

Understanding the impact of a QI intervention on newborn mortality in 3 central districts in Malawi: a post-hoc theory-based evaluation

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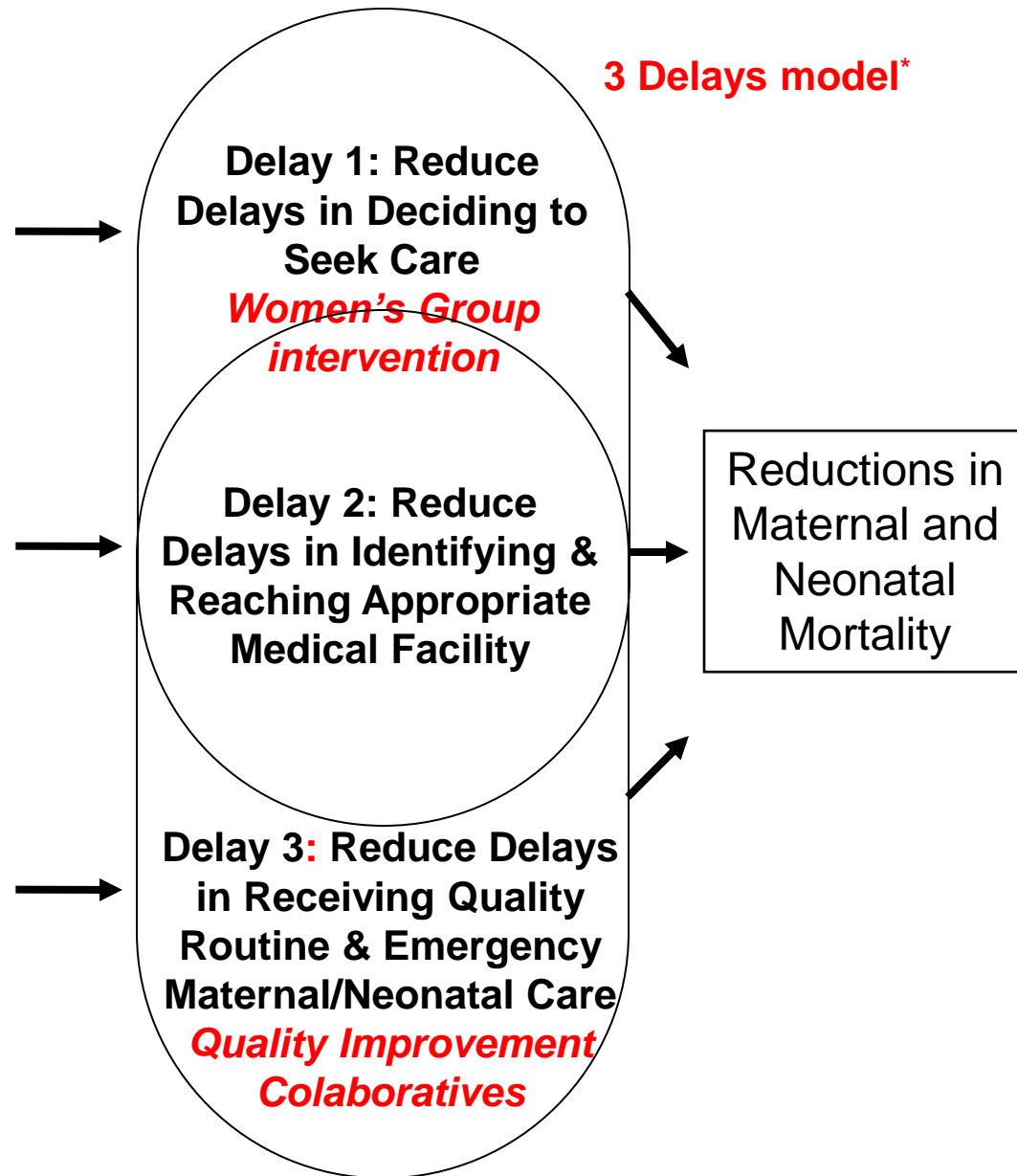
International Improvement Science and Research Symposium
Wednesday 26th April 2017

