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Scaling Up Health Technologies

REPORT

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Executive Summary

Since the visionary Alma Alta declaration of *Health for All by the Year 2000* three decades ago, there has been much progress in improving the health of the world. There have also been many disappointments. The poor and much of sub-Saharan Africa and South Asia are still characterized by their high mortality rates. The failure to achieve past goals and likely failure to achieve future health goals like the Millennium Development Goals (MDGs) is frustrating because with each declaration, the international health community insists that those goals can be met. Unlike Winston Churchill, who in the darkest days of World War II, said, “Give us the tools and we will finish the job,” international health experts largely feel we have most of the tools needed to finish the job. **If we have the tools to “finish the job,” then why haven’t we? And, what steps can be taken to “finish the job?” These are the two principle questions this report will address.**

For this report, we analyzed both successful and unsuccessful maternal and child health efforts to increase the accessibility of effective, mortality-reducing interventions. Although we drew upon the experiences of countries in Southeast Asia and Central and Latin America, our focus throughout the paper was on sub-Saharan Africa and South Asia, the regions with the most severe and challenging maternal and child health problems.

The review of scaling up¹ experiences in the last several decades has many lessons relevant for the future. Interventions that have been brought to scale have many things in common. The intervention is an easy to use, inexpensive, and effective product for a specific disease or condition that lends itself to a vertical, campaign-type of delivery system. We found examples of successful scaled-up efforts, but outside of the small pox and polio campaigns, few that were universally successful. Some countries achieved excellent coverage, others failed. More disturbing were instances in which successful

¹ The term “scaling up” and its variations (scaled up, brought to scale, etc.) is used generically in this paper to mean an intervention achieving coverage sufficient to have the desired impact. In some cases, a country may have a goal of universal coverage, over 90 percent of the target population. In other cases, a country may have a much more modest target of, say, 70 percent.

scaling up of an intervention was achieved, but not sustained. **The fact that health technologies are effectively scaled up and sustained in some countries but not in others suggests that factors external to the health technology determine the success of an intervention.**

To explore their scaling up potential, we conducted an extensive literature review of 43 promising health interventions that were portrayed as having proven efficacy in reducing neonatal, child and maternal morbidity and mortality. Based on our review, we excluded 22 interventions that required extensive behavioral, laboratory testing or advanced clinical skills. A “best bets” analysis was done of the remaining 21 interventions. Our assessment methodology, as those similarly employed by others, is not value free and is unavoidably influenced by the raters’ experience and training. However, all of the interventions were assessed using the same criteria and constituted a disciplined way of identifying the most promising products for scaling up, as well as identifying desired characteristics in modifying existing products or for developing new products. Our review found that some promising interventions actually lacked any evidence of their effectiveness. **A culling of less promising health technologies being championed for reducing maternal and child mortality is advisable since the requisite wherewithal to bring them all to scale is lacking now and in the foreseeable future, even assuming a much larger global commitment. It is also recommended that large scale research be conducted to determine the scaling up feasibility of promising, efficacious interventions which are unavailable to large populations.**

For decades there have been special initiatives or partnerships designed to mobilize international support combating a particular health problem. Some, such as the eradication of small pox and eradication/containment of polio, have been remarkably successful. Many others have had no impact whatsoever. The number of partnerships has exploded since the MDGs were agreed upon by 189 countries in 2000. These partnerships, and related activities, have created energy within the international health community and increased the visibility of the unmet health needs of the developing world. The unprecedented *Lancet’s* series on child, newborn, maternal and reproductive health are

both a product and cause of this energy. Most noteworthy, however, are the agenda-setting activities of American foundations, especially the Bill and Melinda Gates Foundation, who have not only infused international health with money, but have brought to the stage a gravitas that highlights the importance of and promise for of driving down mortality rates in the developing world.

Although there are important differences in efforts to mobilize support for maternal and child health, they all share a common strategy. If proven health technologies are made more widely available, or taken to scale, there will be significant improvements in health. They also have tactical similarities. Evidence is marshaled showing that if certain actions are taken thousands, if not millions, of avoidable deaths will be averted. It is the responsibility of governments, and especially the rich governments of the North, to initiate this scaling up. Knowledge is not lacking, political will is. **There has been progress, but overall these efforts to make life-saving technologies widely available in the poor and populous countries of South Asia and sub-Saharan Africa have thus far failed.**

The initial premise of this study was that the characteristics of health interventions, such as cost, stability, ease of use, dosage requirements, etc., would greatly contribute to its success or failure in being brought to scale. However, while these characteristics are important and cannot be overlooked, the most critical constraint found to scaling up is money. **While the international health field appreciates the centrality of money to any successful public health effort, it has devoted less attention on how to raise money. Although it is obvious that money is insufficient, there remains a paucity of information on how much has and is being spent on maternal and child health and little understanding on how funding decisions are made, much less how to influence them. The field must become better at raising money before it can lower mortality.**

Our report closes with five recommendations for the Foundation to consider. It is envisioned that the Foundation would take a leadership role for each of these

recommended actions by drawing on its convening and agenda-setting capacity. It is not assumed that the Foundation would be the only or even the primary source of funds.

- 1. Promoting Effective Interventions.** In a limited number of high priority countries, effective interventions with the greatest potential would be identified. A scaling-up strategy would be developed that would include fundraising, resource tracking, and impact analysis. The experience would be well documented so it could be replicated.
- 2. Increasing the Number of Effective Interventions.** There are interventions with documented efficacy that have not had their effectiveness determined. A review by independent experts should select the most promising efficacious interventions. Operations research projects would be carried out to determine the best way of bringing these interventions to scale.
- 3. Resource Tracking Initiative.** An international resource tracking program should be established. This would track and disseminate donors' funding patterns. For a selected number of large and geopolitically significant countries, donor and in-country funds would be tracked at all levels.
- 4. Resource Mobilization.** In those countries whose resources are tracked, local, evidence-based advocacy efforts would be mounted to increase donor and country support for health, especially maternal and child health.
- 5. Health System Strengthening.** Coordinating with on-going efforts in this area, political leaders from a limited number of key and politically important developing countries would be brought together to develop a fundraising strategy designed to strengthen developing world health infrastructures. These political leaders would mount an international campaign among donors and developing countries to dramatically increase their investment in the health infrastructure. Special emphasis would be given to the G7 and G77 leaders.

The Problem

Governments have not done too well in delivering on their health promises. One of their earlier pledges was in 1978 when countries met in Alma Alta and optimistically declared “Health for All by the Year 2000.” There has certainly been remarkable progress in the following three decades. In South East Asia, for instance, the under-five mortality rate has been driven down from around 100 deaths for every 1,000 children under five at the time of Alma Alta to just over 40 today. While this decline still has a long way to go before reaching the mortality rate found in the developed world (8 per 1,000) it is still a phenomenally impressive drop representing millions of unnecessary deaths averted. Contrastingly, the mortality rate for young children in sub-Saharan Africa has tragically, barely budged since Alma Alta, from around 195 deaths to 170 (UNICEF, 2004). Reflecting on this, and other development failures, nations of the world gathered together in 2000 and pledged to do something about health. This time they met in New York and boldly announced eight Millennium Development Goals (MDGs).

One noteworthy feature of the MDGs is that they are specific, quantifiable goals. The goals covered in this report are:

- MDG Goal 4: reduce by two-thirds, between 1990 and 2015, the under-five mortality rate, and
- MDG Goal 5: reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.

