Creative Nursing, Volume 26, Issue 3, 2020

Seeing Beyond Traditional Measurement: Recognizing the Value of the Experience of the Place, the People, and Their Work

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Seeing beyond traditional measurement means knowing the story behind the outcome. It means recognizing the value of the experience of the place, the people, and their work. The global community recognizes the crucial need to end preventable child deaths, making it an essential part of the Global Strategy for Women, Children, and Adolescent Health (2016–2030) and the third Sustainable Development Goal to ensure healthy lives and promote wellbeing for all people at all ages (World Health Organization, 2019). This article shares statistically significant results of a nursing training initiative at Whispers Magical Children's Hospital (WMCH) in Jinja, Uganda, in sub-Saharan Africa where the region persists with the highest under-five mortality rate in the world. But the richer data yield can be found in the experiences of two in-country visits. Finding ways to create educational efforts for nurses in underserved geographical areas is critical to the improvement of the health status of their communities. Bringing health technology to these areas will improve the delivery of high-quality, evidence-based care by nurses, with a direct effect of positively influencing the health status of women, children, and communities.

Keywords: sustainable development goals; telenursing; telehealth; maternal, infant, and child health

Seeing beyond traditional measurement means knowing the story behind the outcome. It means recognizing the value of the experience of the place, the people, and their work. Seeing the story unfold often yields richer data than statistical outcomes. This is such a story. Although we have clinically significant outcomes, the real takeaway from our research is the story. We will tell it through the lens of Situation/Background/Assessment/Recommendations (SBAR), a communication tool commonly used by nurses to call out concerns about patient care (Bonds, 2018).

Our journey began with a little boy named Walter (not his real name) who had been suffering from an undiagnosed heart condition in his hometown of Jinja, Uganda. Whisper's Magical Children's Hospital (WMCH), the local hospital, was not able to provide the necessary medical treatment. A national nonprofit organization worked with Norton Children's Hospital in Louisville, Kentucky, United States, to have Walter flown there for treatment. Unfortunately, the condition had taken its toll on Walter's small body and he died before surgery could be performed.

The organization that coordinated the transport of Walter's body home to Uganda discovered that his sister had the same heart defect but was healthier and could withstand the travel and surgery. WMCH's Chief Executive Officer Veronika Cejpkova and Chief Medical Officer Fahad Muyomba accompanied Walter's parents and sister on a second visit to Louisville. Thankfully, Walter's sister had successful heart surgery and was headed back to Uganda. But before returning home, the family and WMCH team met with Kathy Mershon, RN, the Chairman of the Board of the Galen Center for Professional Development, a company that delivers evidence-based practice resources and workforce development tools to nurses in the United States (https://nursedevelopmentresources.com), where Bobbi Martin was the Executive Director.

Kathy Mershon shared with me that the WMCH team informed her that education and training was their most pressing need. Without hesitation Galen Center electronic training resources used by thousands of nurses in the United States were delivered to the airport on flash drives to send back to Uganda

http://dx.doi.org/10.1891/CRNR-D-20-00010

with the WMCH team. Although we met some barriers with use of the flash drives, we worked with the hospital's IT department to give WMCH's nurses access to a learning platform where they could retrieve the interactive training even if they had no internet connection, a constant barrier in Uganda. Within two months all the nurses had received the latest evidence-based training offered from the Galen Center to practicing nurses in the United States.

The WMCH staff invited me to visit to see how they implemented the training, but also to seek continued professional development. Knowing that the Galen Center could not provide more support beyond what they already had, I created the Global Nurse Network to establish a virtual space where we could continue sharing evidence-based practices. Before long, I, along with Susan Mahoney, RN, the director of quality at Galen Center were on our way to WMCH to learn about their work, collaborate, and share knowledge about pediatric care across the globe.

SITUATION

The global community recognizes the crucial need to end preventable child deaths, making it an essential part of the World Health Organization's (WHO) Global Strategy for Women, Children, and Adolescent Health, and the third of the Sustainable Development Goals (SDGs) to ensure healthy lives and promote wellbeing for all people of all ages (WHO, 2019). SDG Goal 3 calls for an end to preventable deaths of newborns and children under 5 years of age and specifies that all countries should aim to reduce neonatal mortality to at least as low as 12 deaths per 1,000 live births and under-five mortality to at least as low as 25 deaths per 1,000 live births by 2030 (WHO, 2019).

