



# Advancing maternal safety and pain management after Cesarean section in rural Tanzania hospital

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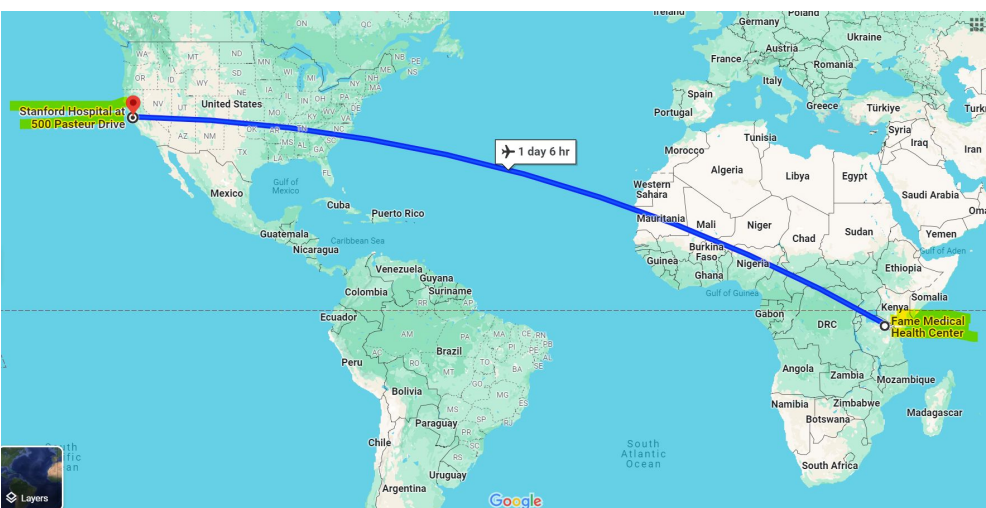
## Introduction

- A woman from Africa has a 1 in 6 lifetime risk of dying during pregnancy and 99% of maternal deaths occur in low-income countries (1).
- Obstetric anesthesia education is vital for low resource settings (2).
- Spinal and regional anesthetics have a 30- to 40-fold lower mortality rate compared to general anesthetics yet are underutilized due to insufficient training (3).
- Aim: to assess the translation of hybrid global health education to the development of regional and acute pain protocols and subsequent impact on maternal post-cesarean section pain.

## Methods

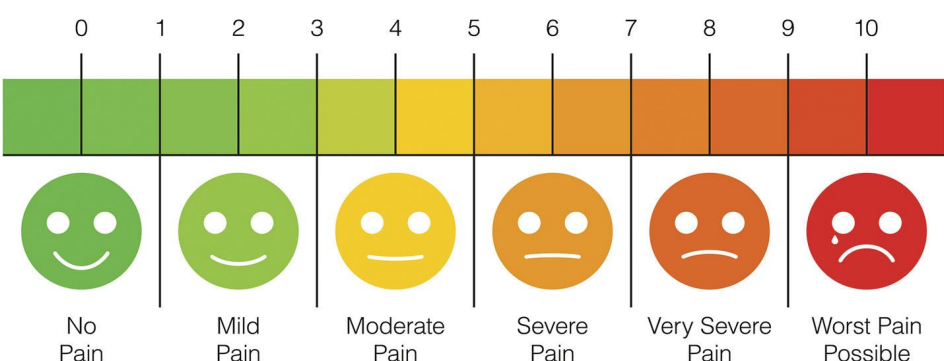
### Phase 1: Partnership

- Remote 2-week workshops, twice per year 2021-2023
- Regional anesthesia & acute pain and obstetric anesthesia



### Phase 2: Assess

- June 2023-January 2024
- 6-month data collection of pain scores after Cesarean section
- FAME head nurse anesthetist visiting observership at Stanford



