THE MEASUREMENT, LEARNING & EVALUATION (MLE) PROJECT COST-EFFECTIVENESS ANALYSIS OF THE URBAN REPRODUCTIVE HEALTH INITIATIVE (URHI)

Why Cost-Effectiveness?

Cost-effectiveness analyses (CEA) of URHI activities were performed in Kenya, Nigeria, Senegal, and the state of Uttar Pradesh in India. The package of URHI interventions varied across countries with the common goal of increasing the modern contraceptive prevalence rate (mCPR). Broadly, the interventions targeted improving reproductive health service provision quality and access, integrating family planning services with maternal and child health services, increasing involvement by the private sector, and promoting a demand for family planning. While impact evaluation tells us how successful the various components were in increasing mCPR, CEA allows us to understand which interventions achieved the greatest impact per dollar invested. This helps the Bill & Melinda Gates Foundation (BMGF) and other development partners to understand which interventions offer the most "Bang for the Buck."

How to Undertake Cost-Effectiveness?

The cost-effectiveness of an activity is the improvement in mCPR from a program activity divided by the financial resources invested in it. This is the improvement in mCPR achieved for each dollar

invested. It is useful to think about cost-effectiveness in relative terms. CEA compares whether the return per dollar invested is greater for one activity than another. To calculate the relative cost-effectiveness of two activities we simply divide the cost-effectiveness of one of them by that of the other. If relative cost-effectiveness of activity A compared with activity B is greater than 1 it means that activity A increases mCPR more per dollar invested than activity B. Similarly if it equals 1 then they are equally cost effective per dollar invested while a figure less than 1 means that activity A was less cost effective than activity B.

One must exercise caution in interpreting a cost-effectiveness ratio. Cost-effectiveness is "at the margin." Given that we generally expect many interventions to have a diminishing marginal benefit, committing increasing amounts of funding to an activity will, at some point, likely reduce the marginal benefit in terms of reduced mCPR, perhaps to zero.

**Cost-Effectiveness and
Relative Cost-Effectiveness**

The cost-effectiveness of program component or activity A is

$$CE_A = \frac{\text{Change in mCPR due to activity A}}{\text{Cost of activity A}}$$

The relative cost-effectiveness of activity A compared with activity B is

$$RCE_{A/B} = \frac{CE_A}{CE_B}$$

Typically, across a suite of program activities one wishes to consider, one activity (in this case activity "B") is chosen as the yardstick against which the relative cost-effectiveness of the other activities are assessed.

Therefore it is not necessarily appropriate to shift all resources to the more or most cost-effective activity. Instead, some more partial degree of reallocation toward the activities with larger cost-effectiveness is likely in order.

What Information is Needed to Do a Cost-Effectiveness Analysis?

To do a CEA, costs need to be calculated for the same programmatic components for which effectiveness can be measured. The MLE project monitored costs of the URHI program by activity type, such as mass media campaigns and also at a more detailed level, such as radio versus television programming. Cost estimates for the CEA involved obtaining direct and, when they would affect relative costs, indirect costs. When applicable, indirect costs were apportioned to an activity according to that activity's share of direct costs. Effectiveness is usually ultimately based on program impact models using individual level data.

What Did We Learn about the Process of Analyzing Cost-Effectiveness?

• Complex programs with multiple partners implementing activities have complex cost recording systems. Extensive subcontracts and sub-awards complicated estimation of costs for specific activities for which impact could be measured.

• Implementing organizations view cost data as very sensitive and in some cases we needed to have a memorandum of understanding to facilitate sharing of costing information.

• On the effectiveness side of the analysis, there are two components. An intervention or activity may have a large marginal impact (that is, exposure to the activity may induce a large change in mCPR). However, if coverage or exposure to the activity is small, overall effectiveness (which is the product of exposure and marginal impact) may be small.

Example from the Nigeria Urban Reproductive Health Initiative (NURHI)

In Nigeria, we measured the impact of numerous program components. Unfortunately, the cost estimates could not be constructed for all of these. For those activities that we could cost, the Figure below shows relative (to community events) cost-effectiveness. In this case, we find that the radio program is the most cost-effective program activity. Television programming and the supply-side activities (e.g., improving the supply and quality of family planning services) were less cost-effective than the community-level outreach events.

Figure 1. Relative cost-effectiveness for NURHI program components in six cities