Improving Maternal and Child Healthcare in Kenya through Data-Driven Programs

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ABOUT INNOVATIONS IN HEALTHCARE

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Introduction

In Kenya, the maternal mortality ratio is estimated to be 342 deaths per 100,000 live births,\(^1\) well above the global ratio of 211 per 100,000 live births and the Sustainable Development Goal target of 70 per 100,000 live births by 2030.\(^2\) Additionally, the quality of maternal care at Kenyan facilities, including antenatal and delivery care, is often low.\(^3\) In 2013, the Government of Kenya eliminated user fees for maternity care at public facilities with the aim of increasing access to care and reducing maternal and child deaths.\(^4\) However, maternal and neonatal mortality outcomes have not seen significant improvement despite increases in women accessing care following the Free Maternity Service policy.\(^5\) Research suggests that this disparity is attributable to a lack of adequate quality maternal healthcare services.\(^6\)

Jacaranda Health is a nonprofit that works to improve quality of care and outcomes for pregnant women and new mothers. Jacaranda partners with 20 county governments to implement affordable solutions at scale in public facilities throughout Kenya, where the majority of underserved mothers and babies receive care. Jacaranda’s programs include EmONC mentorship, a nurse mentorship program; PROMPTS, an AI-enabled digital health platform to educate and connect women to maternal healthcare; and resource-mapping to help health management teams address health system bottlenecks such as blood shortages or vaccine stock-outs in facilities. Jacaranda routinely collects data on mothers and health providers across Kenya through its work, helping identify priority areas for support in public health systems—such as low care quality—and improve government decision-making to rapidly address them in a resource-efficient manner.

By collecting data and sharing insights on women’s experiences with care, Jacaranda helps governments enact citizen-driven change in health systems and hold them accountable for delivering high quality, respectful care.

Data-driven Nurse Mentorship to Improve Maternal and Child Health Outcomes

In its nurse mentorship program, Jacaranda provides an innovative ‘training of trainers’ model, empowers nurses at public facilities to educate, train, and evaluate other providers in basic and emergency obstetric and neonatal care (EmONC). The program combines a simulation-based training package, in-facility coaching for skill improvement, and advisory support helping facilities resolve the system-level bottlenecks hampering life-saving care delivery. As part of the program, nurse mentors collect qualitative and quantitative data on provider progress through the learning modules, improvements in performance, areas of low provider competency, and resource availability at facilities, including shortages of staff, commodities, and other resources. Jacaranda then leverages this data to help its government partners identify gaps in training and service quality amongst frontline nurses, such as low performance across certain modules, and address them with tailored skills-building exercises.

Jacaranda Health has seen measurable results from its capacity strengthening efforts. At facilities where its mentorship program is deployed, 90% of essential steps are performed during every delivery, with greater than 85% of newborn complications and greater than 90% of maternal complications resolved appropriately.\(^7\)
Jacaranda also leverages data to improve maternal health outcomes through its digital health platform PROMPTS (Promoting Mums Through Pregnancy & Postpartum Through SMS), a two-way SMS messaging service providing advice and referrals to pregnant women and new mothers. PROMPTS seeks to increase health-seeking behavior during the critical antenatal and postnatal periods by empowering women with information about pregnancy, delivery, and the postpartum period and reminding mothers to attend the recommended schedule of pre and postnatal care visits in facilities. The platform also uses Natural Language Processing (NLP), a machine learning approach, to read and respond to thousands of questions from mothers each day, as well as prioritize and flag these messages for clinical urgency, allowing a trained team of helpdesk agents to rapidly refer women at risk to urgent care. Jacaranda's platform uses machine learning to become more accurate over time by applying learning algorithms that use historical data from women's messages to predict new output values.

Through the growing number of interactions with mothers, Jacaranda is able to continually improve its ability to determine the intent of a mother's message, assign priority, and provide a tailored response. Through surveys sent via the PROMPTS platform, Jacaranda also collects data on quality of care, including women's experiences during their healthcare visits, provider adherence to care standards and protocols, and resource availability. The Jacaranda team uses this data, together with data from its mentorship program, to inform its quality improvement work and share data insights with public sector partners.

Data captured through Jacaranda's programs is analyzed to visualize progress and identify gaps in maternal and child health services so that Jacaranda and its county health system partners can use data insights to design and improve their programs.
Jacaranda Health has enrolled over 980,000 mothers through PROMPTS and has already seen significant progress on key maternal health indicators. Women enrolled in PROMPTS were found to be:

- 2.3 times more likely to take up postpartum family planning, based on results from a randomized controlled trial.
- 1.22 times more likely to attend the recommended 4+ antenatal care visits.
- Over 80% of women flagged with a danger sign (and who were thus recommended to seek care) sought urgent care.

