Background Paper of the Task Force on Child Health and Maternal Health

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Note to the reader
The Background Paper provides a preliminary overview of existing knowledge and scopes out the questions addressed by this Task Force. The analysis, conclusions and recommendations contained herein should be considered as very preliminary as they are likely to evolve as the Task Force works toward its final report at the end of 2004. Comments and suggestions are welcome. Please cite this paper as "Background Paper of the Millennium Project Task Force on Child Health and Maternal Health."

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TABLE OF CONTENTS

1. INTRODUCTION AND OVERVIEW **4**

2. THE BACKGROUND PAPER **9**

3. MATERNAL HEALTH **12**

3.1 Maternal health, reproductive health and the MDGs **12**
3.1.1 The goal: Improve maternal health 12
3.1.2 The target: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio 17
3.1.3 Indicators: Maternal mortality ratio (MMR) and proportion of births attended by skilled health personnel 19

3.2 Maternal mortality **20**
3.2.1 What is the role of health interventions in reducing MMR? 22
3.2.2 Implications for MDG indicators 35
3.2.3 Prioritizing problem-solving in health systems 39

4. CHILD HEALTH **40**

4.1 Child health and the MDGs **42**
4.1.1 Targets and indicators 42
4.1.2 Equity considerations 43

4.2 Child mortality **44**
4.2.1 Comorbidity 45
4.2.2 Malnutrition 45
4.2.3 Perinatal and neonatal mortality 47
4.2.4 HIV/AIDS 52

4.3 What is the role of health interventions? **52**
4.3.1 Vaccines: Preventive medicine 53
4.3.2 IMCI 55

4.4 Child health and well-being **57**

4.5 Key messages **57**

5. THE ROLE OF SOCIAL AND ECONOMIC FACTORS IN REDUCING MORTALITY AND IMPROVING HEALTH **58**

6. HEALTH EQUITY AND THE MILLENNIUM PROJECT **63**

7. LESSONS FOR THE WAY FORWARD: TOWARD THE MDGS **65**

REFERENCES **70**

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1. Introduction and overview

We have a choice. The Millennium Development Goals (MDGs) can be one more mask for business as usual, or they can light the way for a profound shift in this generation's approach to the politics of human well-being. The product of business as usual is apparent to anyone who wishes to see. For some, it yields a world of spectacular technological advance and growing riches, benefits derived from strategic placement in a tightening vortex of global economic, political and social forces. For others, business as usual yields a world of deep and brutally felt divisions between people, of widening poverty, alienation and despair, and of growing conflict and dislocation.

The MDGs are a clarion call for a new kind of action. By focusing on critical dimensions of development drawn from the UN conferences of the 1990s, and by mobilizing an unprecedented level of political endorsement for the MDG agenda, the world community has announced its willingness to alter the relationships of power and resource distribution that determine the course of development.

Health forms a central plank in that agenda. Substantial evidence suggests that health is a crucial pre-condition for economic growth and, conversely, that economic development, if it is properly directed, can yield enormous advances in public health [1]. Equally important, health is a fundamental attribute of a life with dignity, intrinsically valuable and so, in itself, a goal of development. In fact, while improvements in health and economic development are surely connected, experience proves that significant advances in children's health and women's health and in life expectancy can occur if the right investment and policy decisions are made, even in the absence of overall growth [2].

The shocking levels of death, disability and disease that afflict low- and middle-income countries, with particularly disastrous trends evident in sub-Saharan Africa and South Asia, are not simply the worry of economic planners and academic researchers. Survey research

consistently finds that people throughout the world rank health as a top concern [3, 4]. Those who actually do the suffering rarely dismiss it as “natural” or “inevitable”; they know only too well that the health conditions and crumbling, often demeaning, health systems they face result not from a simple twist of fate, but from the actions of people: governments and policymakers, both close to home and in faraway citadels of power. When it finally comes down to policy decisions, then, whose priorities should control the direction of development? That too is a choice.

The methodology of the MDGs – selecting priorities, setting targets, and monitoring progress -- is not a new approach for the child health and maternal health fields. What makes this initiative different is that it puts the health community at the table as a fully vested partner not only with those responsible for the other dimensions of social development so critical to improved public health (education, water, sanitation, nutrition, and gender equity), but also with the policymakers whose decisions both give and take away resources and power.

For the maternal and child health fields, that opportunity presents a challenge to our own patterns of business as usual. The experience over many decades with public health initiatives to accelerate progress in women’s health and children’s health teach important – and some admittedly uncomfortable -- lessons. If we have the courage to hear them, the conviction to follow them, and the creativity to implement them, we can fulfill the promise of the MDGs.

We are clear, however, that the promise of the MDGs is not only about crossing the finish line of 2015 with a specific number of deaths averted. Rather, for us, success will also be measured by our ability to use the focus, measurement tools and accountability mechanisms of the MDGs to shift the nature of “development culture” (and, particularly, development assistance) as it relates to health. The evidence basis on which current, disease-specific programs are built, must be retained and strengthened. The shift we propose concerns the way that evidence is used. The single most important axis of this shift is from a disease-specific mindset, mechanically focused on outcome as defined by countable deaths and DALYs averted as of a single point in time, to one that ties outcomes to serious, long-term investment in the infrastructure (human, physical and administrative) necessary to sustain change – and, in doing so, consciously *crosses* social divides of gender, class and ethnicity rather than creating or reinforcing them. An approach to development that genuinely sees people’s health, and not just countries’ wealth, as an intrinsically valuable goal – as a fundamental human right -- cannot do otherwise.

This paper and this Task Force of the Millennium Project focus on child health and maternal health. There is some irony in the choice to link these two together. In some ways, child health is one of the success stories of development -- overall, under five child mortality has dropped by 12% since 1990 [5]. The biggest killer of children in the 1970s, diarrheal diseases, has decreased by more than 60%, from about 4.5 million deaths annually to about 2 million, through a relatively simple, but highly effective intervention, oral rehydration therapy. On the other hand, the success has been quite limited. Almost 11 million children die in the world each year, and most of these deaths are preventable. For the most part, the deaths that have been averted are those due to diseases that are the easiest to diagnose and to treat. In some parts of the world previously encouraging trends are being reversed. The remaining challenges are daunting and intensive effort is still required if further progress is to be made.

Maternal mortality, by contrast, is one of the shameful failures of development. Despite the global Safe Motherhood Initiative launched in 1987, overall levels of maternal mortality appear barely to have budged in the fifteen years that followed and, in some parts of the world, they have probably worsened (measurement systems are grossly inadequate to measure mortality rates, but most experts believe existing estimates are actually underestimates). Obstetric complications are the leading cause of death of women of reproductive age in developing countries today [6]. In 2002 as in 1980, over half a million women – one every minute of every day – will die in pregnancy and childbirth. Even more telling, maternal mortality has by far the highest differential between poor countries and rich ones of major public health indicators: where child mortality shows a twenty-fold difference between rich and poor countries [5], maternal mortality ratio shows a one hundred-fold difference [7]. The human toll of that statistic can be expressed by the comparison of life-time risk: in West Africa, one in 13 women will die in pregnancy and childbirth, while in southern Europe, only one in 5000 will face a maternal death [7].

The divergence between child mortality and maternal mortality patterns now and through history points to epidemiological lessons about what works to decrease mortality and why, and these will be explored in some detail in the sections that follow. But the very fact that this divergence remains today holds political lessons as well. The world mobilized for children in the last two decades, with clear consensus strategies backed by regular, reliable (if still inadequate) injections of aid: children were a safe choice [8]. For women, serious funding for actual service delivery programs has been minuscule and sporadic – and now even the rhetorical promises

are endangered. The threat to women's health initiatives is particularly crippling in the context of the MDGs. Whether we are talking about income poverty or the social dimensions of poverty, one unassailable lesson is the centrality of women -- their status, their roles, and their agency -- to successful development.

Among the most important challenges this Task Force will face is to address child health and maternal health simultaneously, in a way that is analytically clear, programmatically sound, and politically effective. We intentionally name ourselves the "Task Force on Child Health and Maternal Health" – and not the more familiar "maternal-child health" or "MCH" – in order to be clear that women and children are not one undifferentiated body or health phenomenon. While the health of women and their children are, at points, intimately bound together, women's health (or even the subset of women's health that relates to reproduction) cannot be subsumed into children's health or vice versa [9, 10]. We cannot simply assume that an intervention effective for one, necessarily resolves issues for the other – but neither should they be set in opposition to each other.

Indeed, there are important reasons for the child health and women's health communities to join forces. While *mortality* of infants and children and *mortality* of women may follow different patterns, their health and well-being are, in many ways, closely intertwined. The bridge between them is reproductive health. Many dimensions of reproductive health – from control over the number and spacing of children to maternal nutrition to prevention and treatment of sexually transmitted infections, as well as the aspects of reproductive health captured by concepts of women's empowerment and human rights – have powerful effects on the health and well-being of children, families and women themselves. Thus, reproductive health and deliberate actions to advance, support and monitor it are necessarily and ineluctably bound to any strategy for meeting MDGs in either child health or maternal health.

Finally, at one more level critical to the recommendations of this Task Force, the maternal health and child health communities can speak with one voice. Dramatic reductions in mortality and dramatic improvements in the health and well-being of both women and their children will ultimately depend not only on synergy with many other aspects of development, but most directly on a functioning primary health care system (defined broadly to include emergency obstetric care through the first referral level) that responds to their needs. The two fields have historically taken different routes, but they arrive at complementary lessons from their

experience – lessons that support the same fundamental conclusions about the current state of affairs and the direction forward:

- We know what works at the level of health interventions to avert the vast majority of deaths and even disability in women and in children. While technical innovation is always possible and often welcome, we know enough to act now and to put the vast bulk of health resources into ensuring access, utilization and quality of health services.

- Access and utilization of health interventions ultimately depend on a functioning health system. This does not mean sparkling, new, high-tech hospitals for the urban rich. A functioning health system requires infrastructure, including people, supplies, facilities, ensuring a continuum of care, and outreach that engages households and communities in their health care and that, by its functioning, forms part of the very fabric of social and civic life.

