



# BASELINE REPORT

## TRANSPARENCY FOR DEVELOPMENT

*September 2016*

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# Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>iv</b>
<b>CHAPTER I: Introduction.....</b>	<b>1</b>
<b>1.1 CONTEXT OF THE PROBLEM.....</b>	<b>2</b>
<b>1.2 T4D INTERVENTION.....</b>	<b>3</b>
1.2.1 Introduction, Information Gathering, and Identification of Participants.....	4
1.2.1.1 Introductory Activities: .....	4
1.2.1.2 Information Gathering: .....	4
1.2.1.3 Identification of Participants: .....	5
1.2.1.4 Community Activist Meetings:.....	5
1.2.1.5 Open Public Meeting: .....	6
1.2.1.6 Social Actions: .....	6
1.2.1.7 Follow-up Meetings: .....	6
1.2.2 Logic Model.....	6
<b>1.3 EVALUATION DESCRIPTION .....</b>	<b>8</b>
1.3.1 Key Research Questions.....	8
1.3.2 Mixed Methods Approach .....	9
1.3.3 Impact Evaluation Design .....	9
1.3.4 Impact Evaluation Timeline .....	10
<b>CHAPTER II: Baseline Data Collection.....</b>	<b>11</b>
<b>2.1 DATA COLLECTION .....</b>	<b>12</b>
2.1.1 Process .....	12
2.1.2 Description of Survey Tools .....	12
2.1.3 Timing of Data Collection.....	14
2.1.4 Sampling Strategy .....	15
2.1.4.1 Selection of health facilities for data collection .....	15
2.1.4.2 Selection of villages for data collection .....	15
2.1.4.3 Household listing and selection of household respondents .....	18
2.1.5 Data Preparation and Data Cleaning .....	19
<b>CHAPTER III: Baseline Findings .....</b>	<b>20</b>
<b>3.1 KEY CHARACTERISTICS OF THE SAMPLE: INDONESIA.....</b>	<b>21</b>
3.1.1 Household characteristics.....	23
3.1.2 Respondent characteristics.....	25
3.1.3 Infant health outcomes.....	26
3.1.4 Health facility characteristics.....	27
3.1.4.1 Drug and equipment stocks.....	29
3.1.4.2 Respondent experience and midwife knowledge .....	31
3.1.5 Antenatal Care (ANC) and birth preparedness .....	31

3.1.6 Delivery .....	34
3.1.7 Post-natal and post-partum care .....	38
3.1.8 Empowerment .....	40
<b>3.2 KEY CHARACTERISTICS OF THE SAMPLE: TANZANIA .....</b>	<b>41</b>
3.2.1 Household Characteristics .....	42
3.2.2 Respondent Characteristics .....	46
3.2.3 Health Outcomes .....	47
3.2.4 Health Facility Characteristics.....	48
3.2.5 Antenatal Care (ANC) and Birth Preparedness .....	50
3.2.6 Delivery .....	53
3.2.7 Post-natal and Post-partum Care .....	56
3.2.8 Empowerment .....	58
<b>3.3 IMPLICATIONS FOR EVALUATION DESIGN .....</b>	<b>59</b>
3.3.1 Primary and Secondary Outcomes .....	59
3.3.2 Intermediate Outcomes.....	59
<b>CHAPTER IV: Impact Evaluation Design .....</b>	<b>60</b>
<b>4.1 RANDOM ASSIGNMENT .....</b>	<b>61</b>
4.1.1 Process Implementation (stratification) .....	61
<b>4.2 OUTCOME MEASURES .....</b>	<b>62</b>
4.2.1 Primary Outcomes .....	63
4.2.2 Secondary Outcomes .....	72
4.2.3 Intermediate Outcomes.....	72
<b>4.3 IMPACT ESTIMATION STRATEGY .....</b>	<b>74</b>
4.3.1 Sub-group analysis .....	75
4.3.2 Power Calculations.....	76
<b>4.4 VERIFYING RANDOM ASSIGNMENT .....</b>	<b>79</b>
<b>CHAPTER V: Conclusion and Next Steps .....</b>	<b>81</b>
Conclusion and Next Steps.....	82
<b>References .....</b>	<b>83</b>
<b>Appendices .....</b>	<b>85</b>
Appendix A – Expanded Logic Model.....	86
Appendix B – Changes to Primary and Secondary Outcomes.....	87
Appendix C – Power Calculations for Secondary Outcomes.....	89
Appendix D: Balance Tables for All Variables.....	90
Appendix E: Tanzania Mental Health Table .....	100
Appendix F: Household Census Form (Indonesia and Tanzania) .....	102
Appendix G: Questionnaires .....	112
Appendix H: Full Data Tables.....	113





# EXECUTIVE SUMMARY

## BASELINE

- *Across the board, demographic indicators (such as electricity, housing type, and years of schooling) are higher in the Indonesia sample than the Tanzania sample.*
- *Health indicators are also higher in Indonesia than Tanzania, with the notable exception of birth in a facility, which hovers just over 50% in both samples.*
- *Also notable is that although birth with a skilled attendant mirrors facility birth in Tanzania, skilled attendance is higher in Indonesia.*
- *Post-natal (newborn) care coverage is considerably higher than post-partum (mother) care coverage in the Tanzania sample.*
- *In both countries, a moderately high percentage of the sample believes that health providers are responsive, but very few view local government as responsive.*

Maternal and neonatal health (MNH) is considered a key area of a country's health development and a proxy for the functioning of the health system as a whole. Recent decades have seen expansions in health services across Africa, Asia and other parts of the developing world. Despite this, reductions in maternal and newborn related deaths, and improvements in MNH more generally, have been slow.

The Transparency for Development (T4D) project launched in 2013 with the goals of (1) using evidence and local knowledge to **design** a transparency, accountability and participation intervention that could improve MNH and citizen empowerment, and (2) using an integrated approach to **evaluate** the intervention and to build further evidence about whether these types of intervention work, why they work (or not), and in what contexts. The T4D team is testing this intervention in two countries: Indonesia and Tanzania.

The T4D intervention aims to improve village-level MNH in rural communities using a modified version of a "community scorecard." The intervention is comprised of seven main activities: (1) introductory activities; (2) information gathering; (3) identification of intervention participants; (4) facilitation of meetings to share information and develop an action plan; (5) sharing the action plan with the greater community during a public meeting; (6) community-led social action; and (7) a series of facilitated follow-up meetings. T4D partnered with two civil society organizations (CSOs) to administer the intervention. The CSO partners are PATTIRO in Indonesia and the local chapter of the Clinton Health Access Initiative (CHAI) in Tanzania.

The T4D evaluation seeks to answer the following questions: (1) What is the effect of the intervention on the utilization of health care services related to maternal and child health?; (2) What is the effect of the intervention on the content of health care services related to maternal and child health?; (3) What is the effect of the intervention on health outcomes?; (4) What is the effect of the intervention on citizen empowerment and efficacy, both perceived and actual?; (5) If there are significant effects, what are the mechanisms through which these effects occur?; (6) What is the role of context in shaping or determining these mechanisms?

This report describes the baseline data findings for Indonesia and Tanzania, and their implications for the evaluation design. At a broad level, the households represented in the two samples live in rural areas and tended to be employed in farming or related sectors. Households in Indonesia seemed notably better off than those in Tanzania in terms of access to electricity (99% vs. 13%), education (99% of sample women attended school at some point in their lives compared with 78% in Tanzania) and the materials with which their dwellings were built. Unsurprisingly, in Indonesia almost all the respondent women are Muslim, whereas in Tanzania they are roughly equally split between Muslim and Christian.

In terms of MNH outcomes, access to health services tended to be good relative to the quality of care. Access to antenatal care (ANC) in Indonesia was fairly high (90% of recent mothers completed the recommended four ANC visits during pregnancy compared with 43% in Tanzania). The percentage of pregnant women who gave birth at a facility—one of the key indicators linked with healthier babies and a key outcome of this evaluation—was low for both Indonesia and Tanzania (55% and 56% respectively). Access to post-natal care was higher in Indonesia than Tanzania, but quality of care was low in both countries. In terms of citizen empowerment, a relatively high proportion of households in both countries reported feeling they could improve their lives. Furthermore, the perception of level of responsiveness was high for health providers, but low for local government.

*Random assignment yielded two similar groups in both samples.*

The baseline data collection was part of the broader effort to evaluate the impact of the T4D interventions in Indonesia and Tanzania. The impact evaluation design consists of a two-armed Randomized Controlled Trial (RCT) in both Indonesia and Tanzania, with 100 treatment and 100 control villages in each country. In Indonesia, the study villages are split between two provinces, with 85 villages in Banten and 115 in South Sulawesi. In Tanzania, the villages are split between two regions, with 77 villages in Dodoma and 123 in Tanga.

If well designed and implemented, the RCT evaluation approach should result in treatment and control groups that look similar to each other at the outset so that any subsequent difference in outcomes observed between the two groups can be attributed to the T4D interventions. The baseline data enabled the T4D team to verify that the treatment and control groups indeed looked similar at the outset of the interventions.

The baseline data collection also allowed the T4D team to make some small adjustments to the evaluation design and to produce a final list of key outcomes to be measured in the evaluation. Chief among these changes is that the evaluation will no longer try to assess the impacts on ANC outcomes in Indonesia, as the baseline levels for these outcomes were very high to begin with. Instead, the evaluation will seek to measure impacts on whether households develop a comprehensive birth preparedness plan, a practice linked with good MNH outcomes.





# CHAPTER I: Introduction

## IN THIS CHAPTER:

1.1	CONTEXT OF THE PROBLEM	2
1.2	T4D INTERVENTION	3
1.3	EVALUATION DESCRIPTION	8



*This baseline report describes the baseline data collection activities, baseline findings and revised primary outcomes for the impact evaluation of phase one of the Transparency for Development (T4D) project.*

*The report is broken into five chapters. Chapter I describes the T4D intervention and evaluation, and situates the project within the broader context of the fields of transparency and accountability (T/A) and maternal and neonatal health (MNH). Chapter II describes the T4D data collection process, including a description of the survey tools, sampling strategy, and how data were cleaned and prepared. Chapter III presents the baseline findings for the T4D communities in Indonesia and Tanzania. It also describes how these findings were used to revise the evaluation design. Chapter IV details the T4D impact evaluation design. This chapter includes details on random assignment and verification of balance on observable variables between treatment and control villages, a listing of primary outcomes by research question, and the T4D impact estimation strategy. Finally, chapter V presents conclusions and next steps.*

*This chapter is organized as follows: Section 1 describes the current state of MNH worldwide, and in Tanzania and Indonesia specifically. It explores the use of transparency and accountability (T/A) interventions to improve MNH and positions the T4D project within this debate. Section 2 provides a detailed description of the T4D intervention, including its underlying logic model. Section 3 describes the T4D evaluation, in which the impact evaluation (the primary topic of this report) plays a major role.*

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## 1.1 CONTEXT OF THE PROBLEM

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Worldwide, roughly 830 women die each day from pregnancy- or childbirth-related causes. Half of these deaths occur in sub-Saharan Africa and another third in South Asia. Additionally, each year 2.7 million newborns die, most within these same regions.<sup>1</sup>

Maternal and neonatal health (MNH) is considered a key area of a country's health development and a proxy for the functioning of the health system as a whole. Recent decades have seen expansions in health services across Africa, Asia and other parts of the developing world. Despite this, reductions in maternal and newborn related deaths, and improvements in MNH more generally, have been slow. Many factors affect MNH outcomes, including income, distance to health facilities, quality of health services, and knowledge and cultural beliefs about pregnancy and childbirth.

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<sup>1</sup> "Maternal Mortality Fact Sheet," WHO, n.d., <http://www.who.int/mediacentre/factsheets/fs348/en/>.

A number of interventions have attempted to address these factors, including health systems strengthening, supply chain management, community education campaigns, vertical (problem-specific) approaches, and vaccination drives. Another type of intervention that has been tried uses transparency and accountability (T/A) techniques to empower communities to both identify breakdowns with health services and to hold decision-makers and other responsible parties accountable. Examples of T/A interventions include social audits, public expenditure tracking surveys, citizen report cards, absenteeism studies, and community scorecards.

The Transparency for Development (T4D) project launched in 2013 with the goals of (1) using evidence and local knowledge to **design** a transparency, accountability and participation intervention that could improve MNH and citizen empowerment, while (2) using an integrated approach to **evaluate** the intervention and to build further evidence about whether these types of intervention work, why they work (or not), and in what contexts. The T4D team is testing this intervention in two countries: Indonesia and Tanzania.

Despite a strong national push to improve maternal mortality, partially driven by the 2015 Millennium Development Goals, maternal mortality has remained largely stagnant in Indonesia,<sup>2</sup> with the most recent estimates showing a maternal mortality ratio (MMR) of 359 deaths per 100,000 live births,<sup>3</sup> much higher than other countries in the region.<sup>4</sup> In Tanzania, the MMR estimate is even greater, at 454 deaths per 100,000 live births.<sup>5</sup>

Improvement in neonatal mortality in the two countries has also been slower than hoped. In Tanzania, the under-five mortality rate dropped by nearly half between 1996 and 2010, but death within the first month of life remains largely unchanged.<sup>6</sup> Indonesia has followed a similar pattern: even with a nearly one-third reduction in under-five mortality between 1997 and 2012, neonatal deaths dropped by less than 15%.<sup>7</sup>

## 1.2 T4D INTERVENTION

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The T4D intervention aims to improve village-level MNH in rural communities using a modified version of a “community scorecard.” The intervention is comprised of seven main activities: (1)

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<sup>2</sup> DHS data indicates a decrease in MMR from 390 in 1997 to 307 in 2002-2003 and 228 in 2007 with an uptick to 359 in 2012. Confidence intervals overlap, however, so it is difficult to interpret these data. Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012,” *DHS*, August 2013, 213, <http://dhsprogram.com/publications/publication-fr275-dhs-final-reports.cfm>.

<sup>3</sup> *Ibid.*, 209.

<sup>4</sup> “‘...and Then She Died’: Indonesia Maternal Health Assessment” (The World Bank, February 1, 2010), 8, <http://documents.worldbank.org/curated/en/2010/02/12023273/died-indonesia-maternal-health-assessment>.

<sup>5</sup> Tanzania National Bureau of Statistics and ICF Macro, “Tanzania Demographic and Health Survey 2010,” *DHS*, April 2011, 265, <http://dhsprogram.com/publications/publication-fr243-dhs-final-reports.cfm>.

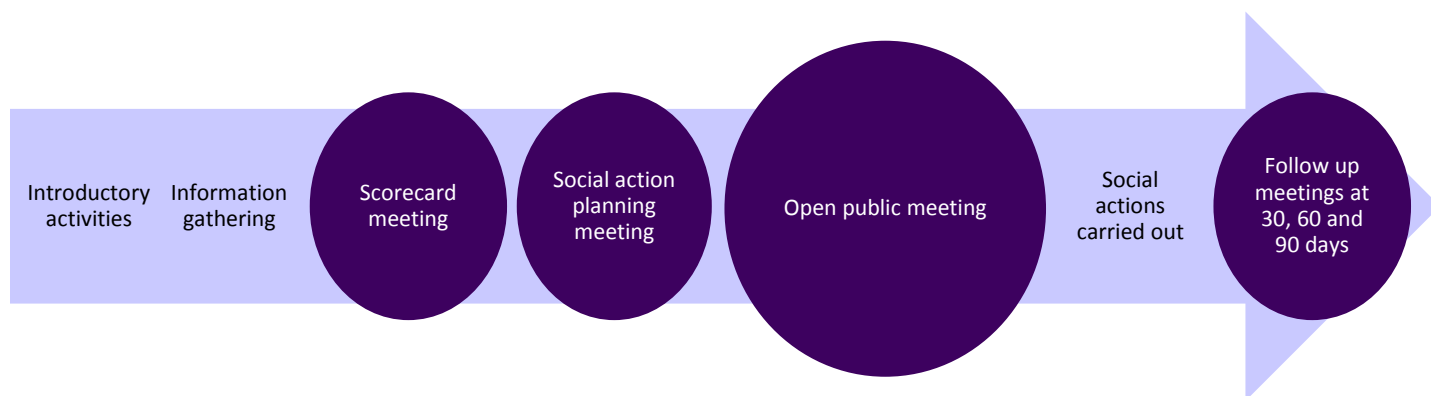
<sup>6</sup> Tanzania National Bureau of Statistics and ICF Macro, “Tanzania Demographic and Health Survey 2010.”

<sup>7</sup> Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012,” 102.

introductory activities; (2) information gathering; (3) identification of intervention participants; (4) facilitation of meetings to share information and develop an action plan; (5) sharing the action plan with the greater community during a public meeting; (6) community-led social action; and (7) a series of facilitated follow-up meetings. T4D partnered with two civil society organizations (CSOs) to administer the intervention. The CSO partners are PATTIRO in Indonesia and the local chapter of the Clinton Health Access Initiative (CHAI) in Tanzania.

The intervention components are described briefly below and illustrated in Figure 1. A comprehensive description can be found in the *T4D Intervention Design Report*.<sup>8</sup>

Figure 1. Intervention Activities



## 1.2.1 INTRODUCTION, INFORMATION GATHERING, AND IDENTIFICATION OF PARTICIPANTS

**1.2.1.1 Introductory Activities:** At the start of the intervention, CSO-employed facilitators entered assigned villages and began meeting with village leadership, community health volunteers,<sup>9</sup> and citizens. At these meetings, the facilitators explained the intervention and its aims, identified survey respondents, and identified potential intervention participants, or “community activists.” This introduction was also intended to encourage ownership of the project by community members.

**1.2.1.2 Information Gathering:** Scorecard data were collected using two types of surveys: the first was a beneficiary survey administered to 20 - 30 women in each village. These women had given birth in the two years prior to the intervention. This survey included questions on interactions between the women and the health system, and the take-up of key MNH services. The second survey was a simple facility survey to collect data on infrastructure, cleanliness, and human resource availability.

<sup>8</sup> T4D, “Transparency for Development Intervention Design,” April 2016, [http://www.t4dev.org/sites/default/files/file-uploads/Intervention%20Design%20Description%202016%2004\\_0.pdf](http://www.t4dev.org/sites/default/files/file-uploads/Intervention%20Design%20Description%202016%2004_0.pdf).

<sup>9</sup> Indonesia only

**1.2.1.3 Identification of Participants:** Fifteen to sixteen community members in each village were selected to formally participate in the intervention. Known as “community activists” or CAs, these participants were recruited based on a number of characteristics, including: personal interest in maternal and neonatal health, time and willingness to volunteer, and enthusiasm about improving the village. Formal leaders and health workers were excluded.

**1.2.1.4 Community Activist Meetings:** The facilitator worked intensively with the community activists over a two-day period, with the goal of formulating a comprehensive action plan to improve MNH in the village. The first day focused on sharing the collected data in the form of a community scorecard; the second day was spent developing a social action plan to address problems revealed by the information in the scorecard.

**Scorecard Meeting:** Scorecard information on the uptake of three key MNH health levers was presented to community activists: antenatal care (ANC),<sup>10</sup> delivery, and post-natal services (PNC). The facilitators used the information from the levers to start a discussion about the barriers to improved MNH in the village.<sup>11</sup> Once barriers were identified and discussed, community activists were presented with short vignettes of actions that other communities have taken to improve service delivery, uptake, or both. These vignettes, or “social action stories,” served two purposes. First, they were intended to build the confidence of the community activists by illustrating the ability of communities to solve their own problems. Second, they introduced a variety of different ways for communities to try to improve uptake and care, in an effort to stimulate thinking about which might be appropriate to the context of the particular community.

**SOCIAL ACTION STORY EXAMPLE:**

**TALKING TO JOURNALISTS / LOCAL MEDIA TO PUBLICIZE PROBLEMS**

*In some communities, people who are unhappy with the available services engage the media to publicize problems. For example, there was a school in Iringa region that had no toilets for their students. The teachers had been lobbying the local government to release funds to have toilets built, but nothing happened. Tired of the lack of responsiveness, the teachers relayed their story to a newspaper and an article was written. After the media brought attention to the issue, the authorities were embarrassed by the situation and monies were released and the toilet was finally built.*

**Social Action Planning Meeting:** On the second day, facilitators led the community activists through the process of developing a plan of action to improve MNH – the social action plan. Community activists were prompted to formulate a mix of actions, ideally including actions that could lead to improvements within 90 days (the formal duration of the intervention) and those that could lead to improvements over the longer term.

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<sup>10</sup> ANC uptake in Indonesia is high, so the lever focused on birth preparedness planning.

<sup>11</sup> Examples of barriers include: transportation to the health facility, knowledge of proper health seeking behavior, and treatment by facility staff.



**1.2.1.5 Open Public Meeting:** After the community activists developed the social action plan, an open public meeting was held to share an abbreviated version of the community scorecard and the social action plan. Comments and additional suggestions were solicited, and other community members were invited to voluntarily participate in future actions.

**1.2.1.6 Social Actions:** After these initial meetings, the community activists were expected to carry out the actions developed in the social action plan. The community activists worked on these actions independently, without the help of CSO facilitators. Example social actions included organizing a community education campaign on the importance of antenatal care during pregnancy and confronting a healthcare provider who had been stealing medicine.

**1.2.1.7 Follow-up Meetings:** The CSO facilitator convened three follow-up meetings with the community activist group. These meetings occurred approximately every 30 days, allowing the facilitator to check in with the community activists on the progress made on the social actions and to discuss revisions, new actions and, ultimately, a sustainability plan.

#### SOCIAL ACTION CARTOON EXAMPLE

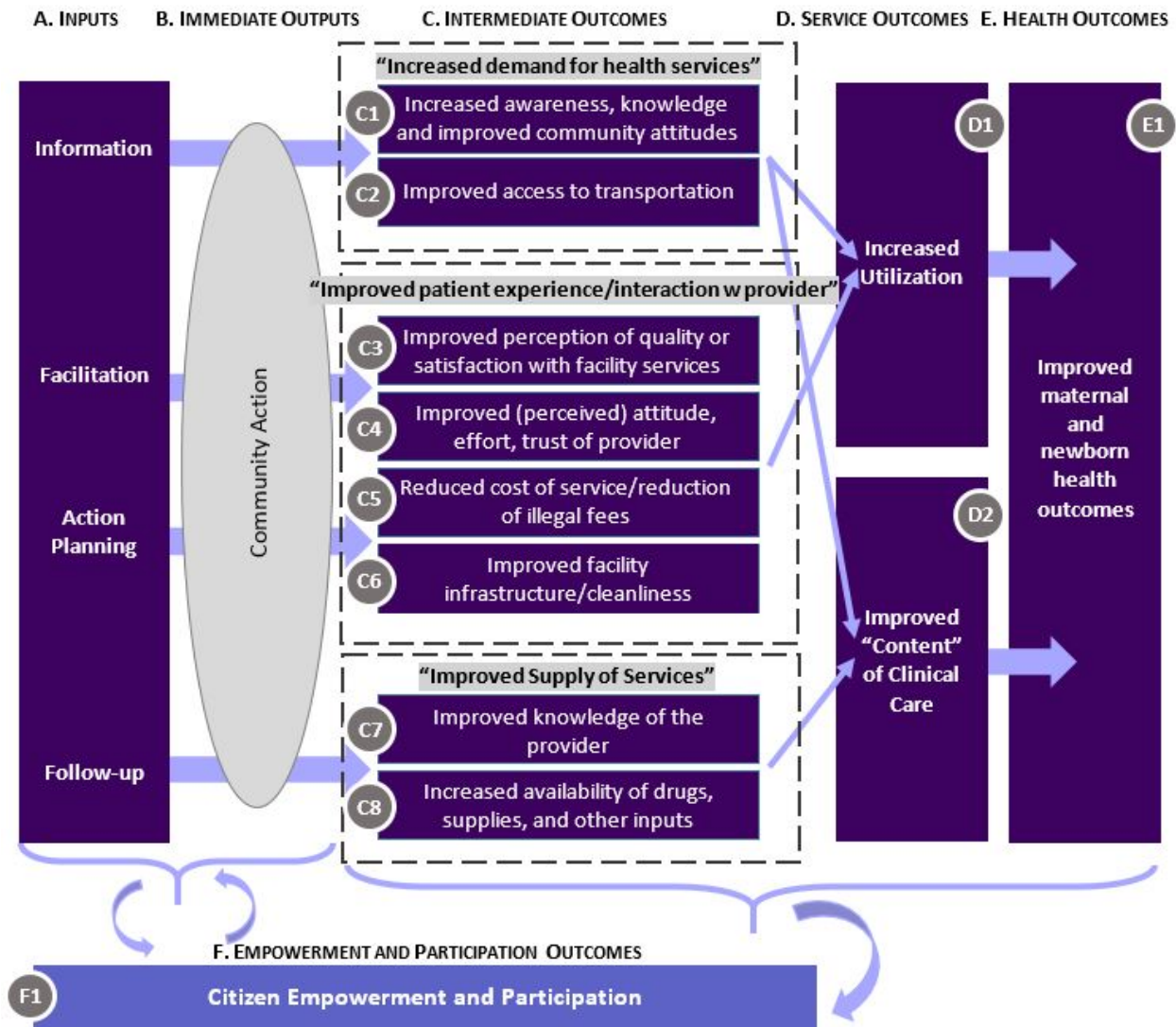


## 1.2.2 LOGIC MODEL

Figure 2 illustrates how the intervention is hypothesized to affect health outcomes. To have an impact, the community must understand and be motivated by the information, develop a plausible social action plan, and successfully carry it out. There are three main pathways through which this process may have an impact and improve health outcomes:

- 1) The proportion of people receiving services increases (increased utilization);
- 2) The quality of services delivered through existing channels improves (improved content of clinical care); and
- 3) People who were receiving lower quality care at one outlet choose to seek care at a higher quality outlet.

Figure 2. Logic Model of the Intervention



This intervention is designed to primarily trigger (1) and (2)—collective action targeted at improving service utilization (D1 in *Figure 2*), the content of clinical care (D2 in *Figure 2*), or both. These pathways form the basis of T4D research questions #1 and #2, described in the next section. Since the information component of the intervention does not inform communities of the relative quality of health facilities, the T4D team does not expect the intervention to explicitly trigger (3), communities seeking care at different outlets.

Community activists may choose to carry out a range of social actions (B in *Figure 2*). These social actions trigger one or more intermediate outcomes (C in *Figure 2*), such as awareness of activities mothers should undertake during pregnancy, or a change in midwife behavior, which can lead to an impact on utilization of healthcare services, content of healthcare services, or both (D in *Figure*

2). This ultimately improves health outcomes (E in *Figure 2*), including decreases in neonatal and infant mortality.

Because these actions are entirely designed and undertaken by community members, the intervention may also improve citizen participation and sense of empowerment (F in *Figure 2*), particularly to the extent that the actions facilitate unfamiliar experiences where community members engage with each other and with providers and public officials in an attempt to diagnose and alleviate problems with a public service that they value (A-B in *Figure 2*). To the extent that these actions are successful in improving that service, they can create a positive feedback loop: participants become aware of their ability to improve their health care, which fosters further empowerment and encourages participation in additional or more sustained efforts to diagnose and alleviate problems, thereby increasing the improvement of community health service and outcomes (C-E in *Figure 2*).

More details on the types of social actions that the community could take, the targets of these actions, and the link to intermediate outcomes can be found in Appendix A.

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## 1.3 EVALUATION DESCRIPTION

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The T4D evaluation will assess whether the T4D intervention improved health outcomes and citizen empowerment and, if so, how and under what conditions. The evaluation will rely on a mix of quantitative and qualitative methods to estimate the impact of the intervention, assess the quality of the implementation, and understand the pathways through which the intervention might have affected relevant outcomes.

### 1.3.1 KEY RESEARCH QUESTIONS

The evaluation will seek to answer the following key research questions:

- 1) What is the effect of the intervention on the **utilization of health care services** related to maternal and child health?
- 2) What is the effect of the intervention on the **content of health care** services related to maternal and child health?
- 3) What is the effect of the intervention on **health outcomes**?
- 4) What is the effect of the intervention on **citizen empowerment and efficacy**, both perceived and actual?
- 5) If there are significant effects, what are the **mechanisms** through which these effects occur?
- 6) What is the role of **context** in shaping or determining these mechanisms?

