Care Group Model Sustainability Study

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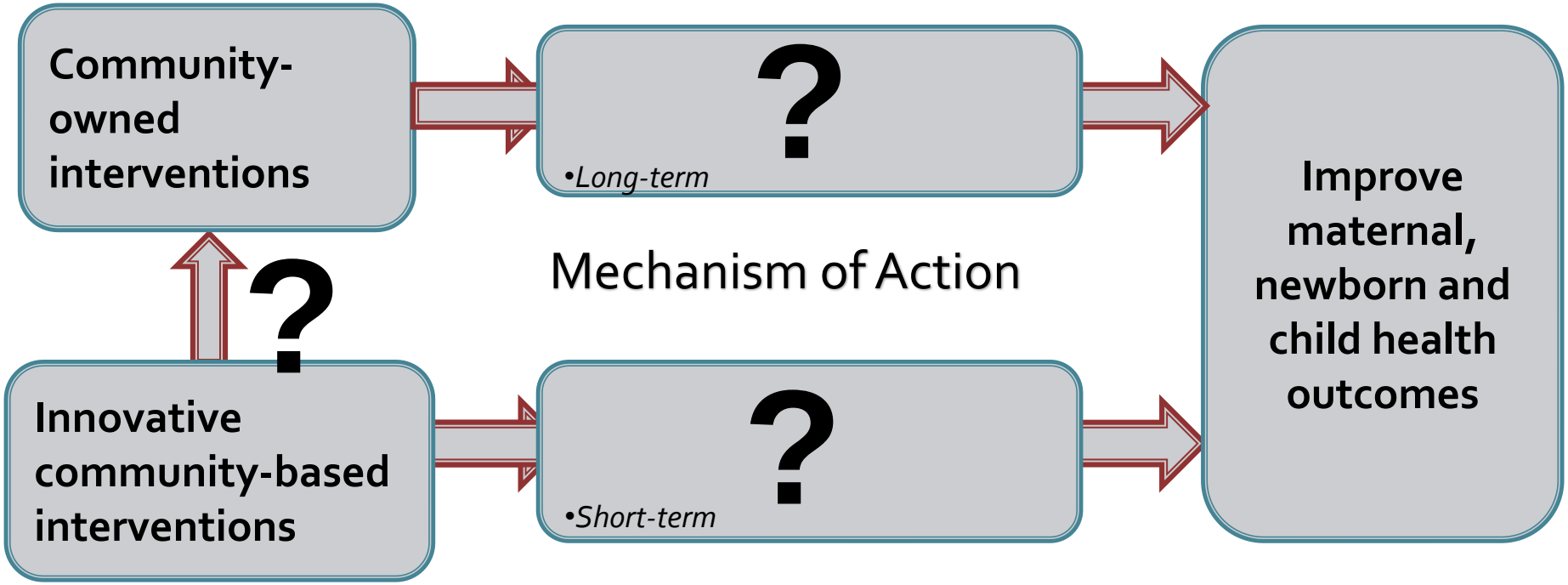
Outline

- **Overview** of motivation to study sustainability of CGM
- **Describe** problem statement
- **Present** a methodology used and study results, conclusion and recommendations

Research Interest



Examine the effect of cultural and social norms, social relationships, social network, gender role, empowerment, and collective actions at family and community levels and their impact on health behaviors, particularly, MNCH

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Care Group Model

- A community-based strategy for improving coverage and behavior change
- Focuses on building teams of volunteer women who represent, serve, and do health promotion with blocks of 10-15 households each

Fig 1. Cascade group volunteer teaching health message to her neighbor (FH, 2010)

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Why this study

- Whichever way you look at the world, disparity in MNCH affects every country, so even small contributions to reduce the problem are worth trying

Fig 2. Image showing different continents on a map (http://www.vectortemplates.com/raster-globes.php)

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Why this Study?

- There is a shift in Health Promotion Approach
- There is growing interest in the use of community-based approaches, the approaches that decrease malnutrition and child deaths through a structure that brings:
  - Behavior change
  - Target the right/influential group
  - Equity, universal coverage
  - Trusted relationship
  - Social Support
  - Continuity
  - Cost-effective

} Care Group Model

Why Study Sustainability of CGM?

- Evidence from these community-based approaches is mounting (Haines et al., 2007; Howard, 2010; Andrew et al., 2004, Davis et al., 2010, Perry et al., 2015)
  - Care group studies from Mozambique and Uganda are good examples (FH & WR) & Uganda (HCU & CW).
  - However, little is known about the sustainability of these health gains
  - Much remains to be understood regarding the long-term effectiveness of community health workers (such as CVG) serving in a "health promotion-only" role

Study aims

1) Evaluate the long-term impact of the use of CGM as a health promotion strategy,
2) Measure sustainability of health gains, and
3) Share the findings with those who want to replicate the model or components of it in the future

