013. Racial and ethnic differences in use of mammography between Medicare Advantage and traditional Medicare. *J. Natl. Cancer Inst.* 105:1891–96



11. Bach PB, Pham HH, Schrag D, Tate RC, Hargraves JL. 2004. Primary care physicians who treat blacks and whites. *N. Engl. J. Med.* 351:575–84
12. Barnett ML, Hsu J, McWilliams JM. 2015. Patient characteristics and differences in hospital readmission rates. *JAMA Intern. Med.* 175:1803–12
13. Bennett KJ, Probst JC, Bellinger JD. 2012. Receipt of cancer screening services: surprising results for some rural minorities. *J. Rural Health* 28:63–72
14. Bennett WL, Chang H-Y, Levine DM, Wang L, Neale D, et al. 2014. Utilization of primary and obstetric care after medically complicated pregnancies: an analysis of medical claims data. *J. Gen. Intern. Med.* 29:636–45
15. Berenson RA, Pronovost PJ, Krumholz HM. 2013. *Achieving the potential of health care performance measures*. Issue Brief, May, Robert Wood Johnson Found. Urban Inst., Princeton, NJ. [http://www.rwjf.org/content/dam/farm/reports/issue\\_briefs/2013/rwjf406195/subassets/rwjf406195\\_1](http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2013/rwjf406195/subassets/rwjf406195_1)
16. Blair IV, Steiner JF, Fairclough DL, Hanratty R, Price DW, et al. 2013. Clinicians' implicit ethnic/racial bias and perceptions of care among Black and Latino patients. *Ann. Fam. Med.* 11:43–52
17. Board of Gov. of the Fed. Reserv. Syst. 2015. *Report on the Economic Well-Being of U.S. Households in 2014*. Washington, DC: Board of Gov. of the Fed. Reserv. Syst.
18. Bramley D, Hebert P, Jackson R, Chassin M. 2004. Indigenous disparities in disease-specific mortality, a cross-country comparison: New Zealand, Australia, Canada, and the United States. *N. Z. Med. J.* 117:U1215
19. Braveman P, Egerter S, Williams DR. 2011. The social determinants of health: coming of age. *Annu. Rev. Public Health* 32:381–98
20. Braveman PA, Kumanyika S, Fielding J, LaVeist T, Borrell LN, et al. 2011. Health disparities and health equity: The issue is justice. *Am. J. Public Health* 101(Suppl. 1):S149–55
21. Brett J, Staniszewska S, Mockford C, Herron-Marx S, Hughes J, et al. 2014. A systematic review of the impact of patient and public involvement on service users, researchers and communities. *Patient* 7:387–95
22. Casagrande SS, Gary TL, LaVeist TA, Gaskin DJ, Cooper LA. 2007. Perceived discrimination and adherence to medical care in a racially integrated community. *J. Gen. Intern. Med.* 22:389–95
23. CDC (Cent. Dis. Control Prev.). 2013. National, state, and local area vaccination coverage among children aged 19–35 months—United States, 2012. *MMWR* 62:733–40
24. CDC (Cent. Dis. Control Prev.). 2014. *Minority health: definitions*. Updated Feb. 2014, CDC, Atlanta. <http://www.cdc.gov/minorityhealth/populations/REMP/definitions.html>
25. Cent. Clin. Stand. Quality, CMS (Cent. Medicare Medicaid Serv.). 2015. *2015 National Impact Assessment of the Centers for Medicare & Medicaid Services (CMS) Quality Measures Report*. Baltimore, MD: <https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/quality-measures/downloads/2015-national-impact-assessment-report.pdf>
26. Changoor NR, Ortega G, Ekladios M, Zogg CK, Cornwell EE 3rd, Haider AH. 2015. Racial disparities in surgical outcomes: Does the level of resident surgeon play a role? *Surgery* 158:547–55
27. Chassin MR, Anderson RM. 2008. Quality of care and racial health disparities: a strategic overview. *Mount Sinai J. Med.* 75:7–12