Many developing countries are unlikely to meet these targets. In a recent study, Bryce and colleagues analyzed how 60 countries were progressing toward the child survival MDG. They estimated that only 7 countries were likely to achieve the child survival goal and believed that an additional 37 countries might be able to meet the goal if they made an extraordinary effort to bring child survival interventions to scale (Bryce et al., 2006). Other observers are equally pessimistic.

The UN Statistics Division tracks progress toward attaining the MDGs. For child and maternal mortality, the picture is decidedly mixed, as shown in Figure 1. Only four of the ten geographical regions are projected to meet the 2015 MDG for under-five mortality. Maternal mortality fares worse, with only three regions having a chance to attain the MDG by 2015.

Goals and Targets	Africa		Asia				Oceania	Latin America & Caribbean	Commonwealth of Independent States	
	Northern	Sub-Saharan	Eastern	South-Eastern	Southern	Western			Europe	Asia

Goal 4 Reduce child mortality

Reduce mortality of under-five-year olds by two thirds	Africa Northern	Africa Sub-Saharan	Asia Eastern	Asia South-Eastern	Asia Southern	Asia Western	Oceania	Latin America & Caribbean	Europe	Asia
	moderate mortality	very high mortality	moderate mortality	moderate mortality	high mortality	moderate mortality	high mortality	moderate mortality	low mortality	high mortality

Goal 5 Improve maternal health

Reduce maternal mortality by three quarters	Africa Northern	Africa Sub-Saharan	Asia Eastern	Asia South-Eastern	Asia Southern	Asia Western	Oceania	Latin America & Caribbean	Europe	Asia
	moderate mortality	very high mortality	low mortality	high mortality	very high mortality	moderate mortality	high mortality	moderate mortality	low mortality	low mortality

Colors indicate trend, toward meeting the target by 2015:

No progress, or a deterioration or reversal.	Target is not expected to be met by 2015, if prevailing trends persist.	Target is expected to be met by 2015, if prevailing trends persist, or the problem that this target is designed to address is not a serious concern in the region.
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Figure 1: MDGs: 2006 progress chart, Goal 4 and 5

Source: UN Statistics Division (<http://unstats.un.org/unsd/default.htm>)

The situation is particularly bleak for the more populous and poorest performing regions: sub-Saharan Africa and South Asia. The graphs in Figure 2 show the gap between current and targeted under-five child mortality rates that must be filled in less than eight years to achieve the MDG. While the gap for South Asia looks daunting, that for sub-Saharan Africa is overwhelmingly bleak.

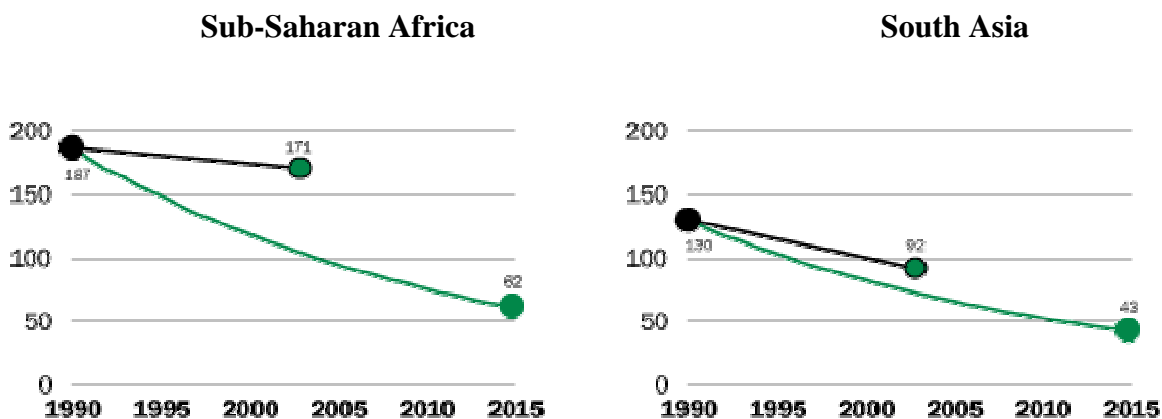


Figure 2. Under-five mortality rate (deaths per 1,000)
 Source: World Bank Indicators 2005 (http://devdata.worldbank.org/wdi2005/Section1_1_4.htm)

While still grossly under-resourced, child health programs have received much more attention and funding than maternal health programs. This neglect of maternal mortality is sometimes attributed to the far greater number of under-five deaths (11 million per year) than maternal deaths (500,000 per year). But this insensate comparison masks the human tragedy and inequity found in maternal mortality. A mother in Malawi has a 1 in 7 chance of dying during childbirth compared with a Swedish mother's 1 in 29,800 chance of death (UNICEF, 2007). While the Malawi-Sweden comparison is truly shocking the regional comparisons in Table 1 highlight gross inequity of this neglected tragedy.

	Adjusted MMR	Lifetime risk of maternal death
Developing Countries	440	1 in 61
Sub-Saharan Africa	940	1 in 16
South Asia	560	1 in 43
Developed Countries	13	1 in 4000

Table 1. Maternal mortality ratios* in selected regions, 2000
 Source: UNICEF, The State of the World's Children 2007, Table 8 - Women
 (http://www.unicef.org/sowc07/docs/sowc07_table_8.pdf)

*Maternal Mortality Ratio is the number of maternal deaths per 100,000 live births. Periodically, UNICEF, WHO and UNFPA evaluate these data and make adjustments to account for the well-documented problems of under-reporting and misclassification of maternal deaths and to develop estimates for countries with no data. Adjusted MMR are estimates for the year 2000 and reflects the most recent of these reviews.

Considering that most developing countries will fall short of the MDG targets in 2015, it is useful to ask if the targets established in 2000 were naively optimistic, or did the 189 countries signing on to the MDGs lack the political will to meet the targets? Although some experts may have silently harbored doubts about our collective ability to achieve the child and maternal health MDGs, the dominant position taken on the lack of progress in meeting the MDGs' targets was succinctly captured by Richard Jolly, former Deputy Executive Director of UNICEF for 14 years, who stated, "...the problem is not the lack of knowledge about what to do but the lack of professional and political commitment to mobilize on the scale required..."(Jolly, 2007). Thus, what are needed are not new discoveries, but the human and financial resources to make existing life-saving technologies and services universally available. While the global health community agrees with Jolly's assessment, it has not adequately addressed why this lack of political commitment exists.

Addressing the Problem

The new millennium has seen an unprecedented movement of truly remarkable concerted efforts to increase the global priority of health and to drive down mortality throughout the world. Following the pronouncement of the MDGs came the Commission on Macroeconomics and Health (Sachs, 2001) the Millennium Development Project (<http://www.unmillenniumproject.org>), the Disease Control Project (Jamison et al., 2006), the seven *Lancet* series², scores of international partnerships, the latest of which is the Partnership for Child, Newborn and Maternal Health (<http://www.who.int/pmnch/en/>), new mechanisms to insure access to drugs such as GAVI Alliance (formerly known as Global Alliance for Vaccines and Immunisation)

² Running from 2003 to the present, the *Lancet's* series, and the numerous articles and meetings they spawned, is totally unique in mounting an evidence-based mobilization effort in the areas of child, neonatal, maternal, sexual and reproductive health, and the upcoming child development and nutrition. In addition to these thematic series, the journal ran a series on how Mexico revolutionized its public health programs.