- Without specific attention to reaching the poor and populations marginalized by gender, age, ethnicity or other social divisions, health interventions and their benefits will be disproportionately captured by the more powerful groups in society. Health inequity has social consequences beyond the individual health status of a society's members.

- Donor-driven initiatives intended to by-pass health systems and deliver interventions directly to people may sound progressive and empowering in theory, but have often proven deficient in fact. As the poorest fall further and further behind, such initiatives tend to weaken the health system, complicate and overburden the bureaucracy with multiplying vertical administrative structures, and have limited – and often only short-term – impact on health outcomes. While accelerated progress toward meeting the MDGs will require bold solutions involving all sectors of society – governmental and non-governmental – such solutions must *strengthen*, not weaken, the health system as a whole, with explicit attention to sustainability.

- Dramatic improvements in maternal health and child health happen when health sector interventions interact with other changes in broader social and economic conditions. But the mechanisms of interaction must be carefully analyzed in order to get the program

and policy mix right. One category of intervention does not substitute for the other. One should not be used to avoid the other. They interact synergistically.

- Process matters. Tackling maternal health and child health inevitably requires trade-offs and prioritizations. Today's reality is that poor countries where maternal mortality and child mortality are high, are forced to make and implement health policy in the context of international development regimes, overwhelmingly driven by international financial institutions (IFIs) and other donors. But health and health care, lived and experienced in the complicated reality of local settings, influenced by the dynamics of national and global politics, always bring many other values to bear as well. The process set up to navigate among these and make the ultimate choices must rest in the hands of the people whose health is at stake. The international community can help ensure access to the best evidence from which to make choices that take into account feasibility, local conditions and norms, capacity and costs. But the participation and investment by those whose lives and health are at stake will be critical to the ultimate success of any measure.

- The actions in all sectors necessary to meet the MDGs require political will and political will means confronting the workings of power that, at every level of social and political life, keep unacceptable things as they are. The human rights declarations that underlie the UN system, that have animated both child health and maternal health efforts, and that have been adopted as law by virtually every country in the world – those human rights declarations lay out a vision for the rearrangements of power that are necessary for change. They should underlie strategies for meeting the MDGs as well.

The practical implications of these lessons for strategies to meet the MDGs are delineated in Section 7.

2. The Background Paper

The relationship between social and economic development, specific public health interventions, and changes in health status is the subject of a lively debate in the literature [11-13]. The work that we hope to do across the different Task Forces of the Millennium Project, linking health to

many other dimensions of poverty-reduction and social development strategies, will address this interaction at the broadest level. This background paper, however, focuses on the health sector, laying the foundation for the Task Force's work in developing strategies and recommendations.

In the sections that follow, we analyze the structure of the Millennium Development goals, targets and indicators for child health and maternal health, contextualizing them with a review of the strategies that have been proposed and/or implemented in recent decades in these two fields. In the process, we develop some central themes, which we expect will shape the work of the Task Force. Those themes are captured by three interlocking concepts: health systems, health equity, and human rights.

Following the WHO definition, we understand health systems to "consist of all the people and actions whose primary purpose is to improve health" [14]. As such, health systems form part of the very fabric of social and civic life.

Ideas about health equity help us to see the fact that health status and access to health care can vary widely within and between societies, and then to link that variation to social inequalities rooted in any given society – including inequalities based on class and wealth, gender, ethnicity or other social divisions [15, 16]. In the work of this Task Force, ideas of health equity must also be applied to the global level, linking dramatic inequities to the global economic and development system as a whole. An equity lens also focuses our strategies and interventions, prioritizing those which promote the health and well-being of the most disenfranchised. The efforts to narrow disparities in health between social groups may be seen as part of a larger struggle toward social justice [17].

Using these concepts, we begin to see the overall impact of a dysfunctional health system on civic life. As Maureen Mackintosh has convincingly argued, the failure of care is experienced as "a core element of social exclusion . . . Health care systems that do not offer care – that take a narrow or an abusive view of their duties – thereby contribute profoundly to people's experience of what it is to be poor" [18]. In that context, she argues, the ability of the poor to make an effective claim to health care has "asset value" in itself. This recognition and the insight that "the culture and operation of the health care system (as a whole, public and private) *is* the way in which claims are established, legitimated and denied or fulfilled by 'society'" [18] – has

significant implications for the development of rights-based approaches to health, including mechanisms of constructive accountability.

We use the phrase "constructive accountability" to make clear that accountability is not primarily about blame and punishment when things go wrong. Rather, it is about developing an effective dynamic of obligation and entitlement between people and their government and within the complex of relationships that form the wider health system, both public and private. It is, first and foremost, about building health systems that function for the benefit of people.

The notion of constructive accountability lies at the heart of our approach to human rights. Indeed, human rights add both an analytic and a strategic dimension to the work of the Task Force. When poor health, including avoidable mortality, is understood in human rights terms, it brings into focus the essential insight that health is not simply physiological status; rather, public health is a process, both socially produced and socially ameliorated through actions that lie within the human grasp [19]. A strategy built on ideas drawn from human rights transforms the health system from a static agglomeration of buildings, equipment, drugs and staff, into a dynamic entity through which citizens interact with their government and the wider civil society. When mechanisms of constructive accountability give people the potential to effect change -- from the micro level of interactions with local health workers, to the macro level of health sector reform in the context of international development policies – then we can truly talk about health as more than simply the absence of disease.

These themes and their implications for concrete strategies will be developed in the course of the Task Force's work and in its contribution to the wider Millennium Project. For now, we lay the foundation for developing MDG strategies, drawing out the importance of health systems *as systems*, as we review developments in the maternal health and the child health fields and, in the final section, spell out some implications for the way forward.

3. Maternal health

3.1 Maternal health, reproductive health and the MDGs

The MDGs include one goal explicitly addressing women's health. It is constructed as shown in Box 1. As more and more governments, international agencies and NGOs build decision making around the MDGs, it is vital to be clear about what each part of this goal-target-indicators set means for analysis, priority actions, monitoring and ultimately judgments about success or failure in 2015.

Box 1: The MDG for maternal health

GOAL	TARGET	INDICATORS
Goal 5: Improve maternal health	Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio	• Maternal mortality ratio • Proportion of births attended by skilled health personnel

3.1.1 The goal: Improve maternal health

The goals defined in the MDG initiative build on the declarations of the UN conferences of the 1990s, and on a process begun in 1995 in the OECD to set International Development Targets [20, 21]. The International Conference on Population and Development (ICPD) held in Cairo in 1994 has been hugely influential in the women's health field. The "paradigm shift" endorsed in Cairo consolidated new thinking that had been emerging in the international health community in response to both new evidence and the growing voices of civil society movements.

The old paradigm addressed maternal health from within a demographically-driven framework focused on reducing population growth by lowering women's fertility rates, largely through contraception; or it addressed maternal health from within a maternal-child health (MCH) framework in which women's health was considered mainly for the influence that it has on infant and child health. The new paradigm, by contrast, begins from the deceptively simple premise that women and their health and well-being are valuable in and of themselves. The new paradigm does not discount the independent importance of population growth or of children's

health, nor does it deny that women influence both. But, in essence, the new paradigm asks the world to blink a few times and to re-focus its vision in order to see that the women at the center of the old scenario are people and citizens too. Ultimately, health sector responses must address them in this way.

The ICPD paradigm shift was captured in the concept of reproductive health endorsed by the 179 countries that signed the conference declaration. That concept was reconfirmed at ICPD+5 and again in a recent regional conference held in preparation for ICPD+10 [22, 23]. Reproductive health entails both an approach to health generally and a set of health care services aimed at improving the reproductive and sexual health status of all people [24]. As an approach, reproductive health actually shares much with the original notion of Primary Health Care articulated at Alma Ata in 1978. Reproductive health is understood broadly, linking biomedical to social, economic and political dimensions, and conceptualized as an essential part of development and as a fundamental human right. Translating the commitment to human rights into reproductive health policies and programs means new attention to individual dignity and autonomy, to the right to make decisions free from coercion, violence and discrimination, and to broader systemic questions of equal access and social justice [25, 26].

Reproductive and sexual health defined

Paragraph 7.2, Programme for Action of the UN ICPD reads: "Reproductive health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition are the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice, as well as other methods of their choice for regulation of fertility which are not against the law, and the right of access to appropriate health-care services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant. In line with the above definition of reproductive health, reproductive health care is defined as the constellation of methods, techniques and services that contribute to reproductive health and well-being through preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counseling and care related to reproduction and sexually transmitted diseases."

Source: *Report of the International Conference on Population and Development, A/CONF.171/13*. 1994, New York: United Nations.

The reproductive health paradigm has also helped ensure that gender is understood as an essential analytic category. Thus, for example, gender analysis helped uncover the extent to which seemingly neutral policies, such as those adopted pursuant to structural adjustment programs during the 1980s, often had disproportionately harsh effects on women [27, 28].

Gender analysis revealed the ways in which power imbalances enforced through culturally sanctioned ideas about relations between men and women could yield deeply damaging effects for women's health. Violence against women, experienced by some 20% to 50% of women in countries on every continent [29], was perhaps the most prevalent of those effects: what had been a hidden, silent pandemic was, by the mid-1990s, widely acknowledged to be a worldwide public health crisis [30] and a pervasive violation of human rights [31].

As a set of health care services, the reproductive health paradigm promotes a vision of health systems as fundamentally user-centered, with civil society – including women -- having a critical voice and role. Ideally, health services that had previously been delivered as vertical programs, or not available at all, would be integrated into a service that addresses the full scope of reproductive health needs across the life span. In practice, this means that family planning programs, which in many countries had been initiated as population control programs deployed through an administrative and physical infrastructure separate from other health services, would be integrated with services such as those designed to prevent, detect and treat sexually transmitted infections (STIs) or cervical cancer. Outreach and information programs would include not only technical information about contraception, but sexuality education and anti-violence education as well.

