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# Evaluating Innovative Health Programs: Lessons for Health Policy

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**Running title:** Evaluating Innovative Health Programs

**Key messages:**

- Designed as a global research initiative, the EIHP project aims at adding to the evidence base of health interventions that have the potential to improve health outcomes in Africa and Asia.
- The project focuses on innovative local initiatives that address the Millennium Development Goals for health: reductions in child and maternal mortality and communicable diseases.
- The policy implications are distinguished between programs that involved earmarking resources, changing incentives, and developing innovative methods of health care delivery.

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# **Evaluating Innovative Health Programs: Lessons for Health Policy**

## **ABSTRACT**

The Global Development Network's (GDN) project "Evaluating Innovative Health Programs" (EIHP), funded by the Bill & Melinda Gates Foundation, seeks to inform policy on the effectiveness of health solutions that have the potential to improve health outcomes in developing countries. It evaluates the impact of nineteen programs from across developing and transition countries that focus on the health-related Millennium Development Goals (MDGs) of reducing child and maternal mortality, and halting and reversing the trend of communicable diseases such as HIV/AIDS, malaria and other diseases. The policy implications of the diverse set of interventions are distinguished between programs that involved earmarking resources, changing incentives, and developing innovative methods of health care delivery.

## **Introduction**

Despite billions of dollars channeled to developing countries over the last few decades, Africa and Asia remain amongst the poorest regions in the world with the greatest number of people living in absolute poverty [1]. Poor health outcomes are associated with poverty, as limited resources for consumption of necessities results in inadequate or no investment in health. Almost half of all under-five deaths occur in Sub-Saharan Africa and almost 86% of maternal deaths occur in Southern Asia and Sub-Saharan Africa while other diseases such as malaria cost Africa an estimated \$12 billion annually and remain a major factor in the erosion of development in some of the poorest countries in the world<sup>1</sup>. These health indicators reflect the critical need to address the health situations in these regions.

Against this background the Global Development Network's (GDN) project "Evaluating Innovative Health Programs" (EIHP), funded by the Bill & Melinda Gates Foundation, evaluates the impact of nineteen programs from across developing and transition countries. Each of these programs address one or more of the health-related Millennium Development Goals (MDGs) of reducing child and maternal mortality, and halting and reversing the trend of communicable diseases such as HIV/AIDS, malaria and other diseases.

The project provides a critical link in the chain connecting international aid and outcomes. This effort requires identifying from across various countries innovative solutions which are relevant for Africa and Asia, evaluating these solutions using rigorous quantitative techniques to measure their impact, and promoting those with successful outcomes for implementation in these regions.

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<sup>1</sup> Millennium Development Goals Report, 2008, United Nations Department of Economic and Social Affairs.

In its portfolio a range of programs are covered, including national programs and small scale non-governmental programs and both supply and demand-side interventions (Table 1). These programs can be classified based on their economic rationale for implementation – earmarking resources to specific issues, changing incentives for health service users or providers and applying innovative delivery mechanisms. This paper brings together the lessons from the evaluations in terms of the program design and objectives and looks at the policy messages from each category of program.

*INSERT TABLE 1 AROUND HERE*

### **Earmarking Resources to Specific Issues: Maternal and Child Health Care**

According to the World Health Organization, more than half a million maternal deaths occur annually worldwide and nearly two million children die each year from vaccine-preventable diseases. These problems are especially severe in Asia and Africa (a mother in Sub-Saharan Africa for example faces a life-time risk of death of 1 in 26 compared with 1 in 7,300 in developed countries). It's not surprising therefore that several of the interventions included in this project focus on various aspects of maternal and child health care and family planning. The programs considered in this sub-section demonstrate what can be achieved even in resource-scarce environments provided resources are well directed.

Table 2 shows the huge range in costs per person per year for maternal health care programs for three interventions for which cost information is available. The difference in inputs implied by these costs is marked. Compare the effort mounted in the Brazilian Family Health Program [2]

and the Ethiopian Health Services Extension Program [3]. The former delivers basic health care through professional teams composed of, at least, one family doctor, a nurse, an assistant nurse, and six health community agents. In some cases, teams also include a dentist, an assistant dentist, and a dental hygiene technician. Each team serves about 3,000 to 4,500 people. In sharp contrast, the latter assigns to every rural *Kebele*, the lowest administrative unit in Ethiopia, two health extension workers to deliver primary health care services to households. The extension workers are 10<sup>th</sup> grade graduates who have been trained for about one year to deliver basic health care services. They are expected to cover a population of about 5,000.