(http://www.gavialliance.org/resources/FS_IFFIm_en.pdf) and, the establishment of the Bill and Melinda Gates Foundation as a major, agenda-setting donor.³

The many mobilization efforts all use a similar argument. First, the *seriousness of the problem* is established, usually in terms of high mortality rates in the poorest developing countries. While one can quibble about the accuracy of some statistics, the numbers largely speak for themselves. Far too many people are dying from preventable diseases and conditions. Second, a case is made for alleviating the problem by the *scaling up of existing, effective technologies*. The message is that governments and civil society can act now with the tools and know-how we already have in hand. Third, a *price tag* for scaling up these technologies is calculated, usually accompanied by an analysis of the gap between needed resources and the estimated amount being provided. Cost projections are seldom without limitations and it is difficult to track what is being spent on any one health problem. No one, however, questions that considerably more money is needed to mount even a respectable attempt to reach the MDG child and maternal health targets and that there is little to suggest these funds will be forthcoming anytime soon. Fourth, an *emotive appeal* is made, emphasizing that these deaths are unnecessary, that the poor are suffering disproportionately, and that governments have broken their promises to effectively address these problems. Fifth, a general *call to action* is outlined which mainly consists of bringing to scale the existing, but grossly underutilized, health technologies. This five-part mobilization strategy has had indifferent results with no appreciable increase in resources for child or maternal health evident at either the global or country level. Therefore, it is important to ask what changes in advocacy strategies and techniques are needed to make child and maternal health a serious priority?

³ A full discussion of all of the many and varied mobilization efforts and the new donor architecture are beyond the scope of this paper. Clearly, the Global Fund for AIDS, Malaria and Tuberculosis and PEPFAR are noteworthy examples of new, important ways to mobilize resources for diseases outside the central focus of this report.

Diffusion of Innovations

A good way to identify limitations in recent attempts to increase the political commitment to child and maternal health is to contrast them with some of the many successful efforts. To make this comparison, we use the diffusion of innovation model developed by E.M. Rogers (Rogers, 2003).

Rogers and his many followers see the diffusion process as a series of gates that an innovation must go through before it is made widely available and used. Our adaptation of his approach is shown in Figure 3. The **product characteristics** of an innovation either facilitate or inhibit its diffusion and use. An innovation can be a new or improved product or a different way of doing things. Although the diffusion process seems linear, with the product making an orderly progression from one stage to the next, and deterministic, with the product's characteristics decisive to its progression, the process is actually much more chaotic and dynamic.

Stages of Diffusion/Scaling Up

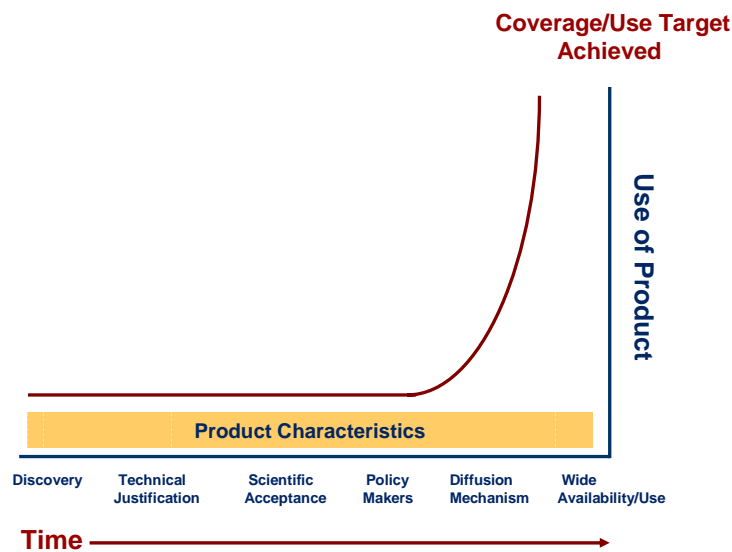


Figure 3. Stages of diffusion/scaling up
Adapted from Rogers, E.M., **Diffusion of Innovations**, 5th edition, 2003.

Discovery. Although product development, or discovery, is not a focus of this report, the development of a product usually takes into consideration product attributes that will enhance its diffusion. Producers of consumer products spend millions of dollars identifying the ideal combination of characteristics. There are many examples where the development of a new technology or the modification of an existing product has facilitated the diffusion process. Oral rehydration salts (ORS) sachets took rehydration out of the clinic and into the community. The introduction of “spacers” in oral contraceptive packages made their use easier and increased compliance. Thus, the characteristics producers give to each product (e.g., consumer price, use requirements, packaging, side effects, etc.) can greatly impact how readily and widely it is diffused. The product influences the diffusion process and the diffusion process can influence the product.

Technical Justification. This refers to when experts decide that the body of evidence is sufficient to recommend the use of an intervention. Often this justification comes from a scientific or professional body. The justification could also be embodied in a standard medical text. Occasionally, procedures are accepted as technically justified, e.g., drinking eight glasses of water daily, but, in fact, are not based on empirical findings. Technical justification does not guarantee that an innovation goes to the next stage.

Scientific Acceptance. Before a health innovation is scaled up, it must be accepted by the health community that will be responsible for promoting its use. Some seemingly ideal, effective innovations are not diffused due to lack of acceptance despite showing technical justification. Such an example is folic acid fortification to prevent neural tube defects, which has proven quite effective in the United States (Honein et al., 2001). Despite the US experience, folic acid fortification has not been adopted widely in Europe even with endorsements from professional and scientific organizations in Europe, such as the UK’s Medical Research Council (MRC), which recommends folic acid fortification as a highly cost-effective, public health intervention. (MRC, 1991). The technical justification that was sufficient for acceptance in the United States was not sufficient in Europe. (Wright et al., 2001; Cornel et al., 2005). Technical justification is not absolute.

It can be accepted in some places and rejected in others. Moreover, the rejection can be based on non-technical considerations. In this case, food fortification in North America is pervasive, but is still relatively rare and resisted on principle throughout Europe.

Scientific justification does not guarantee promotion by policy makers or acceptance by health providers. It does, however, increase the probability of the innovation being promoted and widely adopted. Also, scientific findings alone are seldom sufficient to gain acceptance and the innovation needs champions to promote it. Champions are individuals or organizations that have the potential to influence decision makers, in this case the relevant health community. Champions cover a wide range of individuals. They can be pharmaceutical detail persons blitzing private physicians to experts promoting an innovation they discovered, e.g., the leaders of the International Vitamin A Consultative Group (IVACG) promoting Vitamin A supplementation.

Policy Makers. Policy makers are individuals with the power to increase or redirect resources they control. There can be different levels of policy makers that influence the diffusion process at different stages. In the above example of pharmaceutical detail persons, a policy maker in the pharmaceutical firm had to decide to allocate money for the promotional campaign. Later in the diffusion process, the policy maker may be in an HMO that must decide if his organization will purchase the product being promoted by detail persons. Without a policy maker allocating resources for its promotion, a public health innovation will not be scaled up.⁴

Diffusion Mechanisms. Diffusion mechanisms are how innovations are made available to the target population. Obviously, if a product is not accessible to the population, it cannot be used by them. The weakness and limited reach of health systems in much of the developing world is a well-known constraint in making effective interventions widely available. Here, a product's compatibility with the delivery system is critical. A vaccine requiring a cold chain is not going anywhere in a health system with inadequate logistics.

