

Experience sharing on evaluation findings and lessons(African region)

Evaluation Study on the Maternal Child Health Program by Save the Children in Mali

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I. Background of the Evaluation

With the support of the Korea International Cooperation Agency (KOICA), Save the Children (SC) Korea has implemented the three consecutive projects in Yorosso district, Sikasso region, Mali for 10 years from Sep 1, 2008 to Dec 31, 2017.

1st project (Sep 1, 2008 - Aug 31, 2013)

「Scaling-up Community-based Infant Case Services in the Yorosso District of Mali」

2nd project (Sep 1, 2013 - Aug 31, 2014)

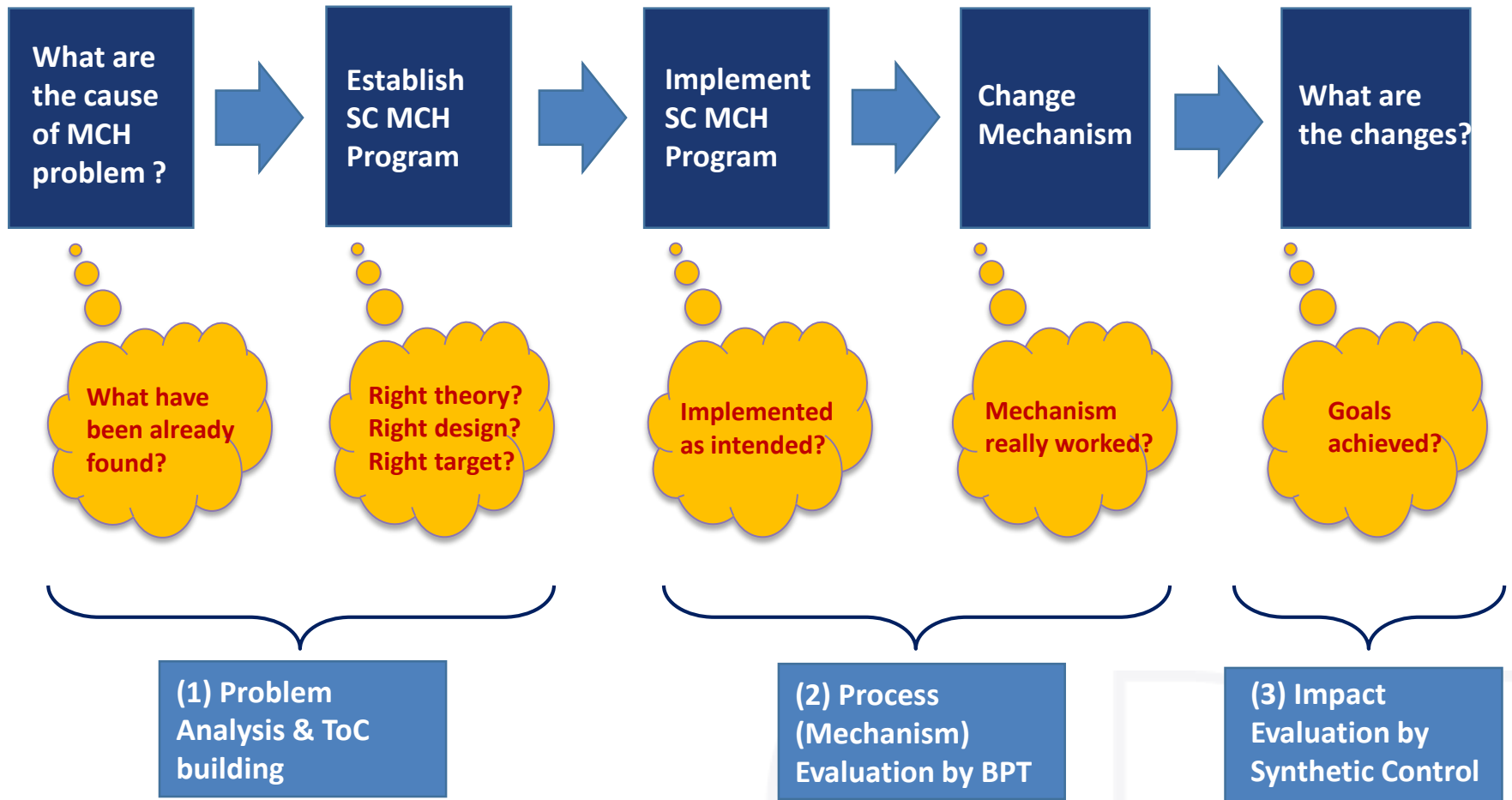
「Integrated Nutrition Project for Acute Malnutrition Children
in the Yorosso District of Mali」

3rd project (Jan 1, 2015 - Dec 31, 2017)

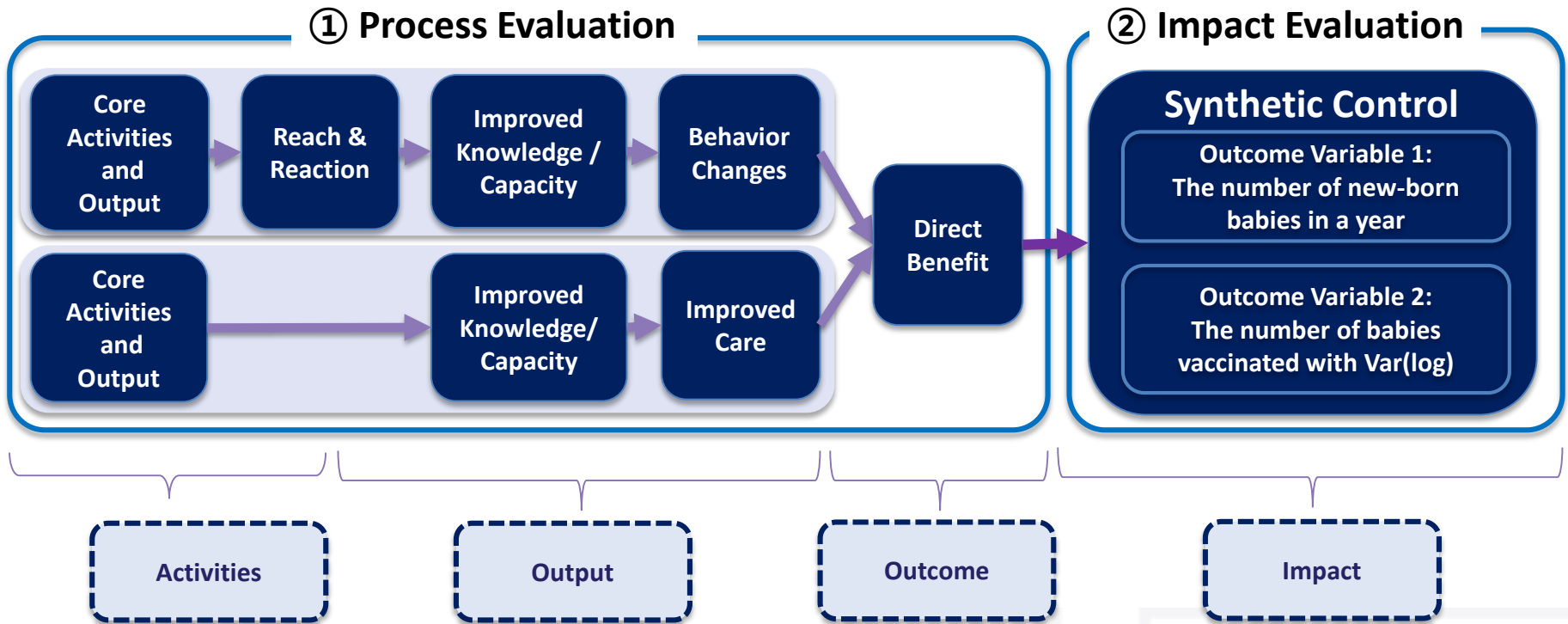
「Improving Maternal and Child Health in Mali」

Though mid-term and final evaluations of the SC's projects were carried out, a comprehensive evaluation of the three consecutive projects was not conducted.