### 1.3.2 MIXED METHODS APPROACH

The evaluation will use a mixed methods approach to answer the key research questions. An impact evaluation, comprised of two randomized control trials (RCTs), one in Tanzania and one in Indonesia, will measure the intervention's effects on health care utilization, content, and outcomes, and on citizen empowerment and efficacy. These RCTs will be used primarily to answer research questions 1-4. This report focuses on baseline findings associated with the impact evaluation and thus the impact evaluation design (described in more detail below).

In addition to the impact evaluation, extensive case studies of a subset of the treatment and control communities will address questions 5 and 6 and allow for a richer understanding of the answers to questions 1-4. In the case study communities, a mix of direct observation, focus groups, informant interviews, systematic coding of meetings, facilitator assessments, and ethnographic methods will provide an understanding of the context in which the interventions occurred. This information will then be used to trace the process by which the interventions triggered—or failed to trigger—improvements in health care and changes in power dynamics and community relations. More information on the case study design can be found in the *T4D Evaluation Design Report*.<sup>12</sup>

### 1.3.3 IMPACT EVALUATION DESIGN

The impacts of the interventions will be assessed using randomized controlled trials (RCTs). By randomly assigning communities to treatment and control groups, RCTs ensure that the two groups are equivalent at the outset of the intervention. If well designed and implemented, this method ensures that any differences in outcomes between the two groups that are observed after the intervention are due to the intervention and not to other factors.

The impact evaluation design consists of two-armed RCTs in both Indonesia and Tanzania, with 100 treatment and 100 control villages in each country. In Indonesia, the study villages are split between two provinces, with 85 villages in Banten and 115 in South Sulawesi. In Tanzania, the villages are split between two regions, with 77 villages in Dodoma and 123 in Tanga. The unit of randomization is at the health facility level.

At baseline, T4D conducted interviews with a total of 5,398 household respondents (3,000 in Tanzania and 2,398 in Indonesia). The team anticipates conducting about 12,000 household interviews at endline (6,000 in each country), as a larger sample size will enable more precise estimates of impact.

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<sup>12</sup> T4D Evaluation Design Report (forthcoming).

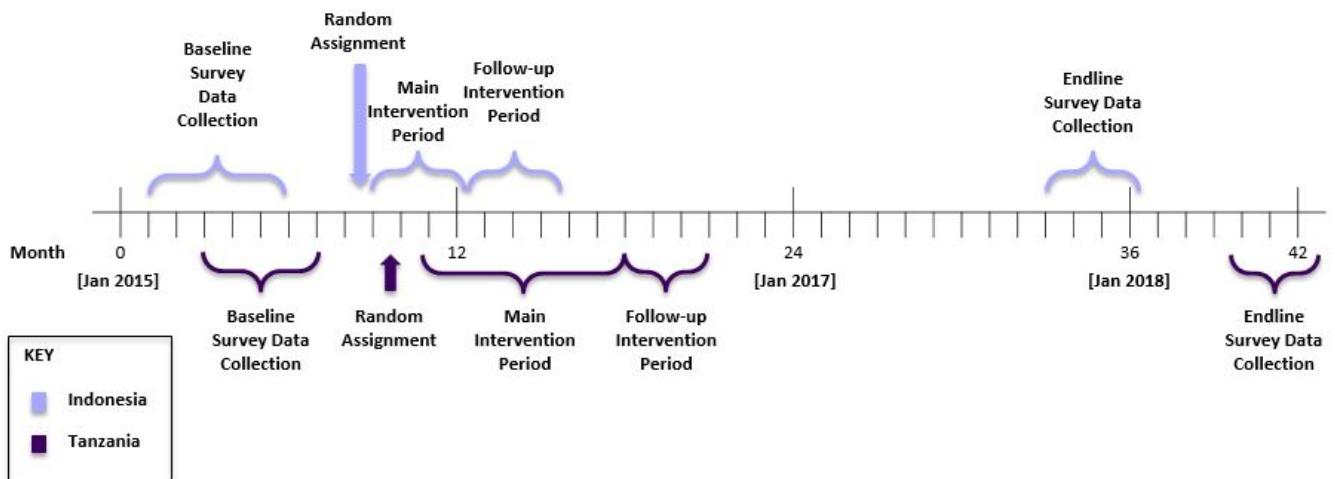


### 1.3.4 IMPACT EVALUATION TIMELINE

In Indonesia, baseline data collection took place from February to June 2015. Following data collection and random assignment, the intervention was rolled out in two waves. The main intervention period consisted of the community scorecard, social action planning, and open meetings, and the start of the social actions. The follow up intervention period involved the continuation of the social actions and all follow-up meetings. Endline survey data collection will commence approximately 21 months after the completion of the main intervention period. The period of time between the end of the main intervention and the start of data collection allows time for the conception and birth of a new cohort of babies.

In Tanzania, baseline data collection took place from March to July 2015. Instead of two waves, the Tanzania intervention was rolled out in four waves, meaning the main intervention period will last longer than it did in Indonesia. As a result, endline data collection will begin about 6 months later in Tanzania than in Indonesia.

Figure 3 – Impact Evaluation Timeline





# CHAPTER II: Baseline Data Collection

## IN THIS CHAPTER:

2.1 DATA COLLECTION

12

*This chapter describes the T4D baseline data collection, including how data were collected, the sampling strategy, and data cleaning and preparation. Section 2.1.1 details the data collection process. Section 2.1.2 describes the survey tools and section 2.1.3 provides a timeline of when the data were collected. Section 2.1.4 discusses the sampling strategy for the health facilities, villages, and household respondents included in the T4D baseline sample. Section 2.1.5 describes the data cleaning and preparation process.*

## 2.1 DATA COLLECTION

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### 2.1.1 PROCESS

The T4D team contracted data collection firms in Indonesia and Tanzania to collect baseline data. The process of identifying firms was similar in both countries: T4D released a Request for Proposals (RFP) and interviewed teams from short-listed firms. The T4D team selected SurveyMeter in Indonesia and EDI in Tanzania. The data collection firms were responsible for a number of activities, including:

- ▶ Assisting T4D in the production of survey instruments suitable to local context
- ▶ Formatting paper-based surveys (Indonesia) or programming surveys for digital data collection (Tanzania)
- ▶ Translating the questionnaires into Bahasa Indonesia (Indonesia) or Swahili (Tanzania)
- ▶ Field testing questionnaires and suggesting revisions
- ▶ Developing a logistical plan for listing and data collection
- ▶ Hiring and training field enumerators and supervisors
- ▶ Supervising data collection
- ▶ Data entry to digitize paper-based surveys (Indonesia)
- ▶ Data cleaning

The T4D team worked closely with both firms throughout the data collection process. Members of the T4D team accompanied SurveyMeter and EDI during field testing and worked with the firms to refine instruments based on what was learned. T4D team members also observed all interviewer trainings. During the data collection process, T4D team members conducted spot checks of interviewer teams and monitored incoming data on a rolling basis.

### 2.1.2 DESCRIPTION OF SURVEY TOOLS

The baseline data collection involved three separate surveys: a health facility survey, a household survey, and a community survey.

**Health Facility Survey:** In Tanzania, health facility data were collected from health dispensaries, which are the lowest level health facility in Tanzania's pyramidal health system. In Indonesia, health facility data were collected from puskesmas, the lowest level health facility formally overseen by the Indonesian government, and a mix of village-level health facilities that support the puskesmas (polindes, poskesdes, pustu) as well as midwife private practices. The facility survey included questions on availability of services, staffing, cleanliness, availability of key MNH drugs and equipment, and knowledge and attitudes of health providers. On average, the health facility survey in Tanzania took just over one hour to complete. In Indonesia, the puskesmas survey took approximately three hours, and the surveys of additional health facilities took about one and a half hours to complete.

**Household Survey:** The household survey was administered to women who gave birth in the 12 months preceding the survey. The survey included questions on birth history, uptake of MNH services, knowledge and attitudes towards health and the local

facility, experience with the local facility, and background questions on socioeconomic status (SES). The survey also included anthropomorphic measurements of the qualifying child's length and weight. The survey lasted about one hour to one hour and fifteen minutes in both countries.

**Community Survey:** The community survey was administered to a small focus group of approximately five participants per village. In Tanzania, these participants were typically the village chairman, village executive officer, village councilor(s), member(s) of the village health committee, and other local leaders. In Indonesia, these participants included a representative from the village office (such as the village head or village secretary), community leaders, and representatives from women's groups. The community survey included questions on village-level variables, such as the activity of various community groups, details on village governance, accessibility of government services, and existence of donor programs. On average, the survey lasted just over an hour in Tanzania and just over one and a half hours in Indonesia.

In Indonesia, SurveyMeter collected data using paper questionnaires. In Tanzania, EDI collected data electronically using ultra miniature personal computers (UMPCs). The questionnaire was programmed into Surveybe software.



### BOX 1 - SUMMARY OF SURVEY TOOLS:

*The baseline included three separate surveys:*

- 1. HEALTH FACILITY SURVEY:** *The facility survey included questions on availability of services, staffing, cleanliness, availability of key MNH drugs and equipment, and knowledge and attitudes of health providers.*
- 2. HOUSEHOLD SURVEY:** *The household survey included questions on birth history, uptake of MNH services, knowledge and attitudes towards health and the local facilities, experience with the local facilities, and background questions on socioeconomic status (SES). The survey also included anthropomorphic measurements of the qualifying child's length and weight.*
- 3. COMMUNITY SURVEY:** *The community survey was administered to a small focus group of approximately five participants per village. These participants were typically the village head, community health volunteers, representatives from women's groups, and other local leaders. The survey included questions on village-wide variables, such as the activity of various community groups, details on village governance, accessibility of government services, and existence of donor programs.*

### 2.1.3 TIMING OF DATA COLLECTION

In Tanzania, facility data were collected from a total of 213 dispensaries in March and April 2015. Two teams, each consisting of five interviewers and one supervisor, collected facility data.

Household and community survey data were collected from a total of 3,000 households across 200 villages from May to July 2015. Ten teams, each composed of four interviewers and one supervisor collected household data. Four of these teams worked exclusively in Tanga region, and the other six teams were deployed to both Dodoma and Tanga.

In Indonesia, an initial set of facility data was collected from 250 puskesmas in February and March 2015. A team of seven interviewers and one supervisor collected data in Banten and a team of nine interviewers and one supervisor collected data in South Sulawesi.

Household and community data were collected from 2,398 households across 200 villages from April to June 2015. Fourteen teams, each composed of three interviewers and one supervisor collected household data. Six teams were deployed to Banten and eight to South Sulawesi. In conjunction

### BOX 2 – SUMMARY OF THE SAMPLE

TANZANIA:	INDONESIA:
<b>200 Villages</b>	<b>200 Villages</b>
<b>153 Dispensaries</b>	<b>200 Puskesmas</b>
<b>3000 Households</b>	<b>2398 Households</b>

with the household and community data collection activities, a second set of facility data was collected from 299 supplemental health facilities associated with the 200 villages.

## 2.1.4 SAMPLING STRATEGY

### **2.1.4.1 Selection of health facilities for data collection**

The T4D intervention was designed primarily for rural communities with low SES and health indicators. In addition, the team sought to avoid implementing the intervention in areas with other similar CSO activities already taking place. The T4D research team worked with CHAI and PATTIRO to identify regions or provinces that met these conditions and where the respective organizations had sufficient operational capacity. The team settled on Tanga and Dodoma regions in Tanzania, and Banten and South Sulawesi provinces in Indonesia.

In Tanzania, a list was compiled of all public (government- and non-government run) dispensaries in Tanga region, with the exception of those located in urban Tanga Town. This was combined with a list of all public dispensaries in Bahi, Chemba, Kondoa, and Mpwapwa districts in Dodoma region. Dispensaries where the T4D intervention and data collection pilots occurred were excluded, as were those enrolled in a similar program run by World Vision. The CHAI team refined this list further, eliminating facilities in urban areas; high performers; a single facility that would be nearly impossible to get to; and, because delivery in a facility is a key evaluation outcome, those that did not offer delivery services. This resulted in a total of 214 dispensaries. EDI collected data from 213 of the 214 dispensaries, missing one that was unreachable due to heavy rains and road conditions.

In Indonesia, a list was compiled of all puskesmas in the following five districts in Banten province: Cilegon, Lebak, Pandeglang, Serang Regency, and Tangerang Regency. This was combined with a list of all puskesmas in the following 12 districts in South Sulawesi province: Bantaeng, Barru, Bone, Bulukumba, Enrekang, Maros, Pinrang, Sidenreng Rappang, Sinjai, Soppeng, Wajo, and Luwu. The list was refined further by excluding puskesmas in subdistricts where the T4D pilot took place, where PATTIRO had enacted a similar intervention in the past, and in majority-urban subdistricts (defined as containing 75% or more urban villages). In an effort to pre-empt overlapping facility catchment areas, in subdistricts that contained more than one puskesmas, one was randomly selected. This left 251 eligible facilities. One puskesmas was randomly excluded to arrive at a final number of 250. Survey Meter collected data from all 250 puskesmas.

### **2.1.4.2 Selection of villages for data collection**

In both Indonesia and Tanzania the T4D team selected a total of 200 villages from which to collect household and community data. Because a comprehensive list of villages served by each health facility was not available in advance, T4D collected this information as part of the facility survey. Facilities were asked to report both official and unofficial catchment area villages. An “official” catchment village was defined as a village officially served by the facility. An “unofficial”

catchment village was defined as a village not officially served by the facility, but one from which citizens regularly sought MNH health services.

A choice the T4D team faced was whether to select villages into the study that share the same health facility. The team considered two approaches. The first approach consisted of selecting 200 villages, each served by a different facility. The second approach included some villages being served by the same facility. There were tradeoffs to this choice—on the one hand, choosing one village per facility would maximize the effective sample size, which would increase the statistical power of the impact evaluation design. On the other hand, choosing more than one village per facility could have two possible effects depending on the nature of collaboration across communities. If the

**BOX 3 - INDONESIA VILLAGE SELECTION PROTOCOL:**

1. Drop urban villages (as defined by the Indonesia Central Bureau of Statistics).
2. Set a village population floor of 1,500 (to ensure a large enough number of annual births per capita to support household sample size criteria).
3. Randomly select 30 choice villages that do not have overlapping catchment areas (15% of sample).
4. Drop all puskesmas (and associated catchment area villages) that officially or unofficially serve the 30 selected villages.
5. Randomly select 170 of the remaining puskesmas.
6. Set a village population floor of 1,430 (note: T4D was not able to set the floor at 1,500 and maintain enough villages that fit the eligibility criteria).
7. Drop any remaining choice villages (so all remaining villages fall into the catchment area of exactly one interviewed puskesmas).
8. Randomly select one village from each of the 170 puskesmas.

actions of two or more communities are more likely to impact the health facility (relative to the actions of one community acting alone) then the intervention has a potential to have a larger impact with the second approach, which would help increase statistical power. If the actions of two or more communities are less likely to impact the health facility (perhaps because of free rider or collective action problems), the intervention is likely to have a lower impact with the second approach, thereby decreasing statistical power.

In the end, the T4D team decided to employ the first approach in Indonesia and the second approach in Tanzania. In Indonesia, the sample consists of 200 villages attached to 200 different facilities. In Tanzania, the sample consists of 200 villages attached to 153 health facilities.<sup>13</sup> The use of the second approach in Tanzania was partly driven by logistical reasons (see below). The

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<sup>13</sup> In the case of Tanzania, 106 facilities serve a single village in the evaluation sample, and 47 facilities each serve a pair of villages in the sample. For both countries, the T4D team also made an effort to guard against potential spillover between treatment and control villages by mapping out and examining overlapping facility catchment areas (both official and unofficial), in order to identify villages served by more than one health facility in the dataset.

rest of this sub-section presents more detail on the selection of villages and health facilities in Indonesia and Tanzania.

In Indonesia, T4D found that approximately 15% of the villages served by the selected puskesmas were served by more than one of the 250 puskesmas surveyed. Recognizing that these villages have choice in MNH health services (“choice villages”), and therefore may experience the intervention differently than those villages that do not, the T4D team elected to purposely select 15% of these choice villages into the sample.<sup>14</sup>

Ultimately the team selected 200 villages in 200 non-overlapping facility catchment areas, including at least 30 villages with a choice of puskesmas. See Box 3 for more details on the specific selection protocol.

Since the T4D team surveyed a smaller number of facilities in Tanzania, and therefore had less flexibility in village selection, the team applied a slightly different definition of choice villages than what was used in Indonesia. In

Tanzania, choice villages were still defined as those that sought services (officially or unofficially) from two or more of the 213 facilities that the team interviewed; however, the village also had to be located within 10 kilometers of the facility for it to be included as a viable choice. By this definition, approximately 25% of the catchment area villages were deemed to have choice.

Inclusion of 25% choice villages would reduce the number of facility catchment areas below 200, so the T4D team faced a trade-off between these two principles. The team elected to preserve

#### **BOX 4 - TANZANIA VILLAGE SELECTION PROTOCOL:**

- 1. Exclude from each dispensary catchment area any village more than 10k from the dispensary.*
- 2. Drop villages more than 10k from any sample dispensary.*
- 3. Drop villages with a population less than 1,000 or greater than 10,000 (proxy for urbanicity).*
- 4. Randomly select 38 choice villages that do not have official or unofficial overlapping catchment areas (~20%).*
- 5. Drop all dispensaries (and associated catchment area villages) that officially or unofficially serve the 38 selected villages.*
- 6. Drop any remaining choice villages (so all remaining villages fall into the catchment area of exactly one interviewed dispensary).*
- 7. Randomly select one village from the catchment area of each of the remaining 117 dispensaries.*
- 8. Randomly select 45 dispensaries that have remaining, non-sampled villages.*
- 9. Randomly select one village from the catchment area of each of these 45 dispensaries.*

*(NOTE: during fieldwork, three villages associated with two facilities were replaced by villages associated with facilities already in the sample, reducing the total number of facilities in the sample to 153 from 155.)*

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<sup>14</sup> It is possible that villages in the catchment area of the surveyed facilities sought services at facilities that were not surveyed, so 15% represents a minimum number of choice villages.



as many choice villages as possible from a minimum of 150 catchment areas, resulting in the selection of two villages per facility catchment area in some instances.

Ultimately, the T4D team selected 200<sup>15</sup> villages in 153 non-overlapping dispensary catchment areas, including at least 38 villages with a choice of dispensary. See Box 4 for more details on the specific selection protocol.

#### **2.1.4.3 Household listing and selection of household respondents**

Women who gave birth in the year prior to surveying were randomly selected and interviewed as target household respondents. The T4D team contemplated two distinct listing approaches: 1) a key-informant strategy,<sup>16</sup> and 2) a door-to-door household listing. After piloting, the team chose to move forward with the household listing.

The target number of respondents per village was 12 in Indonesia and 15 in Tanzania. See Boxes 5 and 6 for details of the household selection protocols for Indonesia and Tanzania.

#### **BOX 5 - INDONESIA HOUSEHOLD SELECTION PROTOCOL:**

1. *Interview team meets with the village head or other representative of the village office to obtain the following data:*
  - a. *Number of households and sub-villages within the village*
  - b. *Number of households in each sub-village (if the village office does not have this information, the team meets with individual sub-village heads).*
2. *Select one sub-village at random. If the total number of households is less than 400, choose a second sub-village at random. Repeat until the total number of households in the combined chosen sub-villages reaches or exceeds 400 households, or until all sub-villages are chosen.*
3. *Conduct a door-to-door listing in each selected sub-village to identify whether a member of the household has given birth in the past year.*
4. *After the listing is completed in each sub-village, verify the number of households listed with the data obtained from the village/sub-village head(s).*
5. *Combine qualified households from all sub-village lists.*
6. *Randomly select 12 households from the combined list.*<sup>17</sup>

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<sup>15</sup> During fieldwork, T4D replaced a total of 3 villages, including two located in Morogoro, a region adjacent to Tanga.

<sup>16</sup> The key informant approach had the survey firm collect and compile a list of potential respondents through discussions with health facility staff, community health volunteers, TBAs and village, subvillage, and neighborhood heads.

<sup>17</sup> If the combined list results in less than 12 qualified households, the interview team randomly selects an additional sub-village to list.

**BOX 6 - TANZANIA HOUSEHOLD SELECTION PROTOCOL:**

1. Interview team meets with the village executive officer (or other knowledgeable resident) to record the name of each sub-village.
2. Three sub-village are selected at random. If the village contains three or fewer sub-villages, all sub-villages are selected.
3. Starting at the border of each sub-village, and accompanied by a local guide, conduct a door-to-door listing of each selected sub-village to identify whether a member of the household has given birth in the past year.
4. After the listing is completed in each sub-village, combine qualified households from all sub-village lists.
5. Randomly select 15 households from the combined list.<sup>18</sup>

### 2.1.5 DATA PREPARATION AND DATA CLEANING

The data collection firms, in conjunction with the T4D team, monitored the data transmitted from the field on a rolling basis. The team paid special attention during the first two weeks to confirm enumerator accuracy and understanding, and to ensure there were no technical problems with the surveys.

In Tanzania, data were collected electronically, eliminating the need for data entry. In Indonesia, data were collected on a paper-based survey tool and later entered into a program designed in Census and Survey Processing System (CSPPro). A first round of data entry occurred while the enumerators were in the field, enabling Survey Meter and T4D to monitor data in close to real time. To check accuracy, a second round of data entry occurred upon completion of the survey work. Both sets of data were compared and differences reconciled in the final dataset.

The data collection firms conducted first round data cleaning. The T4D team conducted additional cleaning, including inspecting skip patterns, checking outliers, and recoding “other (specify)” responses. During this process, the T4D team queried the data collection firms as questions arose.

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<sup>18</sup> If the combined list results in fewer than 15 qualified households, the interview team interviews everyone on the list. In the next village, the interview teams selects and interviews additional households to make up for the deficit, resulting in some villages having fewer than 15 respondents, and some having more, for a total of 3000 (200 x 15) respondents.



# CHAPTER III: Baseline Findings

## IN THIS CHAPTER:

3.1	KEY CHARACTERISTICS OF THE SAMPLE: INDONESIA	21
3.2	KEY CHARACTERISTICS OF THE SAMPLE: TANZANIA	41
3.3	IMPLICATIONS FOR EVALUATION	59

*This chapter describes the baseline data findings for Indonesia and Tanzania, and their implications for the evaluation design.<sup>19</sup> At a broad level, the households represented in the two samples lived in rural areas and tended to be employed in farming or related sectors. Households in Indonesia seemed notably better off than those in Tanzania in terms of access to electricity (99% vs. 13%), education (99% of sample women attended school at some point in their lives compared with 78% in Tanzania) and the materials with which their dwellings were built. Unsurprisingly, in Indonesia almost all the respondent women were Muslim, whereas in Tanzania they were roughly equally split between Muslim and Christian.*

*In terms of MNH outcomes, access to health services tended to be good relative to the quality of care. Access to ANC in Indonesia was fairly high (90% of recent mothers completed the recommended four ANC visits during pregnancy compared with 43% in Tanzania). The percentage of pregnant women who gave birth in a facility—one of the key indicators linked with healthier babies and a key outcome of this evaluation—tended to be low for both Indonesia and Tanzania (55% and 56% respectively). Access to post-natal care was higher in Indonesia than Tanzania, but quality of care was low in both countries. Finally, in terms of citizen empowerment, a relatively high proportion of households in both countries reported feeling that they could improve their lives, and while the perceived level of responsiveness was high for health providers, it was low for local government.*

*The baseline findings allowed the T4D team to make several changes to the impact evaluation design. Given relatively high rates of antenatal care uptake, but moderate rates of birth preparedness in the Indonesia sample, the T4D intervention will focus specifically on birth preparedness as a key outcome in Indonesia. Other changes are described below.*

*This chapter is divided into three sections. Sections 1 and 2 describe the baseline data findings for Indonesia and Tanzania, and Section 3 discusses modifications to the evaluation design based on these findings.*

### **3.1 KEY CHARACTERISTICS OF THE SAMPLE: INDONESIA**

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This section describes the characteristics of the study sample in Indonesia. Socio-economically, sampled respondents lived in dwellings made of materials that tended to reflect the varied characteristics of rural dwellings in Indonesia. About 69% of households had private access to a toilet, and despite living in rural areas, nearly all households had access to electricity. The respondents—women who gave birth in the past 12 months—were almost all married and

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<sup>19</sup> All data reported in this chapter are accurate as of June 24, 2016.



Muslim. The level of satisfaction they exhibited with the health facilities tended to be high and staff's knowledge in these facilities tended to be high on the basics of MNH (such as timing and frequency of ANC, importance of facility delivery, and the timing of post-natal care) but lower on other items (such as the vaccine schedule and signs of danger for a pregnant woman).

In terms of access to and quality of the content of MNH care, the general pattern was one of relatively high levels of access but a decidedly mixed level of quality of care. For example, in the ANC arena, nearly all respondents received some form of care and close to 90% of respondents completed the recommended four ANC visits during pregnancy. But the content of ANC services varied; for example, a blood sample—one of a handful of components regularly monitored by the Demographic and Health Surveys (DHS) program—was drawn from less than half of respondents. Respondents also tended to fall short of what is considered a good birth preparedness plan. Similar patterns occurred in post-natal care, where uptake was higher than quality of care. In terms of delivery, about 79% of respondents gave birth with a skilled medical professional, but only 55% of them delivered in a facility, a practice linked to better delivery outcomes. Finally, in terms of citizen empowerment, three in four households reported feeling empowered to change their lives, and the perception of level of responsiveness was high for health providers (around 75%) but low for local government (around 31%).

The rest of this section describes in more detail the socioeconomic characteristics of households and the characteristics and birth histories of respondents in the Indonesia sample. It goes on to describe health outcome indicators, and the uptake, quality of, and barriers to key MNH services, such as ANC and birth preparedness, delivery, and post-natal care. The section then describes the health facilities utilized by the respondents. It concludes with a description of respondent empowerment and social cohesion.

The Indonesia household sample included women from villages in rural areas of two provinces: Banten and South Sulawesi. Overall, the sample was comprised of 2,398 women who gave birth in the 12 months prior to when the survey was administered.<sup>20</sup> To get a general sense of how the T4D sample compared with the general population of Indonesia, some of the key indicators in this sample were compared with analogous ones obtained from the 2012 DHS survey.<sup>21</sup> It should be noted that since data were deliberately collected in only two of Indonesia's 34 provinces (and the villages were not randomly selected from these provinces), the T4D sample was not intended to be representative of the country as a whole. Rather, the comparison only tells us how the sample differed from and was similar to the overall Indonesian population or, in particular, the populations of Banten and South Sulawesi.

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<sup>20</sup> While this forms the sample size for most data reported, some questions were only asked to participants based on the answer they gave to a previous question; where this is the case, the sample size is reported.

<sup>21</sup> Demographic and Health Surveys (DHS) are nationally-representative household surveys that provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition. Survey sample sizes are usually between 5,000 and 30,000 households, and typically are conducted about every 5 years, to allow comparisons over time. Statistics Indonesia et al., "Indonesia Demographic and Health Survey 2012."



### 3.1.1 HOUSEHOLD CHARACTERISTICS

The average household size in the Indonesia sample was 5.6 persons (Table 1), which is larger than the DHS average of 4.0.<sup>22</sup> Most of the respondents resided in sturdy dwellings with marble or granite (33.5%), cement (25.5%), or wooden floors (30.9%); stone (48.3%) or wooden walls (37.0%); and iron sheet (52.6%) or tiled roofs (40.5%). The average household had 4.7 rooms.

About two thirds of households reported access to a private toilet (68.8%), the majority of which were gooseneck or water-seal latrines. Close to nine out of ten sampled households (87.3%) had access to an improved source of drinking water;<sup>23</sup> improved sources are those considered likely to provide water suitable for drinking, such as piped sources or protected wells.<sup>24</sup> For reference, 74.9% of households in the DHS sample accessed water from an improved source.<sup>25</sup>

Nearly all households, 98.7%, had electricity, which is comparable to the DHS finding of 96.0%.<sup>26</sup> Liquefied petroleum gas (65.0%) and firewood (33.2%) were the main sources of cooking fuel. Slightly more than half of households owned a refrigerator (55.7%) and 91.3% owned a mobile telephone. Additionally, most households had access to some form of personal transportation, with 78.2% owning a motorcycle, 7.2% a car or truck, and 10.4% a bicycle.