28. Chen J, Normand S-LT, Wang Y, Krumholz HM. 2011. National and regional trends in heart failure hospitalization and mortality rates for Medicare beneficiaries, 1998–2008. *JAMA* 306:1669–78
29. Chin MH, Clarke AR, Nocon RS, Casey AA, Goddu AP, et al. 2012. A roadmap and best practices for organizations to reduce racial and ethnic disparities in health care. *J. Gen. Intern. Med.* 27:992–1000
30. Choudhry NK, Bykov K, Shrank WH, Toscano M, Rawlins WS, et al. 2014. Eliminating medication copayments reduces disparities in cardiovascular care. *Health Aff.* 33:863–70
31. CMS (Cent. for Medicare Medicaid Serv.). 2015. *National Impact Assessment of Centers for Medicare & Medicaid Services (CMS) Quality Measures Report*. Baltimore, MD: CMS. <https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/qualitymeasures/downloads/2015-national-impact-assessment-report.pdf>
32. Collins SR, Rasmussen PW, Beutel S, Doty MM. 2015. *The problem of underinsurance and how rising deductibles will make it worse: findings from the Commonwealth Fund Biennial Health Insurance Survey, 2014*. Issue Brief, May, Commonw. Fund, New York. [http://www.commonwealthfund.org/~media/files/publications/issue-brief/2015/may/1817\\_collins\\_problem\\_of\\_underinsurance\\_ib.pdf](http://www.commonwealthfund.org/~media/files/publications/issue-brief/2015/may/1817_collins_problem_of_underinsurance_ib.pdf)



33. Cooper LA, Roter DL, Carson KA, Beach MC, Sabin JA, et al. 2012. The associations of clinicians' implicit attitudes about race with medical visit communication and patient ratings of interpersonal care. *Am. J. Public Health* 102:979–87
34. Danesh D, Paskett ED, Ferketich AK. 2014. Disparities in receipt of advice to quit smoking from health care providers: 2010 National Health Interview Survey. *Prev. Chronic Dis.* 11:E131
35. Davis AM, Vinci LM, Okwuosa TM, Chase AR, Huang ES. 2007. Cardiovascular health disparities: a systematic review of health care interventions. *Med. Care Res. Rev.* 64:29S–100
36. Dayton E, Zhan C, Sangl J, Darby C, Moy E. 2006. Racial and ethnic differences in patient assessments of interactions with providers: disparities or measurement biases? *Am. J. Med. Qual.* 21:109–14
37. DeNavas-Walt CP, Bernadette D. 2015. *Income and Poverty in the United States: 2014. Current Population Reports, P60-252*. Washington, DC: US Dep. Commer., US Census Bur. <https://www.census.gov/content/dam/Census/library/publications/2015/demo/p60-252.pdf>
38. DiBari JN, Yu SM, Chao SM, Lu MC. 2014. Use of postpartum care: predictors and barriers. *J. Pregnancy* 2014:Art. 530769
39. Ditton PM. 1999. *Mental Health and Treatment of Inmates and Probationers*. Washington, DC: US Dep. Justice
40. Dotson E, Nuru-Jeter A. 2012. Setting the stage for a business case for leadership diversity in healthcare: history, research, and leverage. *J. Healthc. Manag.* 57:35–44
41. Dovidio JF, Fiske ST. 2012. Under the radar: how unexamined biases in decision-making processes in clinical interactions can contribute to health care disparities. *Am. J. Public Health* 102:945–52
42. Egbert LD, Rothman IL. 1977. Relation between the race and economic status of patients and who performs their surgery. *N. Engl. J. Med.* 297:90–91
43. Einbinder LC, Schulman KA. 2000. The effect of race on the referral process for invasive cardiac procedures. *Med. Care Res. Rev.* 57(Suppl. 1):162–80
44. Elam-Evans LD, Yankey D, Jeyarajah J, Singleton JA, Curtis RC, et al. 2014. National, regional, state, and selected local area vaccination coverage among adolescents aged 13–17 years—United States, 2013. *MMWR* 63:625–33
