Appendix

Team-specific Methods Descriptions

Stunting

Country Exemplar Selection

Objective: To select countries that have experienced meaningful decreases in stunting prevalence over the past several decades. To identify *true exemplars* i.e. those having reduced stunting prevalence beyond the projected nutritional gains associated with general poverty reduction/economic growth

Inputs: data on countries including - average annual rate of change (AARC) in absolute stunting prevalence, AARC in gross domestic product, World Bank income groups (low, lower middle, and upper middle), country populations, variability across income bands and geographic regions, physical accessibility, data availability, existence of contacts and local partners

Process: We plotted the AARC in absolute stunting prevalence as a function of the AARC in gross domestic product (GDP) per capita spanning the period 2000-2015. We then stratified by the World Bank income groups (low, lower middle, and upper middle) so as to examine countries within comparable income bands. Using the plots, we identified countries with: i) steep declines in stunting rates over time, and/or ii) high AARC in stunting prevalence relative to AARC in GDP per capita. This allowed us to find those countries that demonstrated greater reductions in stunting prevalence that also had relatively smaller increases in GDP per capita.

Outputs:

Step 1 Shortlisting: Ten countries were shortlisted through this process. Expert stakeholders considered other factors including countries' total population (minimum threshold of 5 million), variability across income bands and geographic region, physical accessibility/country security, feasibility of case study activities (e.g. qualitative data collection), and the existence of local contacts and potential partners. Two additional countries were considered based upon the aforementioned factors.

Step 2: Final country selection: The TAG decided on 5 country exemplars that represented diverse regions of the world: Peru, Kyrgyzstan, Nepal, Senegal and Ethiopia.

Literature Review

Objective: To synthesize information on contextual factors, national and subnational interventions, policies, strategies, programs and initiatives that could have contributed to reductions in child stunting in exemplar countries over the study period. Relevant literature would be iteratively synthesized and summarized to inform research questions and to contrast findings with existing evidence.

Inputs: access to 15 online peer-reviewed literature databases (e.g. MEDLINE, EMBASE), grey literature, organizational websites (e.g. Government websites)

Process: Identifying the time period spanning stunting change of interest (e.g. 1990-2017); identifying key words for "factors" of change (e.g. determinants, policies, etc); identifying country name synonyms, acronyms, and non-English spelling (if applicable).

A systematic search of published peer-reviewed and grey literature, followed by relevance screening.

Relevance criteria:

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i)   included an under-5 children's population in exemplar country;
ii)   published between 1990-2017;
iii)   examined one or more of the determinants of chronic undernutrition (e.g. determinants, risk factors, policies, programs, interventions, or initiatives); and
iv)   examined effects on child growth or a reduction in stunting

Outputs: Set of previous literature/documents that have examined factors related to child stunting reduction in exemplar countries; data abstraction sheet with core fields for each article

In-Country Interviews

Objective: to understand the determinants of stunting reduction among children in exemplar countries through exploration of perspectives at the national and community levels.

Specific qualitative research objectives included:

1) To identify the nutrition-specific and -sensitive key events (policies/strategies/laws/legislations and programs) in exemplar countries that may have contributed to a reduction in child stunting;
2) To understand the main success factors and challenges of relevant nutrition-specific and –sensitive facilitators key events (policies/strategies/laws/legislations and programs) in exemplar countries
3) To identify important contextual factors that have functioned as enablers or drivers of national-level stunting change in exemplar countries;
4) To document community-level perspectives and experiences on the stunting transition in exemplar countries by consulting mothers of young children and child care workers

Inputs: in-depth interviews with national experts/stakeholders (e.g. government employee, UN, academia, etc), community childcare worker (e.g. front-line worker or local policy/program implementer); focus group discussions with mothers of under-5 children, including both mothers of young child during high stunting prevalence period (e.g. 1990-1994) and mothers of young children during low stunting prevalence period (e.g. 2012-2017)

Process: Participants were selected using purposive sampling strategies, including snowballing sampling. *National stakeholders* were selected purposively relating to their involvement in designing, implementing, monitoring, or evaluating nutrition-specific or –sensitive policies and programs. They were also asked to identify and refer other individuals with this knowledge or expertise. Individuals were contacted and recruited by phone. Semi-structured interview guides were administered to each participant.