Half of household heads were self-employed in the farming, forestry, fishing or hunting industry (49.2%). Other common types of employment included retail, food and drink or hotel (10.4%) and the service industry (10.1%).

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<sup>22</sup> Statistics Indonesia et al., "Indonesia Demographic and Health Survey 2012," 19.

<sup>23</sup> "Improved and Unimproved Water Sources and Sanitation Facilities," *WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation*, n.d., <http://www.wssinfo.org/definitions-methods/watsan-categories/>; Statistics Indonesia et al., "Indonesia Demographic and Health Survey 2012." Sources of drinking water are classified as improved or unimproved based on guidelines from the WHO/UNICEF JMP and the Indonesia DHS 2012. Because the DHS classification of improved sources varies slightly between Indonesia and Tanzania, what is classified as improved vs. unimproved varies between the two countries in this report. Improved sources in Indonesia: drilled or pumped well, protected well, protected spring, plumbing, refill water, branded bottled water; unimproved sources: rain water, unprotected well, unprotected spring, river or lake, truck service. Note that the Indonesia DHS does not specify between protected and unprotected spring (and thus all spring water is considered unimproved). If protected spring were considered unimproved in the T4D sample, the proportion accessing improved water would be comparable to the DHS at 73.8%.

<sup>24</sup> Statistics Indonesia et al., "Indonesia Demographic and Health Survey 2012," 10.

<sup>25</sup> Ibid.

<sup>26</sup> Ibid., 13.

**Table 1. Household Characteristics in Indonesia**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Household size</b>		
Avg. number of household members	5.6	2398
Avg. number of rooms used by household	4.7	2398
<b>Physical dwelling</b>		
Main material of floor		
Marble/Granite	33.5%	2398
Wood	30.9%	2398
Cement	25.5%	2398
Other	10.1%	2398
Main material of walls		
Stone	48.3%	2398
Wood	37.0%	2398
Bamboo	11.9%	2398
Other	2.8%	2398
Main material of roof		
Iron sheets	52.6%	2398
Roof tiles	40.5%	2398
Thatch/palm leaf	3.1%	2398
Other	3.8%	2398
<b>Utilities and household assets</b>		
Private access to toilet	68.8%	2398
Type of toilet (of those with a private toilet)		
Goose-neck/water-seal latrine	89.4%	1980
Pit latrine	5.3%	1980
Flushing toilet	4.3%	1980
Main source of water		
Improved	87.3%	2398
Unimproved	12.7%	2398
Electricity	98.7%	2398
Type of cooking fuel		
Liquefied Petroleum Gas (LPG)	65.0%	2398
Firewood	33.2%	2398

Other	1.8%	2398
<b>Asset ownership</b>		
Telephone/mobile phone	91.3%	2398
Television	85.4%	2398
Refrigerator	55.7%	2398
Radio	15.1%	2398
Motorcycle	78.2%	2398
Bicycle for adult	10.4%	2397
Car or truck	7.2%	2395

Source: Household Survey, Indonesia (2015)

**Table 2. Occupation of Household Head in Indonesia**

Indicator	Mean	<i>n</i>
<b>Occupation of household head</b>		
Farming, forestry, fishery and hunting	49.2%	2398
Large trading/retailer, food and drink and hotel	10.4%	2398
Services - education, health, social, cleaning, rec, culture, sport	10.1%	2398
Construction	7.7%	2398
Food, non-food, manufacture/processing industry	7.4%	2398
Transportation & related services (postal/telecomm)	7.4%	2398
Other activities - cannot be categorized	2.4%	2398
Mining and extraction	2.1%	2398
Finance, insurance, rental, real estate, land & service company	0.8%	2398
Electricity, gas and water	0.4%	2398
Retired	0.2%	2398
Does not work	1.9%	2398

Source: Household Survey, Indonesia (2015)

### 3.1.2 RESPONDENT CHARACTERISTICS

As mentioned earlier, the household survey respondents were women who had given birth in the 12 months prior to the interview. The average respondent was 28 years old, and had 2.3 live births. Just over one third (37.9%) were first time mothers. Nearly all were married (98.7%) and Muslim (99.0%). The most common ethnicities included Buginese (43.8%) and Makassarese (6.9%), majority ethnicities found in South Sulawesi, and Sundanese (32.4%) and Javanese (9.4%), which are both common in Banten. Most respondents had some schooling (98.7%), and just under two thirds (60.5%) attended at least junior high.

Table 3. Respondent Characteristics in Indonesia		
Indicator	Mean	<i>n</i>
Age	28	2395
Number of live births in lifetime	2.3	2398
First time mother	37.9%	2398
Marital status		
Currently married	98.7%	2398
Separated	0.3%	2398
Divorced	0.8%	2398
Widowed	0.3%	2398
Religion		
Islam	99.0%	2398
Christianity	1.0%	2398
Ethnicity		
Bugis	43.8%	2398
Sundanese	32.4%	2398
Javanese	9.4%	2398
Makassar	6.9%	2398
Other	7.4%	2398
Ever attended school	98.7%	2398
Highest level of school attended		
Elementary school	39.6%	2367
Junior high school	27.8%	2367
High school	21.3%	2367
College	11.4%	2367

Source: Household Survey, Indonesia (2015)

### 3.1.3 INFANT HEALTH OUTCOMES

The infant mortality rate for the sample in the five years preceding the survey (2010 – 2014) was 31 deaths per 1,000 live births. This is similar to the DHS rate of 32 per 1,000 live births for the period between 2008 and 2012.<sup>27</sup> The neonatal mortality rate for the sample in the five years preceding the survey was 16 per 1,000 live births, slightly lower than the DHS rate of 19 per 1,000 live births.<sup>28</sup>

<sup>27</sup> Ibid., 102.

<sup>28</sup> Ibid.

Most infants in the sample (89.7%) were weighed at birth, with an average weight of 3.13 kilograms. Of those weighed, 6.7% were underweight (less than 2.5 kilograms). In the DHS sample, 7.3% of weighed babies were underweight.<sup>29</sup>

Surveyors took weight and length measurements of each infant in the sample. These measurements were used to calculate z-scores, or measures indicating how many standard deviations a value is from the mean of a group of values (in this case the median WHO Child Growth Standards). Negative z-scores indicate a value below the mean and positive z-scores indicate a value above. The mean weight-for-age z-score in the Indonesia sample was -0.950, with 16.1% of infants underweight (defined as more than two standard deviations below the median WHO Child Growth Standards). The length-for-age z-score was -0.907, and the same percentage of infants (16.1%) were found to be stunted, or more than two standard deviations below the median WHO Child Growth Standards.<sup>30</sup>

Table 4. Health Outcomes in Indonesia		
Indicator	Mean	n
Infant mortality rate (2010-2014) (per 1000 live births) <sup>31</sup>	31	200
Neonatal mortality rate (2010-2014) (per 1000 live births) <sup>32</sup>	16	200
Infants weighed at birth	89.7%	2391
Average weight (of those weighed) (kg)	3.13	2132
Underweight at birth (of those weighed)	6.7%	2132
Weight-for-age z-score	-0.950	2372
Underweight (>2 SD below median WHO growth standard)	16.1%	2372
Length-for-age z-score	-0.907	2369
Stunted (>2 SD below median WHO growth standard)	16.1%	2369

Source: Household Survey, Indonesia (2015)

### 3.1.4 HEALTH FACILITY CHARACTERISTICS

A puskesmas is a public health center that operates at the subdistrict level. Puskesmas are the lowest level public health service center overseen by the Indonesian government. They provide comprehensive basic health services, often including delivery services. A puskesmas may be supported by a network of additional health centers, such as polindes, poskesdas, puslings and pustus, which are directly overseen by the puskesmas.

<sup>29</sup> Ibid., 132.

<sup>30</sup> "Child Growth Standards: Weight-for-Age," WHO, n.d., [http://www.who.int/childgrowth/standards/weight\\_for\\_age/en/](http://www.who.int/childgrowth/standards/weight_for_age/en/).

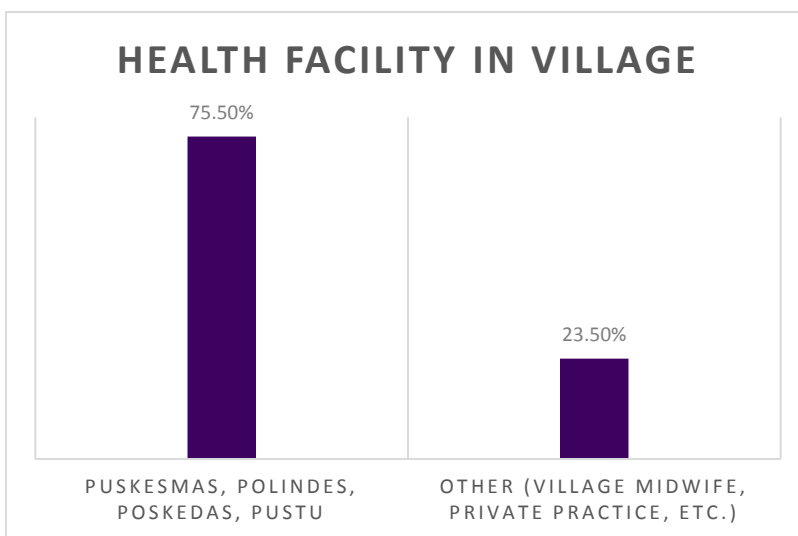
<sup>31</sup> This figure has been calculated at the sample level to ensure a more precise estimate.

<sup>32</sup> Ibid.



Every village in Indonesia is assigned to the catchment area of a puskesmas. Residents of certain villages may live closer to one of the smaller health centers, and may choose to instead seek services at such centers; however, to maintain uniformity, villages were sampled from assigned puskesmas catchment areas. The T4D project collected data from all of the puskesmas in the sample as well as other public health facilities accessed by the sampled villages.

The average puskesmas in the sample served 8.8 villages and had close to 57 staff, with nearly 14 in the maternal/delivery unit alone. Not every puskesmas provided routine delivery services, but of the 179 that did, the number of delivery beds ranged from one to four, with an average of 1.7. Nearly all surveyed puskesmas had electricity (99.0%) and 95.5% used water from an improved source.<sup>33</sup>



Polindes and other non-puskesmas health facilities were much smaller than puskesmas, with an average of three staff members and 1.2 delivery beds. These facilities served an average of 1.8 villages. Similar to what was observed of the puskesmas, the majority had electricity (95.9%) and used water from an improved source (92.2%).

Nearly all villages (99.0%) had a health facility located within the village boundary: three quarters (75.5%) had at least one puskesmas or other public health facility such as a polindes or poskesdas; the remainder had a village midwife, birthing clinic, or private practice. In addition, 26.5% of villages had a baby dukun, or traditional birth attendant, residing within the village.

<sup>33</sup> “Improved and Unimproved Water Sources and Sanitation Facilities”; Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012.” Classification of source of drinking water as improved or unimproved is based on guidelines from the WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation (JMP) and the Indonesia DHS 2012. For more information, see footnote 24.

**Table 5. Health Facility Characteristics in Indonesia**

Indicator	Mean	<i>n</i>
<b>Puskesmas characteristics</b>		
Avg. no. of staff	56.4	200
Avg. no. of staff in maternity unit	13.5	200
Avg. no. of villages served (official)	8.8	200
Avg. no. of delivery beds	1.7	179
Proportion with electricity <sup>34</sup>	99.0%	200
Proportion with improved water	95.5%	200
<b>Polindes characteristics</b>		
Avg. no. of staff	3.0	294
Avg. no. of villages served	1.8	294
Avg. no. of delivery beds	1.2	191
Proportion with electricity <sup>35</sup>	95.9%	294
Proportion with improved water	92.2%	294
<b>Village characteristics</b>		
Health facility within the village	99.0%	196
Puskesmas, polindes, poskesdas, pustu	75.5%	196
Other (village midwife, private practice, etc.)	23.5%	196
Baby dukun (TBA) within the village	26.5%	196

Source: Facility and Community Surveys, Indonesia (2015)

#### **3.1.4.1 Drug and equipment stocks**

At the time of the survey, most puskesmas were well stocked with drugs and equipment. Nearly all puskesmas (96.0%) had in stock all the recommended newborn and infant vaccines. The most common out-of-stock drug was magnesium sulfate, which was still found at three-quarters of puskesmas (73.0%). The most common piece of missing equipment was an incubator. To also understand the beneficiary experience, household survey respondents were asked to rate availability of drugs during their most recent visit; 78.7% of women who had visited the puskesmas in the previous 3 months rated availability of drugs as 'good' or 'excellent'.

<sup>34</sup> Main grid

<sup>35</sup> Main grid or generator

**Table 6. Puskesmas Drug and Equipment Stocks**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Drugs and vitamins (in stock on day of survey)</b>		
Amoxicillin/ampicillin	99.5%	200
Vitamin A	99.5%	200
FE (iron pills)	99.0%	200
Lidocaine	97.0%	200
Ringers lactate	97.0%	200
Vitamin K1	95.5%	200
Oxytocin	91.5%	200
Methylergometrine maleate	87.5%	200
Magnesium sulfate	73.0%	200
<b>Vaccines (in stock on day of survey)</b>		
All vaccines	96.0%	200
Measles	99.5%	200
DPT/DPT-HB/DPT-HB-HIB	99.0%	200
Hepatitis B	98.5%	200
BCG	98.5%	200
Polio	98.0%	200
<b>Equipment (in stock on day of survey)</b>		
Adult weight scale*	100.0%	200
Blood pressure equipment*	100.0%	200
Syringes (disposable)	100.0%	200
Measuring tape*	99.5%	200
Hand gloves	99.0%	200
Infant weight scale*	98.0%	200
Adult height measuring equipment*	97.5%	200
Partus set	97.0%	200
Vaginal speculum	97.0%	200
Catheter	96.5%	200
Vaccine box	96.5%	200
Tenaculum	96.0%	200
Oxygen tank	92.0%	200
ANC book (KIA)	89.0%	200
Post-natal book	88.5%	200
Antiseptic solution	87.0%	200
Vaginal sonde	87.0%	200
HB set	86.5%	200
Infant length measuring equipment*	69.0%	200
Incubator	67.5%	200

Source: Facility Survey, Indonesia (2015)

\*Denotes equipment both available and functional

### 3.1.4.2 Respondent experience and midwife knowledge

In addition to being asked to report perception of drug and supply stocks, household respondents were asked to rate their satisfaction on other aspects of the puskesmas and other health facilities. Of those who visited any facility in the past 3 months, 91.8% reported satisfaction with waiting times and 82.3% rated cleanliness as ‘good’ or ‘excellent.’

As part of the facility survey, a midwife or other member of the puskesmas maternal/delivery staff was selected to answer a battery of questions to assess knowledge and attitudes around MNH care. Respondents exhibited near universal knowledge of the timing and frequency of ANC (97.5% and 97.0%, respectively), importance of facility delivery (96.0%), and the timing of post-natal care (99.0%). Lower percentages were able to articulate the recommended infant vaccine schedule (88.5%) and five or more danger signs for pregnant women (59.0%).

Table 7. Respondent Experience and Midwife Knowledge		
Indicator	Mean	n
<b>Respondent experience</b>		
Rated availability of drugs and supplies as good or excellent (puskesmas in last 3 mos.)	78.7%	389
Satisfaction with waiting times (any facility in last 3 mos.)	91.8%	1329
Rated cleanliness good or excellent (any facility in last 3 mos.)	82.3%	1329
<b>Midwife knowledge</b>		
Timing of ANC	97.5%	200
Frequency of ANC	97.0%	200
Five or more danger signs during pregnancy	59.0%	200
Importance of facility delivery	96.0%	200
Timing of post-natal care	99.0%	200
Infant vaccine schedule	88.5%	200

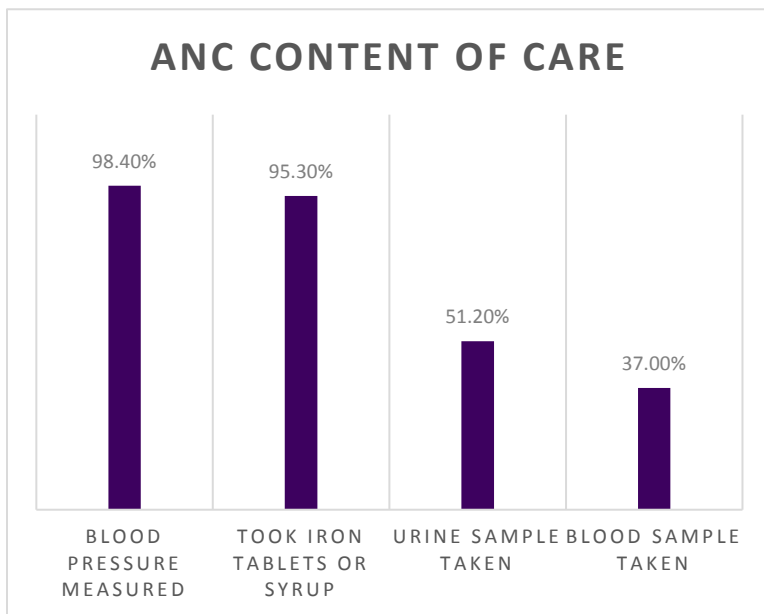
Source: Household and Facility Surveys, Indonesia (2015)

### 3.1.5 ANTENATAL CARE (ANC) AND BIRTH PREPAREDNESS

Adequate care during pregnancy is crucial for the health of mothers and development of their unborn babies. Antenatal care (ANC) visits enable health providers to recognize and manage pregnancy related risk factors and complications, screen for diseases (such as syphilis, malaria and HIV), and provide important vitamins and other preventative measures. These visits also present an opportunity for providers to counsel women on healthy behaviors during pregnancy and after birth. International bodies, such as the World Health Organization (WHO), recommend at least four ANC visits during pregnancy, and because certain interventions are most effective

when administered early, further recommend that the first ANC visit occur as early as possible, ideally within the first trimester.<sup>36</sup>

Indonesia has a nationwide community-based health program known as posyandu. Staffed by a midwife and local volunteers, posyandus offer monthly ANC services to pregnant women, and growth monitoring and vaccination programs for children under the age of five. Perhaps unsurprisingly, the survey revealed high levels of ANC access in the Indonesia sample. Almost all women had received some form of ANC (98.6%). Additionally, 69.8% had a first ANC visit within the first thirteen weeks of pregnancy, and 87.2% had attended at least the minimum recommended four ANC visits throughout the course of pregnancy. The DHS reported similar figures for any ANC (95.7%) and four or more visits (87.8%), but a somewhat higher figure for those seeking care within the first trimester (80.4%).<sup>37</sup>



87.2% had attended at least the minimum recommended four ANC visits throughout the course of pregnancy. The DHS reported similar figures for any ANC (95.7%) and four or more visits (87.8%), but a somewhat higher figure for those seeking care within the first trimester (80.4%).<sup>37</sup>

High rates of ANC uptake were matched by respondents' knowledge of the necessity of ANC care, even from the early stages of pregnancy. For example, when women were asked the minimum number of ANC visits a pregnant mother should attend, 94.4% gave an answer of four or more.<sup>38</sup> Furthermore, when asked whether they agreed with the statement "if a pregnant woman has already had a baby and did not experience complications, it is not necessary to seek antenatal care unless she has problems with her current pregnancy," 70.4% of women disagreed or strongly disagreed.

The T4D team also asked respondents about the content of ANC they received, such as whether or not blood pressure was measured, whether urine and blood samples were taken, and whether the respondent took iron supplementation. In contrast with high levels of ANC uptake, the content of these services was mixed, with excellent coverage of certain services and inadequate coverage of others. While nearly all women had their blood pressure measured (98.4%) and took iron supplements during pregnancy (95.3%), only about half had a urine sample taken (51.2%) and a third had a blood test (37.0%).

<sup>36</sup> Joy Lawn and Kate Kerber, eds., "Antenatal Care," in *Opportunities for Africa's Newborns: Practical Data, Policy and Programmatic Support for Newborn Care in Africa* (WHO, 2006), 51–62.

<sup>37</sup> Statistics Indonesia et al., "Indonesia Demographic and Health Survey 2012," 112–13.

<sup>38</sup> The majority of respondents said 6-9 visits, which is consistent with monthly visits to posyandu.



**Table 8. Antenatal Care & Birth Preparedness in Indonesia**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>ANC uptake</b>		
Any ANC	98.6%	2398
First ANC visit within 13 weeks	69.8%	2398
Four or more ANC visits	87.2%	2398
<b>ANC knowledge</b>		
Correct timing of 1st ANC visit <sup>39</sup>	63.3%	2398
Need for 4 or more ANC visits	94.4%	2398
Need for ANC despite no complications with prior pregnancy	70.4%	2398
Able to identify at least 3 pregnancy complications	25.9%	2398
<b>ANC content of care</b>		
Blood pressure measured	98.4%	2365
Took iron tablets or syrup	95.3%	2363
Urine sample taken	51.2%	2365
Blood sample taken	37.0%	2365
<b>Birth preparedness</b>		
Comprehensive plan (3 or more)	70.1%	2398
Figured out how to pay for delivery	84.7%	2398
Decided on delivery location	79.2%	2398
Determined who would assist the delivery	76.9%	2398
Arranged transportation/ transport plan	42.2%	2398
Identified childcare/who cares for other children	14.8%	2398
Identified a possible blood donor	14.3%	2398

Source: Household Survey, Indonesia (2015)

It is necessary to be cautious in interpreting the antenatal care responses. The accuracy of the information depends on what was written on the respondent's ANC card and her memory of what happened as many as 21 months before answering the survey questions. Similar shortcomings exist in the measures of delivery, post-natal and post-partum care content (discussed in more detail later in the report). Still, despite some measurement error, the information is useful in providing a picture of the MNH care women in the sample received. Moreover, for the purposes of the impact evaluation, these measures will allow for a reasonably good estimate of the impact of the interventions on components of care as long as the measurement error is not systematically different between the treatment and control groups.

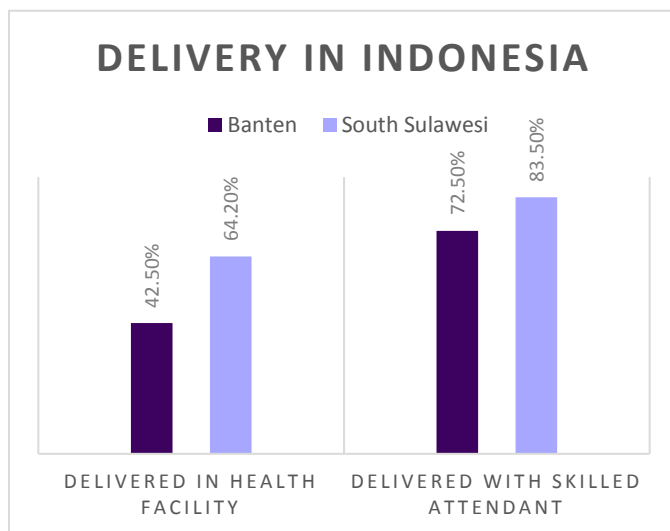
<sup>39</sup> Correct answers include: as soon as she knows she's pregnant, if her menstrual cycle is late, and within the first trimester (could be stated in weeks or months).

International bodies also recommend that all pregnant women create a birth preparedness plan and discuss this plan with a healthcare provider during ANC visits. To assess birth preparedness planning, respondents were asked whether they had planned where they would give birth, how they would travel to the delivery location, who would assist with delivery, how they would pay, who would take care of other children, and whether any potential blood donors had been identified. From the range of indicators a ‘comprehensive plan’ variable was generated, calculating the proportion of women who planned three or more aspects of the birth; 70.1% of respondents in the sample had made a comprehensive birth plan.

Given relatively high rates of antenatal care uptake, but moderate rates of birth preparedness in the Indonesia sample, the T4D intervention will focus specifically on birth preparedness as a key outcome in Indonesia.

### 3.1.6 DELIVERY

Thousands of women and millions of newborns die each year during pregnancy, birth, and the neonatal period. The majority of these deaths occur during or within 24 hours of birth.<sup>40</sup> Assistance by a skilled provider during birth is linked to a reduction in maternal and neonatal mortality, and is therefore a key WHO recommendation and indicator of Millennium Development Goal 5.<sup>41</sup> Skilled providers are defined as accredited health professionals, such as doctors, nurses and midwives.<sup>42</sup> The Indonesia Ministry of Health (MoH) set a target of 90% of births assisted by skilled medical personnel by 2015.<sup>43</sup>



Further, since most maternal deaths occur during labor, delivery, or the first 24 hours post-partum, and most complications cannot be predicted or prevented, delivery in a health facility is considered a priority intervention for reducing the maternal mortality ratio.<sup>44</sup> Delivering in a

<sup>40</sup> WHO, ICM, and FIGO, “Maternal, Newborn, Child, and Adolescent Health: Skilled Birth Attendants,” WHO, 2004, [http://www.who.int/maternal\\_child\\_adolescent/topics/maternal/skilled\\_birth/en/](http://www.who.int/maternal_child_adolescent/topics/maternal/skilled_birth/en/).

<sup>41</sup> Reduce the maternal mortality ratio by three quarters between 1990 and 2015.

<sup>42</sup> WHO, ICM, and FIGO, “Maternal, Newborn, Child, and Adolescent Health: Skilled Birth Attendants.”

<sup>43</sup> Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012,” 120.

<sup>44</sup> Oona MR Campbell and Wendy J Graham, “Strategies for Reducing Maternal Mortality: Getting on with What Works,” *The Lancet* 368, no. 9543 (September 2006): 1284–99, doi:10.1016/S0140-6736(06)69381-1.

health facility ensures a sterile environment, access to medical equipment, and a referral network in the case of an emergency. Facility births are also less likely to result in infection.<sup>45</sup>

Just over three-quarters of the Indonesia sample, 78.8%, gave birth with a skilled medical professional, most frequently a midwife. Most of the remaining respondents were assisted by a baby dukun (traditional birth attendant). However, despite moderate rates of skilled birth attendance, only about half of respondents (55.0%) delivered in a facility.<sup>46</sup> Of those who gave birth in a facility, 32.9% delivered in a hospital, 28.5% in a puskesmas, 15.3% in a pustu, poskesdas, polindes or other village-level facility, and 23.2% at a doctor or midwife private practice or birthing facility.

<b>Table 9. Delivery in Indonesia</b>		
<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Delivery with a skilled attendant</b>	78.8%	2398
Banten Province	72.5%	1020
South Sulawesi Province	83.5%	1378
<b>Delivery in a health facility</b>	55.0%	2398
Banten Province	42.5%	1020
South Sulawesi Province	64.2%	1378
<b>Delivery via C-section</b>	11.2%	2398
Banten Province	8.9%	1020
South Sulawesi Province	12.9%	1378
<b>Type of health facility (for those giving birth in a facility)</b>		
Hospital	32.9%	1318
Puskesmas	28.5%	1318
Pustu, polindes, etc.	15.3%	1318
Midwife or doctor private practice, birth clinic	23.2%	1318

Source: Household Survey, Indonesia (2015)

The attitudes and beliefs of respondents aligned with delivery practices. When asked whether they agreed with the statement “it is just as safe to give birth at home with a traditional birth attendant as it is to give birth in the health facility,” close to one third (31.8)% agreed or strongly agreed with the statement. Similarly, 31.2% of respondents agreed or strongly agreed with the

<sup>45</sup> Suzanne Penfold et al., “A Large Cross-Sectional Community-Based Study of Newborn Care Practices in Southern Tanzania,” *PLoS One* 5, no. 12 (2010).

<sup>46</sup>T4D uses the Indonesia DHS classification of health facilities, which includes private midwife/doctor (Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012,” 119.), however, it is worth noting that these private practices are often operated out of a private home and are of inconsistent quality.

statement “it is fine to stay at home during labor and wait until a woman begins having complications to go to a health facility.”

The results also showed notable differences in delivery practices by province. In the Banten sample, rates were particularly low: 72.5% of respondents delivered with a skilled attendant and 42.9% gave birth in a facility. In South Sulawesi, 83.5% of respondents delivered with a skilled attendant and 64.5% gave birth in a facility.

The proportion of Caesarean section deliveries can be used as a proxy for access to emergency obstetric care, with the “ideal” percentage falling in the 10-15% range.<sup>47</sup> In the baseline sample, 11.2% of babies were delivered by Caesarean section, which is comparable to the DHS rate of 12.3%.<sup>48</sup> The average, however, masks differences across provinces, with Banten having a lower rate than South Sulawesi (8.9% vs. 12.9%). This difference is not surprising given varying facility birth rates in the two provinces.

