



# **mLabour: Mobile Technology for Improving Intrapartum Care**

**Midline results and diffusion planning meeting**

**Dar es Salaam, Tanzania**

Day 1 Implementer Meeting: Tuesday, 30 January 2018

Day 2 Stakeholder Meeting: Wednesday, 31 January 2018

# Diffusion Meeting Objectives

## Day 1 Objectives – Implementer meeting

- Determine the readiness of mLabour to be diffused to other facilities based on the midline results of the ongoing evaluation.
- Gather feedback regarding mLabour from existing users at the three implementing facilities to leverage improvements to mLabour, as well as to the implementation and training strategies.
- Based on the above, determine whether mLabour will be implemented in additional facilities.

## Day 2 Objectives – Stakeholder meeting

- Disseminate the midline results of the ongoing evaluation of mLabour
- Share feedback from existing users at the three implementing facilities
- Gather feedback from key stakeholders working in obstetric and newborn service delivery on opportunities for diffusion of mLabour to additional sites

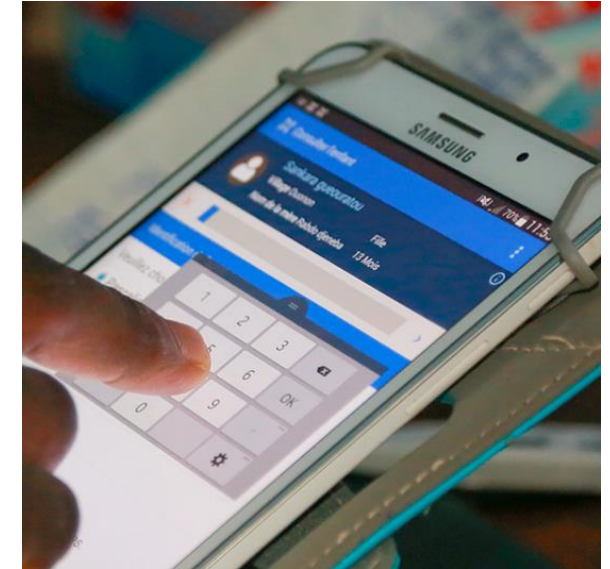
# Day 2 Agenda

Time	Session
09h00 – 09h30	Welcome Opening remarks Introductions, meeting objectives, agenda overview
09h30 – 10h15	Program Overview: Brief History of mLabour, Year 1 in Review
10h15 – 10h30	TEA BREAK
10h30 – 12h00	Presentation of midline results
12h00 – 13h00	LUNCH BREAK
13h00 – 14h00	Feedback Session: current mLabour users from FACGBF Maternity Home, Kairuki Hospital and Waebrania Maternity Home share their experiences using mLabour
14h00 – 16h30 (15h00 - 15h15 tea break)	Plans for Year 2: Increasing the reach of mLabour: what interest exists, what support is required?
16h30 – 17h00	Next steps and Wrap Up

# M LABOUR PROGRAM OVERVIEW



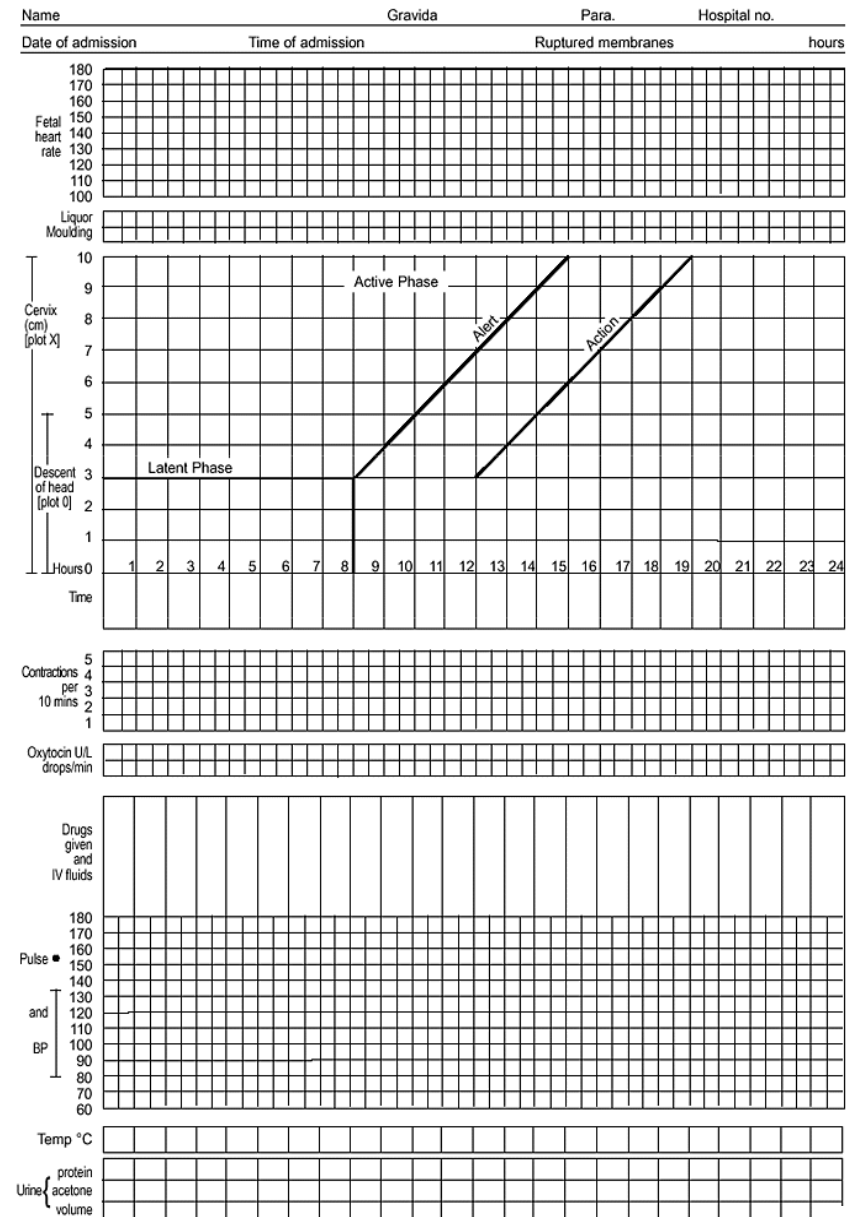
- Socially conscious software company created in 2002 out of Harvard and MIT
- Experience implementing hundreds of projects in 60+ countries
- Team of 120+ engineering and implementation staff
  - Offices in the United States (HQ), Senegal, India, & South Africa
- Makers of CommCare: a leading open source mobile platform for the last mile
- Addressing daily challenges frontline workers face: difficulty tracking data, working in remote areas, limited training opportunities, inefficient paper systems



# The Partograph

- The partograph monitors progress of labor
- A graph to track 21 parameters including
  - cervical dilation
  - contractions
  - maternal heart rate and blood pressure
  - position of head of fetus
  - fetal heart rate
- The velocity of cervical dilation must be  $> 1\text{cm/hr}$ 
  - the alert and action lines are designed to detect outliers
  - Based on this visualization, a transfer or c-section may be done.
- Evidence shows it is effective as an early risk detection tool.
- Early detection of abnormal progress of labor has been shown to reduce the risk of postpartum hemorrhage and sepsis, uterine rupture and its sequelae, obstetric fistula, and intrapartum fetal deaths
- Nearly 300,000 mothers die a year in and around childbirth.
- About 6% of deaths occur due to obstructed or prolonged labor.
- 99% of these deaths occur in the developing world.

## ANNEX 2: Partograph



Source: WHO, used by permission

# mLabour: Mobile Tool Supporting Safer Deliveries

WHY?	WHAT?	HOW?
Low completion rates Often completed retroactively Partograph complexity Lack of accountability Poor labour ward management	Open source application Decision-support Automatic graphing Exam reminders	Wire-frame testing Scenario testing Field-tested design Usability study with 12 nurses in Indian facility Adaptation to TZ context

