

Are Integrated Social and Behavior Change Interventions Cost-effective? A methodological approach



Breakthrough RESEARCH is gathering, analyzing, and sharing evidence on the costs and impact of social and behavior change (SBC) interventions to support the case that investing in SBC is crucial for improving health and advancing development. A review of the SBC costing literature identified 185 studies on SBC costs, methodological shortcomings, and knowledge gaps that should be addressed in new SBC costing studies. To address these gaps, Breakthrough RESEARCH issued *Guidelines for Costing of Social and Behavior Change Health Interventions*,¹ which lay out 17 principles for conducting high-quality costing studies. This is the fifth in a series of brief reports intended to complement the guidelines and support a *Community of Practice around SBC costing* by highlighting important issues and practices for SBC costing.

In addition to social and behavior change (SBC) programs that focus on a single health area, integrated SBC programs are packaged to jointly apply to multiple health areas and/or development sectors and address common barriers to the use of different preventive health services and practices (e.g., knowledge, attitudes, and norms).

Advocates of integrated SBC posit that integrating the design and implementation of SBC programs can reduce duplication, leverage synergies between health areas, and thus be more cost-effective.² Additionally, integrated SBC approaches can be more client-centered and focused on the health needs for life stages rather than on single health issues.³ However, studies on the cost-effectiveness

of SBC interventions have not yet explored the implications of integration and thus more research on this issue is needed.⁴ As such, the Research and Learning Agenda for Advancing Integrated Social and Behavior Change programming, developed by Breakthrough RESEARCH through a consensus-driven process involving 190 SBC experts in 2019, identified the need for costing and evaluating the cost-effectiveness of integrated SBC as one of four key questions that needs addressing.⁵ **This Community of Practice brief provides an overview of the steps for examining the cost-effectiveness of integrated SBC programs that can be used for future cost-effectiveness analyses (CEA).**

Steps for examining the cost-effectiveness of integrated SBC

All CEAs calculate an **incremental cost-effectiveness ratio**, or **ICER**. For SBC interventions, the ICER represents the additional costs needed to obtain an additional unit of health impact. To calculate an ICER, one needs program costs for the numerator and an aggregated measure of impact for the denominator. There are seven basic steps for calculating an ICER.⁶ The steps are outlined alongside a hypothetical example for examining integrated SBC.

BOX 1: HYPOTHETICAL EXAMPLE OF AN INTEGRATED SBC INTERVENTION FOR CEA

A package of SBC interventions, including mass media, interpersonal communication, and provider behavior change was designed to address maternal and child health issues in Country X over five years. In one region, an integrated approach was used to simultaneously address three primary health behaviors: family planning (FP) use, malaria prevention, and childhood vaccines. In a different region, a vertical approach was used that focused only on FP SBC.

STEP 1: Establish the research question.

The first decision in designing a CEA for integrated SBC interventions is to select a comparison for integrated SBC. Some potential comparison options include:

- Integrated SBC vs. no SBC;
- Integrated SBC approach involving interventions across multiple health areas vs. SBC for a single-health area; and
- Different configurations of integrated SBC (e.g., malaria + water and sanitation vs. malaria + maternal and child health).

In assessing cost-effectiveness for our hypothetical example, we will compare the integrated SBC approach to the FP-only SBC approach.

STEP 2: Specify the overall study design.

This step involves many decisions, including the perspective the study will take, the study time period, and the approach for assessing impact.^{1,6} In our example, we approach the CEA from the perspective of the organization(s) providing the SBC interventions. The time frame

for this hypothetical intervention looks at the costs and impacts over five years. To assess impact, before and after surveys are used to collect data on seven key health behaviors (modern contraception use, use of insecticide-treated bed nets, use of intermittent preventative treatment for pregnant women for malaria, and four different childhood vaccines) in both the integrated and FP-only SBC program areas. During this stage of study design, it is also important to plan for the collection of cost data and work with financial managers to ensure that the cost data are available in the format useful to the planned analysis.