⁴ Consumer innovations can sometimes be spread through a demand driven mechanism without promotional campaigns, as was described in Malcolm Gladwell's popular book, **The Tipping Point**, 2002.

The more demands a product places on the diffusion mechanism, the less effective the intervention.

Wide Availability/Use. The last stage in the diffusion process has two elements. The first, noted above, is that the product needs to be readily available to the target population. And, second, it needs to be used. Here again, the characteristics of the product influence both coverage and use. Besides being socio-culturally acceptable, the product must be easy to use. Generally speaking, the less behavior modification required on the consumers' part, the higher the effective utilization. A one time vaccination of a child will have superior use rates to something requiring multiple dosing over time, such as DOTS.

Best Bets

Best bets are health interventions which experts have identified as the most promising for reducing child and maternal mortality. We drew our list of best bets from the *Lancet's* maternal, neonatal and child health series, and articles by Tsu and colleagues, and Adam and colleagues (Tsu et al., 2004; Adam et al., 2005). The selection criteria for deciding what constitutes a best bet were not always clear, but all emphasized the contribution they could make toward achieving the MDGs if universal coverage of 99 percent was attained (Jones et al., 2003; Darmstadt et al., 2005).

The fact that these interventions were selected by groups of recognized experts and were presented in prestigious medical journals means that they fulfill the “technical justification” of our diffusion model. In addition, some of these interventions are no longer “best bets.” They have been widely used and are considered success stories. These are “old best bets.”

Old Best Bets. The very term “best bets” suggest an unknown risk of being a poor bet; otherwise, we would call them “sure bets.” We examined some of the best bets of the past that are now considered success stories. Drawing on the most recent Demographic and Health Surveys (DHS) in 66 countries, we looked at the latest coverage rates of tetanus toxoid, polio, ORT/RHS (oral rehydration therapy/recommended home-made solution), measles, BCG and DPT3 (Appendix C), all of which are considered success stories in international health. In Figure 4, we will look at antenatal tetanus toxoid (TT) and polio. Both of these interventions have been widely promoted for decades. Polio has received extraordinary attention as a prime candidate for eradication.

range of coverage is also noteworthy. Why is TT coverage in Mozambique (MZ, 56 percent) and Malawi (MW, 59 percent) twice as high as that found in Mauritania (MR, 25 percent) and Mali (MI, 31 percent)? The reasons for their differential performance are undoubtedly many and complex. But, for this discussion the important point is that the characteristics of TT have little, if any, explanatory power for differing coverage rates among four resource-poor countries.

In order to examine whether or not the coverage of former best bets is getting better, we looked at countries with two or more DHS surveys to see if coverage for the six interventions (BCG, DPT3, polio3, measles, TT2, ORS/RHS) has changed. The results for all regions are found in Appendix C. In Table 2, we only show the results for countries in sub-Saharan Africa. Blue represents the countries where coverage of an intervention has increased over time (e.g., in Benin DPT3 went from 59 to 65 percent). Red signifies countries where there has been a decline in coverage (e.g., in Chad ORS/RHS declined from 28.5 percent to 17.7 percent); coverage is unchanged (e.g., in Benin where TT2 coverage has remained at 49 percent); or, for countries with three or more surveys, there has been a decline from the highest level of coverage achieved (e.g., in Kenya BCG coverage went from 43, to 95 to 86 percent).

Country	DHS Survey Year	BCG	DPT3	Polio 3	Measles	TT - two or more doses	Either ORS or RHS
Benin	1996	81.5	59.4	56.7	52.9	49.9	31.9
	2001	87.6	65.6	62.1	54.5	49.7	
Burkina Faso	1992/93	72.2	29.4	29.6	35.1		
	1998/99	64.7	30.1	30.9	29.4	33.1	18.2
	2003	76.3	44.2	45.6	39.5	39.4	26.5
Cameroon	1991	66.4	35.9	37.2	38.2	46.4	32.7
	1998	73.5	47.2	43.3	45.0	49.0	
	2004	81.6	57.9	60.3	54.6	53.5	24.2
Chad	1996/97	27.1	11.7	10.6	11.7	24.0	28.5
	2004	29.2	13.7	27.7	10.8	29.5	17.7
Cote d'Ivoire	1994	71.4	39.1	44.5	36.3	47.3	
	1998/99	77.1	49.6	48.6	46.2	53.0	28.9
Eritrea	1995	47.6	35.5	34.1	28.9	23.0	
	2002	84.2	73.5	75.6	69.4	33.8	55.7
Ghana	1988	22.9	12.0	10.6	13.1		35.9
	1993	77.7	51.8	52.0	45.1	51.2	
	1998	84.5	61.0	59.6	57.6	50.5	31.7
	2003	86.9	71.1	69.2	64.4	50.5	46.4
Kenya	1989	43.5	37.7	38.2	30.5		62.6
	1993	93.3	81.4	79.8	71.8	51.9	31.6
	1998	94.7	77.3	69.9	70.4	50.8	
	2003	86.0	69.5	61.8	65.0	52.3	29.2
Madagascar	1992	63.8	45.7	45.7	38.2	43.1	25.3
	1997	65.1	45.7	43.9	40.4	35.3	
	2003/04	67.9	57.3	57.6	49.8	39.1	42.7
Malawi	1992	89.8	76.6	75.3	63.7	75.1	63.2
	2000	90.1	78.2	70.6	63.8	59.8	47.9
Mali	1987	2.3	1.1	0.9	0.7		1.0
	1995/96	64.5	26.3	27.5	31.9	31.7	
	2001	56.6	27.7	27.5	30.6	31.1	29.8
Mozambique	1997	72.3	53.2	47.9	48.7	28.8	
	2003	79.4	57.3	53.3	56.2	57.5	54.1
Namibia	1992	82.3	50.0	50.0	47.3	35.6	64.7
	2000	84.5	69.1	65.0	65.4		61.1
Niger	1992	31.1	14.2	13.4	16.7	14.8	16.7
	1998	47.6	22.5	21.4	28.2	18.6	
Nigeria	1990	39.8	23.9	23.8	22.5	41.4	26.6
	1999	54.4	26.7	24.5	33.3	44.3	
Rwanda	1992	96.5	89.1	89.2	82.8	57.3	35.7
	2000	95.5	80.8	82.0	78.3	28.6	19.5
Senegal	1986	15.3	6.0	5.5	7.6		4.6
	1992/93	80.1	52.3	52.6	48.9	53.1	16.0
	1997					64.4	32.7
Tanzania	1992	88.7	68.2	64.6	62.7	71.4	65.2
	1996	92.7	77.6	70.0	67.7	73.8	50.4
	1999	91.5	76.0	73.6	67.2	59.6	54.9
	2004	91.4	80.8	75.7	68.9		
Uganda	1995					53.0	
	1988	25.9	12.1	12.3	14.9		15.0
	2000/01	75.8	44.8	51.6	44.5	40.1	43.2
Zambia	1992	91.9	69.4	67.8	66.4	39.8	63.6
	1996	95.0	75.6	74.8	71.4	35.4	56.5
	2001/02					25.8	53.2
Zimbabwe	1988	66.0	52.6	53.1	49.3		
	1994	95.0	79.4	79.5	73.1	46.0	
	1999	87.5	74.8	58.9	71.4	46.5	69.2

Table 2. Intervention coverage by country and year of DHS for sub-Saharan Africa
Source: Measure DHS (<http://www.measuredhs.com>)

This analysis gives only a rough snapshot and a number of caveats deserve mentioning. While the temptation to compare countries is irresistible, survey years differ from country to country and for some countries dramatically so. The most recent surveys for which data are presented took place in 2004, meaning that the impact of special initiatives, such as GAVI, will not have been captured. Some of the countries that have experienced an increase in coverage have gone from *very* low coverage to low coverage, e.g., Chad, Niger and Nigeria. Lastly, countries with DHS surveys are countries that are of special interest to donors, especially USAID, the principal funder of DHS. One cannot assume that these countries are representative of other African countries. Despite these limitations, there are some cautionary lessons in these data.

