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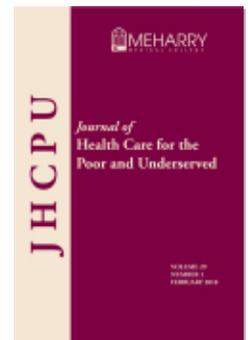
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The Electronic Health Record and Health IT to Decrease Racial/Ethnic Disparities in Care

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Abstract: The Electronic Health Record (EHR) now has high penetration in both ambulatory and hospital care. How can this technology be utilized to reduce racial and ethnic disparities in health care quality? We suggest a three-step process. First, routinely obtain accurate, detailed, and complete race and ethnicity data. Second, use these data to identify and monitor inequities in care, and explore the contributing factors. The third and most important step, is to employ the power of the EHR and its associated digital tools for interventions to actively reduce the extent of these disparities.

Key words: Equity, disparities, adoption, quality of care, health IT, electronic health record.

Over a decade ago, the Institute of Medicine (IOM) published *Unequal Treatment*, which described consistent racial and ethnic disparities in the quality of health care across a range of clinical conditions and specialities.[1] "Quality" can be defined as "the degree to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge,"[2] and was, in the IOM report, measured by multiple process and outcome indicators. The national response was swift and substantial, including the founding of the Commission to End Health Care Disparities and annual monitoring through National Healthcare Disparities Reports.[3] These efforts have had modest success—there are indications that some disparities in processes of care have decreased[4]—and we have a better understanding of the causal mechanisms that contribute to inequities, such as place of care.[5] Yet major disparities in health care quality persist.

Over this same interval, there has been another considerable change in the healthcare delivery setting —the U.S. is now using the electronic health record (EHR) in clinical care, with over 80% penetration in both outpatient and inpatient settings. While this technology has led to modest improvements in quality, these have not been consistent

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or always clinically meaningful.[6] We suggest that it is time to use the EHR to close racial/ethnic inequities in care and propose a three-step process.

The first step is to obtain race and ethnicity data—routinely, accurately, completely, and according to national guidelines. A second stage is to use our EHR and Health Information Technology (HIT) functionalities to apply explicitly what might be called an *equity lens* to health care quality. The third—and hardest step—is for organizations to use the EHR and digital tools to develop specific approaches to address disparities in quality of care. We will examine each of these in more detail.

Step 1. The importance of being counted electronically

The adoption and use of the EHR and HIT has increased rapidly over the past decade, in part because of incentives from the Health Information Technology for Economic and Clinical Health (HITECH) Act, and the Meaningful Use program.[7] This initiative aims to encourage the effective and clinically relevant use of EHR technology by incentivising healthcare providers to reach milestones of "meaningful use" of their EHR within given timeframes. One requirement to achieve Stage 1 or 2 of this program is the collection of race, ethnicity, and language information through the EHR platform, with a specific directive around granular ethnicity categories. In brief, ethnicity should be self-identified and detailed, and allow multiple ethnic groups. Data systems should also be flexible to allow people to change their declared ethnicity over time—as did around 9.8 million Americans between 2000 and 2010.[8]

Despite this, many organizations and providers lag in the collection of ethnicity data according to these recommendations. As one example, Minnesota is a high-adopter state of HIT and the EHR, with around 97% of ambulatory providers using an EHR in some form and 76% entirely paperless. That said, the 2015 Minnesota HIT survey showed that only 65% of these providers used an EHR that even had the capacity to record granular ethnicity information—of this group, around 20% did not consistently collect this information.[9] How does the rest of the country fare? Notably, Healthcare Information and Management Systems Society (HIMSS), who conduct the largest national survey of HIT, does not ask organizations whether their EHRs have the capacity to record granular ethnicity.[10]

While some organizations have implemented the guidelines within their EHR, others have been less willing or successful. There are various reasons, involving the patient, the health care worker, and structural characteristics of the organization. Consumers may be apprehensive about providing this information, because of concern about profiling or discrimination. Similarly, some health care staff feel uncomfortable asking detailed ethnicity questions, have insufficient time for this task, or may not appreciate the importance of these data to health care equity.[11]

That said, technology can provide solutions to some of these barriers. Patient-facing digital tools may facilitate the completion of self-identified ethnicity, and the editing of this information over time. Health information exchange and other communication tools mean that this race and ethnicity data may be more readily shared, reducing the need to duplicate data collection.

