



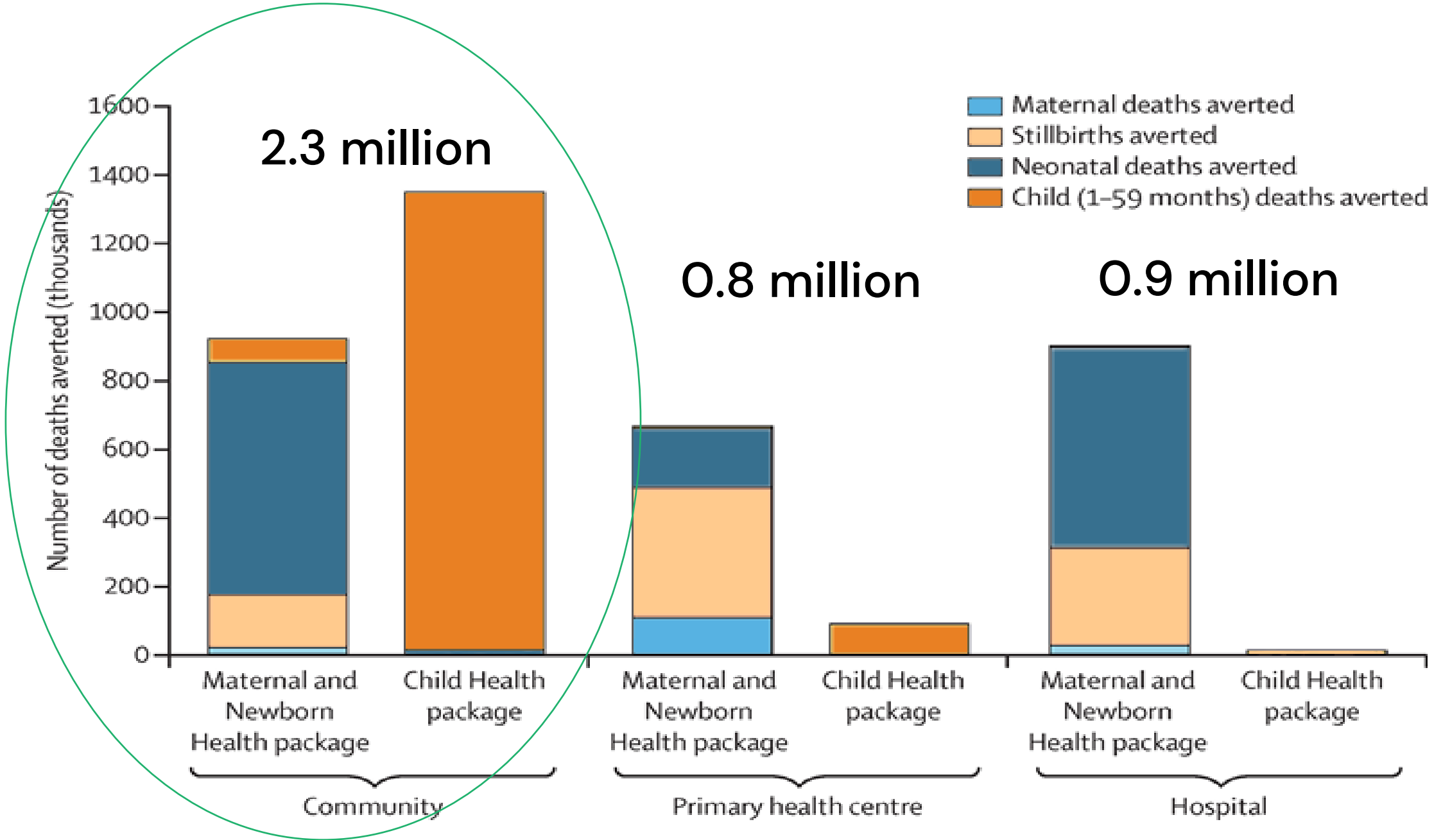
Applying the Community Health Worker Coverage and Capacity Tool for time-use modeling

May 23, 2023

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IDM Annual Symposium 2023



Strengthening and scaling up community and PHC platforms could avert 77% of preventable maternal, newborn, and child deaths and stillbirths



SOURCE: Black RE, Walker N, Laxminarayan R, Temmerman M. Chapter 1: Reproductive, Maternal, Newborn, and Child Health: Key Messages of this Volume. DCP3 RMNCH 2016.

