All Quality Improvement Is Health Equity Work: Designing Improvement to Reduce Disparities

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abstract

Quality improvement (QI) can be a critical means by which to achieve equity in health and health care. QI efforts, however, often fail to be designed and implemented through the lens of health equity. In this article, we will discuss the current state of the intersection between QI and health equity, then lay out specific steps researchers and practitioners can take to ensure that their QI work reduces, rather than increases or maintains, existing disparities. These steps include first, understanding existing disparities and, second, utilizing community engagement to ensure that QI enhances health equity. Before embarking on QI work, QI practitioners should first examine their metric of interest by patient characteristics, starting with race and ethnicity, language, and markers of access to care and socioeconomic status. Developing an understanding of existing disparities relevant to the QI project will ensure that the QI interventions can be designed to be most effective in the disadvantaged populations, thus increasing the likelihood that the intervention reduces existing disparities. In designing QI interventions, practitioners must also plan engagement with stakeholder populations ahead of time, to carefully understand their needs and priorities and how best to address them through QI efforts.

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QUALITY IMPROVEMENT AND HEALTH EQUITY IN THE UNITED STATES: THE CURRENT STATE

Persistent deficits in health care quality in the United States are well-documented,[1,2] and quality improvement (QI) efforts are now widespread. QI has been defined by the Agency for Healthcare Research and Quality as "the framework we use to systematically improve the ways care is delivered to patients," and a wide array of QI approaches have been developed.[3–5] With increasing awareness and use of QI, there has also been greater awareness of the extent and persistence of disparities in health care delivery and outcomes. For example, compared with White children, children of color remain more likely to die of diseases like asthma and leukemia, less likely to receive state-of-the-art surgical care, more likely to suffer an adverse event during hospitalization, and less likely to receive adequate pain control in an acute care setting.[6–10] Parents of children of color also report worse trust, communication, and partnership with health care providers than do their White counterparts.[11–17] Unfortunately, little systematic progress has been made in decreasing health care disparities over the past 2 decades.[18,19] Many authors have advocated for using QI to address these persistent inequities in care delivery and outcomes.[20–24] Indeed, equity was named as 1 of the 6 principle domains of quality by the Institute of Medicine and was identified as a cross-cutting domain, a lens through which the other 5 domains should be considered.[2] In this article, we will discuss the current state of the intersection between QI and health equity, then lay out specific steps researchers and practitioners can take to ensure that their QI work reduces rather than increases disparities.

Applying a QI Lens to Health Equity

QI approaches are appealing as a strategy to address disparities in health care because they offer concrete and accessible tools to analyze and address aspects of care that exist within the purview of clinicians and clinical staff. The intersection between QI and health equity work can take several forms. The first approach, which can be thought of as applying a QI lens to health equity, consists of QI interventions oriented toward improving care or outcomes for a specific population that experiences disparities.[25–30] Evaluations of these interventions can include a reference population to document a decrease in the disparity between groups. However, collecting data for a reference population might be difficult, either because of cost concerns (for measures that are not being routinely collected for clinical care) or logistical constraints (for interventions in locations that primarily care for disparity populations). Therefore, administrators of many equity-focused QI interventions do not seek to document a decrease in disparities, per se, but instead, aim to improve the quality of care or outcomes for a group known to experience disparities.