The sample data also revealed that the majority of women who delivered in a facility rated the quality and care during delivery as high. When asked to rate the overall quality of care, over 90% rated the facility as ‘good’ or ‘excellent.’ The data on respect shown by providers were similar: 86.3% rated respect shown as ‘good’ or ‘excellent.’

Most respondents, 79.1%, reported some payment for delivery. The average cost for those who paid was 1,437,091 Indonesia rupiah, which is equivalent to roughly \$100 USD, quite high in a country where 41.7% of the population lives below the international poverty line of \$3.10 USD per day (2012).<sup>49</sup> Additionally, 64.8% of women had to pay some cost for transportation to their delivery, the average of which was 129,637 Indonesian rupiah (approx. \$9 USD).

Of the 1,324 women who traveled to a birth facility, the most common form of transport was a hired or personal motorcycle or car (79.1%). A small percentage took an ambulance (7.9%) and 4.2% of respondents walked to the facility. It took close to a quarter of respondents (21.8%) an hour or more to reach the facility.

Of the respondents who did not deliver in a facility, 27.1% acknowledged that one or more barriers had prevented them from doing so. Over a third (37.4%) cited cost as a barrier. Another third (33.9%) noted “the birth happened too soon” (a possible indicator of inadequate birth preparedness planning). Smaller segments of the group, 14.2% and 11.4% respectively, listed transportation and distance as barriers.<sup>50</sup>

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<sup>47</sup> WHO and HRP, “WHO Statement on Caesarean Section Rates” (World Health Organization, April 2015), [http://www.who.int/reproductivehealth/publications/maternal\\_perinatal\\_health/cs-statement/en/](http://www.who.int/reproductivehealth/publications/maternal_perinatal_health/cs-statement/en/).

<sup>48</sup> Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012,” 121.

<sup>49</sup> “Poverty & Equity Country Dashboard: Indonesia,” *The World Bank*, 2016, <http://povertydata.worldbank.org/poverty/country/IDN>.

<sup>50</sup> Respondents were permitted to list more than one barrier.

**Table 10. Barriers to Delivery in Indonesia**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Knowledge</b>		
Okay to give birth at home unless there are complications	31.2%	2398
Birth with a TBA at home as safe as birth at a health facility	31.8%	2398
<b>Delivery care</b>		
Overall quality of facility 'good' or 'excellent'	90.4%	1324
Provider respect 'good' or 'excellent'	86.3%	1329
<b>Delivery cost</b>		
Paid something for delivery	79.1%	2374
Average cost of delivery (of those who paid) (IDR)	1,437,091	1867
<b>Transportation to delivery</b>		
Type of transportation		
Hired or private car/motorcycle	79.1%	1324
Ambulance	7.9%	1324
On foot	4.2%	1324
Other	5.9%	1324
Paid something for transport to delivery	64.8%	1321
Average amount paid (of those who paid) (IDR)	129,637	522
Traveled longer than 1 hour to delivery place	21.8%	1324
Average time (in minutes) to travel to delivery	38.1	1324
<b>Perceived barriers</b>		
Did not deliver in a facility because of access difficulty	27.1%	1071
Barrier		
Cost	37.4%	289
Birth happened "too soon"/no time to reach facility	33.9%	289
Transportation	14.2%	289
Distance	11.4%	289
Provider not present/facility closed	4.8%	289
Other	7.3%	289

Source: Household Survey, Indonesia (2015)



### 3.1.7 POST-NATAL AND POST-PARTUM CARE

The month following childbirth is a critical time in the lives of mothers and babies, as most maternal and infant deaths occur during this period.<sup>51</sup> Post-natal care allows for identification of infections in newborns, a major cause of neonatal mortality. Post-natal and post-partum care is also essential to monitor under-weight babies, counsel mothers, and otherwise monitor newborn growth and development. While there is no consensus on the number and timing of post-natal checks for babies and post-partum checks for mothers, country guidelines and most international bodies recommend at least one check somewhere between two and seven days after childbirth.<sup>52</sup>

In the Indonesia sample, 92.6% of babies received a post-natal checkup by a skilled attendant and 87.8% had this check within the first week of life. Similarly, 91.5% of mothers received post-partum care with a skilled attendant, and 86.8% had this care within seven days of giving birth.

Despite these high levels of uptake, the survey results showed the quality of post-natal and post-partum visits to be low. Only 59.7% of babies had received comprehensive post-natal care, defined as:

- ▶ at least two physical checks,<sup>53</sup>
- ▶ one immunization, and
- ▶ administration of vitamin K<sub>1</sub> or antibiotic eye cream by a skilled provider.

Additionally, just half of respondents (50.0%) had received comprehensive post-partum care, defined as:

- ▶ at least two physical checks,<sup>54</sup>
- ▶ counseling on two topics,<sup>55</sup> and
- ▶ provision of one supplement (such as vitamin A or iron) by a skilled provider.

The thresholds for post-natal and post-partum care to be considered comprehensive, as defined above, require that some, but not all, measured indicators are met. The threshold for each measure was developed to account for measurement error (discussed in 3.1.5 Antenatal Care and Birth Preparedness); it is possible that certain respondents were unaware of or forgot that checks were performed, so requiring full compliance could exclude respondents who did in fact receive high quality care.<sup>56</sup>

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<sup>51</sup> "Postnatal Care for Mothers and Newborns: Highlights from the World Health Organization 2013 Guidelines" (World Health Organization, April 2015), [http://www.who.int/maternal\\_child\\_adolescent/publications/WHO-MCA-PNC-2014-Briefer\\_A4.pdf](http://www.who.int/maternal_child_adolescent/publications/WHO-MCA-PNC-2014-Briefer_A4.pdf).

<sup>52</sup> Ibid.

<sup>53</sup> Physical checks: 1) examined baby's body, 2) checked cord, 3) examined for danger signs, 4) weighed.

<sup>54</sup> Physical checks: 1) examined mother's body, 2) checked breasts, 3) took blood pressure, 4) took temperature.

<sup>55</sup> Counseling topics: 1) newborn danger signs, 2) maternal danger signs, 3) breastfeeding, 4) nutrition, 5) family planning.

<sup>56</sup> The specific thresholds were developed in consultation with public health experts and academics and are designed to account for services that are more easily remembered and those that are most important to the health of the mother and infant.

Only a small number of respondents (15.5%) reported difficulty accessing post-natal or post-partum care. Just over half (51.1%) of these respondents reported cost as the main barrier. For comparison, among the respondents who received any post-partum or post-natal care, 44.7% paid for these services.

Finally, while 91.8% reported believing that it is important for the baby to be checked after birth, only 30.9% knew this check should occur within one week of birth.

**Table 11. Post-natal and Post-partum Care in Indonesia**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Post-natal care uptake (babies)</b>		
Any post-natal care by a skilled attendant	92.6%	2390
Any post-natal care by a skilled attendant w/in one week of birth	87.8%	2390
<b>Post-partum care uptake (mothers)</b>		
Any post-partum care by a skilled attendant	91.5%	2398
Any post-partum care by a skilled attendant w/in one week of birth	86.8%	2398
<b>Post-natal care quality (babies)</b>		
Comprehensive post-natal check	59.7%	2390
Physical - cord check	87.7%	2390
Physical - body examination	85.6%	2390
Physical - weighed	83.9%	2390
Physical - check for danger signs	51.3%	2390
Immunization	69.2%	2390
Supplement - vitamin K1	53.6%	2390
Supplement - eye cream	32.6%	2390
<b>Post-partum care quality (mothers)</b>		
Comprehensive post-partum check	50.0%	2398
Physical - blood pressure	84.9%	2398
Physical - body examination	77.9%	2398
Physical - breast check	44.7%	2398
Physical - temperature	42.7%	2398
Counseling - breastfeeding	57.8%	2398
Counseling - nutrition	53.9%	2398
Counseling - family planning	51.7%	2398
Counseling - danger signs for mothers	36.2%	2398
Counseling - danger signs for newborns	35.4%	2398
Supplements or other vitamins	76.4%	2398

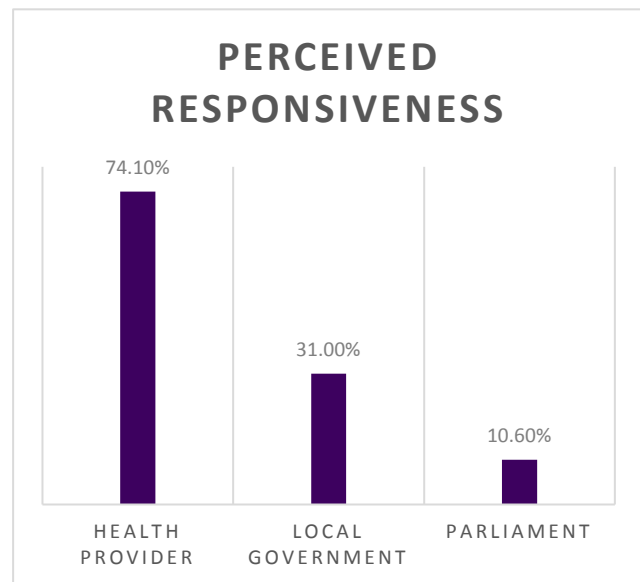
Perceived barriers to post-natal and post-partum care		
Reported access difficulties	15.5%	2398
Barriers		
Cost	51.1%	372
Transportation	26.1%	372
Distance	18.0%	372
Provider not present/facility closed	4.3%	372
Opposition of partner/family	2.4%	372
Against local norms	2.2%	372
Other	8.6%	372
Paid something for care	44.7%	2104
Knowledge		
Baby should be checked by a medical professional after birth	91.8%	2398
Check should occur within one week of birth	30.9%	2398

Source: Household Survey, Indonesia (2015)

### 3.1.8 EMPOWERMENT

T4D hypothesizes that different types of social actions will be successful in different political-economy contexts.<sup>57</sup> Two important aspects of this context are the community’s sense of its own empowerment and ability to make change (on which the T4D intervention is trying to build) and the responsiveness of different actors who may be relevant to health care improvements, particularly providers and officials.

In the Indonesia sample there were relatively high average levels of optimism about the community’s ability to improve its health outcomes, with 74.5% of respondents reporting they felt ‘totally’ or ‘mostly’ able to change their lives. Communities also reported relatively high levels of involvement in community improvement activities: 66.7% of respondents reported that their household had been involved in at least one such activity in the past year.



<sup>57</sup> For more detail on this hypothesis, see Stephen Kosack and Archon Fung, “Does Transparency Improve Governance?,” *Annual Review of Political Science* 17, no. 1 (2014): 65–87, doi:10.1146/annurev-polisci-032210-144356.

Turning to perception of responsiveness, 74.1% of respondents in Indonesia believed their health provider would try to make improvements in response to a complaint. But perceived responsiveness of government officials was a different story: less than a third of respondents (31.0%) believed that local government was ‘often’ or ‘always’ responsive to citizens, and only 10.6% shared that belief about members of parliament. Perceived low levels of government responsiveness were matched by relatively low participation in political activities – only 45.9% reported household participation in one or more political activity in the past year.

<b>Table 12. Empowerment in Indonesia</b>		
<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Empowerment</b>		
Totally or mostly able to change life	74.5%	2357
<b>Participation</b>		
Community improvement activities in past year (self or household member)	66.7%	2397
Any political activity in past year (self or household member)	45.9%	2395
Attended village/neighborhood council meeting, public hearing, etc.	39.0%	2398
Participated in an information or election campaign	14.6%	2396
Met with a politician, called him/her, or sent a letter	5.3%	2398
Participated in a protest or demonstration	2.7%	2397
Notified police or court about a local problem	1.6%	2397
Alerted newspaper, radio or TV to a local problem	1.0%	2397
Community jointly petitioned government in past year	37.5%	2398
<b>Perceived government responsiveness</b>		
Health provider	74.1%	1964
Local government	31.0%	2149
Parliament	10.6%	2015

Source: Household Survey, Indonesia (2015)

## **3.2 KEY CHARACTERISTICS OF THE SAMPLE: TANZANIA**

This section describes the characteristics of the study sample in Tanzania. Socio-economically, respondents tended to live in dwellings made of materials that reflected the varied characteristics of rural dwellings in Tanzania. Most homes were built from mud (71.3%) or bricks (21.9%). Very few households (12.5%) had access to electricity (in contrast with Indonesia where 99% had access), and most household heads were self-employed in the farming, forestry or fishing industry (85.2%). Roughly half the women interviewed were Muslim and the other half Christian (54.5% and 44.9%, respectively), and they represented a wide range of ethnicities. In terms of education, 77.9% of women in the sample had ever attended school, which is low

compared to Indonesia (99%). Also unlike Indonesia, Tanzanian respondents' level of satisfaction with the health facilities tended to be low. Facility staff knowledge in these facilities tended to be high on the basics of MNH (such as timing and frequency of ANC, importance of facility delivery, and the timing of post-natal care) but lower on other items (such as the vaccine schedule and signs of danger for a pregnant woman).

In terms of access to and quality of the content of MNH care, the general pattern present in Indonesia of relatively high levels of access but a decidedly more mixed record for quality of care was also present in Tanzania but to a lesser extent, especially for ANC. While the vast majority of sampled women (98.4%) had received some form of ANC care, less than half (43.4%) had completed the recommended minimum of four antenatal visits during their most recent pregnancy (compared with 90% in Indonesia). The quality of ANC care was mixed, with urine samples—another one of a handful of components regularly monitored by the Demographic and Health Surveys program—drawn from less than half of respondents. Respondents also tended to fall short of what is considered a good birth preparedness plan. Like in Indonesia, similar patterns occurred in post-natal care as in ANC, where uptake was higher than quality of care; however, unlike in Indonesia, post-natal care uptake was much lower than that of ANC. In terms of delivery, about 56% of respondents delivered in a facility. Finally, in terms of citizen empowerment, three in four respondents reported feeling empowered to change their lives. The perception of level of responsiveness was high for health providers (around 71%) but low for local government (around 27%).

The rest of this section describes in more detail the socioeconomic characteristics of households and the characteristics and birth histories of respondents in the Tanzania sample. It goes on to describe health outcome indicators, and the uptake, quality of, and barriers to key MNH services, such as ANC and birth preparedness, delivery, and post-natal care. The section then describes the health facilities utilized by the respondents. It concludes with a description of respondent empowerment and social cohesion.

The Tanzania sample was comprised of 3000 women from rural areas in Tanga and Dodoma. Where comparisons were possible, the 2010 DHS (the most recent available for Tanzania) was used to understand how the sample differed from or was representative of the broader Tanzanian population.

Across the board, the socioeconomic status of the Tanzania sample was lower than that of the Indonesia sample. Health indicators were also much lower, with the notable exception of facility birth rates.

### 3.2.1 HOUSEHOLD CHARACTERISTICS

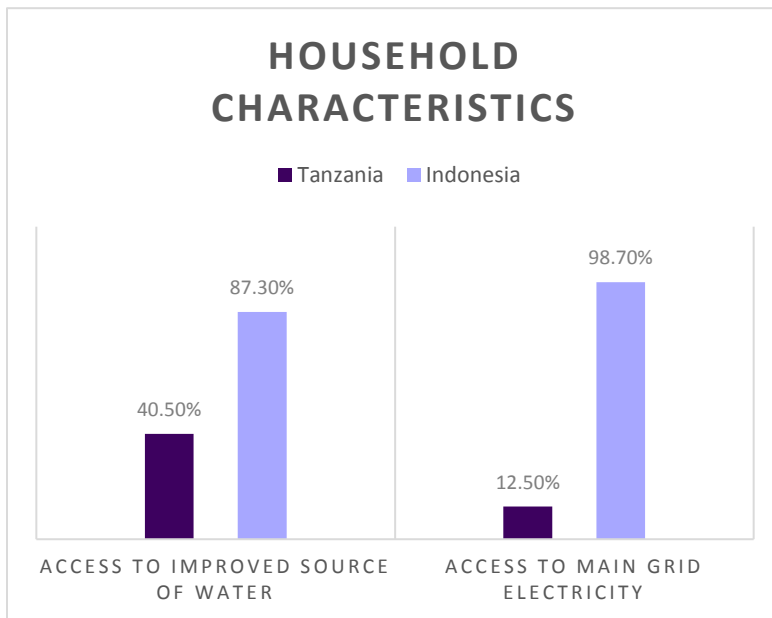
The average household in the Tanzania sample had 5.8 persons, roughly the same as the Indonesia sample, and not considerably higher than the DHS finding of 5.2 for rural mainland

Tanzania.<sup>58</sup> Three-quarters of the sample lived in a single-family home (74.5%) and the average household dwelling had 3 rooms.

Most homes were built from mud (71.3%)<sup>59</sup> or bricks (21.9%). The majority of floors were earth or mud (83.6%), and more than half of houses (59.8%) had a sheet metal roof; the remainder roofs were composed of some combination of grass, leaves, bamboo and mud.

Use of an improved toilet cuts down on the risk of diseases such as diarrhea, typhoid and dysentery, all of which can negatively impact MNH. A household is classified as using an improved toilet if the toilet separates waste from human contact and is not shared with other households.<sup>60</sup>

While the T4D team did not collect data on whether a toilet facility was shared, it was possible to assess whether sampled households have access to a toilet that would be classified as improved if not shared. By this definition, close to two thirds of households reported access to improved sanitation (62.9%).<sup>61</sup> In terms of water access, less than half of households (40.5%) accessed an improved source of drinking water,<sup>62</sup> a slightly lower percentage than the DHS finding of 47.9% of homes in rural mainland Tanzania.<sup>63</sup>



<sup>58</sup> Tanzania National Bureau of Statistics and ICF Macro, "Tanzania Demographic and Health Survey 2010," 13.

<sup>59</sup> Including those made of mud and poles, mud and stones, mud bricks and mud only.

<sup>60</sup> Statistics Indonesia et al., "Indonesia Demographic and Health Survey 2012," 11; Tanzania National Bureau of Statistics and ICF Macro, "Tanzania Demographic and Health Survey 2010," 23.

<sup>61</sup> "Improved and Unimproved Water Sources and Sanitation Facilities." Classification of sanitation facility into improved and unimproved is based on the WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation (JMP) definition: Improved sanitation = pit latrine with slab (washable & not washable), pour flush, VIP, flush toilet; unimproved sanitation = open pit without slab, no toilet.

<sup>62</sup> "Improved and Unimproved Water Sources and Sanitation Facilities;" Tanzania National Bureau of Statistics and ICF Macro, "Tanzania Demographic and Health Survey 2010." Classification of drinking water source into improved and unimproved is based on the WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation (JMP) and the Tanzania DHS 2010: Improved water = public or private standpipe/tap, protected well (with or without pump), piped water inside dwelling, rainwater; unimproved water=unprotected well (with or w/out pump), water vendor or tanker service, subsidized water vending station, neighboring house, surface water (river, lake, spring, pond). Water from vendors and neighboring households is considered unimproved since quality is unknown.

<sup>63</sup> Tanzania National Bureau of Statistics and ICF Macro, "Tanzania Demographic and Health Survey 2010," 22.



**Table 13. Household Characteristics in Tanzania**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Household size</b>		
Avg. number of household members	5.8	3000
Avg. number of rooms used by household	3.0	3000
<b>Physical dwelling</b>		
Type of house		
Whole house	74.5%	3000
Room or rooms	20.2%	3000
Other	5.3%	3000
<b>Main material of floor</b>		
Earth/mud/mud bricks	83.6%	3000
Cement/concrete/cement blocks	16.0%	3000
Other	0.5%	3000
<b>Main material of walls</b>		
Mud (incl. mud in combination with poles and stones)	71.3%	3000
Baked or burnt bricks	21.9%	3000
Poles (including bamboo), branches, grass	3.7%	3000
Concrete, cement, or stones	3.1%	3000
<b>Main material of roof</b>		
Metal sheets	59.8%	3000
Grass, leaves, bamboo	26.0%	3000
Mud and grass	12.9%	3000
Other	1.2%	3000
<b>Utilities and household assets</b>		
Toilet		
Improved	62.9%	3000
Unimproved	37.1%	3000
Open pit without slab	29.7%	3000
No toilet	7.3%	3000
Main source of water		
Improved	40.5%	3000
Unimproved	59.5%	3000
Main fuel used for lighting		
Kerosene/paraffin	64.3%	3000
Battery	22.6%	3000
Solar panels or private generator	9.6%	3000
Main grid	2.9%	3000
Firewood or candles	0.6%	3000
Type of cooking fuel		
Firewood	95.5%	3000
Charcoal, paraffin or gas	4.5%	3000

Asset ownership		
Mobile telephone	71.4%	3000
Radio	42.5%	2999
Smoothing iron	10.7%	3000
Watch or clock	10.2%	2999
Improved stove	6.5%	3000
Television	3.7%	3000
Sewing machine	3.7%	3000
Refrigerator	0.6%	3000
Bicycle	25.7%	2973
Motorcycle	9.6%	3000
Car or truck	0.5%	2998

Source: Household Survey, Tanzania (2015)

A minority of households (12.5%) had access to electricity (main grid, solar, or generator); most of the remainder used kerosene or paraffin for lighting (64.3%) and only 0.6% of households had refrigeration. Almost all households used firewood (95.5%) as cooking fuel. Just fewer than three-quarters owned a mobile telephone (71.4%). One quarter of households owned a bicycle (25.7%) and 9.6% owned a motorcycle.

Most household heads were self-employed in the farming, forestry, or fishing industry (85.2%), while 10.0% owned their own businesses. A small number were employed by private businesses (2.4%) or worked for the government (1.7%).

Table 14. Occupation of Household Head in Tanzania		
Indicator	Mean	<i>n</i>
<b>Occupation of household head</b>		
Self-employed - farming, forestry, fishery	85.2%	3000
Self-employed - own business	10.0%	3000
Wage employee in private enterprise: laborer	2.0%	3000
Wage employee with government	1.7%	3000
Education / training	0.5%	3000
Wage employee in private enterprise: office worker	0.4%	3000
Home maker	0.1%	3000
Unemployed	0.1%	3000

Source: Household Survey, Tanzania (2015)

### 3.2.2 RESPONDENT CHARACTERISTICS

Roughly half the women interviewed were Muslim and the other half Christian (54.5% and 44.9%, respectively), and represented a wide range of ethnicities. The average respondent age of 28 years was the same as that of the Indonesia sample.

In terms of education, 77.9% of women in the sample had attended school, with 83.6% of this group having attended the final year of primary school (Standard VII) including 7.9% who had attended the final year of secondary school (Form IV). More than half (58.0%) were literate in Swahili.

The majority of women were currently married or living with a partner (85.9%), but, in contrast with the Indonesia sample, a sizable percentage (10.4%) had never been married.<sup>64</sup> On average, respondents had given birth 3.6 times. Just under a quarter were first time mothers (22.8%).

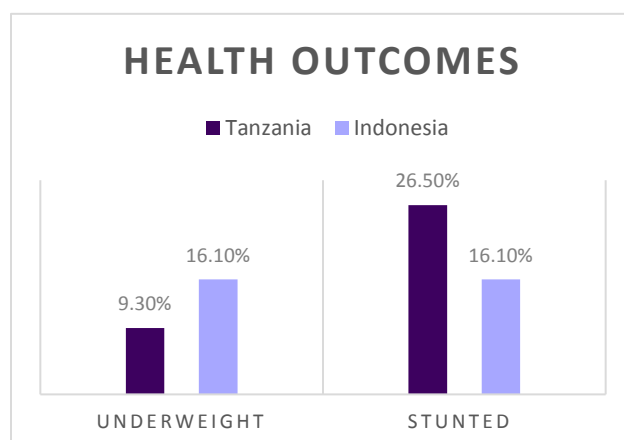
Table 15. Respondent Characteristics in Tanzania		
Indicator	Mean	<i>n</i>
Age	28	3000
Number of live births in lifetime	3.6	3000
First time mother	22.8%	3000
<b>Marital status</b>		
Married - monogamous	71.1%	3000
Married - polygamous	11.8%	3000
Living together with partner	2.9%	3000
Separated	2.5%	3000
Divorced	0.7%	3000
Widowed	0.5%	3000
Never married - not living with partner	10.4%	3000
<b>Religion</b>		
Islam	54.5%	3000
Christianity	44.9%	3000
Other	0.6%	3000
Literate in Swahili	58.0%	3000
Ever attended school	77.9%	3000
Attended Standard VII (or higher)	83.6%	2338
Attended Form IV (or higher)	7.9%	2338

Source: Household Survey, Tanzania (2015)

<sup>64</sup> The T4D team has heard anecdotal reports of women being refused ANC services for not attending with a partner, so this could represent a barrier to care.

### 3.2.3 HEALTH OUTCOMES

The infant mortality rate for the sample in the five years preceding the survey (2010 – 2014) was 33 deaths per 1,000 live births. This is lower than the DHS rate of 51 per 1,000 live births for the period between 2006 and 2010. This disparity is not entirely surprising given the recent decline of infant mortality in Tanzania, which was estimated to hit 38 per 1,000 live births in 2015,<sup>65</sup> and the lack of precision around infant mortality rates.<sup>66</sup> The neonatal rate for the sample in the five years preceding the survey was 19 per 1,000 live births. Similarly, this rate is lower than the DHS rate of 26 per 1,000 live births.<sup>67</sup>



Just about half of the babies in the sample (49.2%) were weighed at birth. Of those weighed, 5.2% were underweight (less than 2.5 kilograms). In the DHS sample, 6.9% of weighed babies were underweight.<sup>68</sup> Average weight-for-age and length-for-age z-scores (-0.293 and -0.747, respectively) were slightly higher than in the Indonesia sample. In the Tanzania sample there was also a lower incidence of underweight (9.3%), but higher stunting (26.5%) than in the Indonesia sample.

**Table 16. Health Outcomes in Tanzania**

Indicator	Mean	n
Infant mortality rate (2010-2014) (per 1000 live births) <sup>69</sup>	33	200
Neonatal mortality rate (2010-2014) (per 1000 live births) <sup>70</sup>	19	200
Infants weighed at birth	49.2%	2989
Average weight (of those weighed) (kg)	3.28	1503
Underweight at birth (of those weighed)	5.2%	1503
Weight-for-age z-score	-0.293	2971
Underweight (>2 SD below median WHO growth standard)	9.3%	2971
Length-for-age z-score	-0.747	2970
Stunted (>2 SD below median WHO growth standard)	26.5%	2970

Source: Household Survey, Tanzania (2015)

<sup>65</sup> Tanzania National Bureau of Statistics and ICF Macro, “Tanzania Demographic and Health Survey 2010,” xx–xxi.

<sup>66</sup> The DHS finding of 51 per 1,000 is well within the bounds of the confidence interval for the baseline estimate presented in this report.

<sup>67</sup> Tanzania National Bureau of Statistics and ICF Macro, “Tanzania Demographic and Health Survey 2010,” 118.

<sup>68</sup> Ibid., 144.

<sup>69</sup> This figure has been calculated at the sample level to ensure a more precise estimate.

<sup>70</sup> Ibid.

### 3.2.4 HEALTH FACILITY CHARACTERISTICS

Dispensaries are the lowest level public health facility in Tanzania. Villages in the Tanzania sample were sampled from assigned dispensary catchment areas.

All villages in the Tanzania sample were selected to be within 10 kilometers of the assigned catchment dispensary based on information collected as part of the facility survey. Reports from the community survey indicated that all villages were within 12 kilometers of a dispensary.<sup>71</sup> Just under two thirds (62.5%) of villages had a dispensary located within the village. Of those villages that did not have a dispensary, the average distance was 5.9 kilometers, or approximately one hour by the most commonly used mode of transport, which was in most cases walking (85.3%), public transport (1.3%) or motorbike (13.3%). A quarter of respondents (26.5%) reported that they had the option to choose care from more than one health facility.

