Jacaranda Health
GDHN
March 24

Jacaranda Health is a non-profit organization building solutions to address the root causes to end preventable maternal & newborn deaths

Our Approach

1 Partner with government health systems where 80% of women deliver

2 Create and deploy proven, innovative, low-cost solutions to improve quality of care

3 Scale to improve health outcomes in a critical mass of public hospitals

4 Our innovations adopted as the national standard of care

Poor quality of care is at the root of maternal and neonatal mortality in Kenya

Over **80%** of recorded facility-based maternal deaths *could have been prevented through better quality care at the right time.*

33% of maternal deaths are caused by delays in seeking care

55% of maternal deaths are caused by delays in action or inadequate care by providers

Our innovative solutions are addressing critical challenges on both the demand and supply sides of timely, quality care

Healthy mothers, healthy babies

PROMPTS: digital health messaging platform that empowers women with information and **improves health-seeking behavior at critical moments**

MENTORS: Intensive, on-site EmONC mentorship program **Improves and sustains in life-saving emergency obstetric and newborn care (EmONC) skills**

We will deploy our package solution and improve quality of care for over 1.5M mothers and babies

By 2023 working with 60% of the births in Kenya

We will also expand our programs to 1-2 new countries in the next year.

Current coverage

Targeted coverage

1.5M women and babies with **better health outcomes**[1]
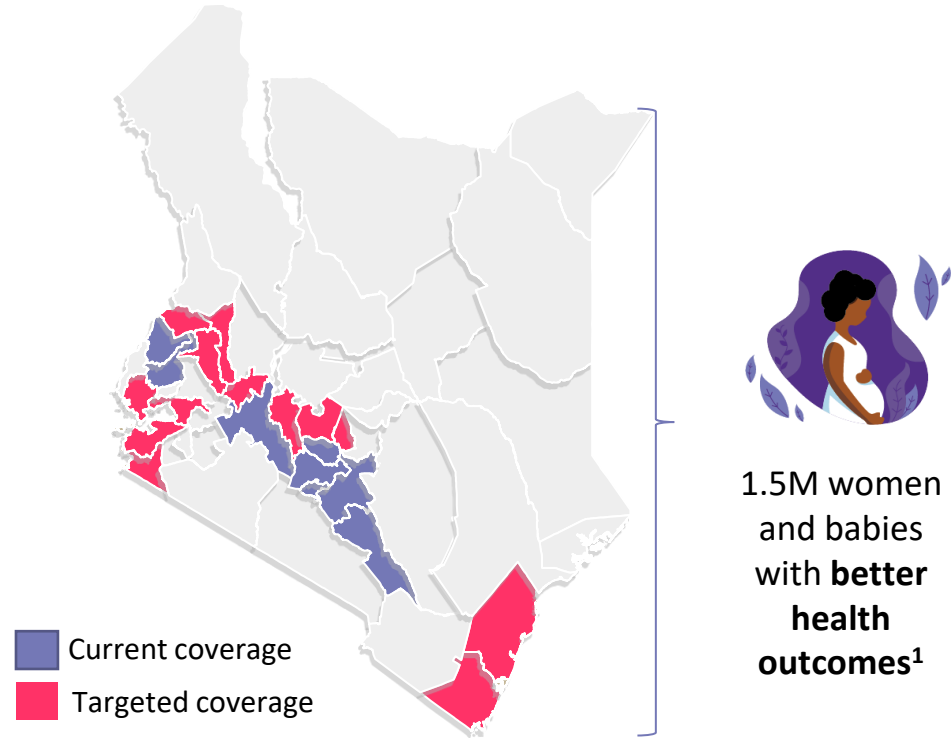
[1]Estimated coverage for PROMPTS is 1,190,000 women by 2022; Mentors 100-200K annual births by 2022 (1,500,000 cumulative, 2020-2022)

Our approach: EmONC Mentorship takes the classroom to public facilities

In-Facility Mentors, who are government-salaried nurses, build the capacity of their peer nurses at public hospitals through the provision of:

- Government accredited curriculum which is delivered at the facility using **continuing medical education modules (CMEs)** and **simulation-based emergency drills**

- Data-driven approach to bedside coaching for **context-specific skill improvement**

Impact: improved and sustained quality of care

190 in-facility mentors have mentored **3,050+ providers** conducting **100,000 deliveries**

90% **Of the essential steps** performed during every delivery by mentored providers

50% **Increase in neonatal resuscitation skills**

80% **Partograph initiation**

20% **Decrease in rate of PPH at facilities**

Preliminary impact results show a reduction in postpartum hemorrhage and neonatal deaths

Impact results from a recent assessment in Bungoma County, Kenya:

A 31% pre-post reduction reported rates of postpartum hemorrhage at partner public facilities.
This is *~20% greater reduction* compared to non-mentor facilities
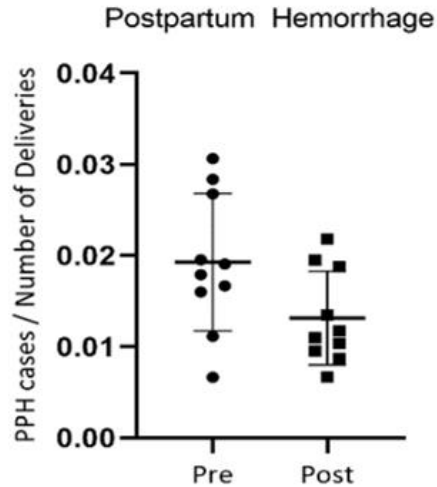
A ~27% reduction in reported rates of neonatal deaths at partner public facilities.
This is a *10% greater reduction* compared to non-mentor facilities.