Focus communities were selected to as those that had 1) substantial stunting prevalence reduction over time using AARC; 2) represented diverse geographical and cultural regions in the country. Local *childcare workers* were identified by the country Principal Investigator with input from local key informants (e.g. community leaders etc) using purposive sampling strategies. They were selected purposively relating to their involvement in the care for young children or designing, implementing, monitoring, or evaluating local nutrition–specific or –sensitive policies and programs. Individuals were contacted and recruited by phone or in-person. Semi-structured interview guides were administered to each participant.

Mothers were identified by local key informants (e.g. community leaders, community health workers) using purposive sampling strategies (e.g. younger and older mothers of under-5 children). They were selected purposively relating to care for and experience in raising a young child in that community in earlier vs later periods. Individuals were contacted by local key informants and requested to gather in meeting on a specified day and time. Semi-structured interview guides were used to guide the group discussions.

For all qualitative data collection: Notes were taken by interviewers during sessions. Interviews were audio recoded, transcribed and translated into English. Data was analyzed using the UNICEF Nutrition framework, Lancet Nutrition framework, and adapted framework for country case studies. Responses from national and community level stakeholders were analyzed separately. Thematic analysis was conducted to explore key themes that emerged based on stunting determinants including socioeconomic status (e.g., living conditions), migration, hygiene and sanitation, and nutrition and eating behaviors.

Outputs: A detailed synthesis and narrative of perspectives from national experts, and community stakeholders including childcare workers/local policy implementers and mothers of young children on factors that may have contributed to stunting decline in the country.

Specific outputs could include data on nutrition-specific and –sensitive events (policies/strategies/laws/programs) as well as successful factors and barriers to implementation; key trends in child undernutrition and contextual factors such as socioeconomic and lifestyle determinants; access to key resources (e.g., water/sanitation, health services; changes in dietary practices and food insecurity; etc.

Policy/Systems/Financing

Objective: To understand key nutrition – specific and –sensitive policies and programs that contributed to decreased in child stunting in exemplar countries. To track financial data linked to these initiatives with the aim tag a dollar amount to financial allocations/ actual disbursements and budgets/expenditures of the various programs, policies, interventions and other initiatives

Inputs: literature reviews, stakeholder consultations

Process: A desk review of literature identified through our systematic approach produced a suggested timeline. This timeline was shared with expert stakeholders to obtain their corroboration and insight on any missing initiatives. After reviewing additional literature and specific policy/program documents as suggested by experts, a second iteration of the timeline was proposed. This process ensued until consensus was reached between country experts and the exemplar country research team. A similar multi-pronged data collection and corroboration exercise was undertaken to track financial data linked to the nutrition policy and program timeline. The scan for financial commitments and spending spanned many sectors, including government, development partners, NGOs, others as applicable.

Outputs: A detailed and comprehensive timeline of nutrition policies and programs, and their associated financial allocations/ budgets. Products could include timeline visuals, detailed write-ups for each policy/program, tables/figures of financial information

Descriptive Statistics

<u>Objective</u>: To examine the distribution and trends in stunting prevalence over time in exemplar countries.

<u>Inputs</u>: DHS and MICS original survey datasets; published/available stunting prevalence estimates from global estimation groups (e.g. WHO/World Bank/UNICEF Joint Malnutrition Estimates, IHME for 5X5 mapping, Federal University of Pelotas Equity Group)

<u>Process</u>: Identification of all available national surveys that have collected anthropometry in the country through a dataset mapping (e.g. checking JME for surveys used, conducting rapid survey assessment from government websites etc); early vetting of identified datasets (e.g MICS, DHS) for sample sizes, anthropometry data availability for child population of interest (e.g. all under-5), quality (if possible) of anthropometry data.

Data from selected surveys are obtained from all available online databases and country collaborators. Where possible, we re-calculated the below descriptive analyses and compared to those available from other groups; our own calculations were prioritized in any case of discrepancy as they were re-checked/validated for the purposes of our objectives.

Geospatial Analyses: We calculated stunting prevalence by subnational area (e.g. province) within exemplar countries to visualize geospatial patterns in stunting across the country and overtime; IHME 5X5 stunting prevalence maps were used to assess sub-province level distribution.

Equity Analyses: stratified stunting prevalence by wealth quintile, maternal education, residence (urban vs rural), child gender, and double disaggregation (wealth and residence); estimates were used create equiplots so as to examine both absolute and relative inequalities. We also calculated Slope Index of Inequality (SII) and Concentration Index (CIX) to measure absolute and relative socioeconomic inequalities, respectively. Average annual % point change in stunting (AARC) were estimated through ordinary least square regression models. We also calculated compound annual growth rate (CAGR) to assess *relative* change in stunting prevalence over time for each region. These analyses were download from by the Federal University of Pelotas Equity Group repository and re-calculated by our team for newer surveys or to validate estimates.