Theme: Understanding, measuring and evaluating improvement

Brief introduction to Bejoy Nambiar

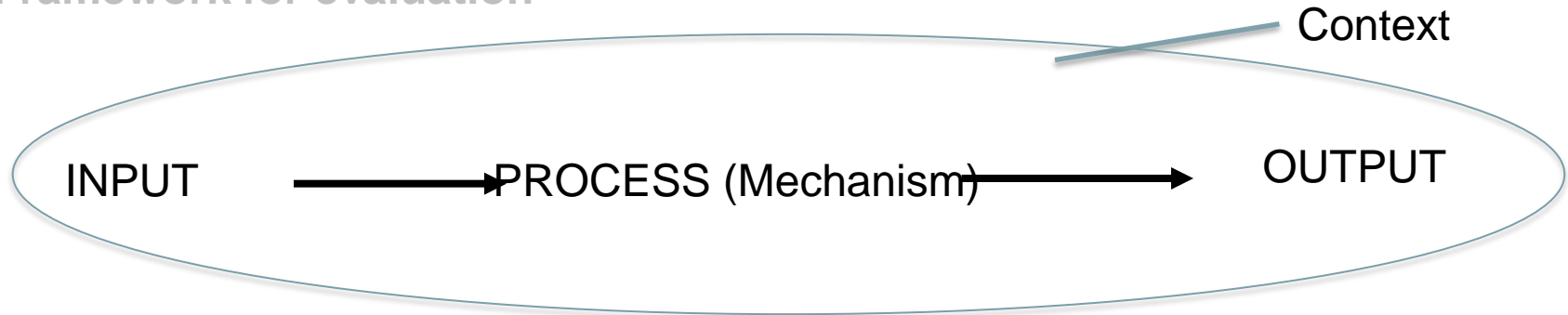
- Institute for Global Health, University College London
<http://www.ucl.ac.uk/igh>)-Malawi
<https://iris.ucl.ac.uk/iris/browse/profile?upi=BPNAM10>
- Area of work: Maternal, Newborn and Child Health
- Interest in Health Systems Research. Specific focus on Systems Improvement Research.
- Exploring novel approaches to evaluating complex interventions e.g.:
<http://www.salzburgglobal.org/topics/article/bejoy-nambiar-quality-improvement-interventions-challenges-and-solutions-for-evaluation-design.html>
- Presentation based on study done in Malawi, and PhD:

Key drivers for change



*Thaddeus and Maine. Soc Sci Med 1994;38 (8): 1091-1110

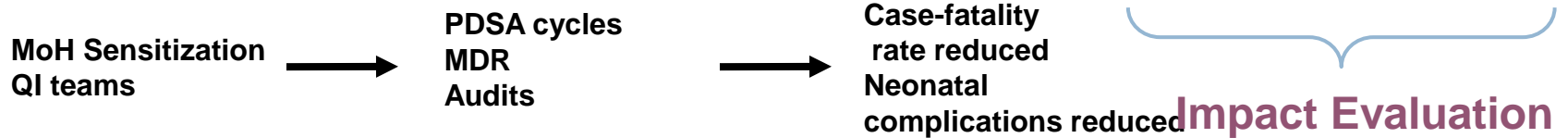
Framework for evaluation



Women's group intervention



Quality Improvement Collaboratives



Process Evaluation

Economic Evaluation

- Evaluation was funded by The Health Foundation
- Evaluation period: 2007-2012
- Impact evaluation: stratified cluster RCT
- Randomized health centres (n=64)
- Non-randomized CEmoCs (n=9)
- Data collection: Sep'07-Feb'11

Trial results-effectiveness

Intervention	Perinatal mortality	Neonatal mortality	Maternal mortality
Women's group	0.84 [0.72, 0.97]*	0.90 [0.75, 1.09]	0.91 [0.51, 1.63]
QI Collaborative	0.99 [0.85, 1.15]	0.86 [0.72, 1.03]	1.18 [0.66, 2.11]
Combined	0.83 [0.67, 1.02]	0.78 [0.60, 1.01]**	1.08 [0.46, 2.57]

* $p=0.020$

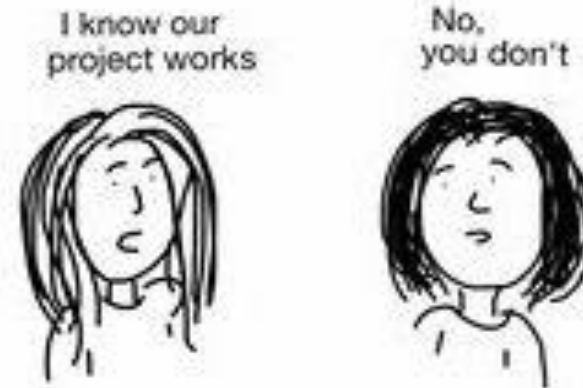
** $p=0.057$

No effect of QI collaborative on newborn mortality at population level

Why did we not see an effect?