# Project Design

## Track 1: Adaptation & Validation

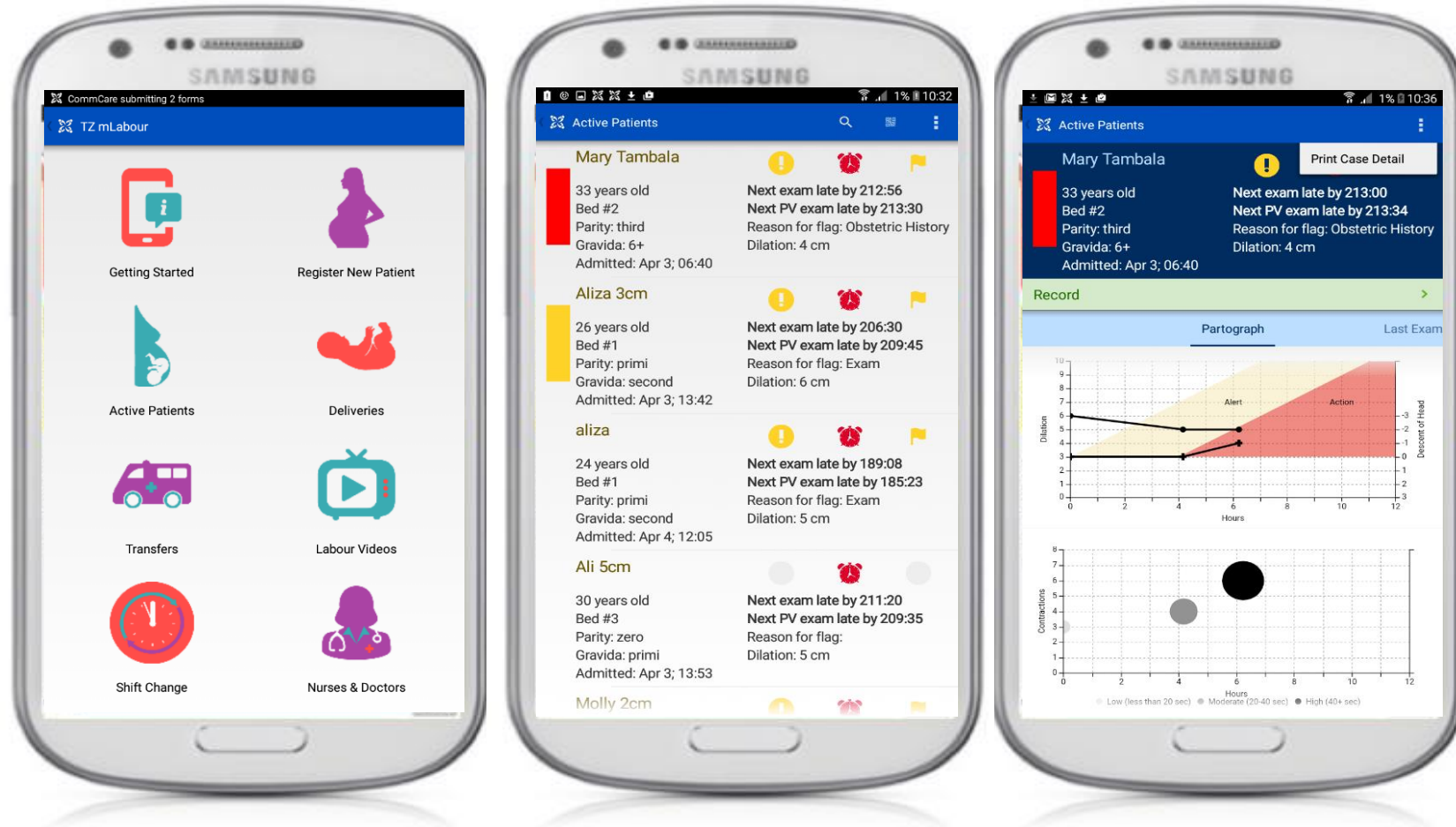
- ☐ KEY PARTNERS: FHI 360, CSK, PRINMAT, APHFTA
- ☐ Activities
  - ☐ YEAR 1
    - ☐ Adapt mLabour to the TZ context
    - ☐ Kick Off evaluation to assess the usability, safety, and feasibility of integrating mLabour into labour wards
  - ☐ YEAR 2
    - ☐ Evaluation will run 9 months into Year 2 (June 2018) to more rigorously assess the ability of mLabour to increase the quality and efficiency of care

## Track 2: Diffusion

- ☐ KEY PARTNERS: 1 local tech partner; 5 local orgs working in health facilities
- ☐ Activities
  - ☐ YEAR 1
    - ☐ Engage with interested partners
    - ☐ Initial Diffusion Strategy designed
  - ☐ YEAR 2
    - ☐ Role out the adapted mLabour to additional facilities in both the public and private sector
    - ☐ Build the capacity of a local technical organization to support efforts in locally sustaining mLabour

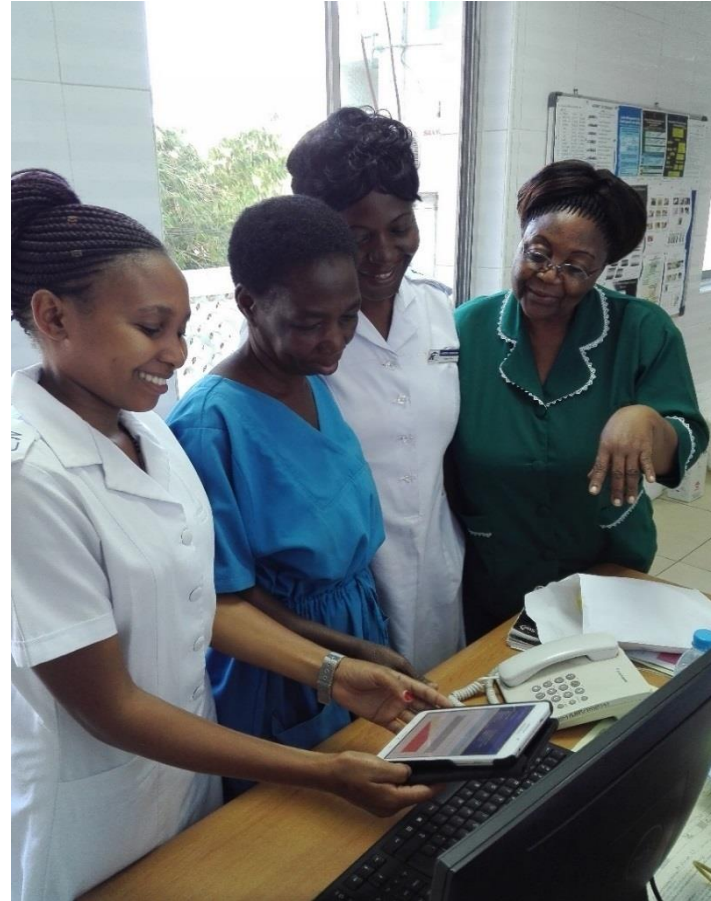
# A look at mLabour

- More than a digital partograph – labour management
- Real time decision-support
- Automatic graphing with visual clues
- Exam reminders
- Patient Profile Tiles with actionable information
- Ability to print paper partograph if necessary

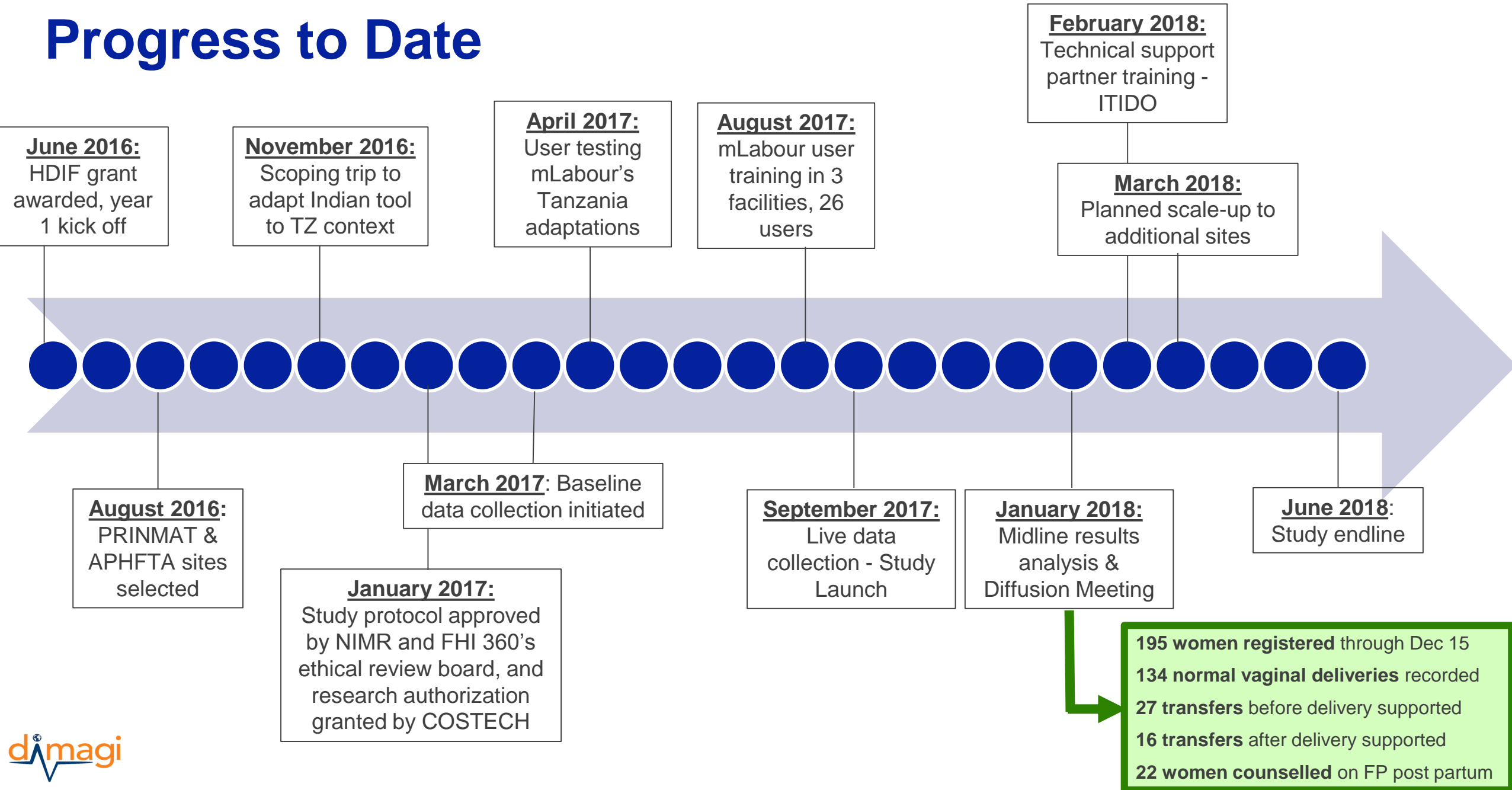


# The Evaluation

- On September 1<sup>st</sup>, we launched the evaluation of mLabour at 3 facilities and 26 users:
  - FACGBF Maternity Home in Bagamoyo
  - Waebrania Maternity Home in Gongo La Mboto
  - Kairuki Hospital in Dar es Salaam
- The evaluation will examine:
  - Adherence to clinical protocols
  - Usability
  - Patient Satisfaction



# Progress to Date



# MIDLINE RESULTS



# Evaluation of mLabour: Mobile Technology for Improving Intrapartum Care in Tanzania

Midline results

**Evaluation goal:** to assess the ability of mLabour to improve the quality of care provided to women during the intrapartum and immediate postpartum periods.

