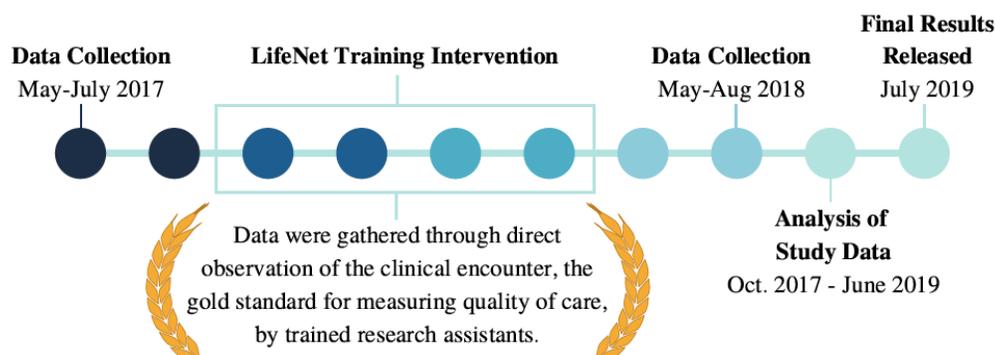Evidence Lab
at the Duke Global Health Institute

Our study provides evidence that the LifeNet clinical training intervention **significantly improved maternal and neonatal healthcare quality** at six primary care clinics in Uganda

BACKGROUND & METHODS

The Duke Global Health Institute (DGHI) Evidence Lab conducted a 15-month quasi-experimental longitudinal study of the effects of a modified 10-month long LifeNet training intervention on improvements in quality of care and maternal and neonatal mortality in six LifeNet partner clinics in the greater Masaka area, Uganda. 24 indicators of care quality were measured during the study.

Data Collection
May-July 2017

LifeNet Training Intervention

Data Collection
May-Aug 2018

Final Results Released
July 2019

Data were gathered through direct observation of the clinical encounter, the gold standard for measuring quality of care, by trained research assistants.

Analysis of Study Data
Oct. 2017 - June 2019

STUDY RESULTS

Aim One: Estimate the effects of LifeNet training on adherence to global standards on clinical quality measures among health facility staff [statistically powered to detect differences].

The most likely interpretation of these data is that **measurable improvements in clinical quality are related to the LifeNet training.**

Our study provides evidence that the LifeNet clinical training intervention significantly improved maternal and neonatal healthcare quality across six primary care clinics in Uganda, at least over a relatively short-term period. In 16 of the 24 indicators measured, we observed a statistically significant increase in adherence to best practices over the study period. The majority of these 16 indicators also showed a clinically significant increase in adherence.

It is important to note that since we were unable to utilize a randomized controlled design, results should be carefully considered in that we cannot assess causality. With this said, the timing of changes in outcomes and the significance of the changes across many indicators specific to LifeNet's training, considered alongside the *ad hoc* information we collected on other interventions occurring at study clinics, leads us to believe **the most likely interpretation of these data is that measurable improvements in clinical quality are related to the LifeNet training.**

Principal Investigators: Joy Noel Baumgartner, PhD; Joseph R. Egger, PhD

SAMPLE OF STUDY RESULTS

INDICATOR	BASELINE	ENDLINE	MEASURES OF EFFECT		
	Adherence % (N)	Adherence % (N)	Percentage Increase in Adherence	Adherence Difference	Adherence Ratio*
Hand washing					
Provider washed hands at least once right before initial vaginal examination, and/or during the first stage of labor, and/or prep for delivery	6.8% (177)	37.1% (205)	545%	30.3%	5.45
Sterile cord clamping					
Delayed cord clamping (>= 1 minute)	31.1% (196)	74.0% (246)	238%	42.9%	2.38
Partograph use					
Partograph used in real-time to monitor labor	10.4% (221)	40.2% (264)	386%	29.7%	3.86
APGAR					
Provider was observed to conduct APGAR score at 1 or 5 min.	10.8% (204)	64.5% (259)	597%	53.7%	5.97
Provider was observed to conduct APGAR score at 1 and 5 min.	2.0% (204)	32.8% (259)	1,640%	30.9%	16.4

Figure 1: *subset of statistically and clinically significant increases in the prevalence of clinical best practices over the study period*
Adherence ratio is interpreted as the likelihood that a provider adhered to the procedure when comparing the post and the pre-periods. For example, PR=5.45 is interpreted as a provider was 5.45 times more likely to adhere to handwashing after the intervention, than before the intervention.

> **Aim Two:** To describe the effect of LifeNet's clinical training modules on both pre-discharge neonatal mortality and maternal mortality [not statistically powered to detect differences].

Pre-discharge Neonatal & Maternal Mortality
This study was not statistically powered to detect differences in maternal and neonatal mortality. However, the data observed documented a decrease in neonatal mortalities at the conclusion of the LifeNet training intervention. The following mortality data on pre-discharge deaths were observed during the course of the 15-month study. While these data suggest that the mortality rate declined over this period, due to the low numbers of reported deaths, additional data or further studies would be required to more accurately measure changes in this area.

Baseline	7 neonatal deaths per 261 deliveries	27/1000 neonatal mortality rate
Endline **(Post LifeNet Intervention)**	3 neonatal deaths per 319 deliveries	9/1000 neonatal mortality rate

*Note: There were no pre-discharge maternal deaths observed during the baseline but there was one maternal death at endline when a woman was discharged in poor condition and died upon arrival at the referral hospital.

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