

## Understanding Costs to Improve Adolescent Reproductive Health: Evidence from Three Adolescent Reproductive Health Programs in India

Decision makers want to know which strategies are most cost-effective for improving adolescent reproductive health and what resources are required to implement or scale up successful programs. Yet little is known about these programs' costs, and few researchers are building cost-analysis into their program designs.

As part of a broader multi-partner program in India, the International Center for Research on Women (ICRW) developed costing analyses of adolescent and youth reproductive health intervention studies, working with the Christian Medical College, Vellore (CMC); the Foundation for Research on Health Systems (FRHS); and Swaasthya.

### Varied Methods for Cost Analysis

Each partner asked a different costing research question and used different methods to collect and analyze the data. Swaasthya examined financial costs because it was interested in the budgetary outlays required to replicate an existing intervention model. CMC and FRHS calculated full costs financial, human and social costs, which often are hidden from formal budgets. All teams organized their costs into functional categories or "cost centers" to correctly allocate costs. These costs also reflect an allocation for such nonintervention costs as administration based on predetermined rules.

### Findings

Effectiveness and cost-effectiveness of alternative approaches to treat young women's reproductive tract infections (RTIs): A comparison of CMC's costs of using a health aide who examined women in the home (Arm A) compared to a female doctor who periodically saw patients in a clinic (Arm B) demonstrated that the health aide intervention was less costly and probably more cost-effective. The health aide study arm (Arm A) had both lower total costs over three years, Rs. 6,63,000<sup>1</sup> (US \$14,197) versus Rs.7,47,000 (US \$15,996), and lower costs per person, Rs. 72 (US

<sup>1</sup>Rs. 46.7 = \$US 1 as of August 2006

<sup>2</sup>As reported by women.

\$1.54) per woman versus Rs. 81 (US \$1.73) per woman, respectively. The per unit costs of identifying symptomatic women were consistently, but only slightly, higher in the health aide arm (Arm A). Per unit treatment costs, on the other hand, were consistently and sizably lower.

**Table 1: Per Unit Costs by Arm and Round, in Rupees**

Round	Case ID		Treatment		Symptomatic Cure	
	Arm A	Arm B	Arm A	Arm B	Arm A	Arm B
1	42	32	139	268	138	209
2	47	37	211	281	281	264
3	53	44	352	577	874	609
4	50	45	236	525	223	471

Source: CMC, Tamil Nadu 2006

Rs 46.7 = \$1 US based on August 2006 exchange rates.

The per unit costs for treatment of symptoms<sup>2</sup> follow-up costs divided by the number of women reporting no remaining symptoms varied for the two approaches. The overall pattern suggests that the health aide study arm (Arm A) was more cost-effective, though the variation in costs per symptomatic cure suggests that this is not conclusive. The health aide approach also was more effective from the perspective that more women were examined, treated and cured of symptoms than in the study arm with a female doctor.



DHD, CMC Vellore



FRHS



Swaasthya



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### About the Adolescent Reproductive Health Program in India

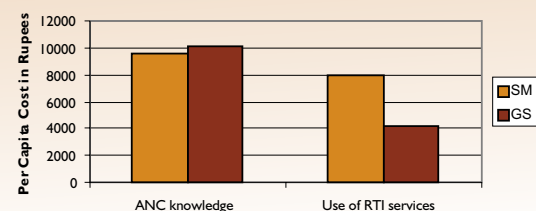
This brief reflects findings from costing studies conducted as part of three research projects in India that are part of a broader multi-partner program, led by the International Center for Research on Women (ICRW), aimed at improving youth reproductive health. The projects with partners Christian Medical College, Vellore, the Foundation for Research in Health Systems and Swaasthya focused on increasing adolescents' knowledge of their sexual and reproductive health, improving access to services and engaging their communities. Ramesh Bhat, Ph.D., of the Indian Institute of Management, Ahmedabad, led the cost-analysis portion of these studies. The Adolescent Reproductive Health Program in India was funded by the Rockefeller Foundation.



