

# Reducing Disparities Downstream: Prospects and Challenges

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Addressing upstream or fundamental causes (such as poverty, limited education, and compromised healthcare access) is essential to reduce healthcare disparities. But such approaches are not sufficient, and downstream interventions, addressing the consequences of those fundamental causes within the context of any existing health system, are also necessary. We present a definition of healthcare disparities and two key principles (that healthcare is a social good and disparities in outcomes are a quality problem) that together provide a framework for addressing disparities downstream. Adapting the chronic care model, we examine a hierarchy of three domains for interventions (health system, provider-patient interactions, and clinical decision making) to reduce disparities downstream and discuss challenges to implementing the necessary changes.

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Upstream reforms, addressing fundamental determinants, such as improving educational levels<sup>1</sup>, income redistribution<sup>2</sup>, and universal health insurance coverage<sup>3</sup>, are essential, but insufficient, to reducing health disparities. Although less marked than in the United States, disparities persist and are increasing in western countries with universal coverage<sup>4-6</sup>. These growing disparities reflect, in part, the consequences of the differential diffusion through society of new technologies<sup>7,8</sup>. These findings also suggest that ongoing downstream efforts to minimize disparities will remain critical. These downstream efforts, clearly within the purview of healthcare providers, are the focus of this paper.

The widespread and diverse nature of disparities in health and healthcare is well documented<sup>9-11</sup>; we do not discuss these in detail. Healthcare disparities, while widespread, however, are neither inevitable nor omnipresent in the United States<sup>12,13</sup>. For example, healthcare disparities are observed in some regions of the country but not others<sup>14</sup>. Thus, racial disparity in treatment of patients hospitalized with myocardial infarction

are small to nonexistent in the Northeast and largest in the South<sup>14</sup>. Quality improvement efforts in the Veterans Administration health system<sup>15-18</sup> and elsewhere<sup>19,20</sup> have been followed by improved outcomes and reduced racial disparities across a spectrum of health problems. Racial disparities in quality of care in Medicare managed care plans, at least for some process measures, have decreased over time<sup>21</sup>. These findings suggest cautious optimism that disparities may be ameliorated within the context of the current healthcare system.

Based on earlier work<sup>9,22-25</sup>, we define healthcare disparities as the mismatch between need and care associated with membership in one socially identifiable and disadvantaged group compared with their non-disadvantaged counterpart. Minimizing healthcare disparities requires that care be organized with the goal of achieving equitable outcomes among socially identifiable groups. Healthcare disparities associated with race or ethnicity, socioeconomic status, gender, culture, literacy, and geography are all examples considered by this definition. We use the term "social risk" to include groups at risk for disparities.

In the United States, the greatest emphasis in health disparities has been placed on racial or ethnic disparities; however, socioeconomic disparities play a significant independent role in compromising population health<sup>26,27</sup>. Socioeconomic inequality in the United States may exact the greatest total health burden of all social risk factors; for example, income disparities are associated with a burden approximating 17.2 million Quality Adjusted Life Years (QALYs)<sup>28</sup> compared with a burden of 2.3 million QALYs attributable to Black-White disparities<sup>29</sup>.

Two premises underlie our proposals for addressing disparities. First, we view healthcare as a social good, not simply another commodity<sup>30</sup>. Viewed from this perspective, the primary goal for healthcare is optimizing health outcomes. Such a view means allocating healthcare resources based primarily on need rather than ability to pay. Conversely, treating healthcare as a commodity results in a paradoxical inverse relationship between health risk and healthcare<sup>31,32</sup>, whereby the most care is provided to those best able to pay (often those with less need), and the least care is provided to those at highest social risk. When healthcare is viewed primarily as a commodity, disparities matter little more than disparities in car ownership.

The second premise is that disparities in health outcomes represent a deficit in healthcare quality<sup>33</sup>. Available evidence suggests that disparities in process measures may be diminishing relative to disparities in intermediate outcomes<sup>21,34</sup>, hence the need to focus on equality in *health* outcomes, not just *healthcare* process<sup>9</sup>. Together, these two premises suggest a framework for

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tailoring *healthcare* to the needs of individuals to optimize *health* outcomes, while reducing disparities in those outcomes.

In focusing on need and outcomes, we intentionally avoid the contentious problem of preferences. While respecting personal preferences is a critical goal of patient-centered care, disparities may arise from differences in preferences associated with membership in a group at social risk. However, those preferences may reflect misperceptions of risks associated with more intensive care<sup>35</sup>, awareness of higher surgical risks<sup>36</sup>, or lower trust in healthcare providers<sup>37</sup>, all of which are more common in those at social risk.