Data constitute an essential piece in working towards equitable health care qual-

ity. But beyond this, ensuring the collection of accurate data on an individuals' racial and ethnic identity has ethical and moral importance. As discussed in the publication *Counting for Nothing:* "Being counted is an acknowledgement of both existence and value. It means that one matters." [12][p16]

Step 2. The EHR as an equity lens

With better race and ethnicity data, organizations will be able to identify and monitor health care disparities in ways that are flexible, clever, and—above all—efficient. Using data routinely to report within an organization—and to external bodies—on clinically inexplicable differences in care is fundamental. However, this only begins to answer the call for this type of monitoring from national agencies, which were recommendations made more than a decade ago. Some providers and regions use *disparities dashboards* to provide this type of information (for example [13])—however, these focus primarily on differences in health or social outcomes, or access to care. While quality measures such as readmission or survival are important in identifying potential health care disparities, the EHR data and associated HIT tools mean that process of care indicators (such as adherence to guidelines, referral rates, and medication regimes) can be routinely sub-analyzed by race/ethnicity. The digital health care age also allows us to dig deeper into disparities, to illuminate and explore mechanisms that may be contributing to inequities, including institutional racism, implicit bias, and structural barriers to high-quality care. A true *EHR-equity marriage* would also consider potential unintended consequences of quality interventions. Enabling a sharper, more precise understanding of how our patients interact with the health care system improves the specificity of these strategies, and differential effects can be modeled to predict explicitly their impact on disparities in care.

Step 3. Intervene to decrease disparities in health care

The previous two stages provide a foundation to aid the identification of inequities, and facilitate the exploration of their genesis and perpetuation. Step 3 requires action—EHR-based interventions that decrease disparities in health care. Organizations will likely need an array of approaches, and specific groups may need tailored interventions. Some strategies may be simple and intuitive, such as alerts and clinical decision support targeted to those at risk of lower quality care. Patient portals may be an important tool for closing gaps; one study found similar use of these portals across racial/ethnic groups, despite initial differences in levels of adoption.[14] Platforms such as PatientsLikeMe and 'Up Together' demonstrate the importance of social connectivity for patients, and the benefits of data sharing at the community level.[15] Privacy issues aside, the linking of EHR-based information to social networks has the potential to create a new age of patient-centered care and may be of particular benefit to individuals historically more marginalized.[16] There are also opportunities for complex and innovative approaches that use predictive health care analytics, precision medicine, and deep learning, in order to reduce the impact of potentially negative human processes such as stereotyping and implicit bias.[17] Using HIT tools and predictive analytics, we can

create individualized management algorithms based on the characteristics and past behavior of the clinician and patient.

There is great excitement about the potential of the EHR, HIT more broadly, and big data. However, there is also frustration that the EHR is not yet delivering substantial benefits in quality. We suggest that understanding and reducing disparities should be a high-priority application of the EHR. This is an issue of justice and fairness that persists and harms, despite recommendations from many influential organizations.

First, organizations must use the EHR routinely to collect accurate, standardized, and complete race and ethnicity data; this requires the willingness of health care staff, working synergistically with electronic tools. Second, the EHR should be used to identify and monitor disparities, assess the impact of interventions, and explore the factors involved in these health care disparities. Finally, we need strategies to target these inequities, ranging from the simple and straight-forward to the innovative and bold, and the EHR and HIT offer new and exciting opportunities. These steps may enable us to reduce the many inequities in care that have remained so painfully persistent.

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