

ORIGINAL RESEARCH ARTICLES

Advancing a National Agenda to Eliminate Disparities in Pain Care: Directions for Health Policy, Education, Practice, and Research

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Abstract

Background. Pain is strongly associated with significant personal and societal costs. A crucial element of any initiative on pain must focus on eliminating pain care disparities that are pervasive throughout the United States health care settings.

Objectives. This report focuses on macro-level factors related to pain care disparities in the United States that may be amenable to policy interventions.

Methods. We identify concrete opportunities for achieving equity in pain care, especially those occasioned by recent legislative changes in the United States health care system. An aggressive policy, advocacy, and research agenda is synthesized in five domains: 1) structural/system; 2) policy and advocacy; 3) workforce; 4) provider; and 5) research.

Results. Inequities in pain care remain an important and neglected health policy concern. Many direct and indirect provisions within the Affordable Care Act (ACA) and other national initiatives that leverage on ACA offer opportunities to achieve equity in pain care. These include changes in insurance, in public, provider, and legislative education, in primary care and pain specialist training, improving workforce diversity, achieving uniformity in race/ethnicity data collection, emphasizing patient-centered outcomes research, and encouraging focus on pain care disparities within the comparative effectiveness research paradigm.

Conclusions. Recent national legislative initiatives within ACA are expected to generate multilevel efforts that will impact the flow of funding to address the pervasive issue of disparities. It is an opportune time for the pain community to take a lead in implementing a concerted agenda on pain care disparities in order to leverage these national initiatives.

Key Words. Pain; Disparities–Ethnic; Disparities–Racial; Pain Management; Pain Treatment; Policy; Advocacy; Legislation; Ethnic Disparities; Opioids; Analgesics; United States

Introduction

In 2000, Congress passed the Minority Health and Health Disparities Research and Education Act (P.L. 106-525) establishing National Institutes of Health's (NIH) National Center on Minority Health and Health Disparities (NCMHD; recently renamed as National Institute on Minority Health and Health Disparities, NIMHD) and charged the center with administering special grant programs focusing on disparities, coordinating minority health disparities research across NIH Institutes, and spearheading the development of an NIH-wide Strategic Plan on health

disparities. This effort resulted in unprecedented developments, including 27 NIH Institutes and Centers developing individual strategic agendas to eliminate health disparities. Some of these agendas recognized the importance of disparities in pain care.

At about the same time, the 106th United States Congress passed Title VI, Section 1603, of H.R. 3244 declaring the era starting 2000 as the “Decade of Pain Control and Research” [1,2]. Subsequent high-profile pain initiatives included the Veterans Pain Care Act of 2008 (H.R. 6122), Military Pain Care Act of 2008 (H.R. 5465), and the National Pain Care Policy Act of 2009 (H.R. 756/S.660), provisions from which were included in the Affordable Care Act (ACA) signed in to law by President Obama in March 2010 [3]. These high-profile initiatives placed pain on the national agenda as a major public health problem—one with real social and fiscal consequences. The problem of pain cuts across disease entities and treatment settings. According to recent estimates, 116 million American adults suffer from chronic pain; pain remains the principal reason for which people seek medical care [4,5]. Chronic pain is strongly associated with societal costs measured in terms of disability, poor quality of life, relational problems, lost income and productivity, and higher health care utilization including longer hospital stay, emergency room visits, and unplanned clinic visits. The burden to Americans are reflected in an enormous annual expenditure that ranges \$560–\$635 billion in direct and indirect costs [5]—a marked increase from the previously estimated cost of \$100 billion [6] and an estimated cost of employees’ chronic pain to businesses of \$61 billion [7]. Despite chronic pain’s concerning socioeconomic impact, many aspects of pain care, training, and research remain grossly under-resourced [8,9]. Only less than 1% of the NIH research budget is invested in pain and symptom management research [10] (Box 1).

A crucial element of any initiative on pain must focus on improving pain care for racial and ethnic minorities, poor, and other vulnerable populations. Significant racial and ethnic disparities exist throughout health care settings reflecting in both inequitable treatment and disparate pain care outcomes [11–15]. Almost a decade ago, the Institute of Medicine (IOM) report [16], “Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care,” compiled data on racial and ethnic disparities across disease conditions (including pain) and concluded that: “Racial and ethnic disparities in healthcare . . . are consistent across a range of medical conditions and healthcare services, are associated with worse health outcomes, and occur independently of insurance status, income and education, among other factors that influence accesses to healthcare” (p. 79). Subsequently, the 2006 IOM report, *Examining the Health Disparities Research Plan of the National Institutes of Health: Unfinished Business* [17], found that while NIH ranks health disparities third among its top five strategic priorities, important gaps still exist in areas of planning, coordination, comprehensiveness, and funding.

Box 1 Pain and disparities facts in perspective

Chronic pain affects 116 million American adults [5]; pain is the number one reason for which people seek medical care.

Pain strongly correlates with disability, poor quality of life, relational problems, lost income and productivity, and higher health care utilization.

The estimated expenditure in direct and indirect cost of pain ranges \$560–\$635 billion annually [5].

In contrast, less than 1% of the National Institutes of Health (NIH) research budget is devoted to pain and symptom management research [10].

No research has quantified the costs of pain treatment disparities but they are expected to be high given the pervasiveness of pain care disparities across health care settings [11–15,19–21].

The direct and indirect cost of overall health disparities, between 2003 and 2006, was estimated to be \$1.24 trillion [73].

In contrast, the total NCMHD budget for FY 2011 devoted to health disparities research, capacity-building, and outreach/dissemination is only \$219 million [154].

The total NIH budget across all NIH Institutes devoted to health disparities research is approximately \$2.8 billion [74].

Recent national initiatives such as National Partnership for Action to End Health Disparities [18] leverage provisions within the ACA (including elevation of NCMHD to an Institute status under Section 10334). Such initiatives are expected to generate multilevel efforts that will impact the flow of funding to address the pervasive issue of disparities. Nevertheless, health care disparities are mammoth problems that reach beyond broad policy and legislative efforts that are underway. If the latter efforts are to impact disparities in a meaningful way, it is important that the scientific community also takes a lead in developing a concerted agenda on health disparities in order to leverage these national initiatives.

This special report situates pain treatment disparities in the context of their impact on patients, health systems, and outcomes. We highlight opportunities for achieving equity in pain care, especially those occasioned by recent legislative changes in the United States health care system. This work is informed by a series of efforts by the pain community. In particular, Green and colleagues in 2003 published an influential article in *Pain Medicine*, “The unequal burden of pain: Confronting racial and ethnic

Table 1 Structural/system factors: Recommendations for change

#	Issues/Perspectives	Recommendations
A1	Poverty and racial/ethnic minority status are tied to both the experience of pain and the treatment of pain in the United States.	<ul style="list-style-type: none"> a. Federal agencies, such as the Centers for Disease Control, should invest in broad public education and primary prevention programs to target pain care disparities. b. ACA Health Insurance Reform and federal minimum standards for Medicaid income eligibility have implications for improving access. Pain community should pay close attention to how access to pain care can be improved within these broad reforms.
A2	Lack of insurance and underinsurance are the major structural barriers to achieving equity in pain care among poor and minorities.	<ul style="list-style-type: none"> a. Address meaningful access to effective pain care in health insurance reform. b. Understand how corporate risk management strategies, preferred medication lists, or other third-party payer systems widen racial/ethnic disparities pain treatment. c. Providers/health care entities should develop an easy-to-navigate system to assist use of patient assistance programs for obtaining medications.
A3	Individuals living in regions of poverty or racially segregated neighborhoods lack geographic access to pharmacies that carry opioids needed to relieve moderate to severe pain.	<ul style="list-style-type: none"> a. Establish a uniform policy of opioid availability such that risk management programs are geared to improving training, security, and transparency. b. Establish regulatory systems that oversee the acquisition, dispensing, and monitoring of opioids in ways that increase access without fear of regulatory action.
A4	Language barriers widen pain care disparities for racial and ethnic groups with limited English proficiency (LEP).	<ul style="list-style-type: none"> a. Uniform reimbursement models are needed for language and translation services that improve equity in access. b. Accreditation organizations must promote standards for the effective use of language and interpreter services; providers may not be trained to use interpreters effectively for optimal communication, even when good ones are available. c. Accreditation organizations must emphasize training specific to pain care, including defining the components of “meaningful language access” in the settings of pain treatment. These training programs should also focus specifically on processes that generate disparities.