Jacaranda is working to address critical gaps in quality of care across Kenya by combining data on facility resources and staff capacity gathered through its nurse mentorship program with direct feedback on women’s experiences in facilities collected through PROMPTS. Each month, Jacaranda sends out a client experience survey to its PROMPTS users, aimed at better understanding the quality of care they received in facilities. The data is aggregated in ‘scorecards’ that rate facilities on factors such as respectful care and number of clinical steps performed. This, in turn, helps facilities take targeted action on issues such as disrespect or gaps in provider competency, and offers a robust evidence-base to help county and sub county health managers make effective decisions and distribute resources equitably.

### Facility Quality of Care Report Summary

- **Total number of enrollments**
  - Our target as Jacaranda is to hit a 100% and above enrollment rate of the mothers coming for this service in a month. In the last 1 month, we have enrolled 1578 mums (903 ANC and 675 PNC) and 0 dads at your facility which means we hit our target.

- **Feedback on quality of services from mothers who received care at your facility.**
  - Below is the data for the quality question asked monthly. “Were you treated with respect during your ANC visit/ during delivery?”
    - 86.55% were treated with respect. 5.82% were not treated with respect. 41.82% responded with an explanation while 50.55% responded without explanation. 7.64% were other responses (Neither YES nor NO).
  - Total number of responses: 275 Total number of positive responses: 238
  - Total number of negative responses: 16 Total number of other responses: 21

Add summary of Qualitative Responses e.g., As the data shows, majority of mothers reported respectful services with various explanations. However, several women mentioned that they are particularly happy with the health talks given every morning. The dissatisfied mothers mentioned several issues such as: waiting long on the queue, lack of palpation, delay in being attended during delivery and being asked to return to the facility the following day.

NB: For specific responses from moms, please see the excel attachment. Also, not all mums gave an explanation.

**EXAMPLE OF A FACILITY SCORECARD**

Jacaranda shares these scorecards with facilities, along with additional data, to help facilities make evidence-based decisions around quality of care.
Lessons Learned: Communicating Data Insights Effectively

- The Jacaranda Health team initially developed comprehensive data dashboards and visualizations to share with government partners but shifted its strategy upon feedback from partners that they would prefer shorter, more succinct tables that could be quickly opened via email and easily interpreted. Similarly, while benefits of data sharing for cooperation, efficiency, and impact of programs in public health are widely recognized, organizations across the globe have also faced motivational and technical barriers in data sharing.

Drawing from these experiences, the team has learned that to increase stakeholder motivation to review and take action based on data, it is important to first understand how these stakeholders would prefer to receive data and build formats that are convenient for them and appropriate for their levels of technical knowledge. Additionally, to be successful, data sharing activities should be clearly framed as addressing needs and adapted to local political and cultural contexts. To further empower its government partners to use data to drive decision-making, Jacaranda Health plans to offer capacity strengthening to county health managers to emphasize the importance and utility of data and to increase their abilities to understand and analyze data, thus increasing the demand for and use of data by public health systems in Kenya.

Recommendations to Health Innovators

1. Tailor data collection efforts to clearly address specific problems.

When planning programs, it is important to carefully consider the problem, types of data to collect, and how the data will be used over time to drive impact; then design programs intentionally based on these specific parameters rather than simply collecting any and all data.

- During planning stages, identify roles and responsibilities for data collection, analysis, and use throughout all stages, including end-users.
- Involve end-users in planning and design of the data to be collected.

2. When deploying new processes or tools, intentionally incorporate activities, including allocating sufficient staff effort and including the costs in budgets, for recording and measuring data from the start.

Inclusion of these measurement activities in project workflows from the outset is essential to be able to track and understand the impact of new program components.

3. Design the communication of data and insights to best suit the needs and preferences of the target audience.

Ensure that data, analyses, and insights are communicated using formats that are customized to the skills, knowledge, and workflows of the target audience and include stakeholders in data analysis and synthesis activities to increase stakeholder receptiveness to the data and reduce barriers to the data’s usage.
References


6. Sharma et al., “Poor Quality for Poor Women?”

7. Data shared by Jacaranda Health team, 2021

8. Data shared by Jacaranda Health team, 2021


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