The need for increased access to an expanded range of reproductive health services could hardly be clearer. Inaccessible health services; inadequate, misleading or non-existent information and education on sexuality; and the intersecting discriminations of gender, class and race leave literally hundreds of millions of women unable to exercise control over their reproductive and sexual lives. The consequences are devastating for both women and society.

Some 350 million women still do not have access to safe and affordable contraception. UNFPA estimates that fully 50% of pregnancies are unplanned and 25% are unwanted. In fact, it calculates that undesired fertility will contribute almost twice as much to future population growth as desired fertility [32].

Undesired fertility also contributes directly to the level of maternal mortality. Put simply, if a woman does not get pregnant, she will not die in pregnancy or childbirth. Therefore access to methods to control fertility can have a significant impact on the number of maternal deaths, simply by reducing the number of times that a woman, by becoming pregnant, runs the risk that

a complication will occur and that she will die from it. It has been estimated that if unmet need for contraception were filled and women had only the number of pregnancies at the interval they wanted, maternal mortality would drop by 20-35% [33, 34].

Yet, each year, 120 million unwanted pregnancies [32] lead to an estimated 46 million abortions, with 20 million occurring in countries where the procedure remains unsafe [35]. Approximately 95% of unsafe abortions – those characterized by a lack or inadequacy of skills of the provider, hazardous techniques and unsanitary facilities [36] – occur in developing countries, despite the fact that, of countries with populations over one million, all but two legally permit abortion for one or more indications [37]. Yet unsafe abortions are estimated to account each year for more than 78,000 deaths [38], approximately 13% of all maternal mortality. Indeed, complications of unsafe abortion are the one category of fatal obstetric complications that could be almost totally prevented through the provision of appropriate services [33]. Hence, the world community has repeatedly agreed that where abortion is legal, it should be provided safely and, in all cases, complications of unsafe abortion should be treated through high quality health services [22, 39].

Of course, access to contraception and safe abortion services does not *solve* the problem of maternal mortality. Women have the right to the conditions that would enable them to go through pregnancy and childbirth safely with the best chance of having a healthy infant. Not just in law books, but also *in practice*, *in women's lives*, the fulfillment of that right is indivisibly connected to their right to decide whether and how often to have children, and to the information, means and power to exercise it [40].

The full impact of the HIV pandemic on women is addressed by Task Force 5. But the inability of women to protect themselves from HIV infection is a function of lack of access to safe and appropriate contraception and meaningful sexuality information, as well as the power imbalances in sexual relationships that leave many women vulnerable. Separate from HIV, there are some 340 million new cases of curable STIs each year [41]. Not only do those STIs in themselves account for 15.8 million DALYs lost [42], but a person with an STI is six to 10 times more likely to contract the HIV virus, thus dramatically multiplying the impact of STIs [32].

Adolescents are particularly at risk. Yet their reproductive and sexual health needs have long been ignored and their views silenced by decision makers influencing health and education policy and programs. Significantly, countries at the ICPD+5 recognized this fact and set a

specific target for reduction of HIV in men and women aged 14-25 (50% by 2010) in countries most affected [22]. Of course, HIV is not the only reproductive health issue for adolescents. 15 million girls, ages 15 to 19, give birth every year and an additional five million adolescent pregnancies end in abortion [43]. These bare statistics hint at the complex set of social, cultural and even economic forces that shape and constrain the social worlds in which adolescents struggle to make choices and, all too often, confront violence, coercion and discrimination. As with all other members of society, health services for adolescents must be tailored effectively to address their unique needs and circumstances [44, 45].

For vast numbers of people in the world today, these needs are intensified by the fact that they live in societies coping with armed conflict. Today, more than forty countries, 90% of which are low-income nations, are dealing with conflict. Implementing reproductive health care for a population is never a simple matter, but emergencies and displacement pose special challenges. While persons affected by armed conflict have the same reproductive health needs as others, the effects of conflict render them exceptionally vulnerable. They have often lost their loved ones, their possessions, their livelihoods, their social status, even their way of life. Maternal and neonatal mortality and morbidity may increase as health services are destroyed or births occur on the roadside during flight; rates of infection of HIV and other STIs may increase with population mixing, exposure to armed men, societal breakdown and increased sexual assault. Lack of traditional support systems, different cultural pressures and changing men's and women's roles in society, are major barriers to implementing adequate reproductive health programs [46-48].[1]

Despite all these areas of indisputable need, the road for reproductive health since 1994 has not been straight or smooth. As with Primary Health Care in the 1980s, attempts to implement this expansive view of integrated reproductive and sexual health services have run smack into the cold reality of woefully inadequate funding, limited capacity of weak and weakened health systems, and the conflicting priorities of some adjustment and reform policies promoted by international financial institutions and other donors.

[1] An international working group developed a set of recommendations for providing reproductive health services to address the needs of conflict-affected populations. These are found in United Nations High Commissioner on Refugees, *InterAgency Manual on Reproductive Health in Refugee Situations*, Geneva: UNCHR, 1999.

Given its multi-faceted impact on health and development, improving reproductive health had been stated as an independent goal in the process setting International Development Targets that preceded the Millennium Declaration [21]. The political pressures that led to the eleventh hour decision of the General Assembly to drop a separate reproductive health goal from the final list of MDGs [49, 50], do not change the centrality of reproductive health to the remaining Millennium goal, "Improve Maternal Health", or, indeed, the importance of reproductive health for poverty reduction strategies [32]. As the Task Force wrestles with the challenge of increasing access to and utilization of services delivered via the primary health care system, reproductive health services will be an essential component. Other aspects of the reproductive health approach endorsed repeatedly by the world community do not cost money and are not limited by health systems: they are the different ways to see the world and the role of women in it. Those perspectives should help shape the work of every Task Force in the Millennium Project.

3.1.2 The target: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio

Within the MDG initiative, targets are meant to set a quantitative, time-specific objective to focus international and country-level efforts as strategies are developed to meet the goal. In this, the maternal health target as it currently stands presents a problem of "fit" that is different from child health.

The difference lies in the relationship between health and death. For infants and children, the biological causes of poor health are the same as the biological causes of most deaths. Child mortality can therefore be understood as a cumulative model: assaults of illness and poor health (e.g., infection, malnutrition) increasing in number and/or severity ultimately lead to death. Programs and policies that address the most important causes of poor health and poor development in children will, by definition, also be addressing causes of death and so have an impact on mortality.

Maternal health and maternal death have a fundamentally different relationship to each other. Pregnancy itself is not an illness. Yet the care a woman receives during her pregnancy and around the time of delivery can influence how she experiences those events, both physically and emotionally, and so can do much to optimize her health. A woman's care during pregnancy

and delivery can also have enormous influence on the survival and early health status of the child she bears. But, somewhat counter-intuitively, most of the elements of routine care during pregnancy have little impact on the chance that a woman will experience a life-threatening obstetric complication. Although skilled management of deliveries with evidence-based practices such as the use of a partograph (a chart for monitoring the progress of labor) and active management of third stage labor (discussed below) can help avert a significant portion of deaths, these techniques cannot prevent most complications from happening – and once a woman does experience a complication, the routine care given in pregnancy will not save her life. To dramatically reduce maternal *mortality* and meet the MDG target, emergency care must be accessible to and utilized by those pregnant women who experience complications.

Of course, obstetric complications do not always kill the women who experience them. In fact, for every woman who dies, an estimated 30 to 50 women survive the same complications, but with short- or long-term disabilities [51]. Short-term morbidity can include hemorrhage, convulsions, cervical tears, shock and fever, while long-term, and often chronic, sequelae of childbirth and pregnancy can range from infertility to uterine prolapse, depression and vesico-vaginal fistulae [52]. In some cases, such as vesico-vaginal fistulae,[2] the implications for the woman's quality of life are enormous. Many women with this humiliating condition become social outcasts, abandoned by their husbands and families, thrown into deeper poverty, and suffering elevated rates of suicide [52-54]. The same interventions that reduce maternal mortality will also reduce these disabling conditions caused by obstetric complications. Moreover, a large proportion of maternal morbidity is treatable, but due to lack of knowledge and social stigma, as well as lack of services, millions of women suffer this burden in silence.

However, the point for the structure of the MDG initiative is a different one. The target of reduction of maternal mortality addresses a critical issue for women and families, and attention to this long-neglected issue is certainly welcome. But the strategies adopted to meet that target will have little effect on the wider problem of maternal health described in the previous sections. It is therefore essential that the MDG initiative also includes and uses an additional target that captures most aspects of maternal health and not just maternal death – and that it develop strategies to meet that target.

We therefore recommend that the maternal mortality reduction target be complemented by use of the target already developed in the International Development Target process, and drawing from the ICPD and ICPD +5 declarations: *Universal access to reproductive services by 2015 through the primary health care system*.[3]

3.1.3 Indicators: Maternal mortality ratio (MMR) and proportion of births attended by skilled health personnel

The "Road Map toward the implementation of the UN Millennium Declaration" issued by the Secretary General in September 2001, includes indicators intended to assist countries in tracking and ensuring progress toward the targets and goals [55]. The reason for indicators is well-accepted: in practice, what you *count* is what you *do* and where your resources go. Thus, the ideal indicator will perform two functions well: (1) it will vary with the outcome of interest and so serve well as a proxy measurement of change; and (2) it will be causally related to the outcome of interest, so that it can serve as a guide to policy and program, and as an accountability tool to ensure that decision makers take the steps that will actually have impact on the ultimate goal. Although the two indicators chosen for the maternal mortality reduction target play critical roles in safe motherhood initiatives, they both have significant drawbacks as indicators for the MDG process.

The maternal mortality ratio or MMR (maternal deaths per 100,000 live births) is a measure of how safe it is to become pregnant and give birth in the geographic area or population for which it is calculated. It is therefore a very telling statistic about this aspect of women's health status and can be used effectively to call attention to the general scope of the problem.

But, as an indicator in the MDG initiative, MMR has several major limitations. Most importantly, it is extremely difficult to measure accurately, for reasons that are carefully explained in the publication presenting the official estimates developed by WHO, UNICEF and UNFPA [7]. Indeed, even where there is a strong vital registration system, as in the United States and western Europe, maternal deaths are under-reported by 50% on average [7]. Where, in the

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[2] Fistulae are holes between the vagina and urinary tract or between the vagina and the rectum usually caused by obstructed labor. Unless the fistula is surgically repaired, there is an uncontrollable leakage of urine and feces through the vagina.