ACA = Affordable Care Act.

disparities in pain” [14]. This critical review, generated by the members of the American Pain Society’s Special Interest Group on Pain Disparities, documented widespread racial and ethnic disparities in pain assessment and treatment across settings for all types of pain—acute, cancer, and chronic nonmalignant. The results underscored the complex sources of these disparities, citing contributing factors at the patient, health care provider, and system levels. The authors recommended that “a comprehensive pain research agenda is necessary to address pain disparities among racial and ethnic minorities” (p. 277). This paper was followed by a special supplement in *Pain Medicine*, co-edited by Carmen Green and Raymond Tait, devoted to pain care disparities (2005, volume 6, issue 1). The current work was part of a larger effort to synthesize issues around pain care disparities, which included a conference held in Philadelphia in October 2006, titled, “Racial/Ethnic Disparities in Pain Treatment: Converting Research to Policy.” The conference was organized under the auspices of the Center for Health Equity Promotion at the Philadelphia Veterans Affairs (VA) Medical Center and supported by an unrestricted educational grant. Invitees included key scientific and clinical investigators involved

in the conduct of pain disparities research, leaders from patient advocacy groups, bioethicists, and health policy makers. Subsequently, many authors have synthesized issues pertaining to pain treatment disparities [11,13,15,19–21].

This paper focuses on macro-level factors related to pain treatment disparities that may be amenable to policy interventions. We have organized this paper in five domains: 1) structural/system; 2) policy and advocacy; 3) workforce; 4) provider; and 5) research (see Tables 1, 5, 7, 8, and 9, respectively). In each domain, issues related to pain disparities are summarized and then followed by corresponding recommendations.

A. Structural/System Factors: Summary of Issues

A1. Poverty and Racial/Ethnic Minority Status are Tied to Both the Experience of Pain and the Treatment of Pain in the United States

Poverty and racial and ethnic minority status are tied to both the experience of pain and the treatment of pain in

Table 2 Pain disparities agenda is not explicitly or consistently identified in the advocacy mission of the prominent pain advocacy groups in the United States

Organization	Mission Statement
American Pain Foundation	The American Pain Foundation educates, supports, and advocates for people affected by pain . . . APF stands up with people living with pain, caregivers, health care providers and allied organizations, working together to dismantle the barriers that impede access to quality pain care for all.
American Pain Society (Advocacy arm)	The American Pain Society has identified a broad agenda of pain issues and advocates in numerous arenas to improve the care of patients with pain. The society's goals are to advance the treatment of people in pain by ensuring access to treatment, removing regulatory barriers, and educating practitioners and policy makers in all settings about advances and economics of effective pain treatment.
American Academy of Pain Management	The American Academy of Pain Management advances the field of pain management using an integrative model of patient-centered care, by providing evidence-based education for pain practitioners, as well as credentialing and advocacy for its members.
American Academy of Pain Medicine (AAPM) (Advocacy arm)	AAPM supports pain patients and pain medicine clinicians by advocating for a balanced approach to safe and effective treatment of pain. The academy recognizes the need for policies that support effective control of drug abuse without harming the appropriate treatment of pain and works with members and other pain societies to establish programs and to educate public along those lines.
American Society for Pain Management Nursing	The American Society for Pain Management Nursing advances and promotes optimal nursing care for people affected by pain by promoting best nursing practice. This is accomplished through education, standards, advocacy, and research.
The Mayday Fund	The Mayday Fund is dedicated to alleviating the incidence, degree, and consequence of human physical pain.

the United States. Poor and minority patients suffer more severe pain [22–24], pain-related disabilities, and physical impairments than nonminority patients [23,25]. They are more likely to demonstrate risk factors that mediate racial and ethnic disparities in the experience of pain and in its treatment, including chronic psychiatric and medical comorbidities, higher levels of psychological distress, lower educational levels, and insurance types (such as Medicaid) [23,24,26,27]. Racial and ethnic minorities, individuals with low socioeconomic status (SES), and those with limited English proficiency (LEP) are also likely to perform potentially harmful physical work, increasing their risks for disabilities related to occupational injuries [28,29]. Minorities, low SES, and uninsured patients are more likely to wait to receive care when sick, encounter delays in care, experience poorly coordinated care, experience avoidable hospitalizations, and demonstrate worse treatment outcomes [30]. They are also less likely to have accessible source of primary care [30], a setting where the majority of chronic pain is managed in the United States [31].

Specific to treatment, racial and ethnic minorities are less likely (than White people) to have their pain assessed [32,33] and are less likely to receive analgesia in virtually all health care settings in the United States, including emergency departments (EDs) [34–38], inpatient and postoperative pain settings [39–42] and outpatient, community, and nursing home settings [33,43–45]. They are also less likely than White people to receive opioids [36,37,46,47]

and selective nonsteroidal anti-inflammatory drugs (NSAIDs) for arthritis pain [48]. Furthermore, minorities are more likely to experience a step-down in analgesia at discharge from a hospital or emergency room [36,46,49] and encounter longer wait times in receiving analgesics [50,51].

A2. Lack of Insurance and Underinsurance are Major Structural Barriers to Achieving Equity in Pain Care Among Poor and Minorities

Lack of health insurance is the one of the major structural barriers to access to pain care in the United States. While existing laws such as Emergency Medical Treatment and Active Labor Act (EMTALA) allow access to EDs for screening and stabilization of emergent medical conditions [52], EDs are poor substitutes for primary care providers (PCPs) for individuals suffering from chronic persistent pain who need comprehensive sets of services to improve outcomes. Moreover, poverty, minority status, and insurance status overlap significantly in the United States. In 2010, 46.7 million Americans (15.4%) were uninsured and 59.1 million (19.5%) were in and out of insurance coverage for at least part of the previous year [53]. Of the uninsured, over one-third had less than a high school education, and over half were poor or near-poor (100–200% of poverty threshold) [53]. Of those who were in and out of insurance coverage, minorities represented about one-quarter of all individuals who were so affected. Given these data, it is not surprising that minorities report

Table 3 Specific Affordable Care Act provisions relevant to pain disparities agenda [3]

Section	Provision	Description
Sec. 4305. Advancing Research and Treatment for Pain Care Management	Institute of Medicine (IOM) Conference on Pain to:	<ul style="list-style-type: none"> • Increase recognition of pain as public health problem in the United States • Evaluate assessment, diagnosis, treatment of pain • Support disparities research in pain care • Plan to reduce barriers and improve education, research, clinical care • Train providers in pain care, including culturally and linguistically appropriate services
Sec. 409J. Pain Research	Pain Consortium and Interagency Pain Research Coordinating Committee	<ul style="list-style-type: none"> • <i>Pain Consortium</i> to expand program of research examining causes and treatments for pain and submit recommendations for appropriate research initiatives at least annually • <i>Interagency Pain Research Coordinating Committee</i> to coordinate all efforts within HHS and other Federal agencies related to pain research. The coordinating committee will: <ul style="list-style-type: none"> • Develop a summary of pain care research supported or conducted by Federal agencies • Identify research gaps • Generate recommendations to ensure no overlap in effort occurs • Make recommendations on dissemination as well as on expanding partnerships between public and private entities
Sec. 759. Program for education and training in pain care	Award grants, cooperative agreements, and contracts to health profession schools, hospices, and other public and private entities to develop education and training programs in pain care.	<p>Program will include education on:</p> <ul style="list-style-type: none"> • Recognized means for assessing, diagnosing, treating, and managing pain and related signs and symptoms • Laws, regulations, rules, policies on controlled substances, and how misconceptions and concerns create barriers • Interdisciplinary approaches to pain care, including specialized centers • Cultural, linguistic, literacy, geographic, and other barriers in underserved populations • Recent findings, developments, improvements in the provision of pain care

frequent emergency room utilization for the management of chronic pain [54], often at the expense of continuity of care.

The insurance industry's focus on cost-containment and profitability extends the barrier of underinsurance to those with *any* insurance through tactics that result in failure to reimburse services and medications despite evidence-base for clinical or cost-efficiency [55]; a good example is "carving out" of important services from interdisciplinary pain treatment programs [55,56]. Thus, insurance companies define the type and quality of pain care individuals receive in the United States. While all insurance-funded care in the United States is managed care, it is well-documented that poor and minority patients are more likely to be in those managed care environments that impose stringent limits on referrals and out-of-network access [57]. Such systems directly impact access to specialist pain services, as studies have found that more out-of-network benefits allow greater access to pain specialists and the interdisciplinary programs that are effective in chronic pain [58]. While patients in restrictive managed

care plans can self-refer, those plans impose financial penalties for self-referrals, a practice that disproportionately affects poor and underinsured patients [58].

