MEDINFO 2019: Health and Wellbeing e-Networks for All
L. Ohno-Machado and B. Séroussi (Eds.)

doi:10.3233/SHTI190592

Alicanto Online Latin American Maternal Informatics Community of Practice

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Abstract

Most cases of maternal deaths could be avoided with timely access to quality healthcare, but a key challenge in addressing quality of care in maternal health is the lack of accurate data and analytics. Implementing online communities of practice is a way to resolve this, but in low--and middle-income countries this is particularly challenging. We discuss the design of the Alicanto Online Latin-American Community of Practice that focuses on both outcomes and process indicators.

Keywords:

Information Technology, Pregnancy, Quality Improvement

Introduction

The health of pregnant women is critical for global development. The Sustainable Development Goals (SDG) agenda and the Global Strategy for Women's, Children's, and Adolescent's Health 2016–2030 aim to reduce maternal and newborn deaths [1]. Most cases of maternal deaths could be avoided with timely access to quality healthcare, but a key challenge in addressing quality of care in maternal health is the lack of accurate data. Accurate data improves our knowledge of whether the effective interventions are being received by pregnant and post-partum women and enables the targeting of resources to those most in need. However, diverse outcomes of interest, variable standards of care, quantity and quality of data can be drastically different, as well as cultural and other differences; can substantially modify measurements depending on the outcomes of interest studied.

To improve maternal outcomes in Latin America (LA), we are implementing an online community of practice that can deliver evidence-based guidelines and collect priority indicators, while providing spaced learning medical education and guidance for the measurement and monitoring of maternal and health. This paper describes the challenges in maternal data collection in low- and middle-income countries, and the design of the Alicanto Online Latin-American Maternal Informatics Community of Practice.

Challenges in Global Maternal Outcome Networks

In many low-income countries, maternal deaths go uncounted and frequently the cause of death is unknown or not recorded correctly and the maternal care process is equally poorly registered or not registered at all [2]. Many patient registration systems and electronic health records in low resource settings have problems with non-standardized record-keeping techniques which result in missing records, inconsistencies, poor data quality, and inaccuracies and hence undermine evidence-based decision making in healthcare service delivery [3]. This makes it difficult for national health programs to allocate resources where they are needed the most. To achieve this goal is necessary the integration and harmonization of high amounts of heterogeneous medical data that is stored in different health information systems. Such a task is challenging in both developed and developing countries [4]. Comprehensive database applications for a domain can reduce such variation within this domain. The Netherlands established national domain information models to support electronic information exchange, using cases from perinatology as a national pilot [5]. They found that in some instances, additional agreements are necessary about the preferred vocabulary because the professional organizations need to harmonize their materials and the limitations are reached for what should be part of the standard, and what professional organizations should develop and maintain within their realm. Another challenge is data aggregation and overlap. For maternal care, clinical data is often generated from various sources (prenatal screenings, primary care providers, midwives) and the health information may exist in both paper-based and computer-based systems at institutions located in different geographical locations. The overlap across systems introduces the potential for data variation through duplication of data entry and differing concept definition or context of use. Studies show that redundant and inconsistent records lead to errors, extra effort, misdirected data, over-reliance on the spoken word, inaccuracies, information loss, limited standardization, miscommunications and limited outcomes evaluations being a major cause of medical incidents [6]. Research has also shown how coordination and communication among clinicians and across settings resulted in greater efficiency and better clinical outcomes [7]. In general, the burden on individual providers of collecting data has been well documented, as has the lack of use of data collected at such great cost [8], which breaks the feedback mechanism whereby monitoring and review can result in improved delivery of interventions.