[3] The Task Force plans to discuss appropriate indicators for monitoring progress toward this target.

absence of vital registration, MMR is calculated based on the "sisterhood method," the deaths actually being counted are those which have taken place over the previous ten to twelve years. Thus, UN agencies have correctly warned that MMR estimates should *not* be used to monitor short-term trends [7]. In short, country-level MMR will not be able to tell us whether changes have taken place in the time period covered by the MDG target: 1990 to 2015.

In order to track progress toward meeting the MDG target of MMR reduction, we need to use proxy indicators. The second indicator, the proportion of births attended by skilled health personnel, is discussed in some detail in the following section. This measure performs some of the functions needed in the MDG process. But, as we explain below, it will be important to supplement it with a measure that captures relevant development of the health system over time. Without such a measure in place, the push to meet the skilled attendants indicator is likely to have distorting policy effects that can jeopardize the very efforts it is intended to promote. A potential indicator to track and ensure health system development by tracking the availability of emergency obstetric care (EmOC) services is described in section 3.2.2.

3.2 Maternal mortality

Maternal mortality is the death of women in pregnancy and childbirth.[4] The geographic distribution of the approximately 515,000 maternal deaths that occur each year is telling. As shown in Table 1, sub-Saharan Africa has dramatically higher maternal mortality ratios than any other part of the world. It also accounts for 53% of all deaths. Although South Asia has a lower MMR, it has a much higher population, and so this region still accounts for 42% of maternal deaths.

[4] The technical definition is "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes" *International Classification of Diseases, 10th Revision.* World Health Organization, Geneva, 1992.

Table 1: Maternal mortality around the world

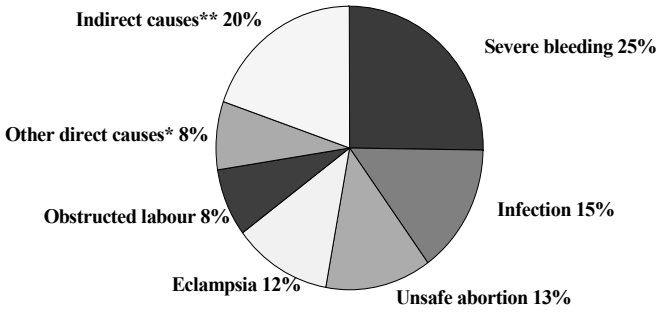
UN region	Maternal mortality ratio (maternal deaths per 100,000 live births)	Number of maternal deaths	Lifetime risk of maternal death 1 in:
World Total	**400**	**515,000**	**75**
Africa	**1,000**	**273,000**	**16**
Asia*	**280**	**217,000**	**110**
Europe	**28**	**2,200**	**2,000**
Eastern	50	1,600	1,100
Northern	12	140	3,900
Southern	12	170	5,000
Western	14	280	4,000
Latin America and the Caribbean	**190**	**22,000**	**160**
Northern America	**11**	**490**	**3,500**
Oceania*	**260**	**560**	**260**

*Japan and Australia/New Zealand have been excluded from the regional averages and totals

Source: [7] WHO, UNICEF, and UNFPA, *Maternal mortality in 1995: estimates developed by WHO, UNICEF, UNFPA*. 2001, Geneva: World Health Organization.

Causes of maternal mortality are shown in Figure 1. Globally, approximately 80% of maternal deaths are due to direct obstetric complications: primarily hemorrhage, sepsis, complications of abortion, pre-eclampsia and eclampsia, and prolonged/obstructed labor. The remaining 20% of maternal deaths are indirect, i.e. they are due to existing medical conditions, aggravated by pregnancy or delivery. In countries and geographic areas with high HIV or malaria rates, the proportion of indirect deaths may be higher. This background paper focuses on direct obstetric death, although as the Millennium Project proceeds, it will be important to coordinate with the Task Force addressing the communicable diseases MDG, since gender-sensitive strategies for the control of malaria, HIV and tuberculosis will certainly have an impact on maternal mortality as well.

Figure 1: Causes of maternal death



* Other direct causes include: ectopic pregnancy, embolism, anaesthesia-related

** Indirect causes include: anaemia, malaria, heart disease

Source: "Maternal Health Around the World" poster. World Health Organization and World Bank, 1997

3.2.1 What is the role of health interventions in reducing MMR?

In the early years of the Safe Motherhood Initiative, most program recommendations rested on the hypothesis that obstetric complications could be prevented or predicted by good care during pregnancy and delivery [56]. Antenatal care programs were expanded and improved in hopes that routine monitoring and improved health practices during pregnancy (such as good nutrition) would prevent or enable early recognition of complications. Recognizing that most women in high mortality countries deliver at home, early programs also focused on training traditional birth attendants (TBAs) in safe and hygienic practices. Although antenatal care and TBA training programs may very well improve the overall *health* of mothers, it turned out that there was virtually nothing these interventions could do to prevent women's *death*. Neither antenatal care nor trained TBAs prevented the vast majority of complications from happening, and once the complication occurred, there was almost nothing TBAs, by themselves, could do to alter the chance that death would ensue. Thus neither of these interventions proved to have substantial impact on maternal mortality levels [56-60].

Another set of early recommendations was based on the hypothesis that obstetric complications could be predicted by screening for known risk factors and that high-risk women could then be carefully monitored and treated. Indeed, women with certain attributes – e.g. young age, high parity – do have a higher risk of dying than do other women. But high-risk women account for only a small percentage of all maternal deaths; the vast majority of deaths occur in women with no known risk factors. Thus, risk-screening programs had little impact on overall maternal mortality levels [56].

Recognizing these flaws in the early recommendations put forward in the Safe Motherhood Initiative, today the clear consensus internationally is that scarce resources should not be spent on trying to predict which women will have life-threatening complications [51]. Instead, maternal mortality reduction programs should be based on the principle that every pregnant woman is at risk for life-threatening complications. For MMR to be reduced dramatically (certainly, for it to drop by 75%, as the MDGs project), all women must have access to high-quality delivery care. That care has three key elements:

- A skilled attendant at delivery[5]
- Access to emergency obstetric care (EmOC) in case of a complication
- A referral system to ensure that those women who experience complications can reach life-saving EmOC in time.

For high-mortality countries to devise appropriate strategies to reach this level of care, it will be critical to clarify how each of the three elements is causally related to reduction of maternal mortality and to each other.

But first, it is important to be clear about what this scenario for reduction of maternal mortality is not. It is not a scenario that necessarily depends substantially on obstetricians or other physician specialists. Nor is it a scenario that requires or even recommends that all women deliver in a hospital. A strategy that concentrated routine deliveries in comprehensive EmOC facilities could be a potentially disastrous misuse of resources that might overwhelm even improved capacity in high-mortality countries [61]. Rather, regardless of the place of delivery or the distribution of tasks among appropriately deployed health personnel, it is a vision, first and foremost, of a functioning *system*, with levels of care from household to first referral level that *complement* each other with respect to EmOC.

Indeed, in the view of this Task Force, the most important single contribution that the Millennium Project can make is to ensure that health is addressed systemically, in the context of broader development policy decisions. The key point is this: if the MDGs are truly to be an

[5] "Skilled attendant" refers to the person attending the delivery. Some use "skilled attendan*ce*" to refer to trained personnel plus the enabling conditions of EmOC and a referral system. To avoid confusion between "skilled attendants" and "skilled attendance", recent publications use the phrase "skilled care" to refer to these three elements. www.safemotherhood.org/resources/publications.html

accountability tool that holds both international actors and national governments to the development values they profess, then building sustainable health and referral systems needs to be the overriding goal and the underlying principle of the specific strategies offered to meet the maternal health and child health MDGs.

The need to conceptualize and act on maternal mortality *systemically* is not based solely on the epidemiological evidence about which interventions effectively (and cost-effectively) address which complications – though that is critical to analyze and understand. Rather, the emphasis on health systems is based on evidence about how to make such interventions *work* for all people. That evidence is drawn from (often disappointing) safe motherhood strategies of the past and from small and large-scale maternal mortality reduction projects on the ground, from historical experience in various countries, and from observation of the dynamics of current international health policy and development aid.

What then is the evidence from the maternal mortality field that supports this system-oriented approach?[6] In practice, on the ground, it appears that no one intervention, no one of the three key elements of high quality delivery care, standing alone, is entirely responsible for producing dramatic declines in maternal mortality at scale, across whole countries. Every country that has achieved low maternal mortality ratios has all three elements – skilled attendants, EmOC, and a referral system – even if the exact organization and sequencing of their establishment differs from place to place.

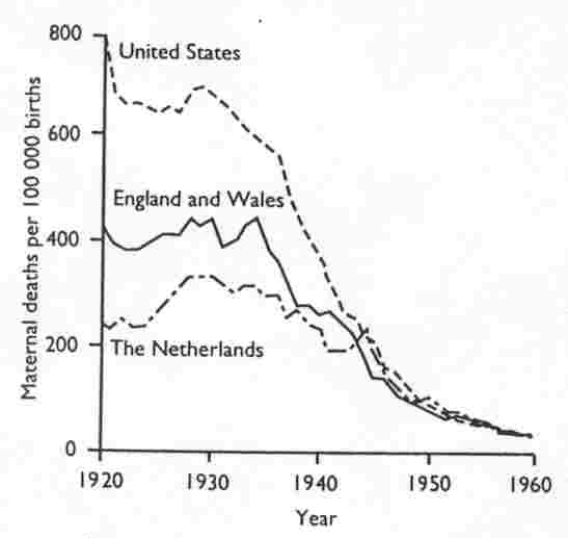
In Europe, the development of a cadre of professional midwives, using safe techniques in routine deliveries probably accounted for the first drops in mortality in the 19th century, largely by reducing deaths due to sepsis (which then accounted for nearly half of all deaths, compared to only 15% today).[7] The widespread use of professional midwives probably also explains the variation in mortality among several European countries and the United States in the early 20th century: the American practice of hospital births by doctors for routine deliveries was actually more dangerous, not least because of the tendency toward unnecessary surgical

[6] Maine and Paxton contains an extensive discussion of the nature and import of different kinds of evidence available in the maternal mortality literature. Maine, D. and A. Paxton, *Evidence based strategies for prevention of maternal mortality*, in *Evidence-based obstetrics*, R. Johanson and S. Daya, Editors. 2003 [forthcoming], Blackwell Publishing: Oxford

[7] Maine and Paxton speculate that the far lower proportion of sepsis deaths in high-mortality countries today, may be due to the widespread use of antibiotics without prescription in those countries.

intervention[9]. But all of these countries experienced a dramatic decline in maternal mortality in the late 1930s and early 1940s with the development of key interventions for treating the main obstetric complications: blood transfusion for hemorrhage, improved surgical techniques for cesarean sections, and antibiotics for infections. Once these interventions were widely available, maternal mortality dropped precipitously. (See Figure 2).