**Evaluation objectives**

- 1. Clinical adherence:** Assess the impact of mLabour's use on the clinical quality of care provided during the intrapartum period, as measured by adherence to labor management protocols;
- 2. Client satisfaction:** Assess the impact of mLabour's use on women's experience of care via changes in women's satisfaction with interpersonal communication received during labor;
- 3. Appropriate use:** Assess providers' use of mLabour, via providers' quantitative and qualitative assessment of its usability.

# Evaluation partners

Research: Dimagi, FHI 360, and CSK Research Solutions

Funder: HDIF

Technical advisor: MOHCDGEC Safe Motherhood Initiative

# Implementation partners

PRINMAT and APHFTA

## **FACGBF Maternity and Nursing**

**Home**, Bagomoyo

- PRINMAT-supported
- 5-10 births per month.
- managed by a registered Nurse Midwife
- supported by two additional L&D registered Nurse Midwives.
- Refers high-risk women to the district hospital.

## **Kairuki Hospital**, in Dar es Salaam

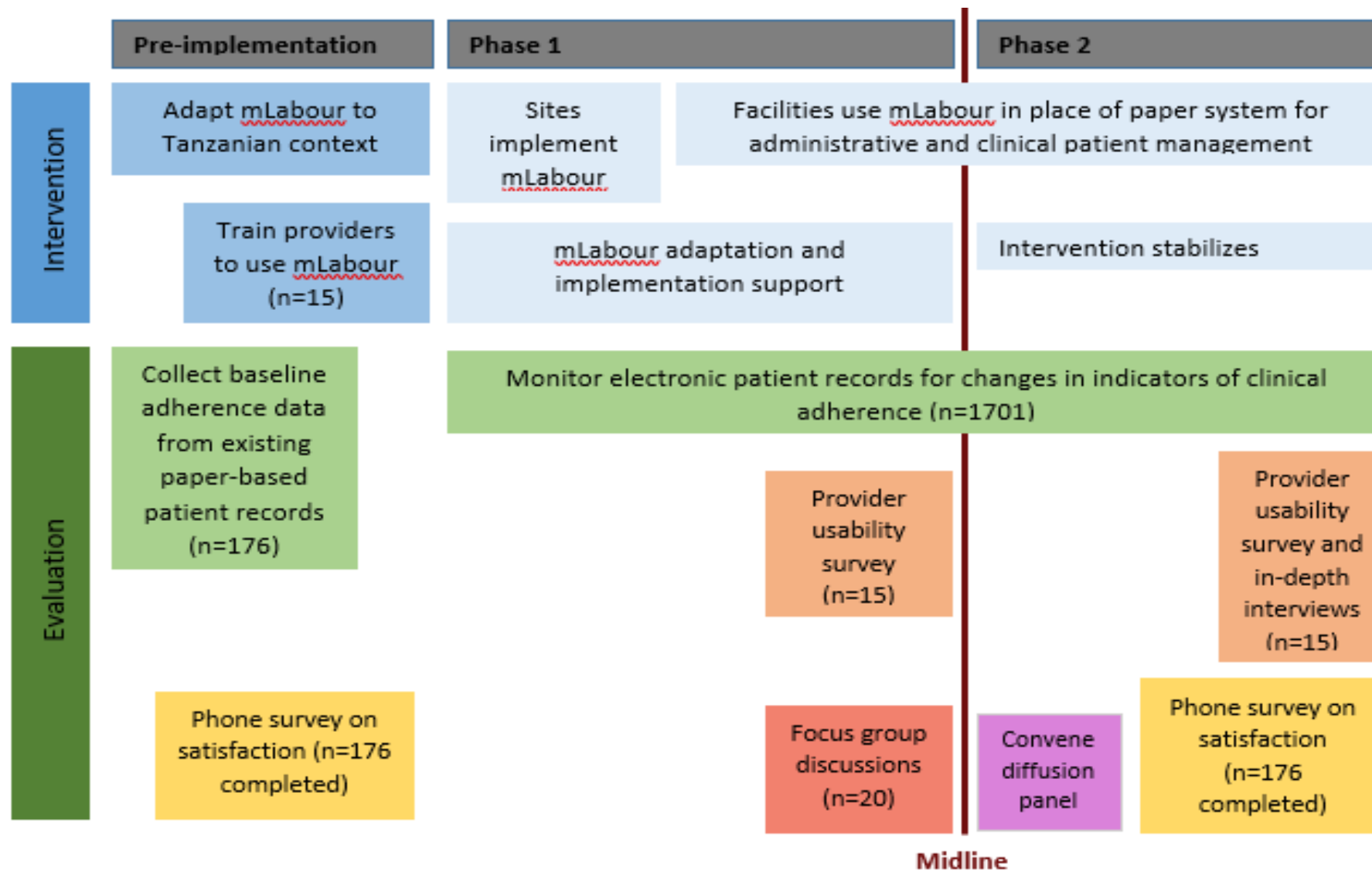
- private, 17 obstetric-bed, full-service hospital with surgical capacity
- APHFTA supported
- staffed by 10 midwives/nurses and 6 obstetricians/gynecologists.
- approximately 140 births per month, around 75 of these are elective CS.

## **Waebrania Maternity and Nursing**

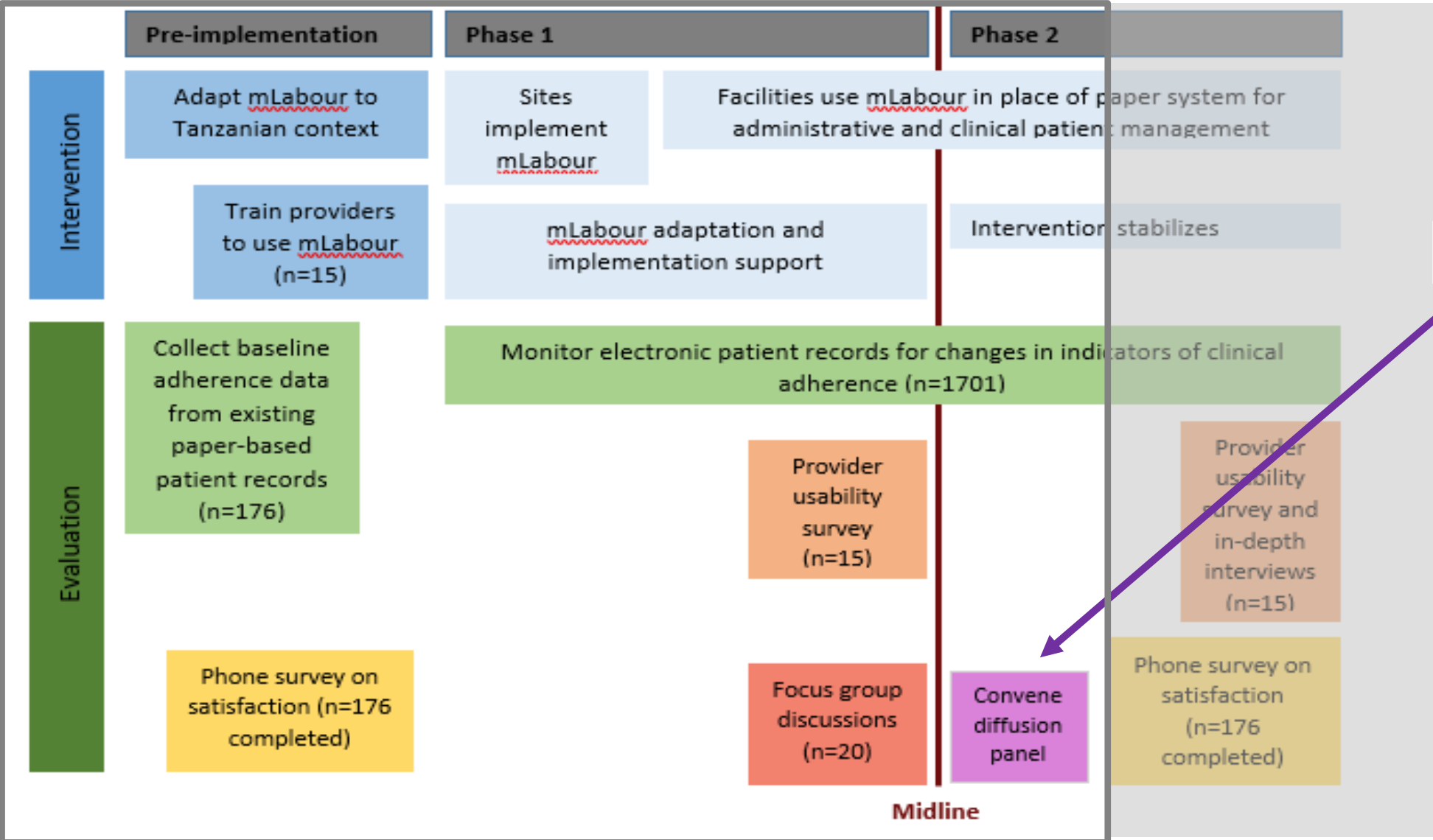
**Home**, Gongo la Mboto

- PRINMAT-supported
- around 5-10 births per month.
- owned and managed by a registered Nurse/Midwife, who is supported by two other registered nurses.
- Refer to Amana District Hospital (approx. 21 kms away)