*INSERT TABLE 2 AROUND HERE*

The Brazilian program was expanded from a minor pilot in selected areas in 1994 to a nationwide program in 2006 covering more than 90% of Brazilian municipalities. By 2005, Brazil was spending US\$ 1,175 million on the program. Such a massive injection of resources need not necessarily yield commensurate benefits. The Brazilian program however seems to have been highly successful. The impact evaluation finds that for municipalities eight years into the program infant mortality is reduced by 20%, mortality in the 1 to 4 age group by 25%, and in the 15 to 59 age group by 8.5%. Furthermore, analysis reveals important non-health benefits. In the two poorest regions of the country, the program results in greater labor supply (a 6.8 percentage point increase for adults between 18 and 55), higher school enrollment (a 4.5 percentage point increase for children between 10 and 17), and reduced fertility (a 4.6 percentage point reduction in the probability that women aged between 18 and 55 experience a birth over a given 21 month interval).

It is unlikely that the success of the Brazilian program can be repeated for the time being in low-income, resource-constrained countries in Africa and Asia, the focus of this project. The Ethiopian program may therefore provide a more realistic indication of likely benefits in such environments. The program currently reaches about 57% of the rural villages in the country and is intended to deliver a range of services including maternal and child health care, immunization, nutrition, adolescent reproductive health, water and sanitation, malaria prevention and control, and health education. Its impact is much more nuanced than in the Brazilian case. Favourable effects were registered for preventive types of health care services especially child immunization against tuberculosis, polio, diphtheria-pertussis-tetanus and measles. In contrast, the program has not reduced the incidence of diarrhoea among children. The authors note that this may reflect the program's low quality of curative health services or increased understanding of the disease's symptoms as a result of the program. The program's effect on maternal health is also mixed. While pregnant women in the program villages made their first contact with a skilled health service provider significantly earlier than their counterparts in the control villages, the program did not have a statistically significant effect on prenatal and postnatal care service indicators.

The China Safe Motherhood Program looks even cheaper [4]. With an average annual incremental cost for the program of US\$39,800 per county (average population of about 300,000), the cost per person is less than 15 cents. Care should be taken, however, in comparing costs across programs. The estimate for the Chinese program for example excludes salaries for local health staff and other routine costs not directly attributable to the program. The program concentrated on three measures to improve hospital delivery: health education, better health



infrastructure, and social mobilization, and featured two innovations – demand-side reimbursement in which pregnant women receive subsidies directly from local government, and the temporary assignment of obstetric experts from provincial tertiary hospitals to primary maternal care centers. The results are impressive. After seven years of participation in the program, the hospital delivery rate improved by 3.99 per 100 live births and the maternal mortality ratio due to hemorrhaging declined by 10.23 per 100 live births. The results suggest that even modest sums can have a significant impact provided resources are effectively directed.

This last comment points to the critical importance of careful economic analysis and health research before committing limited resources, the central message of this sub-section. The Mother and Infant Health Program in Ukraine is a good example [5]. Since basic prenatal and obstetrics care is already universally available in Ukraine, the program focused its efforts on improving the quality of the provided services. Beyond this general orientation, the program introduced new evidence-based medicine standards such as partner deliveries; avoidance of unnecessary C-sections, amniotomies, and episiotomies; use of free position during delivery; immediate skin-to-skin contact; early breastfeeding; and rooming-in of mothers and newborns. It also actively supported training on effective perinatal technologies, development of “centers of excellence” that serve as models in training/education of medical practitioners, and health awareness campaigns. Even more impressively, it encouraged the revision of current curricula at medical universities and colleges in order to increase the evidence base of educational programs for medical students and health care providers.

The impact evaluation finds that women in the participating rayons are more likely to have normal deliveries and less likely to have C-sections. They are also likely to suffer fewer

complications arising from anemia, problems with blood circulation, veins, urinary-genital conditions and late toxicosis. The program also significantly reduces infant mortality and stillbirths resulting from deviations in prenatal period and congenital anomalies.

Most countries in Africa and Asia may not have the basic prenatal and obstetrics care that were the starting point for the Ukraine program, but the PARSalud Program in Peru also illustrates the value of careful, pre-implementation analysis but this time in a low-income country [6]. The intervention was based on a “causality model” that attacked the sources of maternal mortality and morbidity. PARSalud identified three main causes of maternal mortality: pre- and post-partum bleeding, eclampsia-preclampsia, and obstetric emergencies requiring cesarean surgery. However, since the latter two required major reforms (personnel certification, specific equipment and infrastructure), the program focused on post-partum bleeding. Specifically, it promoted active management of the third stage of labor, involving use of oxytocin to prevent post-partum bleeding.