Research Questions

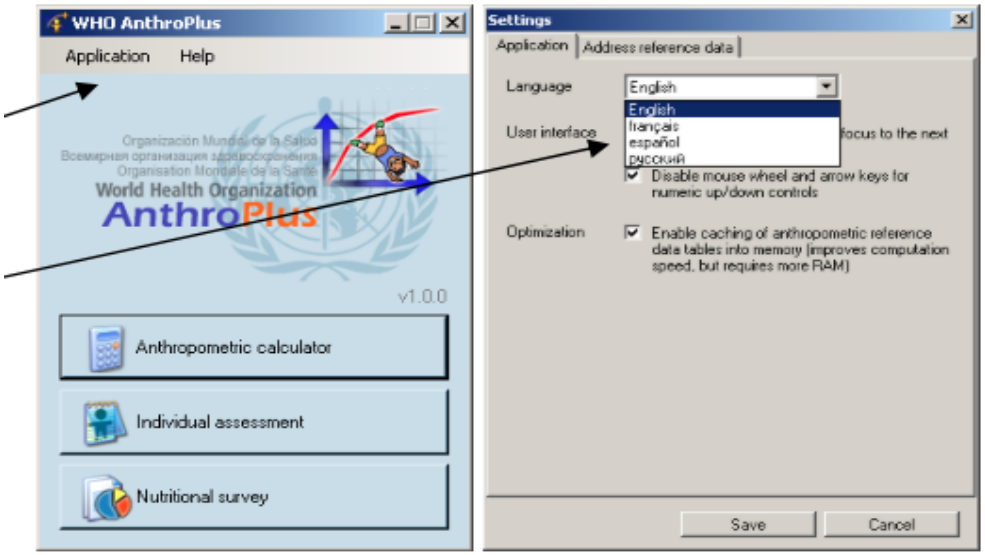
1) Does the tested intervention and health impact continue after the end of the program?
2) To what extent have the community volunteers continued cascading the healthy behavior knowledge, skills and practices among their community?
3) What magnitude of effects can be expected from a community-based health promotion programs like this one five years after the program?

Data

- Ethical approval
  - All study methods were reviewed and approved for compliance with ethical standards
- Data source
  - Survey women with children under the age of five
- Analytic sample
  - 504 women who have given birth in the last five years
  - 579 children under age of five.
- Unit of analysis
  - Women and children

Data (Cont..)

- Data analysis
  - SPSS to measure health behavior
  - Anthro to measure abnormal departure of height/weight from median at a given age/sex in a well nourished population
    - Weight-for age
    - Height-for-age
    - Weight-for-height
    - BMI-for age



Response variables (Indicators)

- Child Health
  - Nutrition status
  - Diarrhea and other diseases management
  - Health-seeking behavior (preventive)
    - Vit. A
    - Deworming
    - Vaccinations
  - Feeding practices
- Maternal health
  - Child spacing
  - ANC, delivery, PNC
  - Knowledge of PP danger signs
  - Knowledge of HIV prevention practices
  - TT injection
- Hygiene and sanitation practices

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Study Result

Research Q#1

1) Does the tested intervention and health impact continue after the end of the program?