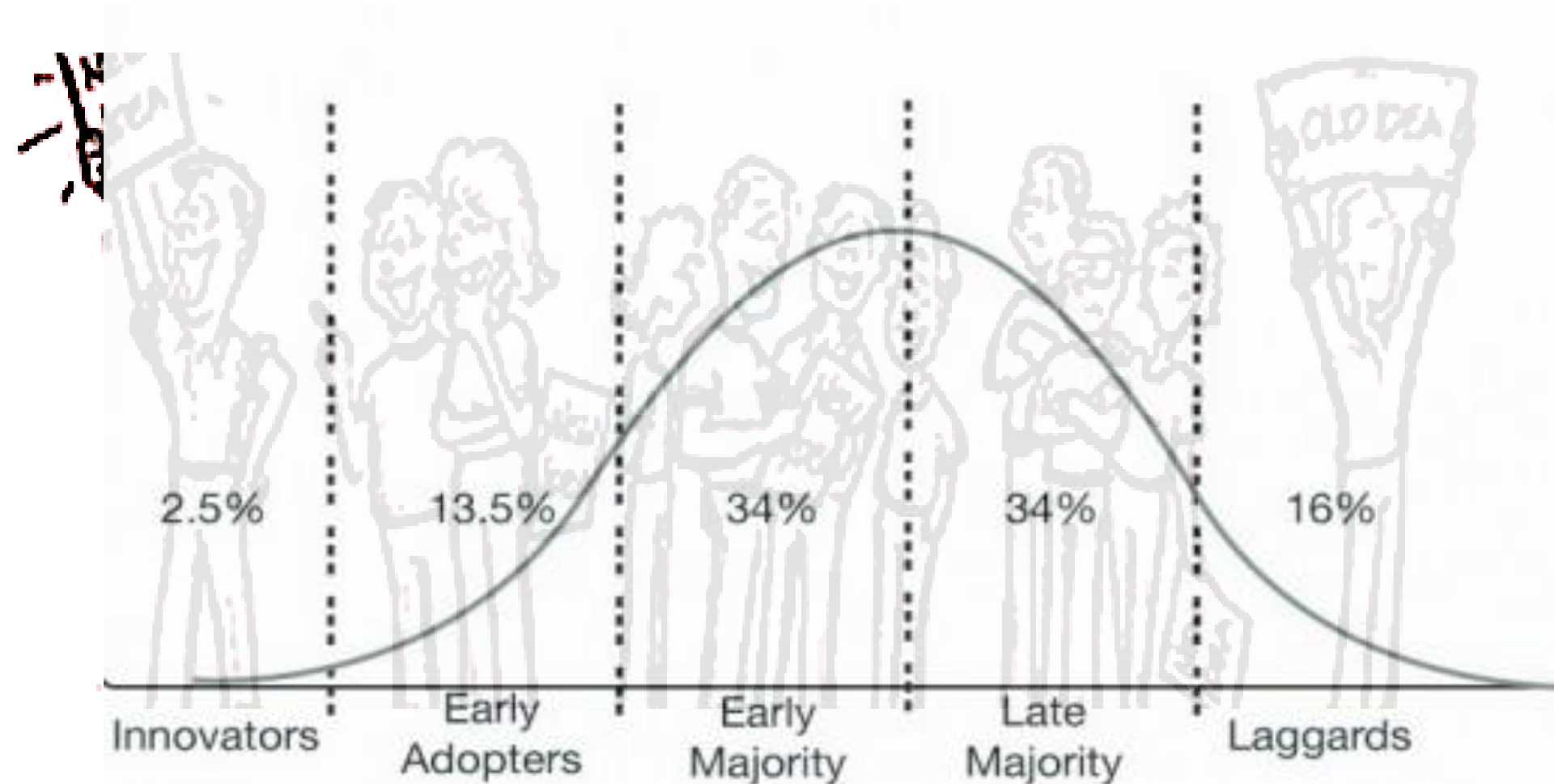
- Was it related to the **theory/design** of the intervention? - *Did we do the right things?*
- Was it related to **implementation** of the intervention? - *Did we do things right?*
- Evaluation design