The impact evaluation reveals a positive impact of the training provided by the program on the number of deliveries, deliveries using oxytocin, cesarean deliveries, and complicated deliveries, but no impact resulting from the infrastructure investments. Also, different types of training had different impacts, internships on perinatal technologies having the most positive impact. The authors conduct a cost-effectiveness analysis. They find that, using their estimates of additional deliveries assisted with oxytocin, the costs per averted case of postpartum hemorrhage are reasonable (US\$3,328).

The final intervention in this sub-section, the Family Planning Program in Iran, provides valuable guidance for the implementation of such programs in rural areas [7]. In 1989 the government launched a major family planning program for rural families based on active delivery of services through health houses where health workers not only supplied maternal and child health services on a regular basis, they also kept close track of birth control needs of individual women: if a woman was on the pill, for instance, the health worker would make sure that she had her monthly supply on time. In comparison villages, on the other hand, all married women had access to free birth control devices at their own discretion through mobile units and government health facilities in nearby towns. By 2005, the program covered more than 90 percent of the rural population and the average number of births per rural woman had declined to replacement level from about 8 births in the mid 1980s. The results of the impact evaluation, however, reveal that less than 15 percent of this decline can be attributed to the family planning services provided through health houses. This conclusion is perhaps not surprising given evidence from other countries. In the case of Iran, the fertility decline started in the mid 1980s several years before implementation of the program, suggesting, as in other countries, that other factors such as education and reduced infant mortality may have been influential in lowering fertility and in this case also by government propaganda and policy pronouncements (rationing of many basic commodities which depended on the number of children in a family was terminated)..

That said, costs of this program (not reported) may have been equally modest since the health houses would have been constructed any way. The message to take away is probably that public

programs to supply contraceptives have limited benefits and can, therefore, be justified only if costs are correspondingly limited.

The interventions considered in this sub-section confirm that improvements in maternal and child health status can be achieved in low-income environments. The benefits may not reach the levels attained in the Brazilian Family Health Program, but then the resources (funds and personnel) are unlikely to be available in most African and Asian countries on the scale of the project in Brazil. The Ethiopian Health Services Extension Program, China's Safe Mother Program and PARSalud in Peru provide a better guide for policy-makers and are more indicative of what can be achieved. More fundamentally, the evidence underscores the importance of 'looking before you leap' especially where resources are scarce. The PARSalud program in particular demonstrates that careful consideration of needs and of what can be achieved can be crucial in increasing the prospects of a successful intervention.

### **Changing Incentives for Health-Service Providers or Users**

Compared with interventions designed to deliver additional resources to address a specific health issue, those that primarily involve a change in incentives for providers or users of health services would seem to have a natural advantage – they are seemingly resource-free or at least they are less resource-intensive. This is indeed an important, potential advantage of incentive-changing interventions, but, before potential becomes reality, several conditions must be fulfilled as the programs reviewed in this sub-section make clear. To be effective, programs that change incentives must meet three conditions, each of which has implications for costs: the change in incentives must be of sufficient magnitude to change behavior; it must be well targeted; and it

must be subject to transparent and independent monitoring. The six programs examined in this sub-section illustrate these three points.

Consider the Safe Motherhood Hospital Program in Thailand [8]. This program covers the introduction of a range of actions including training, standardized child delivery services and vaccination designed to improve the health of women before, during and after pregnancy. The program is implemented by means of an evaluation conducted by the Department of Health or Provincial Public Health Office. Directors of hospitals can choose to participate or not. However, they are neither rewarded, with additional budget for example, in the event of a successful evaluation, nor penalized if they fail to maintain the standards required by the program. Indeed, it's not clear that the participating hospitals are subject to any routine monitoring with respect to the prescribed actions.

As of 2005, almost all of the provincial hospitals and 63 percent of all hospitals had successfully completed the evaluation. This achievement notwithstanding, the impact evaluation finds no reduction in the proportion of maternal deaths to child deliveries. The evidence suggests that the failure to implement incentives with 'bite' and to conduct rigorous, independent monitoring, left hospital directors free to undergo the Department of Health's evaluation and yet still manage their hospital's resources without necessarily following the guidelines. The intervention relied on exhortation or moral persuasion to implement change, and overworked hospital directors with insufficient resources only paid lip-serve to the program.

Now consider the Program of Performance-based Contracts implemented in Rwanda [9]. As in the Thai example, no additional resources are provided to public health clinics participating in this program compared with those in the control group, but incentives are markedly different between the two and implementation is rigorously monitored. Given that the priority of the Rwandan Ministry of Health is to improve maternal and child health, the performance indicators are prescribed standards in the areas of prenatal care, neonatal care, postnatal and new born care, immunization, delivery by skilled attendants, family planning, VCT, as well as ART when available. Clinics in the treatment group receive additional budget according to their performance against the benchmarks, while those in the control receive an equivalent budget without any requirement to meet targets. Performance is monitored through independent municipal level steering committees which verifies data, certifies targets are met, and arranges payments, all of which imply administrative costs. A full evaluation of the Rwandan program, therefore, would have to consider the costs incurred by these administrative activities. The evaluation on health outcomes finds that compared with the control group, the treatment group performed much better with respect to the selected targets, illustrating the power of incentives that have bite and are carefully monitored.

