ICCM Mortality Impact Assessment and Results Across Countries

Agbessi Amouzou
Saul Morris
Larry Moulton
David Mukanga

Background

- ICCM implemented by many countries as strategy for reducing mortality and accelerating progress toward MDG 4
- There is currently little evidence on mortality impact of large ICCM programs in Africa
- Few impact evaluation studies have been recently conducted and are mostly under analysis for publication
- It is critical at this stage to review the state of the evidence, lessons learned to date and way forward

Research Question

Does large scale ICCM accelerate significantly reduction in under-five mortality relative to the routine approach?

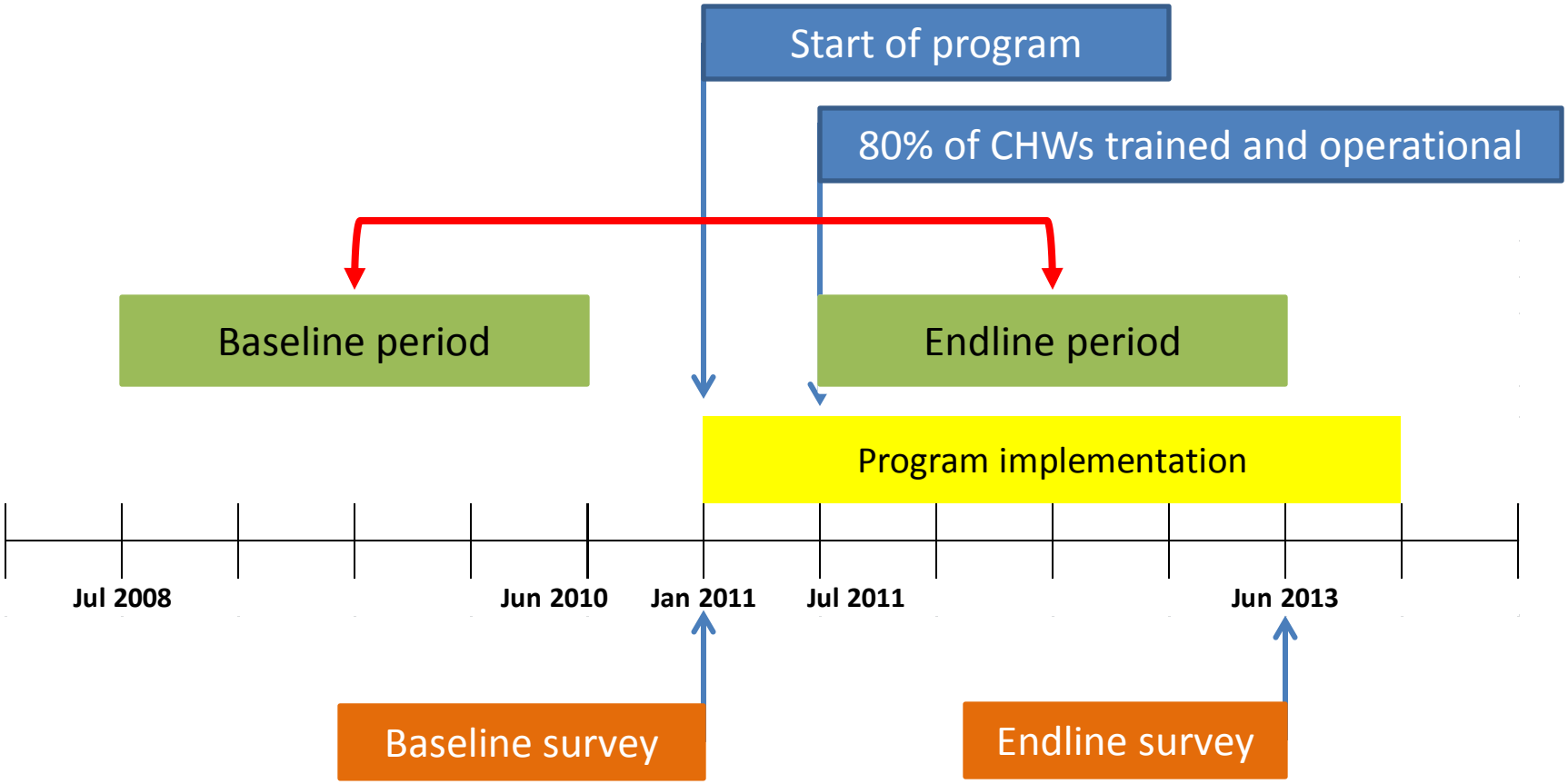
Method

- Reviewed recent evaluation studies that attempted to measure the impact of large scale ICCM program
- Selected studies based on minimum criteria for data quality and design. Selected studies are those that:
  - Include intervention and comparison areas
  - Measure mortality empirically through primary data collection
  - Have level of baseline mortality rate not substantially lower than the mortality of the entire rural population of the same country at the same time