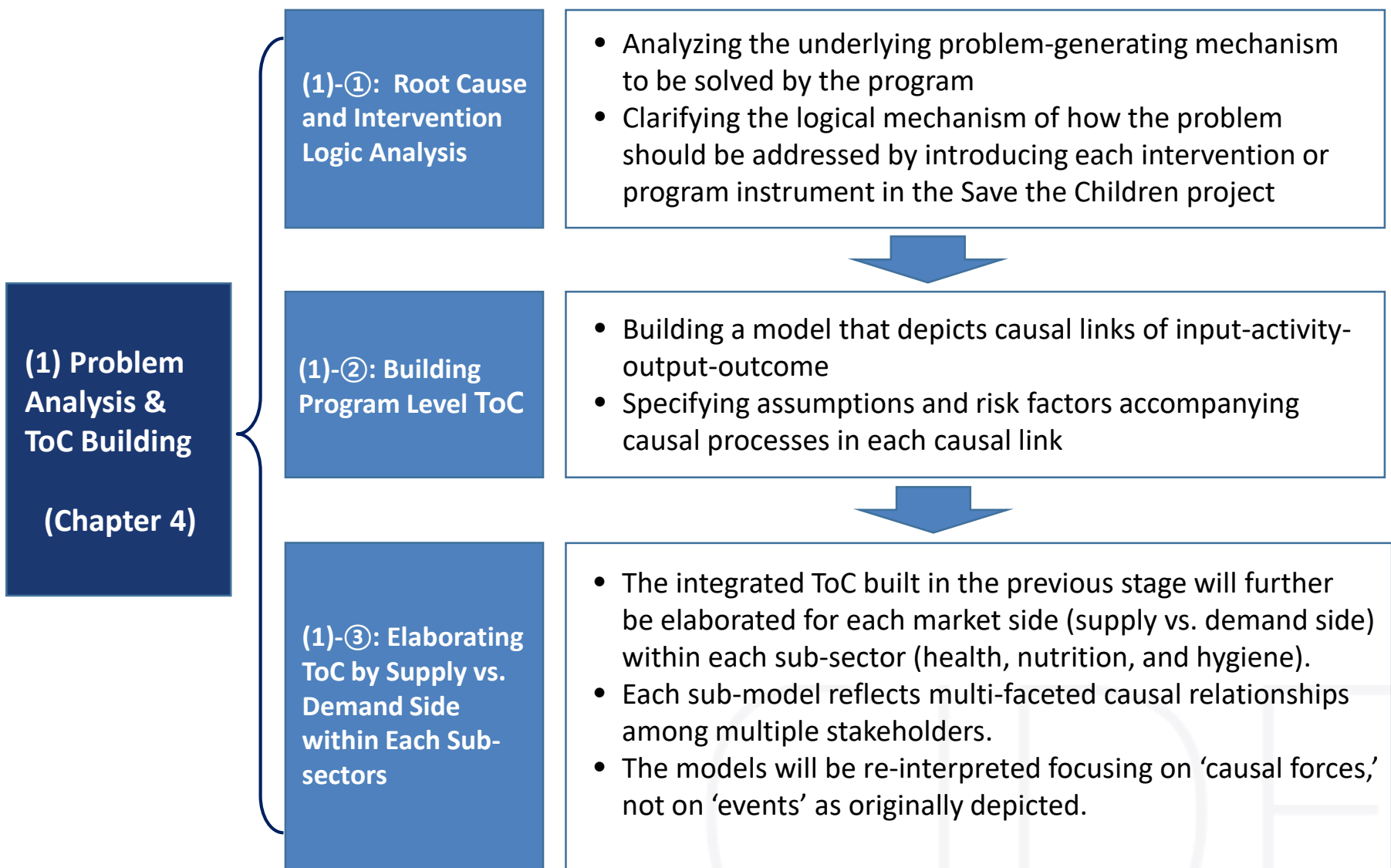
II-1. Overall Evaluation Strategy (1/2)



II-1. Overall Evaluation Strategy (2/2)



II-2. Overall Evaluation Strategy: Step by Step Procedure



(2) Process Evaluation by Bayesian Process Tracing: Generative Causation Paradigm
(Chapter 5)

(2)-① Testing Prior Probability for Causal Mechanism

- The validity of causal relationships that compose each causal link in each ToC will be tested through reviewing a vast range of existing literature.
- Both empirical and theoretical studies will be reviewed.



(2)-② Collecting Evidence and Building Contribution Story

- Collecting various qualitative and quantitative evidence that reduce the uncertainty regarding contribution of the program to intended results.
- The contribution of evidence will be described and summarized as a contribution story (CS)



(2)-③ Testing Probative Power of Evidence

- The probative power of empirical evidence will be tested through comparing what they support against causal predictions.
- Formal tests will be conducted following Bayesian logic.



(3) Impact Evaluation by Synthetic Control Method: Counterfactual Causation Paradigm
(Chapter 6)

(3) Synthetic Control Impact Analysis

- Impact analysis can be considered as Bayesian evidence to reinforce one of the analysis results of the process evaluation.
- Synthetic control will be constructed as the linear combination of potential comparison countries in the donor pool.

II-3. Methodology: Bayesian Processing Tracing (BPT)

An analysis logic of BPT, which infers a causal mechanism based on Bayesian logic, can be derived from the Bayesian theorem represented by the following formula.

$$P(CM|E,I) = \frac{P(CM|I) * P(E|CM,I)}{P(E|I)}$$

$$P(CM|E,I)$$

Conditional “Posterior Probability” in which a causal mechanism (CM) is established when empirical evidence (E) and background information (I) are given

$$P(CM|I)$$

“Prior Probability” which can be estimated without any empirical evidence (E) under the background information (I); the degree of prior confidence can be given based on the establishment of causal mechanism.

$$P(E|CM,I)$$

Conditional Probability which is the likelihood of an empirical evidence (E) being observed when the causal mechanism (CM) is established and background information (I) is provided

$$P(E|I)$$

Total Probability of which empirical evidence (E) can be observed under the given background information (I) regardless of the establishment of causal mechanism

II-3. Methodology: Synthetic Control Method

The Synthetic Control Methodology is a kind of statistical way to measure the effects of interventions on an aggregated level in a comparative case study. Four-step process for creating a “synthetic control” is as follows(Gathani, Santini & Stoelinga, 2013).

Step 1

Define the major variables of interest.

Step 2

Select predictors to match “the treated unit” to its “synthetic control” and the time-period (pre/post treatment period).
(e.g., GDP per capita, Population, FDI..)