Applying a Health Equity Lens to QI

The second approach to the QI–health equity intersection, which can be thought of as applying a health equity lens to QI, consists of QI interventions oriented toward a general clinical population, with explicit consideration for the impact on health equity.[31–35] Many QI practitioners hope that "a rising tide will lift all boats," and that, by improving some aspect of quality generally, all groups will benefit equally, or perhaps those suffering a disparity at baseline will improve disproportionately. Unfortunately, this is not often the case.[36] Indeed, as we and others have previously described, there are 3 distinct trajectories that can occur when a general QI intervention is applied to an existing disparity: (1) the intervention can improve quality for all groups equally, and the disparity is maintained, (2) the intervention can disproportionately improve care for the group experiencing a disparity at baseline, and the disparity is reduced, or (3) the intervention can disproportionately improve care for the group experiencing better care at baseline, and a disparity is created or increased (Fig 1).[21,37] The 3 possibilities are nicely illustrated in a study by Jean-Jacques et al, in which a health information technology-based QI initiative sought to improve 17 quality measures in an internal medicine clinic, including 8 process measures for chronic disease management (eg, β-blocker prescriptions for patients with a history of myocardial infarction), 4 intermediate outcome measures (eg, glycemic control for patients with diabetes), and 5 preventative care measures (eg, colorectal cancer screening).[31] Overall, quality improved on 14 of the 17 measures for White patients and just 10 of the 17 measures for Black patients. Of the 7 measures with a baseline racial disparity, the intervention improved the disparity for 2 measures, maintained a stable disparity for 4 measures, and worsened the disparity for 1 measure. Additional examples of each trajectory exist in the pediatric and adult literature.[25,26,32,33]

The scenario that we all hope for, in which a broadly applied intervention decreased pre-existing disparities, was described by Lau et al, with computerized clinical decision support to improve appropriate venous thromboembolism prophylaxis for hospitalized adults.[34] This

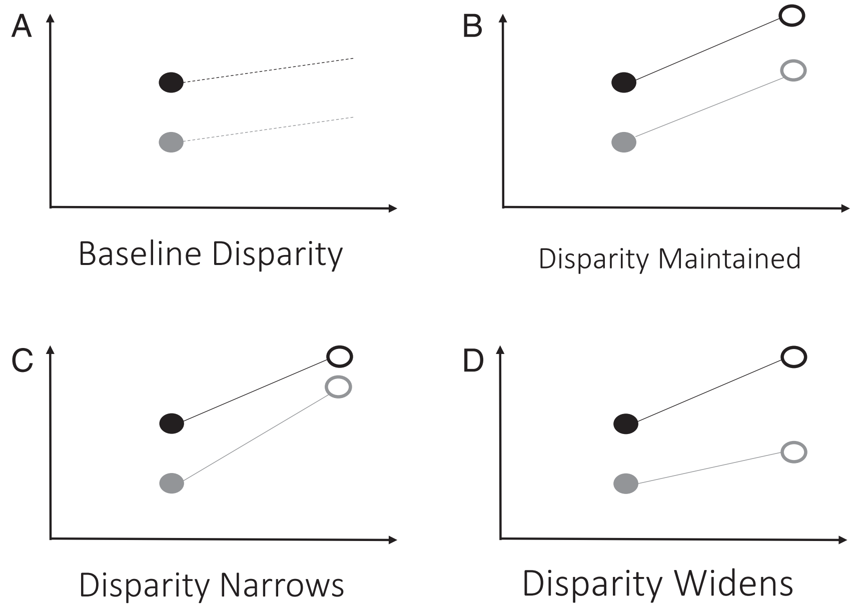

FIGURE 1
The 3 possible trajectories that QI may have on a baseline disparity over time. (A) The baseline disparity, with the dotted line indicating the expected trajectory without intervention. (B) The outcome if the QI intervention improves quality for both groups equally; the disparity is maintained. (C) The outcome if the QI intervention disproportionately improves care for the disadvantaged group; the disparity narrows. (D) Illustrates the result if the QI intervention disproportionately improves care for the already-advantaged group; the disparity widens.

intervention improved prophylaxis prescription for all patients and notably reduced the difference between White and Black patients on the trauma service from 13.5% ($P = .03$) at baseline to 1% ($P = .99$) postintervention. The QI intervention in this study targeted a quality measure (venous thromboembolism prophylaxis prescription) that exists entirely within the control of the prescribing provider. Interventions that address disparities driven exclusively by provider behavior, rather than those that involve more interaction with patients or families, are likely more amenable to improvement by provider-facing QI initiatives.