Result: Undernutrition

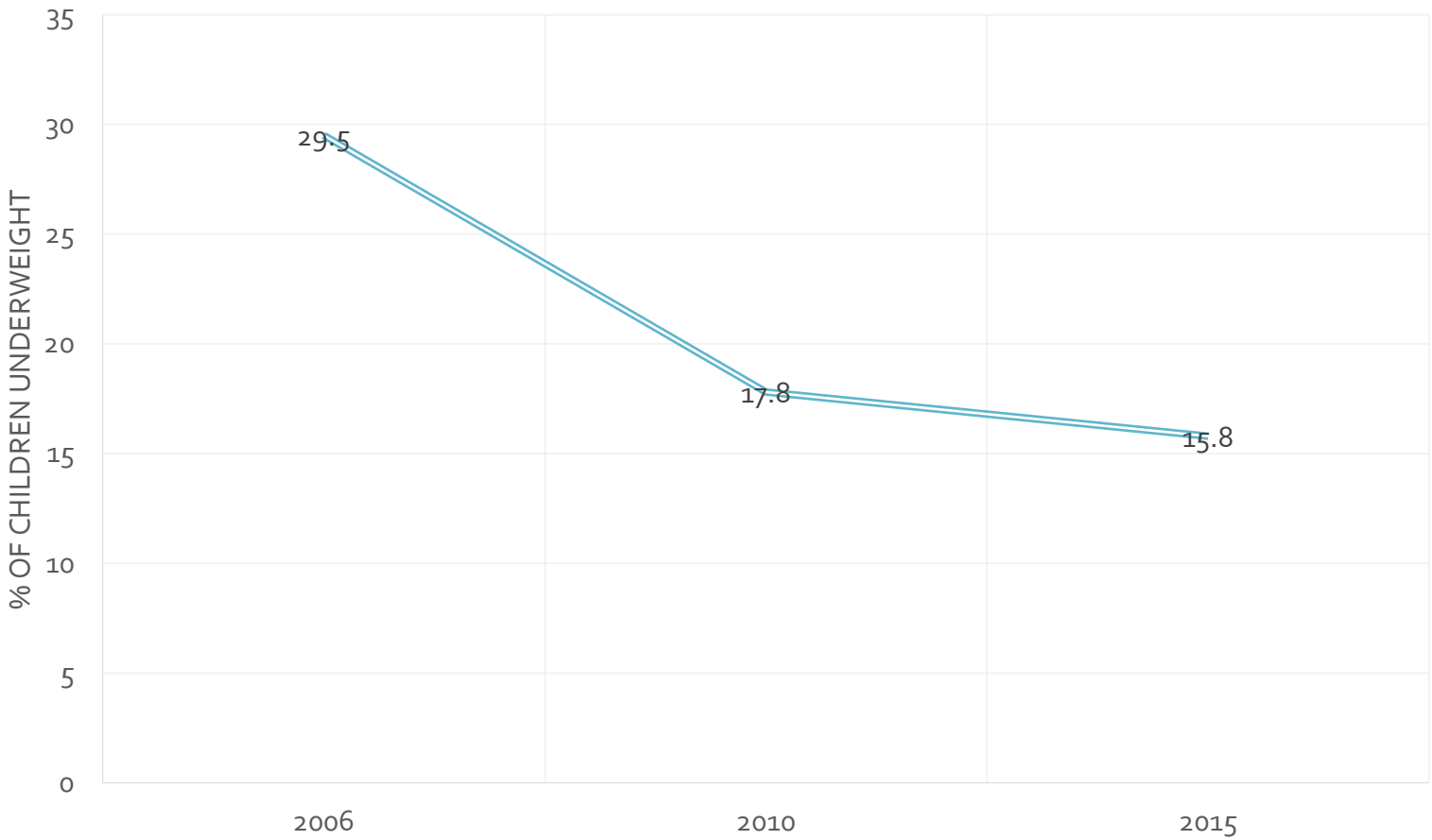

Fig 3. Percent underweight/undernutrition compared to the previous studies

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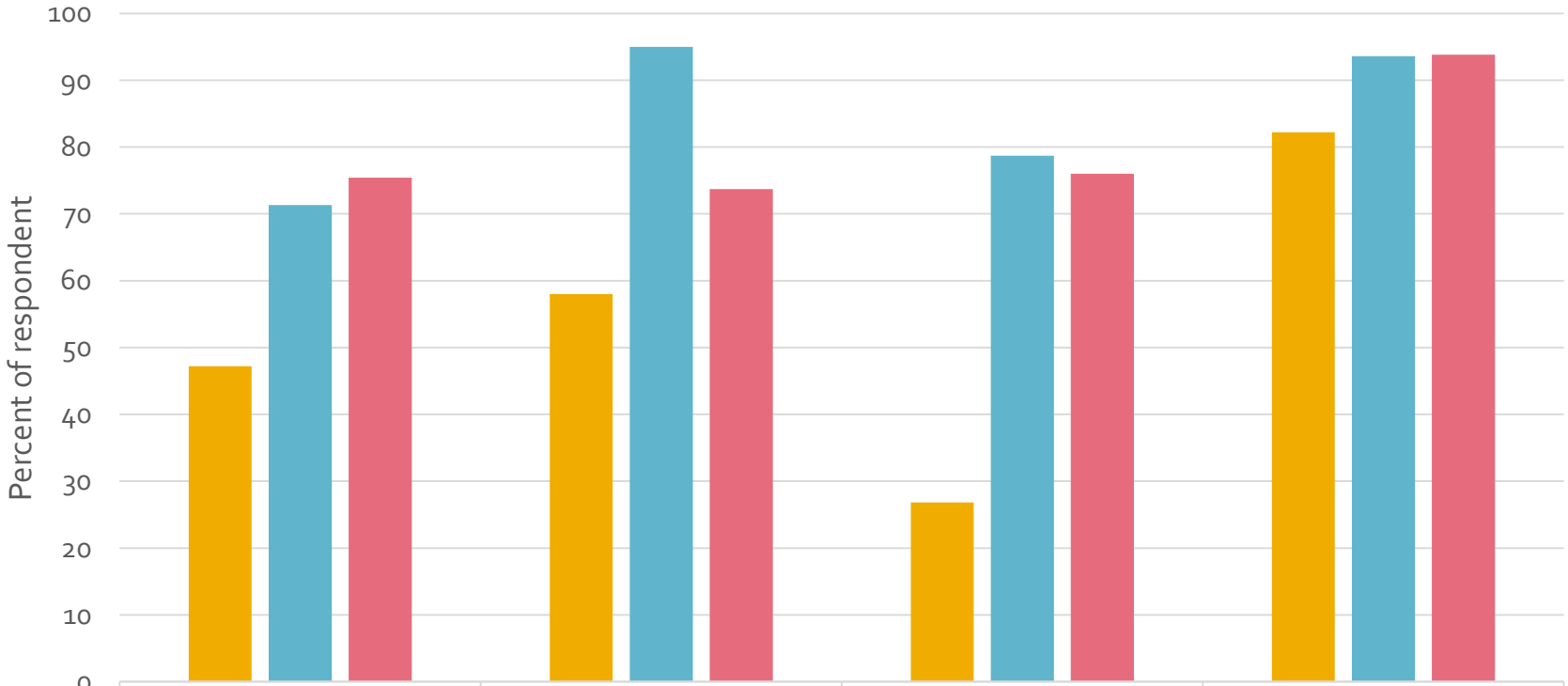
Result: Health-Seeking Behavior