Investment Case for CHWs in sub-Saharan Africa



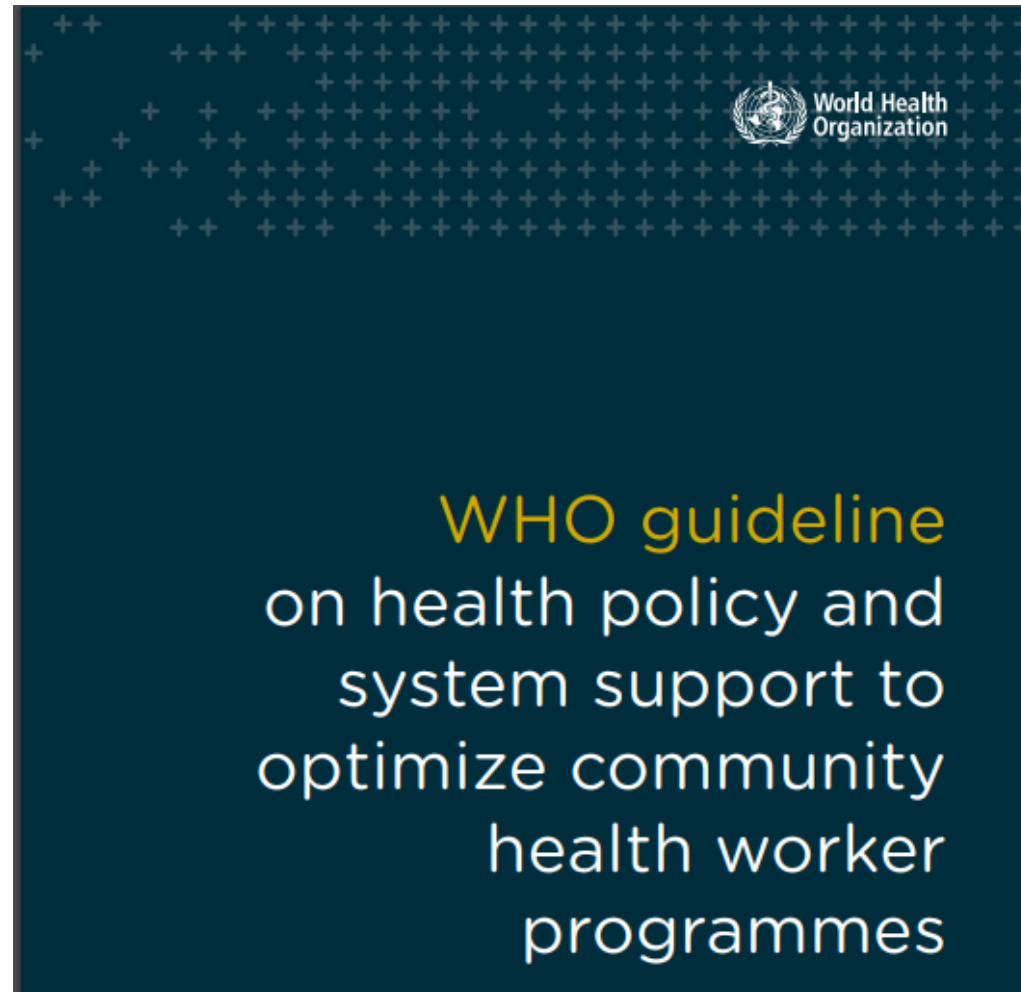
Economic return of up to 10:1

SOURCE: Strengthening Primary Health Care through Community Health workers: Investment Case and Financing Recommendations – July 2015
(https://www.who.int/hrh/news/2015/chw_financing/en/)