In contrast, there are numerous examples of QI initiatives that widen disparities, often for one of several reasons. Darling et al describe the province-wide implementation of universal bilirubin screening in Ontario, Canada in an effort to improve timely newborn follow-up.[35] Although modest improvements in timely follow-up were noted overall, the improvement occurred primarily among families in the highest socioeconomic status (SES) quintile, resulting in a substantial increase in the disparity in timely follow-up by SES. This unintended consequence points to the multifactorial drivers of timely follow-up (including many factors that exist at the patient, family, and community level) and the fact that the QI intervention addressed only 1. Follow-up thus improved most for families for whom that single health care-based factor (bilirubin screening and resulting recommendation for when to follow-up) was more salient. Conversely, this level of improvement was not seen among families with lower SES, who presumably had more competing demands and whose ability to follow-up was more heavily influenced by other factors not addressed by the QI intervention. A careful understanding of the drivers of a particular outcome, before intervention, can help to predict the creation of new disparities.

Another useful example is provided by an intervention to implement a novel "arena" model for autism diagnosis to improve access to timely assessment.[38] Although the intervention was highly effective overall, reducing median wait time for a first visit from 139 days to 19 days, families with limited English proficiency (LEP) were explicitly excluded from this new model due to interpreter-related time constraints. By excluding LEP families from the beneficial intervention, a disparity was created or exacerbated because LEP families continued to wait a median of 85 days for the first visit after the new model was implemented, >4 times longer than English-proficient families in the intervention group.[39] Successful QI interventions that exclude already-disadvantaged groups, intentionally or unintentionally, are an important contributing factor to the ongoing disparities in health and health care in the United States.[40]

All QI Interventions Are Health Equity Interventions

Although there are strong arguments for the importance of both approaching QI through a health equity lens and approaching health equity through a QI lens, we would argue that all (or at least most) QI interventions are health equity interventions because every health care process change has the potential to improve, maintain, or worsen an underlying disparity. Thus, health equity considerations should be fully integrated into every QI intervention from the outset.

Unfortunately, this awareness of health equity during QI project creation is not routinely happening. In a review of 278 randomized controlled trials of QI interventions to improve adult diabetes care, only 34% explicitly considered health equity;[27] the proportion of trials addressing health equity did not improve over time (32% before 2007 and 36% from 2007 to 2014). Of studies that did address health equity, two-thirds addressed a disparity-experiencing population, whereas one-third were general interventions with subgroup analyses to explore the intervention's impact on disparities. Another review article considered all 684 abstracts published by 5 high-impact QI journals in 2015; only 9% were health equity-focused.[28] There is clearly a great deal of room for improvement.

Conducting QI That Improves Health Equity

We suggest that there are key principles that QI practitioners, evaluators, and researchers can implement to ensure that their QI intervention contributes to reducing health and health care disparities, and not creating, maintaining, or widening them. The first step in conducting QI that improves health equity is understanding existing disparities, and we provide 4 principles for this work. The second step is utilizing community engagement to ensure that QI enhances health equity; we provide 3 key principles to consider for this step.

STEP 1: EXAMINE, IDENTIFY, AND UNDERSTAND EXISTING DISPARITIES IN THE FOCUS AREA OF YOUR QI WORK

The most important factor for harnessing the power of QI to improve health and health care equity is engaging the populations for whom you wish to improve care in the design and implementation of the QI intervention; we discuss this "community" engagement below. However, for some QI practitioners, it may not be readily apparent which populations they should be engaging with; thus, it is critical to examine which patient groups experience disparities in the target area of the QI initiative. We suggest utilizing the following 4 principles to explore health and health care disparities related to your QI work, before the design and implementation of an intervention.

