

New AI tool helps provide better care to pregnant women in Kenya

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A new AI-based tool from Penn State researchers is designed to help improve access to health care for pregnant and neonatal mothers. Credit: Jjumba Martin

Kenya has one of the world's highest maternal mortality rates, and more than one-third of the country's maternal and neonatal deaths are due to delays in mothers seeking care. A new tool developed by a team of researchers from Penn State and Jacaranda Health—a nonprofit focused on improving maternal and neonatal health outcomes in Africa—has been shown to improve health outcomes for new and expectant mothers in Kenya by providing better and more immediate access to maternal health care services.

The team's tool, TRIage for Mothers using AI (TRIM-AI), uses [natural language processing](#)—a type of AI that allows machines to understand text and spoken words—to analyze text messages and flag those with language it identifies as indicating a potential danger. Flagged messages are given a weighted risk score and then presented to a small team of help-desk agents who evaluate case emergency levels and decide which cases should be answered directly and which cases need immediate medical intervention.

When compared to Jacaranda Health's baseline AI model, TRIM-AI is roughly 17% more accurate at predicting high-risk [medical conditions](#) from text messages sent by new and expecting Kenyan mothers, which reduces the help-desk agents' workload by approximately 12%. Their model also annotated messages more efficiently and accurately than human agents did.

"Being able to quickly and accurately automate the classification of messages is a critical step in improving maternal health care," said Amulya Yadav, PNC Career Development Assistant Professor at Penn State's College of Information Sciences and Technology. "Our tool improves the system's ability to identify at-risk cases in real time, helping mothers connect more promptly with local hospitals and clinics for care."

Jacaranda Health developed the two-way text messaging-based system through which TRIM-AI is deployed. Their system, called PROMPTS, is a free platform for expecting and new mothers that allows them to get answers and critical information about pregnancy, delivery and postpartum care.

"At our current scale on PROMPTS, we increasingly depend on rapid, reliable systems to fast-track mothers in need of lifesaving care. Our partnership with Penn State has helped us improve both the accuracy and speed by which we interact with the 2 million mothers on PROMPTS, ensuring that they get the right care at the right time," said Sathyanath Rajasekharan, co-executive director of Jacaranda Health.

PROMPTS has more than 350,000 active users in Kenya and receives 1.1 million messages every month, making it incredibly difficult for agents to accurately identify and triage the most urgent cases. TRIM-AI, which was deployed by Jacaranda Health in June 2022, automates much of this triaging by translating messages that are often sent in a mix of English and Swahili, as well as decoding abbreviations, symbols and other shorthand.

According to reporting by Jacaranda Health, mothers who send flagged messages are called by a help desk agent within one hour and referred to care, with 85% of mothers in identified cases going to the hospital.

"With the success of our pilot deployment, we are incentivized to explore the possibility of scaling up our risk-prediction system for improving maternal care in other developing countries around the world," said Yadav.

The team will present their findings at the [37th AAAI Conference on Artificial Intelligence](#) in Washington, D.C. from Feb. 7 to 14.

Provided by Pennsylvania State University

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