	Fully Vaccinated DPT	Fully Vaccinated Measles	Deworming Meds	Vit A Supp.
2006	47.2	58	26.8	82.2
2010	71.3	95	78.7	93.6
2015	75.4	73.7	76	93.8

Fig 4. **Percent underweight/undernutrition compared to the previous studies**

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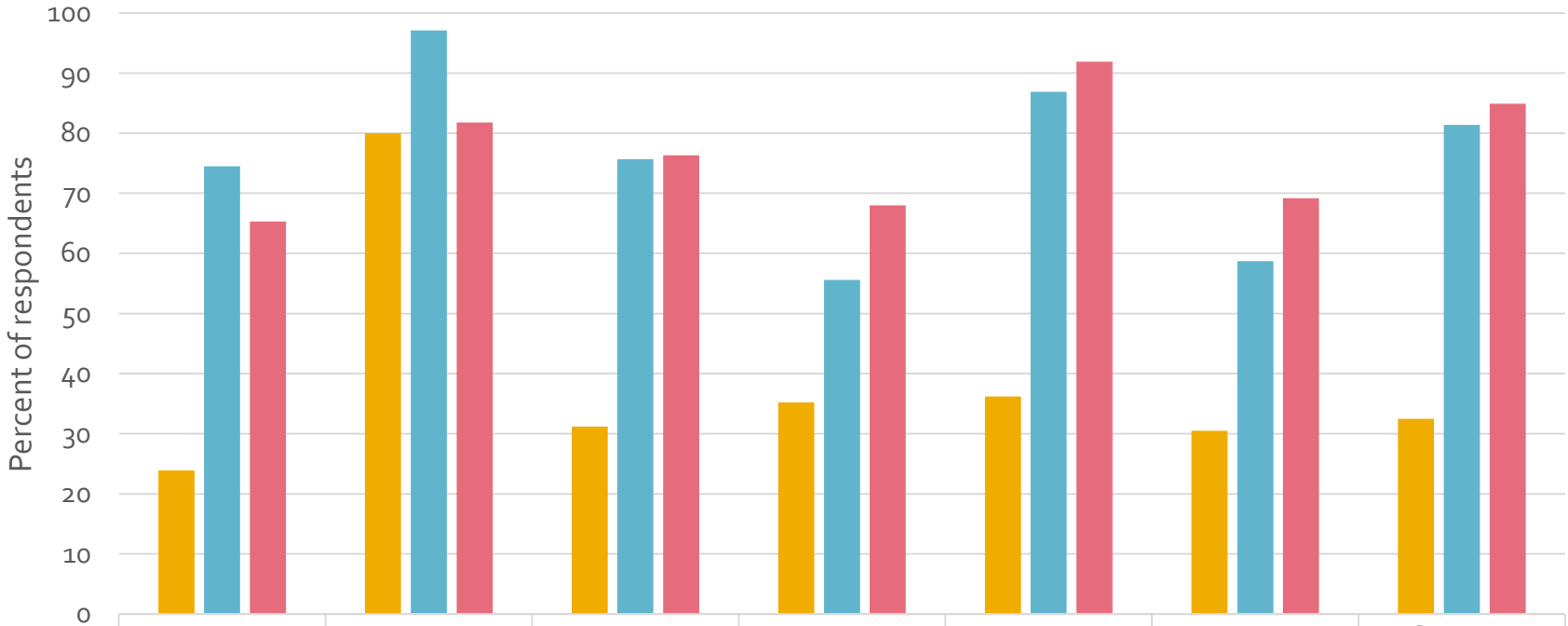
Result: Feeding Practices



	Exc. breastfeeding	Brest milk and Comp. food	At least 3+ meal a day	Incr. fluid during illness	Oil added to meal	Vit. A rich food	Same or greater food during illness
2006	23.9	80	31.2	35.2	36.2	30.5	32.5
2010	74.5	97.1	75.7	55.6	86.9	58.7	81.4
2015	65.3	81.8	76.3	68	91.9	69.2	84.9