### Phase 3: Implement

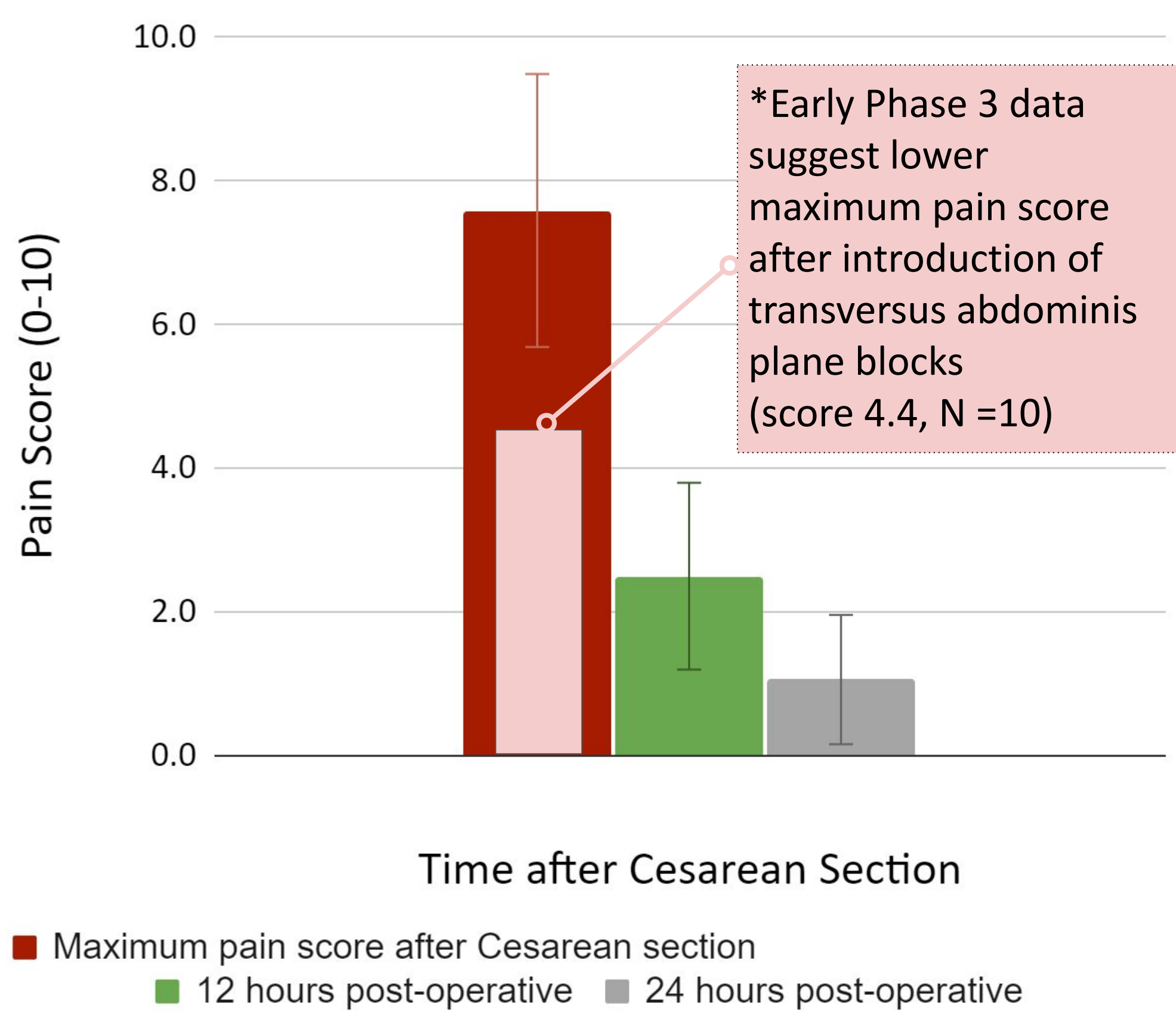
- January 2024-Present
- Stanford team traveled to Tanzania for supervision of Transversus Abdominis Plane (TAP) blocks
- 6-month data collection of pain scores after introduction of TAP blocks



## Tanzanian nurse anesthetists adopted several acute pain practices after our bi-directional partnership

- Involving patients in discussions about their care
- Numerical pain rating scale
- Multimodal analgesic strategies
- Expanding access to regional anesthesia and long acting opiates

**Figure 1: Pain scores after Cesarean section**  
N = 142, Mean +/- SD



## Post-operative pain after C-section

- Pain is high initially, but improves quickly
- Satisfaction with pain management is 99%
- Adherence to multimodal strategy is high
- Side effect profile suggests potential for improvement

## Results

**Table 1: Demographics & patient characteristics (mean +/- SD)**

|                                                |                            |               |
|------------------------------------------------|----------------------------|---------------|
| Patient age (mean years +/- SD)                |                            | 30.1 +/- 6.5  |
| Gravida (median # of pregnancies)              |                            | 2.0 +/- 1.4   |
| Para (median # of deliveries before C-section) |                            | 2.0 +/- 1.3   |
| Mean gestational age (weeks)                   |                            | 38.1 +/- 3.0  |
| OB Comorbidities                               | Gestational diabetes       | 2.1%          |
|                                                | Hypertension               | 1.4%          |
|                                                | Pre-eclampsia              | 0.7%          |
|                                                | Eclampsia                  | 2.1%          |
|                                                | Infection                  | <1.0%         |
|                                                | Pre-term                   | 12.6%         |
|                                                | Anemia                     | 0.7%          |
|                                                | Intra-uterine fetal demise | 0.7%          |
|                                                | Prior C-section            | Not described |
| Complications                                  | IUFD                       | 13.3%         |
|                                                | Postpartum HTN             | 0.7%          |
|                                                | Eclamptic seizure          | 0.7%          |
|                                                | Uterine rupture            | 0.7%          |
| Mortality                                      |                            | 0             |
| Hospital Length of Stay                        |                            | 2.48 +/- 0.8  |

|                                  |                       |     |
|----------------------------------|-----------------------|-----|
| Pain Medications (% of patients) | Diclofenac            | 98% |
|                                  | Tramadol              | 97% |
|                                  | Paracetamol           | 87% |
|                                  | Acetaclofenac         | 33% |
|                                  | Brufen/Ibuprofen      | 53% |
| Side Effects (% of patients)     | Dizziness             | 29% |
|                                  | Itchiness             | 4%  |
|                                  | Nausea/Vomiting       | 24% |
|                                  | Constipation          | 1%  |
|                                  | Sleepiness            | 10% |
|                                  | Other: chest pain (1) | 1%  |

**Table 2: Pain Medications Utilized and Side Effect Profiles**

## Conclusion

Fostering longitudinal global relationships via a hybrid virtual and in-person bi-directional exchange has an potential to improve pain management and access to regional anesthetic care

## References

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