**Table 17. Health Facility Characteristics in Tanzania**

Indicator	Mean	n
<b>Dispensary characteristics</b>		
Avg. no. of staff	6.4	153
Avg. no. of villages served (official)	2.7	153
Avg. no. of delivery beds	1.3	153
Proportion with main grid or solar electricity	73.0%	148
Proportion with improved water	65.4%	153
Water 'always' or 'usually' available	55.6%	153
<b>Village characteristics</b>		
Dispensary within the village	62.5%	200
Furthest distance from health facility (km) <sup>72</sup>	12	200
Avg. distance from dispensary (if none in the village) (km)	5.9	75
Avg. time to travel to dispensary (if none in the village) (min)	60	75
Respondents reporting access to more than one facility	26.5%	3000

Source: Facility, Community and Household Surveys, Tanzania (2015)

Tanzanian dispensaries are smaller and more basic than puskesmas in Indonesia; in fact, they are closer in size to the smaller support facilities like polindes and poskesdas. The average dispensary in the sample served 2.7 villages and had 6.4 staff. The number of delivery beds ranged from one to three, with an average of 1.3 beds. Only about a quarter of dispensaries had main grid electricity as the primary power source (21.6%); the remainder used solar (51.4%) or gas (16.9%). Two thirds (65.4%) used water from an improved source, and only 55.6% of dispensaries reported that water was 'always' or 'usually' available.

<sup>71</sup> Excluding one outlier village that reported a distance of 33 km to the nearest dispensary.

<sup>72</sup> As reported in the community survey.

**Table 18. Dispensary Drug and Equipment Stocks**

Indicator	Mean	n
<b>Drugs and vitamins (in stock on day of survey)</b>		
Malaria treatment (any)	97.4%	152
Deworming (any)	96.7%	152
Iron tablets or syrup	96.7%	152
Vitamin A	74.3%	152
Prophylactic anti-malarial (any)	73.7%	152
Labor inducing drug (any)	61.8%	152
<b>Vaccines (in stock on day of survey)</b>		
All vaccines	69.1%	152
Tetanus Toxoid	88.8%	152
Polio	84.9%	152
Rotavirus	84.9%	152
Pneumococcal	83.6%	152
BCG	81.6%	152
<b>Equipment (in stock on day of survey)</b>		
Infant weight scale*	93.5%	153
HIV test	90.1%	152
Blood pressure equipment*	89.5%	153
Powdered gloves	88.2%	152
Syringes	86.8%	152
Adult weight scale*	86.3%	153
Baby cards	85.5%	152
Malaria test	83.6%	152
Measuring tape*	80.4%	153
ANC cards	77.0%	152
Macintosh	74.3%	152
Umbilical cord clamps	69.1%	152
Pregnancy test	46.1%	152
Blood sugar tests	25.0%	152
Other urine test	24.3%	152

Source: Facility Survey, Tanzania (2015)

\*Denotes equipment both available and functional

An inventory of drug stocks during the survey revealed high levels of several key MNH drugs, such as anti-malarials (97.4%), deworming medication (96.7%), and iron tablets (96.7%). Vaccination stocks were lower: 88.8% had tetanus, 84.9% had polio, and 81.6% had BCG, and only 69.1% had all recommended infant and newborn vaccines. Despite moderately high levels of drugs and vaccines, it is notable that in the household survey, only 50.1% of women who had visited the



dispensary in the past 3 months rated the availability of drugs as ‘good’ or ‘excellent,’ and 12.7% reported having to purchase a drug or supply after the visit because it was out of stock at the dispensary.

Household respondents reported dissatisfaction with a number of aspects of the facility. Only two thirds (64.4%) who visited the dispensary within the past three months reported they were ‘satisfied’ or ‘very satisfied’ with the wait time. Satisfaction with cleanliness was only slightly higher, with 71.3% rating cleanliness as ‘good’ or ‘excellent.’ Finally, only 61.4% of respondents rated the overall quality of care as ‘good’ or ‘excellent’ during their most recent visit.

As in Indonesia, interviewers selected a midwife or other member of the maternal/delivery staff to answer a battery of questions to assess knowledge and attitudes around MNH care. All respondents knew the correct minimum number of ANC visits and agreed on the importance of facility delivery. Furthermore, 92.8% thought a baby should receive post-natal care within one week of birth. Specific knowledge was lower: 75.2% could correctly identify the vaccine schedule for infants and 46.4% could identify five or more danger signs for pregnant women.

<b>Table 19. Respondent Experience and Midwife Knowledge</b>		
<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Respondent experience</b>		
Rated availability of drugs/supplies as good or excellent (in last 3 mos.)	50.1%	2825
Had to purchase a drug or supply after visit because it was out of stock	12.7%	2950
Satisfaction with waiting times (in last 3 mos.)	64.4%	2825
Rated cleanliness good or excellent (in last 3 mos.)	71.3%	2825
Rated overall quality good or excellent (in last 3 mos.)	61.4%	2782
<b>Midwife knowledge</b>		
Timing of ANC	86.9%	153
Frequency of ANC	100.0%	152
Importance of ANC	99.3%	153
Importance of facility delivery	100.0%	153
Timing of post-natal care	92.8%	153
Infant vaccine schedule	75.2%	153
Five or more danger signs during pregnancy	46.4%	153

Source: Household and Facility Surveys, Tanzania (2015)

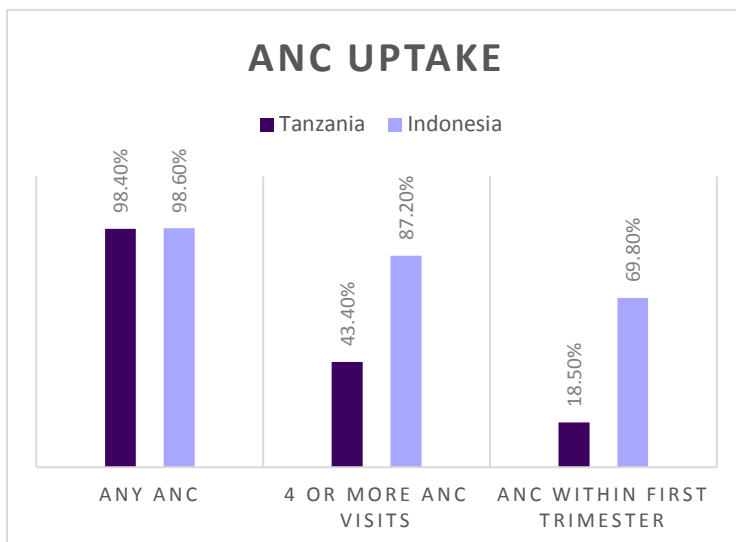
### 3.2.5 ANTENATAL CARE (ANC) AND BIRTH PREPAREDNESS

Uptake of antenatal care in the Tanzania sample was much lower than that of the Indonesia sample. While the vast majority of sampled women (98.4%) received some form of ANC care, less than half (43.4%) completed the recommended minimum of four ANC visits during their most recent pregnancy, and only 18.5% received ANC within the first three months of pregnancy.

However, even though antenatal care was taken up later and less than in Indonesia, practically all of the respondents – 99.9% – who received ANC did so at least once at a health facility with a skilled medical professional.

The quality of care during these appointments varied. For example, while 85.8% of respondents were tested for HIV, only 45.8% had a urine sample taken and 63.3% had their blood pressure measured. Provision

of drugs during these appointments also varied, with 56.2% receiving drugs for intestinal worms, 73.1% malaria prevention drugs, and 88.4% taking iron syrup or tablets. Counseling on what to expect during the prenatal period, including warning signs of a potential problem, is another important component of quality antenatal care; to gauge whether respondents received such counseling, they were asked “what are the warning or danger signs that a woman is having a problem during pregnancy indicating that she should seek medical attention?” Less than half (40.4%) were able to identify at least three.



The survey revealed that despite low uptake, women’s knowledge of suitable ANC was moderate. Two thirds (67.3%) of women knew the importance of seeking early ANC and three quarters (76.0%) knew it was necessary to receive care at least four times. Close to nine out of ten women (89.9%) were aware of the importance of ANC even if a person did not have complications during a prior pregnancy.

Of the 7.7% of women who responded that they had wanted, but had been prevented from seeking ANC services at some point during pregnancy, the most cited reasons were distance (61.4%), transportation (43.4%), and cost (38.5%). When asked about the costs of ANC, 23.3% of respondents who sought care reported payment for care and 12.7% paid a fee for drugs. This is notable because MNH services (with the exception of C-sections) should be provided free of charge<sup>73</sup> at public facilities in Tanzania.

Finally, as in Indonesia, the surveyors asked women in Tanzania a battery of questions to assess birth preparedness. Just under a quarter (23.6%) had made a comprehensive birth plan, defined as planning at least three of the six preparedness measures that were assessed. Specifically, less than half (42.8%) planned where they would have the baby and one quarter (25.7%) made prior arrangements for transportation to a birth facility.

<sup>73</sup> Angela E. Shija, Judith Msovela, and Leonard E. G. Mboera, “Maternal Health in Fifty Years of Tanzania Independence: Challenges and Opportunities of Reducing Maternal Mortality,” *Tanzania Journal of Health Research* 13, no. 5 Suppl 1 (December 2011): 6.

**Table 20. Antenatal Care & Birth Preparedness in Tanzania**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>ANC uptake</b>		
Any ANC	98.4%	3000
ANC at a health facility with a skilled provider (of those with any ANC)	99.9%	2953
First ANC visit within 3 months	18.5%	3000
Four or more ANC visits	43.4%	3000
<b>ANC knowledge</b>		
Correct timing of 1st ANC visit	67.3%	3000
Need for 4 or more ANC visits	76.0%	3000
Need for ANC despite no complications with prior pregnancy	89.9%	3000
Able to identify at least 3 pregnancy complications (of those w/ANC)	40.4%	2953
<b>ANC content of care</b>		
Took iron tablets or syrup	88.4%	2953
Tested for HIV	85.8%	2953
Blood sample taken	79.5%	2953
Received malaria prevention drugs	73.1%	2953
Blood pressure measured	63.3%	2953
Received drug for intestinal worms	56.2%	2953
Urine sample taken	45.8%	2953
<b>Perceived barriers to ANC</b>		
Prevented from seeking ANC because of barrier	7.7%	2998
Barriers <sup>74</sup>		
Distance	61.4%	228
Transportation	43.4%	228
Cost	38.5%	228
Provider not present/facility closed	12.7%	228
Opposition of partner/family	8.8%	228
Wait time was too long	8.3%	228
Didn't know where to go	2.6%	228
Against local norms	1.8%	228
<b>ANC cost</b>		
Paid a fee for ANC	23.3%	2952
Paid for drugs associated with ANC	12.7%	2952

<sup>74</sup> Respondents were allowed to choose more than one barrier.

Birth preparedness		
Comprehensive plan (3 or more)	23.6%	3000
Decided on delivery location	42.8%	3000
Arranged transportation/ transport plan	25.7%	3000
Determined who would assist the delivery	20.0%	3000
Identified childcare/who cares for other children	16.8%	3000
Figured out how to pay for delivery	13.3%	3000
Identified a possible blood donor	4.7%	3000

Source: Household Survey, Tanzania (2015)

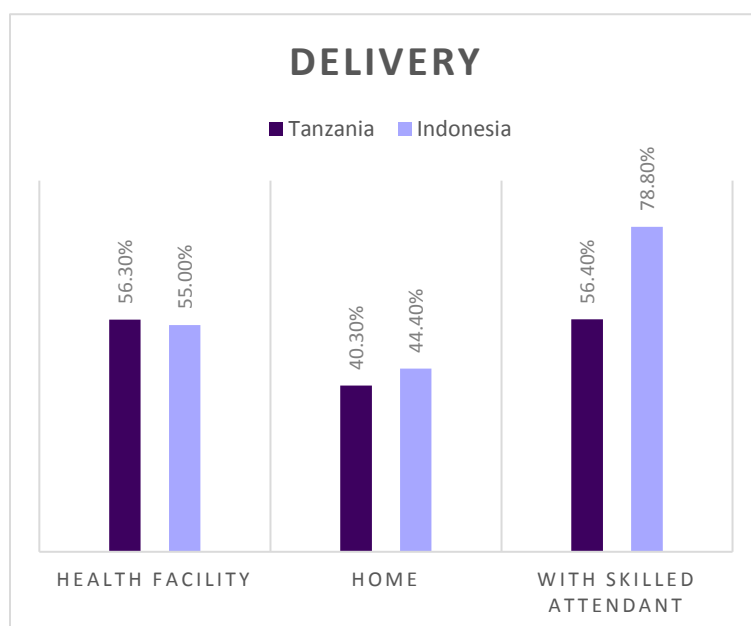
### 3.2.6 DELIVERY

One of the major challenges to improving outcomes for mothers and newborns in Tanzania is that a high percentage of births occur at home, most without a skilled attendant. The Indonesia section outlines many of the health benefits of facility birth.

Similar to Indonesia, a little over half the baseline respondents delivered in a health facility (56.3%); the remainder delivered at their own (or a relative's) home (40.3%), or at the home of a traditional birth attendant (TBA) (3.1%). Unlike

Indonesia, however, in Tanzania the percentage of women who gave birth with a skilled attendant is essentially the same as the number who delivered in a facility, 56.4%. A quarter of respondents gave birth with a TBA (25.2%) and 17.0%, were assisted only by a relative or friend. Perhaps most remarkably, 1.4% delivered by themselves. DHS rates for facility birth and delivery with a skilled provider are 50.2% and 50.6%, respectively.<sup>75</sup>

Only 4.8% of babies were delivered by Caesarean section, which is comparable to the DHS rate of 4.5%.<sup>76</sup> This is considerably lower than the "ideal" C-section range of 10-15%.<sup>77</sup>



<sup>75</sup> Tanzania National Bureau of Statistics and ICF Macro, "Tanzania Demographic and Health Survey 2010," 135–37.

<sup>76</sup> Ibid., 137.

<sup>77</sup> WHO and HRP, "WHO Statement on Caesarean Section Rates."

Despite low facility birth rates, women were knowledgeable of the benefits of delivering in a facility. When asked if they agreed whether “it is just as safe to give birth at home with a TBA as it is to give birth in the health facility,” only 13.0% of women agreed or strongly agreed. Similarly, few agreed with the idea that it is fine to wait at home during labor until complications arise (9.6%).

Table 21. Delivery in Tanzania		
Indicator	Mean	n
<b>Type of delivery</b>		
Delivery in a health facility	56.3%	3000
Place of delivery		
Hospital	19.9%	3000
Health center	7.2%	3000
Dispensary	29.2%	3000
Home (respondent's or that of a relative or friend)	40.3%	3000
TBA's home	3.1%	3000
Other	0.3%	3000
<b>Delivery with a skilled attendant</b>	<b>56.4%</b>	<b>2999</b>
Attendant type		
Health facility staff (doctor, nurse, midwife)	56.4%	2999
TBA	25.2%	2999
Relative/Friend	17.0%	2999
No one	1.4%	2999
Delivery via C-section	4.8%	3000

Source: Household Survey, Tanzania (2015)

To get a sense of the barriers women face in giving birth at a facility, the T4D surveyors asked those women who had delivered at home whether they had been prevented from delivering at a facility due to some type of external difficulty. Just less than half (42.8%) responded in the affirmative, most commonly citing the difficulties of distance (63.9%), transportation (52.3%), and cost (26.5%).<sup>78</sup>

On average, it took women just over one hour to commute to their place of delivery, and about a third of these women walked (35.3%). Others went via hired or private motorbike or car (50.1%) or took public transportation (15.1%). Of the half (55.2%) reporting payment for transportation, the average cost was 9,229 Tanzania shillings, or just over \$4 USD.<sup>79</sup>

<sup>78</sup> Respondents were able to list more than one barrier.

<sup>79</sup> For reference purposes, 46.6% of the population lives below \$1.90 USD/day and 76.1% below \$3.10 USD/day (2011): “Poverty & Equity Country Dashboard: Tanzania,” *The World Bank*, 2016, <http://povertydata.worldbank.org/poverty/country/TZA>.

**Table 22. Barriers to Delivery in Tanzania**

<b>Indicator</b>	<b>Mean</b>	<b>n</b>
<b>Knowledge</b>		
Birth with a TBA at home as safe as birth at a health facility	13.0%	3000
Okay to give birth at home unless there are complications	9.6%	3000
<b>Barriers to facility delivery</b>		
Did not deliver in a facility because of access difficulty	42.8%	1309
<b>Barrier</b>		
Distance	63.9%	554
Transportation	52.3%	554
Cost	26.5%	554
Provider not present/facility closed	5.6%	554
Opposition of partner/family	3.4%	554
Against local norms	2.2%	554
Other	12.1%	554
<b>Transportation to delivery</b>		
<b>Type of transportation</b>		
Hired or private car/motorcycle	50.1%	1689
On foot	35.3%	1689
Public transport	15.1%	1689
Other (bicycle, ambulance, ox-cart, truck)	2.2%	1689
Paid something for transport to delivery	55.2%	1689
Average amount paid (of those who paid) (TZS)	9229	928
Traveled longer than 1 hour to delivery place	47.3%	1688
Average time (in minutes) to travel to delivery (of those who traveled)	64	1688
<b>Delivery cost</b>		
Paid something for delivery	49.0%	1674
Average cost of delivery (of those who paid) (TZS)	21401	821
<b>Fees by type (of those who paid)</b>		
Supplies	58.3%	821
Drugs	30.3%	821
Bribe/gift/thanks	25.9%	821
Fee for doctors, nurses, etc.	19.1%	821
Asked to bring drugs/supplies	7.8%	821
Fee for blood or urine tests	3.7%	821
C-Section fee	2.4%	821
<b>Delivery care</b>		
Provider respect 'good' or 'excellent'	82.1%	1689
Provider communication 'good' or 'excellent'	74.8%	1689
Overall quality of facility 'good' or 'excellent'	69.3%	1689

Source: Household Survey, Tanzania (2015)



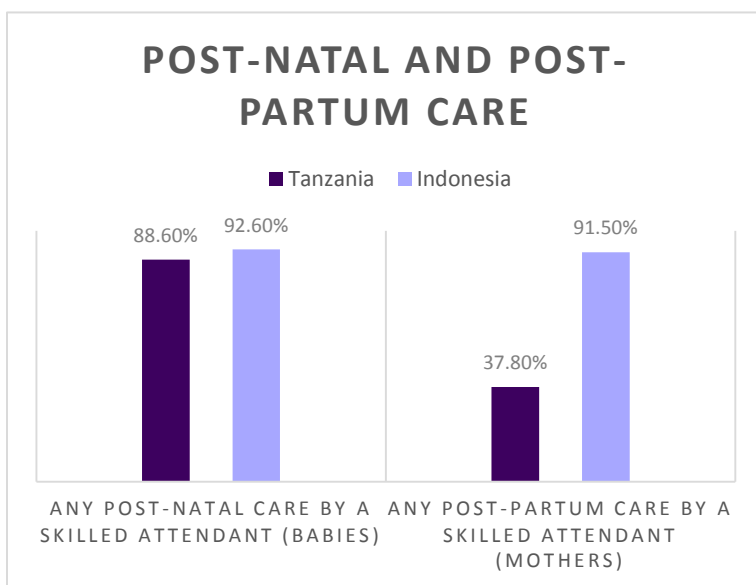
Just fewer than half of the women who delivered in a facility paid to do so (49.0%), and the average payment was 21,400 shillings (~\$10 USD). Respondents paid for a variety of items, such as supplies (58.3%), drugs (30.3%), and fees for service (19.1%). A quarter paid a bribe or solicited “thanks” (25.9%).

Respondents were also asked about the quality of care, communication skills of providers and respect shown to them during delivery. While two thirds (69.3%) rated the overall quality of care as ‘good’ or ‘excellent,’ a larger percentage (82.1%) were satisfied with the respect shown to them by the midwife during delivery.

### 3.2.7 POST-NATAL AND POST-PARTUM CARE

Although the findings are low in both countries, a much lower proportion of the mothers and babies in the Tanzania sample received adequate post-natal and post-partum care.

While 88.6% of babies in the Tanzania sample received a post-natal checkup by a skilled attendant, only 62.7% had this check within the first week of life. Furthermore, only 36.1% of babies had comprehensive post-natal care, defined as at least two physical checks and immunizations against DPT-HB and Polio or BCG with a skilled provider.



Levels of post-partum care for mothers were notably lower than for infants. In the Tanzania sample, 37.8% of women received post-partum care from a skilled attendant; 32.3% within a week of childbirth. Furthermore, only 6.5% of women received comprehensive post-partum care, defined as at least two physical checks, counseling on two topics, and the provision of one supplement (vitamin A, folic acid or iron sulfate) by a medical professional. Individually, these measures were also performed at very low rates: 13.9% of respondents had their blood pressure taken, 18.3% were counseled on breastfeeding and 14.6% were given supplements or vitamins.

Despite the low rates of post-natal and post-partum care, very few women (8.7%) reported facing difficulties to accessing such care. Respondents most commonly cited the same access issues as those reported for ANC and delivery: distance (51.8%), cost (49.0%), and transportation (37.7%). Finally, the sampled mothers were almost universally aware of the benefits of post-natal care for their newborn, with 95.5% agreeing that health staff should check a baby after birth, though only half (54.6%) were aware of the correct timing for this visit

**Table 23. Post-natal and Post-partum Care in Tanzania**

Indicator	Mean	n
<b>Post-natal care uptake (babies)</b>		
Any post-natal care by a skilled attendant	88.6%	2983
Any post-natal care by a skilled attendant w/in one week of birth	62.7%	2983
<b>Post-partum care uptake (mothers)</b>		
Any post-partum care by a skilled attendant	37.8%	3000
Any post-partum care by a skilled attendant w/in one week of birth	32.3%	3000
<b>Post-natal care quality (babies)</b>		
Comprehensive post-natal check	36.1%	2983
Physical - weighed	70.6%	2983
Physical - cord check	40.6%	2983
Physical - body examination	31.5%	2983
Physical - check for danger signs	28.3%	2983
Immunization - BCG or polio	79.5%	2983
Immunization - DPT-HB	74.4%	2983
<b>Post-partum care quality (mothers)</b>		
Comprehensive post-partum check	7.0%	3000
Physical - body examination	14.6%	3000
Physical - temperature	14.0%	3000
Physical - blood pressure	13.9%	3000
Physical - breast check	12.1%	3000
Counseling - family planning	23.9%	3000
Counseling - breastfeeding	18.3%	3000
Counseling - nutrition	16.6%	3000
Counseling - danger signs for newborns	13.2%	3000
Counseling - danger signs for mothers <sup>80</sup>	11.8%	2984
Supplements or other vitamins	14.6%	3000
<b>Barriers to post-natal and post-partum care</b>		
Reported access difficulties <sup>81</sup>	8.7%	2980
Barriers		
Distance	51.8%	257
Cost	49.0%	257
Transportation	37.7%	257
Provider not present/facility closed	12.8%	257
Wait time was too long	3.9%	257
Opposition of partner/family	3.5%	257
Against local norms	1.9%	257
Didn't know where to go	0.4%	257

<sup>80</sup> Reduced sample size due to software programming error.

<sup>81</sup> Excludes 15 stillbirths and 5 women who refused.

Other	3.9%	257
Paid something for care	16.2%	2658
<b>Knowledge</b>		
Baby should be checked by a medical professional after birth	95.5%	3000
Check should occur within one week of birth	54.6%	3000

Source: Household Survey, Tanzania (2015)

### 3.2.8 EMPOWERMENT

Similar to the Indonesia sample, respondents in Tanzania reported high, albeit not universal, optimism and confidence in their ability to improve their situation: 66.7% of respondents reported that they felt ‘totally’ or ‘mostly’ able to change their lives. Yet unlike Indonesia, they reported very low levels of actual involvement in community improvement activities. Only one-quarter (26.4%) reported that they, or a family member, had participated in such activities in the past year.

**Table 24. Empowerment in Tanzania**

Indicator	Mean	<i>n</i>
<b>Empowerment</b>		
Totally or mostly able to change life	66.7%	2979
<b>Participation</b>		
Community improvement activities in past year (self or household member)	26.4%	3000
Any political activity in past year (self or household member)	62.2%	3000
Attended village/neighborhood council meeting, public hearing, etc.	58.1%	2967
Participated in an information or election campaign	20.0%	2985
Participated in a protest or demonstration	10.7%	2978
Met with a politician, called him/her, or sent a letter	10.4%	2972
Notified police or court about a local problem	1.2%	2966
Alerted newspaper, radio or TV to a local problem	1.0%	2978
Community jointly petitioned government in past year	35.8%	3000
<b>Perceived responsiveness</b>		
Health provider	71.2%	3000
Local government	26.5%	3000
Parliament	6.4%	3000

Source: Household Survey, Tanzania (2015)

Also as in Indonesia, a large percentage of the sample (71.2%) believed that health providers were responsive, while only a small percentage (26.5%) reported that local government was responsive. Very few (6.4%) viewed national-level politicians as responsive. On the other hand, unlike in Indonesia, a majority (62.2%) reported engagement in political activities of various kinds.

## 3.3 IMPLICATIONS FOR EVALUATION DESIGN

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Based on lessons learned from the baseline, adjustments to the interventions being implemented and continued conversations with public health experts, the T4D team made a few modifications to the outcome indicators listed in *T4D Evaluation Design Report*. This section briefly addresses modifications to the primary, secondary, and intermediate outcomes. See Chapter IV for a final list of outcomes.

### 3.3.1 PRIMARY AND SECONDARY OUTCOMES

The team made a number of changes to the primary and secondary outcomes described in the *T4D Evaluation Design Report*.<sup>82</sup> The team recategorized certain secondary outcomes as primary and also eliminated some outcomes based on insufficient power, high baseline numbers, or because they lack a direct connection to the final version of the intervention. Notably, given relatively high rates of ANC uptake, the T4D intervention focuses on birth preparedness instead of ANC as an information lever in Indonesia, and the key outcomes have been updated to reflect this change. The team also added new outcomes to align with the final version of the intervention.

Specific changes to the primary and secondary outcomes are outlined in Appendix B.

### 3.3.2 INTERMEDIATE OUTCOMES

The team refined and reduced the number of intermediate outcomes, removing those with high baseline levels. These changes mainly affect outcomes measured in Indonesia.

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<sup>82</sup> T4D Evaluation Design Report (forthcoming).



# CHAPTER IV: Impact Evaluation Design

## IN THIS CHAPTER:

4.1	RANDOM ASSIGNMENT	61
4.2	OUTCOME MEASURES	62
4.3	IMPACT ESTIMATION STRATEGY	74
4.4	VERIFYING RANDOM ASSIGNMENT	79

*The goal of this chapter is to further specify the evaluation design that will be used to evaluate the impact of the T4D interventions in Indonesia and Tanzania. While the T4D Evaluation Design Report outlines the basics of the evaluation design, this chapter provides more detail on exactly what will be done to estimate the impacts of the intervention. It also commits to the set of outcomes that will be used in measuring impacts. Since the design is similar for Indonesia and Tanzania, evaluation design is described in tandem for the two countries, with notes on any differences in the relevant sections.*

*The chapter is organized as follows: Section 1 describes the process of random assignment and its implementation in this particular context; Section 2 specifies the set of outcomes for which impacts will be assessed; Section 3 specifies the impact estimation strategy, which indicates the regression equations that will be estimated to assess the impacts of the interventions; and finally, Section 4 presents evidence suggesting that random assignment generated two groups that indeed look alike at the outset of the intervention.*

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## 4.1 RANDOM ASSIGNMENT

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As indicated earlier, the interventions will be evaluated using random assignment of 200 villages in each country to treatment and control groups. When properly designed and implemented, this impact evaluation technique ensures that the two groups (treatment and control) do not differ systematically at the outset of the intervention, and hence any differences in outcomes between the two groups can be attributed to the intervention and not to something else.

### 4.1.1 PROCESS IMPLEMENTATION (STRATIFICATION)

Random assignment of villages to treatment and control groups was stratified on a few key variables in both countries. The sample of villages in each case was divided into strata, and then villages within each stratum were assigned to either treatment or control.

In Tanzania, the T4D team chose to stratify by region, proportion of women in the village who have delivered in a health facility, and whether there are one or two sample villages in the catchment area of the health facility.<sup>83</sup> Since stratification involves dividing the sample up into distinct “buckets,” stratification variables need to be discrete. While region and the number of sample villages in the catchment area of the facility are both discrete, the proportion of women who have delivered in a health facility is not. In order to stratify on this variable, the team

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<sup>83</sup> Note that health facilities have multiple villages that they serve, but for the purposes of this stratification variable, the team is referring specifically to how many *in-sample* villages are in the catchment area.”



generated a dummy for whether or not the proportion of women in the village who had delivered in a facility was above or below the sample median, and then stratified on this variable instead.