These are well-established interventions that have been part of donor and country public health plans for decades. With the exception of BCG, all have well-documented effectiveness. Yet, many of them have never reached a level of coverage sufficient for a significant impact on mortality and 15 of the 21 countries have actually experienced stagnation or decline for one or more interventions. While there are undoubtedly some success stories here, representing thousands of lives saved, the overall picture is disappointing. Programmatically, there is really no reason why this table should not be a solid blue. It is important to keep the mixed performance of past best bets in mind during discussion of new best bets and the challenge of attaining and sustaining high coverage. Since these old best bets often reached coverage in the 70 and 80 percent range indicates they have characteristics that enabled them to be made widely available. Stated differently, the fact that high coverage was not achieved in other countries cannot be attributed to the characteristics of the intervention, but to other factors in these low performing countries. Lastly, the disappointing levels of coverage these old best bets achieved call into serious question the feasibility of the universal or near universal coverage projections used in the child survival, maternal health and neonatal *Lancet* series.

New Best Bets. We identified 43 interventions which are being promoted for scaling up. For reasons explained in Appendix A, we excluded 22 of these from further analysis. Of

the remaining 21 interventions, some of them are well established, such as vitamin A supplementation. However, most of them have yet to attain wide coverage and indeed for some no serious attempt has yet been made to scale them up. Again, drawing on Rogers' theory, we analyzed each of these 21 interventions in terms of characteristics that influence the degree of diffusion.

We examined each intervention in terms of six characteristics: simplicity, compatibility, public health impact, observability, cost and relative advantage. Each characteristic was given a score from one to three stars, with three stars having the highest diffusion potential. In addition, for each intervention, a capsule summary was written describing the intervention and the rationale for its score. These summaries are found in Appendix B.

1. *Simplicity*. This is an assessment of the relative ease of expanding the access and use of the intervention. Does it require a sophisticated delivery system? Is effective use dependent on major behavior modifications?
2. *Compatibility*. This refers to how the intervention fits with the values and norms of users and health providers. Do users have to stop a traditional way of treating an illness? Must providers alter long practiced procedures?
3. *Public Health Impact*. If the target coverage is attained, what will be the magnitude of the health impact measured in changes in morbidity, mortality and/or DALYs.⁵
4. *Observability*. Observability indicates the ease of monitoring and evaluating the impact of the intervention and the difficulty of documenting progress to policy makers.
5. *Cost*. Cost is assessed in terms of the cost to the user and the interventions' cost-effectiveness.
6. *Relative Advantage*. This is a comparison of the intervention with other interventions which address the same health problem.

⁵ WHO defines DALYs (disability adjusted life years) as the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD) for incident cases of the health condition. The DALY is a health gap measure that extends the concept of potential years of life lost due to premature death (PYLL) to include equivalent years of 'healthy' life lost in states of less than full health, broadly termed disability. One DALY represents the loss of one year of equivalent full health.

Before presenting our analysis of the 21 best bets, it is important to recognize that such an assessment is a mixture of objective and subjective decisions. How individuals view an intervention is very much dependent on their training, experience, position, and location.⁶ Something as quantifiable as cost is likely to be assessed quite differently by Benin’s Minister of Health than a bureaucratic in Brussels. Because there is no value-free calculus to weigh the comparative advantages of an intervention, it is, therefore, all the more important to use a transparent analytical framework that requires a systematic examination and comparison. Using a structured algorithm highlights where raters differ in their assessment and identifies characteristics that may be particularly helpful or problematic for a particular programmatic setting.

The review of 21 child and maternal health interventions resulted in a mixed picture concerning their scaling-up potential. As shown in Table 3, 5 of the 10 child health interventions scored the highest possible score, 3 stars, in four or more categories while only 3 of the 11 maternal health interventions scored that high on four or more categories. Moreover, with the exception of insecticide-treated bed nets, all of the high-scoring interventions are what we have labeled “old best bets.”

⁶ The team that examined these 21 interventions included a Romanian and a Pakistani physician, both doctoral candidates; an American professor with 30 years experience in international health, most of them as a policy maker; an American senior researcher with extensive overseas experience; and, an American MPH candidate with limited overseas experience.

Infant and Under-Five Health Interventions	Simplicity	Compatibility	Public health impact	Observability	Cost	Relative advantage
Antibiotics – CB pneumonia case management	**	***	***	***	**	***
Antimalarials	**	***	***	***	***	***
Corticosteroids for preterm labor	*	***	*	**	*	***
Folic acid supplementation	**	**	**	**	***	***
Hepatitis B vaccination and immunoprophylaxis	**	***	**	***	**	***
Hib vaccine	**	***	***	**	*	***
Measles vaccine	**	**	***	***	***	***
Oral rehydration therapy	***	***	***	***	***	**
Vitamin A supplementation	***	***	***	***	***	**
Zinc supplementation	**	**	**	**	**	**
Maternal Health Interventions	Simplicity	Compatibility	Public health impact	Observability	Cost	Relative advantage
Calcium for pre-eclampsia/eclampsia	**	**	**	*	***	**
Clean home delivery kits	***	**	**	***	***	**
DOTS	**	**	***	**	*	**
Insecticide-treated materials (bed nets)	**	***	***	***	**	***
Intermittent presumptive treatment for malaria	**	***	***	***	***	***
Magnesium sulphate	*	***	**	**	***	**
Maternal iron supplementation	**	**	***	**	***	***
Misoprostol for PPH	***	**	**	**	***	***
Oxytocin for PPH	*	**	**	**	**	**
Tetanus toxoid immunization	**	**	***	***	***	***
Vaginal chlorhexidine cleansing	**	**	**	**	***	**

Table 3. Diffusion potential for infant, under-five and maternal health interventions

An intervention's score does not predict the coverage of an intervention. We saw earlier that the coverage of ORS was disappointingly low in many African countries, despite its perfect diffusion potential score in five out of six categories. Contrastingly, Hib vaccine's modest score portends difficulties in scaling up. But the success of the GAVI Alliance, demonstrates that such limitations as multi-dosage requirements and cost can be overcome with a special effort (GAVI Alliance Progress Report, 2005; Lu et al., 2006).

The ranking process is effective in identifying characteristics that may require special attention in order to bring them to scale and which interventions should receive highest priority in limited resource settings. The exercise is also useful in identifying characteristics where product modification would make them more attractive and areas requiring more research, a point we will discuss in more detail.