# Evaluation Design



# Evaluation Design



We are here

# Objectives of the Diffusion Panel

- Can take 10 to 17 years from the time that health research results are discovered to when they are put into practice
- High financial and time expense
- Given the urgency of the problem of maternal and newborn mortality, the scale up of promising technologies must happen more quickly

To support quick diffusion and ensure safety of patients, diffusion panel established as a midline check in:

- Pending non-negative results, use of mLabour will be expanded to additional facilities
- share midline results with consultative group of stakeholders for input on readiness of mLabour for diffusion
- Diffusion decision will be based on the combination of results seen in clinical adherence (primary determinant) and client satisfaction

# Objectives of the Diffusion Panel

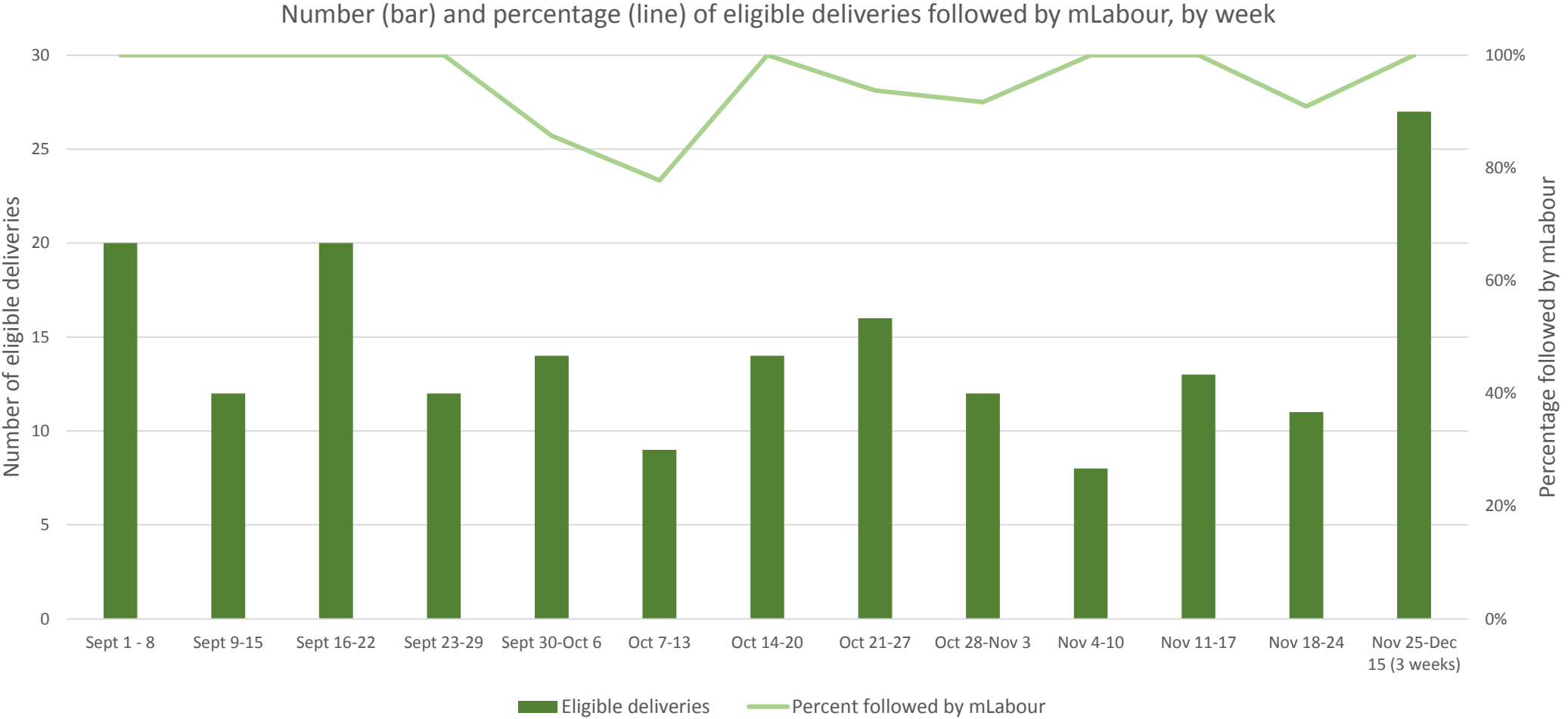
Comparison of baseline and midline				
	Scenario 1	Scenario 2	Scenario 3	Scenario 4
<b>Clinical adherence</b>	+ or s	+ or s	- or - -	+ or s
<b>Client Satisfaction</b>	+ or s	-	any result	--
<b>Result/Action</b>	Continue implementation. Diffuse to additional sites	Continue implementation. Diffuse to additional sites  Dimagi uses midline satisfaction results to inform adjustments to provider support/training.	Implementation continues with additional support from Dimagi. Diffusion delayed for 3 months.  Dimagi convenes focus group of providers to inform course correction.  FHI 360 conducts analysis of clinical adherence at second midline (6 months post-implementation).	Implementation continues with additional support from Dimagi. Diffusion delayed for 3 months.  FHI 360 convenes a focus group of women to inform improvements.

**Evaluation goal:** to assess the ability of mLabour to improve the quality of care provided to women during the intrapartum and immediate postpartum periods.

**Evaluation objectives**

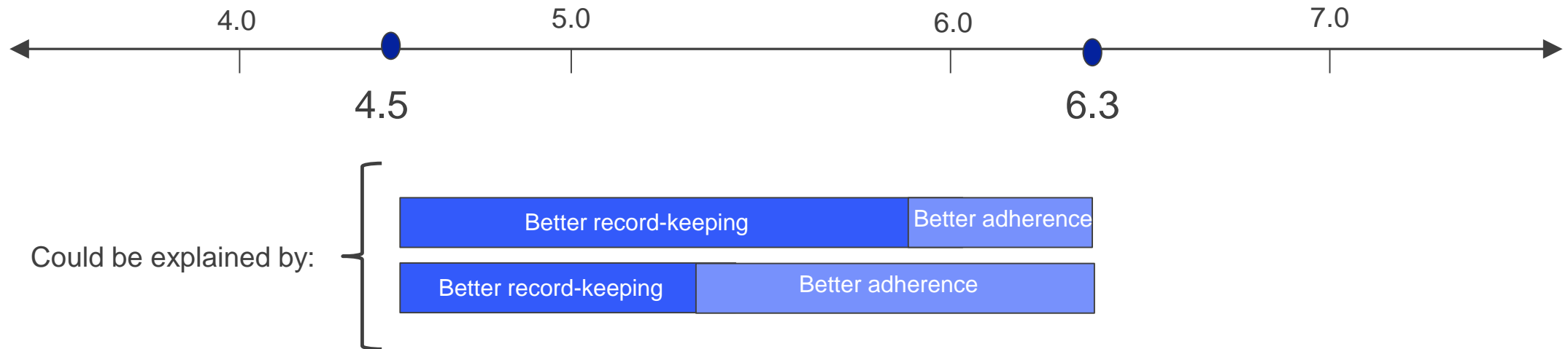
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# Uptake of mLabour



# Clinical Adherence: Definition

- Each patient receives an adherence score based on a composite indicator of patient-level data. The items included measure adherence to the labour management protocol (partograph).
- Calculated through review of patient medical records – paper (at baseline), electronic (during implementation period)
- The switch in data type means any change that we see could be improvement in record-keeping and/or improvement in adherence. The improvement we see is probably due to both.

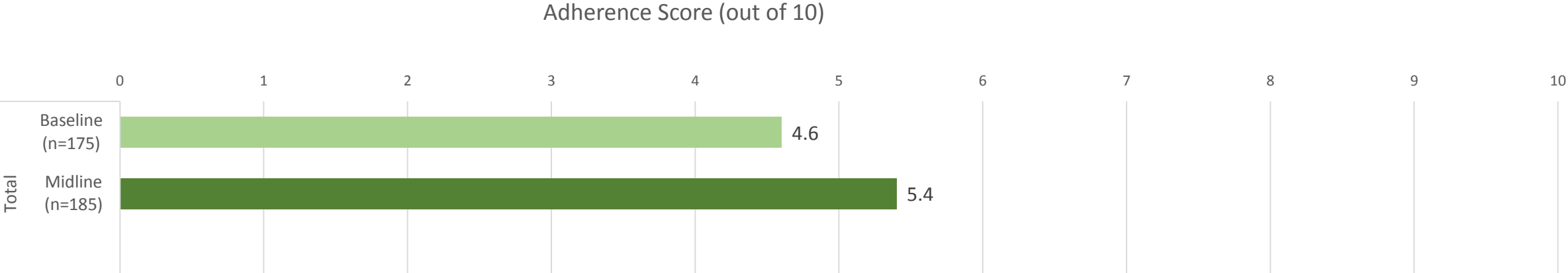


# Clinical Adherence: Methodology

Among routine (non-complicated) deliveries, we developed a composite indicator that is a summary of whether:

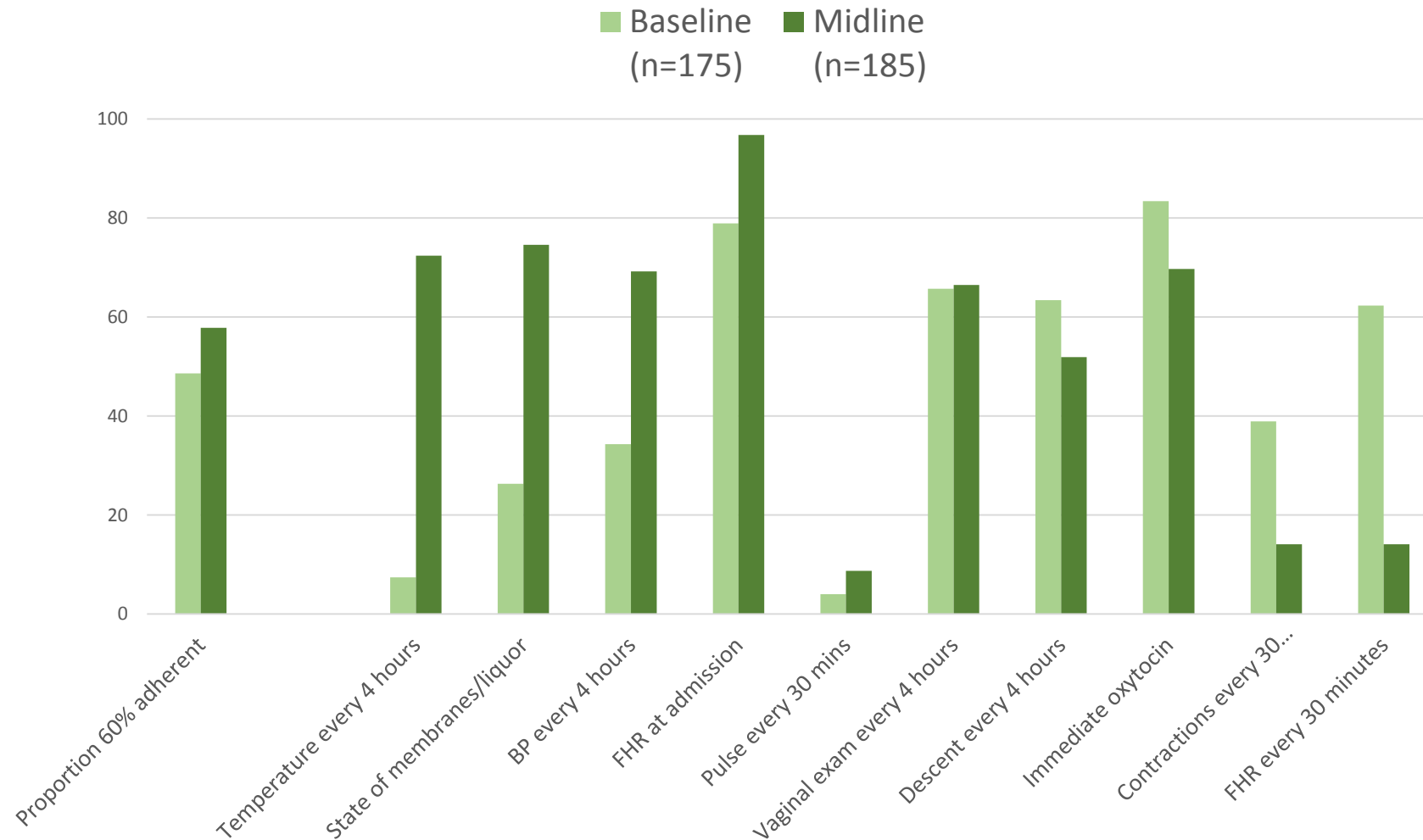
- fetal heart rate recorded on admission
- woman's temperature observed at least every 4 hours
- woman's blood pressure observed at least every 4 hours
- woman's pulse observed at least every 30 minutes
- fetal heart rate counted at least every 30 minutes
- contractions assessed every 30 minutes
- vaginal exams occurred every 4 hours
- descent of the head checked and recorded every 4 hours
- state of the membranes and color of liquor recorded
- immediate oxytocin delivered after expulsion for prevention of postpartum hemorrhage (PPH)

# Clinical Adherence: Baseline vs Midline



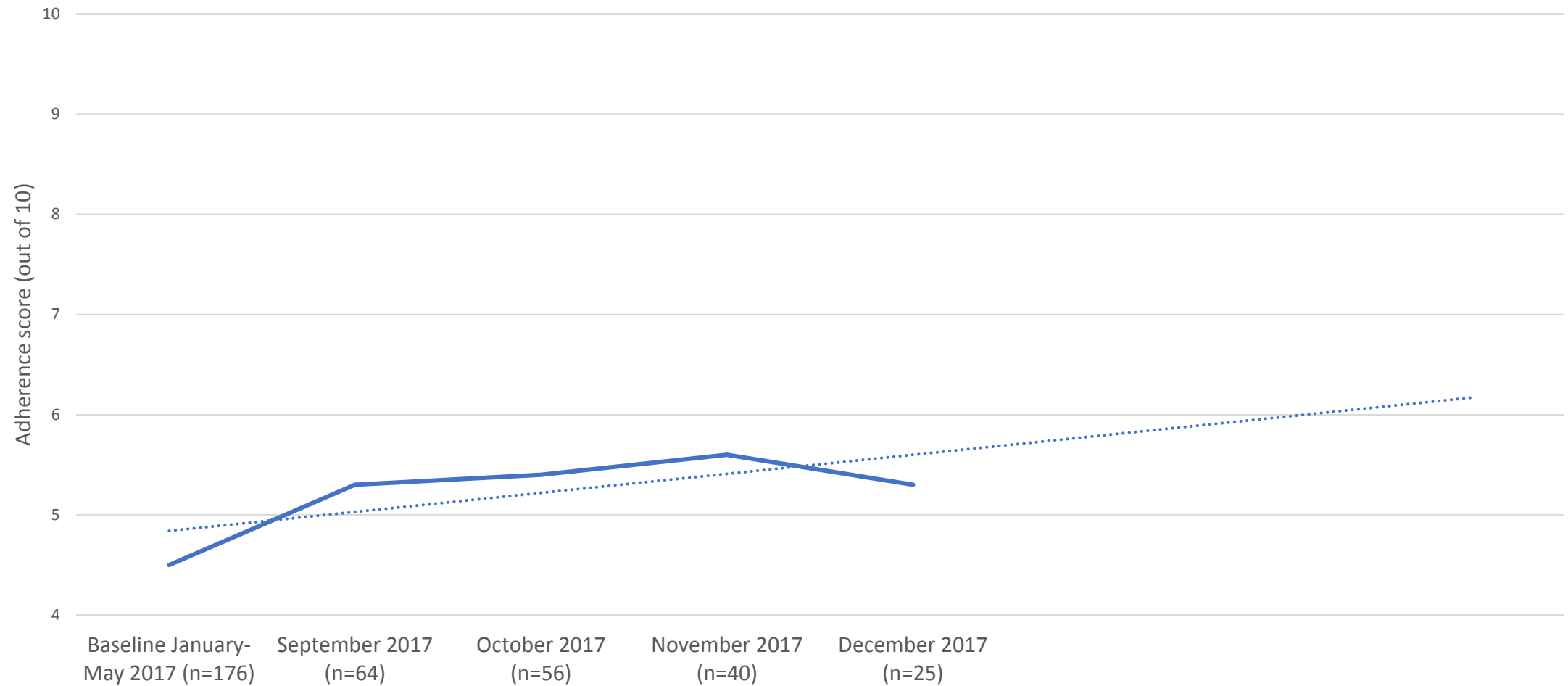
# Clinical Adherence

Proportion adherent, and percent of cases adhering to individual aspects of labor management protocol