In Indonesia, the T4D team chose to stratify by province and the proportion of women in the village who had delivered in a health facility. Since each sample village in Indonesia corresponded to a unique health facility, the additional stratification variable used in Tanzania was unnecessary.

Following Glennerster and Takavarasha (2013),<sup>84</sup> the T4D team chose to stratify randomization for the following reasons:

- 1) To achieve balance on key variables. Although simple randomization should yield comparable treatment and control groups *in expectation*, stratifying ensures that imbalance does not occur purely by chance on the stratification variables.
- 2) To increase statistical power. Stratification reduces residual variance in the sample, increasing the statistical power for a sample of a given size. This is especially true when the stratification variables are strongly correlated with those outcomes on which one wants to measure impacts. For instance, based on the T4D logic model, the team anticipates delivery in a health facility to correlate strongly with improved health outcomes. Similarly, the T4D team expects the number of treatment villages in a facility's catchment area to have a bearing on the intervention's impact, motivating the additional stratification variable in Tanzania.
- 3) For logistical reasons. Stratifying by region (in Tanzania) and province (in Indonesia) helps ensure a balanced geographic spread of treatment and control villages in the sample.

Since stratification “forces” balance on certain variables, it rules out certain combinations of treatment and control assignment. Standard statistical tests, however, are based on the assumption that a given random assignment was just as likely to occur as any other. Since this is no longer the case with a stratified randomization, adjustments need to be made at the stage of analysis. Specifically, dummy variables are added for the strata in the regression analysis specification to account for stratification. The section on the impact estimation strategy describes this in further detail.

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## 4.2 OUTCOME MEASURES

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This section contains a description of the outcomes the T4D project will use to assess the impact of the intervention, beginning with the primary outcomes. Table 25 below provides the list of primary outcomes organized by research question, along with the definition and the key justification for including each outcome.

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<sup>84</sup> Rachel Glennerster and Kudzai Takavarasha, *Running Randomized Evaluations: A Practical Guide* (Princeton, NJ: Princeton University Press, 2013), 154.

### 4.2.1 PRIMARY OUTCOMES

Given the number of variables on which the T4D team is measuring impact, there is a chance of over-rejection of the null hypothesis of no impact owing to multiple hypotheses testing. At a 95% level of confidence, one could expect to find an impact on one out of 20 variables purely due to chance. Checks against multiple hypothesis testing include ex-post correction of p-values (e.g. through Bonferroni corrections of p-values) and reducing the number of hypotheses tested ex-ante.

To guard against over rejecting the null, the team will group hypotheses by research question, creating indices of the various outcomes under three of the four research questions, and then testing for impact on each of these indices.<sup>85</sup> Through this method, the 13 primary outcomes associated with research questions 1, 2 and 4 (see Table 25) are reduced to three outcome "indices," each of which represents one of these three research questions:

- ▶ What is the impact of the intervention on uptake of health services? (seven outcomes)
- ▶ What is the impact of the intervention on the content of health services delivered? (four outcomes)
- ▶ What is the impact of the intervention on measures of empowerment? (two outcomes)

The team will construct mean effect indices for each of the three research questions, following the procedure outlined in Casey et al. (2012),<sup>86</sup> which follows on Kling, Liebman, and Katz (2007).<sup>87</sup> Each outcome is first oriented so that higher values represent "better" values. Then, each outcome is normalized by subtracting the mean of the outcome and dividing by the standard deviation of the control group. Missing values are imputed using the mean of the control group. Finally, the index for each research question is created by summing over the re-oriented, normalized outcomes.

While Kling, Liebman, and Katz and Casey et al. weight each outcome of the index equally, Deming et al. (2009)<sup>88</sup> and Anderson (2008)<sup>89</sup> suggest weighting each outcome by the inverse of the covariance matrix for the outcome to account for correlations between the outcomes going into each index. The team will check robustness using the weighted version and note any differences.

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<sup>85</sup> The two outcomes associated with research question 3, impact on health outcomes, will be measured separately because the two measures are related (weight-for-age is typically considered a summary indicator for weight-for-length and length-for-age).

<sup>86</sup> Katherine Casey, Rachel Glennerster, and Edward Miguel, "Reshaping Institutions: Evidence on Aid Impacts Using a Preanalysis Plan," *The Quarterly Journal of Economics* 127, no. 4 (November 1, 2012): 1755–1812.

<sup>87</sup> Jeffrey R Kling, Jeffrey B Liebman, and Lawrence F Katz, "Experimental Analysis of Neighborhood Effects," *Econometrica* 75, no. 1 (January 1, 2007): 83–119.

<sup>88</sup> David Deming, "Early Childhood Intervention and Life-Cycle Skill Development: Evidence from Head Start," *American Economic Journal: Applied Economics* 1, no. 3 (July 2009): 111–34.

<sup>89</sup> Michael L. Anderson, "Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects," *Journal of the American Statistical Association* 103, no. 484 (December 1, 2008): 1481–95.

**Table 25. Primary Outcomes for the Impact Evaluation**

Outcome	Definition	Country <sup>90</sup>	Key Justification
<b>Research Question 1: Uptake of Health Services</b>			
Four or more ANC visits	The proportion of respondents who attended four or more antenatal care visits with any attendant (skilled or unskilled).	T	Uptake of antenatal care is one of the three information levers in the T4D intervention in Tanzania. Antenatal care coverage is one of 11 core health indicators monitored by the UN Commission on Accountability for Women’s and Children’s Health <sup>91</sup> and is a common indicator used to assess the uptake of ANC. Additionally, the number of ANC visits is linked to delivery in a health facility. <sup>92</sup>
First ANC visit within the first trimester	The proportion of respondents who had a first antenatal care visit, with any attendant, within the first 13 weeks of pregnancy (of those with any antenatal care).	T	Uptake of antenatal care is one of the three information levers in the T4D intervention in Tanzania. Early care-seeking behavior is important because there is a positive relationship between ANC care and facility delivery. ANC care also gets expectant mothers into the healthcare system earlier.
Birth preparedness	Proportion of respondents making a comprehensive birth preparedness plan. To qualify as having developed a comprehensive birth preparedness plan, a mother must plan at least three of the following in advance of the birth: 1) where to deliver the baby 2) who will assist with the birth 3) transportation to place of delivery <sup>93</sup> 4) payment for delivery 5) identification of a compatible blood donor 6) support to look after children and/or the home while away <sup>94</sup>	I	Comprehensive birth preparedness planning is one of the three information levers in the T4D intervention in Indonesia. The WHO recommendations on health promotion interventions for maternal and newborn health 2015 include a "strong recommendation" for birth preparedness and complication readiness. <sup>95</sup>

<sup>90</sup> I=Indonesia; T=Tanzania.

<sup>91</sup> “Accountability for Women’s and Children’s Health: Recommendation 2: Health Indicators,” *WHO*, 2016, [http://www.who.int/woman\\_child\\_accountability/progress\\_information/recommendation2/en/](http://www.who.int/woman_child_accountability/progress_information/recommendation2/en/).

<sup>92</sup> Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012.”

<sup>93</sup> If applicable.

<sup>94</sup> Ibid.

<sup>95</sup> “WHO Recommendations on Health Promotion Interventions for Maternal and Newborn Health 2015” (Geneva, Switzerland: World Health Organization, 2015), [http://apps.who.int/iris/bitstream/10665/172427/1/9789241508742\\_report\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/172427/1/9789241508742_report_eng.pdf?ua=1).

Delivery with a skilled birth attendant	The proportion of respondents delivering with a skilled birth attendant.	T, I	Birth in a facility with a skilled attendant is one of the three information levers in the T4D intervention in Tanzania and Indonesia. A skilled attendant at birth is another one of the 11 cores health indicators monitored by the UN commission on Accountability for Women’s and Children’s Health. <sup>96</sup> Appropriate medical attention during delivery is linked to reduction in complications that can cause serious illness or death to the mother and newborn, <sup>97</sup> and thus can contribute to reduction in neonatal and infant mortality rates, as well as the maternal mortality ratio.
Delivery at a health facility	The proportion of respondents delivering at a health facility.	T, I	Birth in a facility with a skilled attendant is one of the three information levers in the T4D intervention in Tanzania and Indonesia. Birth in a facility ensures a sanitary environment and easier access to emergency services should complications arise. The Australia Indonesia Partnership for Maternal and Neonatal Health (AIPMNH) found the risk of death for infants to be six times higher if a birth occurs at home with a TBA instead of at a health facility. <sup>98</sup>
Post-partum care (mother)	The proportion of respondents receiving any post-partum check with a skilled attendant, within 7 days of birth.	T, I	Early post-partum/post-natal care for mothers and babies is one of the three information levers in the T4D intervention in Tanzania and Indonesia. Post-natal care for mothers and babies within two days of birth is one of 11 core health indicators monitored by the UN Commission on Accountability for Women’s and Children’s Health. <sup>99</sup> Additionally, the WHO recommends that for a facility birth, mothers and newborns should receive post-natal care in the facility for at least 24 hours after birth. For home births, a post-natal visit should occur within 24 hours after birth and “at least 3 additional post-natal contacts are recommended for all mothers and newborns, on day 3 (48-72 hours), between days 7-14 after birth and six weeks after birth.” <sup>100</sup>

<sup>96</sup> “Recommendation 2: Health Indicators.”

<sup>97</sup> Statistics Indonesia et al., “Indonesia Demographic and Health Survey 2012.”

<sup>98</sup> A Abdullah et al., “Maternal Health & Risk Factors Associated with Neonatal Death in AIPMNH-Assisted Districts in NTT: A Matched Case-Control Study” (Indonesia: Australia Indonesia Partnership for Maternal and Neonatal Health, September 2014), [http://aipmnh.org/web\\_en/images/reports/Book\\_Case\\_Control\\_Study\\_Risk\\_Factor\\_Neonatal\\_Deaths\\_FINAL\\_June\\_2015.pdf](http://aipmnh.org/web_en/images/reports/Book_Case_Control_Study_Risk_Factor_Neonatal_Deaths_FINAL_June_2015.pdf).

<sup>99</sup> “Recommendation 2: Health Indicators.”

<sup>100</sup> “WHO Recommendations on Postnatal Care of the Mother and Newborn” (Geneva, Switzerland, 2013), [http://www.who.int/maternal\\_child\\_adolescent/documents/postnatal-care-recommendations/en/](http://www.who.int/maternal_child_adolescent/documents/postnatal-care-recommendations/en/).

Post-natal care (newborn)	The proportion of newborns receiving any post-natal check with a skilled attendant, within 7 days of birth.	T, I	Early post-partum/post-natal care for mothers and babies is one of the three information levers in the T4D intervention in Tanzania and Indonesia. Post-natal care for mothers and babies within two days of birth is one of 11 core health indicators monitored by the UN Commission on Accountability for Women’s and Children’s Health. <sup>101</sup> Additionally, the WHO recommends that for a facility birth, mothers and newborns should receive post-natal care in the facility for at least 24 hours after birth. For home births, a post-natal visit should occur within 24 hours after birth and “at least 3 additional post-natal contacts are recommended for all mothers and newborns, on day 3 (48-72 hours), between days 7-14 after birth and six weeks after birth.” <sup>102</sup>
<b>Research Question 2: Content of Health Services</b>			
Antenatal content of care	The proportion of respondents who receive the following antenatal content of care components during one or more antenatal care visits: 1) iron tablets or syrup 2) deworming medication 3) blood pressure measurement 4) urine sample 5) anti-malarial drugs 6) HIV test 7) tetanus toxoid injection 8) informed of signs of pregnancy complications 9) counseled on birth preparedness planning	T	Quality of care associated with one of the three information levers in the T4D intervention in Tanzania.

<sup>101</sup> “Recommendation 2: Health Indicators.”

<sup>102</sup> “WHO Recommendations on Postnatal Care of the Mother and Newborn.”

Delivery content of care	<p>The proportion of women delivering in a facility or with a skilled birth attendant who receive the following delivery content of care components:</p> <ol style="list-style-type: none"> <li>1) birth attendant wore gloves during delivery</li> <li>2) initiation of breastfeeding within one hour of birth</li> <li>3) baby wrapped to mother (skin-to-skin contact) within 30 minutes of birth</li> <li>4) delayed bathing for 6 hours ("were you told not to wash the baby right away?")</li> <li>5) blood pressure measurement</li> <li>6) did you get an [oxytocin] injection right after delivery (after the baby but before the placenta)?</li> </ol>	T, I	Quality of care associated with one of the three information levers in the T4D intervention in Indonesia and Tanzania.
Post-partum content of care (mother)	<p>Proportion of respondents receiving a comprehensive post-partum check. To determine the adequate content coverage, T4D will measure care around three main purposes:</p> <ol style="list-style-type: none"> <li>1) physical checks of the mother to treat complications that arise from delivery <ul style="list-style-type: none"> <li>- Body exam</li> <li>- Blood pressure</li> <li>- <i>Blood test</i></li> <li>- Breast check</li> <li>- Temperature</li> <li>- <i>Vagina</i></li> </ul> </li> <li>2) advice to mothers on how to care for themselves and their children <ul style="list-style-type: none"> <li>- Danger signs for newborns</li> <li>- Danger signs for mothers</li> <li>- Breastfeeding</li> <li>- Nutrition</li> <li>- Family planning/contraception</li> </ul> </li> <li>3) provision of vitamins and supplements <ul style="list-style-type: none"> <li>- Vitamin A</li> </ul> </li> </ol>	T, I	Quality of care associated with one of the three information levers in the T4D intervention in Indonesia and Tanzania.

<p>Post-natal content of care (newborn)</p>	<p>Proportion of newborns receiving a comprehensive post-natal check. To determine the adequate content coverage, T4D will measure care around three main purposes:</p> <ol style="list-style-type: none"> <li>1) physical checks of the newborn to treat complications that arise from delivery <ul style="list-style-type: none"> <li>- Body exam</li> <li>- Baby weighed</li> <li>- Clean and dry cord care ("did the midwife tell you to cover the cord?" - answer should be no)</li> <li>- Checked for danger signs</li> </ul> </li> <li>2) provision of recommended vaccines <ul style="list-style-type: none"> <li>- Polio</li> <li>- Hepatitis B (HB0)</li> <li>- BCG</li> <li>- DPT-HB</li> </ul> </li> <li>3) provision of recommended vitamins or supplements <ul style="list-style-type: none"> <li>- Vitamin K1</li> <li>- Eye cream</li> </ul> </li> </ol>	<p>T, I</p>	<p>Quality of care associated with one of the three information levers in the T4D intervention in Indonesia and Tanzania.</p>
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Research Question 3: Health Outcomes <sup>103</sup>			
Weight-for-age (proportion 2 standard deviations below the mean)	Weight-for-age z-score. Weight-for-age will be measured as proportion of infants (for whom T4D has valid weight measurements) who are below 2 standard deviations from the median WHO Child Growth Standards. <sup>104</sup> Infants below 2 standard deviations are considered underweight and those below 3 standard deviations are considered severely underweight.	T, I	Weight-for-age is a measure of chronic and acute malnutrition. <sup>105</sup> In principle, better antenatal care, including the provision of micronutrient supplements, nutritional advice, and the treatment of maternal illness could increase infant length and weight, as could vaccinations and growth monitoring. <sup>106</sup> Studies of similar interventions have shown significant effects on this measure. <sup>107</sup>
Length-for-age (proportion 2 standard deviations below the mean)	Length-for-age z-score. Length-for-age will be measured as proportion of infants (for whom T4D has valid length measurements) who are below 2 standard deviations from the median WHO Child Growth Standards. <sup>108</sup> Infants below 2 standard deviations are considered stunted and those below 3 standard deviations are considered severely stunted.	T, I	Length-for-age is a measure of chronic malnutrition. Stunting is affected by both chronic and recurrent illness and, unlike weight-indicators, is not sensitive to recent, short-term changes to diet. In principle, better antenatal care, including the provision of micronutrient supplements, nutritional advice, and the treatment of maternal illness could increase infant length and weight, as could vaccinations and growth monitoring. <sup>109</sup> Dodoma region in Tanzania (one of the T4D intervention areas) is one of 4 regions in Tanzania where stunting exceeds 50%. <sup>110</sup> Stunting is also a specific area of concern in Indonesia.

<sup>103</sup> Health outcomes for MNH typically center on mortality rates and ratios. Based on the focus of the intervention, T4D anticipates the health outcomes most likely to be effected are maternal mortality, infant mortality, neonatal mortality, birth weight and weight-for-age. The T4D project is not powered to detect changes in the maternal mortality ratio or infant mortality, and will instead use literature to link birth in a facility and skilled birth attendance to maternal mortality. Additionally, since the baseline confirmed that not all babies are weighed at birth (especially in Tanzania), the study is not set up to measure birth weight directly, and there is likely a difference between those infants who are weighed at birth and those who are not, the T4D project will not look at birth weight as a primary health outcome. There is evidence, however, of a correlation between birth weight and weight-for-age (Tanzania National Bureau of Statistics and ICF Macro, “Tanzania Demographic and Health Survey 2010,” 164), which will be assessed.

<sup>104</sup> “Child Growth Standards: Weight-for-Age.”

<sup>105</sup> Tanzania National Bureau of Statistics and ICF Macro, “Tanzania Demographic and Health Survey 2010,” 162.

<sup>106</sup> Paul J. Gertler and Christel Vermeersch, “Using Performance Incentives to Improve Health Outcomes,” World Bank Policy Research Working Paper (Rochester, NY: The World Bank, June 1, 2012).

<sup>107</sup> Martina Björkman and Jakob Svensson, “Power to the People: Evidence from a Randomized Field Experiment on Community-Based Monitoring in Uganda,” *The Quarterly Journal of Economics* 124, no. 2 (May 1, 2009): 735–69; Gertler and Vermeersch, “Using Performance Incentives to Improve Health Outcomes.”

<sup>108</sup> “Child Growth Standards: Weight-for-Age.”

<sup>109</sup> Gertler and Vermeersch, “Using Performance Incentives to Improve Health Outcomes.”

<sup>110</sup> Tanzania National Bureau of Statistics and ICF Macro, “Tanzania Demographic and Health Survey 2010,” 162–63.

#### Research Question 4: Empowerment

Participation	<p>Index of activities associated with empowerment and efficacy:</p> <ol style="list-style-type: none"><li>1) The proportion of respondents who report that themselves or a household member participated in communal activities over the previous 12 months in which people came together to work for the benefit of the community.</li><li>2) The proportion of respondents who report that over the previous 12 months people in their neighborhood or village have gotten together to jointly petition government officials or political leaders for something benefiting the community.</li><li>3) The proportion of respondents who report that themselves or a household member has done at least one of the following: attended a village or neighborhood council meeting, public hearing, discussion group; met with a politician, called him/her, or sent a letter; participated in a protest or demonstration; participated in an information or election campaign; alerted newspaper, radio or TV to a local problem; or notified police or court about a local problem.</li></ol>	T, I	<p>All intervention outcomes stem from community action; the intervention's efficacy may differ according to how familiar participants are with similar community actions, and the experience of participants and those in their network with the intervention may make them more or less likely to participate in similar actions in the future. The T4D team will assess 3 types of community action to cover the range of types of participation that may result from the intervention: communal self-help activities, communal appeals to officials (a proxy for "long route" actions in the T4D intervention), and individual participation in a range of public-facing political and social actions.</p>
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Perceptions of empowerment	<p>The average perception of respondents in the village about their power to make important decisions and take actions that improve life in their village, for themselves and others, will be assessed on a 4-point scale, where 1 means being totally unable to improve life in this village, and 4 means having full control to make important decisions and actions to improve life in this village. Response bias related to differing understanding of empowerment between respondents will be removed by comparing responses to respondents' understanding of three "vignettes" describing individuals of the same gender as the respondent trying to improve the teaching at their local school, with varying degrees of success. Respondents' understanding of the levels of empowerment of the individuals in these vignettes will be modeled as a function of the respondent's age, educational level, an index of assets, and answers to the three participation questions above; thresholds in perceptions for each respondent are then adjusted for subjective biases that vary systematically across these groups, allowing comparable results across individuals and communities.</p>	T, I	<p>In principle, intervention participants may perceive greater empowerment, particularly if their actions lead to noticeable improvements in the quality or responsiveness of health and health care. Because empowerment perceptions are inherently subjective and can differ systematically across groups—particularly marginalized groups that may rationalize or not recognize their disempowerment—the team will use anchoring vignettes<sup>111</sup> which can correct for group-level subjective biases among respondents (see Masset (2015) for an application specifically to empowerment).<sup>112</sup></p>
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<sup>111</sup> Gary King et al., "Enhancing the Validity and Cross-Cultural Comparability of Measurement in Survey Research," *American Political Science Review* 98 (2004): 191–207.

<sup>112</sup> Edoardo Masset, "Measuring Empowerment in Rural India Using Vignettes," *Journal of Development Effectiveness* 7, no. 3 (July 3, 2015): 346–56.

## 4.2.2 SECONDARY OUTCOMES

In addition to the primary outcomes outlined above, the T4D team intends to measure maternal depression as a secondary outcome. The time period around pregnancy is one when women are most likely to have a major depressive episode, and mothers' depression is associated with adverse developmental outcomes for children. While mental health is not explicitly part of the T4D logic model, there may be a link between the T4D intervention and respondents' perceptions of control over pregnancy and delivery, and since literature suggests a link between perception of control and depression, the impact of the T4D intervention on maternal depression is a hypothesis the team wishes to explore further.<sup>113</sup> Maternal depression will be measured in both Indonesia and Tanzania and more details can be found in Table 26.

<b>Outcome</b>	<b>Definition</b>	<b>Country</b>	<b>Key Justification</b>
Maternal depression	The T4D team is exploring the use of the interviewer administered Kessler Psychological Distress Scale (K6) <sup>114</sup> to measure serious mental illness (SMI) as a proxy for maternal depression. This will be measured by converting the K6 to a 0-24 scale (each of the six questions coded 0-4 and summed), with 13+ indicating SMI.	T, I	The time period around pregnancy is one when women are most likely to have a major depressive episode. A mothers' depression is highly associated with adverse developmental outcomes for children in social, emotional, and cognitive domains. Since perceptions of control are strongly linked to depression, and the T4D team expects that the intervention may provide women greater control over the circumstances of their pregnancies and deliveries (including ability to access health care during this period), the T4D intervention may lead to lower levels of depression. <sup>115</sup>

## 4.2.3 INTERMEDIATE OUTCOMES

Finally, the T4D team will examine a number of intermediate outcomes, designed to assess the various pathways through which T4D may see impact on the outcomes under research questions 1 and 2. These outcomes link directly to column C in the T4D intervention logic model (see *Figure 2* in chapter 1). A list of these outcomes is included in Table 27.

<sup>113</sup> Atif Rahman et al., "Impact of Maternal Depression on Infant Nutritional Status and Illness: A Cohort Study," *Archives of General Psychiatry* 61, no. 9 (September 1, 2004): 946–52; Jenn Leiferman, "The Effect of Maternal Depressive Symptomatology on Maternal Behaviors Associated with Child Health," *Health Education & Behavior* 29, no. 5 (October 2002): 596–607; E. Mark Cummings and Patrick T. Davies, "Maternal Depression and Child Development," *Journal of Child Psychology and Psychiatry* 35, no. 1 (January 1, 1994): 73–122; S. R. Cogill et al., "Impact Of Maternal Postnatal Depression On Cognitive Development Of Young Children," *British Medical Journal (Clinical Research Edition)* 292, no. 6529 (1986): 1165–67.

<sup>114</sup> "National Comorbidity Survey: K10 and K6 Scales," *Harvard Medical School*, 2005, [http://www.hcp.med.harvard.edu/ncs/k6\\_scales.php](http://www.hcp.med.harvard.edu/ncs/k6_scales.php).

<sup>115</sup> Rahman et al., "Impact of Maternal Depression on Infant Nutritional Status and Illness: A Cohort Study"; Leiferman, "The Effect of Maternal Depressive Symptomatology on Maternal Behaviors Associated with Child Health"; Cummings and Davies, "Maternal Depression and Child Development"; Cogill et al., "Impact Of Maternal Postnatal Depression On Cognitive Development Of Young Children."

<b>Table 27. Intermediate Outcomes</b>		
<b>Logic Model Pathway</b>	<b>Intermediate Outcome</b>	<b>Country<sup>116</sup></b>
C1. Increased household knowledge, awareness, and attitudes related to MNH care and services	Knowledge index of timing and frequency of antenatal and post-natal care	T, I
C1. Increased household knowledge, awareness, and attitudes related to MNH care and services	Proportion of respondents who are able to identify 3 or more danger signs during pregnancy	T, I
C1. Increased household knowledge, awareness, and attitudes related to MNH care and services	Attitude index of proportion of respondents who recognize the importance of health services throughout the MNH continuum of care	I
C1. Increased household knowledge, awareness, and attitudes related to MNH care and services	Proportion of women reporting care-seeking for complications during pregnancy or delivery	T, I
C2. Improved access to transportation	Proportion of respondents reporting transportation or distance as a barrier for not giving birth in a health facility	T, I
C2. Improved access to transportation	Median cost of transportation to the health facility for delivery	T, I
C2. Improved access to transportation	Proportion reporting any payment for transportation to the health facility for delivery	T, I
C3. Improved perception of quality or satisfaction with facility services	Perceived facility quality index	T
C4. Improved (perceived) attitude, effort, and trust of provider	Perceived provider attitude, effort, and trust index	T
C5. Reduced cost of service/reduction of illegal fees	Median cost of delivery at a facility	T, I
C5. Reduced cost of service/reduction of illegal fees	Proportion of women paying a fee for MNH services	T
C6. Improved facility management/cleanliness	Proportion of clean facilities	I

<sup>116</sup> I=Indonesia; T=Tanzania.

C6. Improved facility management/cleanliness	Proportion of respondents satisfied with waiting times	T
C7. Improved knowledge/attitudes of the provider	Provider attitude index	T
C8. Increased availability of drugs, supplies, and other inputs	Index of essential health facility infrastructure	T, I
C8. Increased availability of drugs, supplies, and other inputs	Index of essential MNH drugs in stock at the health facility	T
C8. Increased availability of drugs, supplies, and other inputs	Index of essential MNH supplies in stock at the health facility	T, I

### 4.3 IMPACT ESTIMATION STRATEGY

Given the use of random assignment to select treatment sites, the basic method of estimating program impacts consists of comparing mean outcomes for the treatment and control groups. T4D’s estimation strategy consists of estimating the following regression equation:

$$(1) \quad Y_{ihjk} = \beta_0 + \beta_1 TREAT_{jk} + \mathbf{X}_k + \varepsilon_{ihjk}$$

In this equation, the variable  $Y_{ihjk}$  is the outcome of interest (whether the mother gave birth at a birth facility, weight-for-age of child, etc.) for mother/child  $i$  in household  $h$  in village  $j$  in catchment area  $k$ . The variable  $\mathbf{X}_k$  is a vector that includes all variables that were used to stratify prior to random assignment. The variable  $TREAT_{jk}$  is an indicator variable that takes a value of 1 if the village was assigned to receive the treatment, and 0 otherwise. The coefficient  $\beta_1$  provides the estimate of the impact of the program. Standard errors will be clustered at the facility level given that the treatment assignment was assigned at this level.

Given that T4D collected baseline data on households in the 200 villages and plans to collect endline data on a different set of households within these same villages (repeated cross-section),<sup>117</sup> the team also plans to estimate a second set of regressions that control for baseline characteristics at the **village** level (see equation 2). Note that these control variables are meant to help improve the statistical precision of the impact estimates, but the research team does not expect them to have a substantial effect on the magnitude of the impact estimates.

$$(2) \quad Y_{ihjk} = \beta_0 + \beta_1 TREAT_{jk} + \mathbf{X}_k + \beta_2 BASELINE_{jk} + \varepsilon_{ihjk}$$

<sup>117</sup> The evaluation design involves a repeated cross-section of households (as opposed to a panel design) because the intervention focuses on MNH and hence the key household respondents are women who have recently had a child, so interviewing the same women at baseline and endline might not yield data of a recent pregnancy on both occasions.

### 4.3.1 SUB-GROUP ANALYSIS

The T4D researchers plan to estimate the impacts of the program on a number of key sub-groups. First, for analysis of birth in a facility and birth with a skilled attendant, the team will look at three sub-groups:

- 1) women giving birth to their first child,
- 2) women who have previously given birth only at home, and
- 3) those who have given birth in a facility at least one time previously.