Our review of the best bets does not support the underlying assumption of post-MDG advocacy strategies for child and maternal health, with its emphasis on the existence of a portfolio of effective health technologies needing only a substantial infusion of resources

to achieve universal coverage. Most importantly, there is the matter of effectiveness. Except for the old best bets, the number of studies with documented effectiveness is few. Our assessment is shared by others. Darmstadt and colleagues (Darmstadt et al., 2005) rigorously examined 45 interventions to determine the evidence of their effectiveness in reducing neonatal mortality. As shown in Table 4, they found that only 5 of the interventions had demonstrated efficacy and effectiveness.⁷

<u>Strength of Evidence</u>	<u># of studies</u>
Evidence of <u>no</u> benefit	2
No evidence of benefit	5
Uncertain evidence	20
Evidence of efficacy	13
Evidence of efficacy <u>and</u> effectiveness	<u>5</u> 45

Table 4. Neonatal interventions - evidence of effectiveness in reducing neonatal mortality
Source : Darmstadt et al., 2005 (<http://image.thelancet.com/extras/05art1217webtable1.pdf>)

Effective interventions are those that have been tested in the real world by a significant proportion of a population so that the intervention’s effectiveness is clearly established. One cannot assume that an intervention with a desired impact on a small population in a controlled study will have a comparable impact on a large population. The efficacy of an intervention indicates that it may be an effective intervention and thus, one that can potentially have a public health impact. In general, the child and maternal health advocacy literature ignores or plays down the daunting challenges of taking an efficacious intervention to scale in resource poor settings. Investment in operations research that would test ways to bring the **more promising** efficacious interventions to scale strikes us as a high priority. We emphasize “more promising” since it is our judgment that too many child and maternal health interventions are being promoted.

⁷ The five interventions are: tetanus toxoid, antibiotics for preterm premature rupture of membranes (PROM), clean delivery practices, breastfeeding, and community-based pneumonia case management.

The limited ability of African and South Asian countries to adopt and maintain effective health interventions to adequate scale has been discussed. The resources now available and likely to become available in the near future fall short of what is required to scale up all the interventions that are being promoted. As shown in Table 5, we found 43 interventions being recommended for scaling up in the *Lancet*'s series.⁸ Even if these 43 were all of proven effectiveness, it is doubtful that the fragile infrastructures and limited budgets of poor performing countries could bring them to scale. As it is, some of these interventions are not even efficacious, much less of proven effectiveness.

<u>Series Title</u>	<u># of interventions</u>
Child Survival	16
Newborn	4*
Maternal Survival	<u>23**</u>
	43

*These 4 interventions are in addition to 6 interventions which were also included in the child health series (namely: breastfeeding, antenatal steroids, tetanus toxoid, antibiotics for pneumonia, antibiotics for PROM and intermittent presumptive treatment of malaria in pregnancy). Grand total of 10 interventions.

**These are in addition to interventions previously enumerated for either the child health series (insecticide-treated materials, nevirapine); the newborn health series (folic acid, calcium supplementation; detection and treatment of syphilis, bacteriuria); or both (breastfeeding, antenatal steroids, tetanus toxoid, antibiotics for PROM, and intermittent presumptive treatment for malaria).

Table 5. Discrete interventions listed in the *Lancet*'s thematic series

It is technically unsound and politically unwise to promote an all or nothing package of interventions. *Lancet*'s maternal health series is especially egregious in this regard, listing every conceivable health action for "getting on with what works" and noting that the safe motherhood community has been too "diligent" about the "uncertainties" of interventions (Campbell, 2006). Such cavalier advocacy is reckless and will not be taken seriously by policy makers.

⁸ These 43 include specific, targeted interventions. Non-specific interventions e.g. "access to care to screen for health problems" were excluded as were broad behavior change interventions, e.g., "complementary feeding."

The maternal health community (or communities) has long been characterized by disagreement about which intervention(s) should receive priority. The disagreement is at least partially a product of limited research funds devoted to evaluating maternal health interventions. This in-fighting (which is evident in the *Lancet*'s series) has almost certainly contributed to the overall low priority given to maternal health (Rosenfeld et al., 2006; Lawn et al., 2006; Costello et al., 2006).

Our review of the health interventions indicates that there is not “scientific acceptance” of a package of interventions that can be promoted as the way to reach the MDGs for child and maternal health. Considering the lack of strong evidence to support the scaling up of many of these interventions, the lack of professional consensus is understandable and warranted. Advocacy strategies that have as their core recommendation the scaling up of a constellation of proven *and* unproven interventions will face serious credibility issues within the health community and among policy makers concerning their feasibility from both technical and financial viewpoints. We feel that interventions chosen for scaling up should have a proven track record, address specific health needs of the country, and realistically reflect each country's implementation capacity. At the same time, research on promising interventions whose effectiveness has not been documented should be instituted in order to identify which should be scaled up.

Successful Scaling Up Initiatives

There have been many public health success stories. Although each is unique, they also have a great deal in common. In this section, we will outline the commonalities in successful scaling up initiatives. An intervention is considered successful when it achieves and sustains sufficient coverage and use to effect a measurable and significant reduction in morbidity or mortality at the global, regional, country or specific, at-risk population. The level of reduction that must be achieved is somewhat in the eye of the beholder. Everyone agrees that the eradication of small pox was an unprecedented success. Contrastingly, for many, the success of the polio eradication is in the balance and will not consider it a success until polio is, indeed, completely eradicated. We count the war on polio as a huge success, even if it never achieves the promise of global eradication. Likewise, we consider measles immunization an example of a successful intervention for Latin America, and a potential success for sub-Saharan Africa. Although public health successes usually imply large numbers, they can also be limited in their global impact. While the absolute numbers of persons affected is relatively small, few would question the label of “success” being applied to guinea worm eradication in Africa.

In addition to those characteristics discussed under “new best bets,” we identified common characteristics of successful public health interventions. Some refer to the actual intervention but most are concerned with the intervention process. Each is briefly described below.

1. **Disease/Problem Specific.** Successful scaled up interventions are quite narrow in their focus and easy to describe. Persons immediately know what the call to action, “Eradicate Polio,” is all about and what needs to be done to achieve its objectives. The same can be said of the various initiatives addressing malaria, TB, measles, river blindness, guinea worm, and so on. The initiatives have a specific intervention or a package of interventions that need to be scaled up to have impact on a specific disease. While not all of these initiatives have realized the same degree of success, they have all achieved some degree of success. Contrastingly, interventions that deal in a construct that encompasses a range of diseases and

problems have had difficulty in achieving conceptual traction and money. A person trying to explain, much less implement, the Partnership for Maternal, Newborn and Child Health, “the Partnership,” will have a much more challenging and time consuming task than someone promoting Rollback Malaria. Little time has to be spent defining or describing malaria or what needs to be done about it, i.e., three or four interventions need to be scaled up to ultimately reduce malaria-related deaths. The Partnership, on the other hand, has a much more nebulous purpose involving scores of diseases, conditions, and corresponding interventions. Scaling up initiatives that have a well-defined objective and a straightforward set of actions to achieve their objective will have an easier time in mobilizing and using the necessary human and financial resources than more complex, broad interventions.

A variation of the disease/problem specific characteristic are intervention initiatives that conceptually and promotionally begin with the intervention as the objective rather than the disease or problem. EPI and, more recently, GAVI define their *raison d’etre* as increasing immunization coverage which will then avert millions of unnecessary child deaths. They go from the specific, immunization, to the specific, saving lives.