Many direct and indirect provisions in the ACA have implications for improving access and quality of care for poor, uninsured, and underinsured. These include the Health Insurance Reform provisions, as well as establishing uniform federal criteria for Medicaid income eligibility, expanding it to 133% of the federal poverty line (Section 2001). The pain community should pay close attention to how access to appropriate and effective pain care can be improved for the underserved populations within these broader reforms.

A3. Individuals Living in Regions of Poverty or Racially Segregated Neighborhoods Lack Geographic Access to Pharmacies that Carry Opioids Needed to Relieve Moderate to Severe Pain

Minorities and poor patients in the United States live predominantly in geographic areas that constrain their access

Table 4 Indirect Affordable Care Act provisions relevant to pain care disparities agenda [3]

Provision	Section #
Train PCPs in cultural competence	5301
Develop and evaluate models of cultural competence curricula	5307
Support collaborative research on topics including cultural competence	5307
Require population surveys, Medicaid and CHIP, no later than 2013, to collect and report data on race, ethnicity, and primary language	4302
Establish Patient-Centered Outcomes Research Institute (PCORI) to examine health disparities through comparative effectiveness research	6301
Incentivize payments for reducing health care disparities	1303
Standardize drug labeling, including risks and benefits	3507

PCPs = primary care providers.

to needed health care, regardless of insurance status. Regional surveys of pharmacies in the United States have found stark differences in opioid availability by the SES and racial configurations of neighborhoods [59,60]. For instance, Green et al. investigated the availability of opioids in randomly selected pharmacies across the state of Michigan and found that pharmacies in predominantly white zip codes (>70% White people) were 54 times more likely to have sufficient opioid analgesic supplies than pharmacies in predominantly minority zip codes [60]. Similar results were reported in an earlier study of pharmacies in the five boroughs of New York City [59]. While pharmacies in both studies reported that “low demand” was the main reason for not stocking such opioids, the investigators found little evidence to support that explanation as minor geographical variation in prevalence of persistent pain disorders, if they exist, would not explain the difference. Other reasons for having inadequate opioid supplies had more credibility, including the fear of theft, fraud, and illicit use, as well as regulations and additional paperwork required by state and federal drug-enforcement agencies [59,60].

Another study of pharmacists in New Mexico found that pharmacists working for “chain pharmacies” were more likely to express apprehension toward dispensing certain types of opioids for pain treatment, frequently citing fear of forgery as a reason for that apprehension [61]. Together, these findings point to the role of corporate policies and varied regulatory requirements as contributing to the under-stocking of opioids [61,62]. Unfortunately, these factors differentially impact populations with selected social characteristics (e.g., racial and ethnic minorities).

A4. Language Barriers Widen Pain Care Disparities for Racial/Ethnic Groups with LEP

As pain is a subjective phenomenon, all pain management is socially situated, generally using some form of communication as a vehicle for symptom presentation. About 24 million Americans have LEP [63], qualifying them for protections under Title VI of the Civil Rights Act of 1964. This act prohibits discrimination in persons with LEP. While the act requires all recipients of federal financial assistance to provide meaningful language and interpretation access to individuals with LEP, there is no uniform federal payment policy for language interpretation/access. Hence, states use heterogeneous methodologies for determining costs and reimbursement [64]. Furthermore, Title VI requires federal agencies to implement a system that provides “meaningful language access,” including and beyond language interpretation, but these language accommodation programs are not consistently available or comprehensive [65–67] and do not apply to private practitioners who do not accept Medicare or Medicaid reimbursements. All of these factors create the potential for disparities in pain care for persons with LEP.

Persons with LEP, invariably racial and ethnic minorities, report difficulty navigating the system and communicating with providers even when access to services is not a factor [68]. Like education and income, LEP is also a social class variable in the United States that potentially contributes to pain care disparities. Individuals with LEP are likely to perform more hazardous work, report higher rates of work-related injuries and consequent disabilities [29], as well as worse health status and access to care [69,70]. A study of claimants with nontraumatic low back disorders by language preference found that claimants who preferred the Spanish language received less back surgery compared with those with English language preference. Furthermore, employers were more likely to protest a compensable claim from Spanish- than English-speaking individuals. Patients with LEP have also been found to report less satisfaction with medical encounters, have disproportionately lower rates of diagnostic testing, and receive less explanation and follow-up from health care providers when compared with English proficient patients [71]. In a study conducted with a nationally representative sample of African Americans, Hispanics, and White people, low access to chronic pain care was independently associated with Hispanic ethnicity, regardless of financial concerns [72] (Table 1).

B. Policy and Advocacy: Summary of Issues

B1. Pain Undertreatment is a Public Health Problem with Social and Fiscal Consequences and Should Be Addressed in the Current Policy Debates

The direct and indirect cost of health disparities, between 2003 and 2006, was estimated to be \$1.24 trillion [73], compelling us to think of disparities not only from a moral perspective but also with a public health lens. In contrast, NIH research funding across “all” institutes that is devoted

Table 5 Advocacy and policy: Recommendations for change

#	Issues/Perspectives	Recommendations
B1	Pain undertreatment is a public health problem with social and fiscal consequences and should be addressed as such in the current policy debates.	<ul style="list-style-type: none"> a. Develop an alternative framework for understanding and addressing disparities (e.g., disparity as a “medical error” within the quality of care paradigm). b. Set corresponding quality assurance standards for pain treatment (e.g., through Centers for Medicare and Medicaid Services or National Quality Forum). c. Include measures of disparities as part of PPSG statewide pain report cards.
B2	Broad legislative and regulatory efforts are underway to address the national prescription opioid misuse epidemic. Heightened regulatory fears may translate into systematic bias and under-prescription of pain medications for certain vulnerable groups.	<ul style="list-style-type: none"> a. The issues of pain undertreatment and opioid diversion/misuse have reached epidemic levels in the United States. Both problems have real personal, social, and fiscal consequences. Providers, legislators, and regulators must work together to <i>balance</i> these concerns. b. Anticipate and address systematic bias in under-prescription for certain groups that can result from regulatory surveillance programs (e.g., Prescription Monitoring Programs (PMP), and Risk Evaluation and Mitigation Strategies [REMS], etc.). c. Educational campaigns for stakeholders and providers, such as “Look at the Data Campaigns,” to encourage data-driven decision making. d. Develop educational programs to focus not only on opioid risk mitigation but also on principles of effective pain management and the judicious use of opioids for pain treatment. e. Educate legislators, regulators, and providers that an increase in opioid prescription rate is not a necessary consequence of good pain management.
B3	Pain advocacy groups strive to address the issue of undertreatment of pain, but an agenda to eliminate pain treatment disparities continues to be underemphasized.	<ul style="list-style-type: none"> a. Pain advocacy groups should unite on issues of common interest, such as disparities in pain care. b. A pain disparities agenda should be articulated in the missions of leading pain advocacy organizations. c. Innovative advocacy models are needed to aggressively engage key stakeholders in discussing issues and generating solutions.
B4	Targeted educational campaigns and public health “pain disparities” marketing programs are missing from pain advocacy campaigns.	<ul style="list-style-type: none"> a. Institute public health marketing campaigns for disparities similar to “Ask me if I’ve washed my hands” and The Joint Commission’s SPEAKUP™ [85].
B5	ACA has provisions that pertain directly and indirectly to ameliorating pain treatment disparities. The challenge for the pain community is how to leverage these opportunities.	<ul style="list-style-type: none"> a. Pain medicine professionals, pain disparities researchers and patient advocacy groups must consider all opportunities provided by the ACA and National Partnership for Action to End Health Disparities [18] initiatives to ameliorate pain treatment disparities. b. Focus attention in existing forums (e.g., American Pain Society’s Pain Disparities Special Interest Group). c. Need to encourage focus on pain treatment disparities in Comparative Effectiveness Research.

ACA = Affordable Care Act; PPSG = Pain and Policy Studies Group.

to disparities research is about \$2.9 billion [74,75]. Thus, the cost of disparities, including those associated with pain, far exceeds the resources made available to address them. This makes a case for a paradigm shift toward approaching pain disparities within a public health primary and secondary preventative lens focusing on reducing the incidence of injuries and medical conditions causing pain

and on early access to effective pain care for prevention of persistent pain and related disability.