Given the current burden of deaths, child survival remains an urgent concern. In 2017 alone, 5.4 million children died before reaching their fifth birthday; 2.5 million of those children died in the first month of life (United Nations Children's Fund [UNICEF], 2019). According to UNICEF, "at a time when the knowledge and technology for life-saving interventions are available, it is unacceptable that 15,000 children died every day in 2017, mostly from preventable causes and treatable diseases" (2018, p. 2).

BACKGROUND

Whisper's Magical Children's Hospital (WMCH) in Jinja, Uganda provides care for up to 1,000 children every month in sub-Saharan Africa, a region with the highest under-five mortality rate in the world (see Figure 1). The African Region where this training was conducted continues to have the lowest life expectancy, highest neonatal mortality rate per 1,000 live births, highest infant mortality rate (probability of dying by age 1 per 1,000 live births), and highest under-five mortality rate (probability of dying by age 5 per 1,000 live births). To put it in perspective, in the Americas, approximately 14 of every 1,000 live births result in death. In sub-Saharan Africa, 90 of every 1,000 live births result in death.

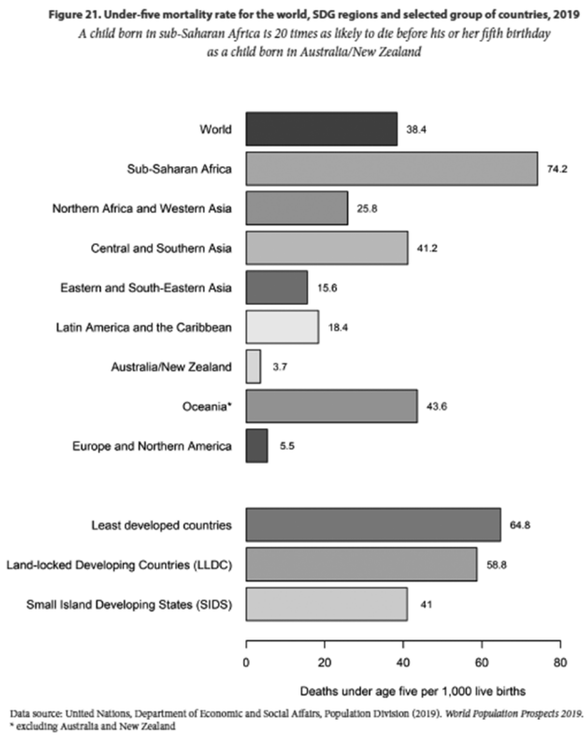

Figure 1. Under-Five Mortality Rate
Source: United Nations, Department of Economic and Social Affairs, Population Division (2019).

ASSESSMENT

Preparation for our trip to Uganda began in January 2019 and included live Zoom planning meetings and correspondence with WMCH leadership and staff to arrange our visit and itinerary. The WMCH team identified that their most significant need was training in cardiopulmonary resuscitation (CPR). We planned to conduct a complete needs assessment upon our arrival to ascertain additional learning needs.

Our first in-country visit was February 28 through March 10, 2019. As we shadowed hospital staff during

their shifts, they unequivocally identified their most pressing need as improving their resuscitation efforts. Both nurses and doctors reported feeling stress and a lack of confidence during codes and the team felt they needed more training and practice.

First Light Came On: Lessons in Assumptions

Although we collaboratively identified a need for CPR training, our team had not realized that among the nursing staff there was a lack of critical foundational skills of assessment and prevention. In addition, basic assessment tools were lacking—nurses did not have watches or stethoscopes. While we could teach the WMCH team CPR, we realized that better assessment and monitoring skills would have a greater impact on patient outcomes and on staff competence and confidence.

We pivoted our attention to teaching about a tool they already had but had not used: the Pediatric Early Warning System (PEWS), an evidence-based tool that helps identify when a child is deteriorating, before resuscitation is needed (Duncan, Hutchinson, & Parshuram, 2006). The staff were eager to learn how this tool could reduce the number of resuscitations and continue to improve patient outcomes. They immediately set a plan to implement PEWS scoring on all pediatric emergency patients and began shift-to-shift PEWS reviews.