CHW Program Impact



WHO guideline to optimize CHW programs



Target population size for CHWs is not a fixed ratio in the WHO guideline (2018):

- Workload based on epidemiology and anticipated demand for services
- Frequency of contact required
- Nature and time requirements of the services provided; and
- Expected weekly time commitment of CHWs

CHW Coverage and Capacity (C3) Tool supports realistic planning

4. Policy Interactive Screen for analyzing CHW needs (Please read comment)

Name of scenario	Standard			Reduced HP implementation		
	Est hours worked/week - 8 - average for training, meetings and any meetings	Hours of CHWs availab per week	Hours worked per week	Hours of CHWs availab per week	Hours worked per week	Hours worked per week
ASH	3734	52	42.1	3734	52	42.1
Dinner	7,793	52	42.3	7,793	52	42.3
HP	3897	52	42.1	3897	52	42.1

Description of scenario	Standard		Reduced HP implementation	
	utilizing implemented	Provided	utilizing implemented	Provided
Male condom distribution [ASH]	58.0	ASH	58.0	ASH
Male condom distribution [Dinner]	58.0	Dinner	58.0	Dinner
Oral Contraceptives [ASH]	58.0	ASH	58.0	ASH
Oral Contraceptives [Dinner]	58.0	Dinner	58.0	Dinner
Depo Provera Injections [ASH]	58.0	ASH	58.0	ASH
Depo Provera Injections [Dinner]	58.0	Dinner	58.0	Dinner
Cycle lead [ASH]	58.0	ASH	58.0	ASH
Cycle lead [Dinner]	58.0	Dinner	58.0	Dinner
FP identification and referral for uniform use	58.0	ASH	58.0	ASH
FP identification and referral for uniform use	58.0	Dinner	58.0	Dinner
FP Referral follow up - ASH	58.0	ASH	58.0	ASH
FP Referral follow up - Dinner	58.0	Dinner	58.0	Dinner
ASH Visit 1	100.0	ASH	100.0	ASH
ASH Visit 2	100.0	ASH	100.0	ASH
ASH Visit 3	100.0	ASH	100.0	ASH
ASH Visit 4	100.0	ASH	100.0	ASH
Delivery assistance (uncomplicated)	100.0	ASH	100.0	ASH
Discharge for home delivery	100.0	ASH	100.0	ASH
PHC Visit 1 (normal weight)	100.0	ASH	100.0	ASH
PHC Visit 2 (normal weight)	100.0	ASH	100.0	ASH
PHC Visit 3 (underweight)	100.0	ASH	100.0	ASH
PHC Visit 2 (underweight)	100.0	ASH	100.0	ASH
PHC Visit 3 (underweight only)	100.0	ASH	100.0	ASH
Maternal or neonatal referral	100.0	ASH	100.0	ASH
Sick child visit	100.0	Dinner	100.0	Dinner
Diagnosis and treatment of diarrhea [E-S3]	58.0	Dinner	58.0	Dinner
Diagnosis and treatment of pneumonia [E-S3]	48.0	Dinner	48.0	Dinner
Diagnosis and treatment of malaria [E-S3]	58.0	Dinner	58.0	Dinner
Diagnosis and treatment of malaria [adult]	25.0	Dinner	25.0	Dinner
ICCM follow up	100.0	Dinner	100.0	Dinner
Screening [4 - 5 years]				
Immunization and with vaccination				
Growth Monitoring & Promos [ASH]	100.0	ASH	100.0	ASH
Growth Monitoring & Promos [Dinner]	100.0	Dinner	100.0	Dinner
Growth Monitoring & Promos [HP]	100.0	HP	100.0	HP
Malnutrition follow up [Dinner]	58.0	Dinner	58.0	Dinner
Malnutrition follow up [HP]	48.0	HP	48.0	HP
Community meeting demonstration [ASH]	100.0	ASH	100.0	ASH
Community meeting demonstration [Dinner]	100.0	Dinner	100.0	Dinner
Community meeting demonstration [HP]	100.0	HP	100.0	HP
Knowing Parents - Food Security, etc. [ASH]				
Knowing Parents - Food Security, etc. [Dinner]				
Knowing Parents - Food Security, etc. [HP]				
Require stake - ASH	8.0	ASH	8.0	ASH
Require stake - Dinner	8.0	Dinner	8.0	Dinner
Require stake - HP	10.0	HP	10.0	HP
Hour slots for DCC by HP targeting malnutrition	100.0	HP	35.0	HP