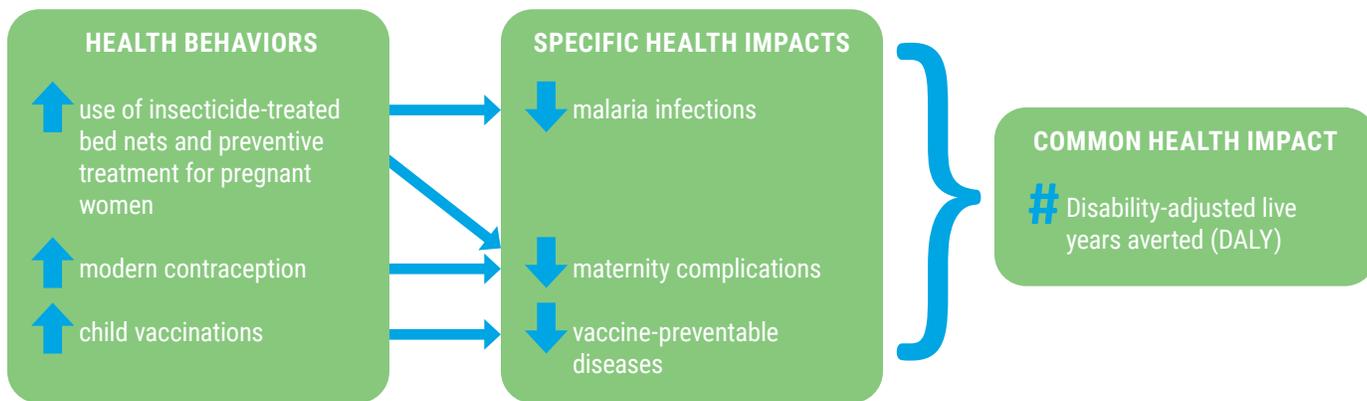
STEP 3: Calculate program costs.

As mentioned previously, one component in a CEA is the total program costs, which serve as the numerator of the ICER. We recommend using the *Guidelines for Costing of Social and Behavior Change Health Interventions* as a framework for the essential questions that should be addressed when conducting costing of an SBC intervention and to plan the costing component from the initial stages of the evaluation.¹ In addition to the total costs associated with SBC activities, we recommend also including any service delivery costs associated with additional use of health services due to increased demand because of SBC interventions. Most importantly, it is critical to have a consistent costing methodology across both the integrated and vertical SBC programs to ensure the costs are comparable. In our example, we use data on program expenditures and interviews with key staff persons to identify financial and any non-financial costs, such as donated time or materials, as well as information to appropriately allocate costs by area for each of the SBC intervention areas. In our example, we calculate that the total five-year costs associated with the integrated SBC program are **\$10,000,000**, while the costs associated with the FP-only SBC program are **\$2,000,000**.

STEP 4: Calculate program impact.

The denominator for integrated SBC requires a common measure of impact that spans across multiple health areas or sectors. One frequently used measure is the number of disability-adjusted life years, or DALYs, averted. The “DALYs averted” measure accounts for both the number of years lost due to premature death and the number of healthy years lost due to disability and poor health. As such, one DALY averted is equivalent to one healthy life year gained due to the intervention. **Figure 1** shows how the different health behaviors measured in this example can be aggregated into one measure of DALYs averted.

FIGURE 1 AGGREGATING HEALTH IMPACTS INTO DALYS AVERTED



In our example, to calculate DALYs averted we use the findings from survey data to model impact in the Lives Saved Tool (LiST). LiST is a model that calculates the number of maternal, neonatal, and child lives saved due to scaling up specific health interventions and improvements in health behaviors.⁷ A series of video instructions are available on how to generate LiST projections using the online or desktop versions of the software. One key step in LiST is entering the coverage for different interventions and health behaviors. In our example, we generate one projection for the integrated SBC region and one for the FP-only region using survey data captured at baseline (Year 1) and endline (Year 5). **Figure 2** shows the percentages entered for the

integrated SBC region. Note that the intervening years 2–4 are estimated using a linear trend.

The resulting number of maternal and child deaths by cause for each of the two projections is then linked to the [Global Burden of Disease Results Tool](#) to compare the total DALYs from the integrated vs. the FP-only projections.⁸ Based on the results of the before and after surveys for both the integrated SBC program and the FP-only SBC program, we find that the total DALYs averted over the five years is **6,000** and **1,000**, respectively.

FIGURE 2 EXAMPLE LIST INPUTS USING SURVEY DATA FOR THE INTEGRATED SBC PROJECTION

| Behavioral outcome | Year | | | | |
|--|-------|-------|-------|-------|-------|
| | 1 (%) | 2 (%) | 3 (%) | 4 (%) | 5 (%) |
| Owns an insecticide treated bed net | 72 | 75 | 78 | 81 | 84 |
| Malaria preventive treatment for pregnant women | 20 | 23 | 26 | 28 | 31 |
| Modern family planning use | 18 | 21 | 24 | 26 | 29 |
| Child vaccine | | | | | |
| BCG | 25 | 29 | 34 | 38 | 42 |
| DPT (3 doses) | 10 | 13 | 16 | 19 | 22 |
| Polio (3 doses) | 28 | 30 | 32 | 34 | 36 |

Child vaccine rates among children 12 months to 5 years. BCG—Bacille Calmette-Guérin vaccine for tuberculosis. DPT—vaccines for diphtheria, pertussis, and tetanus.