We also avoid linking disparities directly to “underuse” or “overuse” of high variation procedures. Wennberg and others have shown there are dramatic regional variations in the use of procedures, but regional variations in utilization by those at social risk do not match overall regional variations<sup>14,38</sup>. Further, there is a limited relationship between regional variations and appropriateness or outcomes<sup>14,39</sup>. Thus, there is little evidence to support the notion that relative “underuse” of these procedures by those at social risk protects them from adverse outcomes due to “overuse”. The RAND Health Insurance Experiment provides evidence bearing on this question. Experimentally controlled variations in co-payments were associated with variations in utilization, without affecting either the proportion of appropriate care or overall outcomes. However, for those at both social and biomedical risk, higher co-payments were associated both with lower utilization and worse outcomes<sup>40</sup>. Such findings reinforce the need to link clinical decision making to the level of social risk (see below).

## A HIERARCHY OF DOMAINS FOR INTERVENTIONS

Several conceptual frameworks exist to facilitate the examination of the origins of social disparities and interventions to address them. Some address both upstream and downstream aspects of the problem<sup>9,41–44</sup>, often focusing on fundamental determinants, while others are intended to provide frameworks to address downstream factors<sup>24,45,46</sup>. Downstream factors common to all models are system-, provider-, and patient-level factors.

In this paper, we examine interventions focusing on these factors and clinical decision making in the context of a widely implemented model for improving the quality of care downstream, the chronic care model<sup>47</sup>. This model has the advantages of being familiar, and implementation of this model has been associated with improvements in outcomes<sup>47,48</sup>. The model has been used by the Health Disparities Collaborative<sup>49</sup> and others to improve care for patients at social risk. As we outline below, implementation of this model promises not only to improve quality of care but also to reduce disparities. We focus on key hierarchical aspects of the model, emphasizing the potential to reduce disparities: health system redesign to optimize quality improvement, patient–provider interactions enhanced by activated patients and proactive providers, and clinical decision making informed by the impact of social risk on disease risks and outcomes. We limit our review to areas where there is promising evidence for interventions to *reduce* disparities. Thus, for example, we do not discuss studies demonstrating improved quality of care or health outcomes for persons at social risk without including a lower risk comparison group. Such studies, while important, cannot demonstrate that the intervention *reduces* disparities.

## Health System Redesign

Redesign of health care delivery within health systems can reduce disparities by more appropriately allocating care based upon need. Randomized controlled trials of intensive treatment interventions vs. usual care provide the strongest evidence for this approach. In the Health Insurance Plan of New York mammography screening study, women were randomly assigned to receive annual mammograms vs. routine care<sup>50</sup>. Women in the intervention group received intensive follow-up and outreach to encourage annual mammography. Breast cancer mortality was significantly reduced compared with the usual care control group. Further, while minority women in the control group had worse outcomes than white women (a disparity comparable to that observed in the larger population), the white–minority breast cancer mortality disparity disappeared in the intervention group<sup>50</sup>. Parallel findings were observed in the Hypertension Detection and Follow-up study that assigned patients with hypertension to usual care or intensive stepped care follow-up. Blacks gained more (better hypertension control and greater mortality reductions) from being in the intervention group than whites, thereby reducing disparities in mortality<sup>51</sup>. The Diabetes Control and Complications Trial compared intensive diabetes management (including more intensive education and follow-up) with routine care. Educational disparities in diabetes control observed in the usual care group were eliminated in those receiving more intensive care<sup>52</sup>. Finally, two practice-based randomized studies compared usual primary care for depression with care enhanced by quality improvement programs that included trained nurses facilitating optimal care<sup>53,54</sup>. Long-term follow-up in both studies showed that enhanced care reduced disparities (affecting uninsured<sup>53</sup> and African-Americans<sup>54</sup> patients).

These studies were not designed to detect disparity reductions, so the results may reflect selective publication. However, the consistency of the findings—that disparities can be reduced by tailored quality improvements, particularly more intensive outreach, follow-up, and/or education to enhance intervention compliance—suggests plausible strategies for reducing disparities.

Several successful examples exist of intensive outreach<sup>55</sup> and “navigator”<sup>56,57</sup> programs to assist disadvantaged patients to negotiate the healthcare system<sup>11,58</sup>. Szilaygi et al.<sup>55</sup> eliminated county-wide disparities in childhood immunizations by providing inner city practices (serving those at social risk) with immunization registries and community health workers who implemented reminders, recall, and outreach. Allocating sufficient resources to providers caring for patients at social risk is critical. Such providers often have the fewest resources<sup>59</sup>, and source of care contributes to disparities in outcomes<sup>60–62</sup>. Policies are needed to ensure these providers are equipped to adequately address the needs of their patients<sup>63,64</sup>.

