

Improving health equity through clinical innovation

Myrte de Alfred ¹, Kristin P Tully ²

¹Mechanical and Industrial Engineering, University of Toronto, Toronto, Ontario, Canada

²Obstetrics and Gynecology, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

Correspondence to

Dr Myrte de Alfred, Mechanical and Industrial Engineering, University of Toronto, Toronto, Canada; myrte.de.alfred@utoronto.ca

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Despite having the most expensive system of maternity care in the world, outcomes for birthing people in the USA are worse than other high-income nations. Critically, US outcomes also reflect deep and persistent racial and ethnic health disparities. The maternal mortality rate (deaths occurring within 42 days of pregnancy per 100 000 live births) in the USA was 23.8 in 2020, the highest of all comparable countries.^{1–5} Non-Hispanic black (NHB) and Native American individuals are two to three times more likely to die during or after childbirth compared with those who are non-Hispanic white (NHW).^{2,6} In contrast, maternal mortality outcomes for Hispanic and Asian/Pacific Islanders are generally comparable with those of NHW individuals,⁷ though some research findings suggest health disparities among specific subgroups.^{8,9} NHB and Native Americans also experience higher rates of severe maternal morbidity (SMM), resulting in significant short-term or long-term consequences to their health.^{1,10} While mortality rates among industrialised countries are highest in the USA, racial and ethnic disparities in outcomes have also been noted in Brazil, Canada, the Netherlands and the UK.^{11,12}

In the USA, an estimated 45%–65% of all maternal deaths and SMM are considered preventable.^{2,13–15} This fact draws attention to systems of healthcare and the opportunity to strengthen policies and services for health equity. The substantial ethnic/racial disparities, after controlling for patient factors across and within hospitals, suggest significant contributory factors, including quality of care.¹¹ Prior research has noted a range of provider and system-level factors contributing to maternal deaths and SMM but few studies examine mechanisms within clinical systems in relation to disparities in maternal health outcomes.^{16–18} Evaluation of health system and practice-level

factors is needed alongside population-level analyses to improve the quality of maternal care and eliminate disparities.^{2,6}

To help address maternal mortality and SMM and disparities in these outcomes, the Alliance for Innovation on Maternal Health (AIM), as part of the American College of Obstetricians and Gynecologists, developed and continues to offer core and supporting patient safety bundles.¹⁹ These bundles of evidence-based practices offer a structured way for clinicians, quality improvement specialists, and other stakeholders to improve patient care and evaluate outcomes. Bundle content is grouped into categories of readiness, recognition and prevention, response, and reporting/systems learning, with more recent inclusion of the fifth domain of respectful, equitable, and supportive care. The study by Davidson and colleagues²⁰ in this issue of *BMJ Quality and Safety* describes a quality improvement (QI) initiative at a large, academic hospital in Texas to reduce rates of postpartum haemorrhage (PPH) and the associated SMM rate through implementation of AIM's obstetric haemorrhage bundle and elements of the bundle on Reduction of Peripartum Racial and Ethnic Disparities (RPRED).²¹ Mortality and SMM from PPH have a high rate of preventability, making PPH a prime target for intervention.^{13–15} The QI project was part of an expansive effort to reduce PPH by 25% among Texas hospitals participating in the AIM programme. The project spanned multiple years with the pre-intervention phase including data collected from June 2018 to February 2019 and the post-intervention phase including data collected between March 2019 and June 2020.

The results of the study were promising. Post-intervention, there was a 22% decrease in the haemorrhage rate ($p < 0.01$). Most of this change was among



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NHB and Hispanic patients. The haemorrhage rate decreased among the NHB patients from 45.5% to 31.6% ($p=0.001$) and among the Hispanic patients from 33.2% to 25.3% ($p=0.028$). The haemorrhage rate did not significantly change among NHW or Asian patients. The statistically significant disparity in haemorrhage rate that existed across these groups at baseline was eliminated. However, the disparity in the SMM rate between NHW and NHB patients remained significant post-implementation. There was also a 26% reduction in patients requiring transfusion ($p<0.01$) over the project period. The authors attributed this reduction to better prevention efforts, and earlier diagnosis and treatment. This finding is important as blood transfusion is the most common indicator of SMM and, in the USA, NHB patients are transfused at nearly twice the rate of NHW patients.¹⁰

The article offers multiple contributions to clinical efforts to improve maternal care and outcomes. First, the team effectively implemented the AIM obstetric haemorrhage patient safety bundle at an individual hospital, as part of a state-wide learning collaborative. Implementation of interventions in health systems can be an intense process as it often requires intraprofessional planning and coordination, results in unanticipated downstream impacts that must be managed, and engenders challenges to both adoption and sustainability.²² Davidson and colleagues outline specific steps in the process including assembling multidisciplinary teams, gathering the planned data, and determining which elements of the obstetric haemorrhage and RPRED patient safety bundles were currently in place. Additionally, the authors highlighted challenges health systems may face at different stages in the measurement process including data availability and access. The hospital transitioned from collecting an internally developed composite measure to collecting the 21 indicators of SMM defined by the US Centers for Disease Control and identified using the corresponding International Classification of Diseases 10th Revision (ICD-10) codes.²³ The adoption of these standard measures is a strength, as the consistency facilitates state and national-level comparisons. Further, although not stated explicitly, the work described in the manuscript suggests that successful adoption of these system-level interventions involves requisite changes in organisational culture that begin with acknowledging that an opportunity for improvement exists, then committing to improving the system at multiple levels (organisation, team/units, individuals), and establishing systems of accountability for continuous action.