Figure 2: Maternal mortality ratios in the United States and Europe, 1920-1960



Source: [62] Loudon, I., *The transformation of maternal mortality.* British Medical Journal, 1992. 305: p. 1557-60.

Several developing countries have also experienced dramatic, rapid declines in maternal mortality. Sri Lanka and Malaysia have been most carefully studied [63]. In both cases, the years of rapid decline in maternal mortality were characterized by a high level of political commitment to developing a primary health care system that reached all parts of the population, regardless of ethnicity, class or urban-rural difference, and that included high quality care with skilled attendants for routine deliveries, EmOC services to treat complications, and also attention to referral and transport systems to ensure access to life-saving care.

The presence of all three elements of high-quality delivery care characterizes all low-mortality countries, without exception. But this fact largely begs the question facing the Task Force. The policy environment for Europe in the late 19th and early 20th century and for developing countries that achieved low mortality in the 1950s to 1970s was wholly different from that which faces high mortality countries today. Since the debt crisis of the 1980s and the structural adjustment programs that followed, much of health sector policymaking in low-income countries has been

shaped by the international dynamics of development aid dominated by agendas that originate outside the country [64]. Political commitment of national governments to reducing maternal mortality remains absolutely essential, but that commitment must now be negotiated up through new dynamics of international lending as well as down through newly decentralized systems of budgeting and program implementation. In short, we know where all countries must end up; the question is how to get there: what choices to make, what priorities to set, how to sequence policies and programs – and how to ensure support from international donors and lenders, local-level decision makers, and national ministries of finance and planning.

A careful analysis of the causal link between each of the three elements and maternal mortality and then between each other is an essential starting place.

Skilled attendants at delivery

Evidence concerning the effect of skilled attendants at delivery is somewhat muddied by different definitions that have been used and by the variation across countries in the training of midwives and in the regulations governing the specific procedures they are permitted to perform. There is also wide variation in the extent to which skilled attendants are supported and supervised in the broader health system. UN agencies have developed a definition of skilled attendant that focuses on midwifery skills, and that is the one we use here.

The first job of the skilled attendant is to conduct routine deliveries. In this role, there are two potential ways that she can influence maternal mortality levels. First, she can use safe and hygienic techniques, thus ensuring that she does not actually *cause* a complication through mismanagement of the delivery. For example, this is the theory behind the promotion of "safe birth kits." Although the attendant's techniques will certainly be important to the health and well-being of each individual client, poor hygiene in routine deliveries accounts for only a small portion of maternal deaths today. In fact, many life-threatening infections are not exogenous (introduced from the outside, e.g., introduced by the birth attendant), but rather are endogenous (arising

UN definition of skilled attendant

"The term 'skilled attendant' refers exclusively to people with midwifery skills (for example, doctors, midwives, nurses) who have been trained to proficiency in the skills necessary to manage normal deliveries and diagnose, manage or refer complications. Ideally, the skilled attendants live in, and are part of, the community they serve. They must be able to manage normal labour and delivery, recognize the onset of complications, perform essential interventions, start treatment, and supervise the referral of mother and baby for interventions that are beyond their competence or not possible in a particular setting."

Source: *Reduction of maternal mortality: A joint WHO/UNFPA/UNICEF/World Bank statement*. Geneva: WHO, 1999.

from within, e.g., due to delayed treatment of complications such as prolonged labor, ruptured uterus and retained products of conception) [65].

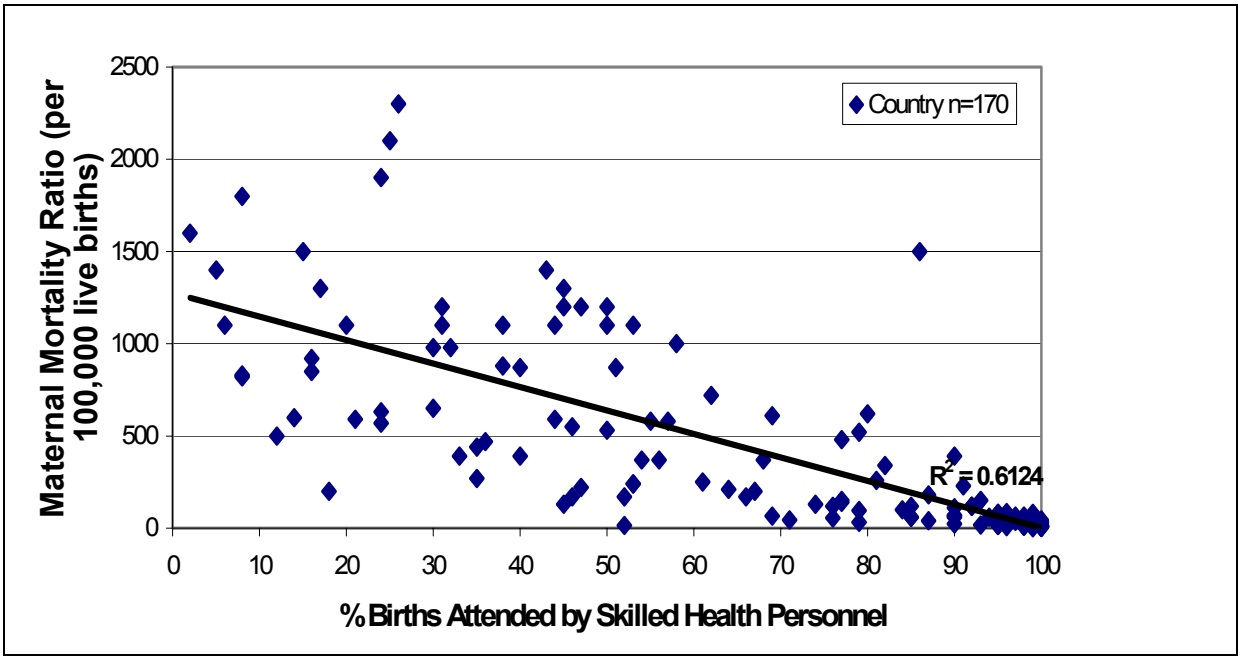
A second, more promising route for the skilled attendant to affect maternal mortality levels is by doing active management of third stage labor routinely, in every delivery [66]. The third stage of labor – i.e., the period after the baby is born in which the placenta is being expelled – is the time in which most post-partum hemorrhages (PPH) occur. In many high-mortality settings, PPH is the leading cause of maternal death. Several large clinical trials provide evidence that the use of manually performed techniques (controlled cord traction and uterine massage) as well as a single dose of an oxytocic drug immediately after delivery, can significantly reduce PPH [67, 68]. But the training and competence of the skilled attendant is crucial. The same techniques of active management of third stage labor that can prevent some PPH, can also cause serious – even life-threatening damage – if they are done incorrectly.

What if a routine delivery suddenly, unexpectedly, becomes a complicated one? For most of the potentially fatal obstetric complications, the skilled attendant must have the back-up of a functioning health care system in order to save the woman's life. No matter how skilled the attendant is, if s/he is performing deliveries in a setting without the drugs, equipment and infrastructure to deliver EmOC – and cannot get the woman quickly to that care – the woman will die. The large majority of maternal deaths entails this kind of unexpected complication and so falls into this category.

One piece of evidence that has been widely used to promote the training and deployment of skilled attendants as the key intervention for maternal mortality reduction is drawn from the ecological association between the proportion of births attended by skilled health personnel and estimated maternal mortality ratios, for all countries taken together. But as a basis for program and policy design, this evidence can be misleading because it is impossible to separate the effect of the presence of skilled personnel as such, from the effect of the health system (with EmOC) within which many skilled attendants function.

To explain, Figure 3 shows the overall association between skilled attendants and MMR.

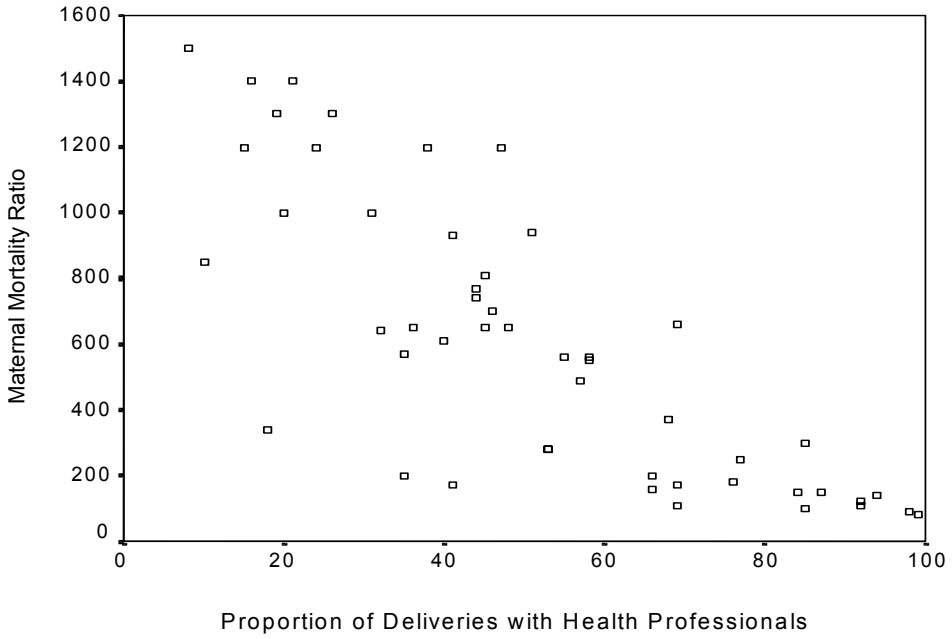
Figure 3: Relationship between skilled attendants and MMR for all countries



Sources: [7, 51] WHO, UNICEF, and UNFPA, *Maternal mortality in 1995: estimates developed by WHO, UNICEF, UNFPA*. 2001, Geneva: World Health Organization, and *Safe Motherhood Initiative*. 2003: http://www.safemotherhood.org/.