While the cost of racial and ethnic disparities related to pain undertreatment remains unspecified, it is likely to contribute significantly to the overall fiscal burden. Unrelieved pain afflicts more Americans than such chronic

morbidities as heart disease, cancer, and diabetes combined [76], making it the single most common reason for which people seek medical care [4]. Chronic pain also correlates with disability, poor quality of life, relational problems, lost income/productivity, and higher health care utilization (e.g., longer hospital stays, more emergency room visits, and more unplanned clinic visits).

Studies have found that minority patients often experience pain for many years before being seen by pain specialists [27,77]. For instance, Green et al. found that minorities receiving chronic pain care at a tertiary pain center believed that they should have been seen in a pain clinic sooner. Moreover, they reported frequent emergency room use for chronic pain management in the years prior to their tertiary care referral [54]. It is important to note that the latter study and most existing studies pertain to patients who are already in the system and fulfill referral criteria set by PCPs. Hence, these data shed little light on patients who do not have resources to access the system [77].

Counterintuitively, low income has been found to be an independent predictor of higher direct cost related to pain treatment [78]. Although reasons for this have not been directly investigated, people in lower income brackets may be less able to pay for preventative/early pain treatment, rendering them more vulnerable to pain crises and more costly treatments that require hospitalization [78]. Clearly, the latter pattern reflects increased health care costs to society when patients lack access and are not treated effectively in a timely manner.

B2. Broad Legislative and Regulatory Efforts are Underway to Address the National Prescription Opioid Misuse Epidemic. These Heightened Regulatory Fears May Translate into a Systematic Bias and Under-Prescription of Pain Medications for Certain Vulnerable Groups

In recent years, prescription drug abuse has claimed more lives than illicit drugs in the United States. In 2007 alone, there were over 38,000 drug-induced deaths, mostly attributable to the unintentional overdose of prescription pain medications [79]. The need for balanced pain control and diversion policies is evident and is reflected in several recent national strategic actions. On April 19, 2011, the Obama administration announced a comprehensive plan to address the national prescription drug abuse epidemic. That plan mandates education of the medical community regarding proper opioid prescribing practices [80]. In addition, regulatory efforts are underway to reduce the risk of opioid misuse and diversion, including the prescriber education component of the opioid risk evaluation and mitigation strategy (REMS) and expansion of state-based prescription drug monitoring programs. Presently, 48 states and one territory either having an operative prescription monitoring program (PMP) or have passed legislation to implement such a program [81], although not all states passing legislation enacting PMP have actually funded it.

In the context of pain treatment disparities, concerns arise when heightened regulatory fears translate into a *system-*

Box 2 “Look At The Data” Campaign: What all providers and stakeholders should know about race ethnicity and prescription/illicit drug abuse [79,82,155]

Black people and Hispanics are “less” likely than White people to misuse “prescription” opioids.

The rate of “any illicit drug” use among persons aged 12 or older is “not” significantly different between Black and White people and is much lower among Hispanics and Asians.

The overall rates of drug-induced deaths are highest among non-Hispanic White people.

atic bias that applies to *certain groups more than others*. This systematic bias arises mainly due to stereotypes about certain groups as having more prescription drug abuse problem (e.g., selected racial minorities). A well-developed body of research attests to such systematic provider bias. As noted earlier, minorities, especially Blacks and Hispanics, are less likely to receive opioids for similar pain conditions and suffer more pain-related disabilities. Indeed, most providers believe that the illicit drug problem is significantly higher among minorities, although data point otherwise [82]. Studies using nationally representative data sets have found that White people are more likely than Blacks to misuse “prescription opioids” [82]. Consistent with these findings, a recently released Centers for Disease Control (CDC) report also found that the highest rates of drug-induced deaths are among non-Hispanic White people [79]. The rate of “any illicit” drug use among persons aged 12 or older is also not significantly different between Black and White people (9.6% vs 8.8%, respectively) and is much lower among Hispanics and Asians (7.9% and 3.7%, respectively). Despite this evidence, racial and ethnic minorities continue to receive suboptimal pain treatment and are subject to more opioid risk reduction strategies such as urine drug testing and restricted early refills [83].

Thus, there is clear evidence of the need for broad advocacy initiatives such as “*Look at the Data Campaigns*,” especially targeted at providers to sensitize them to their blind spots that contribute to inequitable pain care (Box 2). In addition, it is important that such recent initiatives as the Office of National Drug Control policy to address the national prescription drug abuse focus both on risk mitigation and improved, culturally sensitive, data-driven training of both PCPs and pain medicine specialists [8].

B3. While Pain Advocacy Groups Strive to Address Undertreatment of Pain, Pain Treatment Disparities Continue to Be Underemphasized in Most Pain Advocacy Programs

Recent legislative initiatives attest to the power of advocacy in improving pain care, including the National Pain

Table 6 The central role of primary care providers (PCPs) in patient-centered medical home: Implications for pain care disparities

Section 3502. Health Teams and Patient-Centered Medical Home

A medical home is a mode of care that includes:	<ul style="list-style-type: none"> • Personal physicians • Whole person orientation • Coordinated and integrated care • Evidence-informed medicine and appropriate health information technology • Expanded access to care
PCPs are required to:	<ul style="list-style-type: none"> • Provide a care plan for each patient • Provide access to health records • Meet regularly with the care team to ensure integration of care
Health team and entities are required to:	<ul style="list-style-type: none"> • Establish a contract with the PCPs • Support patient-centered medical homes • Collaborate with existing entities to coordinate disease prevention and chronic condition management initiatives • Develop and implement interdisciplinary care plans that integrate clinical and community preventive services • Provide 24-hour care management and support during transitions in care settings • Serve as liaison to community prevention and treatment programs • Include a variety of health care disciplines within the team • Agree to provide services to individuals with chronic conditions

Care Policy Act of 2009 (S660). Such initiatives serve to put the pain care agenda on the national scene. The Act, in particular, was a culmination of actions undertaken by several advocacy organizations. Several components of this Act subsequently were included in the Patient Protection and Affordable Care Act (in Section 4305 of the Health Insurance Reform Legislation) [3].

While pain advocacy organizations have served as catalysts for addressing the undertreatment of pain, the issue of disparities in pain care is not explicitly articulated in the broader mission of most leading pain advocacy organizations (Table 2). The lack of a united agenda related to issues such as disparities in pain care undercuts work that is needed related to professional standards, provider education, and patient and system outcomes. All advocacy groups must advocate for the elimination of pain care disparities, improved access to evidence-based treatments for all patients, as well as unite against special interests groups that undermine these goals.

There is also a need for innovative advocacy models that aggressively engage key stakeholders in discussing issues and generating solutions. For instance, the Center for Practical Bioethics has taken a rather unconventional approach to pain advocacy through a national campaign to engage local “leaders.” Since the summer of 2010, The Pain Action Initiative: A National Strategy (PAINS) conducted five roundtable discussions with key stakeholders in five major cities of the United States to gather data on those living with, treating, legislating about, and/or regulating pain care. Information from the five

roundtable discussions was synthesized into a report that will serve as a roadmap for targeted advocacy and educational initiatives [84]. This approach may serve several purposes: to create awareness, to assess readiness for change among individual leaders and organizations, to mobilize resources toward developing ground-up action and advocacy plans, and to energize stakeholders at the local level. More interestingly, pain treatment disparities emerged as one of the issues in the PAINS report, offering an opportunity for the pain disparities community to engage in developing a national strategy.