Costs of a social mobilization intervention compared to an intervention to improve government services: FRHS found that the social mobilization intervention cost nearly twice as much as improving government services over five years, Rs. 28,92,800 (US \$61,944) versus Rs. 14,62,000 (US \$31,306), respectively. However, the activities in the two interventions differed greatly, with the social mobilization intervention being more complex and intensive than the government services intervention. In fact, the cost per activity for the major activity<sup>3</sup> in the social mobilization intervention a health education session was considerably lower than that for the major activity training for maternal and child health 'camp' (mass-based clinic) in the government services intervention, Rs. 1037 (US \$22.21) versus Rs. 3249 (US \$69.57), respectively.

The social mobilization approach was more effective in increasing reproductive health knowledge and use of services than the government service approach for many, but not all, outcome measures. Given that social mobilization total costs were higher and effectiveness varied by outcome, the relative cost-effectiveness of the two approaches, measured as per capita cost of increase in an outcome, varied depending on the outcome being considered (see Figure 1).

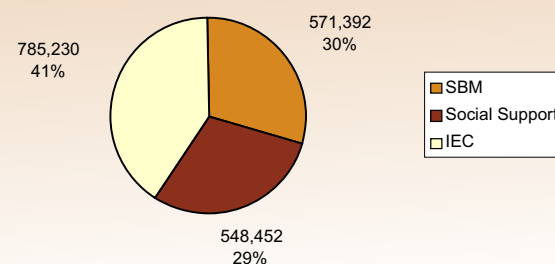
**Figure 2: Per Capita Costs to Increase Girls' Knowledge and Use of Services, in Rupees**



SM = Social mobilization study arm  
 GS = Government Services study arm  
 Source: FRHS, 2006  
 Rs 46.7 = US \$1 based on August 2006 exchange rate.

The costs of replicating an existing adolescent model: In Naglamachi, a slum in Delhi, Swaasthya replicated a tested youth reproductive and sexual health model that comprised three elements: a communications package of information and education (IEC), skills-building modules (SBM) and increased social support. The replicated program took 20 months to implement and cost Rs. 19,05,075 (US \$40,794). Comparing costs of the program elements start-up and program monitoring start-up was the most expensive at Rs. 9,60,000 (US \$20,557). Since these costs were fixed, one-time costs, the ratio of start-up costs to total costs would likely decrease as the program continues. Of the three program elements, the IEC element was most costly (see Figure 2) but also had the lowest per capita costs since IEC reached more people than the other two elements. IEC cost Rs.143 (US \$3.06) per person (n=5,496) as compared to social support at Rs. 613 (US \$13.13) per person (n=895) and SBM at Rs. 7,619 (US \$163.15) per person (n=75).

**Figure 3: Total Costs by Program Element, in Rupees**



SBM = skills-building module  
 IEC = integrated communication-education package  
 Source: FRHS, 2006

### Conclusions

- It is feasible for organizations to cost their interventions. Organizations should cost adolescent reproductive health programs even when such measurement is not their principle goal to add data to a weak cost evidence base.
- Using health aides to diagnose and treat young women's RTIs in their homes every two weeks appears to be a more cost-effective approach than using a female doctor at CMC, Vellore, in Tamil Nadu.
- In the FRHS cost comparison, although the costs and activities of social mobilization and strengthening government services are too different to compare directly, the social mobilization approach appears to be more effective and, on average, less costly per activity.
- Start-up costs are a considerable portion of total costs of an integrated youth model, even one that is replicated. These costs and the per capita costs of program elements, particularly Swaasthya's skills-building modules and social support groups, would be more favorable the longer the program runs and the greater the number of participants.

### Project Costing Questions

#### Reproductive Tract Infections among Married Adolescents, 2001-2006 (CMC, Vellore rural Tamil Nadu)

- What are the costs of using trained, rural health aides versus a female doctor to treat reproductive tract infections among young married women, and which is more cost effective?

#### Community-based Approach to Married Young Women's Reproductive Health, 2001-2006, (FRHS - Ahmednagar, Maharashtra)

- What is the more cost-effective way to increase young married women's reproductive health knowledge and their use of reproductive health services: social mobilization or strengthening government reproductive health services?

#### Replicating a Proven Model for Improving Adolescent Reproductive and Sexual Health, 2003-2006 (Swaasthya - Delhi)

- How much does it cost to replicate and implement a model adolescent reproductive and sexual health program in a new site?

<sup>3</sup> The major comparable activity refers to the main activity in each arm for which costs were calculated.