Kernel Density Plots: The distributions of HAZ scores for children under the age of 5, were plotted using Kernel density plots. These plots produce smooth curves which estimate the probability density function of the continuous variable HAZ. Additionally, we calculate the kurtosis, or the sharpness of the peak of the curve. The kurtosis is a measure of whether the data are heavy or light tailed relative to a normal distribution.

Child growth curves [Victora curves]: Display predicted child HAZ from smoothed local polynomial regressions that have been plotted against child age. We plotted four curves using data from the four surveys with a 95% confidence interval band around each.

<u>Outputs</u>: Various figures and tables (e.g. plots, maps) allowing for appropriate evaluation and triangulation of key messages related to descriptive stunting change in the country

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Causal Evaluation

Objective: To determine key predictors of change in child stunting/HAZ in the exemplar country during critical time periods.

Inputs: DHS and MICS, ecological variables

Process: Identify causal conceptual framework for selected potential determinants of child stunting; our study examined the UNICEF Nutrition framework and the Lancet 2008 and 2013 Nutrition frameworks to create an adapted framework for all analyses; operationalize the outcome of interest, e.g. we selected child HAZ as the main outcome for causal quantitative analyses given that it's a continuous measure and is not susceptible to misclassification or limitations set forth by using dichotomous variables. Harmonize panel survey datasets to have common outcome and determinant definitions.

Linear multivariable regression: The linear regression based on panel datasets uses a difference-in-difference analysis framework where time*covariable interactions are used to assess factors impacting HAZ decline. First, the multiple cross-sectional surveys are assembled into panel datasets that have synchronized outcome and "determinant" variables across all rounds. Next, univariate statistics are estimated using means/standard deviations and frequencies/proportions. Interaction estimators in unadjusted regression are applied to estimate the DID effect (e.g. time*covariable). Hierarchical model building strategies are used to select those candidate determinants (i.e. significant main effect and/or interaction effect) into the final multivariable regression model; control factors in all models include child age, sex and region. All analyses are adjusted for survey design and weights.

Oaxaca-Blinder decomposition: The Oaxaca-Blinder decomposition is based on the same set of survey data (with ecological variables) assembled into panel datasets. However, by design, the decomposition only uses two survey time points in a given analysis and thus "ignores" in-between survey rounds and any intermittent fluctuations in the predictors. Linear least square regression models are used to assess associations between HAZ and outcome variables using hierarchical multivariable model building techniques. These associations are multiplied by HAZ change during the study period to obtain the predicted change in HAZ due to the change in each determinant. All analyses are adjusted for survey design and weights.

Outputs: Variables tables and figures displaying results of each analyses e.g. final multivariable models, DID significant effects as marginal plots, HAZ decomposition pies, etc.

Under-5 Mortality
Country Exemplar Selection

Objective: Establish a set of Exemplar Countries within which to investigate effective strategies for reducing under-5 mortality (U5M).

Inputs: Time-series estimates of U5M (IHME, IGME, CHERG) and gross domestic product (World Bank). Expert consensus (Technical Advisory Panel).

Process: Control for economic growth. Exclude countries that are very small, lack of data, or have circumstances where we would have difficulty conducting primary research. Look at positive deviants

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after comparing epi outcomes to economic growth. Look at strata of interest. Apply inclusion and exclusion criteria. TAP used Delphi approach to rank countries.

Outputs: A subset of countries which performed exceptionally well in the outcome, represent a range in geographies, income bands, populations, and approaches to improving the U5M. Alternate countries.

Literature Review

Objective: Synthesize information on contextual factors, national and subnational interventions, policies, strategies, programs, and initiatives that may have theoretically contributed to reductions in under-five mortality. Initial review reveals key topics for follow-up search.

Inputs: Literature from online databases (MEDLINE, Google Scholar) using the search teams "child mortality" and "under-5 mortality". Additional review of gray literature and review of exisiting data sources including CountDown 2015 and 2030, DHS, multilateral donor reports (ex. GFATM, GAVI), implementing partner reports and other sources. Further targeted searches included specific EBIs, causes of death, or contextual factors as search terms (e.g. "insecticide-treated nets", "malaria", or "community health workers").