The Rwandan program demonstrates the potential of well defined, rigorously monitored performance-related incentives: the same amount of resources can be used to achieve different outcomes depending on the way in which incentives are set.

In contrast, many programs that change incentives, especially for users, require increased resources to achieve the desired outcome. This point is revealed clearly by the three insurance

programs in the sample: the Social Security Health Insurance Program in Nicaragua [10], the Ghana National Health Insurance Scheme [11], and the ‘Yeshasvini’ Community Based Health Insurance Program in India [12].

First, a word about each of these schemes. In January 2007, the government of Nicaragua initiated a demonstration project that extended the Nicaraguan Social Security Institute’s health insurance program to informal sector workers. In this context, ‘informal sector workers’ should be interpreted as self-employed entrepreneurs and businessmen rather than as casual laborers and street hawkers. Indeed, the respondents in the survey had an average monthly income of almost \$240 compared with a national average of approximately \$140. In contrast, Ghana’s National Health Insurance Scheme introduced in 2003 is, as its name indicates, a national program designed to make health care services affordable to all and to ultimately replace the existing “cash-and-carry” system. It covers about 95 percent of common diseases, only a handful of specialized services, such as HIV antiretroviral drugs, VIP accommodations etc., being excluded from the package. Perhaps most interesting of the three is the Yeshasvini Insurance Scheme operating in the Indian state of Karnataka. This innovative program allows individuals to insure against low probability, high-cost health events, mainly surgical procedures, the cost of which could be prohibitive or catastrophic for poor households.

All three programs pool risks: an individual can choose between the fixed premium incurred by being in the scheme versus the uncertainty of a costly medical problem if not insured. This change in incentives may be sufficient to ensure that an insurance program achieves broad coverage. There are, however, at least two hurdles. In some situations, individuals may judge

the (unsubsidized) insurance scheme too expensive compared to their expected health expenditures; and in other situations, individuals may just be too poor to pay the full-cost premium. Table 3 shows the standard premium for each of these schemes and the extent to which the program is subsidized by the government.

*INSERT TABLE 3 AROUND HERE*

The Nicaraguan pilot study illustrates the first case. The authors of the impact evaluation note that out-of-pocket health expenditures in the preceding year were \$88 on average, considerably less than the unsubsidized cost of the insurance (\$176), suggesting potentially low willingness-to-pay for this particular insurance plan. There is strong evidence to this effect. Sign-up was encouraged by offering insurance free of charge for six months, as a result of which those offered the subsidy were about 30 percentage points more likely to take up insurance than those receiving no subsidy. Less than 10 percent of those who enrolled, however, were still paying for insurance once the subsidy was withdrawn. The sign-up subsidy implied an average saving of \$88, an attractive and powerful incentive, but the full-cost of the program per member at \$176 proved too expensive compared with expected health costs of only half that amount.

The Nicaragua program was aimed at individuals with above-average incomes but still could not attract many takers, suggesting the need for at least some subsidy. The other two insurance programs are intended to attract enrollees in much lower-income populations and both incurred subsidies. Against this, both achieved significant health benefits. Thus, in the case of Ghana, maternal health care, the focus of the impact evaluation, improved significantly: compared with



their uninsured counterparts, enrolled women were more likely to give birth in hospitals; 15.8 per cent more were attended by trained health professionals at the time of delivery; 15 per cent more received prenatal care; 2.1 per cent had fewer birth complications, and 1.8 per cent experienced fewer infant deaths. Similarly, insured cohorts in the Yeshasvini program reported more surgery cases than the uninsured ones during the 4 years of the evaluation but, at the same time, experienced significantly less indebtedness and sale of assets indicating the program not only improved health status but also protected economic status. These two programs point to the potential, and the fiscal cost, the subsidy required to attract enrollees, for successful insurance programs in low-income situations.