Postpartum Hemorrhage

Neonatal Death
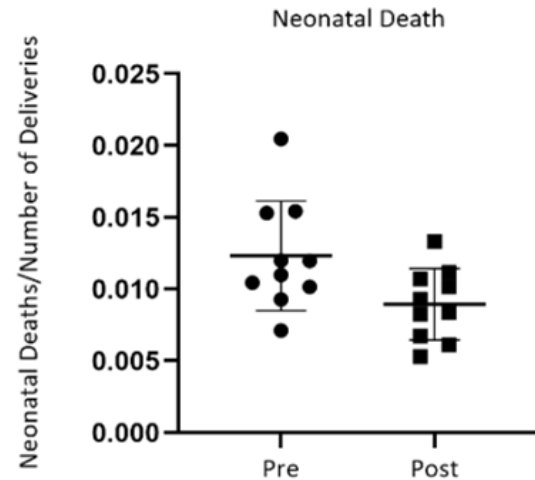
PROMPTS

PROMPTS is a platform that gets women to care at the right time and the right place

**1** Pregnant woman or new mother signs up at hospital or in community

Saturday, 19 Oct 2019 • 09:10

Check your BABY for danger signs: A cord that is red, swollen or has pus, eyes that are yellow, a fever, rapid breathing, or if the baby makes little to no movements. Check YOURSELF for danger signs: Difficulty breathing, dizziness, feeling like fainting, a headache that won't go away, or difficulty seeing. If you see any of these signs, go to the hospital!
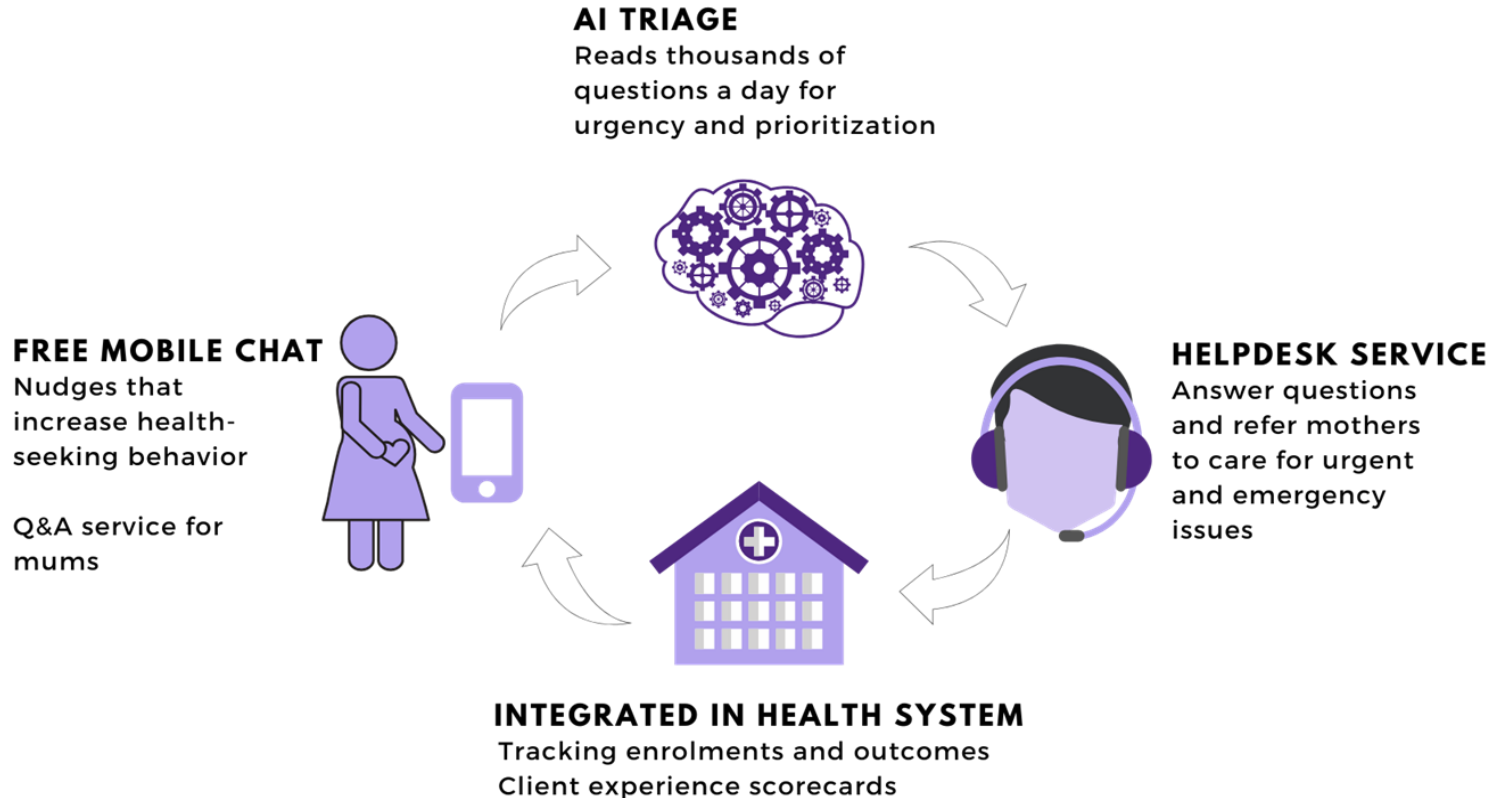
Text message

