



## TANZANIAN HEALTHCARE SYSTEM AND PEDIATRIC ASSOCIATION OF TANZANIA (PAT)

**Pediatric Acute Care Education (PACE): Improving Newborn Care Guidelines Knowledge through Adaptive e-Learning.**

### Challenge:

- Tanzania, a country in East Africa, faces the formidable challenge of ensuring the uniform implementation of newborn care guidelines across a diverse and resource-constrained healthcare system.

### Solution:

- Pediatric Acute Care Education (PACE), an adaptive e-learning environment, was co-developed with the Pediatric Association of Tanzania (PAT) and the Catholic University of Health and Allied Sciences. This innovative program was incorporated into a 6-month observational study that involved 195 healthcare providers across one zonal hospital and three health centers in Mwanza. The initiative combined adaptive e-learning, in-person support, and an escalating nudging strategy to motivate learning.

### Implementation and Outcomes:

- Reach:** PACE was implemented with 85% (195 out of 231) of identified providers, demonstrating high accessibility and adaptability.
- Learning Completion:** Providers achieved a 78% completion rate for initial learning but only 7% for refresher assignments.
- Efficacy:** The overall efficacy of the PACE system was estimated at 42%.
- Metacognition:** 32% of providers were identified as unconsciously incompetent, indicating unawareness of their knowledge gaps. However, higher baseline conscious competence and being a nursing officer were linked with better learning completion and persistent activity.
- Motivation:** The use of in-person support and motivators significantly boosted reach, initial learning, and refresher assignment completion rates.

Although the reach and initial learning were successful, refresher assignment completion was low, indicating potential barriers to sustained engagement with adaptive e-learning in this target audience. The study also suggests that lower baseline knowledge may negatively affect initial learning completion or continued activity.

In conclusion, PACE has demonstrated significant potential for improving newborn care guidelines knowledge amongst healthcare providers in Tanzania. The insights from this project can offer valuable strategies for other low-resource settings aiming to optimize healthcare education and delivery.

### References:

- Meaney, AP., et al. Development of pediatric acute care education (PACE): An adaptive electronic learning (e-learning) environment for healthcare providers in Tanzania. *Digit Health*. 2023 Jul 24;9:20552076231180471. doi: 10.1177/20552076231180471. eCollection 2023 Jan-Dec. <https://pubmed.ncbi.nlm.nih.gov/37529543/>
- Meaney, AP., et al. Feasibility of an Adaptive E-Learning Environment to Improve Provider Proficiency in Essential and Sick Newborn Care in Mwanza, Tanzania. doi: <https://doi.org/10.1101/2023.07.11.23292406>