Insurance programs can be delivered with or without a subsidy. In some other programs, however, the incentive only emerges as a result of a subsidy. The Program of Conditional Cash Transfers in Zomba district, Malawi, for example, creates an incentive for never married young women in the age group of 13 to 22 years to stay in school, or return to school, by offering a cash transfer to cover school fees (or paying the fees directly) conditional on satisfactory school attendance [13]. International evidence suggests that such transfers can improve school attendance. The Malawi impact evaluation goes beyond this to see if there is any impact on the sexual behavior of the young women which in turn could reduce the incidence of HIV: the transfer may motivate girls to avoid pregnancy so that they finish school; it may reduce women's need to engage in transactional sex; and it may also increase their bargaining power in their current and future relationships. The results confirm such an impact. The program led to significant increases in schooling among drop-outs (those who were not attending school at baseline but returned to school once the transfer was offered) and enrolled school girls (their

remaining in school). It also finds significant declines in early marriage, teenage pregnancy, and sexual activity among program beneficiaries after just one year of program implementation. The effects, however, were mainly observed among drop-outs: the program reduced their likelihood to be married by approximately 40% and to start childbearing by more than 30%.

These promising results come at a cost in the form of the transfer. The young women are paid a range between \$5-\$10/month which represents roughly 15% of total monthly household consumption for sample households at baseline, a significant transfer, placing this program in the middle-to-high end of the range for transfers in such schemes. If the impact of the program on sexual behavior is found mainly among drop-outs, then for the remainder of the young women, those who would have stayed in school without the subsidy, the \$5-\$10 is a transfer that only affects schooling. According to the authors, their sampling procedure led to an average sample size of 5.1 dropouts and 16.6 current school girls at baseline in each Enumeration Area. For the enrolled school-girls, therefore, the cash is serving to increase school enrollment with no change in sexual behavior (in fact, the proportion in the population is higher because the sample included all drop-outs). This highlights the importance of targeting in conditional cash transfer programs. In the short-term at least this non-targeted CCT program is unlikely to be cost-effective. However, behavioral changes could take longer to manifest in the evaluation results. The experiment is scheduled to run for another year to analyze long term schooling and behavioral changes. A full cost-effectiveness analysis including long term health outcomes may be able to provide more in-sight into the cost-effectiveness and need for targeting in such a program.

In addition to the issue of how lack of precision in targeting may increase the cost of incentive-based interventions, the Zomba Conditional Cash Transfer Program raises a further cost-related issue. The total cost of the program consists of the cash transfers themselves and the administrative costs of running the program. For every \$1 that is transferred to a program beneficiary, approximately \$0.50 is spent on administration (delivering the cash payments and monitoring attendance). The authors note that these costs may be lower if the program is implemented by the government and fully integrated into its administrative structure, but, even so, the fact remains that incentive-based programs typically involve administrative costs that have to be considered in any full evaluation.

The seemingly costless change in incentives for users in the Provider-Initiated Voluntary HIV Counseling and Testing Program in Thailand also incurs administrative expenses [14]. In this program, clients at participating hospitals were provided with HIV counseling and testing unless they specifically chose to opt-out, whereas the traditional approach, opting-in, was continued in the control hospitals. This apparently simple change in incentives had a significant impact: the acceptance rate for HIV testing and the HIV detection rate were significantly higher in the treatment hospitals. The costs of the intervention, capital, labor and materials required to offer the service (pre- and post-test counseling, and HIV testing) however, were substantial (three times higher in the treatment hospitals). Even so, the authors calculate that incremental costs per HIV infection averted as a result of provider-initiated VCT were PPP \$28,551, a not-excessive cost-effectiveness ratio.

In sum, the incentive-based schemes reviewed here show substantial promise and such approaches should be high on the policy-maker's agenda. The cautionary tales about costs recounted above are just that: cautionary tales. Incentives have to be well-defined to have an impact on behavior; subsidies must be well targeted; and allowance must be made for adequate monitoring. International experience can provide useful guidance on the cost implications of different programs, but pre-intervention economic analysis may also contribute. Thus, knowing the out-of-pocket costs of businessmen in Nicaragua may have been sufficient to indicate the likely (minimal) impact of relatively high-cost insurance. Similarly, examining the incentives, or lack thereof, in the Thai Safe Motherhood Hospital Program should have given some indication of likely impact.

### **Innovative Delivery Systems for Health Services**

Delivery mechanisms can play a crucial role in improving health status. The latest 'miracle' drug will be of little value if it fails to reach those it is intended to benefit. Programs aiming to increase the prospects of successful delivery of preventive care and treatment often make use of the existing infrastructure for other non-health, public services to provide health services. The hoped-for economic benefit behind these schemes is that they save on the costs of investing in health-specific infrastructure for delivery. At the same time, they run the danger of diverting the non-health delivery system from its primary purpose. Three of the examples in this sub-section illustrate this trade-off with specific reference to the use of schools in delivering health programs. The other three examples report on genuinely innovative attempts to deliver health services. Precisely because they are more experimental in nature, they offer new exciting

possibilities while posing searching questions with respect to acceptance by the target population.