2 She gets information in English or Swahili, and can ask questions for FREE
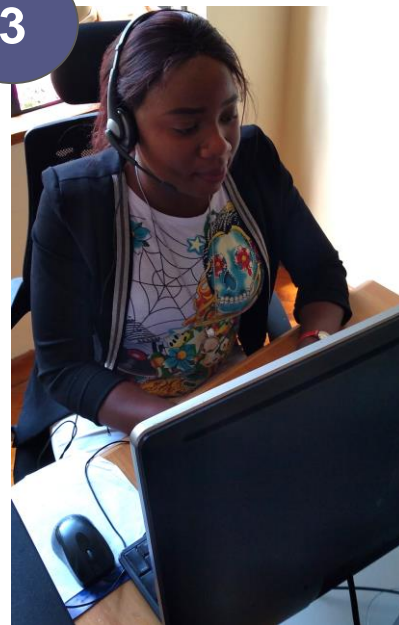

3 A helpdesk agent answers questions and connects her to a facility if there is an issue

PROMPTS is a platform that empowers women to get care at the right time and the right place

AI TRIAGE
Reads thousands of questions a day for urgency and prioritization

FREE MOBILE CHAT
Nudges that increase health-seeking behavior

Q&A service for mums

HELPDESK SERVICE
Answer questions and refer mothers to care for urgent and emergency issues

INTEGRATED IN HEALTH SYSTEM
Tracking enrolments and outcomes
Client experience scorecards

Scaling across Kenya so every pregnant woman and new mother has access to PROMPTS

- ~350,000 mothers enrolled in 10 counties

- 435+ partner facilities

- 30,000 new mothers added every month

- 1,500+ questions answered every day

Current Facility Locations
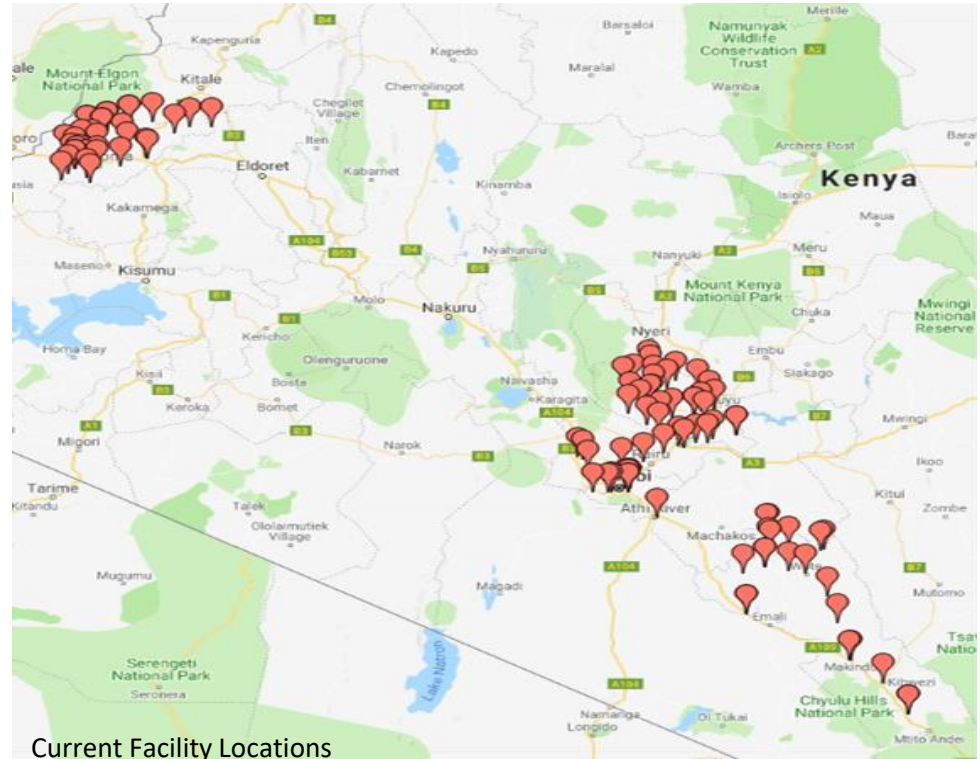
Impact: ensuring mothers are connected to care