45. Epstein RM, Fiscella K, Lesser CS, Stange KC. 2010. Why the nation needs a policy push on patient-centered health care. *Health Aff.* 29:1489–95
46. Fagerlin A, Peters E, Schwartz A, Zikmund-Fisher BJ. 2010. Cognitive and affective influences on health decisions. In *Handbook of Health Psychology and Behavioral Medicine*, ed. JM Suls, KW Davidson, RM Kaplan, pp. 49–63. New York: Guilford
47. Fiscella K. 2011. Eliminating disparities in health care through quality improvement. In *Healthcare Disparities at the Crossroads with Healthcare Reform*, ed. RA Williams, pp. 231–67. New York: Springer
48. Fiscella K. 2011. Health care reform and equity: promise, pitfalls, and prescriptions. *Ann. Fam. Med.* 9:78–84
49. Fiscella K. 2016. Why do so many white Americans oppose the Affordable Care Act? *Am. J. Med.* In press
50. Fiscella K, Franks P, Gold MR, Clancy CM. 2000. Inequality in quality: addressing socioeconomic, racial, and ethnic disparities in health care. *JAMA* 283:2579–84
51. Frieden TR. 2011. Forward. In *CDC Health Disparities and Inequalities Report—United States, 2011. MMWR Surveill. Summ.* 60(Suppl.):1–2
52. Friel S, Marmot MG. 2011. Action on the social determinants of health and health inequities goes global. *Annu. Rev. Public Health* 32:225–36
53. Gellad WF, Haas JS, Safran DG. 2007. Race/ethnicity and nonadherence to prescription medications among seniors: results of a national study. *J. Gen. Intern. Med.* 22:1572–78
54. Glance LG, Osler TM, Mukamel DB, Meredith JW, Li Y, et al. 2013. Trends in racial disparities for injured patients admitted to trauma centers. *Health Serv. Res.* 48:1684–703
55. Goldman DP, Smith JP. 2002. Can patient self-management help explain the SES health gradient? *PNAS* 99:10929–34
56. Goldstein E, Elliott MN, Lehrman WG, Hambarsoomian K, Giordano LA. 2010. Racial/ethnic differences in patients' perceptions of inpatient care using the HCAHPS survey. *Med. Care Res. Rev.* 67:74–92



57. Gorin SS, Badr H, Krebs P, Prabhu Das I. 2012. Multilevel interventions and racial/ethnic health disparities. *J. Natl. Cancer Inst. Monogr.* 2012:100–11
58. Green AR, Carney DR, Pallin DJ, Ngo LH, Raymond KL, et al. 2007. Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients. *J. Gen. Intern. Med.* 22:1231–38
59. Groom HC, Zhang F, Fisher AK, Wortley PM. 2014. Differences in adult influenza vaccine-seeking behavior: the roles of race and attitudes. *J. Public Health Manag. Pract.* 20:246–50
60. Hagiwara N, Penner LA, Gonzalez R, Eggly S, Dovidio JF, et al. 2013. Racial attitudes, physician-patient talk time ratio, and adherence in racially discordant medical interactions. *Soc. Sci. Med.* 1982 87:123–31
61. Haider AH, Schneider EB, Sriram N, Dossick DS, Scott VK, et al. 2015. Unconscious race and social class bias among acute care surgical clinicians and clinical treatment decisions. *JAMA Surg.* 150:457–64
62. Haider AH, Scott VK, Rehman KA, Velopulos C, Bentley JM, et al. 2013. Racial disparities in surgical care and outcomes in the United States: a comprehensive review of patient, provider, and systemic factors. *J. Am. Coll. Surg.* 216:482–92.e12
63. Haskard Zolnieriek KB, DiMatteo MR. 2009. Physician communication and patient adherence to treatment: a meta-analysis. *Med. Care* 47:826–34
64. Hasnain-Wynia R, Baker DW. 2006. Obtaining data on patient race, ethnicity, and primary language in health care organizations: current challenges and proposed solutions. *Health Serv. Res.* 41:1501–18