STEP 5: Examine the ICER.

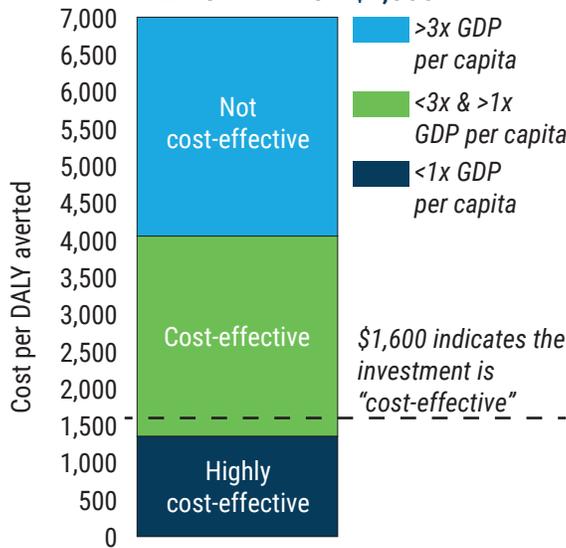
With both the total costs and total impact calculated, one can then calculate the ICER by calculating the additional costs of integrated SBC needed to achieve an additional DALY averted (**Figure 3**).

FIGURE 3 ICER CALCULATION

$$\text{ICER} = \frac{\$10,000,000 - \$2,000,000}{6,000 - 1,000 \text{ DALYs}} = \$1,600 \text{ per DALY}$$

The value of the ICER can then be compared to the country’s gross domestic product (GDP) per capita to determine cost-effectiveness, where the World Health Organization’s threshold for a “cost-effective” intervention is a cost per DALY averted lower than three times the GDP per capita and a “highly cost-effective” intervention is less than one times the GDP per capita.⁹ **Figure 4** shows that for our hypothetical example, Country X’s GDP per capita is \$1,350, and so the integrated SBC program can be considered “cost-effective”.

FIGURE 4 COST-EFFECTIVENESS FINDINGS BASED ON COMPARING ICER TO GDP PER CAPITA OF \$1,350



STEP 6: Conduct sensitivity analysis.

The ICER shown in Step 5 is a point estimate based on the calculated costs and modeled impacts; however, a range of estimates that takes uncertainty into account will improve the robustness of the results and confidence in the findings. Sensitivity analysis can be performed by including a range of values for key assumptions on both the cost and impact analyses. In our example comparing integrated vs. FP-only SBC programs, we generate eight scenarios in addition to the primary point estimate by varying the costs and impacts using low/average/high categories. For the costs, we vary several assumptions in the calculations, including the imputed value of some of the economic costs (e.g., donated labor and goods) and the proportions used to allocate overhead costs. For impact, we use the confidence intervals for the estimated key behaviors at baseline and endline to vary the resulting number of DALYs averted. For both costs and impacts, we vary the discount rate for costs and DALYs between 0 and 6%. This discount rate is used to adjust the costs and impacts to a present value, with 3% being the standard discount rate used for economic analyses.¹⁰ The resulting range shows an ICER range of \$1,495 and \$1,952, which shows that the entire range estimates are in the “cost-effective” zone (Figure 5).

FIGURE 5 ICER SENSITIVITY ANALYSIS RESULTS

| Sensitivity | Low | Costs (\$) Average | High |
|---------------|-------|-----------------------|-------|
| Impact | | | |
| Low | 1,680 | 1,808 | 1,952 |
| Average | 1,524 | 1,600 | 1,708 |
| High | 1,495 | 1,530 | 1,575 |

STEP 7: Communicate the results.

As with any research, communication of the results is critical to ensuring the findings are available to the broader community so that they can help shape future research and decision-making. The current lack of CEAs examining integrated SBC interventions makes it particularly important to disseminate study findings in both the academic literature and via other communication channels, such as webinars and conferences that reach different audiences like program planners, SBC implementers, and donors to inform investment decisions, budgeting processes, and evidence generation.

Looking forward

The hypothetical example detailed above gives a brief overview of the steps one can take to examine cost-effectiveness of integrated SBC programming. Breakthrough RESEARCH is currently conducting CEAs of integrated SBC programs in Nigeria and Niger, with expected results in 2023. Once completed, these studies will provide further documentation on different adaptations of this approach to help guide future research.

IN REVIEW



1: Establish the research question.



2: Specify the overall study design.



3: Calculate program costs.



4: Calculate program impact.



5: Examine the ICER.



6: Conduct sensitivity analysis.



7: Communicate the results.

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