"I have learnt a lot about danger signs. I asked questions even when I was in labour and I got responses. I gave birth safely.... If you stop this service, many mothers would die"
- *Veronicah, PROMPTS user*

27% **Increase in 4ᵗʰ ANC visits**

**22%** **Moms are more likely to know danger signs and seek care**

1.9x **..more likely to take up family planning**
~2x more likely to take up long acting contraceptives

83%+ of moms flagged with a danger sign seek care at a health facility

Finding the red flags in a haystack of questions

We get 1500+ questions every day

70% of the questions asked are general pregnancy, but **30% could be medically serious**
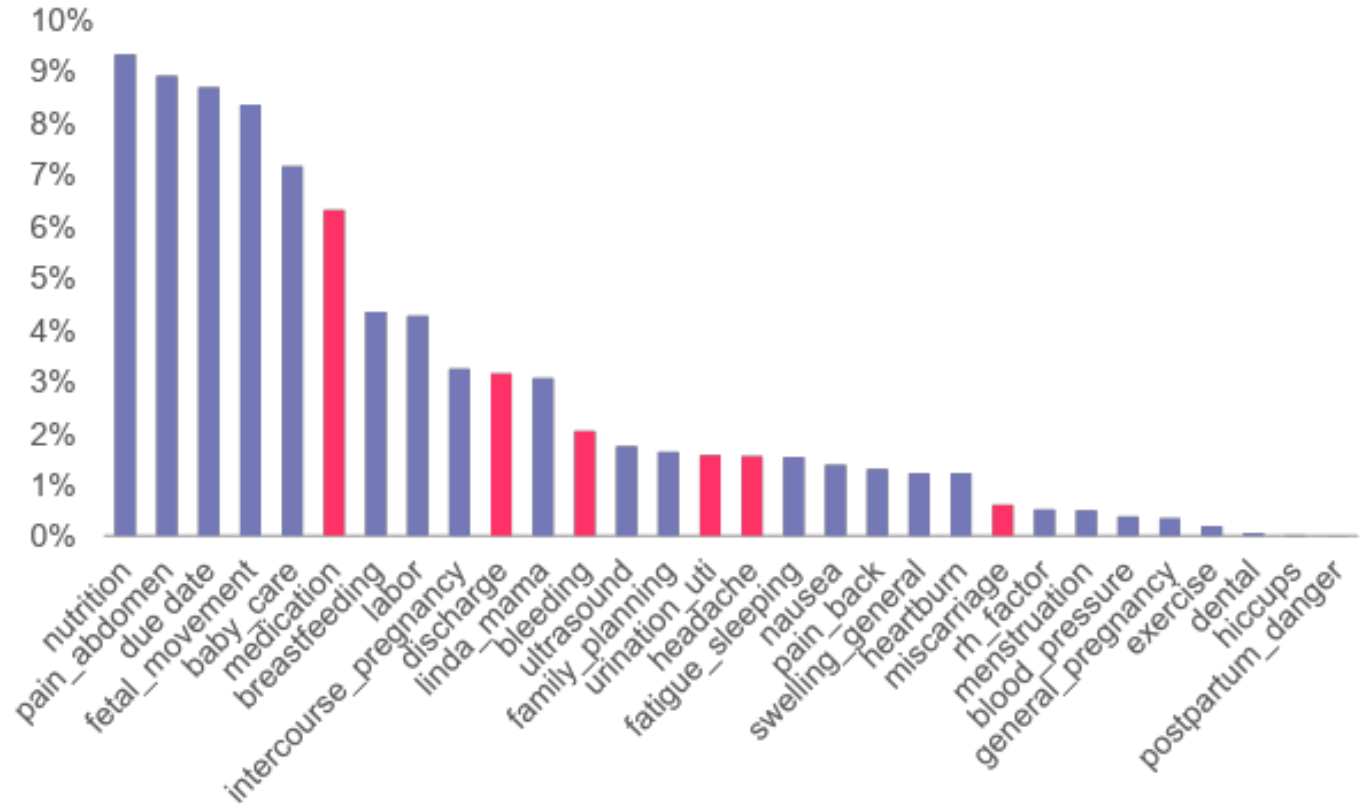
Tools: Machine Learning to triage questions for urgency