However, when this graph is broken down in different ways, the association becomes less clear. Graham et al., using data from 50 developing countries, separated skilled attendants into doctors, midwives and nurses and re-plotted the points (see Figures 4, 5 and 6) [69]. The results show a strong association for doctors, but no association for midwives and nurses. This is *not* necessarily a reflection of the skills or importance of midwives and nurses for obstetric care. More likely, it is due to the fact that a higher percentage of doctors who attend deliveries do so from within a functioning health system, than is the case for either nurses or midwives. It may also be a function of which procedures nurses and midwives are allowed and trained to do and of the wide range of skills and training of the workers captured by the category "nurses and midwives" in the surveys from which these data are drawn.

Figure 4: Proportion of deliveries with health professionals* and the MMR for 50 developing countries, ~1990



*Defined in coverage statistics as “doctors, nurses and midwives” (WHO 1997)

Figure 5: Proportion of deliveries with doctors and the MMR for 50 developing countries, ~1990

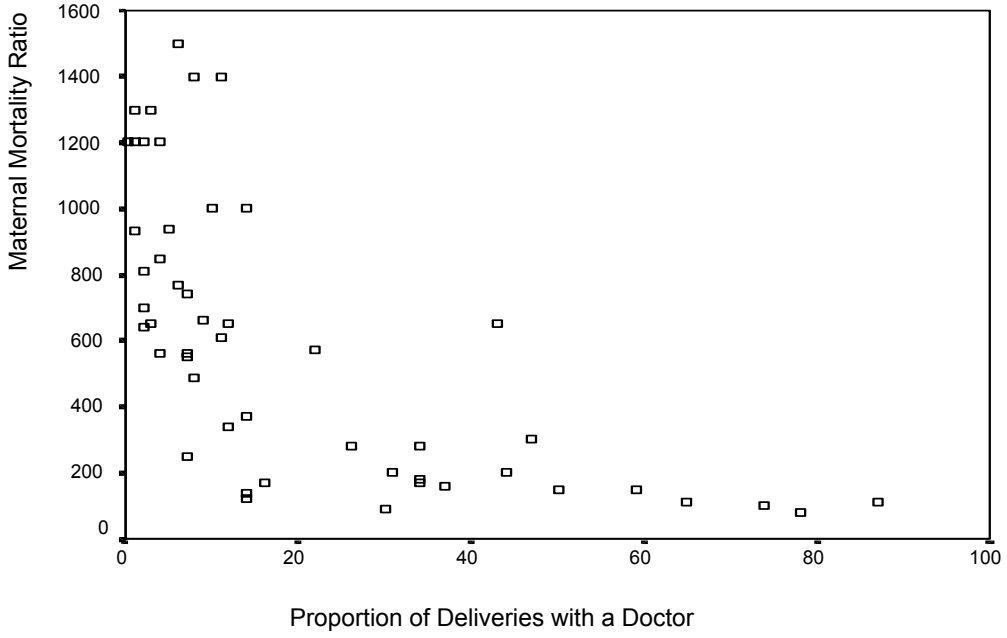
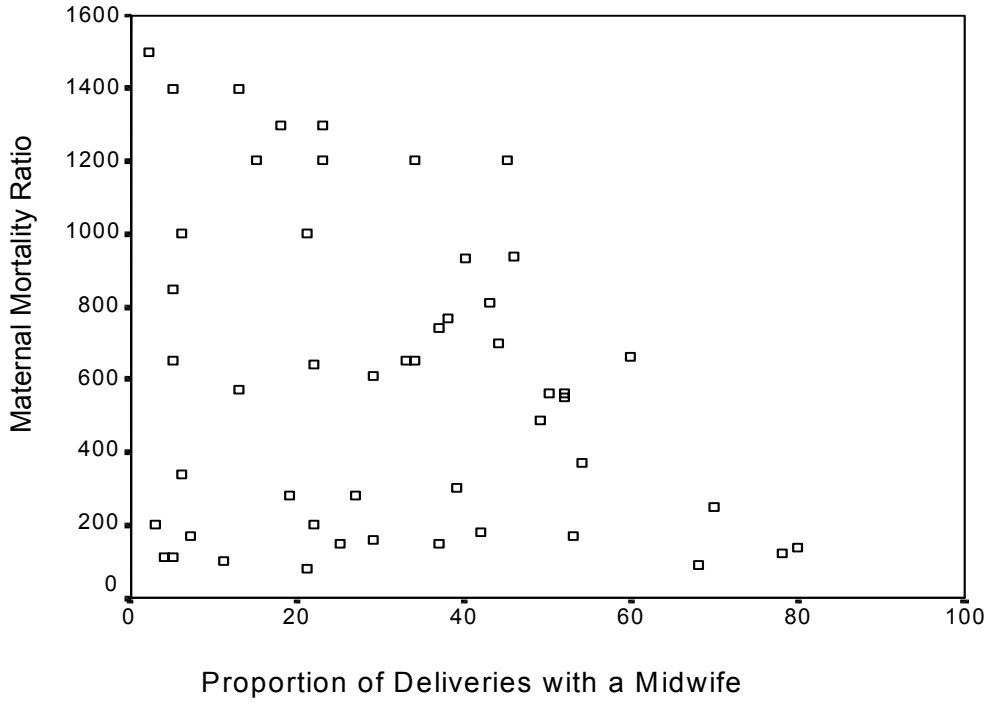


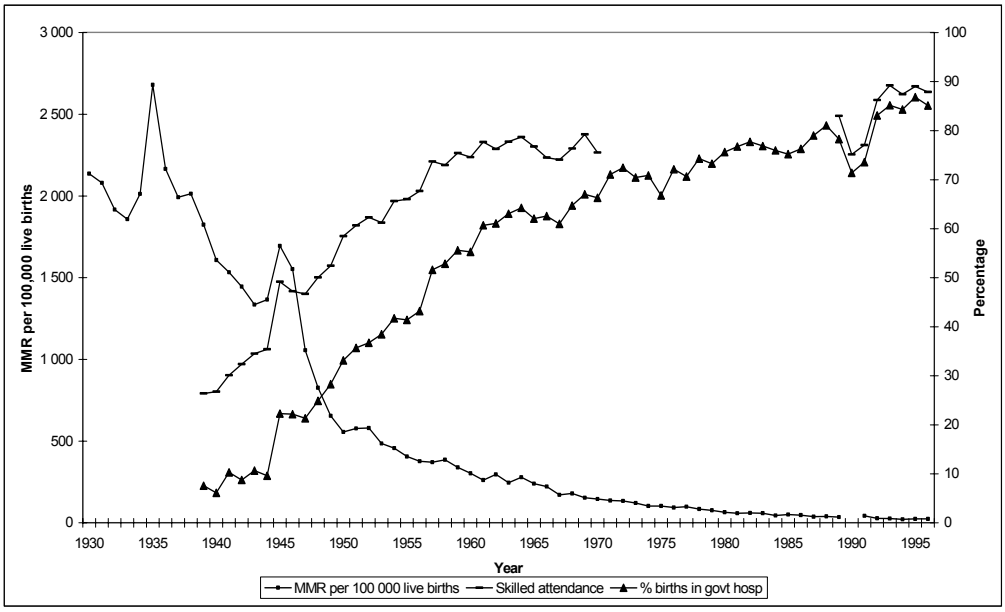
Figure 6: Proportion of deliveries with midwives and the MMR for 50 developing countries, ~1990



Source (Figures 4-6): [69] Graham, W., J. Bell, and C. Bullough, *Can skilled attendance at deliver reduce maternal mortality in developing countries?* Studies in Health Services Organisation and Policy, 2001. 17: p. 97-129.

Sri Lanka is often used as an example to show that high proportions of births attended by midwives are associated with steep declines in MMR. But in Sri Lanka, a very high percentage of midwife-attended births were taking place in health facilities where EmOC or referral to EmOC was readily available. Thus, when skilled attendants are plotted together with institutional births (births in health facilities), both factors are clearly associated with the decline in mortality (see Figure 7).