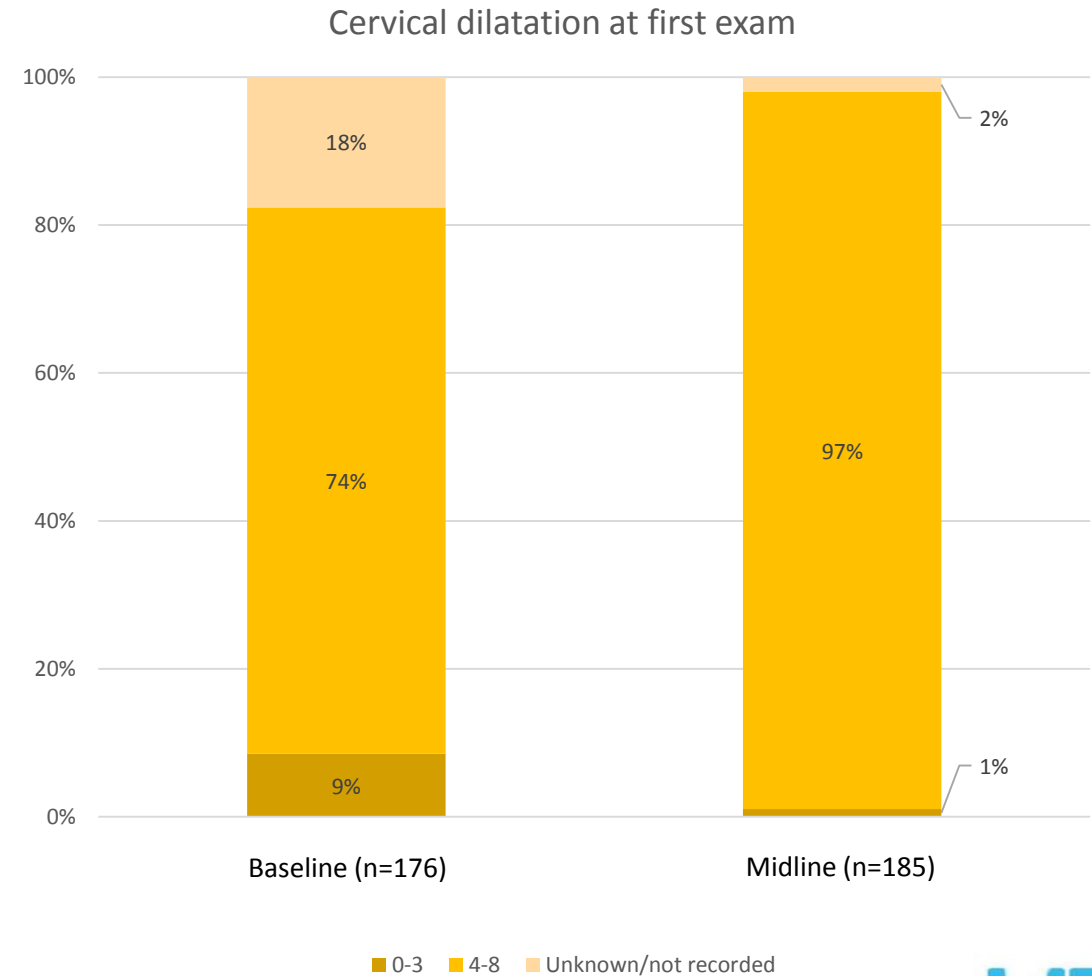
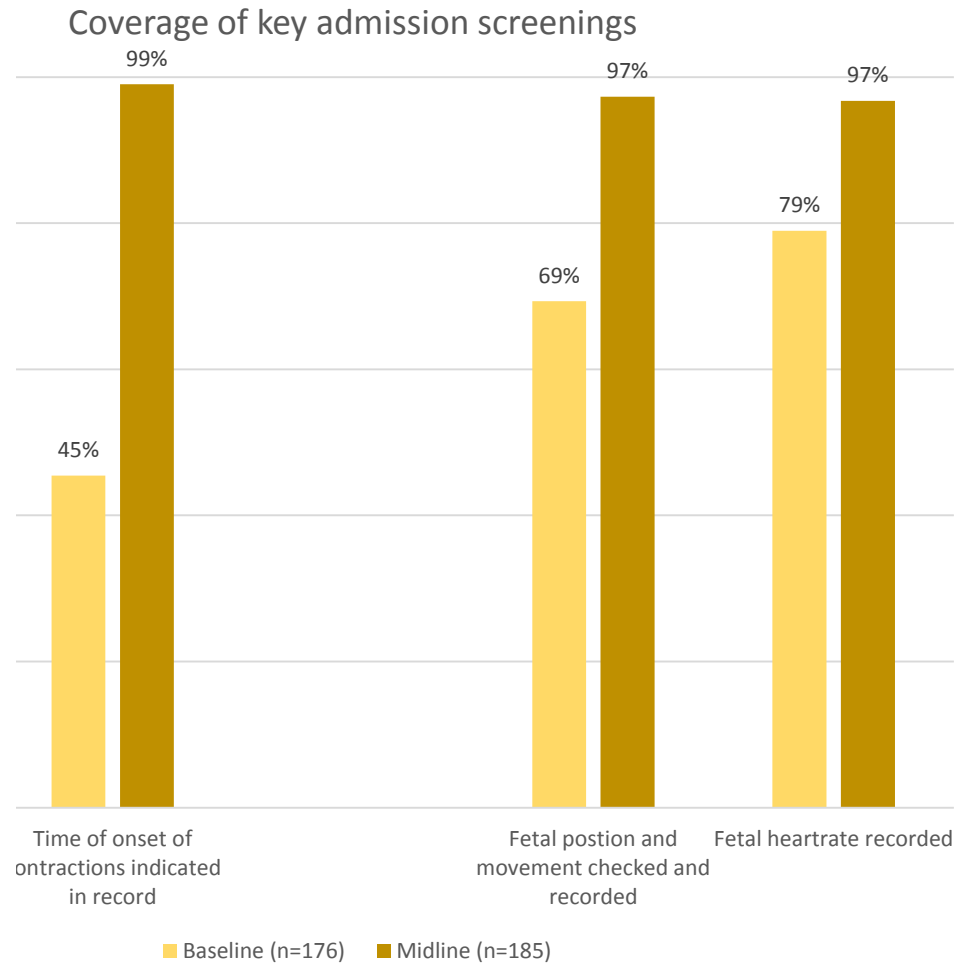
# Clinical Adherence

Mean monthly adherence scores, trend projected 3 periods



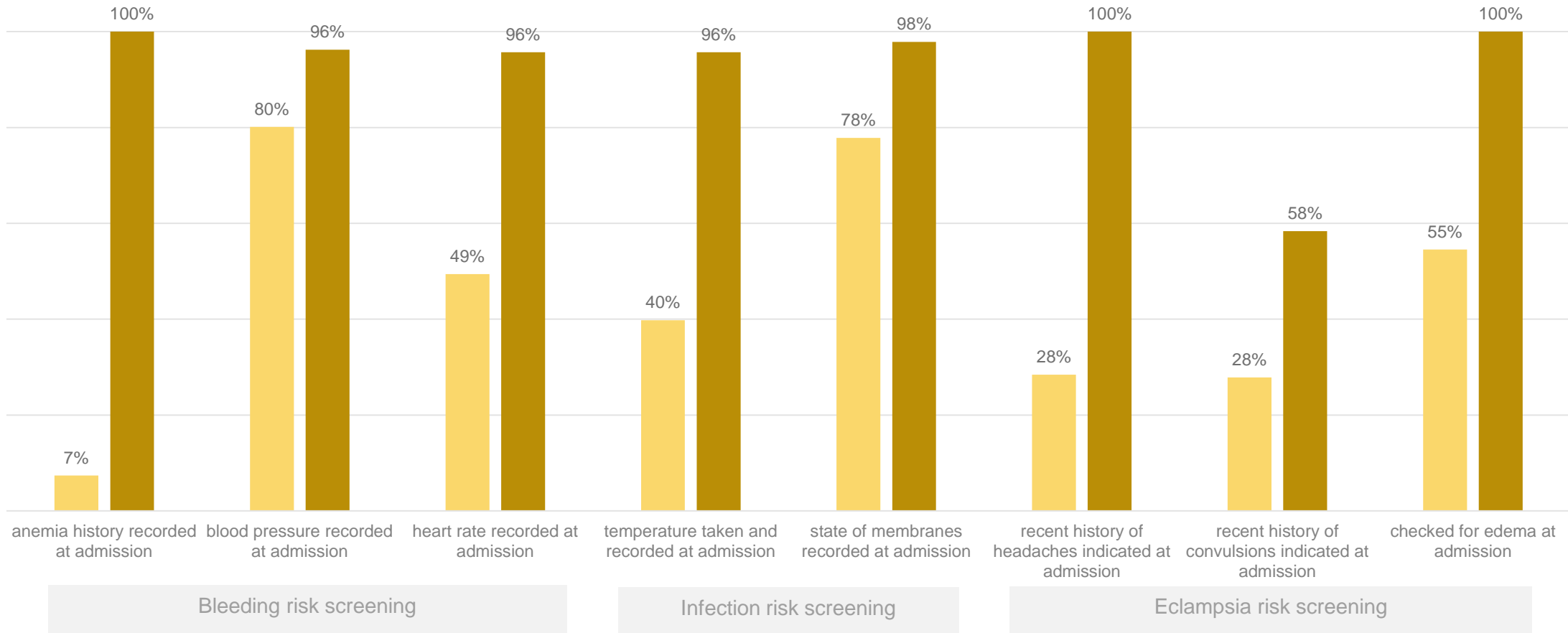
# Other aspects of clinical care: baseline v. midline

## Admission screening items



# Other aspects of clinical care: baseline v. midline

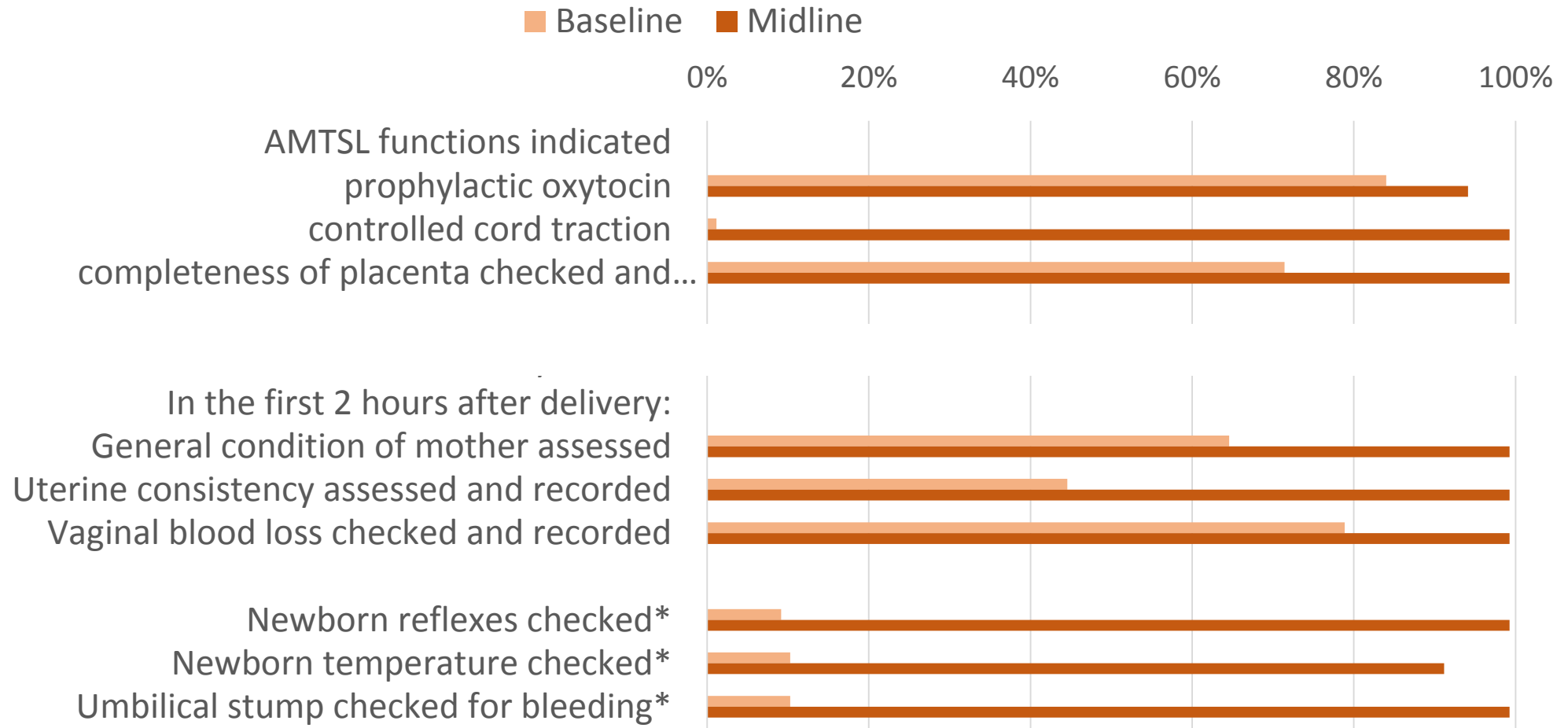
## Screening for danger signs



■ Baseline (n=176) ■ Midline (n=185)