65. Hasnain-Wynia R, Baker DW, Nerenz D, Feinglass J, Beal AC, et al. 2007. Disparities in health care are driven by where minority patients seek care: examination of the hospital quality alliance measures. *Arch. Intern. Med.* 167:1233–39
66. Hausmann LR, Gao S, Mor MK, Schaefer JH Jr, Fine MJ. 2013. Understanding racial and ethnic differences in patient experiences with outpatient health care in Veterans Affairs Medical Centers. *Med. Care* 51:532–39
67. Hebert PL, Frick KD, Kane RL, McBean AM. 2005. The causes of racial and ethnic differences in influenza vaccination among elderly Medicare beneficiaries. *Health Serv. Res.* 40:517–37
68. Hehman E, Gaertner SL, Dovidio JF, Mania EW, Guerra R, et al. 2012. Group status drives majority and minority integration preferences. *Psychol. Sci.* 23:46–52
69. Henderson VA, Barr KL, An LC, Guajardo C, Newhouse W, et al. 2013. Community-based participatory research and user-centered design in a diabetes medication information and decision tool. *Prog. Community Health Partnersh.* 7:171–84
70. Hicks LS, Fairchild DG, Hornig MS, Orav EJ, Bates DW, Ayanian JZ. 2004. Determinants of JNC VI guideline adherence, intensity of drug therapy, and blood pressure control by race and ethnicity. *Hypertension* 44:429–34
71. Horbar JD, Carpenter JH, Buzas J, Soll RF, Suresh G, et al. 2004. Timing of initial surfactant treatment for infants 23 to 29 weeks' gestation: Is routine practice evidence based? *Pediatrics* 113:1593–602
72. Horvitz-Lennon M, Volya R, Donohue JM, Lave JR, Stein BD, Normand SLT. 2014. Disparities in quality of care among publicly insured adults with schizophrenia in four large US states, 2002–2008. *Health Serv. Res.* 49:1121–44
73. Hosking JE, Ameratunga SN, Bramley DM, Crengle SM. Reducing ethnic disparities in the quality of trauma care: an important research gap. *Ann. Surg.* 253:233–37
74. Howell EA, Hebert P, Chatterjee S, Kleinman LC, Chassin MR. 2008. Black/white differences in very low birth weight neonatal mortality rates among New York City hospitals. *Pediatrics* 121:e407–15
75. Howell EA, Holzman I, Kleinman LC, Wang J, Chassin MR. 2010. Surfactant use for premature infants with respiratory distress syndrome in three New York city hospitals: Discordance of practice from a community clinician consensus standard. *J. Perinatol.* 30:590–95
76. Howell EA, Zeitlin J, Hebert P, Balbierz A, Egorova N. 2013. Paradoxical trends and racial differences in obstetric quality and neonatal and maternal mortality. *Obstet. Gynecol.* 121:1201–8
77. Hu R, Shi L, Rane S, Zhu J, Chen C-C. 2014. Insurance, racial/ethnic, SES-related disparities in quality of care among US adults with diabetes. *J. Immigr. Minor. Health* 16:565–75
78. IOM (Inst. Med.). 2002. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC: Natl. Acad. Press



79. Jamal A, Dube SR, Malarcher AM, Shaw L, Engstrom MC. 2012. Tobacco use screening and counseling during physician office visits among adults—National Ambulatory Medical Care Survey and National Health Interview Survey, United States, 2005–2009. *MMWR* 61(Suppl.):38–45
80. Joynt KE, Orav EJ, Jha AK. 2011. Thirty-day readmission rates for Medicare beneficiaries by race and site of care. *JAMA* 305:675–81
81. Kahneman D. 2011. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux
82. Kaiser Family Found. 2015. *2015 Employer Health Benefits Survey*. Sept. 22, Kaiser Family Found., Washington, DC. <http://kff.org/report-section/ehbs-2015-summary-of-findings/>
83. Kaiser Family Found. 2015. *Uninsured rates for the nonelderly by race/ethnicity*. 2014 data. Kaiser Family Found., Washington, DC. <http://kff.org/uninsured/state-indicator/rate-by-raceethnicity/>