The three programs making use of schools to deliver health services are concerned with hand washing to combat diarrheal diseases and respiratory infections, treatment kits for malaria, and teacher training for HIV/AIDS education. The first intervention uses alcohol-based hand sanitizers for the prevention of acute diarrheal disease and acute respiratory infection in children under 5 attending childcare centers in Bogotá, Cundinamarca and Tolima, Colombia [15]. These centers lack access to tap water for hand-washing and the hand sanitizers offer a simple alternative. The second intervention, the School-Based Malaria Program in Mangochi district, Malawi, involves training primary school teachers in presumptive management of malaria cases among students [16]. The teachers are trained to diagnose malaria and other health problems on the basis of signs and symptoms according to the national protocol and to dispense medicine from specially prepared Pupil Treatment Kits. The third intervention entails a formal change in the school curriculum. The Cameroonian government with support from UNESCO is currently introducing a teaching module devoted to HIV/AIDS (information on prevention, transmission mechanisms, and other issues linked to HIV/AIDS) into its school curriculum [17]. The module was introduced integrating it with five disciplines – language (French and English), civic education, history and geography, physical education and life sciences. In each participating school nine teachers from the five disciplines were chosen to be trained in the module. The module is targeted at children between ages 12-17.

Based on the evaluations, these three programs have much to offer. Two of them, the hand-sanitizers in Colombia and the pupil treatment kits in Malawi, are shown to have produced positive impacts at reasonable cost with relatively little encroachment into teaching time. Thus, the former program reduced at a relatively modest incremental cost (\$1.42 per child per school year in the control group using soap and water versus between \$3.42 and \$5.16 using the hand-sanitizer). This improvement came at little additional cost in terms of teacher time required to supervise hand washing. In the control group, the reported median frequency of hand washing with water and soap was 3 times a day compared to 6.5 times a day with the hand sanitizers in the intervention group. Similarly, in the School-based Malaria Project significant improvements were reported in repetition and drop-out rates in treated schools. The mean number of days pupils were sick, however, was higher in treated schools than in the control ones, a result attributed by the authors to better reporting of sick cases in the treated schools. Nevertheless, the mean number of days absent from school was significantly higher in control schools than in the treated ones and a cost-benefit analysis based solely on the reduced repetition rates was positive. Moreover, teachers reported that no more than an average of 5 minutes was required for diagnosis and treatment per child. It is unlikely therefore that either of these programs significantly impacted the time available for teaching.

The HIV/AIDS Education Program in Cameroon, on the other hand, will, when fully implemented into the school curriculum, reduce time for teaching other subjects. The evaluation reported here cannot, unfortunately, address this issue because at the time of the study's survey in December 2007-January 2008 the new school curriculum had not yet been introduced. Rather, the study takes advantage of the fact that about half of the children in the sample had been

exposed to ten months of teaching by teachers who had followed the teacher training program. The evaluation finds that students aged 15-17 receive about one half hour extra teaching time per week on HIV/AIDS topics in comparison to non-participating schools. The results on the health and related outcomes are promising especially for 15-17 year olds. For example, boys and girls in this age group having a trained teacher are 55% and 53% more likely to have used a condom during their last sexual intercourse and are 5% and 10% more likely to have carried out an HIV test.

The three remaining interventions are much more than “add-on’s” to existing delivery mechanisms, important though those may be. They are innovative attempts to develop new mechanisms for delivering health services. Given the nature of the product being delivered – health services – issues of reputation and client satisfaction are always present but are especially critical in the case of new delivery vehicles. Two of the interventions -- Building the Reproductive Health Capacity of the Commune Health Network Project in Khanh Hoa Province and Da Nang City, Vietnam [18], and Micro-franchising and the Distribution of Anti-malarial Drugs in Kenya [19] – illustrate the importance of establishing client confidence in the new delivery mechanism.

The Vietnamese intervention was intended to turn around the widespread perception of low quality health services at commune health stations (unqualified health staff, outdated equipment, and limited drugs and supplies). Based on a "needs assessment" conducted in 2006, the government introduced a social franchising model, in which a franchised facility seeks to provide a uniform set of reproductive health and family planning services under its brand name with predefined quality of care and costs. A key aspect of this effort was the time devoted to

generating confidence in the new model. The brand-name, *Tinh Chi Em* (Sisterhood), adopted following consultation with the target population, emphasized the empowerment of women and conveyed a sense of closeness, friendliness, sharing, and caring. Several workshops were held to achieve "buy-in" of the standardized franchise program from stakeholders during the pre-launch period. At the same time, extensive external marketing activities including road shows, media tours of the social franchise network and dissemination in the media were undertaken. These marketing efforts were designed to "look and feel similar" to cultural and social events in which Vietnamese women and their families already participated in order to attract larger numbers of potential clients.