Common conversation between implementers and evaluators



2 main challenges:
Complexity
Context

Challenges to evaluation design



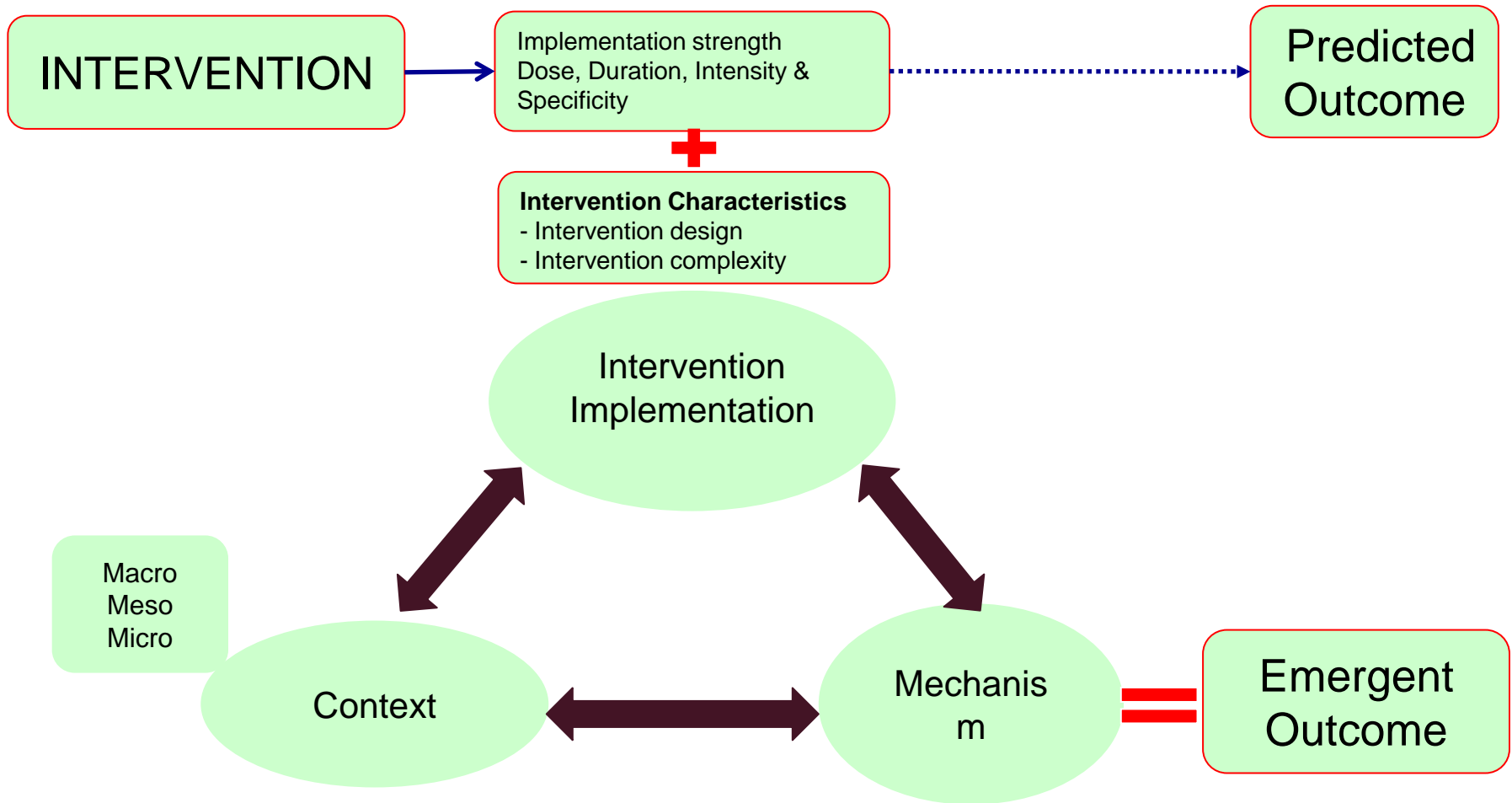
Evaluating complex QI Interventions



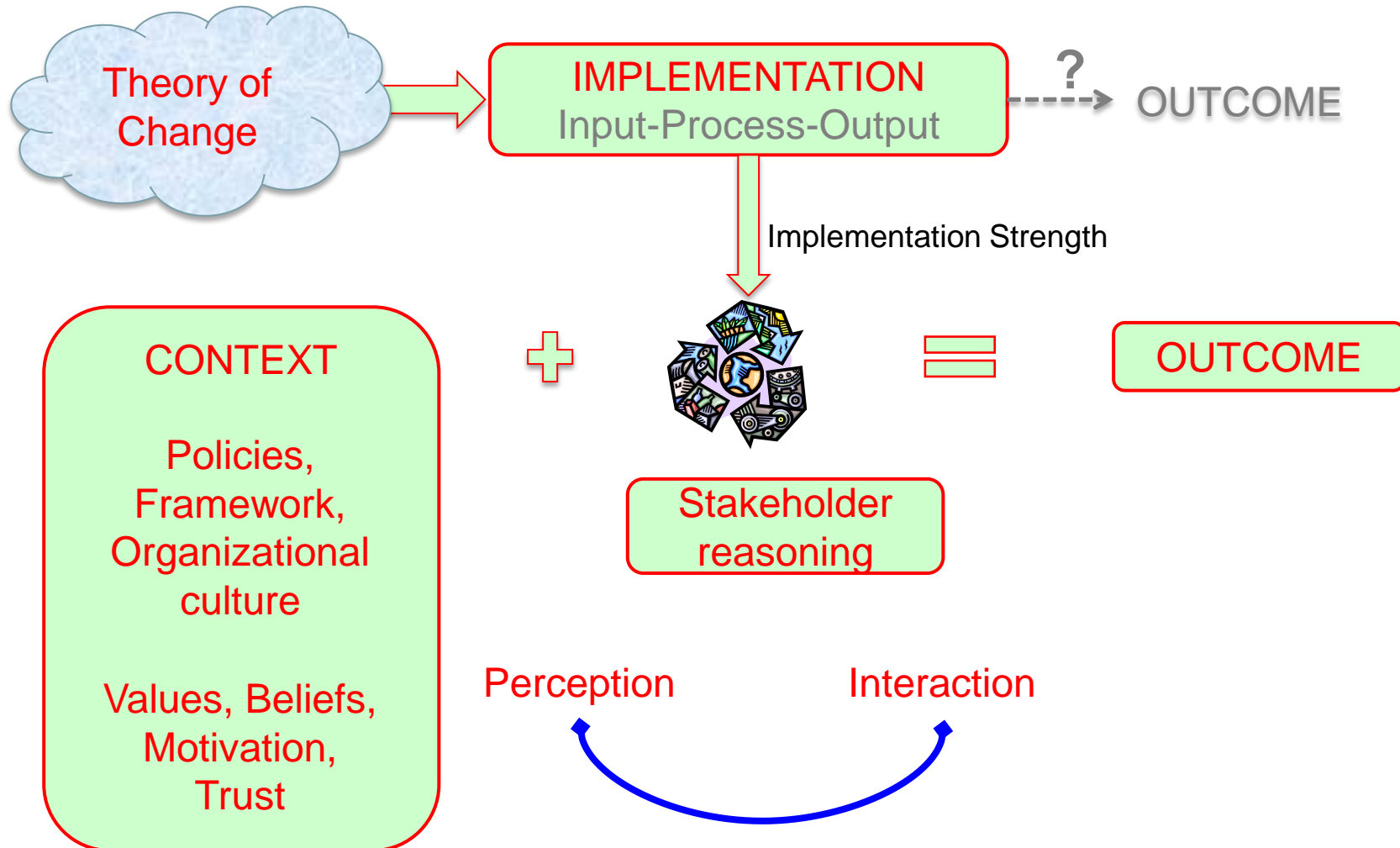
Dear Mr. Gandhi, we regret we cannot fund your proposal because the link between spinning cloth and the fall of the British Empire was not clear to us.