84. Kenyon CC, Melvin PR, Chiang VW, Elliott MN, Schuster MA, Berry JG. 2014. Rehospitalization for childhood asthma: timing, variation, and opportunities for intervention. *J. Pediatr.* 164:300–5
85. Kozhimannil KB, Macheras M, Lorch SA. 2014. Trends in childbirth before 39 weeks' gestation without medical indication. *Med. Care* 52:649–57
86. Kressin NR, Groeneveld PW. 2015. Race/ethnicity and overuse of care: a systematic review. *Milbank Q.* 93:112–38
87. Kressin NR, Orner MB, Manze M, Glickman ME, Berlowitz D. 2010. Understanding contributors to racial disparities in blood pressure control. *Circ. Cardiovasc. Qual. Outcomes* 3:173–80
88. Laiteerapong N, Fairchild PC, Chou C-H, Chin MH, Huang ES. 2015. Revisiting disparities in quality of care among US adults with diabetes in the era of individualized care, NHANES 2007–2010. *Med. Care* 53:25–31
89. Lau BD, Haider AH, Streiff MB, Lehmann CU, Kraus PS, et al. 2015. Eliminating health care disparities with mandatory clinical decision support: the venous thromboembolism (VTE) example. *Med. Care* 53:18–24
90. Lee HC, Lyndon A, Blumenfeld YJ, Dudley RA, Gould JB. 2011. Antenatal steroid administration for premature infants in California. *Obstet. Gynecol.* 117:603–9
91. Lee S, Chen L, Jung MY, Baezconde-Garbanati L, Juon HS. 2014. Acculturation and cancer screening among Asian Americans: role of health insurance and having a regular physician. *J. Community Health* 39:201–12
92. Lin M-Y, Kressin NR. 2015. Race/ethnicity and Americans' experiences with treatment decision making. *Patient Educ. Couns.* 98:1636–42
93. Lindbladh E, Lyttkens CH. 2002. Habit versus choice: the process of decision-making in health-related behaviour. *Soc. Sci. Med.* 55:451–65
94. Lipska KJ, Ross JS, Wang Y, Inzucchi SE, Mingos K, et al. 2014. National trends in US hospital admissions for hyperglycemia and hypoglycemia among Medicare beneficiaries, 1999 to 2011. *JAMA Intern. Med.* 174:1116–24
95. Liss DT, Baker DW. 2014. Understanding current racial/ethnic disparities in colorectal cancer screening in the United States: the contribution of socioeconomic status and access to care. *Am. J. Prev. Med.* 46:228–36
96. Lu P-J, O'Halloran A, Bryan L, Kennedy ED, Ding H, et al. 2014. Trends in racial/ethnic disparities in influenza vaccination coverage among adults during the 2007–08 through 2011–12 seasons. *Am. J. Infect. Control* 42:763–69
97. Lyles CR, Karter AJ, Young BA, Spigner C, Grembowski D, et al. 2011. Patient-reported racial/ethnic healthcare provider discrimination and medication intensification in the Diabetes Study of Northern California (DISTANCE). *J. Gen. Intern. Med.* 26:1138–44
98. Manseau M, Case BG. 2014. Racial-ethnic disparities in outpatient mental health visits to U.S. physicians, 1993–2008. *Psychiatr. Serv.* 65:59–67
99. McWilliams JM, Meara E, Zaslavsky AM, Ayanian JZ. 2009. Differences in control of cardiovascular disease and diabetes by race, ethnicity, and education: U.S. trends from 1999 to 2006 and effects of Medicare coverage. *Ann. Intern. Med.* 150:505–15
100. Meyer OL, Saw A, Cho YI, Fancher TL. 2015. Disparities in assessment, treatment, and recommendations for specialty mental health care: patient reports of medical provider behavior. *Health Serv. Res.* 50:750–67



101. Miller JW, King JB, Joseph DA, Richardson LC. 2012. Breast cancer screening among adult women—Behavioral Risk Factor Surveillance System, United States, 2010. *MMWR* 61(Suppl):46–50