2. **Dramatic Results Promised.** Related to our first characteristic, successful scaling up initiatives promise dramatic results with clear actions needed to achieve those results. If we vaccinate children, we will eliminate polio. If we give children two vitamin A capsules a year, under-five mortality will drop by a fourth. A concrete, dramatic return on one’s investment is promised. Here, a word about HIV/AIDS is appropriate. At first blush, the recent and huge increase in donor funds for HIV/AIDS does not seem to have our first two characteristics; AIDS is a complex disease and the response to it has entailed many complex interventions, some of unknown effectiveness. On closer examination, the increased priority given HIV/AIDS is characterized by its specificity and promised results. The increased commitment to HIV/AIDS coincided with the introduction of ARVs

and their accelerated availability as the cost continued to decrease. The goal was shifted to saving the lives of HIV-positive people, with prevention taking a budgetary and programmatic backseat. With the efficacy of male circumcision (MC) having been established, one can anticipate more resources going to prevention.

3. **Powerful Champions.** It is a given that all successful interventions had powerful champions. A champion is a person or organization with the ability to influence those who control policies and funds. We usually think of champions being a Bono or, in an earlier time, a Danny Kaye. However, many, if not most, champions are not well known outside a small circle of people, albeit a very important circle. It is unlikely that few, if any, busy policy makers who control how money will be spent will suddenly decide that the elimination of guinea worm is a high priority. Someone has to convince them to do so. Vitamin A supplementation did not take off until a senior Canadian bureaucrat began a successful campaign to have his organization, CIDA, be the global guarantor of vitamin A capsules. Successful interventions always have a number of champions at the global and country level.
4. **Sustained Effort.** Earlier, we gave examples of countries that had achieved high coverage with some interventions, only to see them decline in coverage. Kenya is a good example of this (see Table 2). Successful initiatives take the long view and appreciate that each budget cycle represents a potential funding crisis. Rotary International has been especially diligent in keeping its, and others, eye-on-the-prize. For instance, each year it holds a gala reception for its supporters in Congress and provides members with worthy “photo ops.”
5. **Vertical Intervention.** Perhaps the most controversial characteristic of successful scaling up efforts is that they start out, and in many instances remain, a vertical intervention that by-passes (polio eradication) or turbo-charges (child health days) the regular health system. Countries with very high child and

maternal mortality rates invariably have weak, ineffectual health systems. If one wants to reduce the mortality rate as quickly as possible, one cannot wait for the health system to improve sufficiently to scale up mortality-reducing interventions. As countries and their health systems develop, vertical interventions are absorbed and mainstreamed into the regular health system. The EPI effort in Latin America is one such example.

6. **Donor Driven.** It is important to remember that countries with the highest child and maternal mortality rates are usually those with the lowest national wealth and that all successful scaling up initiatives were initially donor driven. Donors convince the host-country government that this is a high priority. The wisdom of their arguments is made more compelling by their willingness to pay for some or all of the scaling up costs. As with vertical interventions, the ownership of successful interventions is assumed by the host-country as they develop. This transition from donorship-to-ownership cannot be taken for granted, however, and a flagging of donor interest can result in a decline in coverage.

7. **Focus on Money.** By definition, successful scaling up initiatives have had adequate resources. Without exception, the successful interventions we examined had key champions who were knowledgeable about fund raising. Raising and maintaining adequate funds is central to a successful strategy.

There are several important and interesting observations about the characteristics of a successful scaling up *initiative* versus the characteristics of a successfully scaled up *intervention*. The scaling up initiatives must have a good intervention to promote or, more accurately, sell. One cannot very well sell an intervention that is ineffective, at least not for long. If you promise results, you have to have results. While the successful interventions need a good product, actions to promote the product are largely non-technical, non-health activities. This suggests that scaling up initiatives that remain within the health community and are led only by health professionals will fail. When asked why he robbed banks, the American bank robber, Willie Sutton replied, “Because

that's where the money is!" Like Willie, leaders of successful scaling up efforts knew where the money was, which is not in countries' ministries of health.

Influencing Policy Makers

Policy makers are individuals who control how much money their organizations devote to an activity. There are other types of policy makers that influence regulations, procedures, content, laws and, of course, policies. While these individuals are not unimportant, they are seldom critical to the success of a scaling up process and already receive a great deal of attention in public health literature. Our focus on policy makers that control funds is based on the fundamental truth **that having adequate funds does not guarantee success, but having inadequate funds guarantees failure.**

The need to mobilize resources for scaling up is well recognized and the rationales for increased funds are often well presented (e.g., Borghi et al., 2006). However, it is striking how little attention is given in the health sector to researching and understanding the political decisions that must take place for an intervention to be scaled up. There is a considerable and rich literature on the political decision-making processes relevant to health programs (e.g., Kingdon, 2003), but this has only recently been expanded to the international health field (e.g., Simmons, et al., 2006) and in most cases is promulgated by political scientists and economists outside the health field. Indeed, the literature demonstrates that those who understand the political process know little about health, and those knowledgeable about health know little about politics. The two groups have much to learn from each other. If real progress is to be made in scaling up health interventions, a much larger investment must be made in convincing policy makers to make investments in this area.

The most important step to increase the availability of proven health interventions is an increase in our knowledge of the budgetary process at all levels. Understanding the process is necessary to influencing the process. Besides our extensive literature review, this section draws upon the experience of the lead author and opportunistic, informal interviews and discussions with dozens of policy makers, advocates and researchers from developed and developing countries.

While there are some publications that explicitly address how policy makers became motivated to make investments in health (e.g., Keith-Brown, 2004 and Shiffman, 2003), most of the experience in successful (or unsuccessful) mobilization of resources for health is buried in larger descriptions of scaling up campaigns (e.g., de Quadros, 2004 and Fenner, et al., 1988) or in the oral recollections of participants.⁹

Concrete examples of how knowledge of a budgetary process enables one to influence the process can be found in the work of the International Budget Project, especially their successful effort of increasing funds for maternal health in Mexico (Keith-Brown, 2004). Expensive academic research projects are not required. Seeking out key informants is usually sufficient to identify who has the real power in the organization or government. This minimal investment in time and resources could, for example, indicate that the Minister of Health has no discretionary funds and is powerless to increase his overall budget. Spending time with the Minister may produce fine proclamations, but not results. Once policy makers are identified, efforts to educate them on the need to increase resources can be mounted.

A common theme in the literature on political decision making is that it is impossible to have a “how-to-influence-policy makers” template applicable for all situations. What works in one country may not work in another and what is effective for one individual may be ineffective for another. Nevertheless, advocates often share similar problems that impede their mobilization efforts. We cannot have a detailed discussion of the reasons for policy makers not responding positively to an advocacy campaign, but it is instructive to have a general overview of them when designing a mobilization effort.

We identified eight common reasons for policy makers’ inaction on or rejection of a mobilization plea. Some are more common and complex than others, but each has the potential to weaken or kill an advocacy effort:

⁹ The giants in public health who lead such successes as small pox eradication, EPI, etc. will soon be gone. It would be valuable to have oral histories done of these individuals, as was just completed at Smith College for leaders in reproductive health. (<http://www.smith.edu/libraries/libs/ssc/prh/prh-intro.html>).

Unaware of Problem or Its Solution. Perhaps the most common mistake health advocates make is assuming that policy makers have at least some knowledge of the health problem under consideration. Jimmy Carter has described how the then President of Pakistan, General Zia, and his minister of health had never heard of guinea worm, much less that it was a health problem in their country (McNeil, 2006). Policy makers do not read the *Lancet*.