- Impact evaluation cannot explain how or why an intervention worked (or not)
- Impact evaluation does not take into account the complexity of intervention

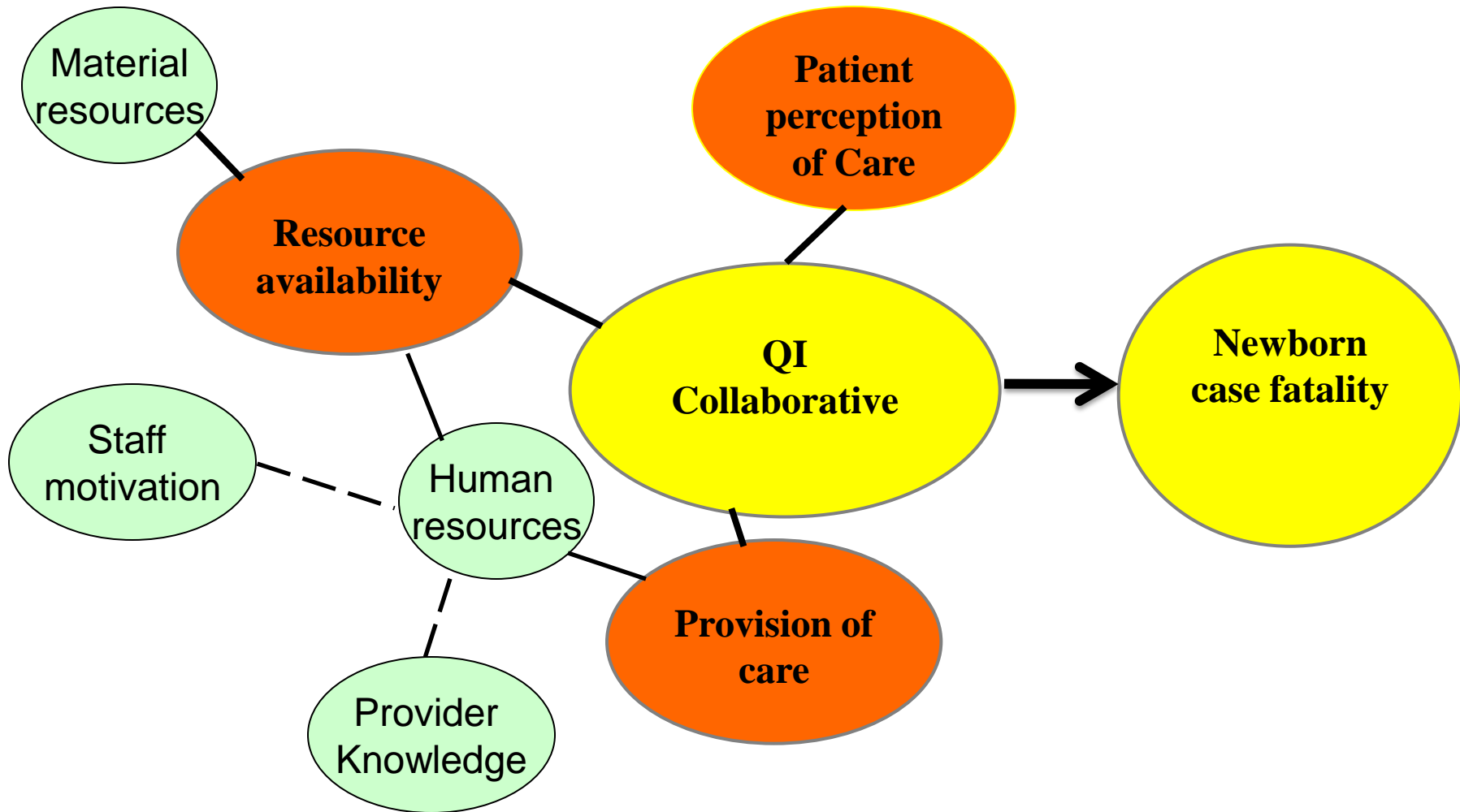
Evaluation Framework



THEORY BASED EVALUATION



QI process evaluation studies

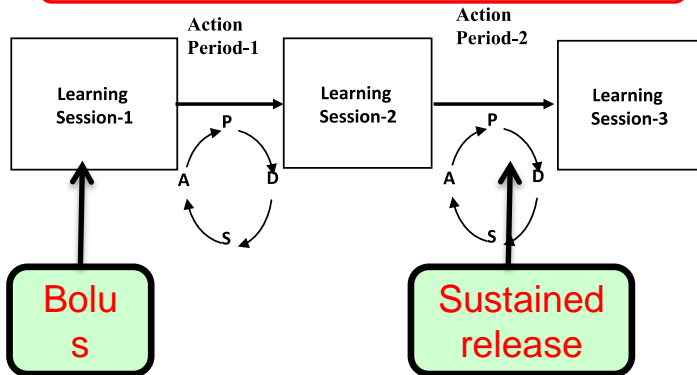


Evaluating programme implementation (CFIR)