***Fig 5*. Feeding practice Indicators compared to the previous data**

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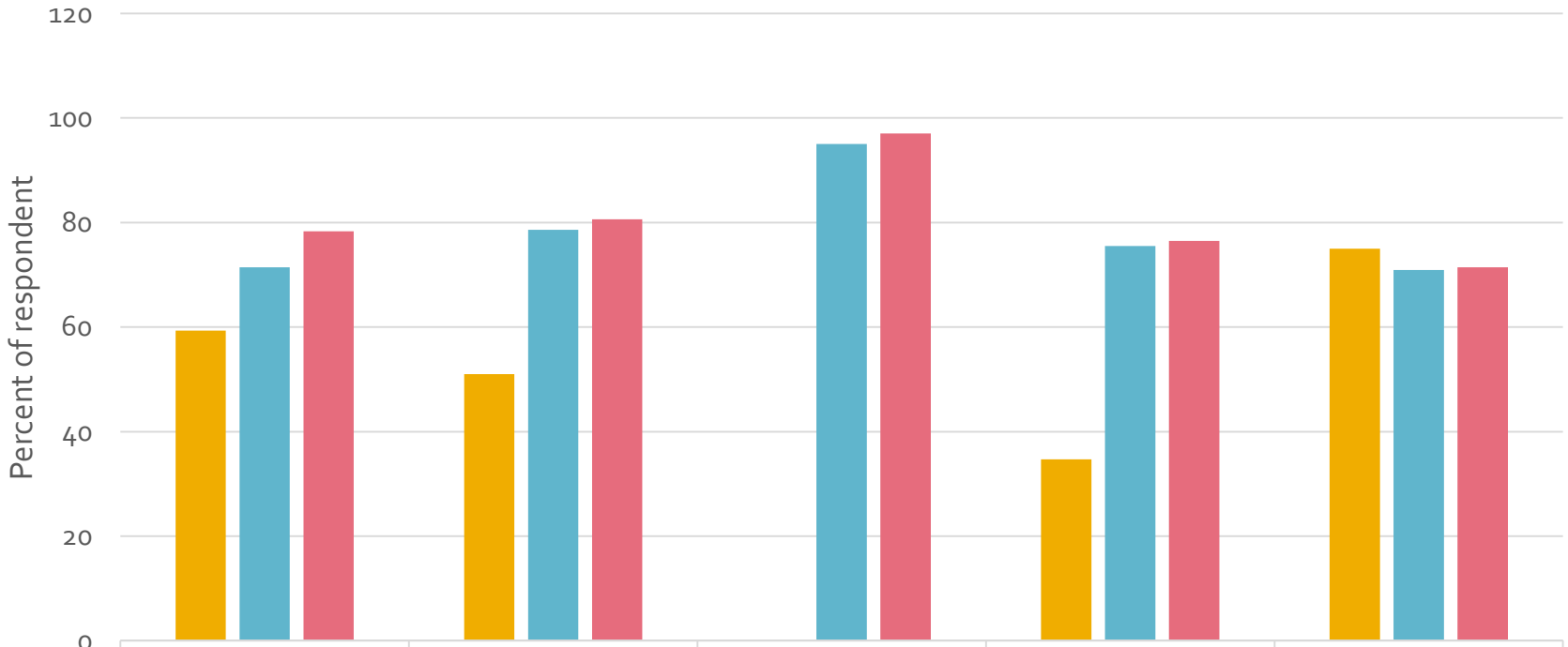
Result: Maternal Health



	Child Spacing	Skilled BA	Knwl of 2+ PP danger signs	Knowl of 2+ HIV prev practices	TT injection
2006	59.3	51	0	34.7	75
2010	71.4	78.6	95	75.5	70.9
2015	78.3	80.6	97	76.5	71.4

***Fig* 6. Other health related behavior**

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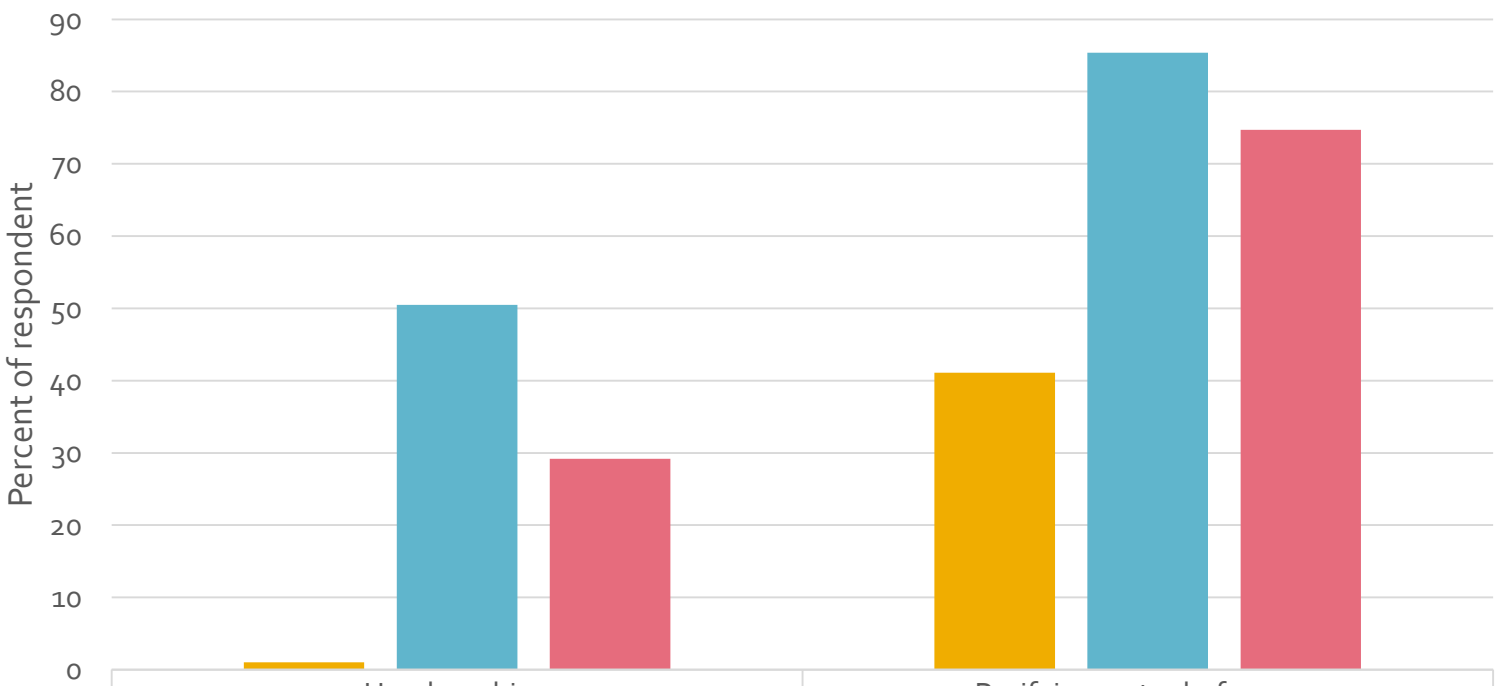
Result: Hygiene and Sanitation