Principle 1: The Optimal Impact of QI on Health Equity Can Only Be Assured if Preexisting Disparities Are Well-Understood Before the Start of QI Processes

Consider, as a starting point, race, ethnicity, and language data, plus proxies for SES and access to care, and, when possible, sexual orientation and gender identity[41] (REL-plus). SES proxies that are readily available in most electronic medical records include insurance type and home address. An address can be used to calculate the distance from a patient's home to the clinic or hospital and can be linked with publicly-available census data to obtain area median household income or percent poverty.[42] The Institute of Medicine's seminal report on standardizing and expanding the collection of race, ethnicity, and language data was published more than a decade ago[43]; although progress has been made, available data remain incomplete and, at times, inaccurate.[44–47] Specific recommendations include that locally-relevant, detailed options be offered for patients to self-report race and ethnicity, as opposed to the limited options generally offered.[48] Additionally, registration staff need consistent training to elicit accurate self-report on race, ethnicity, and preferred language These issues are particularly challenging in pediatrics, in which the child and several caregivers may all have different self-identified race and ethnicity categories and different levels of English proficiency or preferred languages for care.[49,50] Recent best-practice recommendations provide guidance for navigating these challenges, but few organizations follow them yet.[50] Understanding how REL-plus data are collected by your institution (who asks the questions, what questions they ask, what response options are offered, and if and when information gets updated) can help you understand possible limitations. Despite the limitations to these data, they provide essential insights into baseline disparities that may exist. Before beginning a QI project, stratify baseline quality measure data by as many of these variables to which you have access to look for existing disparities. Regardless of what data you have, think carefully about these factors as you complete steps 2 to 4.

Principle 2: System-Related Factors May Play a Role in Creating Disparities in Care, and Thus Must Be Considered Key Factors of QI Intervention Design

Carefully think through the relationships between the structures, processes, and outcomes of care for the aspect of care you want to improve. Consider the role of things like patient–provider trust, experiences of racism and discrimination, and family resources and skills (including those that are language-, literacy-, and technology-related) needed to access and implement recommended care, and how family stressors or competing demands might intervene. Ensure that you have a multidisciplinary QI team drawn from both the clinical area in question, as well as the communities most impacted by the disparity. This will include clinical providers, staff, and other stakeholders such as parents and community members, to facilitate a complete understanding of the process from multiple perspectives.

Principle 3: QI Interventions Will Likely Be Most Effective for the Populations That They Were Designed For, By, and With

Consider the mechanism by which your QI intervention proposes to improve a quality measure or outcome. Critically evaluate the formative work, pilot-testing, or previous studies to determine potential relevance for nonmajority populations. Examine the resources, capacity, and degree of engagement that will be required of both providers and families for successful implementation.

- Does the mechanism target causal relationships that are equally important for all patient groups?
- Is the relationship between the intervention and targeted process(es) likely to vary across groups?
- Will the degree of capacity and resources needed, either from providers or families, exclude some patient groups from benefit?
- How flexible is the intervention? Can it be customized or tailored for particular clinical sites or patient populations?
- Is there evidence of intervention effectiveness for nonmajority groups? How do the populations previously studied compare to your clinical population?

Principle 4: Context Can Cause the Best-Laid Plans in QI (ie, Even When Principles 1–3 Were Followed) to Go Awry. The Context In Which an Intervention Is Implemented Can Drastically Change Its Impact on Health Equity

Reflect on the context in which your intervention is being implemented and how that is likely to influence the quality measure or outcome you hope to change. Consider how your organization's culture, leadership, structure, and capacity differ from those in which the intervention was originally developed. Also, think through how context may influence provider capacity and intervention uptake.

- In what ways does your context differ from the contexts from which the evidence informing your intervention comes?
- Are there likely to be contextual factors influencing uptake of the intervention that may differ for different patient groups?

To illustrate the practical application of these 4 principles, we offer an example of how these principles could be applied to a QI intervention to improve early detection of and intervention for developmental delays in primary care.

Principle 1: Understand Preexisting Disparities

As a first step, the QI team reviewed baseline rates of developmental screening at the 9-, 18-, and 24- or 30-month well-child visits and referral to early intervention[51] overall and stratified by patient parent-reported race and ethnicity, parent-preferred language for medical care, and insurance type. They identified that screening rates were low overall and particularly low for children with Medicaid insurance or a parent who preferred a language other than English for medical care. They recognized that, to eliminate this disparity, the QI intervention needed to be designed to work best in these populations.