Alicanto Network Objectives and Approach

The network objectives are to strengthen and enhance the existing national data systems and evaluation programs through information and communications technology (ICT). The project builds on existing regional communities of practice in maternal health, in which we will leverage technical expertise across LA to foster the exchange of lessons learned, building a sustainable and reproducible capacity of Human Resources for Health (HRH). These HRH can provide high-quality maternal care interventions for developing countries, particularly for hard-to-reach populations and vulnerable groups, maximizing the use of resources and guiding policymaking, in an attainable, informed and sustainable manner. At this point, the stakeholders of the network include hospitals and regional governments, member clinics at Argentina, Chile and Colombia

and the Division of Clinical Informatics (DCI) at Harvard Medical School (HMS), which has previously signed a framework agreement with PAHO to collaborate in supporting the advancement of eHealth in Latin America and the Caribbean. The network members are involved in co-creating the system and educational content for management of high-risk pregnancies relevant to their needs and agreeing on data encoding standards. The initial courses focus on pre- eclampsia and hemorrhage, which are the causes of most maternal deaths. This co-creation uses S.M.A.R.T goals and Bloom's Taxonomy [9] and is being done via weekly web conference meetings, sharing data dictionaries and database designs to achieve consensus on common data formats for outcomes comparison and establishing methods to capture process metrics.

Strategies aimed at reducing maternal deaths need to address inequities in access to good quality maternal health interventions, which are based on learning and applying best medical practices protocols, step-by-step labor, delivery and immediate postpartum period management guidelines. We will deliver those using web-based and mobile app tools (eLearning, mhealth) inside Alicanto Integrated Mobile Health Network, but also the platform provides an online consultation system (telehealth) for obstetric emergencies between rural HRH and experts at reference hospitals, allowing for appropriate, coordinated and timely patient referral to a higher level of care if needed. Participating centers will also have access to an asynchronous discussion forum to discuss with colleagues the guidelines and lessons learned from the cases; using validated, structured, and process-focused frameworks to reflect and learn from experiences, given the fact that it has been showed that medical knowledge, job satisfaction, and self-efficacy do not increase by only using an SMS-based continuing medical education (CME) intervention that fails to stimulate lateral learning i.e. learning from your peers [30]. Since processes variables are included in our design, these can be used in a feedback mechanism to identify areas for improvement and allocating resources in areas likely to have the greatest impact.

The first pilot is being conducted between Fundación Valle del Lili, a major teaching hospital in Cali, Southwest Colombia and a small rural clinic in the West Coast Pacific region. Despite recent efforts in Colombia to improve the number of health professionals in rural locations and implement a red code for postpartum hemorrhage in accordance with international standard obstetric protocols, Maternal mortality ratio (MMR) remains high and lags behind Latin American countries at a similar level of economic development (e.g., Mexico and Argentina). The isolated and discontinuous Colombian Pacific coastal lowlands have a majority of population with a uniquely African genetic heritage (90%) but there are also populations of mixed race (6%) and Native Americans (4%). This region has an MMR similar to 2010 African countries, like Ethiopia, Ghana, and Ruanda, or similar to Haiti, the country with the highest MMR in Latin America and the Caribbean [10]. The Alicanto platform will provide a scalable mobile solution to support rural clinics across Colombia with expansion to other Latin American centers. The second pilot is scheduled for Southern Chile and third pilot in northern Argentina, both in locations where experts are far away from major teaching hospitals.

Conclusion

By having co-creation of the network, we are achieving a standardized set of common goals and data metrics that can be useful at the local level while being also useful at a regional level for data comparing. By having harmonized sets of data and tools, according to site characteristics ranging from minimal to optimal infrastructure and clinical conditions, it will be possible to compare outcomes across similar centers. This will help to create a policy development platform that introduces a systematic approach to policymaking informed by evidence and collaboration between institutions and nations. The indicators and methodology can be reused by projects that map to the same core dataset and will be available in an online public repository and a community of practice will support the use and adaptation of the tools in the repository.

Acknowledgements

Funding sources for the work and other relevant acknowledgements are noted here. Authors may also present disclosures or disclaimers to their work in this section.

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