SMS

Question from a mother

NLP Agent
"Triagebot"
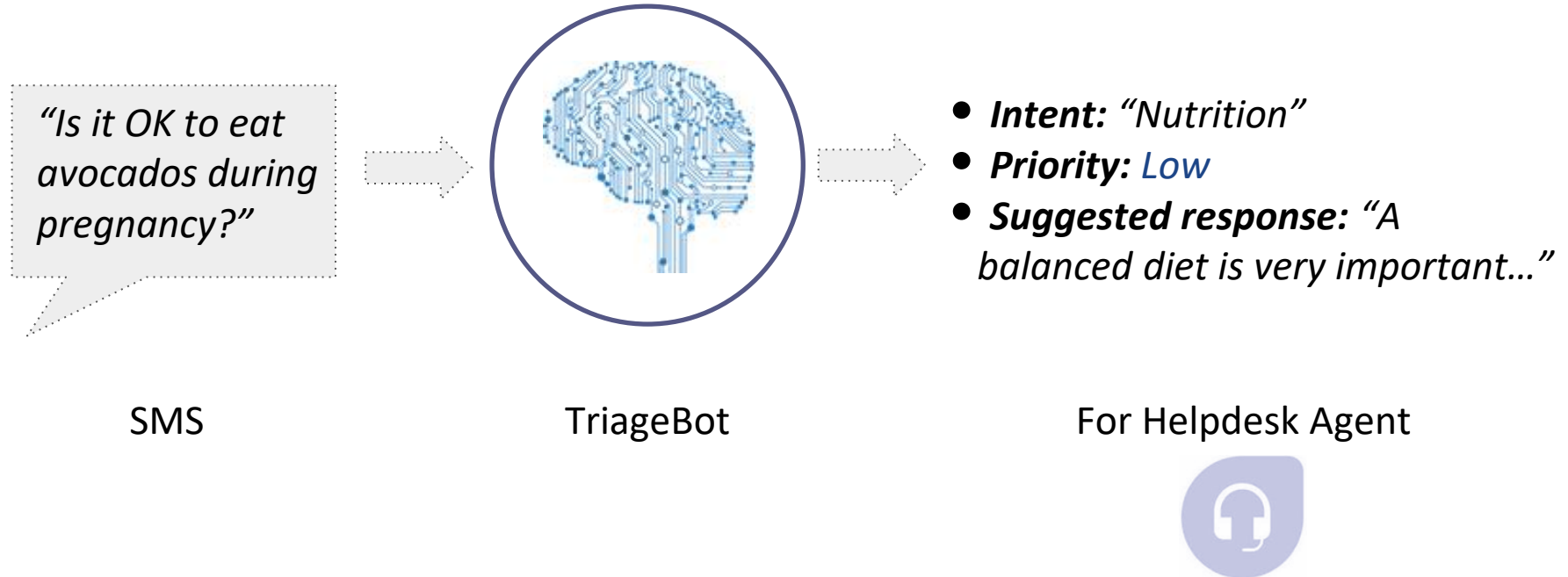
- *Intent classification*
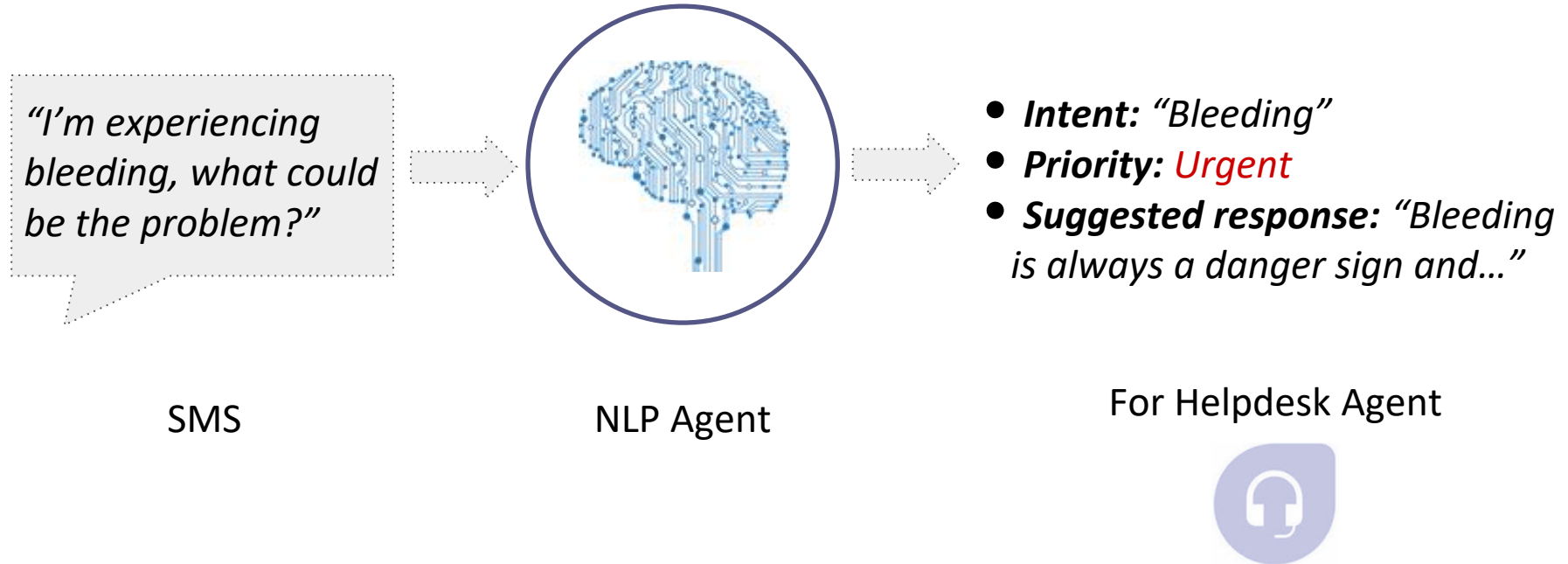- ***Response priority***
- *Suggested response*