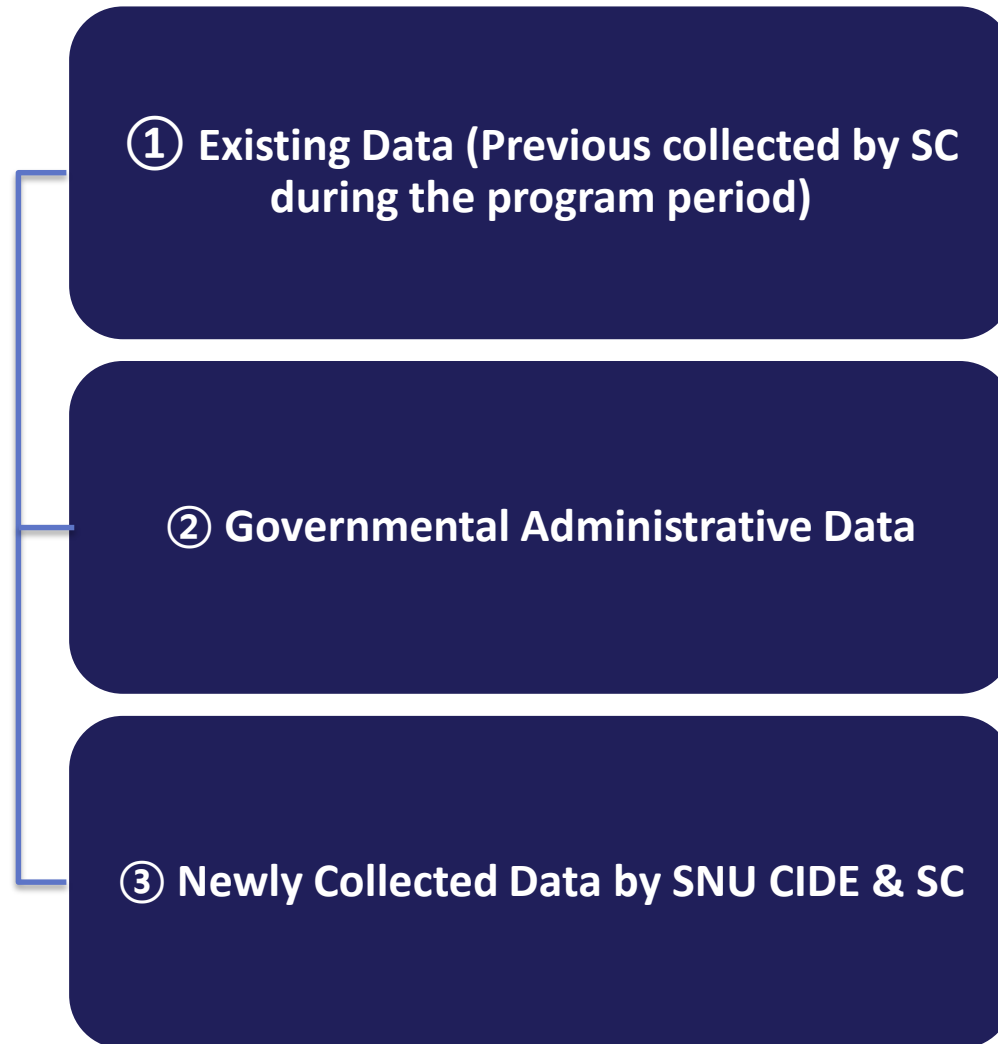
Step 3

Construct “donor pool,” that is, the set of potential comparison countries not affected by the intervention. The followings are the criteria for selecting “synthetic control” countries from the donor pool.

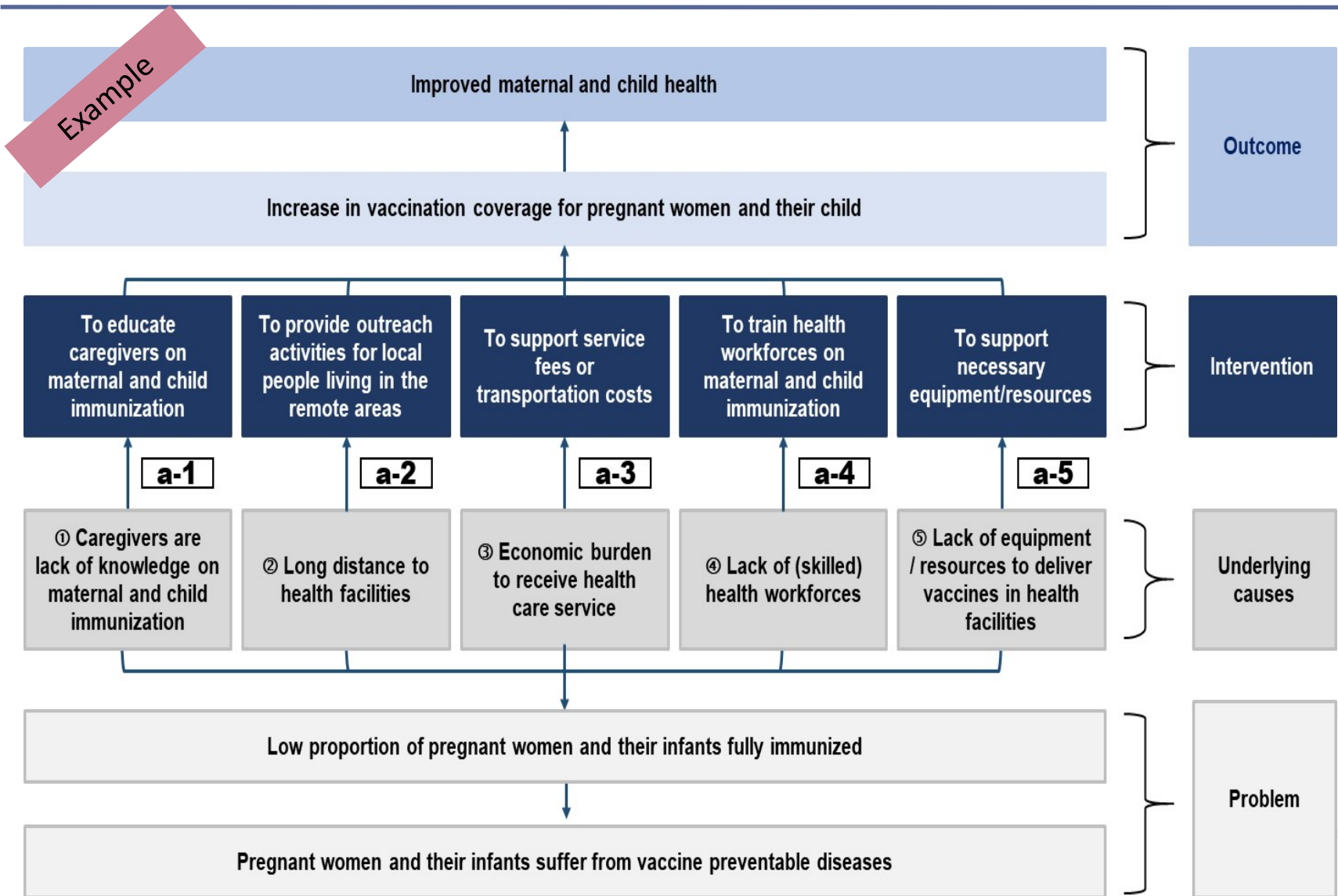
Step 4

With the variables of interest, the predictors, the time-period and the “donor pool,” a “synthetic control” can be constructed.
(e.g., Synthetic Rwanda = Cambodia(40.5%) + Malawi(32.5%) + Ethiopia(27%))