CFIR domains	Process evaluation studies	Monitoring data	Data Deep dive	Progress report	Board meeting minutes
Intervention Characteristics					
Outer context					
Inner setting					
Individual characteristic					
Implementation process					

Implementation Theory

Break Through Collaborative Series



Timeline

January, 2007

July 2007

March 2008

2008

May 2008

July, 2008

2009

July, 2009

September 2009

2010

Event

First QI breakthrough collaborative

Introduction of Criterion-Based Audits

Health Centre work initiated

THF grants an additional year to the project for Phase II

Project gets registered as an NGO in Malawi-MaiKhandanda

Super-Improver training

Second round of proposals with a clear design in place

Health centre work re-initiated by IHI

Implementation of neonatal change ideas

Health Centre work being fully implemented

FI Officers based in districts

Bi-weekly visits to health centres; regular visits to CEmOCs

Dose

Duration

Implementation Strength

District QI advisors
Focus on health centres
Focus on newborn change package

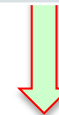
Specificity

Intensity

Conceptual clarity

Evaluating programme mechanism (programme theory)

Mechanisms: Successful QI interventions*	Resources necessary for these mechanisms
Isomorphic pressure	Collaborative sessions
Networked community	Telecon, workshops; feedback
Social problem with a solution	Political commitment
Harnessing data	Data improvement & feedback
Changing culture & practice	Checklists

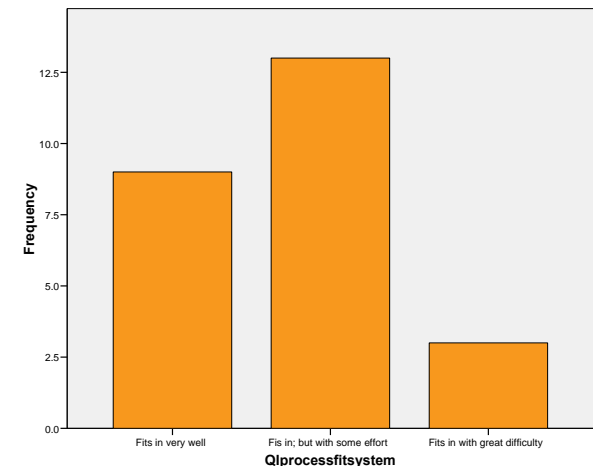
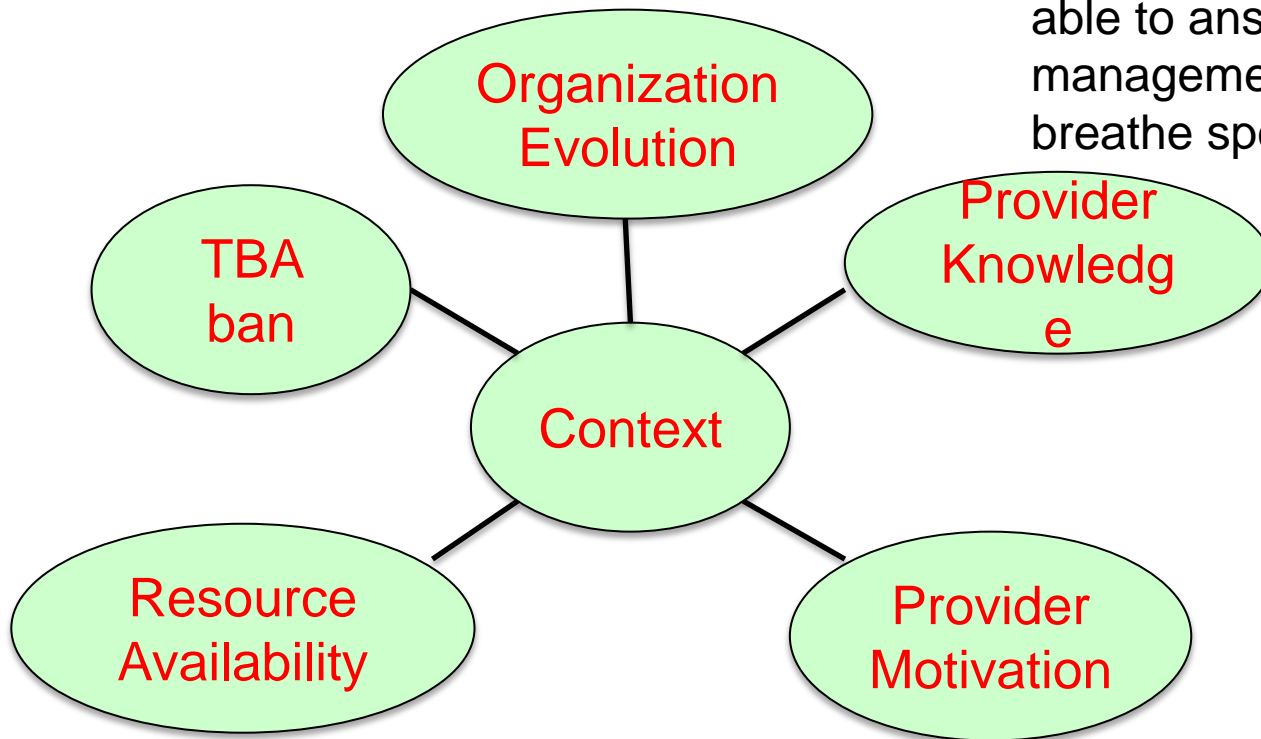