Helpdesk Agent

Natural Language Processing to identify intent

"Is it OK to eat avocados during pregnancy?"

SMS

TriageBot

- **Intent:** "Nutrition"
- **Priority:** Low
- **Suggested response:** "A balanced diet is very important..."

For Helpdesk Agent

Natural Language Processing to identify **intent**

"I'm experiencing bleeding, what could be the problem?"

SMS

NLP Agent

- **Intent:** "Bleeding"
- **Priority:** Urgent
- **Suggested response:** "Bleeding is always a danger sign and..."

For Helpdesk Agent

Automated Response: Version 1

Detected Intent:
- *"Discharge"*
- *"Headache"*
- *"Swelling"*

Hello mum, this is Hekima. It seems you are asking about a possible danger sign - kindly seek medical attention as soon as possible. We will provide you with more information and our help desk agents will follow up with you shortly. Which of the following danger signs are you experiencing? Please respond with a letter A-D from the list below:

A) Vaginal discharge
B) Persistent headache
C) Swelling
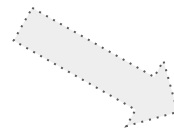D) Other/Not what I was asking

Automated Response: Version 2

Detected Intent:
- *"Discharge"*

Reasons to contact your healthcare provider are if the discharge is excessive, foul-smelling, or associated with other symptoms such as vaginal itching or pain. Brown or bloody discharge is always a concern and you should contact your provider.

Detected Intent:
- *"Headache"*

A persistent headache may be a pregnancy danger sign. Headaches are quite common in pregnancy and can be caused by stress, poor sleep, allergies, hunger, dehydration or more serious conditions.

Methods you can try to alleviate this pain are

Detected Intent:
- *"Swelling"*

Swelling of the feet/ankles and hands is quite common in pregnancy and in fact about 50% of women who are pregnant will experience this, usually towards the end of their pregnancy. Leg swelling is also very common after delivery but should disappear by 2 weeks after the baby is born. Some methods you can try to alleviate this are by limiting
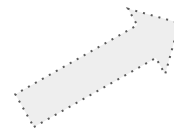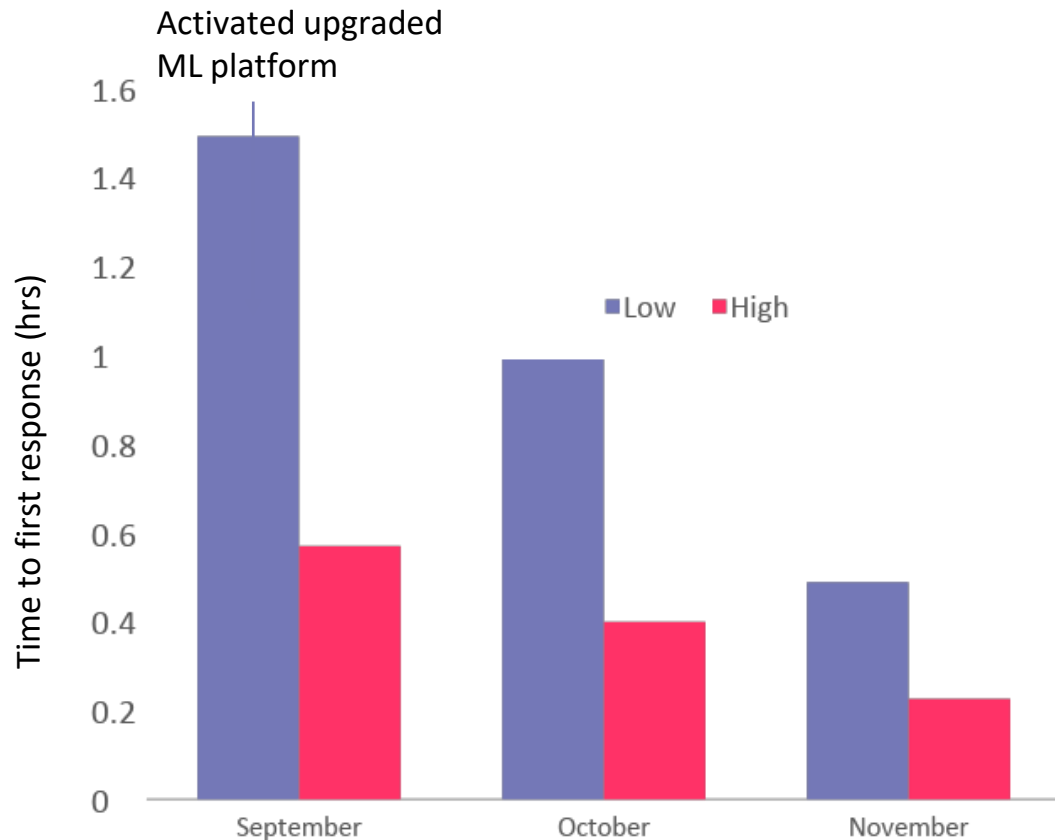
Did this answer your question?
- Yes
- No