Method for Mortality Assessment

- Identify ICCM implementation period (endline period or *post ante*) from time when at least 80% of CHWs trained and operational to endline survey
- Identify baseline (*ex ante*) period with same seasonality and duration as implementation period,
- Calculate difference-in-difference estimates of program impact using random effect Poisson model
- Analysis based on children 2-59 mo

Method for mortality assessment Example



Studies Identified

Country	Name of Country PI.	Partner support	Study year
Burkina Faso	Sodiomon B. Sirima	GRAS/TDR	2010-2013
Cameroon	Megan Littrel	PSI	2009-2012
Ethiopia	Agbessi Amouzou	JHU	2011-2013
Ghana	John Gyapong	GHS/TDR	2006-2009
Sierra Leone	Theresa Diaz	UNICEF	2010-2012
Uganda (Central)	Geoffrey Namara	UNICEF/MC	2010-2011
Uganda (Western)	Geoffrey Namara	MC	2009-2012
Zambia	Helen Counihan	MC	2010-2012

Design of the Studies & Results

Country	Design	Number of intervention clusters	Number of comparison cluster	**Type of CHWs**	**Mortality measurement period**
Burkina Faso	RCT	19	19	Volunteers	11 mo*
Cameroon	Quasi-experimental	2	1	Volunteers	35 mo
Ethiopia	RCT	16	15	Paid Govt CHW	18 mo
Ghana	RCT	39	38	Volunteers	11 mo*
Sierra Leone	Quasi-experimental	2	2	Volunteers	18 mo
Uganda (Central)	Quasi-experimental	8	3	Volunteers	11 mo
Uganda (Western)	Quasi-experimental	9	3	Volunteers	22 mo
Zambia	Quasi-experimental	4	3	Volunteers	16 mo