II-4. Data Collection: Three Data Sources



III-1. Root Cause and Intervention Logic Analysis

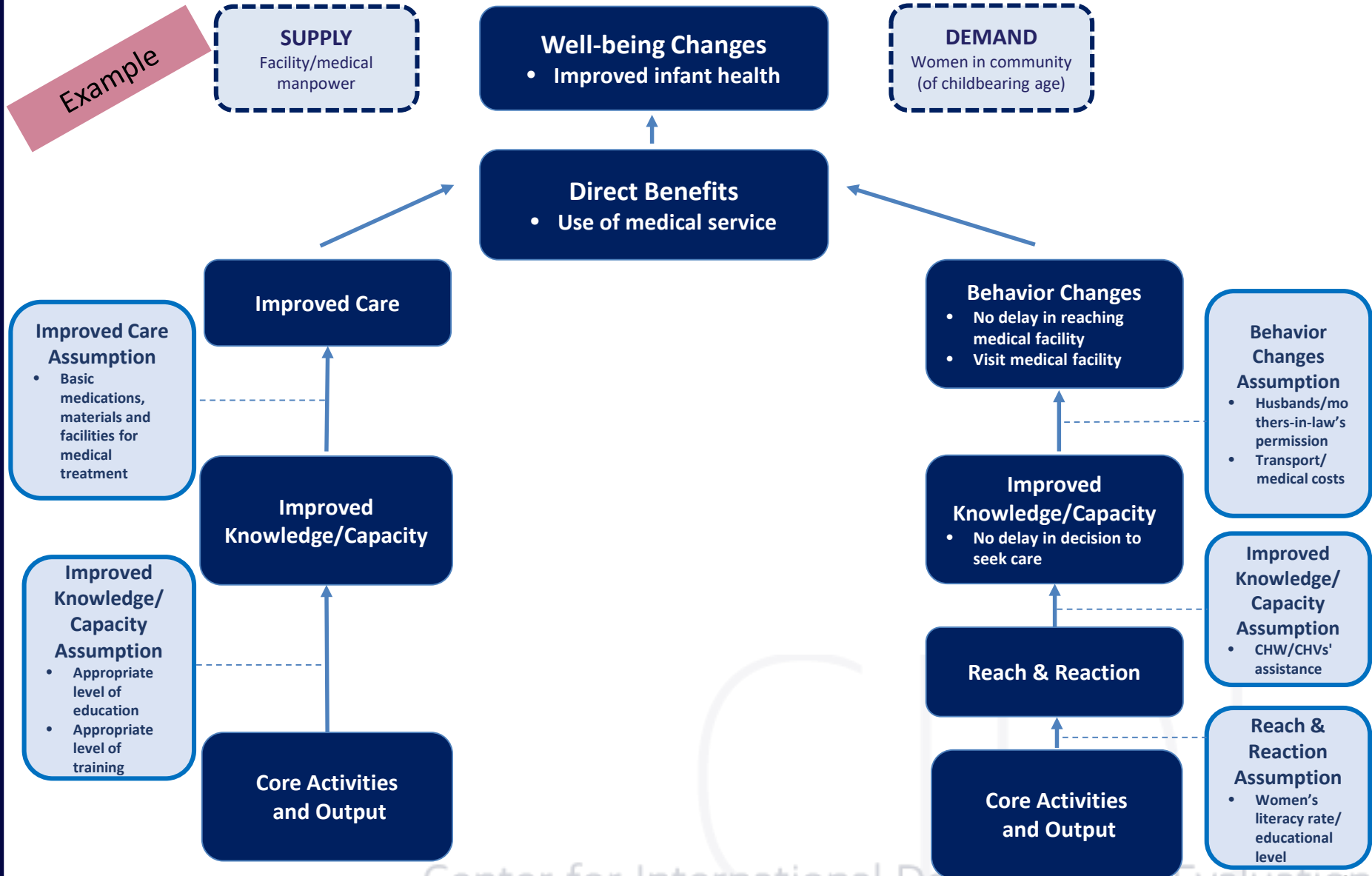


III-1. Root Cause and Intervention Logic Analysis

Example

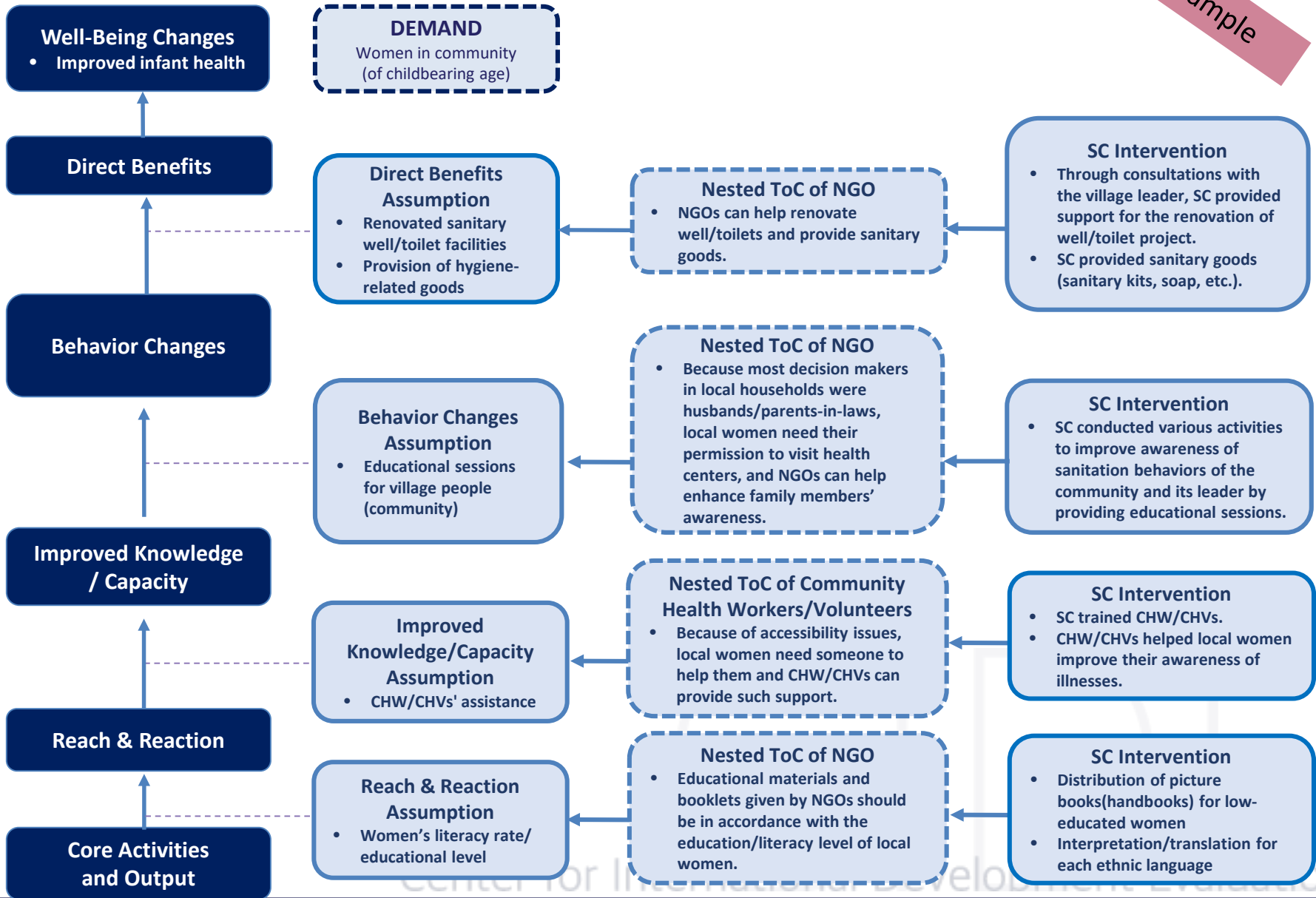
Problem	Underlying Causes	Intervention Types	Empirical Evidence	Outcome	Logic Number
Low Immunization Coverage for Pregnant Women and Infants	① Caregivers (and other family members) lack knowledge on maternal and child immunization (Pathirana et al., 2015; Hasnain and Sheikh, 2007; Ymba and Perrey, 2003; Rainey et al., 2011; Ozawa and Stack, 2013; MacDougall and Halperin, 2015)	To educate/inform caregivers (other family members) of maternal and child immunization	Health education at health centers and through home visits, structured discussions (Mureed et al., 2015)	Vaccination coverage rate (Mureed et al., 2015; USAID, 2014; Brugha, 1996; Amin and Li, 1997)	a-1
	② Long distance to health facilities (Pathirana et al., 2015; Rainey et al., 2011)	To provide outreach activities for local people living in remote areas	Home visits by lady health workers or nurses to educate mothers and immunise missed children (Mureed et al., 2015; Brugha, 1996);		a-2
	③ Financial barrier to receiving health care service (Rainey et al., 2011)	To support service fees or transportation costs (financial support)	Collateral-free credit (microfinance) for poor women (Amin and Li, 1997)		a-3
	④ Lack of (skilled) health workforce (Pathirana et al., 2015; Rainey et al., 2011; Ozawa and Stack, 2013; MacDougall and Halperin, 2015)	To train health workforce on maternal and child immunization	Capacity building of medical officials (eg. staff nurses, midwives) for newborn vaccination (USAID, 2014; Prinja et al., 2010);		a-4