Does ML enable us to respond to mothers faster?

- The platform has contributed to a reduction in overall response time by 45%

- **Our helpdesk agents respond to high priority messages 2x faster than other messages**

Activated upgraded ML platform

Time to first response (hrs)

■ Low ■ High

September   October   November

JACARANDA HEALTH

Tools to support data-driven decision making at the county

Patient Experience Dashboard

ANC			
FACILITY	**Were you treated with respect?**		**Score**
Location	**Yes**	**No**	
Location not indicated	186	24	0.89
Thika Level 5 Hospital	160	18	0.90
Bungoma County Referral Hospital	138	4	0.97
Wangige Sub-County Hospital	76	2	0.97
Igegania Sub-District Hospital	45	3	0.94
Kihara Sub-County Hospital	39	2	0.95
Tigoni District Hospital	31	5	0.86
Lugulu Friends Mission Hospital	31	0	1.00
Jericho Health Centre	29	3	0.91
Bahati Health Centre	28	2	0.93
Kiandutu Health Centre	22	2	0.92
Chwele Sub District Hospital	16	1	0.94
Gichuru Dispensary	10	0	1.00
Lunga Lunga Health Centre	9	1	0.90

Client Insight: "The nurses were so rude. They didn't attend to me on time – I gave birth alone"

A dashboard that shows the score of each partner facility based on client experience feedback

A tracker that displays the status of MNH services across the county with information collected through PROMPTS, providers and the CRHC
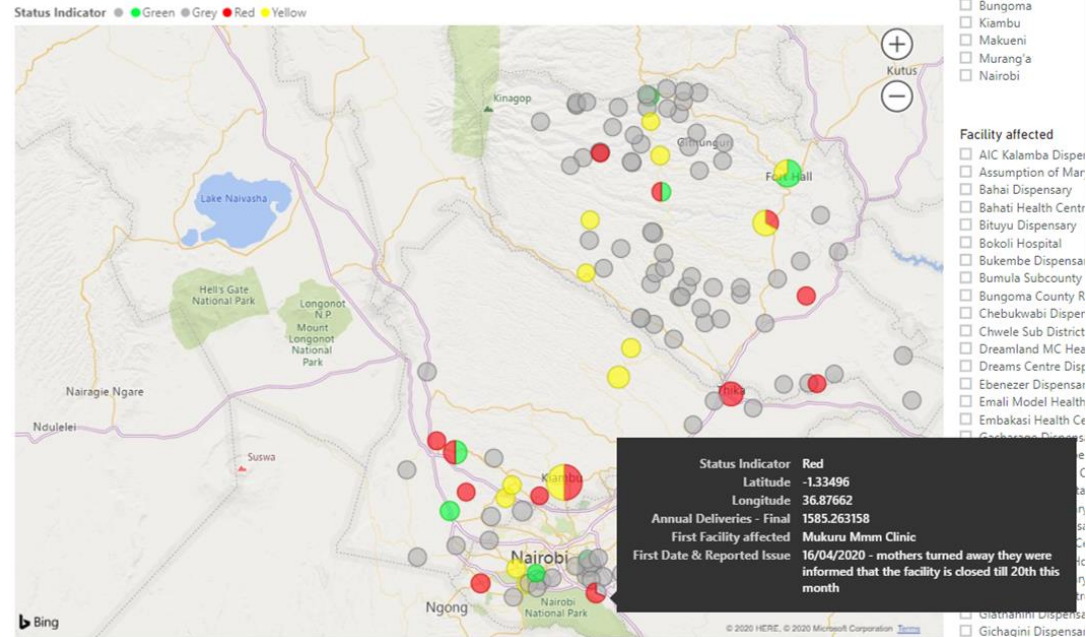
Measuring quality of care through PROMPTS:
Did a woman receive essential steps during an ANC appointment?