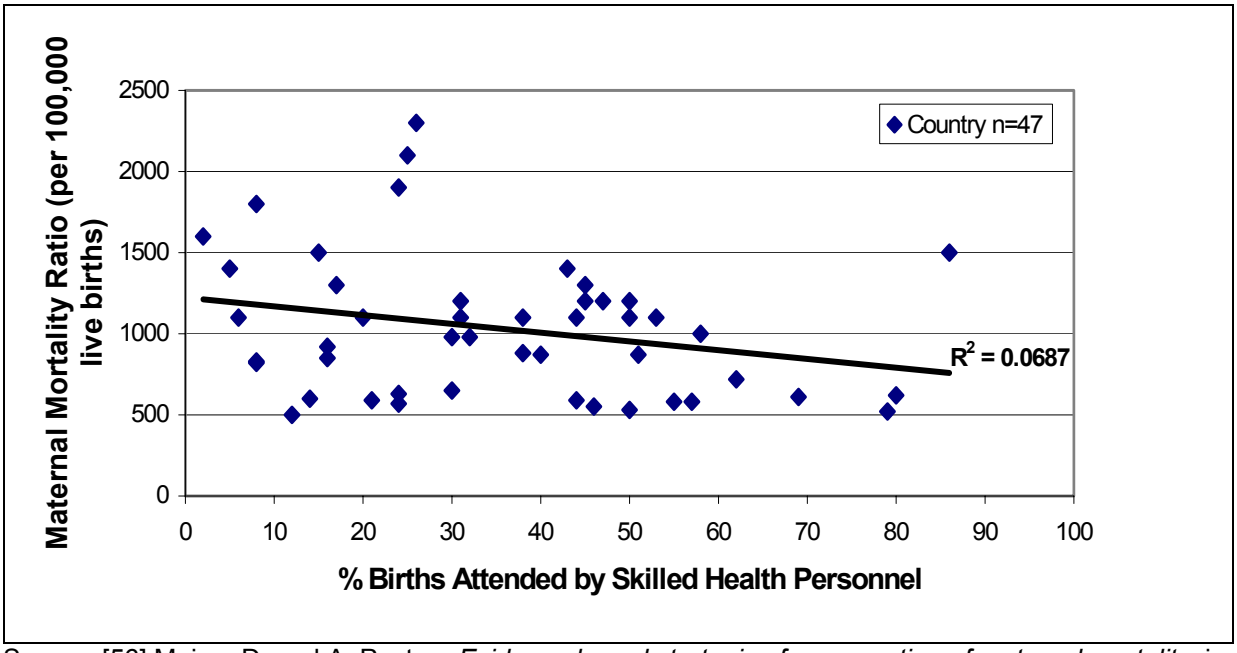
Figure 7: MMR and proportion of live births with skilled attendance, Sri Lanka



Source: [63] Pathmanathan, I. and e. al, *Investing effectively in maternal health: the experience of Malaysia and Sri Lanka*. 2003 [forthcoming], Washington, DC: The World Bank.

In some geographic areas, EmOC services simply do not exist and so skilled birth attendants end up managing deliveries without access to EmOC or the back-up and support of a functioning health system. It is therefore possible to have relatively high proportions of births attended by skilled health personnel but still have very high levels of maternal mortality. In fact, when we look only at high mortality countries – almost uniformly countries with weak health systems – then the association between skilled attendants and MMR virtually disappears (see Figure 8).

Figure 8: MMR (greater than 500) by percentage of skilled attendants



Source: [56] Maine, D. and A. Paxton, *Evidence based strategies for prevention of maternal mortality*, in *Evidence-based obstetrics*, R. Johanson and S. Daya, Editors. 2003 [forthcoming], Blackwell Publishing: Oxford.

Emergency obstetric care (EmOC)

Even under the very best of circumstances, with adequate nutrition, high socioeconomic status and good health care, a substantial proportion of pregnant women – greater than 10% -- will experience potentially fatal complications [70]. But virtually all obstetric complications can be treated. Thus, when the EmOC necessary to treat complications is universally accessible and appropriately utilized, MMRs are extremely low and maternal mortality ceases to be a public health problem.

EmOC is generally categorized as basic EmOC and comprehensive EmOC.[8] For a facility to be considered a basic or comprehensive EmOC facility is must be performing a set of signal functions.

[8] Some publications use the term "essential obstetric care" (EOC) interchangeably with "emergency obstetric care" (EmOC). For the sake of clarity, we follow the practice of using the term "EmOC" to refer to the interventions for treating obstetric complications and using "EOC" to refer to the broader range of services that includes the management of routine pregnancies. Koblinsky, M., *Essential obstetric care and subsets--basic and emergency obstetric care: what's the difference?* MotherCare Policy Brief 1. 1999, Arlington, VA: John Snow, Inc.

Table 2: Signal functions of basic and comprehensive EmOC services

Basic EmOC services	Comprehensive EmOC services
Administer parenteral* antibiotics Administer parenteral oxytocic drugs Administer parenteral anticonvulsants for pre-eclampsia and eclampsia Perform manual removal of retained products (e.g. manual vacuum aspiration) Perform assisted vaginal delivery	All those included in Basic EmOC *plus*: Perform surgery (Caesarean section) Perform blood transfusion

*administration of drugs by injection or intravenous infusion ('drip')
Source: [71] Maine, D., et al., *Guidelines for monitoring the availability and use of obstetric services*. 1997, New York: UNICEF.

Of course, one input vital to these functions is the presence of skilled health personnel who can perform them. Significantly, the WHO definition of the competencies of the skilled birth attendant is nearly identical to the functions that must be performed in a basic EmOC facility [56]. Thus, no matter what mix of strategies is pursued, human resources lie at the heart of the solution.

EmOC within a functioning health system

Widely available EmOC is necessary but not sufficient to reduce maternal mortality. Appropriate utilization is also necessary. A helpful way to analyze the barriers to utilization is through the "Three-Delays Model" [72]. Once a complication occurs the key to saving a woman's life is to get her adequate care in time. The delays leading to death can be divided into:

(1) delay in deciding to seek care
(2) delay in reaching care
(3) delay in getting treatment at the facility

One important element of strategies to reduce delays is the strengthening of the referral system. This requires adequate information and communication from the household to the birth attendant and up through the level of a comprehensive EmOC facility, as decisions are made. It also implies a transportation system and the existence of EmOC facilities close enough to every community to be reached in time. Finally, it implies a system with providers trained, equipped and supported to provide the services appropriate at each level, as well as a system in which patients choose and are ultimately treated at the level in that system which is most appropriate

for their conditions. Box 2 shows requirements for an effective referral system, from the perspective of organization and management of health services.

Box 2: Requirements of an effective referral system

- An adequately resourced referral center
- Communications and feedback systems
- Designated transport
- Agreed setting-specific protocols for the identification of complications
- Personnel Trained in their use
- Teamwork between referral levels
- A unified records system
- Mechanisms to ensure that patients do not bypass a level of the referral system (i.e. good patient information, and structured fee and exemption systems)

Source: [73] Murray, S., et al., *Tools for monitoring the effectiveness of district maternity referral systems.* Health Policy and Planning, 2001. 16(4): p. 353-361.

Referral and utilization are both complex problems that have received insufficient attention in health research [73, 74]. They concern not only the existence of information, transportation, and facilities – but also the ability to access and use them. That, in turn, raises questions about financial barriers, about relationships between facilities and communities (including issues of demeaning treatment and discrimination), about culturally-embedded views of appropriate childbirth practices and many other locally-specific issues [75, 76]. New research addressing these questions should get high priority, but it will be important for utilization to be carefully articulated with availability of services. In a broad policy sense, the lesson of Sri Lanka and Malaysia about sequencing priorities described in the following section is important: emphasis on availability and geographic coverage should come before emphasis on utilization. In a micro sense, when utilization is closely examined in a specific field setting, it will be critical that individual and household decisions to utilize health services not be explored in isolation. So, for example, even when respondents cite traditional birthing practices or gender roles as the basis of decision making, it is critical that any presumption or assertion that a behavior or decision is culturally determined be explored with full awareness of the context in which the decision is made: whether services are actually available and accessible, including such issues as

discrimination in treatment at the facilities, cost barriers, availability of drugs in the facilities, and quality of care [75, 77].

3.2.2 Implications for MDG indicators

The World Bank study of health investments in Sri Lanka and Malaysia and their relationship to policies to reduce maternal mortality, concludes that these countries never regarded the training of skilled midwives to deliver routine care as competing with the development of the overall health system that would ensure access to EmOC in obstetric emergencies [63]. Rather, both countries took a step-by-step approach, adjusting priorities and the balance between the two as the overall health system gained in strength. Health system development priorities moved deliberately and progressively from extending geographic coverage of good-quality health facilities, to increasing utilization, to further improving quality of services. That progression depended on the development of an adequately trained level of health personnel (especially midwives) who could provide high quality delivery care in communities and in the facilities that were being built and strengthened – and could link the two together. It entailed a commitment to reaching every geographic part of the country and every ethnic group. Regulations regarding tasks to be performed by different cadres of health professionals were modified when required by the overriding goal of truly meeting the needs of the population in underserved areas. Significantly, in both countries, midwives were the backbone of the system: decently paid, greatly valued and respected in the community and in the facility, members of a profession that carried real prestige in the society.

Ultimately, both skilled attendants and EmOC were probably necessary to make the *system* – including its relationship to communities – function well and thus reduce maternal mortality. Countries addressing maternal mortality today must similarly take a tailored and dynamic, evolving approach to the balance between the two strategies. In that calculation, if the reduction of deaths from obstetric complications is to get high priority, as the MDG target would certainly suggest, then the services that are most effective in addressing such complications will need to receive greater attention than has typically been the case in high mortality countries in the past.

But for *any* balance to be struck, decision makers must be aware of the level of unmet need for EmOC and advocates must use this information to press for the most effective policies. Historical studies of Sri Lanka and Malaysia and of Europe, show that confidential enquiries and maternal death audits, strategically used and followed up, were important factors in maintaining political commitment and ensuring appropriate responsive strategies as maternal mortality steadily declined [63, 78]. In 1997, WHO, UNICEF and UNFPA issued a publication, *Guidelines for monitoring the availability and use of obstetric services*, that describes a set of indicators to assess the availability, utilization and quality of EmOC. Unlike confidential enquiries, criterion-based audits or verbal autopsies, these indicators are not meant to probe the detailed reasons for individual deaths or the specific management problems that might be affecting drug supply or physician postings. Rather the UN indicators are meant to generate information relevant at the broader health system level to enable policymakers to monitor overall progress. The six indicators that make up this set are described in Table 3.

Table 3: UN process indicators

Question	Indicator	Acceptable Level
Are there enough facilities providing EmOC?	Number of Emergency Obstetric Care (EmOC) facilities -Basic EmOC -Comprehensive EmOC	For every 500,000 population: -At least 4 basic EmOC facilities -At least 1 comprehensive EmOC facility
Are they well distributed?	Geographic distribution	Minimum level is met in sub-national areas
Are enough women using these facilities?	Percentage births in EmOC facilities	At least 15% of all births in the population take place in EmOC facilities
Are the right women (those suffering from complications) using these facilities?	Met need for EmOC	All women with obstetric complications (estimated as 15% of all births) are treated in EmOC facilities
Are sufficient quantities of critical services being provided?	Quantity of critical service -Caesarean section rate	Not less than 5% and not more than 15%, as a proportion of all births in the population, are by caesarean section
Is the quality of the services adequate?	Quality of care -Case fatality rate	Not more than 1% of all women with obstetric complications admitted to comprehensive EmOC facilities die.