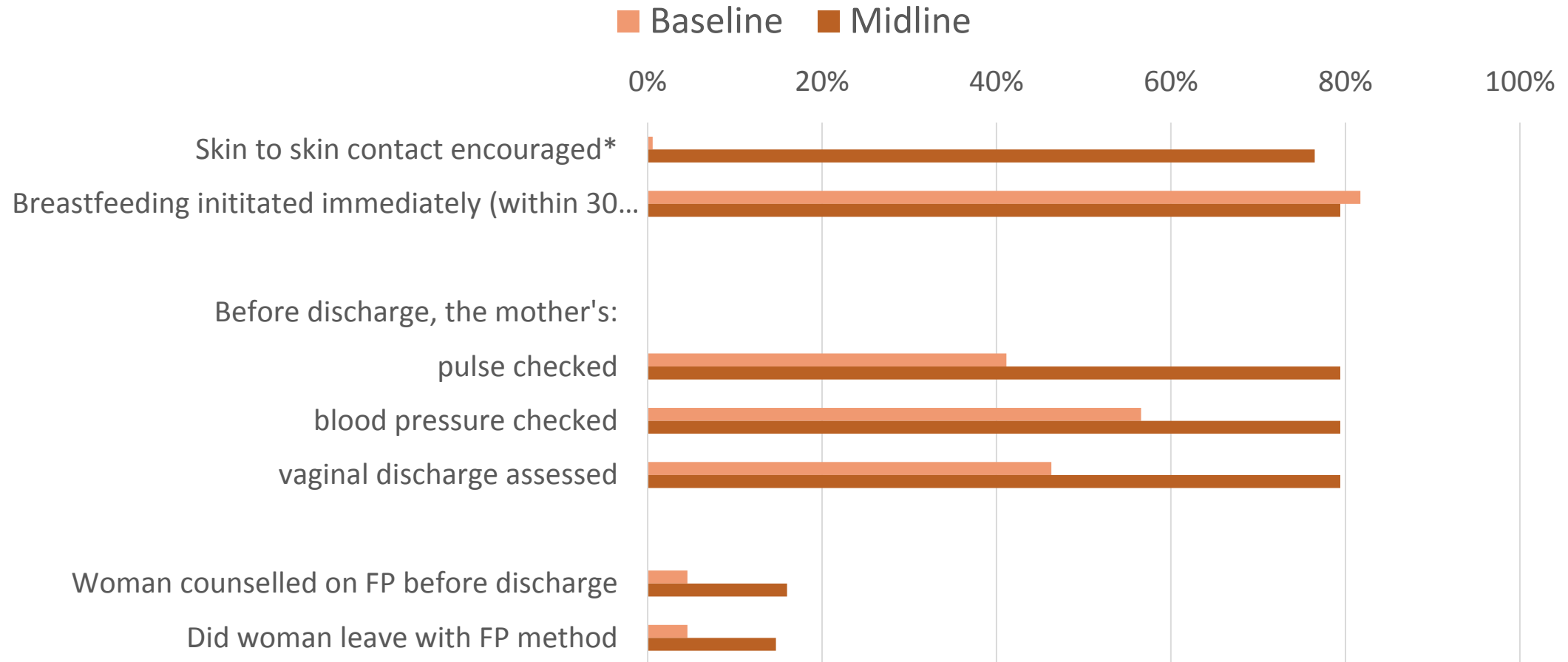
# Other aspects of clinical care: baseline v. midline

## Immediate postpartum procedures



# Other aspects of clinical care: baseline v. midline

Immediate postpartum and pre-discharge



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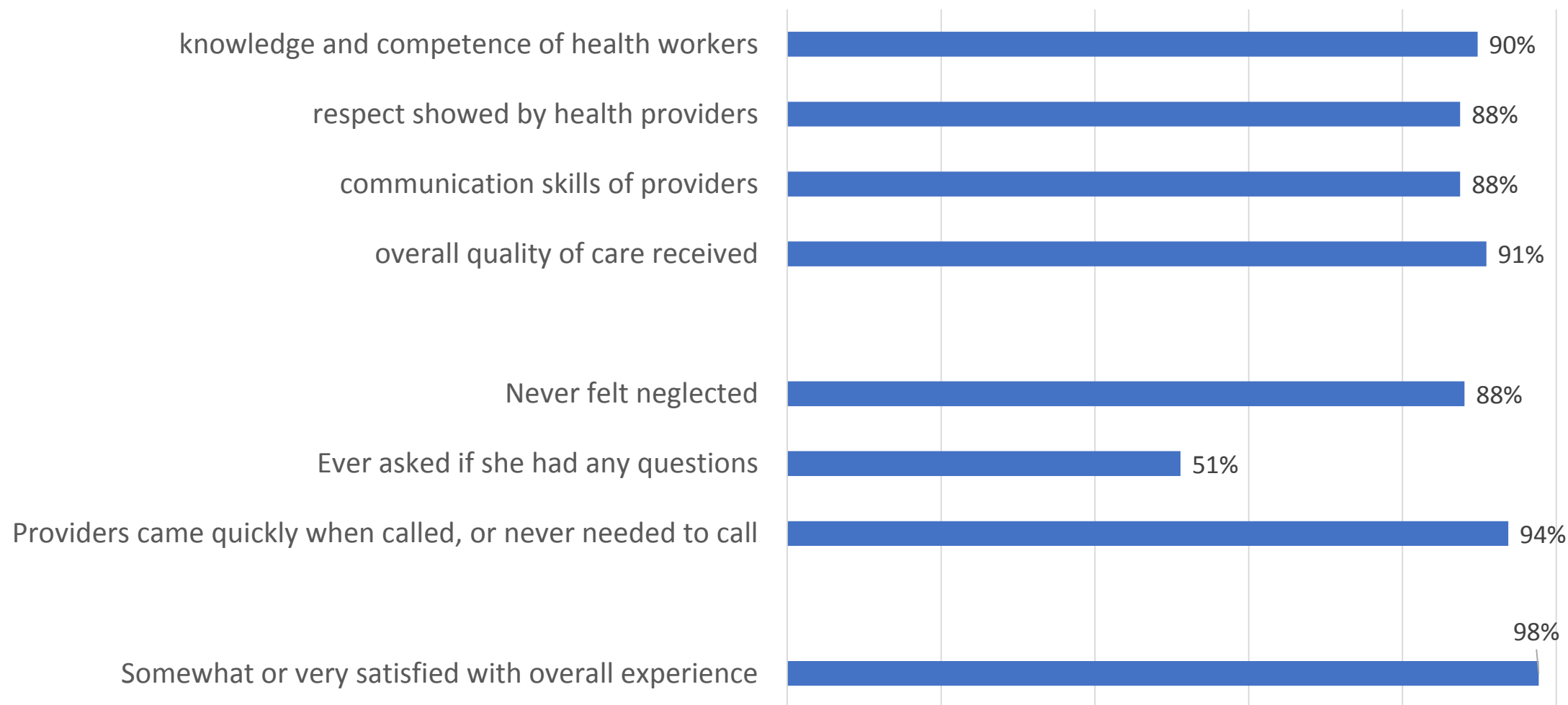
# Client satisfaction: Definition and methodology

To assess whether the implementation of mLabour has impacted key aspects of patient satisfaction we will calculate a score of patient satisfaction, based on responses to 8 questions.

Will compare baseline with endline

Phone interviews with patients within 2 weeks after discharge

# Patient satisfaction: Patient interviews at baseline



# Patient satisfaction: Patient interviews at midline

## ***On interaction between provider, patient and tablet***

*"It was good because they welcomed me very well, also they were filling their information in the electronic device (tablet). Therefore, in general I can say it was good"*

*-FACGBF patient, 30-34 yrs, 4+ births*

*"It was good, they asked questions I answered them and wrote the information in the computer and gave me some papers"*

*-Waebrania patient, 18-24 years, first birth*

## **On whether providers were attentive**

*"Their attention was good every half an hour the nurses were doing ward round and ask if we are doing ok"*

*-Kairuki patient, 25-29 years, 2-3 births*

## **On perceptions about tablet use**

*"The uses of computer tablet its good it's a modern way of recording information."*

*-Waebrania patient, 18-24 years, first birth*

## **On whether tablet affected patient perceptions**

*"It was good because sometimes I was calling the provider to come and see me, but she was telling me to wait for the devices to return the feedback. Therefore, [the provider] told me to wait a little bit so that [the provider] can come to see me while having the feedback which [the provider] got from the devices."*

*-FACGBF patient, 30-34 yrs, 4+ births*

**Evaluation goal:** to assess the ability of mLabour to improve the quality of care provided to women during the intrapartum and immediate postpartum periods.