B4. Targeted Educational Campaigns and Public Health “Pain Disparities Marketing Programs” Are Missing from Pain Advocacy Campaigns

The treatment of pain requires both communication and *negotiation* between patients and providers. Targeted advocacy campaigns similar to “*Ask me if I’ve washed my hands*” and The Joint Commission’s SPEAKUP™ [85] can educate patients and the public in ways that can bring about change in the culture of pain treatment. For instance, a simple message campaign such as “*Is my pain well-managed?*” may empower patients to expect appropriate treatment and to hold providers accountable for mismanaged pain. While such a campaign may appear to run counter to national initiatives to curb opioid prescription rates, however, the goal would not be to increase the rate of opioid prescriptions, but to encourage good pain management principles following biopsychosocial model of pain care. Thus, to attain optimal outcomes, integrated pain management tailored to patient preferences may include the appropriate use

Table 7 Workforce-related factors: Recommendations for change

#	Issues/Perspectives	Recommendations
C1	Minorities are severely underrepresented in health provider workforce in the United States.	a. Health Resources and Services Administration (HRSA), specifically its Bureau of Health Professions, should work with health professional schools (medicine, nursing, pharmacy, dentistry, psychology, and social work), public or private hospitals, and accrediting organizations to implement innovative strategies to recruit, mentor, and retain health professionals from diverse racial, ethnic, and socioeconomic backgrounds.
C2	Primary care provider (PCPs), who manage the majority of chronic pain in the United States, lack training in managing complex pain patients.	a. Recommendation (C1-a) should include a specific focus on primary care as PCPs are more likely to manage and coordinate pain care than any other provider in the health system. b. Targeted education and training in pain treatment disparities should be emphasized in both graduate medical education (GME) and continuing medical education (CME), as well as in licensure, accreditation, and certification programs for medicine, nursing, and allied health professions.
C3	PCP knowledge and training in pain management is increasingly relevant in the context of emerging models such as Medical Home that designates PCPs with central responsibility for providing and coordinating patients' health care.	a. Federal agencies such as Centers for Medicare and Medicaid Services, the United States Department of Veterans Affairs, Department of Defense, and private agencies such as the Joint Commission and National Quality Forum should establish and advance standards for adequate pain management as a quality of care indicator and use it as a component of evaluating patient outcomes.
C4	One in four actively practicing physicians in the United States is an International Medical Graduate (IMG). The pain practice needs of this large and important element of the physician workforce has been absent from scientific inquiry or policy initiatives.	a. Targeted training (C2-b) in pain care disparities should apply to all IMGs as they are more likely to work with minorities, the underserved, and those in primary care shortage areas.

of one or more of numerous types of treatment, including physical therapies, behavioral strategies, other more mechanism-specific medications (e.g., for neuropathic pain disorders), and complementary and alternative treatments. In addition, evaluation and management of comorbidities, such as depression or anxiety, psychological factors such as catastrophizing, social factors such as family or work stress, and occupational factors such as ergonomics all may contribute to optimizing outcomes [86].

Thus, it will be important to educate legislators and regulators that an increase in opioid prescribing rates is not a necessary consequence of good pain management and, indeed, may indicate a lack of access to more comprehensive and effective pain management. It should also be evident that public education should go hand in hand with provider education and training on these principles of good pain management and the reality of pain undertreatment among minorities and underserved.

B5. The Patient Protection and ACA Has Provisions that Pertain Directly and Indirectly to Ameliorating Pain Treatment Disparities. The Challenge for the Pain Community Is How to Shape as Well as Leverage These Opportunities

The ACA has explicit provisions in Section 4305 that directly pertain to reducing disparities in pain treatment through support for disparities research and for training providers in the delivery of culturally and linguistically appropriate pain care services (Table 3). In addition, other ACA provisions indirectly support the pain disparities agenda through mandating uniformity in racial and ethnic data collection, improving workforce diversity, emphasizing patient-centered outcomes research, and supporting research on cultural competence (Table 4). This is indeed an important step forward in situating pain disparities within the larger plan for health care reform. The challenge for the pain community is how to leverage these emerging opportunities to implement the vision or retain this important momentum (Table 5).

C. Workforce-Related Factors: Summary of Issues**C1. Minorities Are Severely Underrepresented in the United States Health Provider Workforce**

Diversity plays direct and indirect roles in improving meaningful health care access among minorities and underserved. Minority providers, including international medical graduates, are more likely to serve minority and underserved populations [87]. Minority providers also play a role in improving language access among LEP patients and may be more sensitive to individuals of various cultures and backgrounds. While the precise role of cultural diversity and mechanisms via which it impacts outcomes remain under-investigated in the pain literature, some literature suggests that physicians of diverse backgrounds may bring unique characteristics to the physician–patient interaction. In a recent study, Heins et al. [88] investigated the association between patient–provider characteristics and reduction in pain intensity scores among patients presenting to 20 EDs across the United States and Canada. The investigators found that treatment by a physician of non-white race was the strongest predictor of reduced pain intensity. More interestingly, non-white physicians (a group comprising of African Americans, Hispanics, Asian Americans, and others) achieved better pain control while prescribing opioids at lower rates than white physicians. These results led the authors to conclude that characteristics of the physician–patient interaction, rather than specific pharmacological treatments, influenced the outcomes [88].

Unfortunately, minorities are severely underrepresented in health provider workforce in the United States. For instance, only 3.5% of the physician workforce is Black people/African American, and only 4.9% are Hispanics [89]. Similar trends are noted in the nursing workforce: only 16.8% of registered nurse workforce is from a racial and ethnic minority group [90]. Of these, only 5.8% are Black people/African American and only 3.6% are Hispanics [90].

C2. PCPs, Who Manage the Majority of Chronic Pain Patients in the United States, Lack Training in Managing Complex Pain Patients

The majority of pain treatment in the United States occurs in primary care settings [31,58]. Pain is generally under-assessed in primary care [91], and minority patients, especially Black people, are at risk for pain under-assessment and treatment, as well as the use of disproportionate risk management strategies by PCPs [83]. Staton et al. investigated factors related to underestimation of chronic non-cancer pain by physicians in 12 primary care centers [32]. PCPs were significantly more likely to underestimate pain in Black people compared with all other ethnicities.

This evidence is unfortunate as primary care offers the best opportunity for early identification of patients at risk of developing chronic, persistent pain and long-term disability [92]. Not surprisingly, models for clinical and cost-

effective pain treatment in primary care are currently lacking [93]. Of course, such treatment is complicated by the presence of physical and psychological comorbidities, both of which have been identified as important correlates of comorbid pain [94,95], disability [96], and increased cost of pain care in primary care settings [93,97,98]. Moreover, such comorbidities disproportionately affect minorities. PCPs may lack knowledge of specific pain syndromes [99] and/or of risk management with opioids [100–104]. Data from several studies reflect these issues: 73% of PCPs in a VA setting expressed moderate–strong agreement that patients with chronic pain are a major source of frustration and 38% reported significant levels of dissatisfaction with their ability to provide optimal pain relief [105]. Other studies have suggested that PCPs who are less confident about using opioid analgesics are significantly less likely to identify pain as a clinical priority and are more likely to believe that patients with chronic pain should see a specialist [106].

C3. PCP Knowledge and Training in Pain Management Is Increasingly Relevant to Emerging Models Such as the Medical Home, Where PCPs Have Central Responsibility for Providing and Coordinating Patients' Health Care

Legislative initiatives to reform health care and various demonstration projects [107–109] place strong emphasis on improving primary care services and coordination by implementing Patient-Centered “Medical Home” (PC-MH) models. PC-MH models are based on the principles of accessibility, continuity, and care coordination, which offer an encouraging alternative to current gatekeeper models of primary care. Unlike the gatekeeper model that rewards less care, the medical home model rewards “quality” and “patient-centeredness” while encouraging efficiency.

The core feature of a PC-MP is its central management by PCPs, who facilitate, manage, and coordinate patient-centered care across all levels, including referrals to and care provided by specialists. By assigning PCP responsibility across all aspects of patient care, the model encourages more effective, equitable, and efficient health care delivery [108]. Moreover, Section 3502 of ACA (Establishing community health teams to support the patient-centered medical home; Table 6) designates PCP responsibility for “. . . all stages of life: acute care; chronic care; preventive services; and end of life care” [3].

The development of the PC-MH model is promising for pain care as the “intensive involvement of single physician” has been found to be the single most important factor in improving chronic pain outcomes [110]. While the model is promising, it also raises some concerns, especially when PCPs lack familiarity with and knowledge of pain syndromes or opioid risk management. The models that center on the role of PCPs [111], such as the stepped care model that is now being implemented by Directive in the Veterans Health Administration [112], necessitate, first and foremost targeted training and education of PCPs in pain care and pain treatment disparities [113,114] as well

Table 8 Provider level factors: Recommendations for change

#	Issues/Perspectives	Recommendations
D1	Education and training in promoting equitable pain care does not match the needs of providers across various types, levels, and settings.	<ul style="list-style-type: none"> a. Consistent with recommendation C2-b, there is a need for a roadmap for undergraduate, graduate, and postgraduate educational models to match the training needs across provider types and levels. b. Targeted education and training in pain treatment disparities should be emphasized in both graduate medical education (GME) and continuing medical education (CME), as well as in licensure, accreditation, and certification programs for medicine, nursing, and allied health professions. c. The above programs should strategically target providers who are more likely to manage chronic pain, minorities, and the underserved (e.g., PCPs and IMGs).
D2	Effective models of cultural diversity training must be developed, implemented, and evaluated.	<ul style="list-style-type: none"> a. Successful models of cultural diversity training must make training “feel relevant” to individual providers. b. If research can demonstrate that the training leads to improved patient outcomes, then the incentives under the ACA may support the relevance to providers. c. Training and continuing education programs should equip health providers with tools to identify and address explicit and implicit biases in practice.
D3	Conceptual models capable of explicating factors that occasion disparities in pain treatment and medical judgments are lacking.	<ul style="list-style-type: none"> a. Research is needed urgently for developing and evaluating models and best practices that can improve patient–provider communication, shared-medical decisions, and patient-centered pain care.
D4	While best practices and models are needed, misguided models toward improving patient provider interaction may not serve to advance the goals of equitable pain care.	<ul style="list-style-type: none"> a. An idea or best practice model calling for policy change must meet scientific, pragmatic, and normative criteria. An idea or model that falls short of fulfilling any of these criteria should be questioned vigorously by the scientific community.