The second contribution is combining QI and equity efforts by implementing recommendations from the AIM RPRED bundle. This was an important decision, as there is no healthcare quality and patient safety without equity. Yet, health systems often undertake QI and patient safety efforts without consideration of health disparities in the process.^{24 25} In fact, equity

is often considered ‘the forgotten aim’ of healthcare quality.²⁶ In an explicit effort to reduce health inequities, Davidson and colleagues assessed baseline outcomes by patient ethnicity/race, as outlined by RPRED bundle. They then reported these findings at a departmental meeting as outlined in the reporting/systems learning step. Such data disaggregation is a critical component of identifying what is or is not working well and for whom.²⁷ However, this process may not be universally performed in safety initiatives. Part of the challenge is that hospitals may not have accurate or accessible patient ethnicity/race data in a single information system.^{24 28} In these cases, the required linking process represents a structural barrier. Matching these characteristics and other variables including patient primary language can be cumbersome. Prioritising this analysis is important because without disaggregating data, hospital leadership might assume that although maternal health disparities exist on national and state levels, it is not a problem locally.

In Davidson and colleagues’ study, the data disaggregation process demonstrated that NHB patients experienced higher rates of SMM than all other ethnicities/races delivering at the hospital and that these rates were increasing. To address this gap in equitable services, the team then discussed the potential roles of implicit bias and lack of standardised clinical care (readiness and recognition) in PPH outcomes and decided to intervene by including black race as a risk factor during PPH assessment. The investigators justify this approach through the intent that clinicians would be made more aware and therefore intervene sooner for NHB patients. They also report restructuring quality and safety case reviews to address patient ethnicity, race, language and social determinants of health. Interventions for the care of marginalised groups are necessary to address racial/ethnic disparities in maternal health outcomes. However, as described elsewhere by Crear-Perry and colleagues, it is racism that is a factor for disparities, not race itself, and disparate maternal health outcomes are the result of racism, gender oppression and classism.²⁹ Our collective work for patient safety through clinical care might therefore benefit by keeping awareness of systemic racism front and centre. Doing so may aid in our goal to first do no harm and to redesign systems of care so that all health team members see and act on what is needed for patients to be safe and well. Similarly, recognising that the term ‘women’ does not capture the full spectrum of those who can become pregnant and give birth provides us with opportunity to be more intentionally inclusive and accommodating.

In the paper, Davidson and colleagues do not consider characteristics of the clinical team. Adding this component to this type of work would be valuable because of the importance of racial and language concordance among healthcare professionals and patients, as well as cultural sensitivity.^{30 31} Relatedly,

there is an opportunity to assess both clinician and patient accounts of PPH management. Such qualitative work, and inclusion of patients in QI and health equity efforts, may offer important insights into the mechanisms by which disparities can be eliminated.³² Further, the authors did not discuss adherence or utilisation of each of the bundle elements, only compliance with the PPH assessment and quantitative blood loss measurement. A more nuanced perspective would provide insight on which components were deemed most important by the healthcare team.

Discussion of plans for ongoing monitoring of disaggregated outcomes, such as through the development of an equity dashboard and incorporation of an 'equity lens' in all QI initiatives, would also have been helpful.^{2 9 25} Davidson and colleagues hypothesised possible causes of outcome disparities, including implicit bias and lack of standardised care; however, inclusion of disaggregated process measures (eg, risk assessment screenings, trial of labour, induction of labour, vaginal birth after caesarean, anaesthesia type, antenatal steroid use, etc by patient ethnicity/race) would allow researchers to draw more robust conclusions. Current quality measures in maternal care may lack sensitivity in identifying disparities, thereby posing a challenge to equity efforts.³³ The development and implementation of equity-based metrics represent an opportunity for future research.³³

Prior studies have been very powerful in illustrating the extent of maternal health disparities and the development and implementation of interventions, including in hospital care, are needed to eliminate inequities in healthcare practices and outcomes.^{6 34 35} Patient safety and QI initiatives do not routinely assess ethnicity/race disparities in outcomes and the widespread absence of this approach is concerning as aggregated data can mask adverse outcomes in subsets of the population.^{24 28} Subsequently, health systems miss opportunities to design targeted safety interventions to address process inequities, and thereby risk perpetuating or exacerbating disparities. Overall, Davidson and colleagues demonstrated the substantive role that hospitals and health systems can take in improving health equity by establishing a goal of eliminating outcome disparities, disaggregating data, incorporating a health equity focus in QI initiatives, identifying sensitive and relevant measures, and developing a process for continuous tracking. These efforts should inform standard QI approaches in maternal care and beyond. Meaningful, sustained change is also advanced through engagement with patients and their families, and intentional efforts to identify and eliminate racism within the health system.²⁶ Understanding where systemic inequities exist in the delivery of care is an important part of establishing safe systems while reducing the huge, multifaceted costs associated with health disparities.

Twitter Myrte de Alfred @Myrte deA and Kristin P Tully @KristinPTully

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ORCID iDs

Myrte de Alfred <http://orcid.org/0000-0003-0045-0426>
Kristin P Tully <http://orcid.org/0000-0001-5214-2287>

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