Percentage of available time occupied by all activities (read comment)

Percentage of planned activities that can be implemented with available/planned CHWs (read comment)

Theoretically ideal number of CHWs

Intervention and activity analysis (Read comment, please)

Top 10 Interventions, ranked by total time needed to deliver activities

- Hour slots for DCC by HP targeting malnutrition
- Early Childhood Development - hour slots for priority children benefits
- ITH hour slots in HH [HP]
- Require stake - HP
- Growth Monitoring & Promos [HP]
- Community meeting demonstration [HP]
- Malnutrition Follow up [HP]
- Early Childhood Development - group activities
-
-

Distribution of CHW time by task (read comment)

Annual hours per CHW needed to accomplish SOW on time available

Hours	Time needed (hours/CHW/yr)	Time available (hours/yr)
Service delivery	1,410	
Travel	63	
Administration	70	
Compliance	40	
Training	10	
Cooperation rings	16	
Total	1,510	12,145 per week

Time distribution per CHW (hours per week)

Essential workload	15.2	100%
Service delivery	8.2	
Travel	1.2	
Administration	1.5	
Compliance	0.8	
Training	0.2	
Community activities	0.3	
TOTAL	25.3	

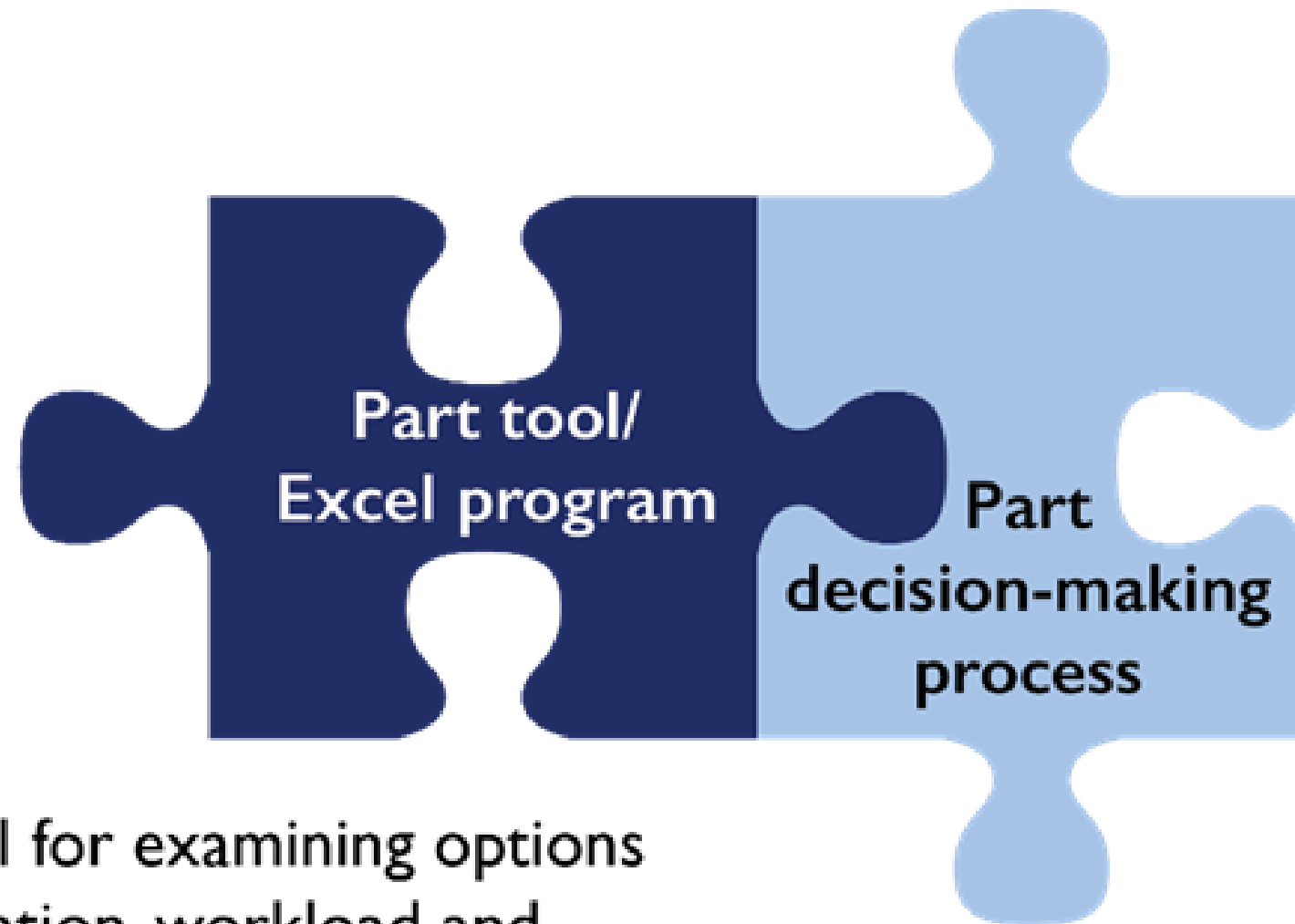
Graph of Time Needed on Time Available

The C3 Tool uses Excel to model different scenarios for expected implementation coverage vs. human capability (numbers * time)