Second, for all outcomes, the team will look at three sub-groups of villages: those with 1) high, 2) medium, and 3) low quality of health services at baseline, as these may potentially affect the perceived value of the health system to intervention participants and the efficacy of any improvements or increased utilization on ultimate health outcomes.

Finally, the team will look at village level characteristics that potentially affect the village's willingness and ability to act collectively. Specifically, the team will look at community level demographics, perceptions of the responsiveness of providers and other public officials,<sup>118</sup> and measures of trust and solidarity (e.g. willingness of community members to commit time and or money to communal activities) and collective action (e.g. rates of participation in communal activities).

Being explicit about the sub-groups at this stage is important to protect the research against conducting statistical tests *ex-post* and discovering spurious results. While the T4D team does not wish to discard the possibility of testing hypotheses that emerge from the implementation of the project and the qualitative work, the team will be explicit about which hypotheses were specified at the outset and which ones arose after the design work.

To conduct sub-group analyses in the context of subgroups of only two categories (say male vs. female child), equation 3 shows the addition of a sub-group indicator variable and sub-group-treatment interaction term as explanatory variables:

$$(3) Y_{ihjk} = \beta_0 + \beta_1 TREAT_{jk} + \beta_2 SUBGROUP_{ihjk} + \beta_3 SUBGROUP_{ihjk} * TREAT_{jk} + X_k + \varepsilon_{ihjk}$$

The coefficient  $\beta_3$  on the interaction term provides the estimate of the difference in impacts between the sub-group that takes the value of 1 and the sub-group that takes the value of zero. For sub-groups with several categories, the procedure is similar except the team would add sub-groups indicator variables for all categories except one (i.e. the reference or base group).

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<sup>118</sup> The team expects participation to differ according to perceptions of provider and public official responsiveness, as implied by the Five Worlds Framework; Kosack and Fung, "Does Transparency Improve Governance?"



### 4.3.2 POWER CALCULATIONS

Using baseline data from both Tanzania and Indonesia, power calculations were conducted to determine the detectable effect sizes for the T4D primary outcome measures.<sup>119</sup> Power calculations were conducted using the Stata command *clustersampsi* and verified using the Optimal Design software. Clustering was done at the health facility level in both countries; it should be noted that since some facilities contain two villages in Tanzania (unlike in Indonesia where each sample village corresponded to a unique health facility), clusters in Tanzania contained one village in some cases and two villages in others. The parameters assumed for the power calculations included a significance level of 0.05, power of 0.80, cluster size of 30 in Indonesia and 39 in Tanzania, and total clusters of 200 in Indonesia and 153 in Tanzania. The intra-cluster correlation varied by variable, which explains the differences in minimum detectable effects for variables with similar variance at the baseline.

Table 28 shows the detectable effect sizes at conventional levels of 80% power and a significance level of 0.05.

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<sup>119</sup> There are some primary outcomes for which the T4D team did not collect baseline data (delivery quality, maternal depression in Indonesia, the full empowerment perception module); power calculations for these outcomes are not included in the table.

Table 28: Power Calculations for Primary Outcomes				
Indicator	Tanzania		Indonesia	
	Baseline level	Minimum detectable effect	Baseline level	Minimum detectable effect
<b>Research Question 1: Uptake of Health Services</b>				
4 or more ANC visits	43.4%	0.064		
1st ANC visit within the first trimester	18.5%	0.037		
Birth preparedness			70.1%	0.081
Delivery with a skilled birth attendant	56.4%	0.111	78.8%	0.086
Birth in a facility	56.3%	0.111	55.0%	0.124
Postpartum care (mother) - w/skilled attendant, w/in 7 days	32.3%	0.084	86.8%	0.063
Postnatal care (newborn) - w/skilled attendant, w/in 7 days	62.7%	0.114	87.8%	0.066
<b>Research Question 2: Content of Health Services</b>				
Antenatal content of care	0.73	0.049		
Delivery content of care <sup>120</sup>				
Postpartum content of care (mother)	7.0%	0.030	50.0%	0.085
Postnatal content of care (newborn)	36.1%	0.085	59.7%	0.091
<b>Research Question 3: Health Outcomes<sup>121</sup></b>				
Weight-for-age (>2 SD below median WHO growth standard)	8.9%	0.029	15.8%	0.026
Length-for-age (>2 SD below median WHO growth standard)	26.2%	0.051	15.9%	0.037
<b>Research Question 4: Empowerment</b>				
Participation	0.415	0.062	50.0%	0.059
Perception of empowerment <sup>122</sup>	66.7%	0.075	74.5%	0.075

<sup>120</sup> Not measured at baseline

<sup>121</sup> For the purpose of power calculations, if a household has twins, anthropomorphic measures are averaged across the two infants. This results in slightly different weight-for-age and length-for-age baseline levels than reported elsewhere in this report.

<sup>122</sup> Will use an expanded measure at endline

Table 29: Power Calculations Aggregate Primary Outcome Indices				
Indicator	Tanzania		Indonesia	
	Baseline level	Minimum detectable effect	Baseline level	Minimum detectable effect
<b>Research Question 1: Uptake of Health Services</b>				
4 or more ANC visits <sup>123</sup>	0	0.154	0	0.154
1st ANC visit within the first trimester <sup>124</sup>				
Birth preparedness <sup>125</sup>				
Delivery with a skilled birth attendant				
Birth in a facility				
Postpartum care (mother) - w/skilled attendant, w/in 7 days				
Postnatal care (newborn) - w/skilled attendant, w/in 7 days				
<b>Research Question 2: Content of Health Services</b>				
Antenatal content of care <sup>126</sup>	0	0.155	0	0.161
Postnatal content of care (newborn)				
Postpartum content of care (mother)				
Delivery content of care <sup>127</sup>				
<b>Research Question 3: Health Outcomes</b>				
N/A	These will be evaluated separately			
<b>Research Question 4: Empowerment</b>				
Participation	0	0.081	0	0.113
Perception of empowerment <sup>128</sup>				

<sup>123</sup> Tanzania only

<sup>124</sup> Tanzania only

<sup>125</sup> Indonesia only

<sup>126</sup> Tanzania only

<sup>127</sup> Not measured at baseline

<sup>128</sup> Will use an expanded measure at endline

## 4.4 VERIFYING RANDOM ASSIGNMENT

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While random assignment should produce comparable treatment and control groups *in expectation*, the T4D team verified that the groups were balanced on certain key observable variables. The goal of random assignment is to produce two groups (treatment and control) that are identical to each other statistically in everything except exposure to the program. To verify this, the team estimated the same regressions that were specified in the impact evaluation method section, but using baseline characteristics as the dependent variable. If random assignment resulted in equivalent groups, the coefficient on the treatment indicator should not be systematically different from zero.

The main conclusions of the analysis are as follows: The treatment and control groups do indeed look similar on a broad set of background characteristics. In particular, the treatment and control groups look similar in terms of baseline versions of the outcome variables. As shown in Table 30, treatment and control groups look balanced in both Indonesia and Tanzania on the baseline version of the key outcomes the intervention is seeking to affect. There is a statistically significant difference observed on just one of these variables, weight-for-age in Tanzania. Moreover, comparison between treatment and control groups based on a broader set of variables reveals that the two groups look similar to each other on a host of characteristics, including socio-economic, demographic, and additional health and empowerment measures. Overall, the differences between the groups tend to be very small in magnitude and rarely statistically significant. T4D found that in Indonesia, only five out of the 96 baseline variables (including those on the key outcomes table) turned out to generate a treatment coefficient that was statistically significant at the 5% level,<sup>129</sup> which falls within the expected bounds of naturally occurring sample variation and pure chance. Similarly, in Tanzania only six out of the 112 variables tested generated a statistically significant treatment coefficient at the 5% level.<sup>130</sup> See Appendix Tables D1 and D2 for details.

These findings indicate that the random assignment produced comparable groups, which will strengthen the credibility of the impact findings.

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<sup>129</sup> The variables were: 1) ANC check - mother received urine sample results; 2) woman ever had an ANC visit because of a complication; 3) proportion of women paying for post-natal care; 4) in most recent effort government officials/political leaders listened to, and took seriously their proposal; 5) in past year, respondent or anyone in the household has participated in an information or election campaign.

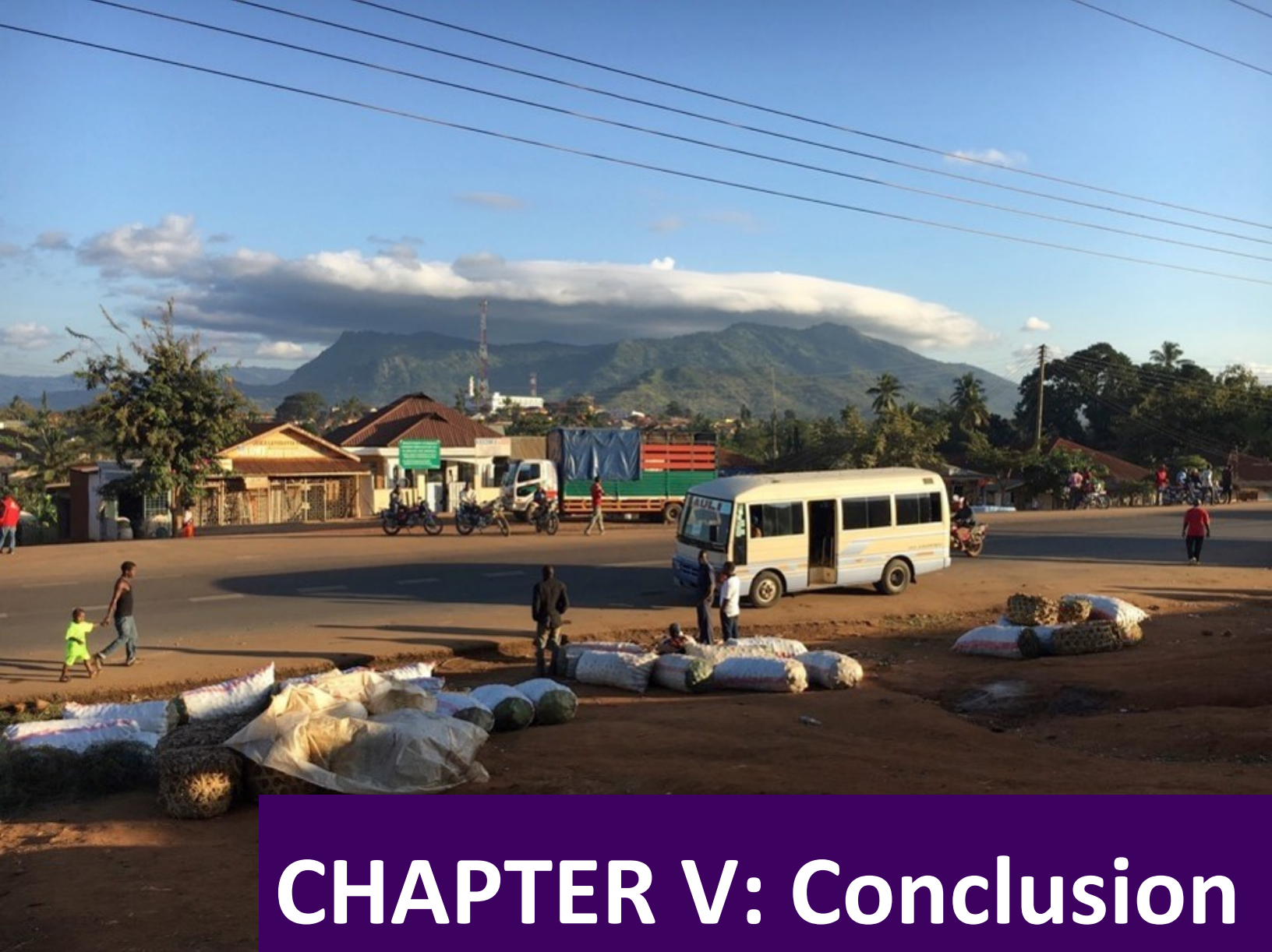
<sup>130</sup> The variables were: 1) whether or not anyone in the household owns a bicycle; 2) the satisfaction dummy for whether or not the respondent felt they were properly informed of what was happening during recent visit to the health facility; 3) whether the respondent gave birth in a private hospital; 4) type of transport taken to facility for delivery (bicycle); 5) type of transport taken to facility for delivery (public transportation); 6) proportion underweight (weight-for age).

Table 30: Balance Tables for Primary Outcomes				
	Tanzania		Indonesia	
Indicator	Treatment Group	Control Group	Treatment Group	Control Group
<b>Research Question 1: Uptake of Health Services</b>				
4 or more ANC visits	0.439	0.428		
1st ANC visit within the first trimester	0.186	0.184		
Birth preparedness			0.718	0.684
Delivery with a skilled birth attendant	0.559	0.569	0.778	0.796
Birth in a facility	0.558	0.568	0.542	0.553
Postpartum care (mother) - w/skilled attendant, w/in 7 days	0.309	0.339	0.863	0.872
Postnatal care (newborn) - w/skilled attendant, w/in 7 days	0.619	0.635	0.864	0.891
<b>Research Question 2: Content of Health Services</b>				
Antenatal content of care	0.717	0.741		
Postpartum content of care (mother)	0.072	0.069	0.493	0.506
Postnatal content of care (newborn)	0.346	0.377	0.608	0.584
<b>Research Question 3: Health Outcomes</b>				
Weight-for-age (proportion 2 standard deviations below the mean)	0.081	0.105**	0.148	0.173
Length-for-age (proportion 2 standard deviations below the mean)	0.266	0.263	0.157	0.166
<b>Research Question 4: Empowerment</b>				
Participation	0.413	0.416	0.476	0.525
Perception of empowerment <sup>131</sup>	0.664	0.666	0.735	0.753

\*/\*\*/\*\*\*: Difference statistically significant at the 10%/5%/1% level.

Control means are regression adjusted using the strata dummy variables as regressors.

<sup>131</sup> We will use an expanded measure at endline.



# CHAPTER V: Conclusion and Next Steps

## Conclusion and Next Steps

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This report summarized the findings from the baseline data collected as part of the T4D project in Indonesia and Tanzania. At a broad level, the households represented in the two samples live in rural areas and tended to be employed in farming or related sectors. Households in the Indonesia sample were better off than those in Tanzania in terms of access to electricity, education, and the materials with which their dwellings were built. Unsurprisingly, in Indonesia almost all the respondents were Muslim, whereas in Tanzania they were roughly equally split between Muslim and Christian. In terms of MNH outcomes, access to health services tended to be good relative to the quality of care. Access to ANC in Indonesia was fairly high (90% of respondents completed the recommended four ANC visits during pregnancy compared with 43% in Tanzania). The percent of pregnant women who gave birth at a facility—one of the key indicators linked with healthier babies and a key outcome of this evaluation—was low for both Indonesia and Tanzania (55% and 56% respectively). Access to post-natal care was higher in Indonesia than Tanzania, but quality of care was low in both countries. Finally, in terms of citizen empowerment, there was a relatively high proportion of households in both countries that reported feeling able to improve their lives, and the perception of level of responsiveness was high for health providers but low for local government.

The baseline data collection is part of the broader effort to evaluate the impact of the T4D interventions in Indonesia and Tanzania. The impact evaluation design consists of a two-armed RCT in both Indonesia and Tanzania, with 100 treatment and 100 control villages in each country. The baseline data enabled the T4D team to verify that the treatment and control groups look similar at the outset of the interventions.

The baseline data collection also allowed the T4D team to make some small adjustments to the evaluation design and to produce a final list of key outcomes to be measured in the evaluation. Chief among these changes is that the evaluation will no longer try to assess the impacts on ANC outcomes in Indonesia, as the baseline levels for these outcomes were high to begin with. Instead, the evaluation will seek to measure impacts on whether households develop a comprehensive birth preparedness plan, a practice linked with facility birth and good MNH outcomes.

After the completion of the implementation of the interventions, the next steps are to collect endline data and then to estimate the impacts on the key outcomes of interest by comparing the treatment and control groups using the estimation techniques described earlier in the report.



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# Appendices

## IN THIS CHAPTER:

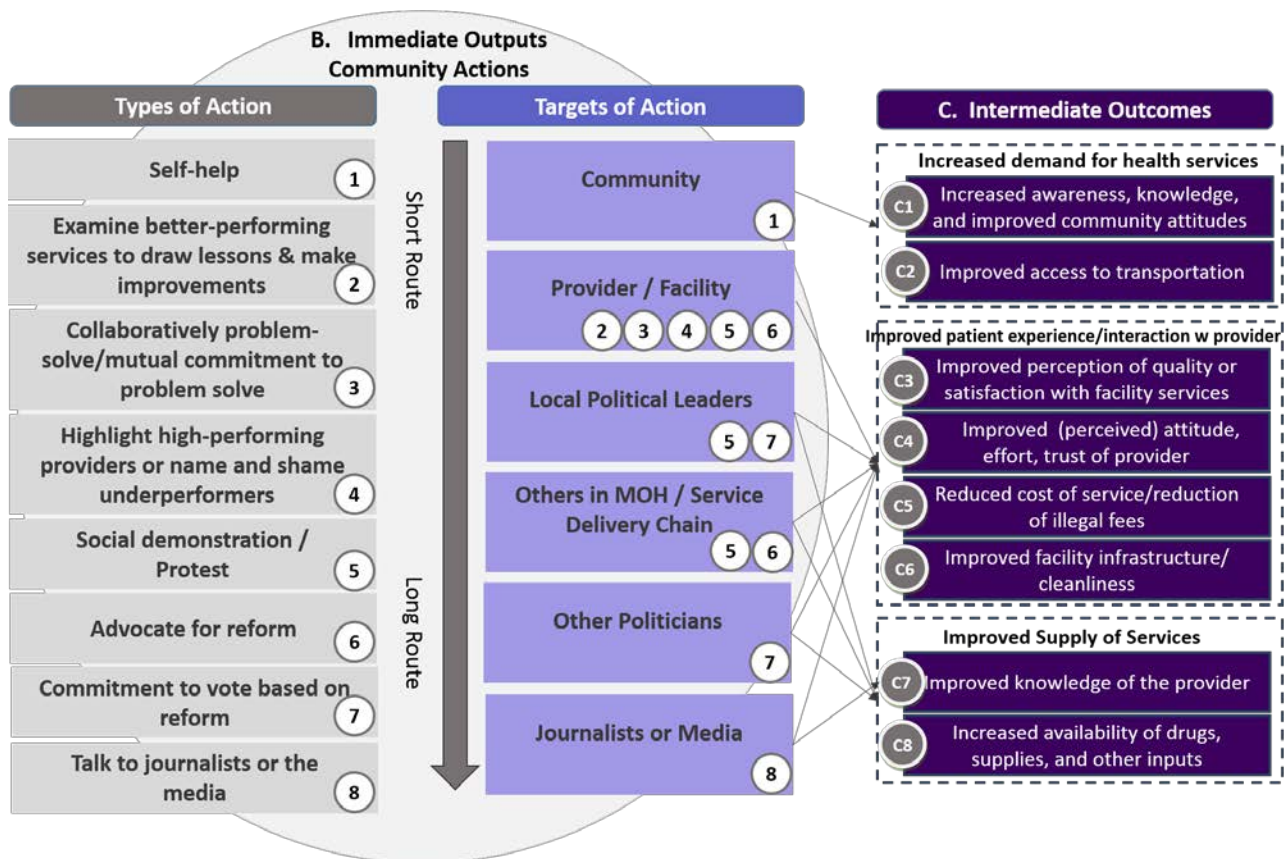
<b>A. EXPANDED LOGIC MODEL</b>	<b>86</b>	<b>E. TANZANIA MENTAL HEALTH TABLE</b>	<b>100</b>
<b>B. OUTCOME MEASURES</b>	<b>87</b>	<b>F. HOUSEHOLD CENSUS FORM</b>	<b>102</b>
<b>C. POWER CALCULATIONS</b>	<b>89</b>	<b>G. QUESTIONNAIRES</b>	<b>112</b>
<b>D. BALANCE TABLES FOR ALL VARIABLES</b>	<b>90</b>	<b>H. FULL DATA TABLES</b>	<b>113</b>



## Appendix A - Expanded Logic Model

Figure A1 provides detail on the types of social action the community could take, the targets of relative actions, and the link to intermediate outcomes. Types of Action 2, 3, 4, and 5 all describe strategies that communities could direct toward front-line service providers (“short route” actions) to improve provider interaction or other patient experience (intermediate outcomes C3-6). Alternatively, communities could pursue “long route” options (types of action 5 and 6) by working with or putting pressure on district health officials who supervise front-line service providers to increase the availability of staff or other key inputs (C7-8) or to hold front-line service providers accountable for improvements to patient experience at the clinic (C3-6).

Figure A1 - Community Actions and the Links to Intermediate Outcomes



## Appendix B – Changes to Primary and Secondary Outcomes

The team made a number of changes to the primary and secondary outcomes described in the *T4D Evaluation Design Report*. The team recategorized certain secondary outcomes as primary, and eliminated other outcomes based on insufficient power, high baseline numbers, or because they lack a direct connection to the final version of the intervention. The team also added new outcomes to align with the final version of the intervention.

Specific changes to the primary and secondary outcomes are outlined in Table B1.

Table B1. Key Outcome Changes			
RQ <sup>132</sup>	Outcome (Type) <sup>133</sup>	Change	Reason
1	Proportion of women attending four or more ANC visits	Drop (Indonesia only)	Alignment with Indonesia health levers
1	Proportion of women attending first ANC visit within the first three months of pregnancy (for those with ANC)	Drop (Indonesia only)	Alignment with Indonesia health levers
1	Proportion of women attending first ANC visit within the first four months of pregnancy (for those with ANC)	Drop	Similarity to Tanzania outcome "Proportion of women attending first ANC visit within the first trimester (13 weeks) of pregnancy (for those with ANC)" and alignment with Indonesia health levers
2	Proportion of women making a comprehensive birth preparedness plan (P)	New (Indonesia only)	Alignment with Indonesia health levers
2	ANC content/quality index (P)	Moved from secondary	Recategorized based on alignment with final version of the intervention and research questions
2	Quality delivery index (P)	New	Alignment with final version of the intervention

<sup>132</sup> RQ = Research Question

<sup>133</sup> P = Primary; S = Secondary

2	Proportion of women receiving a comprehensive post-partum check with a skilled attendant (P)	Moved from secondary	Recategorized based on alignment with final version of the intervention and research questions
2	Proportion of babies receiving a comprehensive post-natal check with a skilled attendant (P)	Moved from secondary	Recategorized based on alignment with final version of the intervention and research questions
3	Length-for-age (P)	Moved from secondary	Recategorized based on alignment with final version of the intervention and research questions
3	Infant mortality	Drop	Not enough power
3	Birth weight	Drop	Not enough power
3	Median number of weeks pregnant at delivery	Drop	Connection to intervention too indirect
4	Perceptions of responsiveness of health facilities and health providers to community needs	Drop	Not likely to be affected by T4D intervention
4	Perceptions of responsiveness of state officials to community	Drop	Not likely to be affected by T4D intervention
4	Index of participation activities associated with empowerment and efficacy (P)	New	Alignment with final version of the T4D intervention

## Appendix C – Power Calculations for Secondary Outcomes

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Table C1: Power Calculations for Secondary Outcomes				
	Tanzania		Indonesia	
Indicator	Baseline level	Minimum detectable effect	Baseline level	Minimum detectable effect
Maternal depression SMI <sup>134</sup>	15.2%	0.044		

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<sup>134</sup> Not measured at baseline in Indonesia.



## Appendix D: Balance Tables for All Variables

Table D1: Balance Tables for All Variables (Tanzania)		
Indicator	Treatment Group	Control Group
<b>Antenatal Care</b>		
<b>Care During Pregnancy</b>		
Had ANC visit within 3 months of pregnancy	0.186	0.184
Had 4 or more ANC visits <sup>135</sup>	0.439	0.428
ANC content of care index	0.717	0.741
<b>ANC Content/quality index:</b>		
Tested for HIV	0.854	0.869
Received Iron Tablets/ Syrup	0.877	0.889
Received malaria prevention drugs	0.708	0.758*
Received drug for intestinal worms	0.546	0.573
Blood sample taken	0.795	0.796
Received results of blood test	0.885	0.886
Urine sample taken	0.456	0.465
Received result of urine test	0.858	0.825
Blood pressure measured	0.638	0.634
<b>ANC Care</b>		
Mother has ANC card	0.710	0.711
<b>Birth Planning</b>		
Planned where would have the baby before birth	0.400	0.458
Made a comprehensive birth plan <sup>136</sup>	0.227	0.251
<b>Delivery Care</b>		
<b>Delivered baby at:</b>		
Dispensary - Faith-based	0.009	0.010
Dispensary - Non-profit	0.000	0.001
Dispensary - Private	0.007	0.005
Dispensary - Public	0.282	0.268
Health Center - Faith-based	0.002	0.003
Health Center - Private	0.000	0.001
Health Center - Public	0.072	0.070
Hospital - Faith-based	0.011	0.015
Hospital - Private	0.001	0.007**

<sup>135</sup> Calculated taking the mother's estimate, or where this conflicted with the card estimate, an average of the mother and the card estimates given

<sup>136</sup> At least 3 of following preparations: planned where would have the baby before birth; made arrangements for transport before birth; decided who would assist delivery before birth; decided how to pay for delivery before birth; identified potential blood donors before birth; identified childcare options before birth; prepared materials

Hospital - Public	0.173	0.189
<b>Level of Care at Delivery</b>		
Delivered at facility (%)	0.558	0.568
Delivered with skilled attendant (%)	0.559	0.569
Highest skilled personnel assisting at birth: Assisted by TBA	0.243	0.261
Baby born by Caesarean	0.043	0.053
<b>Post-Partum Care</b>		
<b>Post-Partum Care - Mother</b>		
Received checks in physical and counselling categories, with a medical professional within 7 days	0.101	0.096
Received counselling on at least 2 topics from medical professional within 7 days	0.159	0.175
Received at least 2 physical checks for danger signs from medical professional within 7 days	0.143	0.142
Received at least one supplement from a medical professional within 7 days	0.132	0.126
Mother received any post-partum care with a skilled attendant within 7 days	0.309	0.339
Newborn received any post-partum care with a skilled attendant within 7 days	0.619	0.635
Received number of check specified in all three listed above (comprehensive) (skilled provider but not time bound)	0.072	0.069
Mothers reporting they stayed 24 hours or longer in facility after birth	0.508	0.516
<b>Postnatal Care - Baby</b>		
Received required vaccinations with a skilled attendant within 7 days <sup>137</sup>	0.181	0.204
Received 2 or more physical checks for danger signs with a skilled attendant within 7 days <sup>138</sup>	0.354	0.393
Received number of checks specified in all categories with a skilled attendant within 7 days <sup>139</sup>	0.126	0.147

<sup>137</sup> Tanzania - required vaccinations BCG, Polio and DPT-HB. Indonesia required vaccinations HB0; In Tanzania this was asked about all babies (separately for multiple births) but only the first child listed is included here (i.e. one per birth)

<sup>138</sup> In Tanzania this was asked about all babies (separately for multiple births) but only the first child listed is included here (i.e. one per birth)

<sup>139</sup> Received any postnatal care (skilled or unskilled attendant); received any postnatal care with a skilled attendant within 7 days; received two or more physical checks for danger signs with a skilled attendant within 7 days; received required vaccinations with a skilled attendant within 7 days, received at least one supplement with a skilled attendant within 7 days. In Tanzania this was asked about all babies (separately for multiple births) but only the first child listed is included here (i.e. one per birth)

Received number of checks specified in all categories with a skilled attendant (not time bound) <sup>140</sup>	0.346	0.377
<b>Perceptions of quality from patient's experience and interaction with the provider</b>		
<b>Respondent's perception of how they are received at facility</b>		
Staff used bad language	0.095	0.092
Greeted or attended to promptly	0.582	0.587
Insufficient seating	0.168	0.187
Kept properly informed of what was happening	0.112	0.147**
Not given appropriate options for treatment	0.092	0.083
Staff made sure they understood reason for visit	0.291	0.314
<b>Respondent's satisfaction with last general visit to health facility</b>		
Cleanliness, good or excellent	0.697	0.722
Communication, good or excellent	0.653	0.661
Drug availability, good or excellent (during recent visit)	0.496	0.498
Waiting time, satisfactory/very satisfactory	0.634	0.632
Respect shown by provider, good or excellent	0.713	0.741
Degree of trust in medical staff, good or excellent <sup>141</sup>	0.735	0.746
Respondent rates overall quality of the facility during recent visit (not including delivery) as 'good' or 'excellent'	0.607	0.609
At least 4 (of 6) satisfaction measures good/excellent and overall satisfaction good/excellent	0.602	0.607
Mother agrees that there is more than one facility available when care is needed	0.243	0.287
<b>Infant and Maternal Health Outcome in Sample Villages</b>		
Infant mortality among most recent births <sup>142</sup>	8.844	5.006
Neonatal mortality among most recent births <sup>143</sup>	4.082	2.488
<b>Baby Measurements</b>		
Baby was underweight (< 2.5kg) <sup>144</sup>	0.056	0.050
Weight for age (proportion >2 SD below mean) <sup>145</sup>	0.081	0.105**
Length for age (proportion >2 SD below mean) <sup>146</sup>	0.266	0.263
<b>Issues Impacting Demand for MNH</b>		

<sup>140</sup> Ibid.