Non-governmental organizations Supplies over Seas (SOS; https://soshealthandhope.org) and Healing the Children Kentucky Chapter (https://www.healingthechildren.org) sent much-needed supplies including stethoscopes and watches that were delivered May 15, 2019. We made our second in-country visit June 25 through July 10, 2019.

Second Light Came On: The Tool Didn't Translate

During our second visit, nurses had watches and stethoscopes, but continued to struggle to assess patients and to be organized and systematic in resuscitation situations—the same learning they told us they needed six months before.

We donned our learning mindset a second time and gave nurses on all shifts hands-on training in head-to-toe assessment and the application of PEWS. We collaboratively assessed patients from bedside to bedside, always learning and teaching. We identified three key staff members who had excellent assessment skills, and observed them providing training to their colleagues to ensure consistency and competence.

After returning home from our first visit to WMCH, we conducted a literature search of telehealth capabilities in Uganda, and learned of Dr. V. M. Kiberu, who had determined that the region was ready and eager for this type of technology (Kiberu, Scott, & Mars, 2018. We immediately reached out to Dr. Kiberu, who invited us to meet in person during our next visit. In preparation for our visit, meetings were arranged with the Ugandan Ministry of Health, the Ugandan Nurses and Midwives Council, and the Departments of Research and Biostatistics at Makerere University School of Public Health (MakSPH). We established relationships with governmental agencies and MakSPH to support future work.

During our second visit in July 2019, the leadership team at WMHC told us that anecdotally there had been a significant reduction in the number of resuscitations since our first visit. We were eager to see if there was evidence to support this. MakSPH graciously agreed to collect data that could substantiate this anecdotal evidence.

We collaborated with Dr. Nazarius Tumwesigye, Chair of the Department of Epidemiology and Biostatistics at MakSPH, and Masters of Public Health candidate Chris Balwanaki to collect data at WMCH. Retrospective data was collected from patient files between October 1, 2018 (6 months prior to intervention) and August 31, 2019 (after two in-country interventions and additional live Zoom trainings).

We sought to learn from the data what was known of the child upon arrival. Did inpatients have vital signs measured on arrival? Did they have their medical history with them to aid the doctors and nurses during treatment? If they were transferring from another facility, what was the provisional diagnosis, if known? We also investigated the working diagnosis to assess if the children's medical interventions were the appropriate ones.

Disseminating critical evidence-based practice recommendations among nurses who deliver care in underserved regions where the primary patient populations are women and children empowers these nurses to advance the well-being of their patients, families, communities, and society.