Modeling Tool + Decision-making Process

C3

**CHW
Coverage
Capacity**

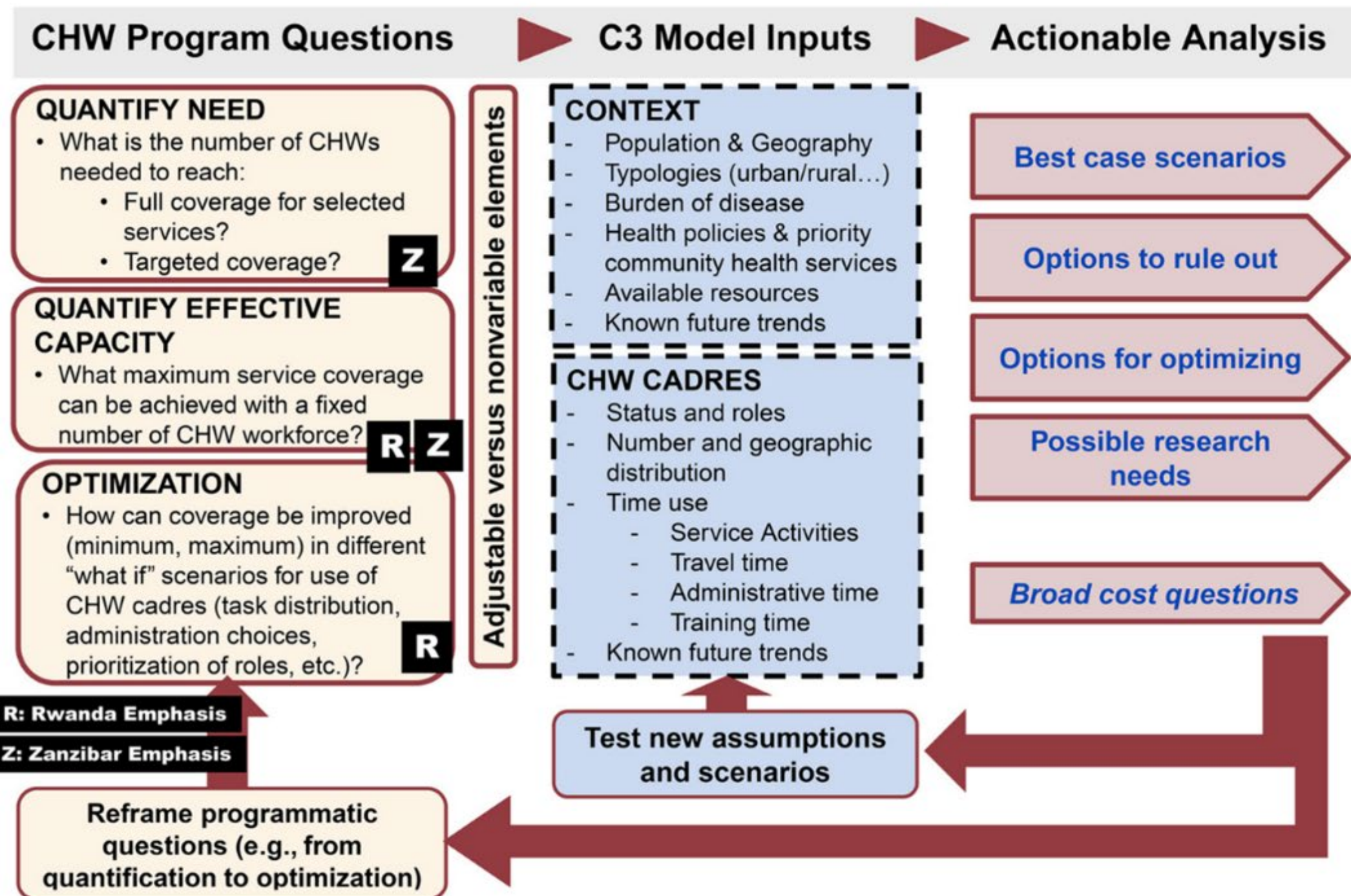


An Excel-based tool for examining options of CHW time allocation, workload and estimated coverage.

The C3 Modeling Process

FIGURE 1. Iterative Steps of the Modeling Component of the C3 Process

1. Engaging stakeholders
2. Defining the questions
3. Modeling assumptions and inputting data in the C3 Tool
4. Iterative testing of scenarios through the C3 Tool
5. Prioritizing and decision making



Source: [Applying the Community Health Worker Coverage and Capacity Tool for Time-Use Modeling for Program Planning in Rwanda and Zanzibar](#) (ghspjournal.org)

Case study: Zanzibar community health strategy revision



Map source:
<http://news.bbc.co.uk/2/hi/africa/4167807.stm>

- Strategy included a new Community Health Volunteer (CHV)
- Key question for Ministry of Health (MoH): “How many CHVs do we need to reach all communities in Zanzibar?”
- D-Tree International worked with MoH to apply beta version of C3 Tool in 2018–2019
 - Reviewed intended service package
 - Estimated number of visits, time/visit, travel time, etc.
 - Agreed on target levels of service coverage and feasible CHV workload
- Reviewed assumptions with broader stakeholder group from MOH and President’s Office*

*PORALGSD: President’s Office Regional Administration, Local Government and Special Depts.