	Hand washing	Purifying water before use
2006	1	41.1
2010	50.5	85.4
2015	29.2	74.7

Fig 7. **Hygiene and sanitation behavior**

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Result

Research Q#2

- To what extent have the community volunteers continued cascading the healthy behavior knowledge, skills and practices among their community?

Result

- 51.5% of CGVs (Leader Mothers) were still active five years after the project ended,
- 59 % said they received visit from CGVs during labor, delivery and afterward,
- 57% said care givers, other than the mother, received health info from CGVs,
- 60.7% said they received visit from CGVs in the last two weeks
- 65 % said they have come in contact with CGVs at least one time and at most 4 times in the last one month
- 66.6% said they get advice from CGVs on health or nutrition
- 63.6% said they see ML as their general source for health information

Result

Table 1 Mothers' sources of health information

Sources of health information	Age Category in months			Mean
	0-12	12.01-23	>23	
CGVs	61.3%	58.5%	67.6%	63.6%
TV News	50.7%	55.1%	53.8%	53.2%
Radio	21.3%	22.0%	19.3%	20.6%
News Journal	6.7%	7.6%	5.0%	6.1%
Others	13.3%	14.4	20.2	16.8%

Result

Research Q#3

What magnitude of effects can be expected from a community-based health promotion programs like this one five years after the program?