Reducing disparities at the health system level requires a population approach to care. Because managed care organizations (MCOs) are responsible for care for defined populations, they are better positioned to address disparities. Studies suggest greater compliance with guidelines amongst patients enrolled in MCOs compared with the fee-for-service setting, but the evidence is mixed on disparity reduction. Some studies suggest MCOs narrow disparities<sup>21,65–68</sup>, both racial<sup>21,65–68</sup> and educational<sup>69</sup>. Others suggest no effects of MCOs on disparities<sup>70–72</sup>, with little evidence of adverse effects<sup>73</sup>. Disparity reduction has

not been a priority for MCOs, but this may be changing, at least for racial or ethnic disparities<sup>74,75</sup>. Modification of the Health Plan Employer Data and Information Set to include collection of social risk information could facilitate the identification of disparities that, in turn, would encourage investment in efforts to address those disparities.

### Patient–Provider Interactions

Improvements in patient–provider interactions may also help reduce disparities. Greater social and cultural distance between providers and patients increases the potential for suboptimal encounters. Patients at greater social risk for adverse health outcomes have encounters characterized by less patient participation<sup>76</sup> and providers viewing those encounters more negatively<sup>77,78</sup>.

Increasing patient participation or “activation” has been shown to improve patient outcomes<sup>79</sup>; thus, interventions aimed at activating patients may be particularly beneficial for patients at social risk. Krupat et al.<sup>80</sup>, in a vignette study, found that minority and low socioeconomic status patients received more complete breast cancer evaluation in vignettes presenting more assertive patients than in those portraying less assertive patients. Kalauokalani et al.<sup>81</sup> found that the white–minority disparity in cancer pain control observed at baseline was eliminated for patients exposed to an activating coaching intervention but not in the control group. These preliminary studies suggest a promising line of research. While most studies on patient activation have used trained coaches, limiting their potential for dissemination, patient activation may be accomplished using interactive multimedia computer programs tailored to patients’ needs<sup>82–84</sup>.

Physician biases likely also contribute to disparities<sup>9,85,86</sup>. Physician-based interventions such as targeted audits, feedback<sup>87</sup>, and multifaceted interventions including academic detailing of office-based physicians<sup>88</sup>, appear to be at least modestly effective in changing physician behavior across a spectrum of outcomes. Standardized patient instructors can help physicians improve their interviewing skills<sup>89–91</sup>. Patient-centeredness skills<sup>92</sup> and cultural competence<sup>93</sup> of physicians can also be enhanced. Patient centeredness in physicians may be associated with better communication with African-American patients<sup>94</sup>. Burgess et al.<sup>95</sup> suggest several approaches to reducing physician biases. No studies have examined the potential of any of these kinds of interventions to reduce bias or disparities in outcomes, though one study suggests that blinding physicians to the patients’ race or ethnicity may reduce bias in referral for cardiac procedures<sup>96</sup>. To the extent that suboptimal physician–patient communication contributes to disparities, appropriately targeted studies are a promising line of inquiry.

### Incorporating Social Risk into Clinical Decision Making

The mismatch between healthcare and need may also be directly addressed by incorporating social risk into clinical decision making. This strategy is feasible for conditions where risk factors are used to guide treatment and social risk affects the outcome. Typically, risk assessment tools do not incorporate social risk. For example, the Adult Treatment Panel (ATP

III) cholesterol treatment guidelines consider only two demographic risk factors—age and gender<sup>97</sup>—but not socioeconomic status, even though it is an independent risk factor comparable in magnitude to those included<sup>98,99</sup>. Including social risk in lipid-treatment decisions would lower the medication treatment threshold for persons at cardiovascular risk due to their social position (as it currently does for men and older persons); in turn, this may reduce disparities in coronary events. No studies have demonstrated that such strategies would reduce disparities. However, the role of such strategies should be explored for all conditions where social risk affects outcomes and interventions are based on assessment of risk, such as aspirin cardiovascular disease prophylaxis, screening for colorectal cancer or HIV, and adult vaccinations.