Principle 2: Consider System-Related Factors

The QI team began by mapping patient, staff, and provider processes for developmental screening, referral to early intervention, and enrollment in services. In doing so, they identified barriers at each step that were likely to affect patient groups differently based on things like language and literacy (eg, ability to self-administer the screening form in written English), culture (eg, relevance and predictive validity of the questions on the screening tool), and economic stressors (eg, competing priorities for referral follow-up and scheduling). The expected effect of these barriers matched the identified baseline disparities. The clinic-based QI team wanted to ensure they had representation from all relevant parts of the process, so they invited 3 parent advisors (see Step 2), a medical assistant (who administered the screening tools), a patient service representative (who helped coordinate and send referrals), and staff from the local early intervention agency to join the team.

Principle 3: QI Interventions Are Most Effective for the Populations That They Were Designed for, by, and With

To design their intervention, the team identified published strategies that had been successful elsewhere for families with low income and preferred languages other than English. They also reevaluated their current developmental screening tools. They realized their screening tool had been developed and validated in English among primarily high-income, well-educated, White parents, and that their translated versions had not undergone cultural adaptation or validation to ensure that they made sense in a different linguistic and cultural context. They, therefore, chose to switch developmental screening tools to use one that had been developed and validated among more diverse populations, recognizing that such a tool would be more likely to accurately identify children with developmental concerns from a variety of backgrounds.

Principle 4: Context Can Cause the Best-Laid Plans in QI to Go Awry

After careful planning, the multidisciplinary team launched their intervention and began tracking rates of screening, referral, and enrollment in developmental services, overall and stratified by REL plus insurance. They initially saw improvement in all metrics, with a disproportionately large improvement among children with Medicaid and a narrowing of the baseline disparity. Four months into the intervention, however, the insurance disparity began to widen again. With additional investigation, they identified that the change occurred when the clinic lost its full-time social worker. Without the social worker, providers were addressing the social needs of families during their medical visits, and thus had less time to review, discuss, and respond to developmental screening results with these families. In this newly altered context, an intervention that had previously been decreasing disparities began to increase them by continuing to improve screening and referral rates for better-resourced families while leaving those with additional stressors behind. However, the QI team was tracking their metrics stratified by REL-plus data, and they identified the problem early and took steps to address it.

By carefully considering the ways in which your QI intervention may perform differently for patients on the basis of REL-plus variables, guided by the principles and questions above, you can identify the stakeholder groups or communities that are at risk for disparities related to the care processes you are seeking to improve. These are the communities whose engagement in intervention development and evaluation planning are essential if we are to achieve the promise of improving equity through QI.

STEP 2: ENGAGE THE COMMUNITIES THAT EXPERIENCE THOSE SPECIFIC HEALTH AND HEALTH CARE DISPARITIES IN YOUR QI PROJECT WORK

Meaningful engagement with the communities or populations that currently experience disparities or are at risk for them is essential for a number of reasons. Although the cognitive exercise of thinking through the questions above will generate important insights into where disparities might occur, community engagement is essential for designing QI interventions that will successfully address those disparities.

How such engagement is structured can occur in a number of ways, with varying levels of participation and direction from community members. On one end of the community–academic partnership spectrum exist investigator- or provider-driven projects, which are generally designed primarily by providers or investigators with structured input at defined time points from community members through focus groups, interviews, or family advisory councils. This approach may be most accessible to provider groups with shorter time frames or more limited resources for their QI work. On the other end of the spectrum exist community-driven projects, which are generally designed and overseen primarily by community members with technical assistance or input from providers or investigators. Tools exist to help participants in such partnerships identify and clearly delineate the extent of the community involvement and expectations of both partners ahead of time.[52] Regardless of the type of academic–community partnership, 3 key principles apply:

Principle 1: Establishing a Relationship

Trust between partners is essential for engagement, productive collaboration, and intervention uptake. In many cases, this requires work to establish and maintain relationships over months to years, genuine interest in community needs and priorities, and careful attention to setting and meeting expectations in a consistent manner.