- After every appointment, PROMPTS 'checks in' with pregnant women to understand whether they had essential steps performed during an ANC visit

- Since June 2020, ~8300 mothers have provided feedback on their appointments

- 64% of pregnant women missed at least 1 step during ANC visit 1 (anc_2: 54%, anc_3: 28%, anc_4: 23%)
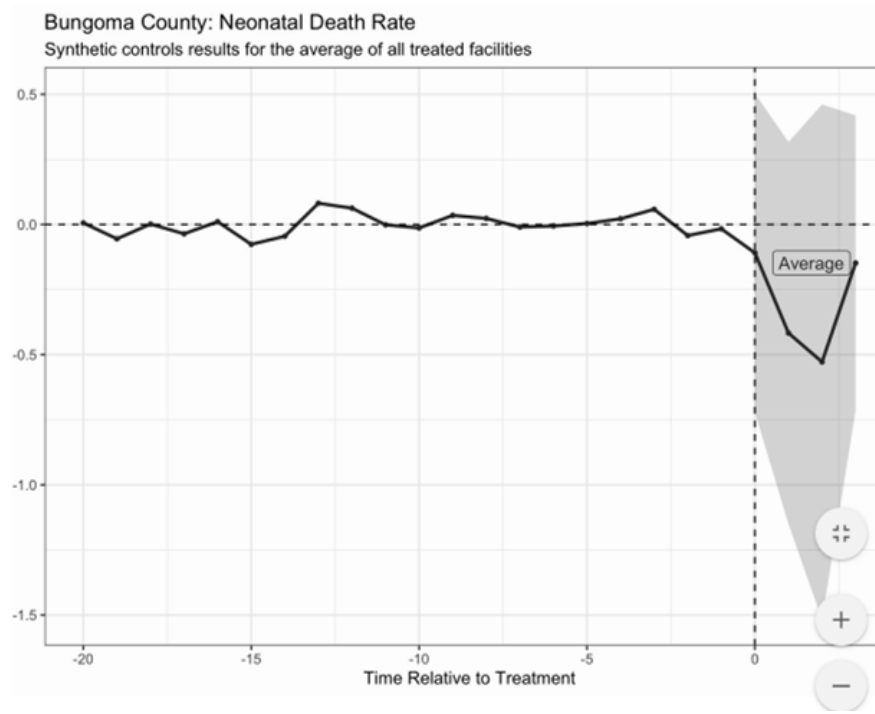
Steps that are missed
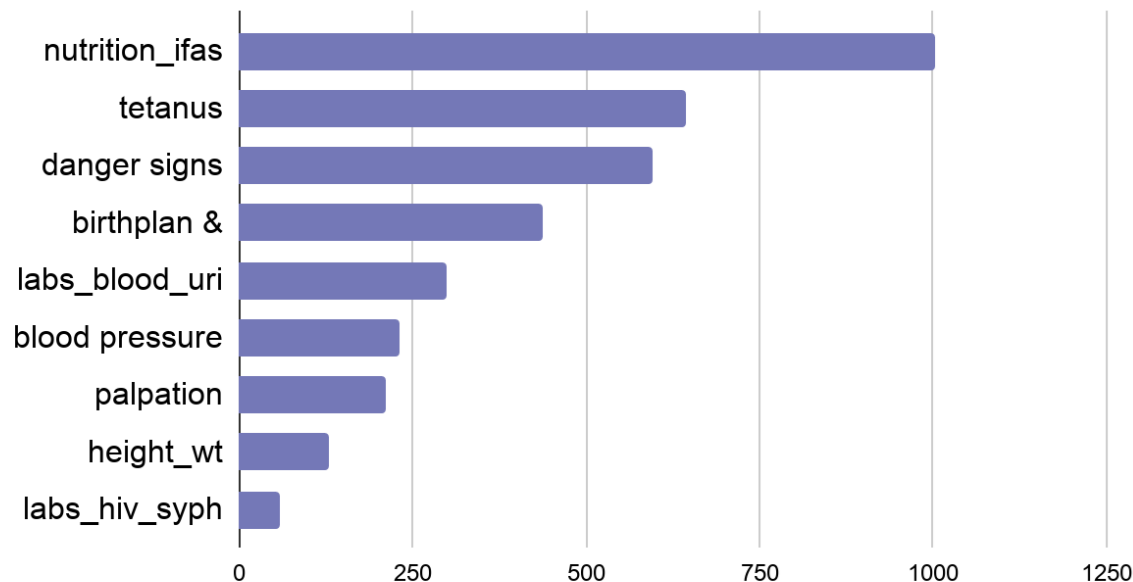
Dashboards and insights

High-quality real-time data, linking activities (mentorship, PROMPTS enrollments, lectures, drills) with outcomes (morbidity, mortality)

Powerful & robust statistical analysis of our activities to improve our programs

Cost-savings and improved results compared to other maternal & newborn health solutions

Total cost of PROMPTS program for one mother

$0.74

This fully covers the cost of SMS, program enrollment, help desk answering questions, and back-end technology.

Total cost of mentoring a nurse over 6 months

$152

Off-site trainings can cost $250 - $2,000 per nurse

On-site supportive supervision has been shown to be more effective than traditional off-site workshops