Result: Stunting Prevalence Rate

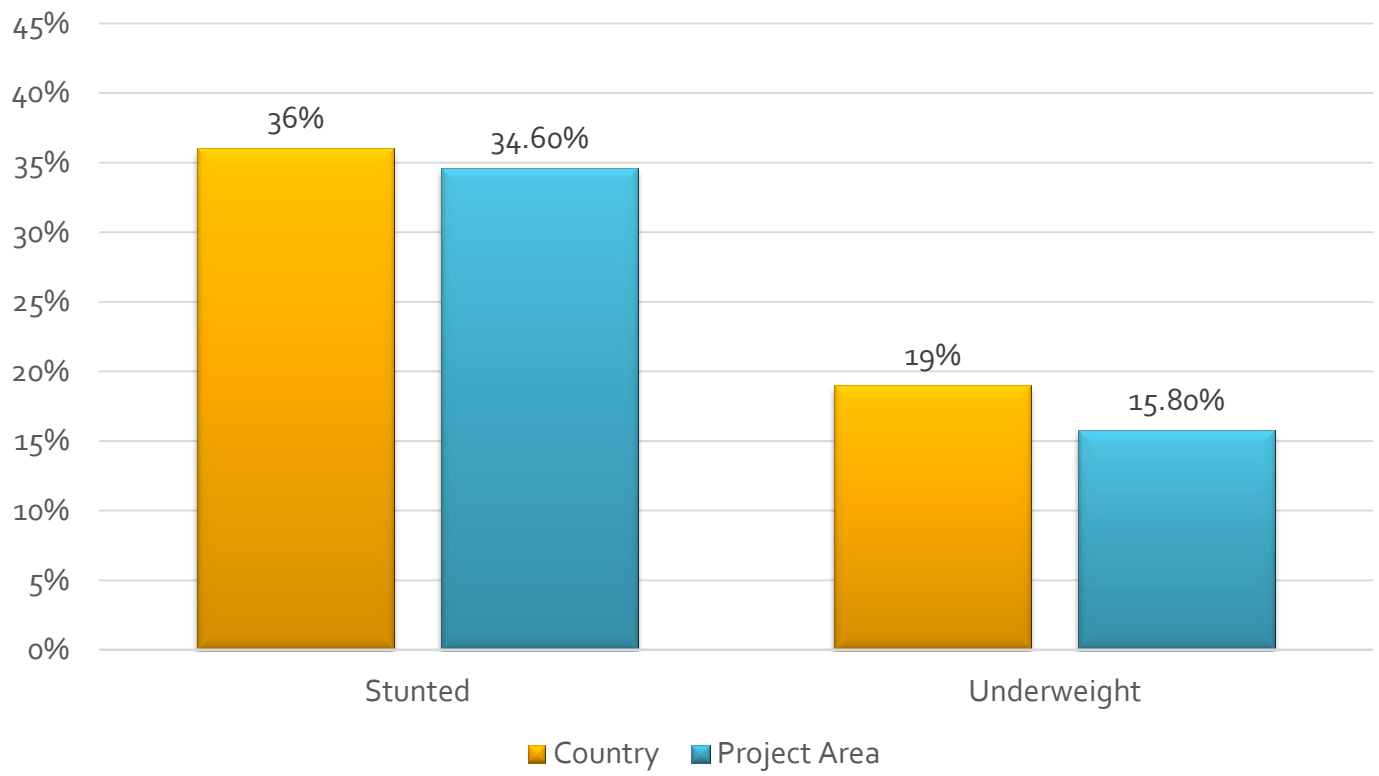

***Fig* 8. Percent underweight/undernutrition compared to the Countrywide data**

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Result: Annual Rate of Reduction

Table **6** Mean annual rate of decline in the project area compared to countrywide data, 2005-2015

Location (Source)	% of Children < 2 SD below the standard median weight-for-Age score: Baseline (Dates)	Endline (Dates)	Difference (PP)	Time interval	Ave. rate of decline/year
Project area (This study)	29.5% (2006)	15.8% (2015)	13.7	10 years	1.37%
Countrywide (WHO Report)	20.0% (2003)	19.0% (2011)	1.0	8 years	0.13%

Result: Annual Rate of Reduction(Cont)

Table **6** Mean annual rate of decline in the project area compared to countrywide data, 2005-2015

Location (Source)	% of Children < 2 SD below the standard median weight-for-Age score: Baseline (Dates)	Endline (Dates)	Difference (PP)	Time interval	Ave. rate of decline/year
Intensive phase	29.5% (2006)	17.8% (2010)	11.7	5 years	2.34%
Post-Test	17..8% (2010)	15.8% (2015)	2	5 years	0.4%
Countrywide	20.0% (2003)	19.0% (2011)	1	8	0.13%

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Result Summary

	Area A		Area Sub-A (Manga)	Difference 2010-2015 Percentage points (% change)	Difference 2006-2015 Percentage points (% change)
	2006 % (95% CI)	2010 % (95% CI)	2015 % (95% CI)		
Children 0-23 m who are underweight (WAZ < -2.0 SD)	25.9 (22.1-29.7)	17.8 (14.5-21.0)	15.8 (11.6-20.0)	-2.0 (-11.2%)	-10.1 (-39.0%)
Infants 0-5 m who were fed only breast milk in the last 24 hours	23.9 (11.1-36.7)	74.5 (61.5-87.4)	65 (54.6-76.1)	-9.2 (-12.3%)	+41.4 (+173.2%)
Children 9-23 m who receive food other than liquids at least 3 times/day	31 (22.4-40.0)	75.7 (67.7-87.4)	76 (69.6-83.0)	+0.6 (+0.8%)	+45.1 (+144.6%)
Children 6-23 m with oil added to their weaning food	36 (27.7-44.5)	86.9 (81.3-92.5)	91.9 (88.1-95.7)	+5.0 (+5.6%)	+55.7 (+153.9%)
Children 6-23 m who have consumed at least one Vitamin A-rich food in the previous day	30.5 (22.5-38.5)	58.7 (50.7-66.6)	69 (62.8-75.5)	+10.5 (+17.9%)	+38.7 (+126.9%)
Children 0-23 m with diarrhea in the last 2 weeks who were offered the same amount of, or more, food during the illness	32 (20.9-43.8)	83 (71.6-95.1)	84.6 (70.7-98.5)	+1.3 (+1.6%)	+52.2 (+161.1%)
Children 12-23 m who have received a Vitamin A capsule in the past 6 months (card-confirmed or mother's report)	82 (74.2-90.3)	93.6 (88.6-98.7)	93.8 (89.7-98.0)	+0.2 (+0.2%)	+11.6 (+14.1%)

Result Summary

	Area A		Area Sub-A (Manga)	Difference 2010-2015 Percentage points (% change)	Difference 2006-2015 Percentage points (% change)
	2006 % (95% CI)	2010 % (95% CI)	2015 % (95% CI)		
Children 12-23 m who received deworming medication in the last 6 months (mother's report)	28.6 (18.7-38.4)	78.7 (69.2-88.2)	76.0 (68.6-83.3)	-2.7 (-3.4%)	+47.4 (+165.7%)
Children 0-23 m who were weighed in the last 4 months (card-confirmed)	73 (66.0-80.1)	88 (83.3-93.1)	83 (78.9-87.7)	-4.9 (-5.6%)	+10.2 (+14.0%)
Children 0-23 m with diarrhea in the last 2 weeks who receive ORS and/or RHF	58 (46.0-69.9)	93 (85.8-100.9)	69.2 (51.5-87.0)	-24.1 (-25.8%)	+11.2 (+19.3%)
Mothers of children 0-23 m who can correctly prepare ORS	43.5 (36.1-50.9	84.7 (79.6-89.8)	87.9 (83.5-92.2)	+3.2 (+3.8%)	+44.4 (+102.1)
Mothers of children 0-23 m who report that they wash their hands with soap/ash before preparing food, before eating, after defecating, and after attending to a child who has defecated	1.0 (-0.4-2.4)	50.5 (43.3-57.7)	29 (23.3-35.2)	-21.3 (-42.2%)	+28.2 (+2,820%)
Mothers of children 0-23 m who report that they purify their water using any effective method (by boiling or using point-of-use water purification)	41 (31.2-50.9)	85 (79.8-91.1)	74.7 (69.0-80.3)	-10.7 (-12.5%)	+33.6 (+81.8%)