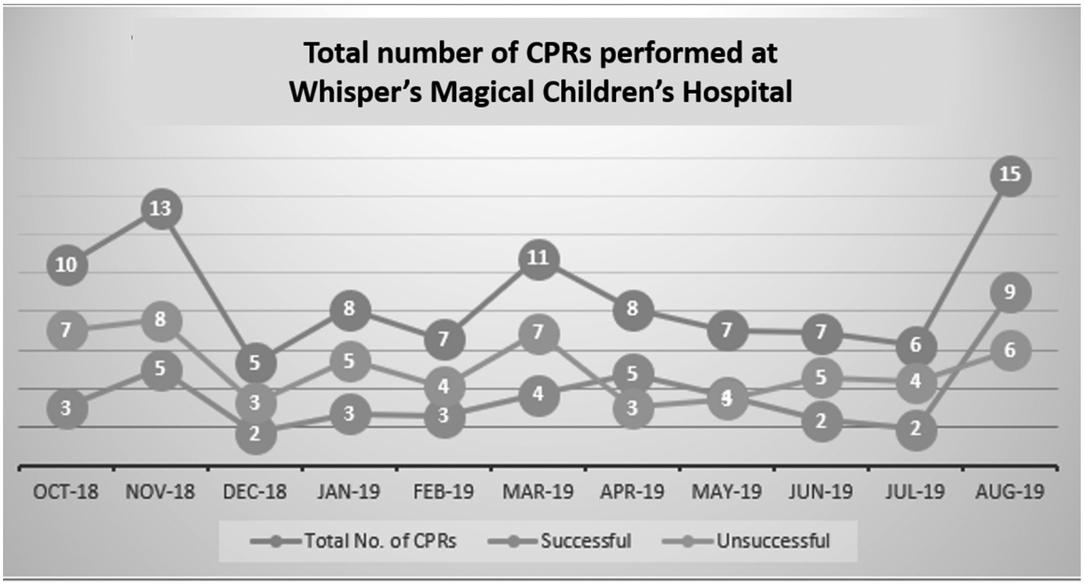

Figure 2. CPRs performed at WMCH.

Figure 3. Difference between unsuccessful and successful CPRs.

Notes on resuscitations were assessed to see if they conformed to the practices shared during the training sessions. We also considered the number of successful and unsuccessful CPRs. Figure 2 shows the total number of CPR interventions performed on both inpatients and walk-in out-patients within the assessment period, as well as the total number of successful and unsuccessful CPR interventions.

Figure 3 shows the difference between unsuccessful and successful CPR. The dotted line running through is a trend line showing the general movement towards the zero line and into the negative area. This shows that the number of successful CPR interventions have been gradually increasing, while the unsuccessful have been decreasing, reducing the difference to zero. Some months had more successful CPR interventions than unsuccessful.

RECOMMENDATIONS

The results of this initiative went beyond our expectations. Trainings started with the mindset of equipping the nurses and doctors at WMCH with the necessary skills for performing CPR. The change in mindset from training in CPR skills to training in using PEWS allowed nurses to identify early warning signs and potentially avert the need for CPR.

The nurses at WMCH organically shifted from an episodic and responsive care model to a continuous and preventive model.

Furthermore, the increase in the proportion of successful CPR interventions indicates that CPR training improved CPR management for those requiring it. We had hoped the nurses would attain competency in performing CPR, but had not considered that we would achieve something greater that went beyond the evidence: a change in how they delivered care.

For every 1,000 children cared for at WMCH, 38 of them required CPR. With performance averaging nine CPR interventions per month, the successful CPR patterns show an increase while the unsuccessful CPR patterns show a decline. The lines intersect in July 2019, the time of our second in-country visit. These results also suggest that more children were prevented from reaching critical stages of illness, possibly by closer monitoring while on the ward, a factor that WMCH staff anecdotally attributed to the training offered to the medical team.

Our education and training of health-care professionals at Whisper's Magical Children's Hospital in Uganda was facilitated by open-source technology, specifically Zoom meetings with audiovisual captures, Camtasia used to edit recordings for relevancy and just-in-time information, and a closed Facebook page where recordings were uploaded for all WMCH staff to access.

RECOMMENDATIONS

Disseminating critical evidence-based practice recommendations among nurses who deliver care in underserved regions where the primary patient populations are women and children empowers these nurses to advance the well-being of their patients, families, communities, and society. Imagine the impact that coordinated technology resources, nurse experts, and nurses who need support in serving underserved populations can do together to elevate the status of their communities. Finding ways to connect expert nurses to nurses in underserved geographical areas is critical to the improvement of the health status of their communities (World Bank, 2012). It is projected that health-care technology spending is expected to grow from $150 billion USD in 2019 to $243 billion by 2021 (Healthcare IT Market worth 280.25 Billion USD by 2021, 2018). This projection is an increase from original projections of $130 billion before the COVID pandemic (Covid-19 Impact on Internet of Things (IoT) Market by Components, 2020). Bringing health technology to these underserved areas will improve the delivery of high-quality, evidence-based care by nurses, with a direct effect of positively influencing the health status of women, children, and communities. But health-care technology spending must integrate support for human resources. It is the human interaction that extends our knowledge beyond the evidence with richer data reflective of the experience of the place, the people, and their work, and that can generate insights for better outcomes.

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Disclosure. The authors have no relevant financial interest or affiliations with any commercial interests related to the subjects discussed within this article.

Funding. The author(s) received no specific grant or financial support for the research, authorship, and/or publication of this article.

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