To be a member of the social franchise and have the right to use the brand name, participating commune health stations had to upgrade building facilities and waiting areas, enroll in the service quality evaluation program, and ensure that all staff undertook social marketing training (customer relationship management, service quality evaluation, financial sustainability and social marketing and branding) and instruction on reproductive health and family planning service delivery and that all medical staff received specialized training on quality of care and clinical training. The results of the impact evaluation indicate that the approach has produced positive outcomes with respect to service utilization, client satisfaction, and client perceptions of service quality in several ways: the assessment of residents within the catchment area of the stations improved significantly for both service quality and staff expertise; client satisfaction was significantly higher; client likeliness to return increased; and so did their likeliness to recommend the commune health station to others. The program appears to have changed perceptions regarding the quality of health care provided by the commune health stations, but it



will require more time before improvements in health status can be confirmed. The care taken in setting up this program – the needs assessment, the consultation, the marketing – may well have been key to its initial success and points to the importance of checking client interest beforehand and advertizing as much as possible when introducing new delivery vehicles.

The Kenyan Drug Distribution Scheme provides a good example of effectively reaching its target population – rural villagers – through a careful consideration of local context. The government in partnership with the Sustainable Healthcare Foundation initiated in 2005 an innovative way of increasing access to a more effective anti-malaria drug called Coartem™ using a micro-franchise system. The medicines are provided by the government to the Foundation through a central procurement government body and distributed to the rural poor through the Foundation's network of individual and privately-owned shops branded as Child and Family Wellness shops. The shops receive the drugs free from the Foundation, and they in turn give the medicine to the patients at no cost, but charge a minimal screening fee (\$0.25). The shop owners enter a franchise agreement with the Foundation covering procurement, medical and business best practices including diagnostics, record keeping and general management of the shops. Regular monitoring reinforced by surprise inspections and investigations ensures that every outlet is operating to standard.

The results show that the introduction of the program has had a negative and significant impact on malaria morbidity: an additional outlet giving free Coartem™ is found to reduce malaria morbidity by 247 cases in the treated sub-locations. The authors attribute this success in part to three features. First, the shop owners are private businessmen who want to attract more patients

to their clinics to increase the number of screening fees. Second, effective and prompt service and reduced negligence are encouraged by the strict monitoring and supervision. And third, the shops offer a more personalized service and advice to patients in their local languages, something that the patients do not get at government hospitals. In sum, the program seems to have found an attractive combination of private enterprise, government regulation, and cultural sensitivity. The interest in this program is greatly increased by noting that if this method of drug distribution is effective in increasing access to Coartem™, other essential drugs could be distributed to the rural poor through similar mechanisms.

Compared with the Kenyan program, the final intervention in this group – the Young Medical Volunteers Program in Vietnam [20] – replaces the profit motive with youthful zeal. From 2002 to 2005, 545 recent medical graduates volunteered to conduct primary health checks and treatment, organize training in primary health care, and implement national programs with respect to vaccination, nutrition, malaria prevention, family planning, and SARS prevention in the Northern Mountains and the Central Highland where access to health services is most difficult. Provincial project management units coordinated volunteer activities, ensured logistics and organized monthly monitoring meetings of the teams. Many of the volunteers were able to speak the ethnic language spoken by the community they were serving.

The impact evaluation, conducted in 2008, revealed a mixed picture. Prenatal and postnatal care was better for the treated group but the indicator of hygienic behavior (household use of boiled water for drinking) and the incidence of diarrhea were worse (possibly due to a breakout of acute diarrhea at that time). While the evaluation's focus was the intervention's health impact, it might

also be worth considering its impact on recruitment of health personnel for remote regions. Indeed the authors note that no systemic effort has been made to attract personnel to these areas where their service is most needed. Of the 545 volunteers in this program, 444 of them were recruited by the provincial health department on a long-term basis with some of them opting to continue their career in the same project area. Of course, by definition, the volunteers self-selected, but even so this result, and economic logic, suggests that a more focused attempt to make service in remote areas more attractive could be an effective means of improving health service in these locations.