102. Min CJ, Ehrenthal DB, Strobino DM. 2015. Investigating racial differences in risk factors for primary cesarean delivery. *Am. J. Obstet. Gynecol.* 212:814.e1–14
103. Morales LS, Elliott MN, Weech-Maldonado R, Spritzer KL, Hays RD. 2001. Differences in CHAPS adult survey reports and ratings by race and ethnicity: an analysis of the national CAHPS benchmarking data 1.0. *Health Serv. Res.* 96:449–72
104. Mulia N, Tam TW, Schmidt LA. 2014. Disparities in the use and quality of alcohol treatment services and some proposed solutions to narrow the gap. *Psychiatr. Serv.* 65:626–33
105. Mulvaney-Day N, DeAngelo D, Chen C-N, Cook BL, Alegría M. 2012. Unmet need for treatment for substance use disorders across race and ethnicity. *Drug Alcohol Depend.* 125:S44–50
106. Murray E, Treweek S, Pope C, Macfarlane A, Ballini L, et al. 2010. Normalisation process theory: a framework for developing, evaluating and implementing complex interventions. *BMC Med.* 8:63
107. Natl. Quality Forum. 2012. *Healthcare disparities and cultural competency consensus standards*. Tech. Rep., Sept., p. 45. Natl. Quality Forum, Washington, DC
108. Ohtani A, Suzuki T, Takeuchi H, Uchida H. 2015. Language barriers and access to psychiatric care: a systematic review. *Psychiatr. Serv.* 66:798–805
109. Oraka E, Iqbal S, Flanders WD, Brinker K, Garbe P. 2013. Racial and ethnic disparities in current asthma and emergency department visits: findings from the National Health Interview Survey, 2001–2010. *J. Asthma* 50:488–96
110. Osborn CY, Cavanaugh K, Wallston KA, Kripalani S, Elasy TA, et al. 2011. Health literacy explains racial disparities in diabetes medication adherence. *J. Health Commun.* 16(Suppl. 3):268–78
111. Perdue DG, Chubak J, Bogart A, Dillard DA, Garrouette EM, Buchwald D. 2013. A comparison of colorectal cancer screening uptake among average-risk insured American Indian/Alaska Native and white women. *J. Health Care Poor Underserved* 24:1125–35
112. Polsky D, Richards M, Bassey S, Wissoker D, Kenney GM, et al. 2015. Appointment availability after increases in Medicaid payments for primary care. *N. Engl. J. Med.* 372:537–45
113. Powell BJ, McMillen JC, Proctor EK, Carpenter CR, Griffey RT, et al. 2012. A compilation of strategies for implementing clinical innovations in health and mental health. *Med. Care Res. Rev.* 69:123–57
114. Rhodes KV, Bisgaier J, Lawson CC, Soglin D, Krug S, Van Haitsma M. 2013. “Patients who can’t get an appointment go to the ER”: access to specialty care for publicly insured children. *Ann. Emerg. Med.* 61:394–403
115. Ribaldo HJ, Smith KY, Robbins GK, Flexner C, Haubrich R, et al. 2013. Racial differences in response to antiretroviral therapy for HIV infection: an AIDS Clinical Trials Group (ACTG) study analysis. *Clin. Infect. Dis.* 57:1607–17
116. Riegel B, Dickson VV, Topaz M. 2013. Qualitative analysis of naturalistic decision making in adults with chronic heart failure. *Nurs. Res.* 62:91–98
117. Robbins CL, Zapata LB, Farr SL, Kroelinger CD, Morrow B, et al. 2014. Core state preconception health indicators-pregnancy risk assessment monitoring system and Behavioral Risk Factor Surveillance System, 2009. *MMWR Surveill. Summ.* 63:1–62
118. Rodriguez HP, von GT, Grembowski DE, Rogers WH, Safran DG. 2008. Physician effects on racial and ethnic disparities in patients’ experiences of primary care. *J. Gen. Intern. Med.* 23:1666–72
119. Ross JS, Bradley EH, Busch SH. 2006. Use of health care services by lower-income and higher-income uninsured adults. *JAMA* 295:2027–36