1. Program Information

Name of subpopulation	Zanzibar
Country	United Republic of Tanzania
Policy analysis mode	Population per CHW
Year of analysis	2018
Total Population (2018) Zanzibar	1,579,849
Population per community	720
What is the average household size?	5.4

Intervention details

Service / Intervention	Program	Target population	Population in Need or Incidence rate (PIN)	Number of visits	Minutes per visit
Pregnancy Visit 2	RMNCH incl Nutrition & ECD	Pregnant Women	100.00%	1	25
Pregnancy Visit 3	RMNCH incl Nutrition & ECD	Pregnant Women	100.00%	1	25
FU-referral (preg,PP,new	RMNCH incl Nutrition & ECD	Pregnant Women	5.00%	1	15
FU visit - problem (preg,	RMNCH incl Nutrition & ECD	Pregnant Women	7.00%	2	15
Emergency support	RMNCH incl Nutrition & ECD	Pregnant Women	5.00%	1	60
Postnatal Visit 1 (normal	RMNCH incl Nutrition & ECD	Children <1	100.00%	1	60
Postnatal Visit 2 (normal	RMNCH incl Nutrition & ECD	Children <1	100.00%	1	25
Postnatal Visits (3) (smal	RMNCH incl Nutrition & ECD	Children <1	10.00%	3	30
Infant Visit 1	RMNCH incl Nutrition & ECD	Children <1	100.00%	1	45
Infant Visit 2	RMNCH incl Nutrition & ECD	Children <1	100.00%	1	45
Infant Visit 3	RMNCH incl Nutrition & ECD	Children <1	100.00%	1	35

Three scenarios defined for analysis, as seen for Zanzibar

	Best package			Less work time/CHV			Smaller catchment/CHV		
	<i>Pop, Hours per week, total # CHVs fixed.</i>			<i>Same as "best package", but with 15 hours per week</i>			<i>Same as "best package", but with smaller catchment</i>		
	Population per CHW	Weeks worked per year	Hours worked per week	Population per CHW	Weeks worked per year	Hours worked per week	Population per CHW	Weeks worked per year	Hours worked per week
CHV	720	48	18	720	48	15	500	48	18
	Best package			Less work time/CHV			Smaller catchment/CHV		
	% planned activity implemented			% planned activity implemented			% planned activity implemented		
			Provider			Provider			Provider
Pregnancy Visit 1	95		CHV	95		CHV	95		CHV
Pregnancy Visit 2	80		CHV	80		CHV	80		CHV
Pregnancy Visit 3	90		CHV	90		CHV	90		CHV
FU-referral (preg,PP,newborn)	90		CHV	90		CHV	90		CHV
FU visit - problem (preg, PP, ne	90		CHV	90		CHV	90		CHV
Emergency support	90		CHV	90		CHV	90		CHV

