

# EVALUATION OF THE FEASIBILITY OF FOCUSED ECHOCARDIOGRAPHY TRAINING FOR MEDICAL RESIDENTS IN GHANA

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## BACKGROUND

- Advances in technology have resulted in availability of handheld ultrasound machines
- Handheld machines improve portability for point of care cardiac imaging
- They are ideal for training and use in underserved and low resource settings
- Non-cardiologists need training to perform focused cardiac imaging
- Training in focused cardiac imaging in Ghana has not been evaluated

## OBJECTIVE

- Evaluate the feasibility of training medical residents in Ghana in focused cardiac imaging

## METHODS

- Training module based on American Society of Echocardiography recommendations
- Didactic and proctored image acquisition and interpretation (Tables I & II)
- Participants: consented inpatients/outpatients at Cape Coast Teaching Hospital (CCTH)
- IRB approval by CCTH ethics board
- Trainees evaluated on a 3 stage-model on image acquisition and interpretation (fig I)
- Statistical analysis
  - Simple proportions for basic demographics
  - Cohen's Kappa for agreement

## STUDY DESIGN

TABLE I: IMAGING PROTOCOL

Imaging Window	View
Parasternal Long axis	2-Dimensional
Parasternal short axis	2-Dimensional M-mode
Apical 4-chamber	2-Dimensional

TABLE II: 2-DIMENSIONAL IMAGING ASSESSMENT

VARIABLE	ASSESSMENT
LV structure	Normal, mild, moderate, severe
LV function	Normal, mild, moderate, severe
RV structure	Normal, mild, moderate, severe
RV function	Normal, mild, moderate, severe
Pericardial effusion	Present, absent