III-2. Building Program Level ToC : Health Service



III-3. Multi-faceted ToC: Hygiene – Demand

Example



IV-1. Testing Prior Probability for Causal Mechanism

Example

Causal Step	Causal Hypothesis	Empirical Evidence	Sources of Studies
Reach & Reaction Assumption	Infant mortality is associated with parents' education level.	Mothers with higher levels of education were more likely to attend antenatal care services, breastfeed, and have a lower risk of infant mortality.	The impact of parental education on infant mortality in Gaza strip, Palestine(2010)/ Journal of Public Health and Epidemiology
Improved Knowledge / Capacity Assumption	Access to health care is associated with motivation and effort of CHWs.	The provision of detection-based incentives improved the CHWs' effort towards patient detections both quantitatively and qualitatively.	Fighting tuberculosis through community based counsellors: a randomized evaluation of performance based incentives in India(2016)/ 3ie
Improved Knowledge / Capacity	Home-based counselling visits can improve awareness and understandings of health determinants.	Counselling visits on a regular basis improved the target group's knowledge and capacity to make optimal choices for child health.	Household responses to information on child nutrition: experimental evidence from Malawi(2012)/ Institute for Fiscal studies
Behavior Changes Assumption	Changes in individual behavior are associated with support at the community level.	Community mobilization through promotional and participatory activities on health enhanced the utilization of maternal health care services among the target group.	An impact evaluation of the Safe Motherhood Promotion Project in Bangladesh: Evidence from Japanese aid-funded technical cooperation(2013)/ Social Science & Medicine
Behavior Changes	Improved knowledge and community-level support can reinforce health-care seeking behaviors.	Improved knowledge promoted by community-based activities enhanced the utilization of antenatal and postnatal services among the target group.	An impact evaluation of the Safe Motherhood Promotion Project in Bangladesh: Evidence from Japanese aid-funded technical cooperation(2013)/ Social Science & Medicine

IV-2. Collecting Evidence and Testing Probative Power of Evidence

(1) Positive: Health Service (Malaria Control)

Step	Causal Force	Main Evidence	Test	Effect	Level	Evidence Source
Reach & Reaction	The outputs delivered are to reach the intended targets.	-79.6% of targeted women attended educational sessions and 73.2% listened to the radio programs.	DT	-	AA	2018 Survey on Women
Reach & Reaction Assumption	The outputs are to receive a positive reaction.	-The average satisfaction level on the sessions on malaria control was 4.1 on a 5-point scale.	DT	-	AA	2018 Survey on Women
Improved Knowledge/ Capacity	The outputs are to change knowledge, attitudes, skills, aspirations, and opportunities of those who have received.	-In 2013, 84.1% of targeted women acknowledged the importance of using ITNs, increasing by about 16.7%p since 2008.	DT	P	AA	2008, 2013 Survey on Women
Improved Knowledge/ Capacity Assumption	There is someone to help target women in case they have trouble applying what they learned.	-100% of the CHWs/CHVs correctly selected 'sleeping under mosquito net' when asked to identify a way of preventing malaria.	DT	-	AA	2018 Survey on Village
Behavior Changes	The outputs are to change actual practices that occur as a result of the improved knowledge from the training.	-In 2018, 98.2% of targeted mothers reported having their children sleep under the mosquito net the night before, showing an increase of 24.7%p from 73.5% in 2008. -In 2013, 93.3% of targeted women in pregnancy responded that they slept under the mosquito net the night before, showing an increase of 22.6%p from 70.7% in 2008.	DDT	P	AA	2008, 2013, 2016, 2017, 2018 Survey on Women
Behavior Changes Assumption	Communities are to provide support for the adoption of changed practices.	-In 2018, 92.9% answered that they were able to acquire ITNs in village, an increase of about 20%p since 2008.	DT	P	AA	2008, 2013, 2018 Survey on Village

IV-2. Collecting Evidence and Testing Probative Power of Evidence

(1) Demand: Health Service

*AA: Above Average A: Average BA: Below Average

Medical Registration Fee	A
Transport Fee	BA
Surroundings	A
Overall Health Care	AA
Support from Women's Group	A

Arrangement of CHV/CHWs	AA
Overall Training	AA
ANC/PNC	AA
Vaccination	AA
Malaria	AA

Awareness of Diseases	AA
Child Vaccination	AA
Vaccinations for Pregnant Women	AA
Malaria Control	AA
Family Planning	AA
Diarrhea	AA
ANC/PNC	AA
Overall Sessions	BA

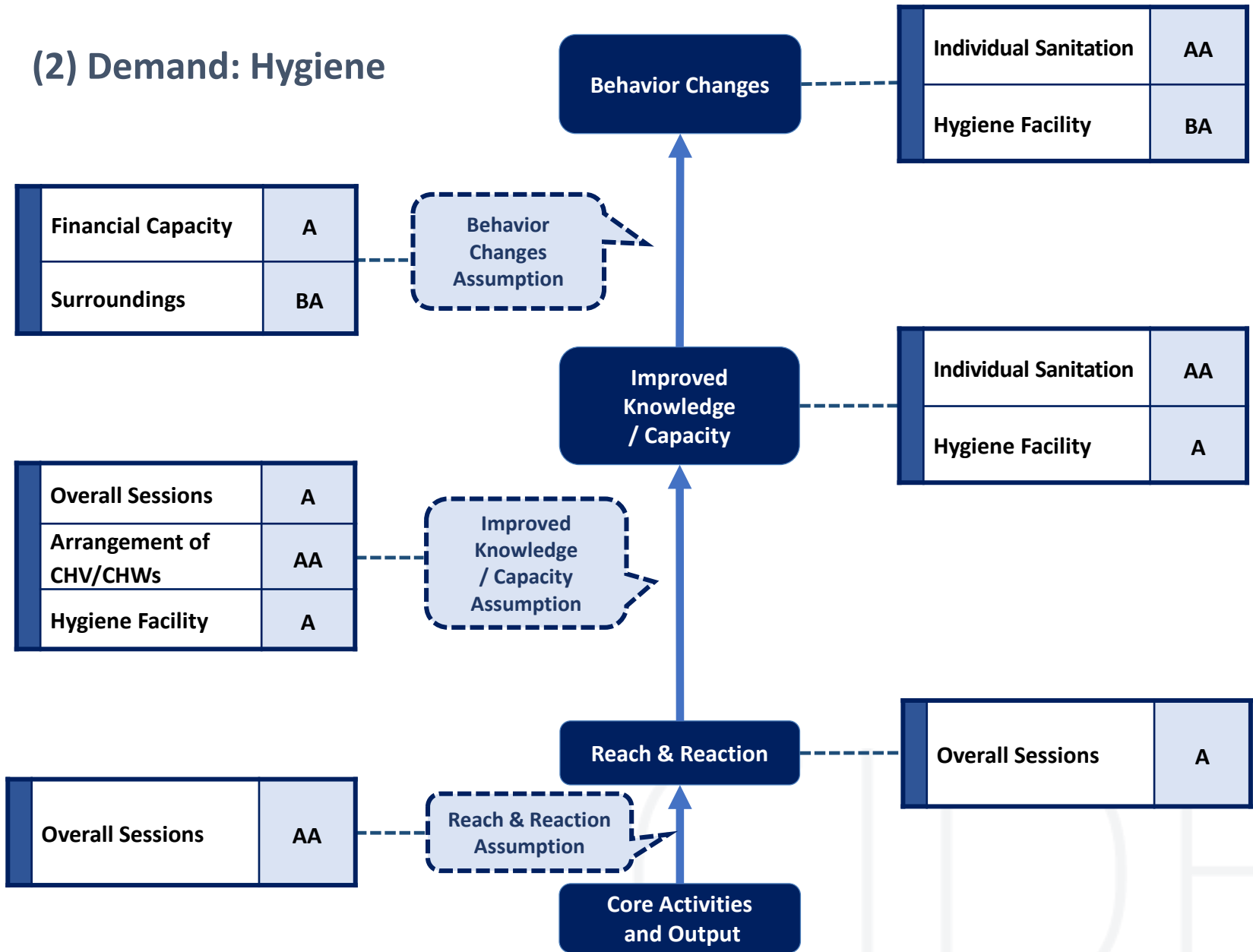


Awareness of Diseases	BA
Child Vaccination	AA
Vaccinations for Pregnant Women	AA
Malaria Control	AA
Family Planning	A
Diarrhea	AA
ANC/PNC	A