Selected outputs and results for Zanzibar

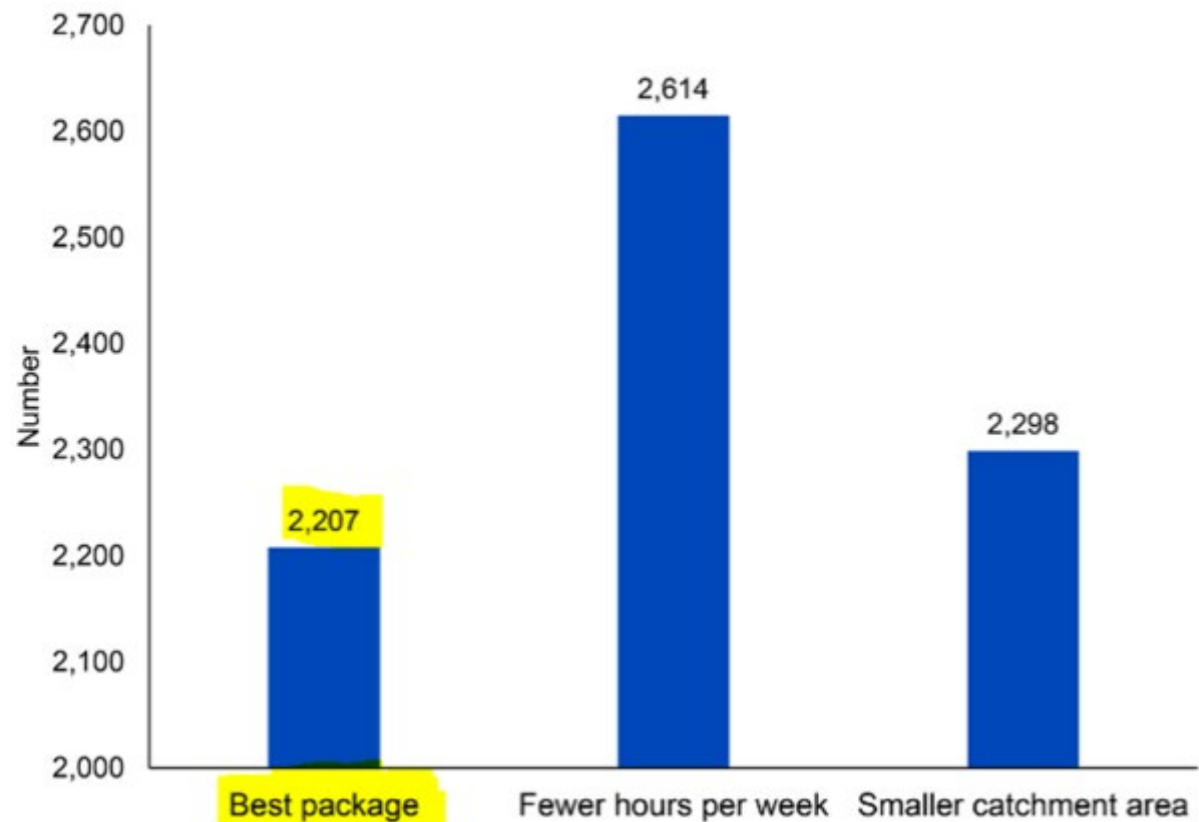
CHW Cadre: CHV
Scenario: Best package

Top 10 interventions, ranked by total time needed to deliver services

- 1 Health promotion: Average meeting (education)
- 2 Child Visit 1
- 3 Child Visit 2
- 4 Child Visit 3
- 5 Identify and coach, threats to development
- 6 Postnatal Visit 1 (normal)
- 7 Pregnancy Visit 1
- 8 Child Visit 4
- 9 Infant Visit 1
- 10 Child Visit 6

Modeling projected that 2,200 community health volunteers could achieve approximately 90% coverage of the defined services, working 18 hours per week, with a catchment population of 725 people.

FIGURE 3. Number of Community Health Volunteers Needed in Zanzibar to Carry Out All Activities, as Calculated Using the C3 Tool



C3 Tool influence in Zanzibar

- Zanzibar MoH updated its community health strategy, launched in February 2020, based on the service package and coverage estimates modeled using the C3 Tool.
- Determined acceptable monthly performance-based incentive for CHVs
- Informed costing of the CHV program using the Community Health Planning and Costing Tool



Photo Credit: Jamii ni Afya Program Brief, D-Tree International https://www.d-tree.org/wp-content/uploads/2022/09/Jamii-ni-Afya_Program-Brief-Sep2022.pdf



More information:



ORIGINAL ARTICLE

Applying the Community Health Worker Coverage and Capacity Tool for Time-Use Modeling for Program Planning in Rwanda and Zanzibar

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<https://doi.org/10.9745/GHSP-D-20-00324>

Discussion and postscript: the C3 Tool

- **Challenges & Opportunities**
 - Learning curve
 - Timing
 - Advocacy
 - Tool updates
- **Currently in use by:**
 - Unicef and USAID's MOMENTUM Country and Global Leadership project in Sierra Leone
 - World Vision in 17 countries, with 16 more country offices to be trained in 2023



Photo: Kate Holt/MCSP (Gaza, Mozambique)



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