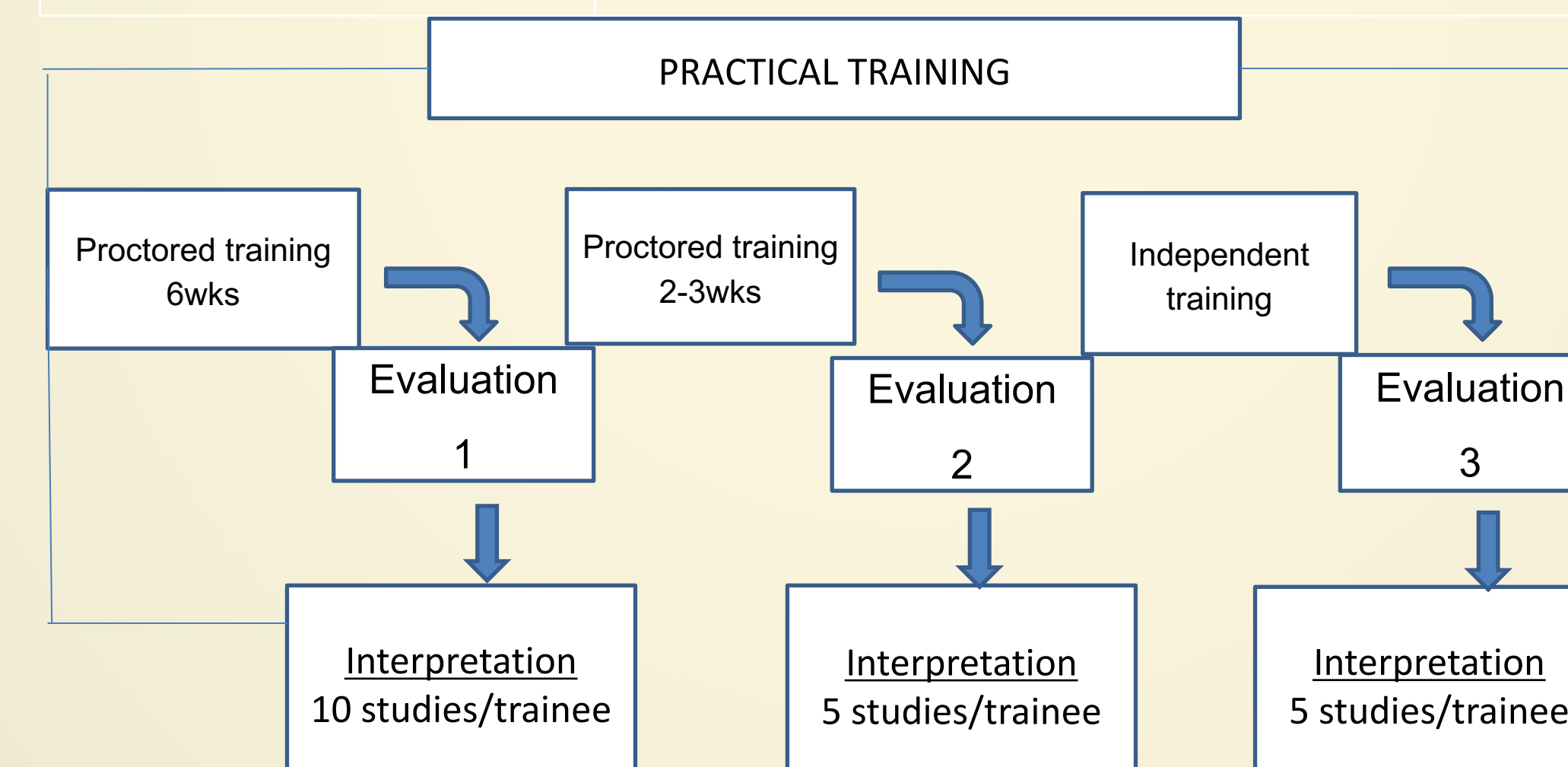


FIGURE 1: EVALUATION MODEL

## RESULTS

EVOLUTION GRAPH OF STUDY INTERPRETATIONS

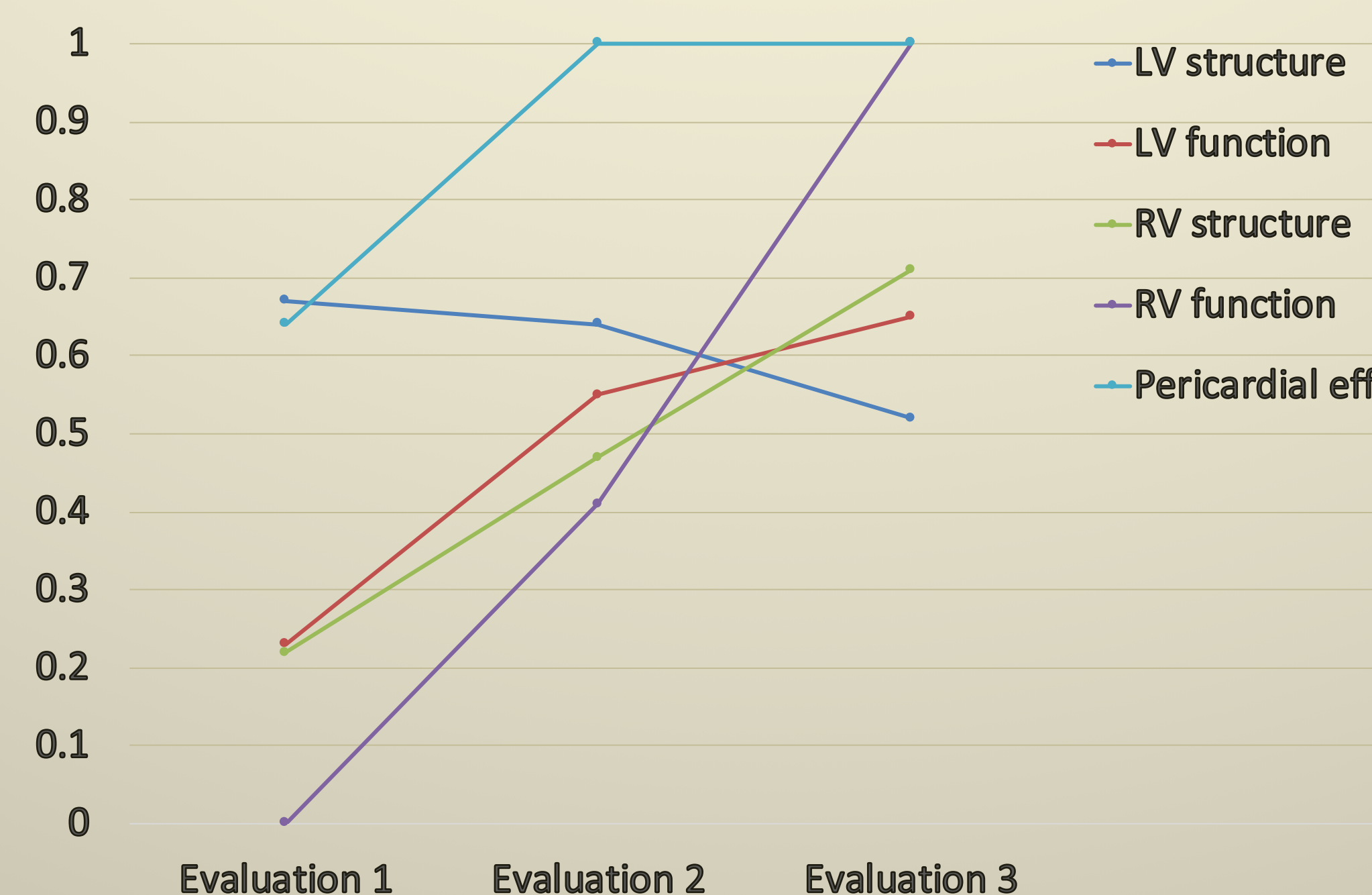


FIGURE II: AGREEMENT EVOLUTION GRAPH

## RESULTS

TABLE III: AGREEMENT BETWEEN TRAINEES AND TRAINER

VARIABLE	Evaluation 1 Kappa (N=20)	P-value	Evaluation 2 Kappa (N=10)	P-value	Evaluation 3 Kappa (N=10)	P-value
LV structure	0.67	0.001	0.64	0.002	0.52	0.010
LV function	0.23	0.070	0.55	0.030	0.65	0.004
RV structure	0.22	0.050	0.47	0.001	0.71	0.001
RV function	0.00	-	0.41	0.040	1.00	0.001
Pericardial effusion	0.64*	0.001	1.00	0.001	1.00	0.001

## DISCUSSION

- Trainees showed progressive understanding of focused image acquisition and interpretation
- Clinical time for trainees makes it difficult to get dedicated time for training
- Training programs should have post training mechanisms to ensure maintenance of competency

## CONCLUSION

- Focused cardiac assessment interpretation of LV and RV structure and function using handheld echo showed moderate to almost perfect agreement
- The learning curve demonstrate a 10 week period may be adequate to train medical residents in Sub Saharan Africa
- The protocol used for this study could facilitate future design/training in focused cardiac imaging in sub Saharan Africa

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