ACA = Affordable Care Act.

as improved training of pain medicine specialists in evaluating and managing these complexities.

Thus, for the newer PC-MH model to be effective, targeted PCP training and education in pain care is needed. As the PC-MH model is incentivized to reward care coordination and patient outcomes, it is also in the best interest of PCPs to improve equity in pain management. Equity, of course, involves sensitivity to treatment disparities and the appropriate use of referrals to improve outcomes across all subgroups. While the Medical Home model has been applied in many health care settings, its impact on improving pain care has not yet been realized or measured.

C4. One in Four Actively Practicing Physicians in the United States Is an International Medical Graduate. The Pain Practice Needs of This Large and Important Element of Physician Workforce Have Been Absent from Scientific Inquiry or Policy Initiatives

International Medical Graduates (IMGs) are physicians who have graduated from medical schools outside the

United States. Their practices account for one-quarter of all visits to office-based physicians in the United States. They are also more likely to work in primary care settings, including primary care shortage areas outside of metropolitan areas [87]. IMGs tend to work with poor and medically underserved populations [115] who are at higher risk for developing persistent pain [116].

Unique barriers to practice exist for this significant workforce [117]. In the specific setting of pain management, barriers to analgesic availability and the use in IMG source countries, coupled with low standards for pain management, may contribute to a lack of foundational training with acute and chronic pain management [117].

While IMGs in the United States represent 127 countries [118], the majority are from developing countries. For instance, India is the largest source country for the United States IMGs, supplying 20% of the IMGs in the United States. A report by the Human Rights Watch, *Unbearable Pain* [119] based on interviews with different patients, physicians, and regulators presented a concerning picture of pain management across the Indian

states investigated. Consistently, a survey of Pakistani physicians from general medicine and surgery at teaching hospitals found a serious lack of knowledge of cancer pain management. For instance, when asked about the oral analgesia of choice in terminal cancer pain, 50% were not able to offer an answer, 20% identified NSAIDs as the oral analgesic of choice; only 13% identified oral opioids of an agent of choice for terminal cancer pain [120].

Macro-level factors in the source countries may also contribute to a lack of experience with analgesic pharmacotherapy among IMG physicians [117]. In 2007, the population-adjusted amount of morphine available in the United States was 76.73 mg/capita. This contrasts with the developing world, where only 0.61 mg/per capita was available for patients in India, 0.17 mg/capita in the Philippines, 0.34 mg/capita in Mexico, and 0.03 mg/capita in Pakistan [121]. Hence, many IMGs may have prescribed an opioid analgesic only rarely, much less have ordered patient-controlled analgesia for acute pain management or a sustained release preparation [117]. Unfortunately, such inexperience can be compounded by conditions in the United States, currently characterized by a lack of education and training in pain management, growing concerns about prescription drug abuse, fear of drug-enforcement agencies, and a litigious culture. Equally unfortunate, IMG-related issues in pain practice have been unattended, both from a scientific and from a policy perspective [117]. Indeed, existing credentialing requirements do not assess for challenges presented by the United States health care system that are unique to IMGs (Table 7).

D. Provider Factors: Summary of Issues

D1. Provider Education in Promoting Equitable Pain Care Does not Match the Needs of Providers Across Various Types, Levels, and Settings

The debate surrounding cultural diversity training typically focuses on changing the health professional curriculum [122–125]. These models of education offer ways to transform existing academic learning so that students are better prepared to meet the challenges they face in reducing inequities in care. While curricular changes are much needed, such change does not address the needs of health professionals who are already in practice. Furthermore, such changes would not impact the training of physicians, nurses, and other health professionals who graduated from schools in other countries. Thus, postgraduate educational models are needed to meet the training needs of providers across levels and practice settings. Targeted education and training is especially important for strategic segments of health providers such as PCPs and IMGs, for reasons discussed previously. State licensing agencies (e.g., the Federation of State Medical Boards) could take a leadership role in evaluating models for postgraduate education on providing equitable pain care. The best and most promising models could then be disseminated throughout the membership.

Box 3 Provisions in Affordable Care Act relating to cultural competence

Provision	Section #
Training primary care providers in cultural competence	5301
Developing and evaluating models of cultural competence curricula	5307
Supporting collaborative research on topics including cultural competence	5307

The ACA has specific provisions focusing on developing and evaluating models of cultural competence training over the next five years. These provisions include training PCPs in cultural competence, as well as loan repayment programs that will give preference to culturally competent individuals (see Box 3).

The specific training needs for international medical and nursing graduates, who need transitional training to operate effectively in the United States health care system, should be evaluated. This likely will require partnering with agencies such as the Educational Commission for Foreign Medical Graduates and the Commission on Graduates of Foreign Nursing Schools. These agencies establish credential equivalence for foreign medical and nursing graduates, respectively. Another partner could be the Foundation for the Advancement of International Medical Education and Research, which promotes excellence in international health profession education through programmatic developments and research activities.

D2. Effective Models of Cultural Diversity Training Must Be Developed, Implemented, and Evaluated

Most providers do not believe that cultural competence training applies to them. Rather, they believe that their treatment decisions are free from bias and/or stereotypes (such as those associated with race/ethnicity). This disconnect between perception and reality is a likely consequence of implicit (i.e., intuitive) processes that can influence clinical judgments. These processes occur almost automatically, so that they generally operate outside the range of conscious decision making [126]. Nonetheless, such processes can bias clinical decisions. For instance, one study revealed an implicit preference for favoring white patients and an implicit stereotype for disfavoring black patients, despite the fact that the participating physicians expressed “no explicit preference” for treating white vs black patients [127]. That study also demonstrated a direct relationship between physicians’ pro-White implicit bias and their likelihood of offering more treatment to whites and less treatment to Black people [127].

Efforts to address the effects of such implicit biases in medical decision making have been largely educational in

nature. Much of that training has been directed at physicians in training, and the results suggest that such training programs have been reasonably successful in cultivating sensitivity toward gender, racial and ethnic diversity, and socioeconomic status, effectively reducing inequities in care [128]. In fact, a follow-up study of the impact of a medical education program in disparities demonstrated a higher likelihood for participants to serve underrepresented minorities; program participation was also an independent predictor for future practice in disadvantaged areas [129].

While educational interventions may be effective for physicians in training, interventions that can produce behavior change in practicing physicians have been elusive. In part, this may reflect current medical practice, particularly the time urgency that often characterizes such practice. Under conditions of time urgency, implicit biases (that operate automatically) may be particularly likely to influence medical decisions [126,130]. Any efforts at enhancing cultural diversity among practicing providers must include sensitivity to such time pressures, as well as other ways to make training “feel relevant.” For example, relevance would be enhanced if cultural competency training were mandated by the Federation for State Medical Boards. Similarly, if the practice of medicine shifts toward the implementation of medical homes, there would be incentives for providers to consider causal chains in ill health, using a framework for social determinants that considers differences in living environments [131]. Of course, another benefit of a medical home would involve access to multiple practitioners with coordination by a PCP; such multidisciplinary approaches to care may mitigate the effects of implicit biases relative to single-practitioner models. Finally, technology-based models have been proposed that rely upon culturally and linguistically appropriate decision-support systems to promote patient-centered care [3].

D3. Conceptual Models Capable of Explicating Factors that Occasion Disparities in Medical Judgments are Lacking

The Schulman study [132], the IOM [16] report, and many subsequent studies provide support for the contribution of negative stereotypes to inequities in care. Studies have also identified patient factors, such as less active participation in medical decision making [133] and negative expectations regarding the outcomes of care [134,135], that may shape patient-provider interactions. The IOM report also suggested that selected situational factors (e.g., time urgency) were likely to provide fertile ground for the above factors to positively influence care [16]. Taken together, the factors suggest an organizing role for a social judgment model, in which combinations of patient, provider, and situational factors contribute to disparate care.