Process: Initial desk research was synthesized and then reviewed for accuracy and completeness. The review was an iterative process, with ongoing additions occurring throughout the primary research process as additional sources (published articles, reports, case studies) were identified or gaps in knowledge for further exploration. We purposely did not include in-depth reviews of important broad interventions that contributed to U5M reduction but not targeted to amenable causes explicit, including education, poverty reduction, water and sanitation, broad health systems strengthening and programs designed to improve nutritional status. However as these were important contextual factors, background information on timing, scope and coverage were included where available. This secondary data were also supplemented where possible by review of relevant country policy and evaluation reports.

Outputs: Organized and summarized literature. List of key areas for follow up in future investigation.

In-Country Interviews

Objective: Obtain first-hand accounts of how the interventions were chosen, adapted, implemented, adapted and work to maintain within the country and learn of potential data and documentation that could assist with making inference.

Inputs: Key stakeholders including global and national level actors, Ministry of Health actors, project managers and implementers for specific causes of death or EBIs, and others.

Process:

Key informants were chosen based on the EBIs and leading causes of death (from IHMS and IGME). Additional potential KIs were also identified from the literature review and snowballing from KIs. This was done in close collaboration with the in-country partner, prioritizing those EBIs that were reported as most successful, as well as any major EBIs for which no evidence of implementation was found in the literature. These key informants included current and former Ministry of Health employees responsible for overall direction or identified key specific disease or intervention areas. We also interviewed key

individuals from NGOs, multilateral organizations or donor organizations, who had managed partner-supported or partner-led activities. We focused on individuals active in the time period between 2000 and 2015, but were able to also capture some experiences before 2000 and after 2015.

Informed by the framework and review of relevant literature on contextual factors, EI implementation and implementation outcomes, we developed core interview guides for four main routes of inquiry. These were:

- Global and national level actors;
- Ministry of Health (MOH) actors;
- Project managers and implementers for specific causes of death or EBIs; and
- Other partners

The interviews were designed to address the EBI implementation process, from exploration to identify the problem and identify potential interventions, preparations following the decision to implement including adaptation, implementation and ongoing adaptation to sustainability. The interviews also explored critical contextual factors at the relevant global, national, ministry, and local levels. The interviews also identify additional sources of data and information which could be added to the knowledge base and understanding already developed from the desk review. Follow-up interviews were conducted as gaps or additional needs were identified. Interviewees were informed about the goals and structure of the project, and consent for participation and recording was obtained separately from the interview (recording was solely for the purpose of reviewing notes). All interviews except one were led by one of the project PIs with one to two note-takers. Following the close of the interview, notes were combined and the tape recording (if allowed) was used to clarify areas as needed.

Outputs: In depth understanding the implementation process, contextual facilitators and barriers as well as adaptations made during planning and implementation . In addition, understanding and identification of key implementing strategies for individual EBIs.. This includes the process for deciding upon implementing the intervention, the plan for implementation, the actual implementation, and efforts to make the intervention sustainable were all extracted from interview transcripts. The synthesis across a country to include common strategies as well as transferable knowledge for uptake by other countries. These interviews also led to identification of additional data or documents that could lend additional insight into the country's actions.

Policy/Systems/Financing
Objective: Assess available information on the policies, systems, and financing that contributed to U5M decline

Inputs: Published literature. Documents and literature identified by key informants

Process: Conduct a targeted literature search to screen published literature for information on policies. Follow-up on documents and literature identified as important during key informant interviews.

Outputs: Implementation Science framework

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Descriptive Statistics

Objective: Organize available estimates of key outcomes, intervention coverage, risk factors, and contextual factors within a country that could assist with hypothesis generation or highlight interesting insights through stratification of estimates.

Inputs: Demographic and Health Surveys (DHS), Country reports.

Process:

Geospatial Analyses: 5x5 km U5M maps from IHME.

Equity Analyses: Stratified U5M by wealth quintile, maternal education, residence (urban vs rural), child gender, and double disaggregation (wealth and residence); estimates were used create equiplots so as to examine both absolute and relative inequalities. These analyses were download from by the Federal University of Pelotas Equity Group repository and re-calculated by our team for newer surveys or to validate estimates.

Outputs: 5x5 km area U5M estimates. U5M and intervention coverage estimates stratified by wealth quintile and geographic region.

Causal Evaluation

Objective: Using available data and quantitative methods, decompose the decline in under-5 mortality into explainable and unexplainable factors.