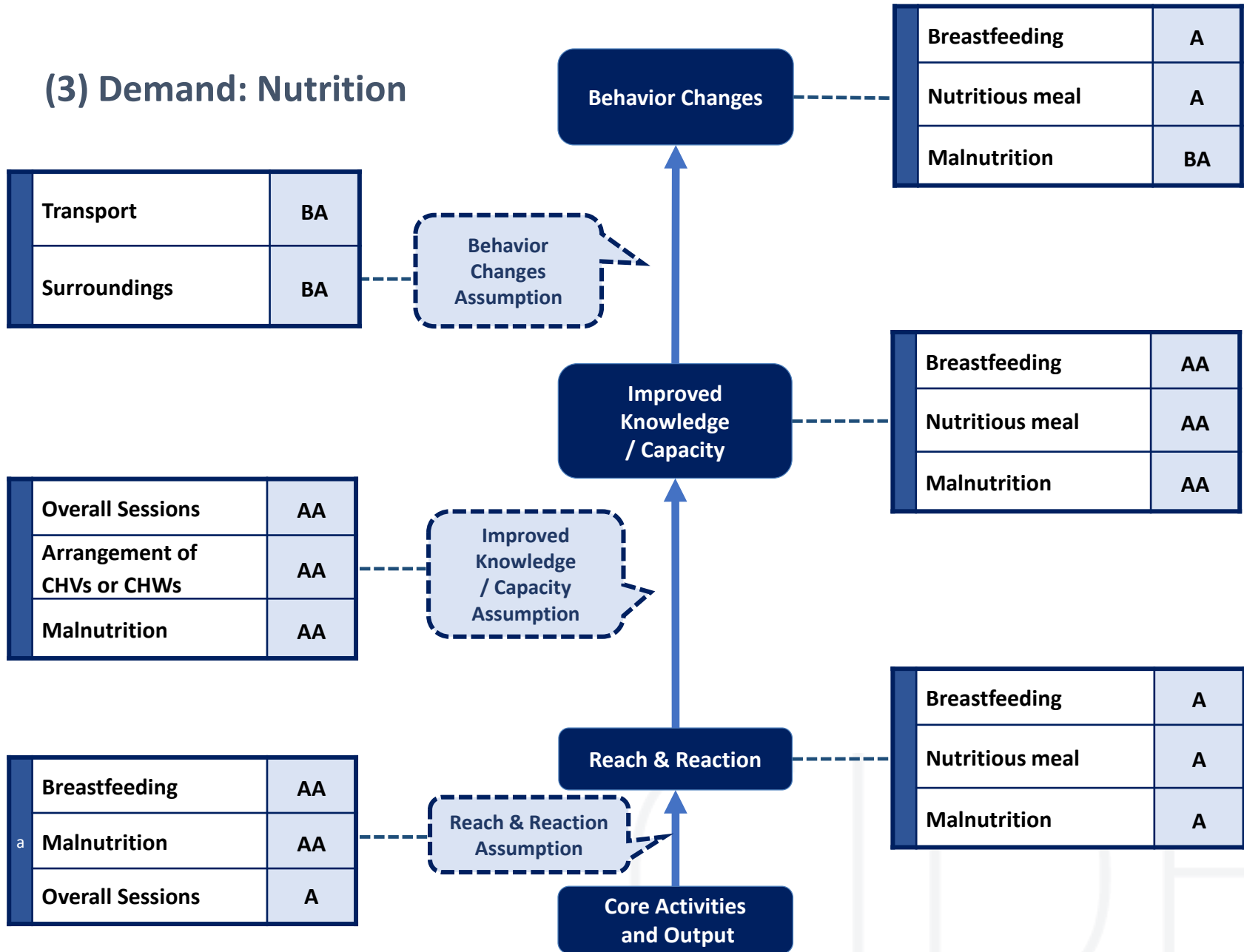
Awareness of Diseases	A
Child Vaccination	A
Vaccinations for Pregnant Women	A
Malaria Control	AA
Family Planning	AA
Diarrhea	A
ANC/PNC	A

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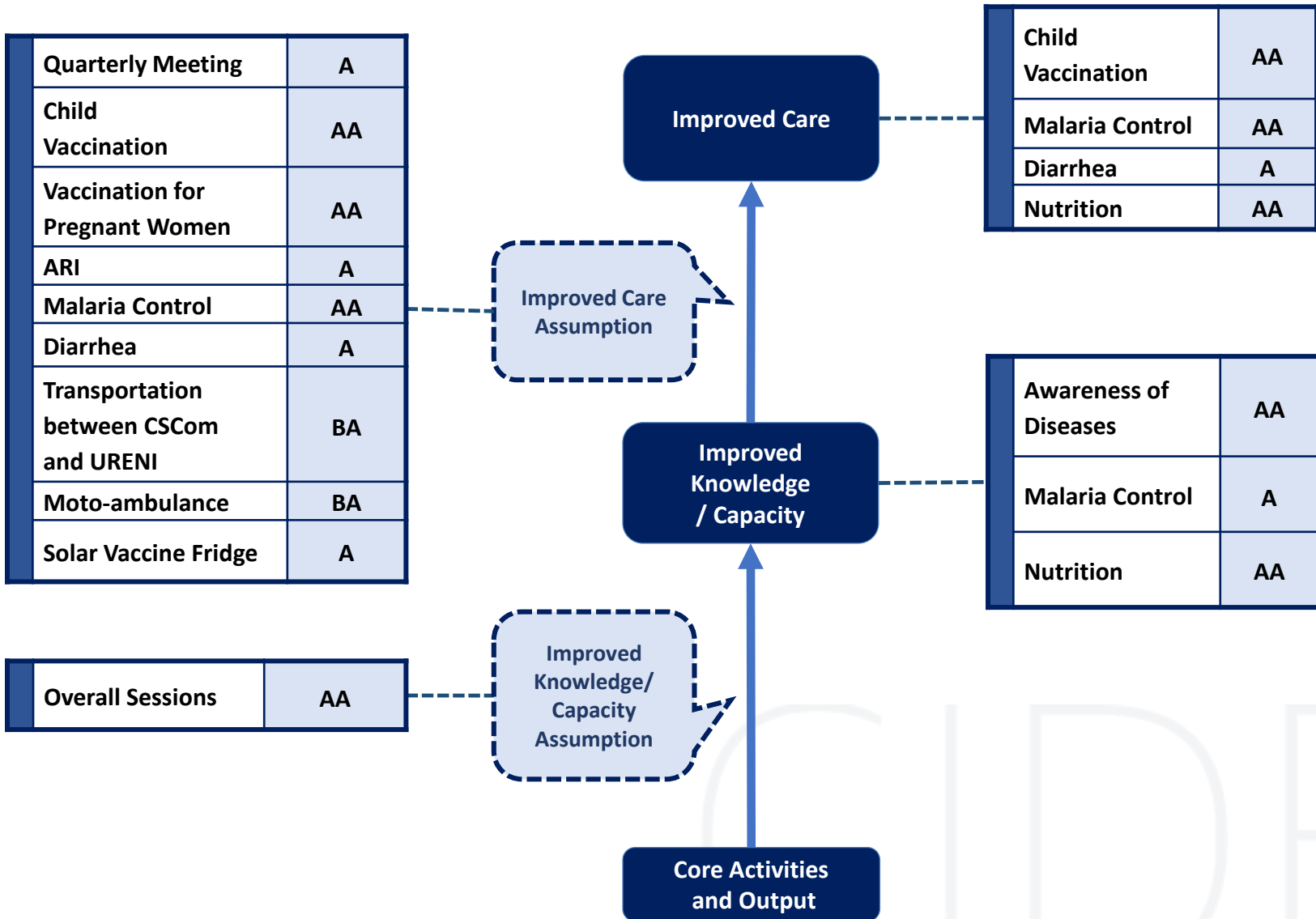
(2) Demand: Hygiene