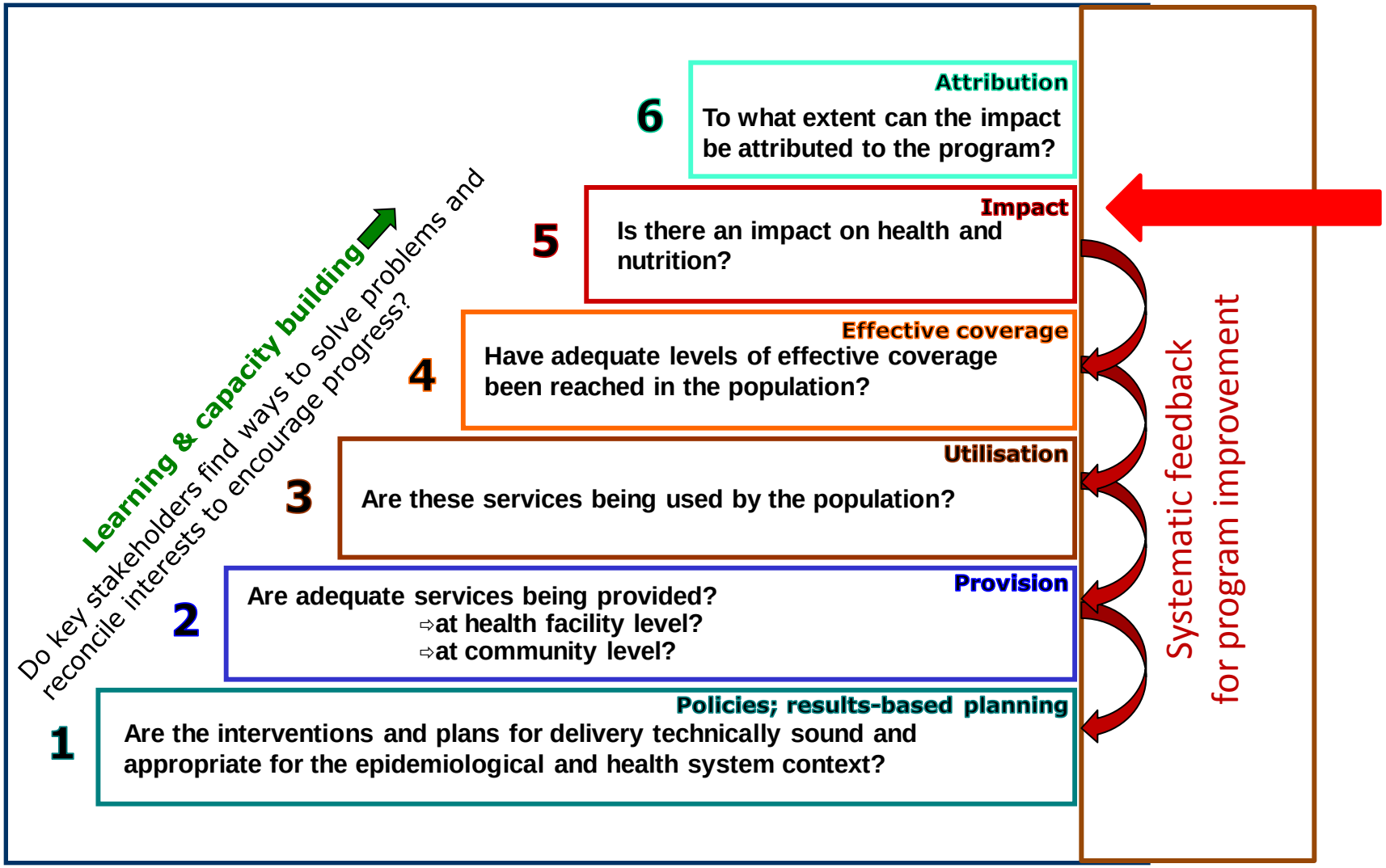
Design of the Studies & Results

Country	Design	Number of intervention district	Number of comparison district	**Mortality measurement**	**Sample size endline survey (#HHs)**	**DD mortality Incidence rate ratio and 95%CI**
Burkina Faso	Quasi-experimental	19	19	DSS	-	0.95 (0.57, 1.59)
Cameroon	Quasi-experimental	2	1	Census with FBH	18,177	1.05 (0.85,1.29)
Ethiopia	RCT	16	15	Survey with FBH	28,000	0.85 (0.62, 1.18)
Ghana	RCT	39	38	DSS	-	0.24 (0.06,0.96)
Sierra Leone	Quasi-experimental	2	2	Survey with FBH	6,000	0.79 (0.41, 1.51)
Uganda (Central)	Quasi-experimental	8	3	Survey with FBH	8,000	0.70 (0.18, 2.78)
Uganda (Western)	Quasi-experimental	9	3	Survey with FBH	8,000	0.66 (0.32, 1.40)
Zambia	Quasi-experimental	4	3	Survey with FBH	8,000	1.45 (0.86, 2.46)

LESSONS LEARNED

PRECONDITIONS FOR DEMONSTRATING IMPACT

Stepwise design



Source: Bryce J, Victora C, Boerma T, Peters DF, Black, RE. Evaluating the scale-up for maternal and child survival: A common framework. *International Health*. 2011; **3**(3):139-146.

Three Assumptions must be met to measure ICCM Mortality Impact

1. ICCM program design must be **appropriate for the context**

2. ICCM must be delivered at an **intensity** sufficient to generate impact at a population level

3. the **methods of assessing mortality** impact must be reliable, precise and generalizable

STRATEGIES THAT WORKED WELL

Strategies that worked well

- Household mortality survey with **full birth history** from women 15-49 years old measures well mortality at baseline and endline
- Inclusion of a **mosaic of small geographic areas** (clusters) in intervention and comparison areas increase internal and external validity
- Collection of a **comprehensive dataset** including treatment coverage, point of treatment (for both iCCM and non-iCCM interventions), utilization data, and quality of care

STRATEGIES THAT DID NOT WORK WELL

Strategies that DID NOT work well

- Collection of full birth history data requires use of standard tool and close supervision to ensure quality
- Many studies included basic flaws in their evaluation design, limiting external validity
- Almost none of studies reviewed was powered to detect a statistically significant mortality impact of the program
- The program is implemented in rapidly evolving health system and context in both intervention and comparison areas

IN SUMMARY

Lessons Learned

- Mortality impacts in recently implemented programmes vary considerably, from a (statistically significant) 76% reduction in mortality, to a (non-significant) 43% increase

- Mortality measurement requires large sample sizes, especially on short period and medium to low level mortality

- Mortality data collection is a very specialized activity requiring well-trained interviewers and close supervision of fieldwork

Lessons Learned

- In general it will take no less than two years to reasonably expect to detect measurable mortality impact
- Undertake mortality impact measurement only when conditions on program utilization and coverage levels are met.
- When mortality is measured, companion data on utilization, coverage, point of treatment and contextual factors must also be collected
- If a strong evaluation context can be guaranteed, full birth histories—or, better still, full *pregnancy* histories—are the ideal way of collecting data on child mortality

THANK YOU