Inputs: Risk factor and intervention prevalences. Cause-specific mortality estimates. Population Attributable Fractions for risk-cause pairs. Health System Strength (HSS) estimates.

Process:

IHME:

1. Calculate exposure to risks or coverage of intervention
2. Establish relative risk for each specific disease outcome through literature review – mixture of RCTs, before-after, case-control and natural history models
3. Generate population attributable fraction
4. Decompose using Das Gupta method*
   a. Divide overall difference between years into contributions from:
      i. **Population growth**: Change in total population size
      ii. **Population age structure**: Change in relative size of each age group
      iii. **Exposure or intervention coverage**: Change in exposure or coverage to a selected set of 30 risks and interventions
      iv. **Healthcare Access and Quality (HAQ) Index**: Change in risk-deleted mortality related to changes in HAQ
      v. **Other factors**: Change in the risk-deleted mortality that is not related to changes in HAQ
5. Regress risk-deleted mortality on Health Access Quality (HAQ) index to identify changes in mortality due to improvements in HAQ

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LiST: Lives Saved Tool (LiST) calculates changes in cause-specific mortality based on intervention coverage change, intervention effectiveness for that cause, and the percentage of cause-specific mortality sensitive to that intervention. Coverage data come from large-scale household surveys - typically Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) - as well as WHO/UNICEF and the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP). Default effectiveness values come from systematic reviews, meta-analyses, Delphi estimations, and randomized control trials based upon the Child Health Epidemiology Reference Group (CHERG) guidelines. Baseline mortality is drawn from country-level estimates from DHS, WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division and the UN Inter-agency Group for Child Mortality Estimation (IGME). These high quality data sources as inputs translate into estimates that can be trusted. Additionally, users who have more recent or better data can easily replace default data with their own.

<u>Outputs</u>: The percent decline in U5M attributable to each EBI for which data were available

Community Health Workers
Country Exemplar Selection
<u>Objective</u>: Identify best in class national, government led integrated CHW programs from which other countries can learn as they scale their own CHW programs.

<u>Inputs:</u> Data on CHW programs including number of CHWs, CHW density (CHWs per 1,000 total population, with recognition that some CHW programs serve subnational patient populations), incentive and training characteristics and cross-country time trends on key health intervention coverage and outcome metrics, including: % change in family planning prevalence, % change in under-five mortality, % change in antenatal care visits, % change in skilled birth attendance, % change in facility-based delivery, and % change in maternal mortality ratio.

<u>Process</u>: Last Mile Health assembled a 7-member Technical Advisory Panel of global health experts in the Community Health and Primary Health Care fields to select case study countries and advise on research approach, methods and case study content. In collaboration with the Technical Advisory Panel, Last Mile Health employed a rigorous approach to case study country selection, including the following three steps:

- *Created shortlist of potential case study countries:* Used academic literature and country case studies to enumerate ~60 large scale CHW programs in low- and middle-income countries. Developed shortlist of ~20 programs based on research feasibility, data quality, regional diversity and availability of CHW scale estimates. For example, we excluded countries for which we could not find an estimate for the number of deployed CHWs (assuming it is unlikely that an exemplary CHW program will have an unknown estimate for number of CHWs).
- *Developed criteria and data visualizations to inform country selection:* Developed five criteria to help inform selection process, including: Scale of CHW program; changes in

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national population health outcomes over time; changes in national health intervention coverage over time; government stewardship; and integration into the primary health care system. Used data visualizations to plot cross-country time trends for available metrics like FP coverage and under-5 mortality against community health worker density to help select positive outlier countries. Stewardship and integration were ranked qualitatively by our technical advisory panel.

- *Rank ordered potential case study countries:* Based on selection criteria, data visualizations, and expert knowledge, the technical advisory panel rank ordered their top choices for each of three geographic regions (Latin America and the Caribbean, Asia Pacific and Sub-Saharan Africa). Based on these rankings, a total score was developed for each country. Last Mile Health facilitated a discussion of the ranking results to develop consensus among the technical advisory panel members on the selected countries. The final selection decision sought to also ensure diversity of selected countries by income classification, demographics, political, social and economic context, CHW program scale and model/approach as well as program maturity. Liberia was recommended by the Technical Advisory Panel as a fourth case study because of its potential relevance to other settings.