There have been several attempts to organize the pain literature around social psychological constructs related to patient and provider factors that occasion inequitable

care. These models focus on shared-medical decision making [136], social judgments [137], and facilitation of patient communication with providers [138].

Frantsve and Kerns proposed that a shared-medical decision-making (SMD) model be applied to the processes involved in pain treatment [136]. The SMD approach emphasizes the interactive give and take that characterizes collaborative decisions, incorporating both physician and patient preferences. The authors argue that the SMD model is a particularly good fit for chronic pain treatment, secondary to its subjective nature, long-term features, and the common need to adjust treatment along the time course.

A social judgment model also has been applied to the disparities literature [137]. According to this model, observer (provider) judgments are influenced by characteristics of the observer, the target (patient), and the situation in which the judgment is made [139]. Obviously, race/ethnicity describes a patient characteristic that is potentially sufficient to influence judgments itself. More commonly, patient characteristics interact with provider stereotypes, beliefs, and attitudes to influence judgments. While some of those beliefs and attitudes may be conscious and intentional, they often operate at less conscious (implicit) levels, consistent with a dual-process model of decision making [126]. Evidence that such processes operate broadly in clinical care is widespread, ranging from EDs [35,47,51,140] to surgical specialties [141]. Because such factors often influence judgments in a nondeliberate manner, they are not readily subject to direct change. Instead, they can only be minimized by approaches to clinical care that promote individualized rather than stereotypic care. Several studies, none involving pain treatment, have examined the role of cultural competence and patient centeredness to facilitate such care [142]. These studies demonstrated statistically significant, but modest differences in assessment skills for culturally competent medical students [143], and increased patient satisfaction with care among minority patients of physicians that demonstrate sensitivity to issues related to cultural competence [144]. Unfortunately, as this research does not speak to how to foster such characteristics, efforts to develop training programs are only now being studied [130].

Targeting the patient side of the patient-provider interaction, there is some evidence that interventions aimed at facilitating collaboration between patients and providers can impact pain treatment outcomes positively [138]. This study compared the relative effects of tailored communication training against traditional medical education in patients being treated for cancer pain. Results indicated that that tailored communication training was associated with greater reductions in pain, but also that those reductions were particularly pronounced for minorities. There is an urgent need for research to identify models and best practices that can improve patient-provider communication, shared-medical decisions, and patient centeredness in pain care.

D4. While Best Practices and Models Are Needed, Misguided Models Toward Improving Patient Provider Interaction May Not Serve to Advance the Goals of Equitable Pain Care

Any idea that calls for best practice and policy change must meet scientific, pragmatic, and normative criteria. An idea that falls short of fulfilling any of these criteria should be questioned vigorously. Research on the role of patient–

provider race-concordance in improving health care and service outcome is a case in point. In theory, unequal pain treatment resulting from implicit bias should be attenuated in a race-concordant patient–provider relationship, where the relationship is expected to improve mutual trust and communication. While there is some evidence supporting this concept, the majority of the literature relates to non-pain-related settings. The few pain studies that have tested the role of patient–provider race-concordance have

Table 9 Research-related factors: Recommendations for change

#	Issues/Perspectives	Recommendations
E1	The incidence of pain care disparities may be actually higher than documented.	<ul style="list-style-type: none"> a. Need for a federal infrastructure to conduct pain disparities research. b. Existing national longitudinal health surveys (e.g., federally mandated population surveys) should routinely include questions related to pain care access, utilization, and outcomes. c. Need to capture appropriate populations who are more likely to experience pain care disparities, e.g., those receiving care in centers that serve predominantly minorities and underserved. d. Need for studies to quantify the actual <i>cost of pain care disparities</i> along the lines of existing reports [73] to demonstrate the magnitude of the issue to mobilize needed resources.
E2	The ability to track disparities, monitor efforts to reduce them, and compare findings across studies has been limited due to lack of consistent data collection on race and ethnicity.	<ul style="list-style-type: none"> a. The issue of consistency in race/ethnicity data collection must be evaluated for two overarching issues: <i>what</i> racial and ethnic categories should be employed in the research and <i>how</i> race/ethnicity data are collected. b. Need for public and private partnerships in promoting standardized reporting of race and ethnicity data for which ACA can serve as a vehicle. c. These existing classification schemes (self-report vs observer report) should be examined in the light of the evidence of interactions among patient–provider and system level factors in the genesis of pain care disparities.
E3	Research and evidence-base is lacking for best practices for improving pain care among racial and ethnic groups.	<ul style="list-style-type: none"> a. NIH Pain Consortium and National Institute on Minority Health and Health Disparities (NIMHD) should play a key role in leading an effort with other Institutes and Centers at NIH to improve research and funding for understanding and eliminating pain care disparities. b. Improve funding mechanisms to increase research training in pain care disparities, with specific support for pre- and post-doctoral trainees and junior investigators. c. Federal agencies such as NIH, Centers for Disease Control, Agency for Healthcare Research and Quality, as well as private agencies should increase support for research training in pain disparities research within their existing programs of research on pain. d. As disparities are pervasive across pain treatment settings, a subanalysis of pain disparities should be seen as integrated and inclusive component of all pain research studies rather than as a separate domain of scientific inquiry. e. Improve evidence-base on disparities: <ul style="list-style-type: none"> i. Use tailored strategies to recruit and retain minority individuals in studies and clinical trials. ii. Routinely oversample minorities in pain research. iii. Improve consistency in race/ethnicity data collection across studies. iv. Homogenize <i>measures</i> to study outcomes (see IMMPACT, PROMIS initiatives). v. Use analytical methods that allow for nuanced and deeper understanding of pathways, interactions, and outcomes. f. Leverage on emerging federal initiatives (e.g., PCORI) to examine relations between pain disparities and outcomes through comparative effectiveness research (see ACA section 6301) [3].

ACA = Affordable Care Act; NIH = National Institutes of Health; PCORI = Patient-Centered Outcomes Research Institute.

lacked adequate statistical power and sufficient patient-provider samples to address the question with confidence. In addition, this literature lacks attention to IMGs, who comprise 25% of actively practicing physicians in the United States. The idea of race-concordance overlooks the vast heterogeneity that exists within racial and ethnic categories. For instance, Asian racial categories range from Japanese to Pakistanis [145]. The 2010 Census found 9 million people who identified themselves as multi-racial or belonging to more than one race [146] (up from 6.8 million in 2000) [147] complicating any approach to the study of the effects of patient-provider racial concordance.

More importantly, the model does not satisfy normative criteria for two important reasons: 1) attempts to promote patient-provider race concordance can potentially create a racial divide in the health care sector [145] and 2) such a notion can mistakenly impart a sense of “exoneration” among nonminority providers. That is, providers in the latter group might conclude that only certain types of patient-provider relations can be expected to produce optimal pain management outcomes. Thus, while best practices and models are urgently needed, misguided models toward improving patient-provider interaction may detract from the goal of advancing equitable pain care at the expense of consuming valuable resources [148] (Table 8).

E. Research-Related Factors: Summary of Issues

E1. The Incidence and Magnitude of Pain Care Disparities May Be Actually Higher Than Documented

Several scientific issues directly relate to the under-assessment of pain care disparities and the consequent lack of efforts to reduce them. First, the documented incidence of pain care disparities may be lower than the actual incidence because most studies on pain disparities derive from academic medical centers rather than centers that predominantly treat minorities and underserved populations. In addition, the disparities that are documented exist despite access to care (i.e., they pertain to minorities that are already in the health care system) [77]. Minorities that are not in the health care system (or not in a part of the system likely to generate research) are underrepresented in this research. Thus, most studies of pain care disparities cannot portray disparities that occur due to lack of health care access. While costs of pain disparities have not been quantified, access issues are likely to contribute substantially to yearly costs. For instance, people in lower income brackets (a disproportionate number of whom are racial and ethnic minorities) may be less able to pay for preventative or early stage pain treatments, rendering them more vulnerable to pain crises and more costly to the system [78]. Longitudinal surveys of community-dwelling individuals, especially those who receive care in centers that predominantly serve minority and underserved patients, are needed to paint an

accurate picture of the magnitude of access-related disparities and relevant outcomes. Furthermore, systematic studies are needed to quantify the actual cost of pain care disparities along the lines of existing reports [73] to demonstrate the import of the issue and mobilize needed resources.