IMPLEMENTATION THEORY

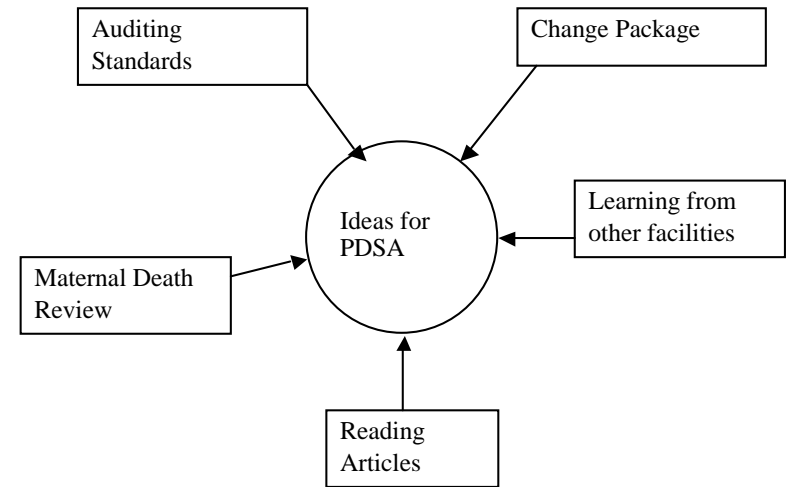
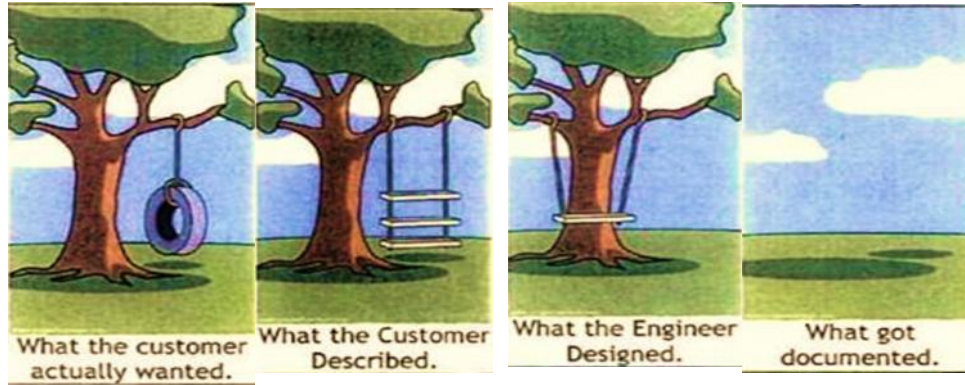
*Mary-Dixon Woods, Charles L.Bosk, Emma Louise et al. 2011 Explaining Michigan: Developing an Ex Post Theory of a Quality Improvement Programme. *The Milbank Quarterly* . 89 (2): 167-205

Context

Only 35% of the respondents were able to answer correctly regarding management of a baby who does not breathe spontaneously.



Conceptual clarity



QI model as perceived by THF programme manager

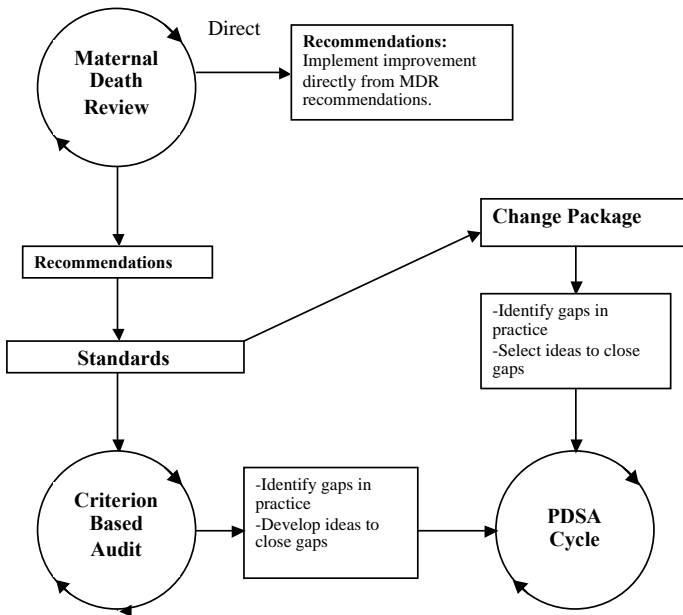
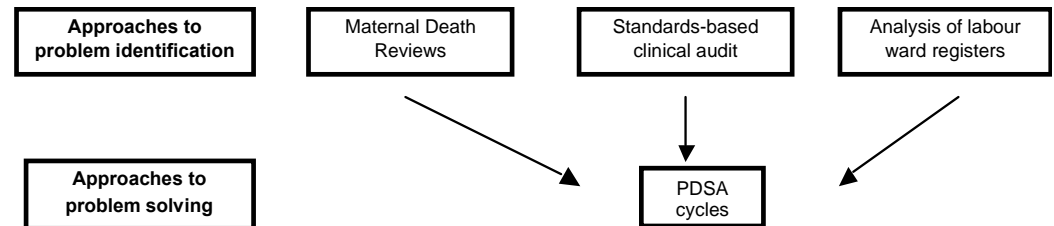


