



## Ghana's Obstetric Triage Implementation Package (OTIP®)

### The Problem

Despite rising institutional deliveries in Ghana, **maternal mortality remains high** at 234 deaths per 100,000 live births, against the 2030 SDG target of 70. While access to delivery care has improved, persistent **quality gaps** — particularly delays in recognizing and managing high-risk mothers — continue to drive preventable deaths.

The **'third delay'** in receiving care — waiting in hospitals — can quickly lead to preventable, life-threatening **obstetric complications**, which cause nearly 80% of maternal deaths. In many low- and middle-income countries, hospitals operate on a **first-come, first-served basis rather than triaging patients based on need**. Often, when women arrive to give birth, they are already in a compromised state. Emergency obstetric conditions are time-sensitive, yet women often wait hours before being assessed (sometimes over 24 hours). **Timely assessment and treatment can make the difference between life and death** for the mother and baby. Obstetric triage systems are standard in high-income countries but almost entirely absent in sub-Saharan Africa. Ghana's OTIP remains a rare example of a nationally scaled model, as confirmed by two systematic reviews published in 2025.<sup>1,2</sup>

### The OTIP Solution

OTIP applies the concept of triaging into a **scalable, low-cost, system-integrated** package designed for hospitals in low-resource settings. OTIP **empowers midwives** to act without waiting for a doctor and to escalate care when critical; crucial for contexts with few doctors.

OTIP enables midwives in high-volume hospitals to rapidly assess incoming maternity patients and prioritize those most at risk. Dedicated **triage areas** are established where a midwife uses a **standardized assessment form** and **acuity chart** to identify risk and plan care. Patients receive **color-coded wristbands** to signal their level of urgency, and are monitored using a **Modified Early Obstetric Warning System (MEOWS)** chart to ensure timely attention if their condition deteriorates. Together, these tools have transformed patient flow and emergency response in maternity units.



### The Journey So Far

OTIP was **co-created by Kybele and the Ghana Health Service** with support from Grand Challenges Canada. It started in two large referral hospitals, where it was extensively tested and refined before being introduced in eight additional facilities, with evaluations showing the same **high levels of effectiveness**. Since 2023, the Ghana Health Service has led the national scale up of OTIP. It developed a cadre of **national champions to cascade training**, so that it now covers 110 health facilities, impacting over **70% of all births in Ghana**.

<sup>1</sup> Kassa, Z.Y., Dadi, A.F., Bizuayehu, H.M. et al. Implementation, effectiveness, and barriers of obstetric triage in reducing waiting time: a scoping review. *Reprod Health* 22, 43 (2025). <https://doi.org/10.1186/s12978-025-01982-7>.

<sup>2</sup> Abdalla Elsheikh NE, M Osman HM, et al. Effectiveness and Implementation of Obstetric Triage During Pregnancy and Childbirth: A Systematic Review. *Cureus*. 2025 Aug 1;17(8):e89215. doi: 10.7759/cureus.89215.

Scaling has been enabled through codified tools including:

- Manuals for a **two-day simulation-based training**;
- Interactive and participatory approaches that help hospitals design triage areas that fit their workflows; and
- Standardized forms, checklists, and protocols.

OTIP is designed for resource-constrained environments. It does not depend on continuous donor funding or complex infrastructure. It is **low-cost, simple, and adaptable**, and easily integrated into the fabric of hospital systems. **OTIP has been fully institutionalized** into national policy, pre-service midwifery curricula, and national data systems. Clinical champions were trained to lead internal rollouts, supervise peers, and mentor new staff. **Hospitals now continue OTIP without direct support from Kybele.**



## OTIP's Impact

The first pilot of OTIP saw a 23% reduction in maternal mortality.<sup>3,4</sup> An initial scale-up to nine facilities saw a reduction in deaths of 30% from 106 deaths/41732 deliveries the year before implementation to 68/38259 the year after. Evaluations across all national scale-up facilities 12 months after introduction found that:

- The median **arrival-to-assessment** time was reduced from 70 to 5 minutes.
- Triage assessment form completion was 95%, and **banding compliance** was 96%.
- **Banding accuracy** was 94%, and the **appropriateness of care plans** averaged 77%.

Interim results from the ongoing external evaluation by the Institute of Fiscal Studies (IFS) demonstrate **significant improvements in clinical outcomes**, e.g., a 16-percentage-point increase in the proportion of high-risk pregnancies administered drugs for complications.

A **cost-effectiveness analysis** undertaken during the initial pilot<sup>5</sup> calculated a cost of \$158 per DALY averted, well below the standard for cost-effectiveness (\$1,268). National scaling has seen the cost per birth fall from \$60 to \$7 without reducing effectiveness, which would reduce the cost per DALY averted to \$13.5, implying a **benefit-to-cost ratio** of 93.6:1.

## OTIP's Future

Given the lack of obstetric triage systems in **other sub-Saharan African countries**, OTIP could be adapted to contexts with similar needs. Kybele's vision is to position obstetric triage as a **global standard of care** in low- and middle-income countries, as it is in high resource settings. As per the recent systematic review, "Strengthening triage remains a vital step toward reducing preventable maternal and neonatal harm globally" (Elsheikh, et al., 2025).

*The first half of last year, we lost three mothers, but this year, after the introduction of OTIP, we've not had any mortality. Last year by now, we had about 44 still births. Now we are down almost 50%.*

Dr. Alexander Adjei  
 Acting Medical Superintendent  
 Shai-Osudoku District Hospital

*We would like to express our heartfelt appreciation to the initiative taken by KYBELE for introducing this obstetric triage implementation program. It's really been impactful.*

Dr. Ibrahim Friko  
 Head of Obstetrics & Gynecology Dept.  
 Holy Family Hospital Techiman

<sup>3</sup> Goodman DM, Srofenyoh EK, Ramaswamy R, et al. Addressing the third delay: implementing a novel obstetric triage system in Ghana. *BMJ Glob Health* 2018;3:e000623. doi:10.1136/bmjgh-2017-000623.

<sup>4</sup> Ramaswamy, R., Bogdewic, S., et al. Implementation matters: assessing the effectiveness and sustainment of an obstetric triage program at a high-volume facility in Ghana. *Implement Sci Commun* 4, 138 (2023). <https://doi.org/10.1186/s43058-023-00527-y>.

<sup>5</sup> Goodman DM, Ramaswamy R, et al. The cost effectiveness of a quality improvement program to reduce maternal and fetal mortality in a regional referral hospital in Accra, Ghana. *PLOS ONE* 2017 12(7). <https://doi.org/10.1371/journal.pone.0180929>.