E2. The Ability to Track Disparities, Monitor Efforts to Reduce Them, and Compare Findings Across Studies Has Been Limited due to a Lack of Consistent Data Collection on Race and Ethnicity

The majority of pain disparities research is based on retrospective analyses of data collected for clinical purposes [19,20]. A recent meta-analysis of analgesic treatment for pain in the United States found considerable heterogeneity in the specific operationalization of racial and ethnic subgroups [19,20] (see Meghani et al. [20], in this issue). Even those studies that have specific aims related to pain care disparities lack consistency in race/ethnicity data collection, making it difficult to compare findings across studies. Cross-study variability derives from the use of inconsistent racial and ethnic categories as well as heterogeneous methods for collecting and documenting these data. The ACA has several provisions aimed at improving data collection and reporting with the sole intention of tracking and targeting health disparities. Specifically, ACA Section 4302 mandates population surveys and federally funded programs to collect and report data on race, ethnicity, and primary language, as well as the requirement to track trends in health care disparities.

While legislative efforts are aimed at achieving uniformity in collection of racial and ethnic categories, they do not homogenize the manner in which these data are gathered. Self-report of race and ethnicity is considered better than observer-recordings. However, both methods have important limitations. For instance, misclassification is a major problem with observer-assigned race/ethnicity, whereas self-reporting within the six broad Office of Management and Budget categories for race/ethnicity limits ways in which individuals may self-identify. For instance, the NIH identifies people of Northern Africa as Whites [149] (e.g., Egyptians), which may be in conflict with how these individuals see themselves. Furthermore, researchers have justified the use of observer-assigned race/ethnicity, arguing that disparities are occasioned by how one is perceived as opposed to how one self-identifies. Thus, the issue of consistency in race/ethnicity data collection must be evaluated for two overarching issues: 1) *what* racial and ethnic categories are employed and operationalized in the research studies, and 2) *how* race/ethnicity data are collected. Furthermore, the broad efforts under ACA of homogenizing race/ethnicity data collection may fall short if corresponding efforts are not implemented in private sectors. Nonetheless, we can hope that provisions within ACA that are geared toward improving disparities research may serve to promote standardized reporting among public and private sectors.

E3. Research and Evidence Base for Best Practices for Improving Pain Care Among Racial and Ethnic Groups Is Lacking

Advances in closing the gap in pain treatment and outcomes among vulnerable populations is hampered by existing gaps in knowledge pertaining to environmental, biological, behavioral, and psychological mechanisms and their interactions. The majority of pain disparities research focuses on documenting evidence of disparities and less frequently on identification of sources of disparities. Acutely missing from this body of literature are best practices or evidence-based models to ameliorate these known disparities. Moving forward, the challenge for pain disparities researchers is to increase evidence-base and convert this understanding to meaningful interventions to reduce and eventually eliminate disparities.

As discussed earlier, the NIH funding for pain research in general and pain care disparities in particular has remained inadequate (Box 1). Federal agencies such as NIH, Centers for Disease Control, Agency for Healthcare Research and Quality as well as private agencies should increase support for research training in pain disparities research within their existing programs of research on pain. More specifically, the NIH Pain Consortium and National Institute on Minority Health and Health Disparities should play a key role in leading an effort with other Institutes and Centers at NIH to improve research and funding for understanding and eliminating pain care disparities as well as to increase research training in pain care disparities, with specific support for pre- and post-doctoral trainees and junior investigators.

Recent federal initiatives make it an opportune time to investigate innovative interventions to improve pain treatment and outcomes. For instance, comparative effectiveness research offers a new paradigm to study health outcomes in the context of intervention. Similarly, ACA Section 6301 creates a Patient-Centered Outcomes Research Institute (PCORI) that will carry out comparative effectiveness research and examine differences in health service outcomes among racial and ethnic groups [3].

However, to identify best models for practice change and to improve outcomes among diverse patients, it is important to bring consistency in race/ethnicity data collection, to use tailored strategies to recruit and retain minority individuals, and also to homogenize *measures* to study outcomes. There are heterogeneous measures of pain intensity, pain quality, pain interference, pain relief, quality of analgesia, and impression of change with treatment, all of which make it difficult to understand findings and outcomes across studies. The NIH Roadmap Initiative, PROMIS, is a step in that direction [150]. The goal of the initiative is to enable clinicians and researchers to have access to efficient, valid, and responsive indicators of patient-reported health status and outcomes. PROMIS provides access to item-banks [151]; from these banks, items can be selected to make customized scales or can be used as tailored/adapted instruments, the length of which can be determined by

computer technologies. Measures undergo rigorous qualitative and psychometric evaluations [152,153] and can be used in clinical, observational, comparative effectiveness trials, and health services research. Recent psychometric evaluations of some PROMIS banks, including pain interference and pain behavior, have demonstrated good psychometric properties [152,153]. Other ongoing initiatives such as the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT) aim to improve design, execution, and interpretation of clinical trials of pain. The goal of these initiatives is to test measures over time with various clinical and demographic groups so that accumulated findings not only have a common metric and range, but a shared meaning and understanding across populations [151]. These emerging paradigms should be exploited to generate an evidence-base for improving pain care among minority and underserved patients (Table 9).

Conclusions

Inequities in pain care remain an important and often neglected health policy concern. There is no question that pain treatment disparities matter in many significant ways; the most important are the tremendous burdens placed on patients, health systems, and society when the most effective pain care is not accessible, affordable, and delivered to those in need. Until the prevailing issues of inequitable health care are realized and confronted through focused and systematic strategies for education, research, and health care reform, it is unlikely that progress will occur in reducing and ultimately eliminating pain disparities. In this report, we acknowledge the pervasive nature of pain treatment disparities and elucidate numerous factors that contribute to disparate health care for patients experiencing pain.

Contemporary thinking about pain disparities requires a new paradigm with an organized etiological model that drives opportunities for change. Here, we propose such a paradigm to re-conceptualize the obvious and not so obvious disparities in pain care, and to align strategic and corrective actions that have a high likelihood for success. By partitioning the problem of pain disparities into domains of structural/system, policy and advocacy, workforce, health care provider, and research, it is possible to grasp the magnitude of disparities and their impact on the health of those experiencing pain. A blueprint is constructed to consolidate issues contributing to disparities. Each domain is carefully and thoughtfully analyzed, and supporting data from both scientific and expert consensus perspectives substantiate the pervasiveness of the problem. We offer a pedagogical and practical roadmap for examining root causes for pain disparities and navigating action plans capable of bringing about necessary changes. Action plans include multi-tier, methodological, and evidence-based solutions that transcend the traditional ways of conceptualizing disparities. Summaries at the end of each domain section prioritize the most salient points related to the issues at large.

Recently, the IOM report, *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research* [5], has been released pursuant to ACA's charge to the Department of Health and Human Services to examine pain as a public health problem. IOM's broader recommendations for improving pain care for all Americans will directly and indirectly improve the care of vulnerable populations. While our report deals specifically and exclusively with pain care disparities, the IOM report addresses issue of disparities as part of its population strategy (see findings and recommendations 2-2, and 3-2) [5]. The IOM report gives due importance to the issue of pain care disparities submitting it as part of its immediate and short-term goals, i.e., goals that should be initiated now and completed before the end of 2012 (see IOM recommendation 3-2) [5].

The thorny issue of pain care disparities and its sheer magnitude requires immediate and sustained efforts to broach the issue. The fundamental flaws in our structural systems preclude the ability of legislation and policies, alone, to mitigate deep-rooted practices that perpetuate disparities. Unless drastic changes occur in how disparities are approached, we will remain in the status quo of talking about pain disparities rather than acting to resolve them. Even with the best of intent, the lack of education, evidence-based practice models, and accountability in care makes it difficult to penetrate sectors of health care system to promote equitable care. Any research, practice, and policy initiatives resulting from IOM recommendations should have a focus on pain care disparities as one of the sub aims. The NIH Pain Consortium and National Institutes on Minority Health and Health Disparities can play a key role in leading an effort with other Institutes and Centers at NIH to improve research and funding for understanding and eliminating pain care disparities as well as to prepare a pipeline of scientists for sustained impact. While there is no one answer to abolishing the unnecessary pain and suffering caused by unequal access and treatment, continued and sustained progress can be made on multiple fronts by uniting under a new and all inclusive paradigm for addressing pain-related disparities.

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