(3) Demand: Nutrition



(4) Supply



(5) Direct Benefits

Well-being Changes

- Improved infant health

Health Service	Diarrhea	AA
	Malaria/ Respiratory Diseases	A
	Overall Health Service	AA

Nutrition	Nutrition/ Nutritious Meal	AA
	Breastfeeding	A

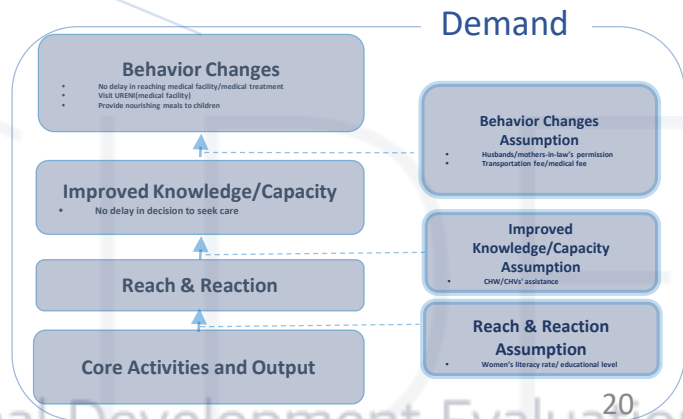
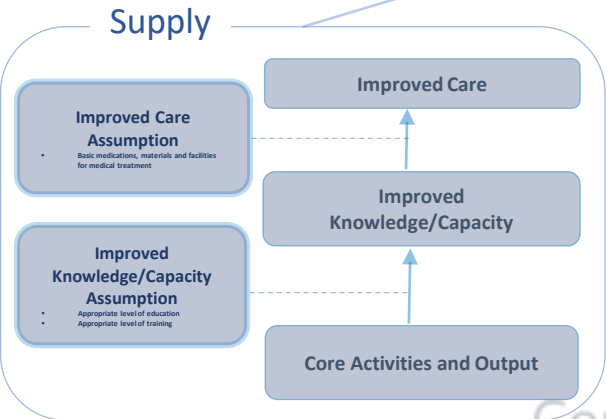
Direct Benefits

- Use of medical service

Direct Benefits Assumption

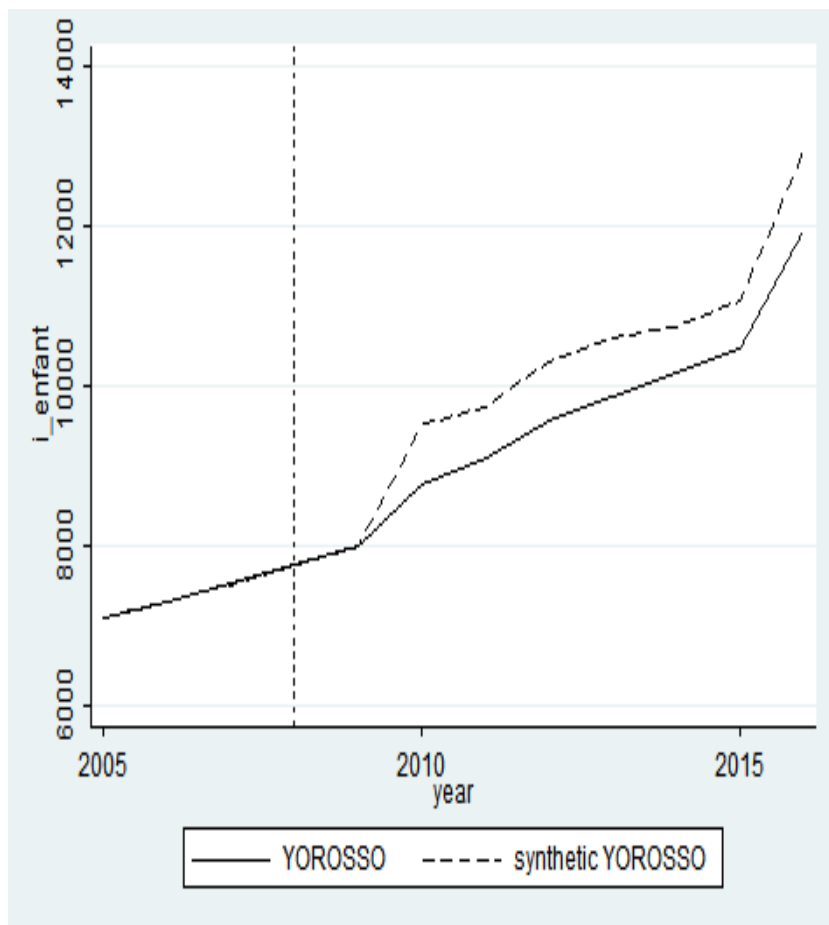
Hygiene	Hygiene Facility	A
	Individual Sanitation	BA

