

This document details our methodology for estimating an approximate cost per life saved. This methodology utilizes data collected from our randomized control trial to give a range of reasonable scenarios that allows us to estimate upper and lower bounds for the cost of the expected lives saved through our work. This is a rough and preliminary method – we welcome input on how to best refine and improve the calculations.

The estimated cost per life saved in the Uganda scale up plan averages about \$3500 in a mid-case scenario over 4 years.

Key RCT Population Figures:

Using data available from our RCT baseline and endline data collection, we have the following population figures:

- There were **62** RCT treatment clusters (villages)
 - These villages were covered by **95** Living Goods CHPs.
 - Each LG treatment village had, on average, **276** households, of which **95** had an Under-5 child.
 - Of those 95 with an Under-5 child, the average number of Under-5 children per household was **1.6**.
- This means there were ~9,424 (62 x 95 x 1.6) Under-5 children in the LG treatment areas.

Under-5 Mortality Calculations:

Per the 2012 World Bank Open Data World Development Indicator¹, Uganda’s Under-5 mortality² is 69 per 1,000. This means that prior to Living Goods’ presence, one would have expected 650 Under-5 child deaths (9,424 x 69 / 1000). We subsequently calculate the number of expected Under-5 deaths from Living Goods’ work by reducing the expected mortality rate of 69 per 1,000 by some percentage. The difference in the expected deaths in those two calculations yields the expected lives saved over a 5-year period.

For instance, our mid-case uses the overall Under-5 mortality rate reduction from the RCT (combined LG + BRAC) of 25.5%. Applied to Uganda’s national rate of 69 deaths per 1,000, we get an expected Under-5 mortality of 51.4 deaths per 1,000. Applying this figure to our Under-5 population of 9,424 yields an expected number of Under-5 deaths of 520 in the Living Goods treatment area. Next, we take the difference in those two figures (650 – 520) to yield an expected number of Under-5 lives saved by these agents of 130. On an annualized basis, we divide that by 5 to yield an annual number of lives saved of 26. Finally,

¹ Source = <http://data.worldbank.org/indicator/SH.DYN.MORT>

² Under-five mortality rate is the probability per 1,000 that a newborn baby will die before reaching age five, if subject to current age-specific mortality rates.

we take the 26 lives saved and divide by 95, the number of CHPs in the coverage area. This gives us a figure of 0.35 annual Under-5 lives saved per CHP.

Knowing the expected annual lives saved per agent allows us to then plug this number into our financial model, where we have projections for our agent counts (and hence in lives saved) and our budgets. Simply put, we multiply our projected agent count by 0.35 to calculate the cumulative number of expected lives saved each year. When combined with our financial model, this generates a net cost per life saved. For instance, in the mid case in the LG-Uganda model, these calculations net 320 lives saved in 2015 at a cost of \$4,773/life, growing to 913 lives saved in 2018 at a net cost of \$2,773/life.

In our modeling exercise, we have created three scenarios, which give upper and lower bounds for the expected reduction in Under-5 mortality (the 25.5% figure discussed above). The three scenarios are:

1. **Low Case: 20%.** We chose to reduce the overall RCT results by ~20% to account for potential differences seen in scaling the LG program nationally.
2. **Mid Case: 25.5%.** This reflects the overall (LG + BRAC) reduction in Under-5 mortality from the RCT across the full duration of the study.
3. **Best Case: 42%.** This figure represents the reduction in mortality seen in 2013, the most recent year in the study³.

Remember also that several factors likely diluted the actual mortality reduction in the study including: some activity in the control areas by agents, survey areas were generally larger than the service areas, and some impact outside the surveyed areas. The study found a 40% reduction in deaths within 500 meters of the CHP's homes.

The resulting cost per life saved in the mid case averages about \$3500 over 4 years. This table shows the results by scenario and year:

Cost per Life Saved Summary	2015	2016	2017	2018
Low Case	\$6,086	\$4,527	\$3,812	\$3,536
Mid Case	\$4,773	\$3,551	\$2,990	\$2,773
Best Case	\$2,898	\$2,156	\$1,815	\$1,684

³ “Finally, in 2013 the mortality rate decreased from 69 deaths per 1000 births in control clusters to 40 deaths per 1000 births in treatment clusters, implying a 42% reduction, significant at the 1% level.” (Page 12, “CIFF CRCT Final Report 20140527”)