120. Rowley DL, Hogan V. 2012. Disparities in infant mortality and effective, equitable care: Are infants suffering from benign neglect? *Annu. Rev. Public Health* 33:75–87
121. Ryan KK, Garrett-Mayer E, Alberg AJ, Cartmell KB, Carpenter MJ. 2011. Predictors of cessation pharmacotherapy use among black and non-Hispanic white smokers. *Nicotine Tob. Res.* 13:646–52
122. Sabatino SA, White MC, Thompson TD, Klabunde CN. 2015. Cancer screening test use—United States, 2013. *MMWR* 64:464–68
123. Sabik LM, Tarazi WW, Bradley CJ. 2015. State Medicaid expansion decisions and disparities in women’s cancer screening. *Am. J. Prev. Med.* 48:98–103



124. Sabin JA, Greenwald AG. 2012. The influence of implicit bias on treatment recommendations for 4 common pediatric conditions: pain, urinary tract infection, attention deficit hyperactivity disorder, and asthma. *Am. J. Public Health* 102:988–95
125. Saha S, Hickam DH. 2003. Explaining low ratings of patient satisfaction among Asian-Americans. *Am. J. Med. Qual.* 18:256–64
126. Saloner B, Lê Cook B. 2013. Blacks and Hispanics are less likely than whites to complete addiction treatment, largely due to socioeconomic factors. *Health Aff.* 32:135–45
127. Samuel CA, Landrum MB, McNeil BJ, Bozeman SR, Williams CD, Keating NL. 2014. Racial disparities in cancer care in the Veterans Affairs health care system and the role of site of care. *Am. J. Public Health* 104(Suppl. 4):S562–71
128. Schoen CR, Radley D, Riley P, Lippa J, Berenson J, et al. 2013. *Health Care in the Two Americas: Findings from the Scorecard on State Health System Performance for Low-Income Populations, 2013*. New York: Commonw. Fund
129. Schulman KA, Berlin JA, Harless W, Kerner JF, Sistrunk S, et al. 1999. The effect of race and sex on physicians' recommendations for cardiac catheterization. *N. Engl. J. Med.* 340:618–26
130. Shi L. 2000. Type of health insurance and the quality of primary care experience. *Am. J. Public Health* 90:1848–55
131. Siegel R, Naishadham D, Jemal A. 2013. Cancer statistics, 2013. *CA Cancer J. Clin.* 63:11–30
132. Simoni-Wastila L, Zuckerman IH, Shaffer T, Blanchette CM, Stuart B. 2008. Drug use patterns in severely mentally ill Medicare beneficiaries: impact of discontinuities in drug coverage. *Health Serv. Res.* 43:496–514
133. Skinner J, Chandra A, Staiger D, Lee J, McClellan M. 2005. Mortality after acute myocardial infarction in hospitals that disproportionately treat black patients. *Circulation* 112:2634–41
134. Smith JC, Medalia C. 2015. *Health Insurance Coverage in the United States: 2014. Current Population Reports, P60-253*. Washington, DC: US Dep. Commer., US Census Bur. <https://www.census.gov/content/dam/Census/library/publications/2015/demo/p60-253.pdf>
135. Soni AZ, Chava. 2014. *Experiences with health care providers during routine care, adult U.S. civilian noninstitutionalized population, 2011*. Stat. Brief 462, Agency Healthc. Res. Quality, Rockville, Md. [http://meps.ahrq.gov/mepsweb/data\\_files/publications/st462/stat462.pdf](http://meps.ahrq.gov/mepsweb/data_files/publications/st462/stat462.pdf)
136. Sood A, Abdullah NM, Abdollah F, Abouljoud MS, Trinh Q-D, et al. 2015. Rates of kidney transplantation from living and deceased donors for blacks and whites in the United States, 1998 to 2011. *JAMA Intern. Med.* 175:1716–18
137. Starfield B, Gervas J, Mangin D. 2012. Clinical care and health disparities. *Annu. Rev. Public Health* 33:89–106
138. Starfield B, Shi L, Macinko J. 2005. Contribution of primary care to health systems and health. *Milbank Q.* 83:457–502