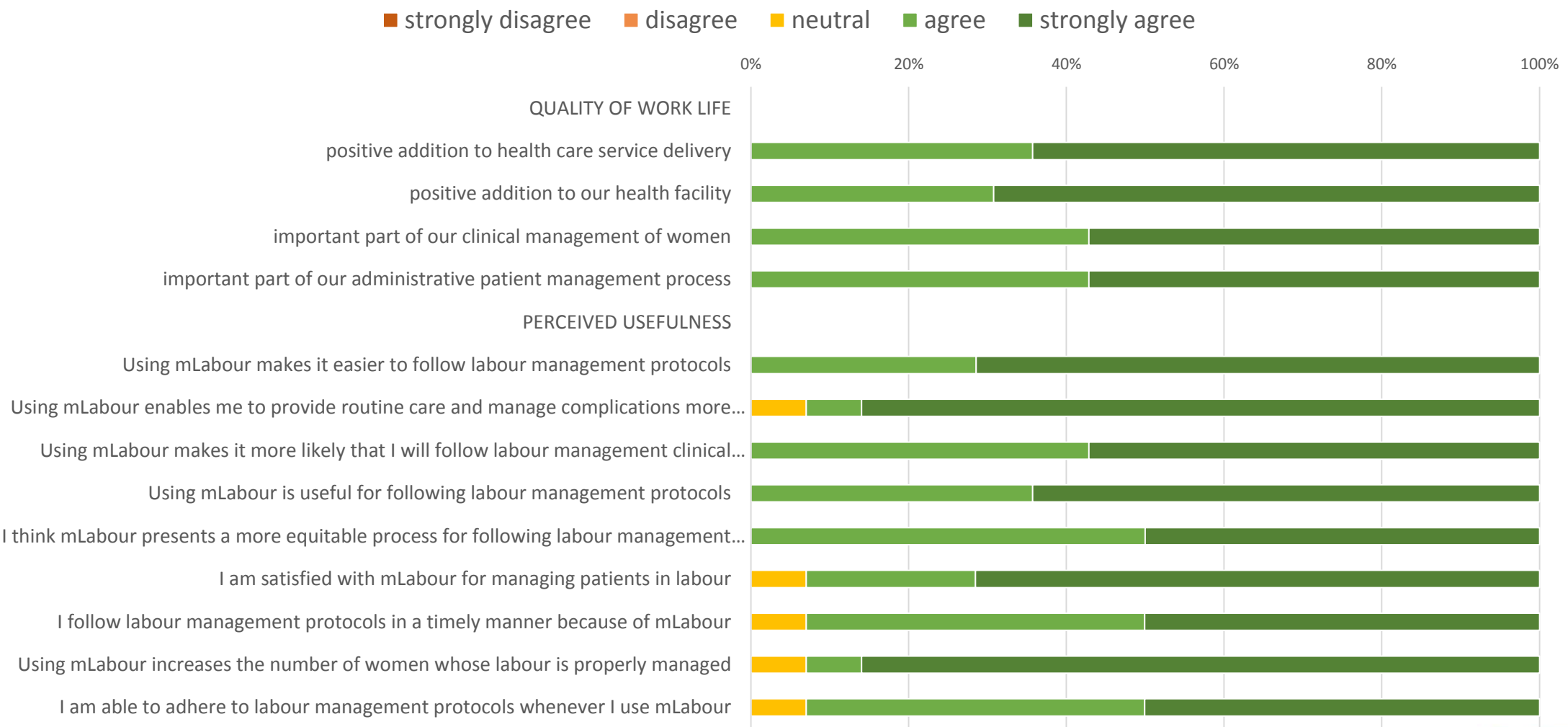
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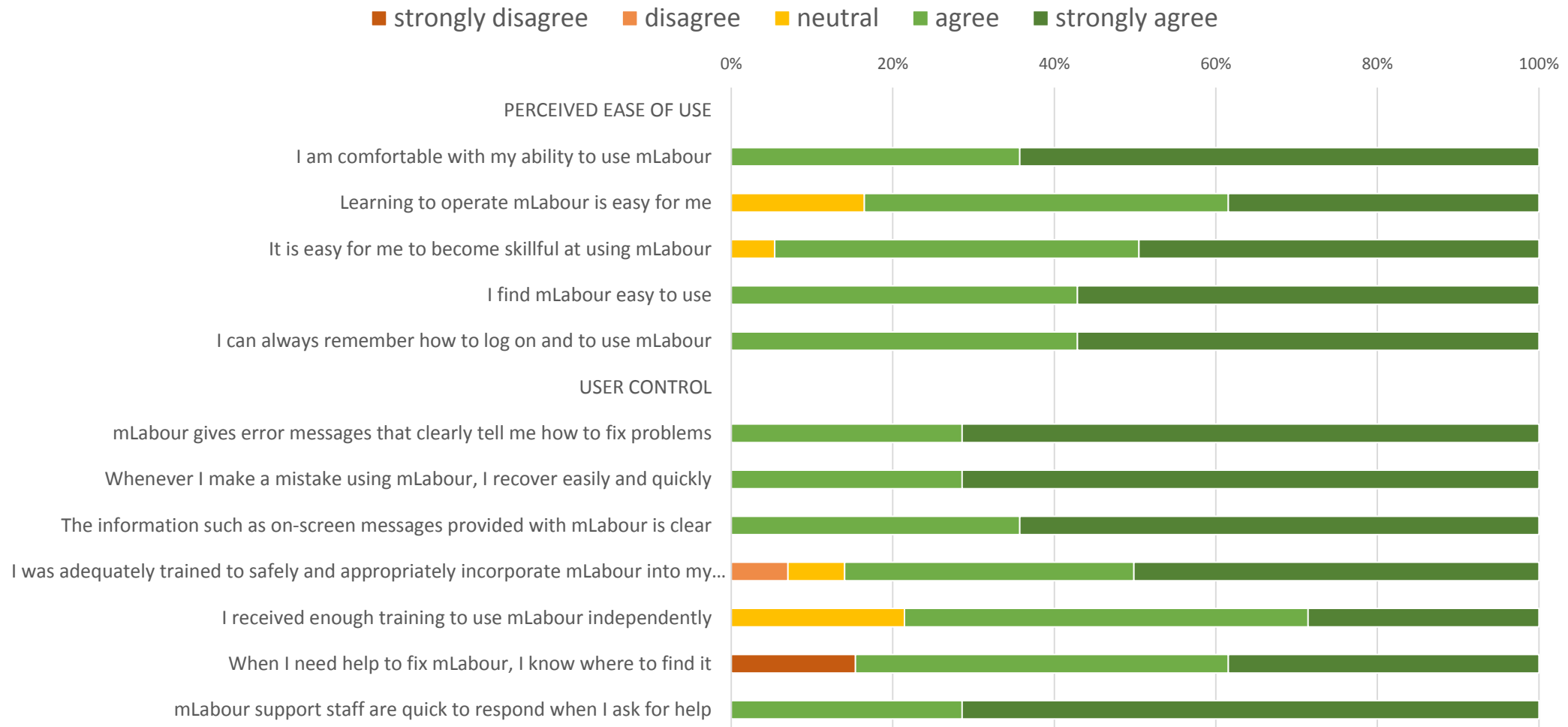
# Usability of mLabour – Provider questionnaire

- Surveyed providers (current mLabour users)
- 25 yes/no questions asking providers to rate their agreement on a number of statements on:
  - mLabour's impact on quality of work/life
  - Perceived usefulness
  - Perceived ease of use
  - User control
- Questions adapted from a validated, customizable health IT usability evaluation scale – the Health ITUES tool [Yen et al (2010); Yen, et al., (2014)].
- The questionnaire was loaded directly into mLabour and providers were notified that it was time to complete.

# Feedback from providers: Usability at midline



# Feedback from providers: Usability at midline



# PROVIDER FEEDBACK SESSION

# From the providers using mLabour

**Feedback Session:** users from the three facilities currently using mLabour share their experiences with the tool.

- How has the introduction of mLabour changed the way you operate your labour ward?  
**Both positive changes and challenges to use?**
- How has the introduction of mLabour been perceived by the rest of your **labour ward staff**?
- How do you think **patients** feel about mLabour? How do your conversations go with women when introducing them to the tool when they first come in?
- How do you think the mLabour program could **improve**?

# Should mLabour be scaled up in Tanzania?

## Structure

30 minutes: break into small group for discussion, guided by the questions below

30 minutes: come together to discuss decisions

## Questions to guide the discussion:

1. Will your organization decide to scale up to additional facilities? What informed that decision?
  1. If not – what else would need to happen to scale?
2. What additional support is required to more effectively implement mLabour?
3. Where else would implementation of mLabour be appropriate (public sector, additional private sector facilities, etc.)?
4. What role can districts (or ministry, etc.) play to support scale-up?

# PLANS FOR YEAR 2

# Expanding mLabour to additional sites

**Objective:** Expand the reach of mLabour to additional private and public facilities in the next year.

**Question 1:** Assuming there is ministry support, what would it take to implement mLabour in the public facilities you support?

1. Based on the information discussed today, is your organization interested in adopting mLabour into your activities?
  1. If not, what more would you need to see?
2. How can we support new partners to adopt mLabour?
3. In which type of facilities would implementation of mLabour be appropriate?

**Question 2:** Given your familiarity with the ministry, what steps should we take to expand implementation into public facilities?

# NEXT STEPS AND WRAP UP