Principle 2: Valuing Community Partner Time

Community partner time must be valued appropriately, with reasonable remuneration and reimbursement for the time and expenses (including childcare, transportation, and food) associated with participating in the project. Authorship discussions should occur early in the process and be explicit.

Principle 3: Ensuring Full Engagement

Project activities should be structured in a way to promote full engagement of all participants with attention to overcoming barriers related to professional hierarchy, education, literacy, or language.

These 3 principles are well illustrated by a community-engaged intervention design process used across multiple research projects conducted by the last author. Two of these projects are the Parent-Focused Redesign for Encounters, Newborn to Toddler intervention; and the Telehealth-Coordinated Referral intervention.[29,30]

Principle 1: Establishing a Relationship

In these studies, we first identified nonacademic partner clinics that have a shared need in the topic area (eg, improvement in well-child care or in specialty mental health referrals), and served the population experiencing disparities in child health outcomes (low-income Hispanic and Black families). In these academic–community partnerships, the community is the nonacademic clinic or practice, and the relationship with the community is cultivated over the course of years, first in meetings, then in small formative projects, and, finally, in a larger multiyear project. We engaged clinic staff, providers, and administrative staff and leaders, and the families that they serve in early discussions of how the study would be structured to be sure the study was of interest to the community and that the design and the research trial would meet the clinics' needs and priorities.

Principle 2: Valuing Community Partner Time

A community advisory board (CAB) was established as an avenue for these stakeholders' continued engagement in both designing and testing the intervention. CAB members (parents, staff, providers, and clinic leaders) received an annual honorarium for their participation (in accordance with the organization's policies), and parents received childcare reimbursement, door-to-door transportation to project meetings, and in-person interpretation if needed.

Principle 3: Ensuring Full Engagement

Finally, the CAB functioned in a nonhierarchical way and honoraria levels were consistent across CAB member types; the group emphasized valuing all input from all members, parents were included regardless of English language proficiency, and academic research staff conducted premeetings with parents to help them digest content and objectives and get them up to speed on topics that other CAB members worked on every day but were less familiar to parents.

Project-specific considerations for these above principles should be included in all reports and publications for dissemination. In particular, these considerations should be standard for QI peer-reviewed publications; indeed, we would advocate that the next iteration of the Standards for Quality Improvement Reporting Excellence guidelines should explicitly require a section entitled "equity considerations," perhaps immediately preceding the section on ethical considerations.[53] Regardless, research has revealed that meaningful participation and diverse perspectives from stakeholders, including coauthorship on publications, is critical for productive partnerships, identifying promising QI interventions, and improving health equity.[54]

EXPECTED CHALLENGES

Designing improvement work that improves health equity requires additional time and resources. Engaging community partners is essential, so QI project time lines and budgets should be created to reflect that. Equity-oriented improvement work also poses conceptual and logistical challenges that experienced QI practitioners may not have had to grapple with previously. Although the approach we suggest here will challenge QI practitioners and health care systems in new ways, stretching ourselves and our systems to meet these challenges is an essential part of the work to achieve more equitable outcomes for our patients and families.

CONCLUSIONS

Despite wide and enthusiastic interest in projects focused on improving quality or equity in the US health care system, we continue to make slow progress on both fronts. An increasing number of authors argue for combining the 2; we would argue that the 2 are already, and always, inextricably linked because every health care system or measure that QI might seek to improve has the potential to improve, maintain, or exacerbate an underlying health or health care disparity. Thus, all QI interventions are health equity interventions and should be considered as such. Careful consideration of the underlying system, the proposed QI intervention, and the local context and how those things may differ with regard to any of the REL-plus variables can help to identify groups that may experience a disparity as a result of the QI intervention. Engagement with these populations ahead of time, to carefully understand their needs and priorities and how best to address them, is an essential component of successful equity work. By routinely incorporating community engagement into QI interventions, we may finally start to make important strides in improving both the quality and equity of the care we provide for everyone.

ABBREVIATIONS

CAB: community advisory board
LEP: limited English proficiency
QI: quality improvement

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