Policy-makers seeking new ways of delivering health services can learn much from the six programs reviewed here. Two lessons stand out. First, if the intervention makes use of an existing delivery mechanism (typically schools), care should be taken to ensure that the additional, health-related demand does not crowd out the primary service being provided. Crowding-out seems unlikely in two of the programs considered here – Hand Sanitizers in Colombia and Pupil Treatment Kits in Malawi. Moreover, both of these programs address widespread, health issues (diarrhea and respiratory diseases in Colombia and malaria in Malawi). This comment, however, should not be understood to mean that all crowding-out be discouraged. The HIV/AIDS Education Program in Cameroon will definitely crowd out teaching time for other purposes when the new component is fully introduced into the school curriculum. But reaching teenagers and young adults, a potentially high-risk group, with information on how to prevent the spread of the epidemic may well be a high-return activity. If the intervention is a new delivery mechanism then conducting focus groups to test acceptance before implementation, educating the target population regarding what to expect, and supervising the program to ensure

that delivery meets required standards are all highly desirable. The successful programs – Social Franchising in Vietnam and Micro-franchising for Drug Distribution in Kenya – illustrate many of these points.

## **CONCLUSION**

Based on the classification of programs used in this overview, different messages emerge for each category. In considering the more traditional approach of ‘earmarking resources’ to specific health issues, the programs show that even with modest sums of investment health outcomes can be improved. But targeting of objectives based on the needs of the population and the capacity of the resources available is critical to success. The set of insurance programs in the second category of ‘changing incentives’ demonstrate that insurance can be provided in low-income settings. However, some amount of public subsidy will be required to ensure premiums are affordable and the program remains financial viable. In considering the evidence on other programs in this category, in general the idea behind this category - changing incentives is successful in improving health outcomes and this rationale has great potential for application in different settings. Based on the evaluations in the EIHP project, the final category - finding new ways to deliver health services is an attractive option. School-based programs integrate health services with existing infrastructure and provide an innovative mechanism for targeting a critical population. However, the potential danger of crowding out the primary service must be explored.

The evaluations in this project provide a starting point for evidence-based replication of successful programs. Caution however must be exercised in replicating programs, as success in one program setting does not necessarily extend to other regions or countries. Care must be

exercised during design and implementation by taking into local conditions, cost structures and administrative capacities to implement programs. Implementation however is critical to success and this body of evidence provides examples as a useful starting point. When reviewing the evidence on evaluations and looking for winners for replication, therefore, the best approach maybe to grasp the rationale and the underlying idea of a program and customize it to suit the conditions it is being implemented in, rather than focusing on the specifics.

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**Table 1: The EIHP Programs**

<b>Program</b>	<b>Country</b>	<b>Health Issue</b>	<b>Implementing Agency</b>
Safe Motherhood Program	China	Maternal Care	Government
Reproductive Health Capacity	Vietnam	Maternal Care	Government
The PARSalud Program	Peru	Maternal Health	Government
Mother and Infant Health Project	Ukraine	Maternal Health	Government
Safe Motherhood Hospital Program	Thailand	Maternal Health	Government
Alcohol Based Hand Sanitizers	Colombia	Child health	Pilot randomized evaluation
PSF Family Health Program	Brazil	Healthcare Delivery	Government
Health Services Extension Program	Ethiopia	Healthcare Delivery	Government
Family Planning Program	Iran	Healthcare Delivery	Government
Young Medical Volunteers	Vietnam	Healthcare Delivery	Government
Performance Based Financing	Rwanda	Healthcare Delivery, HIV/AIDS	Government
‘Yeshasvini’ Community Based Health Insurance	India	Health Insurance	Local initiative
National Health Insurance Scheme	Ghana	Health Insurance	Government
Social Security Health Insurance	Nicaragua	Health Insurance	Pilot randomized evaluation
Micro-franchising the distribution of anti-malarial drugs	Kenya	Malaria	Government
School-based Malaria Program	Malawi	Malaria	International NGO
Conditional Cash Transfers	Malawi	Schooling, Sexual Behavior, HIV/AIDS	Pilot randomized evaluation
HIV/AIDS Education Program	Cameroon	HIV/AIDS	International Organizations/Government
Provider-initiated Voluntary HIV Counseling and Testing	Thailand	HIV/AIDS	Pilot randomized evaluation



**Table 2: Family Health Programs**

<b>Program</b>	<b>Country</b>	<b>Costs (US\$)</b>
Family Health Program	Brazil	30 - 50
Health Services Extension Program	Ethiopia	15 (construction) 0.40 (salary)
Safe Motherhood Program	China	0.13

Costs per year per individual (US\$)<sup>2</sup>

**Table 3: Costs of Insurance Programs**  
(\$ per member/year)

<b>Program</b>	<b>Country</b>	<b>Government Contribution</b>	<b>Premium</b>
Social Security Health Insurance	Nicaragua	0	176
National Health Insurance	Ghana	2.5% Sales Tax	8.00
Community Based Health Insurance	India	1.00	2.40

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<sup>2</sup> Authors' calculation based on information contained in the three studies.