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	Individual Sanitation	A

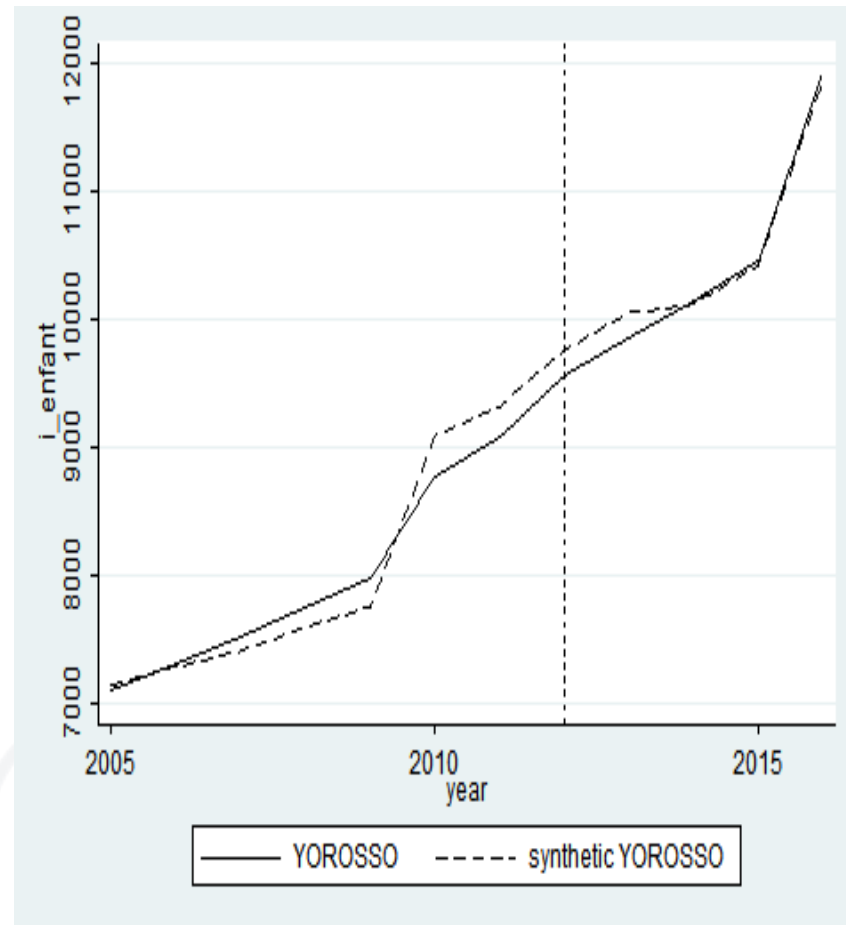


V. Impact Evaluation by Synthetic Control Method : Counterfactual Causation Paradigm

Outcome variable 1: the number of new-born babies in a year

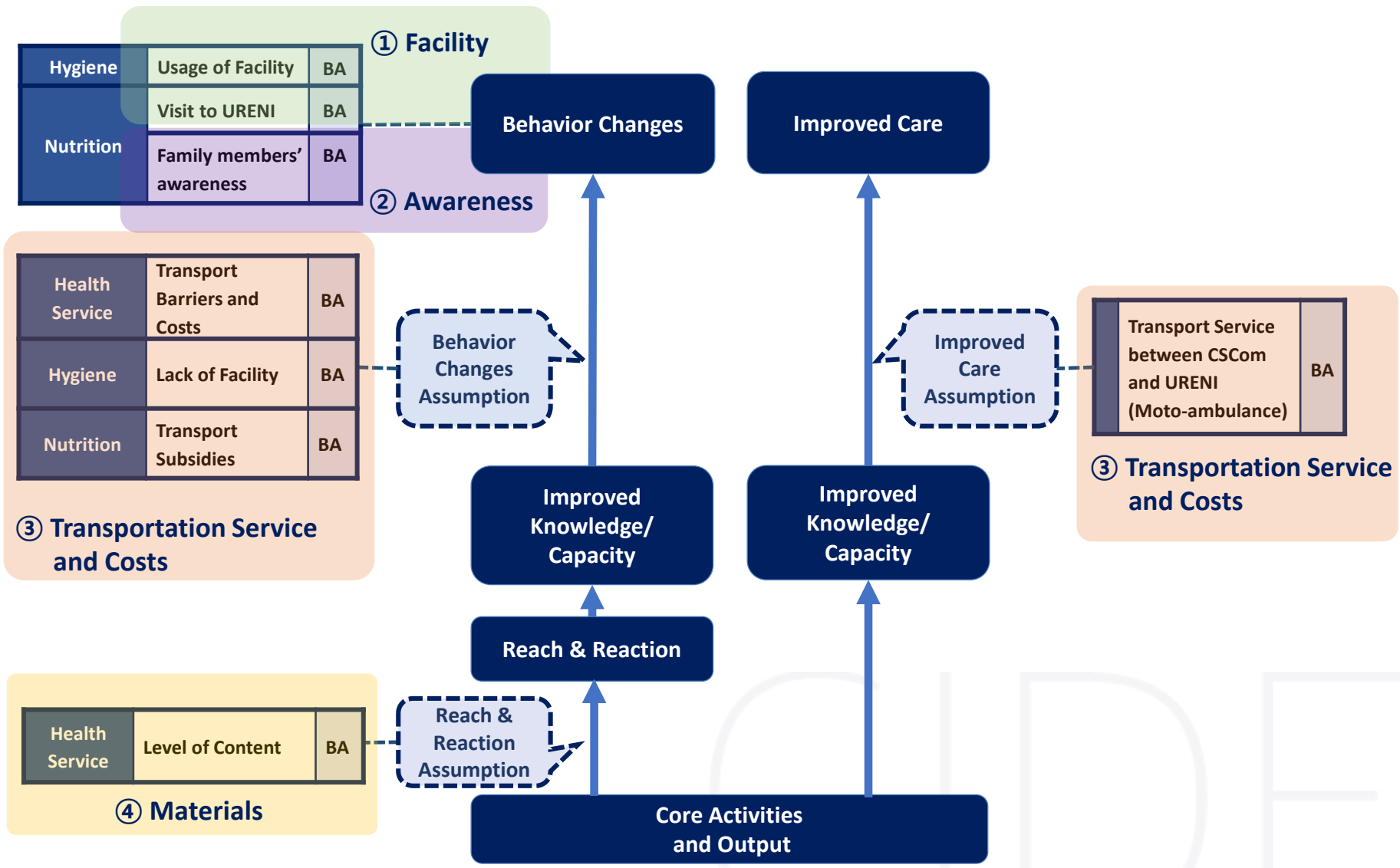


Results of Synthetic Control



Results of Placebo Analysis

VI. Findings

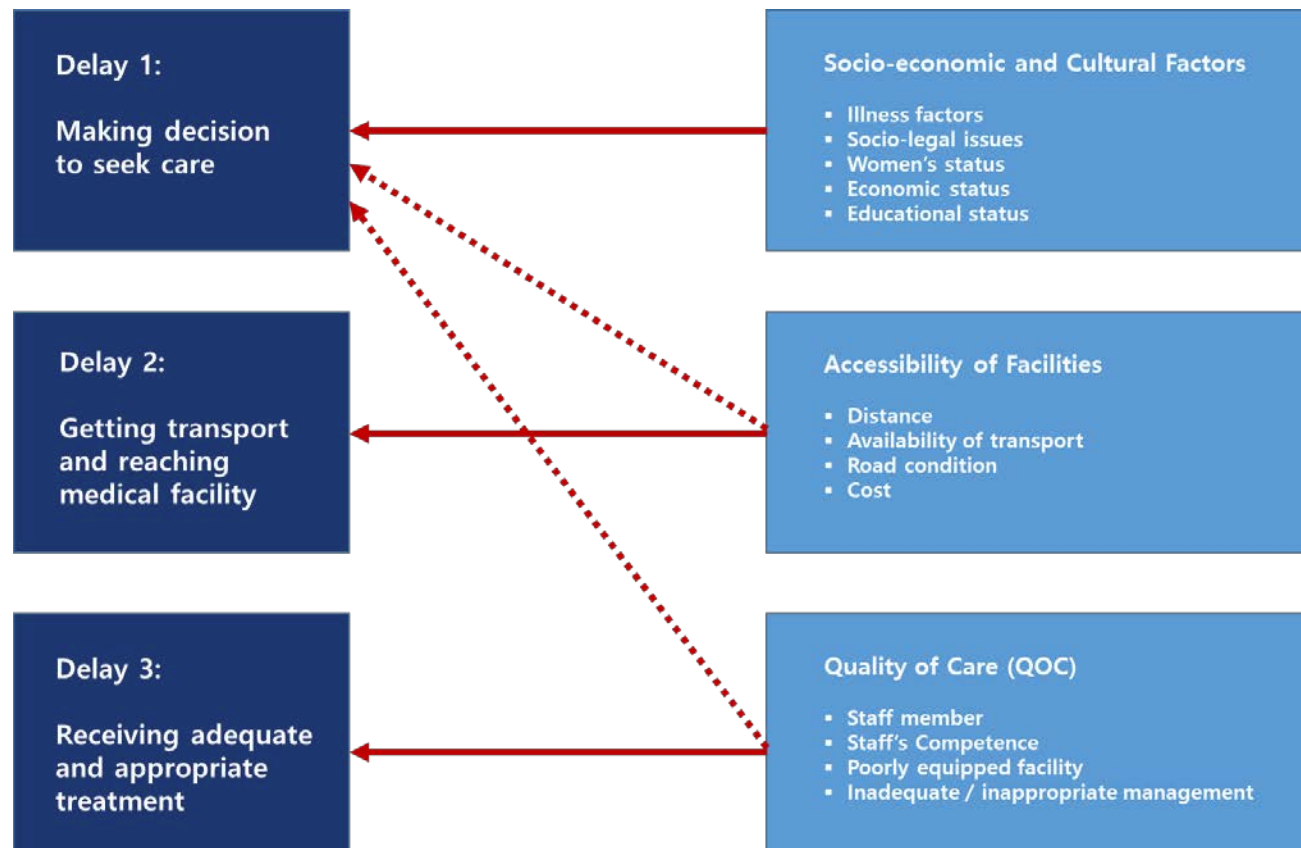


VI. Takeaway (1/2)

① Presence of universal problems of MCH: **“Three Delays Model”**

➡ Needs to develop an innovative solution to solve the universal problem

➡ **Universal contribution**



VI. Takeaway (2/2)

- ② Not just a health program but rather a socio-cultural program & perception and behavior change program: **“Knowledge-Practice Gap” ; Inappropriate Targeting**
- ③ Integrating or aligning with **interventions in other sectors** is desired (e.g. literacy education, infrastructure development, income generation)
- ④ Evaluation focused on **mechanisms** rather than on just end results
- ⑤ **Early planning** of data collection and evaluation
- ⑥ **Statistics and evaluation infrastructure** of recipient country matters
- ⑦ It is desired to establish within the SC Korea **knowledge inventories** and a **virtuous cycle** between M&E and program design

Thank You

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