Outputs: The TAP decided on 4 exemplar countries that represented diverse regions of the world: Bangladesh, Brazil, Ethiopia and Liberia

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Literature Review
Objective:

- To synthesize information on contextual factors, key policies, decisions, strategies, programs and initiatives that contributed to the design, scale, adaptation and sustainability of each exemplar country's CHW program.
- To synthesize population level progress related to key health intervention coverage and health outcome metrics aligned with the activities and services offered by each country's CHW program.

Inputs: Qualitative literature review, including peer-reviewed journal articles, published reports, impact evaluations, government and NGO strategy and policy documents, meeting presentations and other grey literature. Quantitative analysis of publicly available data, including health financing, coverage and outcome data from demographic health surveys, annual government reporting and other globally recognized data sets such as the Institute for Health Metrics Evaluation, the World Bank and the World Health Organization (WHO), among others.

Process:

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Relevant literature was iteratively synthesized and summarized to inform research and interview questions in advance of field trips and to complement interview data and insight generation after field trips.

The literature review sought to detail the evolution of pioneering CHW programs utilizing two frameworks: WHO ExpandNet[1] and Primary Healthcare Performance Initiative (PHCPI)[1]. The WHO ExpandNet framework enabled Last Mile Health to systematically explore the scaling-up process of these exemplar CHW programs. Through the lens of ExpandNet, the project investigated specific elements of the Primary Healthcare Performance Initiative (PHCPI) framework, most notably governance and leadership, health workforce, health financing, facility infrastructure, and service delivery.

Outputs: Synthesis of literature and documents that have examined factors related to design, scale, adaptation, and sustainability as well as ongoing challenges related to community health worker programs in exemplar countries to inform research and interview questions as well as production of case study content; data collection excel sheet that synthesized key data elements for each exemplar country (i.e. changes in key health coverage and outcome metrics, health and primary health care financing, density of community health care workers, other complementary health workers and facilities, etc.).

In-Country Interviews

Objective: To better understand how the scale-up process unfolded and to identify unique characteristics of the programs that drove design, scale, adaptation and sustainability over time.

Inputs: In collaboration with local partners, Last Mile Health conducted research visits to each country. These trips included site visits to the CHW program and in-person, semi-structured interviews with up to 30 key stakeholders. Stakeholders included current and former Ministry of Health leaders, directors of professional associations, national and international NGOs, research institutions as well as representatives of multilateral and bilateral institutions.

Process: In each case study country, Last Mile Health closely engaged with an in-country research partner to identify stakeholders that 1) played a leadership role in the CHW implementation process and 2) could help Last Mile Health better understand program characteristics and key drivers of scale, adaptation and sustainability. Last Mile Health identified participants representing a range of perspectives across key sectors, including the government, NGO, donor, and academic sectors. Interview questions were organized around the ExpandNet scaling up framework and were adapted to a smaller set of interview questions for several types of stakeholders.

For qualitative data collection and analysis: Notes were taken by interviewers during sessions. When possible, interviews were audio-recorded and transcribed. Interview transcripts were analyzed according to the thematic areas pursued in the interview guide. Using inductive reasoning, Last Mile Health explored the key factors that contributed to the successful scale-up and implementation of community health efforts in each CHW exemplar country. To ensure the anonymity of research participants, no quotes are attributed to specific individuals in the case study without explicit permission. Wherever possible, Last Mile Health triangulated interview data with the literature and sought additional guidance from in-country stakeholders to ensure accuracy.

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<u>Outputs</u>:

The case study interviews addressed several overarching themes which allowed Last Mile Health to better understand the specific program characteristics and contextual factors that made scale up of the CHW program possible and were key to program effectiveness. These themes included: Program inception, program evolution, success factors, outstanding challenges, and future vision.

Policy/Systems/Financing

<u>Objective</u>: To ensure the reader was able to quickly understand the basic program characteristics, structure and evolution, Last Mile Health developed a variety of graphics, including:

1. Chronological timeline that synthesized the key policies, contextual factors and program changes over time
2. A standardized assessment of each country's key program characteristics, like scale/density, services offered, roles/responsibilities, selection process, qualifications, training, management and supervision model, incentives regime, integration into the PHC system, etc.
3. A schematic of the country's primary health care system and CHW program, including relevant cadres, referral and intervention pathways.

<u>Inputs</u>: literature review, in-country interviews and stakeholder consultations

<u>Process</u>: Desktop literature review produced a suggested timeline, program characteristics table and program structure visual. These outputs were shared and validated with expert stakeholders in each exemplar country and revised as needed before incorporation into the case studies.

<u>Outputs</u>: Timeline, program characteristics table and program structure visual.