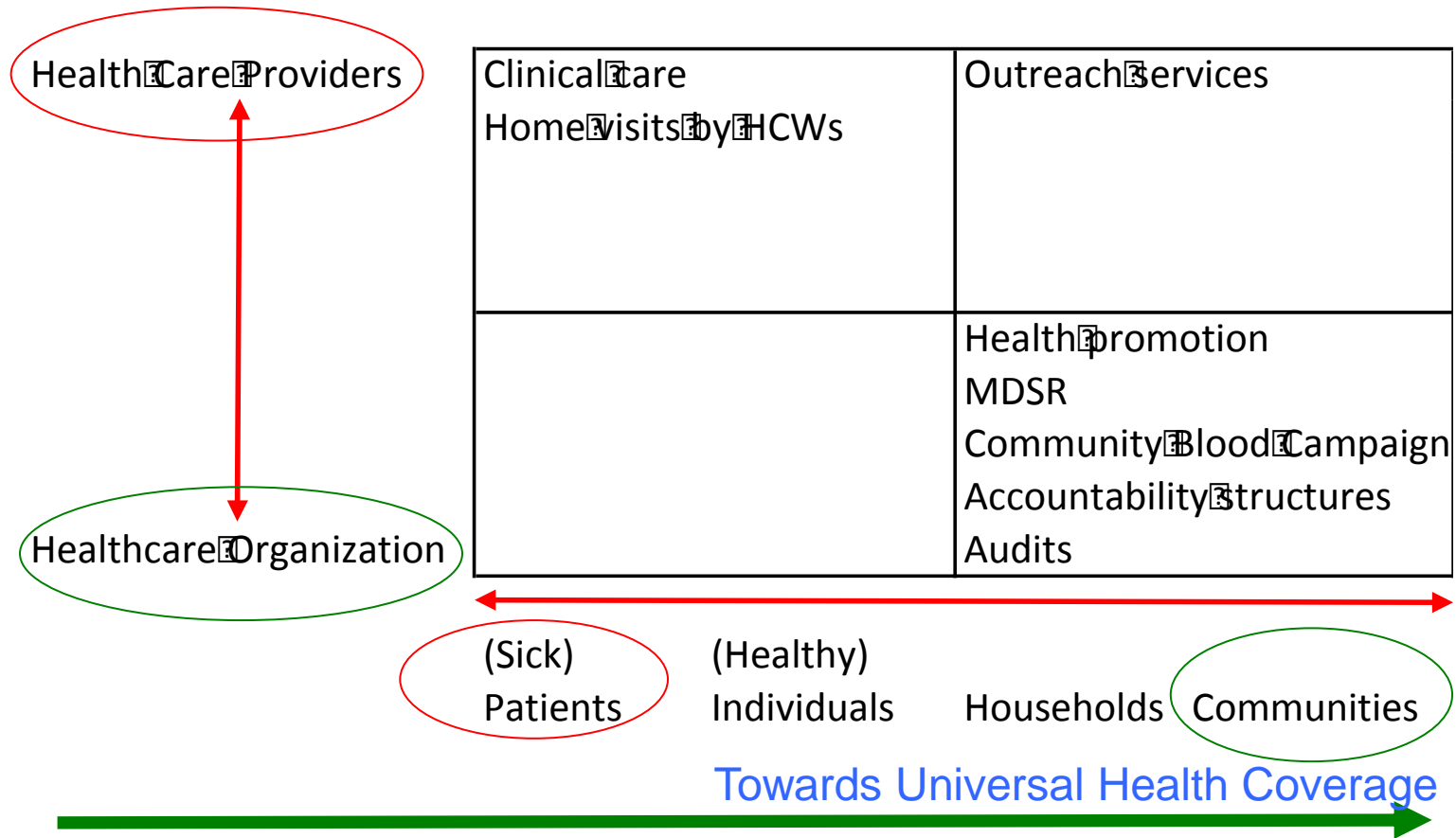
Fig: QI model as perceived by the health facility staff



Model for improvement: As understood by THF programme director

Conclusion

- Success of the QI interventions in Malawi was limited by its implementation strength
- Theory based evaluation of QI interventions provides insight into the mechanism
- The interventions were also influenced by multiple contextual factors
- Evaluating programme theory and programme implementation are important precursors to understand mechanisms and role of context



Nambiar B, Hargreaves DS, Morroni C, et al. Improving health-care quality in resource-poor settings. *Bull World Health Organ* 2017; **95**(1): 76-8



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Thank You!