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Conclusion

- There is strong evidence to support that Care Group Model used in the project area sustains the health impact five years after the end of the program
- There is strong evidence of CGVs transferring the knowledge, skills, tools, and passion needed for effective and sustainable community health development
- The annual rate of decline in undernutrition is faster in the project area

Recommendations

- The CM deserves stronger support from donors and from the Mozambique MOH for replication and scale up in other parts of the country
- Future implementers should collaborate with MOH counterparts to assess the most optimal way that Care Groups can be integrated into MOH systems
- Caution must be exercised when interpreting this result
- Further study is needed to
  - Document what aspects of CGM have contributed to sustainability of health gain

Acknowledgment

- Tom Davis
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References

Andrew, J, Felton G, Wewers, et al (2004). Use of CHWs research in ethnic minority women. *Journal of Nurse Scholars*, 36(4), 358-65. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15636417

Brenner, L., Kabakyenga, J., Kyomuhangi, T., Wotton, K., Pim, C. et al. (2011). Can volunteer community health workers decrease child morbidity and mortality in southwestern Uganda? An impact evaluation. *Public Library of Science*, 6(12), e27997. doi:10.1371/journal.pone.0027997

Davis, T., Wetzel, C., Avilan, E. and Lopes, C. (2010). Reducing child global undernutrition at scale in Sofala province, Mozambique, using care group volunteers to communicate health messages to mothers. *Global Health Science and Practice*,1(1). Retrieved from http://www.ghspjournal.org/content/1/1/35.full.pdf

Food for the Hungry. (2010). Expanded impact child survival program: Final evaluation report Sofala Province, Mozambique. Retrieved from http://docplayer.com.br/2221490-Expanded-impact-child-survival-program-final-evaluation-report-sofala-province-mozambique.html

Gloud, D. (2012). Using the cascade model to improve antenatal screening for the hemoglobin disorders. *The Alliance for Continuing Education in the Health Professions*, 32(3),181-186. doi: 10.1002/chp.21143.

Gruen, R., Elliiot, J., Noel, M., Lawton, P., Parkhill. A., Mclaren, C. (2008). Sustainability science: An integrated approach for health-program planning. *Lancet Series*, 372 (9649), 1579–1589. doi: http://dx.doi.org/10.1016/S0140-6736(08)61659-1

Haines, A., David, S., Uta , R., Joy E., Steve, J., Damian,W., et al. (2007). Achieving child survival goals: Potential contribution of community health workers. *Lancet Series*, 369, 2121–2131. doi:10.1016/ S0140-6736(07)60325-0

Mozambique Government. (2011). Demographic and health survey. Retrieved from http://www.childinfo.org/files/nutrition/DI%20Profile%20-%20Mozambique.pdf

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Reference

UNICEF. (2015). Sustainable development goals. Retrieved from http://www.un.org/sustainabledevelopment/blog/2015/06/unicef-mdg-report/

UNICEF. (2012). Child survival call to action: Ending preventable child deaths. Retrieved from http://5thbday.usaid.gov/pages/ResponseSub/roadmap.pdf

WHO. (2015). Ten facts on breastfeeding. Retrieved from http://www.who.int/features/factfiles/breastfeeding/en/

WHO. (2013). Child health. Retrieved from http://www.afro.who.int/en/clusters-a-programmes/frh/child-and-adolescent-health/programme-components/child-health.html

WHO. (2012). Levels and trends in child mortality report. Retrieved from http://www.who.int/maternal_child_adolescent/epidemiology/profiles/neonatal_child/moz.pdf

WHO (2010). Vitamin A supplementation to improve treatment outcomes among children diagnosed with respiratory infections. Retrieved from http://www.who.int/elena/titles/bbc/vitamina_pneumonia_children/en/

World Bank. (2015). WB-IMF report gauges progress on development goals, including new target of promoting shared prosperity of bottom 40 percent. Retrieved from http://www.worldbank.org/en/news/press-release/2014/10/08/wb-imf-report-progress-development-goals-promoting-shared-prosperity

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Reference

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Fig 2. Image showing different continents on a map (n.d). http://www.vectortemplates.com/raster-globes.php

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Figure 4. Percent underweight/undernutrition compared to the previous studies

Fig 5. Feeding practice Indicators compared to the previous data

Fig 6. Other health related behavior

Fig 7. Hygiene and sanitation behavior

Fig 8. Percent underweight/undernutrition compared to the Countrywide data

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Thank You

Feel fee to contact me at the following address

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