139. Stark Casagrande S, Fradkin JE, Saydah SH, Rust KF, Cowie CC. 2013. The prevalence of meeting A1C, blood pressure, and LDL goals among people with diabetes, 1988–2010. *Diabetes Care* 36:2271–79
140. Tesler M. 2012. The spillover of racialization into health care: how President Obama polarized public opinion by racial attitudes and race. *Am. J. Polit. Sci.* 56:690–704
141. Trinh N-HT, Larocca R, Regan S, Chang TE, Gilman SE, et al. 2012. Using the electronic medical record to examine racial and ethnic differences in depression diagnosis and treatment in a primary care population. *Primary Health Care* 1:1000106
142. Tsai TC, Orav EJ, Joynt KE. 2014. Disparities in surgical 30-day readmission rates for Medicare beneficiaries by race and site of care. *Ann. Surg.* 259:1086–90
143. Umscheid CA, Gross R, Weiner MG, Hollenbeak CS, Tang SS, Turner BJ. 2010. Racial disparities in hypertension control, but not treatment intensification. *Am. J. Hypertens.* 23:54–61
144. van Ryn M, Hardeman R, Phelan SM, Burgess JD, Dovidio JF, et al. 2015. Medical school experiences associated with change in implicit racial bias among 3547 students: a medical student CHANGES Study Report. *J. Gen. Intern. Med.* 30:1748–56
145. Walker ER, Cummings JR, Hockenberry JM, Druss BG. 2015. Insurance status, use of mental health services, and unmet need for mental health care in the United States. *Psychiatr. Serv.* 66:578–84



146. Weech-Maldonado R, Morales LS, Elliott M, Spritzer K, Marshall G, Hays RD. 2003. Race/ethnicity, language, and patients' assessments of care in Medicaid managed care. *Health Serv. Res.* 38:789–808
147. West HC. 2010. *Prison inmates at midyear 2009—statistical tables*. NCJ 230113, June, Bur. Justice Stat., Dep. Justice, Washington, DC. <http://www.bjs.gov/content/pub/pdf/pim09st.pdf>
148. Wharam JF, Landon B, Zhang F, Xu X, Soumerai S, Ross-Degnan D. 2015. Mammography rates 3 years after the 2009 US Preventive Services Task Force guidelines changes. *J. Clin. Oncol.* 33:1067–74
149. Wharam JF, Zhang F, Xu X, Landon BE, Ross-Degnan D. 2014. National trends and disparities in cervical cancer screening among commercially insured women, 2001–2010. *Cancer Epidemiol. Biomark. Prev.* 23:2366–73
150. WHO (World Health Organ.). 2010. *The World Health Report. Health Systems Financing: The Path to Universal Coverage*. Geneva: WHO. [http://whqlibdoc.who.int/whr/2010/9789241564021\\_eng.pdf](http://whqlibdoc.who.int/whr/2010/9789241564021_eng.pdf)
151. Williams RL, Flocke SA, Stange KC. 2001. Race and preventive services delivery among black patients and white patients seen in primary care. *Med. Care* 39:1260–67
152. Williams WW, Lu PJ, O'Halloran A, Bridges CB, Pilishvili T, et al. 2014. Noninfluenza vaccination coverage among adults—United States, 2012. *MMWR* 63:95–102
153. Wilson DJ. 2000. *Drug Use, Testing, and Treatment in Jails*. Washington, DC: US GPO
154. Wooten KG, Wortley PM, Singleton JA, Euler GL. 2012. Perceptions matter: beliefs about influenza vaccine and vaccination behavior among elderly white, black and Hispanic Americans. *Vaccine* 30:6927–34
155. Ylitalo KR, Lee H, Mehta NK. 2013. Health care provider recommendation, human papillomavirus vaccination, and race/ethnicity in the US National Immunization Survey. *Am. J. Public Health* 103:164–69
156. Yoon SS, Gu Q, Nwankwo T, Wright JD, Hong Y, Burt V. 2015. Trends in blood pressure among adults with hypertension United States, 2003 to 2012. *Hypertension* 65:54–61
157. Zallman L, Ma J, Xiao L, Lasser KE. 2010. Quality of US primary care delivered by resident and staff physicians. *J. Gen. Intern. Med.* 25:1193–97