<sup>141</sup> For these ratings the team did not ask separately about deliveries, so most recent visits here are included even if the most recent visit was for delivery.

<sup>142</sup> Each baby from a multiple birth is included individually.

<sup>143</sup> Ibid.

<sup>144</sup> Ibid.

<sup>145</sup> Each baby from a multiple birth is included individually. Weight-for-age is measured as proportion of infants (for whom T4D has valid weight measurements) who are below 2 standard deviations from the median WHO Child Growth Standards.

<sup>146</sup> Each baby from a multiple birth is included individually. Length-for-age is measured as proportion of infants (for whom T4D has valid length measurements) who are below 2 standard deviations from the median WHO Child Growth Standards.

<b>Existence of Barriers to Health Care Access</b>		
During most recent pregnancy, ever wanted to receive ANC care but not able to because of access difficulty (%)	0.078	0.079
Did not deliver in a facility because of access difficulty (%) (only those who didn't deliver in facility)	0.428	0.432
During most recent pregnancy, ever wanted to receive PNC but not able to because of access difficulty (%)	0.087	0.089
<b>Knowledge of mother</b>		
Beliefs about the appropriate minimum number of ANC visits: average	2.726	2.907
Believes pregnant woman should first seek ANC in the first trimester <sup>147</sup>	0.663	0.673
Aware of need to seek care during delivery despite no complications	0.889	0.914
Believes it is not just as safe to deliver at home with TBA, as in a facility	0.860	0.871
Aware of need for ANC despite no complications with prior pregnancy	0.885	0.914*
Number of women indicating 3 or more possible warning or danger signs that a woman is having a problem during pregnancy indicating that she should seek medical attention?	0.388	0.422
<b>Form of transport taken to facility for delivery:</b>		
Ambulance	0.007	0.008
Bicycle	0.004	0.016**
Hired car or motorbike	0.419	0.395
Ox Cart	0.005	0.001
Public Transport	0.117	0.181**
Private car or motorbike	0.098	0.100
Truck	0.001	0.003
On foot	0.369	0.332
Distance to nearest health facility from village (km) <sup>148</sup>	2.500	1.949
Proportion of women travelling one hour or more for facility delivery	0.479	0.465
<b>Costs associated with MNH</b>		
<b>Costs associated with antenatal care</b>		
Women paid something for ANC visits at facility	0.226	0.250
<b>Costs associated with delivery of care</b>		
Facility births: Proportion of women paying for delivery	0.474	0.512
TBA/Dukun Fees paid for: Bribe/gift/thanks	0.268	0.258
<b>Costs associated with post-partum care</b>		

<sup>147</sup> Includes answers expressed in days, weeks or months that fall within the first trimester and answers "if her menstrual cycle is late" and "as soon as she knows she is pregnant."

<sup>148</sup> As reported in the T4D Baseline Community Survey

Proportion of women paying for PNC (for mother & baby) (cash only)	0.172	0.158
<b>Levels of Citizen Empowerment and Participation</b>		
<b>Respondent beliefs about ability to change life:</b>		
Totally or mostly able to change life	0.664	0.666
<b>Respondent beliefs about responsiveness of health workers</b>		
Health officer would try to make improvement in response to complaint	0.720	0.705
<b>Respondent Beliefs about Government Responsiveness:</b>		
Local Government Official 'often' or 'always' are responsive to citizens	0.278	0.248
Members of Parliament 'often' or 'always' are responsive to citizens	0.065	0.063
<b>In past year, respondent or anyone in the household has:</b>		
Alerted newspaper, radio or TV to a local problem	0.013	0.006*
Attended village/neighborhood council meeting, public hearing, discussion group	0.580	0.580
Met with a politician, called him/her, or sent a letter	0.108	0.100
Notified police or court about a local problem	0.011	0.013
Participated in an information or election campaign	0.219	0.179*
Participated in a protest or demonstration	0.122	0.094*
Participation Index	0.413	0.416
<b>Empowerment and Political Action</b>		
In past year, respondent has participated in efforts to petition government a few or many times	0.337	0.353
In past year, community has got together to petition government a few or many times	0.239	0.265
Respondent was satisfied or very satisfied with Government response to latest petition	0.406	0.390
In most recent effort government officials/political leaders listened to, and took seriously, proposal	0.542	0.518
<b>Household Characteristics and Asset Index</b>		
<b>Proportion reporting ownership of:</b>		
Bicycle	0.223	0.291**
Mobile telephone	0.704	0.728
Motorcycle	0.094	0.100
Television	0.037	0.039
Anyone in household owns large animals/livestock	0.425	0.444
<b>Head of Household characteristics</b>		
Head of household attended any secondary school	0.122	0.127
Head of household completed any sort of degree/ diploma	0.001	0.002
Reported woman is head of household (%)	0.126	0.135

<b>Reported Religion of mother:</b>		
Christianity	0.479	0.412
Islam	0.516	0.582
House floor made out of cement/concrete/cement blocks/stones/tiles/slates	0.159	0.171
House roof made out of metal	0.582	0.617
<b>Mental health of Mothers</b>		
At or above 13 on K6 index (optimal cut point for US)	0.149	0.153

**\*/\*\*/\*\*\*: Difference statistically significant at the 10%/5%/1% level. Control means are regression adjusted using the strata dummy variables as regressors.**

**Table D2: Balance Tables for All Variables (Indonesia)**

Indicator	Treatment Group	Control Group
<b>Antenatal Care</b>		
<b>Care During Pregnancy</b>		
<b>Had at least one ANC visit</b>	0.988	0.984
Had ANC visit within 3 months of pregnancy <sup>149</sup>	0.698	0.697
Had 4 or more ANC visits <sup>150</sup>	0.869	0.873
Woman visited multiple facilities to receive ANC	0.614	0.636
Woman visited clinic due to complications (%)	0.201	0.264***
<b>ANC Content/quality index:</b>		
Average number of Iron tablets taken (for women who were given tablets, even if 0 taken)	68.367	64.736
Received Iron Tablets/ Syrup (not necessarily during ANC)	0.951	0.932
Blood sample taken	0.362	0.380
Received results of blood test	0.878	0.881
Urine sample taken	0.502	0.520
Received result of urine test	0.818	0.877**
Blood pressure measured	0.981	0.985
<b>ANC Care</b>		
Mother has ANC card	0.783	0.794
<b>Delivery Care</b>		
<b>Delivered baby at:</b>		
Pustu	0.033	0.037
Puskesmas	0.143	0.171
Pokesdes/Polindes/TKD	0.045	0.054
Hospital (Public)	0.162	0.149
Hospital (Private)	0.023	0.029
Doctor private practice	0.003	0.002
Midwife Private Practice	0.123	0.102
Birth Clinic	0.012	0.010
Own House/ Other's home	0.449	0.443
Assisted by village midwife	0.008	0.003
Other	0.001	0.001
<b>Level of Care at Delivery</b>		
Delivered with skilled attendant (%) <sup>151</sup>	0.778	0.796

<sup>149</sup> Calculated as within 13 weeks of the pregnancy for Indonesia, where response was given in weeks

<sup>150</sup> Calculated taking the mother's estimate, or where this conflicted with the card estimate, an average of the mother and the card estimates given

<sup>151</sup> The DHS for Indonesia defines skilled attendant as including doctors, nurses and midwives, including village midwife



Highest skilled personnel assisting at birth: Assisted by Dukun	0.168	0.144
Respondent rated drugs available at delivery as excellent or good	0.847	0.844
Baby born by Caesarean	0.121	0.103
<b>Post-Partum Care</b>		
<b>Post-Partum Care - Mother</b>		
Received checks in physical and counselling categories, with a medical professional within 7 days	0.538	0.548
Received counselling on at least 2 topics from medical professional within 7 days	0.583	0.575
Received at least 2 physical checks for danger signs from medical professional within 7 days	0.735	0.761
Received at least one supplement from a medical professional within 7 days	0.709	0.736
Mothers reporting they stayed 24 hours or longer in facility after birth	0.670	0.642
Mother attended health facility for herself for any reason one or more times in past 3 months	0.435	0.462
<b>Postnatal Care - Baby</b>		
Received at least 1 supplement with a skilled attendant within 7 days	0.601	0.582
Received required vaccinations with a skilled attendant within 7 days	0.672	0.709
Received 2 or more physical checks for danger signs with a skilled attendant within 7 days	0.800	0.813
Received a number of checks specified in all categories with a skilled attendant within 7 days <sup>152</sup>	0.525	0.509
Mother attended health facility for child for any reason one or more times in past 3 months	0.632	0.637
<b>Perceptions of quality from patient's experience and interaction with the provider</b>		
<b>Respondent's satisfaction with last visit to polindas</b>		
Visited polindas in last 3 months	0.694	0.694
Believes polindas health officer would try to make improvement in response to complaint	0.754	0.764
Overall experience of facility, "good" or "excellent"	0.862	0.862
Respect shown by provider during recent visit, "very satisfied" or "satisfied"	0.875	0.875
Trust in providers, "good" or "excellent"	0.895	0.895
Cleanliness of facility, "good" or "excellent" (recent general visit)	0.485	0.485
Availability of drugs, "good" or "excellent" (recent general visit)	0.785	0.785
Wait time during recent visit, "very satisfied" or "satisfied"	0.833	0.833

<sup>152</sup> Received two or more physical checks for danger signs with a skilled attendant within 7 days; received required vaccinations with a skilled attendant within 7 days; received at least one supplement with a skilled attendant within 7 days.

<b>Respondent's satisfaction with last visit to puskesmas</b>		
Visited puskesmas in last 3 months	0.667	0.667
Believes puskesmas health officer would try to make improvement in response to complaint	0.723	0.717
Overall experience of facility, "good" or "excellent"	0.875	0.875
Respect shown by provider during recent visit, "very satisfied" or "satisfied"	0.883	0.883
Trust in providers, "good" or "excellent"	0.912	0.912
Cleanliness of facility, "good" or "excellent" (recent general visit)	0.188	0.188*
Availability of drugs, "good" or "excellent" (recent general visit)	0.798	0.798
Wait time during recent visit, "very satisfied" or "satisfied"	0.564	0.564
Mother agrees that there is more than one facility available when care is needed	0.828	0.805
<b>Infant and Maternal Health Outcome in Sample Villages</b>		
Infant mortality among most recent births <sup>153</sup>	8.056	5.890
Neonatal mortality among most recent births <sup>154</sup>	1.691	1.378
<b>Baby Measurements</b>		
Baby was underweight (< 2.5kg) <sup>155</sup>	0.066	0.068
<b>Issues Impacting Demand for MNH</b>		
<b>Existence of Barriers to Health Care Access</b>		
During most recent pregnancy, ever wanted to receive ANC care but not able to because of access difficulty (%)	0.196	0.208
Did not deliver in a facility because of access difficulty (%) (only those who didn't deliver in facility)	0.288	0.255
<b>Form of transport taken to facility for delivery:</b>		
Ambulance	0.081	0.076
Public bus/angkot (Indonesia)	0.044	0.038
Hired private vehicle/motorcycle/ojek	0.222	0.209
Personal car/motorcycle	0.368	0.355
Relatives'/neighbors' vehicle	0.202	0.227
On foot	0.029	0.053*
Other	0.025	0.011
Proportion of women travelling one hour or more for facility delivery	0.202	0.232
<b>Costs associated with MNH</b>		
<b>Costs associated with delivery of care</b>		
All mothers: Proportion of women paying for delivery	0.781	0.798
Women that paid any voluntary fee (%) (among those who paid)	0.981	0.989
<b>Costs associated with post-partum care</b>		

<sup>153</sup> Each baby from a multiple birth is included individually.

<sup>154</sup> Ibid.

<sup>155</sup> Ibid.

Proportion of women paying for PNC (for mother & baby) (cash only)	0.476	0.410**
Women that showed insurance document (%)	0.311	0.346
<b>Levels of Citizen Empowerment and Participation</b>		
<b>Respondent beliefs about government responsiveness:</b>		
Local Government Official 'often' or 'always' are responsive to citizens	0.319	0.305
Members of Parliament 'often' or 'always' are responsive to citizens	0.113	0.099
<b>Empowerment and political action</b>		
Community has got together to petition government a few or many times in past year	0.233	0.258
Respondent was satisfied with Government response to latest petition	0.636	0.761
In past year, respondent or anyone in the household has:		
Attended village/neighborhood council meeting, public hearing, discussion group	0.364	0.417
Alerted newspaper, radio or TV to a local problem	0.012	0.009
Met with a politician, called him/her, or sent a letter	0.048	0.058
Participated in a protest or demonstration	0.029	0.024
Participated in an information or election campaign	0.125	0.167**
Notified police or court about a local problem	0.013	0.019
In most recent effort government officials/political leaders listened to, and took seriously, proposal	0.654	0.836**
<b>Household Characteristics and Asset Index</b>		
<b>Proportion reporting ownership of:</b>		
Proportion reporting ownership of bicycle	0.108	0.099
Proportion reporting ownership of a telephone/mobile phone	0.914	0.912
Proportion reporting ownership of a motorcycle	0.784	0.780
Proportion reporting ownership of television	0.862	0.844
Large animals/ livestock	0.186	0.179
<b>Mother's highest level of school attended</b>		
Some or all of elementary school	0.393	0.398
Some or all of high school	0.218	0.207
Some or all of college (includes "academy")	0.110	0.117
Reported woman is head of household (%)	0.023	0.019
House floor made out of marble/ceramic/brick/granite/cement	0.608	0.662
House roof made out of concrete/tiles/shingles/iron sheets	0.842	0.866
Households using electricity (%)	0.988	0.985

**\*/\*\*/\*\*: Difference statistically significant at the 10%/5%/1% level. Control means are regression adjusted using the strata dummy variables as regressors.**

## Appendix E: Tanzania Mental Health Table

**Table 28. Mental Health of Mothers (Tanzania)**

Indicator	Mean	n
<b>During the past 30 days, about how often did you feel:</b>		
<b>Nervous</b>		
All	0.054	3000
Most	0.154	3000
Some	0.244	3000
A little	0.333	3000
None	0.212	3000
Don't know	0.001	3000
Refused	0.001	3000
<b>Hopeless</b>		
All	0.023	3000
Most	0.104	3000
Some	0.261	3000
A little	0.349	3000
None	0.258	3000
Don't know	0.004	3000
Refused	0.001	3000
<b>Restless or fidgety</b>		
All	0.027	3000
Most	0.089	3000
Some	0.267	3000
A little	0.365	3000
None	0.248	3000
Don't know	0.003	3000
Refused	0.000	3000
<b>So depressed that nothing could cheer you up</b>		
All	0.046	3000
Most	0.151	3000
Some	0.239	3000
A little	0.338	3000
None	0.220	3000
Don't know	0.005	3000
Refused	0.001	3000
<b>Everything was an effort</b>		
All	0.030	3000
Most	0.104	3000

Some	0.228	3000
A little	0.344	3000
None	0.290	3000
Don't know	0.003	3000
Refused	0.001	3000
<b>Worthless</b>		
All	0.021	3000
Most	0.061	3000
Some	0.157	3000
A little	0.300	3000
None	0.447	3000
Don't know	0.010	3000
Refused	0.003	3000
K6 Index (13+ is the optimal cut point for assessing the prevalence of SMI in the national population in the US)	7.681	2934
At or above 13 on K6 index (optimal cut point for US)	0.152	2934

# Appendix F: Household Census Form (Indonesia and Tanzania)

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**F1: Household Census form for Tanzania**

## T4D: HOUSEHOLD LISTING FORM

PAGE 1

District Name:	District ID:	Village Name:
Village ID:	Kitongoji Name:	Kitongoji ID:
RO Name:	RO ID:	
Listing Date:	Page Start Time:	Page Finish Time:
Guide Name:	Guide Title:	

**Please ask "Has any current or deceased member of this household given birth within the past 12 months? Please don't include short term visitor who have been visiting for less than 3 months."**

Please include both live births and still births. List even if the mother is no longer alive. If more than one eligible mother in a HH list each in a separate line.

If "NO", record the household name.

If "YES" but the woman is deceased, complete all the information except the Serial Number (column 3)

If "YES" and the woman is alive, complete all information.

\* This information is not compulsory. If this is provided by the informant, please enter information but don't spend time to find it somewhere else.

\*\* If precise answer can't be provided by the informant, ask for estimate of the month of birth

HH Name	Who has given birth in the last 12 months?	Serial Number <small>Enter if mother is still alive</small>	Phone Number <small>*</small>	Where did birth occur? <small>Home (H), Dispensary (D), Health Center (HC), Hospital (Hos), Other(Specify) Don't Know (DK) <small>*</small></small>	Is the child still alive? <small>Yes (Y), No, still birth (S), No, died after birth (N)</small>	What is the child's date of birth? <small>DD/MM/YY **</small>

**F2: Household Census form for Indonesia**

FORM L1

**MOTHER AND CHILD HEALTH SURVEY**

ID EA L:

Village No \_\_\_\_\_ : \_\_\_\_\_ EA: \_\_\_\_\_ Type of random number used: 1 2 3  
4

NAME OF INFORMANT	POSITION	NAME OF ENUMERATOR/CODE	DATE/MONTH/ YEAR	START TIME	END TIME
1.	<input type="text"/> _____	_____ <input type="text"/>	<input type="text"/> / <input type="text"/> / 2015	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
2.	<input type="text"/> _____			<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>

**POSITION CODE**

01. Head of village    02. Village secretary    03. Head/member of BPD    04. Sub-village head    05. Other village staff    06. Community leader    95. Others \_\_\_\_\_

**INFORMATION TO DECIDE ON SELECTED UNIT**

L1.1	Province	<input type="text"/>
L1.2	District	<input type="text"/>
L1.3	Sub-district	<input type="text"/>
L1.4	Village	<input type="text"/>
L1.5	Name of village head	_____ Mobile <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
L1.6	Number of HH in the village	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> HH
L1.7	a. Administration unit (SLS) one level under village	: <input type="text"/> <input type="text"/> **)
	b. Number of administration unit one level under village	: <input type="text"/> <input type="text"/>

**)	TYPE OF SLS :	1. RT	3. Jorong	5. Kampung	7. Banjar	9. Others _____
		2. RW/RK	4. Lorong	6. Lingkungan	8. Dusun	



	L1.8	L1.9		L1.10	L1.11	L1.12
	Record all the names of the administration unit (SLS) 1 level under village/selected administration unit <b>Total number of administration unit</b> □□	Total number of HH [...]		Administration unit under the coverage of the selected administration unit (until RT)	Random number	Selected Unit Up until 400 HH
		a. Number of HH from village staff	b. Number of HH after listing (after verification) in the selected unit			
1						1. Yes 3. No
2						1. Yes 3. No
3						1. Yes 3. No
4						1. Yes 3. No
5						1. Yes 3. No
6						1. Yes 3. No
7						1. Yes 3. No
8						1. Yes 3. No
9						1. Yes 3. No
10						1. Yes 3. No
11						1. Yes 3. No
12						1. Yes 3. No
13						1. Yes 3. No

FORM L2. INITIAL VISIT AND LISTING VERIFICATION IN THE SELECTED SLS PER RT (PREPARE AS MANY COPY AS THE NUMBER OF RT IN THE SELECTED SLS)

ID EA L:      Name of village :  SLS:  RT

	Initial Visit	Verification visit
Visit Date	<input type="text"/> / <input type="text"/> / 2015	<input type="text"/> / <input type="text"/> / 2015
Visit time	Start time <input type="text"/> : <input type="text"/> End time <input type="text"/> : <input type="text"/>	Start time <input type="text"/> : <input type="text"/> End time <input type="text"/> : <input type="text"/>
Informant name	<input type="text"/>	<input type="text"/>
Position	<input type="text"/>	<input type="text"/>
Mobile phone	<input type="text"/>	<input type="text"/>

RT GEOGRAPHICAL BOUNDARIES	Data for verification process from the same informant		
	Number of HH in the initial visit	Number of HH – listing visit	Number of HH – after verification
North :	<input type="text"/>	<input type="text"/>	<input type="text"/>
West :			
South :			
East :			

NOTE THAT THE VERIFICATION IS ACKNOWLEDGED BY THE HEAD OF RT/COMMUNITY LEADER IN THE RT:

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Enumerator	....., 2015
(.....)	Acknowledged by Head of RT / Community leader in the RT
Signature and Full Name	(.....) Signature and Full Name

FORM L3: LIST OF HH IN THE SELECTED RT (PREPARE AS MANY COPY AS THE NUMBER OF RT IN THE SELECTED SLS)

Page:  Out of total:

ID EA L:      Name of village: \_\_\_\_\_ Sub-village/SLS: \_\_\_\_\_ RT

Total HH:  Total Mothers who have given birth in the past one year:

NO: LISTING ID

L3.1: Name of Head of HH

L3.2: INFO FROM MEMBERS OF HH?

L3.3a: Any mother who has given birth (livebirth or stillbirth) in this HH in the past 1 year? Please say yes even if the child is not alive

L3.3b: Were there any mothers who used to live in this HH who passed away during pregnancy in the past one year?

L3.3c: Were there any mothers who used to live in this HH who gave birth (livebirth/stillbirth) in the past 1 year, but passed away during delivery/after delivery?

L3.3d: INTVIEWER CHECK ADD L3.3a +3b +3c

L3.4: INTVIEWER CHECK 1. L3.3a ≠ 0, 2. L3.3b≠ 0, 3. L3.3c≠ 0

L3.5a: Name of mother (NICKNAME IN BRACKET) [IF THERE ARE MORE THAN 1 MOTHER, RECORD EACH MOTHER IN DIFFERENT LINE)

L3.6a: Number of children (livebirth or stillbirth) in the past 1 year

L3.7a: Was the last birth stillbirth or livebirth?

L3.8a: Name of most recent child RECORD "TB" IF STILLBORN

L3.9a: Date of birth of most recent child

L3.10a: Place of delivery of most recent child

L3.11a: Is your most recent child still alive?

L3.12a: HH Location information / Phone number

L3.13a: SHORT 1DESA L3.3a=1;

L3.14a: RANDOM NUMBER

L3.15a: Selected/Not

NO	L3.1	L3.2	L3.3a	L3.3b	L3.3c.	L3.3d.	L3.4	L3.5a	L3.6a	L3.7a	L3.8a	L3.9a	L3.10a	L3.11a	L3.12a	L3.13a	L3.14a	L3.15a
		<input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. Tidak↓ 1. <input type="checkbox"/>	1 2 →L3.5b 3 →L3.5c		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓			<input type="checkbox"/>
		<input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. Tidak↓ 1. <input type="checkbox"/>	1 2 →L3.5b 3 →L3.5c		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓			<input type="checkbox"/>
		<input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. Tidak↓ 1. <input type="checkbox"/>	1 2 →L3.5b 3 →L3.5c		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓			<input type="checkbox"/>
		<input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. No 1. <input type="checkbox"/>	3. Tidak↓ 1. <input type="checkbox"/>	1 2 →L3.5b 3 →L3.5c		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/> / <input type="checkbox"/> / <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓			<input type="checkbox"/>

<b>Code for L3.10a:</b> 01. Hospital (private) 02. Hospital (govt) 03. Puskesmas 04. Pustu 05. Poskesdes/ Polindes/ PKD 06. Midwife private practice 07. Doctor private practice	08. Birth Clinic 09. Own house 10. Other house (in-law's, parents, neighbors) 11. Helped by village midwife (OTHER THAN OPTION 05/06/10/11)	<b>Code L3.2/L3.6c/L3.11a/L3.13a/L3.11c</b> 1. Yes 3. No	<b>Code L3.7a</b> 1. Livebirth 2. Stillbirth
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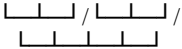
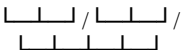
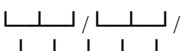
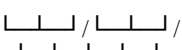
NO	L3.5b	L3.6b	L3.5c	L3.6c	L3.7c	L3.8c	L3.9c	L3.10c	L3.11c
ID listing	Name of pregnant woman who died (NICKNAME IN BRACKET)  [IF THERE ARE MORE THAN 1 MOTHER, RECORD EACH MOTHER IN DIFFERENT LINE]	When did the mother die?	Name of pregnant woman who gave birth (NICKNAME IN BRACKET)  [IF THERE ARE MORE THAN 1 MOTHER, RECORD EACH MOTHER IN DIFFERENT LINE]	Was the last birth stillbirth or livebirth?	Name of most recent child  RECORD "TB" IF STILLBORN	Date of birth of most recent child	Place of delivery of most recent child	When did the mother die?	Is the child still alive now?
		___/ ___/ ___↓		☐		___/ ___/ ___	___	___/ ___/ ___	☐
		___/ ___/ ___↓		☐		___/ ___/ ___	___	___/ ___/ ___	☐
		___/ ___/ ___↓		☐		___/ ___/ ___	___	___/ ___/ ___	☐
		___/ ___/ ___↓		☐		___/ ___/ ___	___	___/ ___/ ___	☐

Form L4a. List of Selected HH for interview

ID EA L:

NO	L4.1	L4.2	L4.3	L4.4	L4.5	L4.6	L4.7
RAN DOM NUM BER	NAME OF MOTHER WHO GAVE BIRTH	NAME OF HEAD OF HH	NAME OF MOST RECENT CHILD	DATE OF BIRTH OF MOST RECENT CHILD	HH Address (until sub-village/RW/RT), phone number / location information	LISTING INTEVIEW ER CODE	VISIT/INTERVIEW RESULT <b>FILL OUT AFTER HH INTERVIEW</b>
1				<input type="text"/> / <input type="text"/> / <input type="text"/>			1. Interviewed 2. Not interviewed, reason_____
2				<input type="text"/> / <input type="text"/> / <input type="text"/>			1. Interviewed 2. Not interviewed, reason_____
3				<input type="text"/> / <input type="text"/> / <input type="text"/>			1. Interviewed 2. Not interviewed, reason_____
4				<input type="text"/> / <input type="text"/> / <input type="text"/>			1. Interviewed 2. Not interviewed, reason_____
5				<input type="text"/> / <input type="text"/> / <input type="text"/>			1. Interviewed 2. Not interviewed, reason_____
6				<input type="text"/> / <input type="text"/> / <input type="text"/>			1. Interviewed 2. Not interviewed, reason_____
7				<input type="text"/> / <input type="text"/> / <input type="text"/>			1. Interviewed 2. Not interviewed, reason_____



8							1. Interviewed 2. Not interviewed, reason_____
9							1. Interviewed 2. Not interviewed, reason_____
10							1. Interviewed 2. Not interviewed, reason_____
11							1. Interviewed 2. Not interviewed, reason_____

**SECTION CP (INTERVIEWERS NOTE)**

SECTION	QUESTION NO.	NOTE

## Appendix G: Questionnaires

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***G1: Household Questionnaires: Indonesia\****

***G2: Household Questionnaires: Tanzania\****

***G3: Facility Questionnaire: Indonesia\****

***G4: Facility Questionnaire: Tanzania\****

***G5: Community Questionnaire: Indonesia\****

***G6: Community Questionnaire: Tanzania\****

\*These appendices are not included in this report. Please contact Jessica Creighton (jessica\_creighton@hks.harvard.edu), T4D Program Manager, to request these documents.

# Appendix H: Full Data Tables

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## ***H1: Full Data Tables\****

\*This appendix is not included in this report. Please contact Jessica Creighton (jessica\_creighton@hks.harvard.edu), T4D Program Manager, to request these tables.