Wrong Message or Messenger. Know your audience. Policy makers are awash with proposals and their proponents and opponents. Advocates need to take policy makers' perspectives into account. During a briefing to an important and sympathetic congressional staffer, a maternal health advocate prefaced her response to a question about the magnitude of the maternal mortality problem by saying, "It's important to remember that maternal mortality is a statistically rare event." That one statement effectively ended the briefing.

Wrong Policy Maker. Most health advocacy efforts give inordinate attention to health policy makers. Although the support of senior health personnel is desirable and most likely essential for an effective scaling up effort, they usually do not control how much money goes into the health budget. If one is talking about significant increases in resources, and we are, then one must follow the money. The global attack on HIV/AIDS did not begin to take off until senior politicians in G7 countries embraced the cause.

Short Tenure. In most countries, the tenure of senior policy makers is usually short. It is understandable that they are more interested in actions that will yield results during their tenure.

Competing Priorities. Advocates typically seek support for one activity or a range of activities. They make the case for why this activity is a good investment and, indeed, it may be a good investment. However, policy makers seldom make a decision on an activity. Rather, they look at a range of activities. There is seldom enough money to invest in all good investments, and advocates need to appreciate that the merits of their

proposal will be assessed relative to other proposals. Additionally, policy makers frequently do not have discretionary funds. Funding one activity may require them to take money away from an on-going activity, something most politicians are loath to do.

Doubting the Effectiveness of the Intervention. Policy makers have to be skeptical. In private, many policy makers doubt that the MDGs can be achieved in poor countries, no matter how much money is devoted to them. Generally speaking, the more ambitious the goal, the more skeptical the policy maker.

No *Quid pro Quo*: A prudent advocate needs to make sure that policy makers get recognition for their decision.

Political or Personal Bias. The active opposition of politicians based on non-technical reasons is not uncommon. These are well known in the field of HIV/AIDS and reproductive health. However, they are sometimes much more subtle and entail such things as regional or ethnic prejudices.

This short overview highlights the need to take a broad perspective when mounting an advocacy campaign, one that goes well beyond health concerns. Some famously effective health advocates, such as Jim Grant, had this perspective, viewing immunization as just one piece in a large mosaic of factors that had to be understood and moved about.

Efforts to influence policy makers are handicapped by our inadequate knowledge of the most important manifestation of political commitment or will—money. The only real way to track the priority an intervention is given is to track the money devoted to it. Without such information, one cannot tell if something is receiving more, less or the same priority. Accountability is impossible without resource tracking. Also, because the budgetary process has become decentralized, both among donors and countries, tracking is essential to determine if funds allocated for a particular activity actually go to that activity. Such tracking is not easy and will require an investment. However, it can be done (Powell-Jackson et al., 2006) and must be done to raise the priority of child and maternal health.

Diffusion Mechanisms and Availability

We have already discussed how interventions need to be compatible with the health delivery system's capabilities. And, it is axiomatic that countries with the greatest need to rapidly scale up mortality reducing interventions have the least capacity to do so. How should this dilemma be addressed?

There are basically two schools of thought. The politically correct approach is that the health infrastructure, physical and human, should be improved and maintained. A broad range of health services should be offered. Proponents point to South East Asia and many Latin American countries as examples of how the population's improved health status has evolved as their health systems have improved in reach and quality. The other school, the realists, agrees with the long-term need for a solid health system, but believes this worthy goal will take decades to achieve if one has to wait for an improved health system to evolve. Meanwhile, millions of children and women are dying unnecessarily for want of simple, effective interventions. The realists advocate a super-charging or by-passing (although they do not use such blunt words) of the health system with disease specific, vertical interventions. Vitamin A supplementation is an example of a super-charging of the system. Supplementation occurs during special campaigns, such as polio immunization or child health days. These campaigns frequently have a short-term infusion of personnel and money into the campaign area. An example of by-passing the system would be the vitamin A fortification of sugar. Critics of vertical approaches note that they do little to strengthen the health system and sometimes result in short-term, non-sustainable gains in health status. As is often the case, both schools are correct. As discussed earlier, all the notable public health successes in the developing world started as vertical interventions which, in middle-income countries, were mainstreamed into the regular health system. However, in poorer countries, the health systems are too fragile to absorb the responsibility of major public health programs. After decades of foreign assistance, they remain weak and overwhelmed with the curative medical needs of their populations. Where do we come down on this debate?

The health field needs to go with what works, and what works is the vertical intervention of selected, effective interventions. The debate between vertical and broad-based, holistic health programs has been raging for decades, certainly since Walsh and Warren's famous article on primary health care (Walsh and Warren, 1979). To be cynical, one can say that everyone is for a holistic approach until they want to really make an impact. Then, they choose an intervention, form an international partnership to promote the intervention, and then develop a mechanism to avoid being held back by health system constraints. Since this approach has worked in terms of reducing mortality in a relatively short period of time, it is one we believe should continue, albeit in more of a coordinated, strategic manner.

Countries should decide which interventions best match their health needs and capabilities and then determine the best mechanism for achieving the highest possible coverage. In most cases, this will not be a business as usual approach through the health infrastructure. It will be a special initiative. At the same time, donors and countries need to make major, long-term, health system investments. These investments should have improving the capability of the health system as their specific goal. Most of the countries experiencing troubles absorbing the increased funds for HIV/AIDS, malaria and TB have been receiving foreign assistance for health since the 1970s, if not earlier. The fact that they still have grossly inadequate health systems represents a failure of foreign assistance programs.

The de-linking of high priority, mortality-reducing interventions from investments in building health capacity is essential for the long-term health of the poorest of developing countries. As long as the fiction that vertical programs benefit the capacity of a country's health infrastructure persists, the health systems will continue to be weak and ineffectual. Health advocates and policy makers should not be confronted with a Sophie's choice. There should be adequate funds for aggressive, vertical interventions that can clearly drive down countries' mortality rates and simultaneous long-term investments in health systems.

Recommendations to the Bill & Melinda Gates Foundation

It is envisioned that the Foundation would take a leadership role for each of these recommended actions by drawing on its convening and agenda-setting capacity. It is not assumed that the Foundation would be the only or even primary source of funds.

- 1. Promoting Effective Interventions.** In a limited number of high priority countries, effective interventions with the greatest potential would be identified. A scaling-up strategy would be developed that would include fund raising, resource tracking, and impact analysis. The experience would be well documented so it could be replicated.
- 2. Increasing the Number of Effective Interventions.** There are interventions with documented efficacy that have not had their effectiveness determined. A review by independent experts should select the most promising efficacious interventions. Operations research projects would be carried out to determine the best way of bringing these interventions to scale.
- 3. Resource Tracking Initiative.** An international resource tracking program should be established. This would track and disseminate donors' funding patterns. For a selected number of large and geopolitically significant countries, donor and in-country funds would be tracked at all levels.
- 4. Resource Mobilization.** In those countries whose resources are tracked, local, evidence based advocacy efforts would be mounted to increase donor and country support for health, especially maternal and child health.
- 5. Health System Strengthening.** Coordinating with on-going efforts in this area, political leaders from a limited number of key and politically important developing countries would be brought together to develop a fundraising strategy designed to strengthen developing world health infrastructures. These political leaders would mount an international campaign among donors and developing countries to dramatically increase their investment in the health infrastructure. Special emphasis would be given to the G7 and G77 leaders.

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