### PRIORITIZATION CHALLENGES

Given that most interventions proposed require reallocation of resources, a key issue is the relative importance of closing the gap between current and ideal care versus closing the disparity gap. A study by Asch et al.<sup>34</sup> suggested that socio-demographic disparities were small compared to the gap between usual and ideal care. Although the size of the socio-demographic disparities is debated<sup>100</sup>, Asch et al.<sup>34</sup> imply that resources might be more wisely invested in raising overall quality rather than addressing disparities. In other words, there is a tension between a utilitarian (maximizing overall quality) and a deontological (minimizing inequities in quality) approach. Intensive “navigator” programs may contribute to reductions in mammography disparities<sup>57</sup>, but the same resources invested population wide might reduce total noncompliance more, at the expense of continued or even worsened disparities.

There is also a need to prioritize among the various social causes of disparities and among the health problems exhibiting disparities. Cost-effectiveness analyses may help, but such analyses cannot resolve the fundamental equity issues involved. We urgently need a public discussion to address these issues and develop a societal consensus.

### OTHER CHALLENGES

There are other challenges to implementing downstream interventions. Of note, there has been discussion in the literature on the measurement and collection of social risk factor data essential to addressing disparities<sup>101</sup>. Consensus is emerging about collecting race or ethnicity data<sup>74,102–104</sup>, but additional data regarding social risk groups are required. There may be political barriers to collecting the necessary information (concerns about profiling and the information being used to exclude high-risk patients and practices), and the task of fully capturing the components of socioeconomic status may seem daunting<sup>105</sup>. However, relatively simple measures, such as years of educational attainment or occupational class, would yield useful metrics to systematically monitor socioeconomic disparities at the individual level. Identifying practices and systems at higher social risk can be accomplished by linking geographic information to Census data<sup>99,106,107</sup>.

To our knowledge, no randomized controlled trials explicitly powered to examine interventions to reduce disparities have

been published<sup>108</sup>. Adequate power to detect a significant interaction between the disparity and effect of an intervention requires sample sizes approximately four times larger than those needed simply to observe the main effect of the intervention; such large sample sizes may be prohibitive and represent a barrier to developing approaches to reducing disparities. More modest sample sizes are needed to detect whether interventions produce equivalence between disadvantaged and advantaged groups. From a policy perspective, this more modest goal may be sufficient. Other barriers related to study design are discussed by Cooper et al.<sup>45</sup>.

Finally, particularly for disparity reduction interventions at the health system level, new healthcare resources need to be allocated or current resources reallocated. The current pay-for-performance (P4P) movement is premised on the notion that financial incentives improve quality<sup>109</sup>. P4P also assumes a level playing field between providers and patients. In practice, providers differ in resources at their disposal including access to information technology, specialists, and health educators<sup>59,63</sup>. Patients differ markedly in adherence barriers. Casalino and Elster<sup>64</sup> illustrate how P4P might worsen disparities and suggest ways to preempt such unintended consequences of P4P. As our second premise suggests, shifting resources to overall performance alone is not sufficient to eliminate disparities. Rather, resources must also be shifted from ability to pay to patient need. For example, the time and resources needed to reduce glycated hemoglobin to less than 7.0% differ depending on the patient's income, education, social support, language, health literacy, existing knowledge, beliefs, and self-efficacy. Providers who serve more patients at social risk will require more, not fewer resources, if disparities are to be minimized.

## CONCLUSIONS

Much remains to be learned about the causes of health and healthcare disparities<sup>25</sup>. However, perfect understanding is not a prerequisite to successful disparity interventions<sup>110,111</sup>. Using the chronic care model as a framework, we cite established and promising strategies for reducing disparities downstream; these strategies involve health system redesign, improved patient-provider interactions based on more activated patients and proactive clinicians, and clinical decision making informed by the assessment of social risk. Some progress has been observed over time, particularly for racial disparities. While there has been Federal recognition of the need to address socioeconomic disparities<sup>10</sup>, there has been little systematic effort to do so.

The proposed downstream interventions might be viewed as an excuse to ignore critically needed upstream interventions. Our intent is not to subvert the need to address the very real social inequalities in our society that drive health disparities. Downstream strategies are not a panacea for social inequalities related to access, education, affordability, and adherence barriers; downstream strategies cannot fully offset social risk. Conversely, given the challenges associated with mitigating inequities<sup>4-6</sup>, downstream interventions will also be needed. In the absence of focused efforts, diffusion of new, emerging, and powerful therapies will likely undermine equity (because of earlier access-uptake by more advantaged social groups)<sup>7,8</sup>. Minimizing health disparities will require a combination of upstream approaches that address the fundamental causes—including inadequate schools, limited access to health insur-

ance, poverty, and residential segregation—and downstream approaches that address critical intervening factors.

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