Source: [79] Wardlaw, T. and D. Maine, *Process indicators for maternal mortality programs*, in *Safe motherhood initiatives: critical issues*, M. Berer and T.S. Ravindran, Editors. 1999, Reproductive Health Matters.

Many of the documents pressing for the training and deployment of skilled attendants as the primary maternal mortality reduction strategy say explicitly that the skilled attendant must be able to refer complicated cases on to emergency obstetric care facilities. Rarely do these materials address the question of whether or not such EmOC facilities actually exist and function. Experience with the UN EmOC indicators in several dozen high-mortality countries indicates that, although there is sometimes surprisingly adequate coverage of comprehensive EmOC, there is grossly inadequate coverage of basic EmOC facilities and extremely low levels of met need for EmOC, often under 20% ("met need" being a measure that takes into account both coverage and utilization) [80-82] (See Table 4). Hence, basic EmOC, part of the primary health care infrastructure centered around the skilled attendant, in close proximity and in a constructively accountable relationship to the community, is a particularly urgent need.

Table 4: United Nations process indicators: availability & utilization of emergency obstetric care in select countries[9]

Country	Area	Period of Time Reflected by Data	Emergency Obstetric Care[a] (EmOC)		Met Need[d]	Cesarean Section Rate[e]
			Compre-hensive[b] Facilities	Basic[c] Facilities		
Afghanistan	7 Districts, Herat Province	March 2002	50%	67%	Not available	Not available
Bhutan	National	1999	✓	80%	19%	1.3%
Cameroon	5 Provinces	2000	✓	3%	6%	0.2%
India	7 Districts, Rajasthan State	2000	31%	37%	9%	1.2%
Malawi	Southern Region (75% of facilities)	1998	✓	Not available	20%	1.6%
Morocco	National	2000	✓	59%	33%	2.8%
Mozambique	Sofala Province	1999	✓	8%	8%	1.0%
Nepal	3 Regions	Feb 1999 – Jan 2000	69%	5%	5%	0.8%
Nicaragua	10 SILAIS	July 1999 – June 2000	✓	53%	31%	6.3%
Pakistan	3 Districts	1999	✓	31%	12%	1.0%
Peru	6 Northern Provinces, Ayacucho Department	May 1999 – April 2000	✓	None	23%	4.9%
Senegal	National	2000	✓	6%	12%	1.1%
Sri Lanka	16 Districts	1999	✓	20%	75%	13.7%

✓ = The country / areas have the minimum number of EmOC facilities recommended for the population size.

NOTES:

a. For Comprehensive and Basic EmOC facilities, the % refers to the minimum level of acceptable proportion of facilities to population, following the *Guidelines for Monitoring the Availability and Use of Obstetric Services* (issued by UNICEF, WHO & UNFPA).

b. Comprehensive EmOC facilities = facilities offering all eight EmOC Signal Functions (please refer to Table 2 for a complete list of the Signal Functions)

c. Basic EmOC facilities = facilities offering the first six EmOC Signal Functions (See Table 2)

d. Met Need = the proportion of women estimated to have obstetric complications treated in EmOC facilities.

e. Cesarean section rate = proportion of births by cesarean section, out of total estimated births in the population.

Sources: [80-85]

[9] Table 4 shows published data from surveys using the UN indicators. Similar surveys are now in progress in at least ten other countries in Africa and Latin America. As the work of the Task Force progresses, we plan to devote some attention to assessing experience using these indicators, including adaptations to country circumstances. See Paxton, A., D. Maine, and N. Hijab, *Using the UN process indicators of emergency obstetric care: questions and answers*. AMDD Workbook. 2003, New York: AMDD Program, Heilbrunn Department for Population and Family Health

To dramatically decrease maternal mortality and meet the MDG target, countries will have little choice: they must ensure that EmOC is available, accessible and appropriately utilized. This means finding the right balance between attention to skilled attendants for all deliveries and EmOC for complicated, life-threatening ones. Both practically and politically, that balance will only be achieved if there is an indicator that helps generate appropriate data to be used for monitoring and accountability.

For the MDG initiative, then, we recommend that in addition to the skilled attendants indicator, countries also use the first of the UN process indicators to assess EmOC coverage: *number of functioning comprehensive and basic EmOC facilities per 500,000 population.*

3.2.3 Prioritizing problem-solving in health systems

There is a striking, troubling, dissonance between the issues dominating safe motherhood discussions in international forums and the problems threatening efforts to reduce maternal mortality on the ground, in communities and health facilities.

International discussions state that services should be affordable for all. On-the-ground projects grapple with user fees and exemption schemes that have routinely failed to protect the poor; with "informal" or illicit payments that are the only way health providers can earn a living wage; with drug shortages that force patients into the streets to find life-saving supplies; with levels of financial corruption that have thoroughly discredited public services [86]; and with income poverty that makes even the opportunity cost or seeking health care a major deterrent.

International discussions attempt to carefully delineate and refine the optimum division of tasks and skills among the theoretically available pool of health professionals. On-the-ground initiatives are repeatedly thwarted by posting and transfer decisions that seem to put the well-being of patients last; by absenteeism and the desire (or necessity) of public employees to engage in private practice (and steer patients accordingly); by massive 'brain drain' that draws trained professionals out of countries while IFI policies pressure for bans on government hiring; by regulations concerning "delegation" that put professional prestige and academic approaches to medicine over the yawning gap in population coverage [87]; by training techniques that put rote knowledge over clinical competence; by non-functioning supervision that leaves even the

best-intentioned health providers without confidence or skills; and by societal hierarchies (of caste, class and gender) mirrored in the human relationships among health personnel that often cripple facility functioning [18] (at 182).

International discussions call for high quality of care for all. On-the-ground initiatives face water, sanitation and power systems that make even minimum infection control standards a major challenge; physical infrastructure that fails to account for even the most basic needs (such as toilets and beds) for women patients and providers; over-worked and demoralized providers who can barely cope with their workloads much less follow protocols for improved inter-personal relationships with clients [88]; and patterns of social and gender discrimination reflected in sometimes shocking maltreatment of patients and their families [3].

The list could go on and on. The point is *not* that the international-level activities are irrelevant or incorrect. We need protocols and cost estimates; models of quality; understandable information about how to recognize an emergency; and a basic commitment to affordability. But we also need to recognize the crisis that has developed in health care systems on the ground and to give the search for and funding of locally-tailored and locally-owned solutions a dramatically different priority in what we do in the maternal health and child health fields as a whole.

4. Child Health

For more than twenty-five years, the prevention of child mortality has been one of the leading priorities for the international health community. To a large extent, this focus on the youngest and most helpless members of society has paid off— for the past twenty years or so, mortality in children less than five years old has steadily declined at an average rate of about 1% per year. This progress has been made despite the emergence of antibiotic and anti-malarial drug resistance, increased levels of conflict in many regions of the world, the spread of the AIDS pandemic and continued population growth [8, 89]. This decline in child mortality in low and middle-income countries is due, in large part, to the widespread implementation of programs that promote treatment of diarrhea with oral rehydration therapy [90, 91] and the attainment of reasonably high coverage levels of vaccines that prevent some of the more common infections

of childhood. Secular changes in living standards and declines in fertility in some areas may have also played a significant role.

However, despite the progress made, 30,000 children die unnecessarily each day. In many countries, infant and childhood mortality rates are falling more slowly than before and, in some, they have stagnated or are on the rise. During the 1990s, under-5 mortality rates (U5MR) increased in fourteen countries. The situation is worst in Africa, where U5MR increased in 9 countries and remained unchanged in 11 others [5].

The principal biological causes of child deaths are known, and they are both preventable and treatable. We can avert a large proportion of these deaths without investing in new technologies and clinical research. Relatively simple interventions are effective. These include: oral rehydration salts to control diarrhea, antibiotics for the treatment of pneumonia, insecticide-treated bed nets (or other materials) to prevent malaria, vaccination, and exclusive breastfeeding for the first 4-6 months of life, followed by a diet that provides adequate quantities of energy and micronutrients. However, ensuring access to these interventions, from the community level to referral hospitals, remains a daunting challenge. The ability of child caretakers to recognize potentially life-threatening illnesses at an early stage, the choice of health care provider, and compliance with professional advice are examples of the many sociological and behavioral issues which must be addressed.

Other problems involve not the caretaker, but the health system on which much of the care of sick children depends. Health workers, to be effective, need training to ensure that they have appropriate skills. Moreover, they must be motivated to use those skills – they need to be paid an adequate salary and given a reasonable workload. Staff in health facilities must treat all patients with courtesy and respect. Their work needs to be adequately monitored and supervised. Health facilities need to be continuously well stocked with appropriate supplies and medicines. These, and many other issues affecting the ability of health systems to perform in a way that adequately addresses the health needs of the populations they seek to serve, need attention if further progress is to be made in reducing childhood mortality.

Finally, both kinds of problems – those affecting the caretakers and those involving the health system – do not affect all communities equally. Socio-economic disparities have a major impact

on how people seek health care and on the health care they receive. Specific strategies to reach the poorest and most vulnerable must be developed.

4.1 Child health and the MDGs

This section examines the Millennium Development Goal for child health, the target, and the indicators selected to meet the target. It then moves to a discussion of child mortality and the way forward toward the MDG. The paper does not attempt review all aspects of child health. Instead, it focuses on some key issues and new developments in the field. In particular, it focuses on the equity dimensions of child health and the role of strengthened health systems in reaching the Millennium Development Goals.

4.1.1 Targets and indicators

Box 3: The MDG for child health

GOAL	TARGET	INDICATORS
Goal 4: Reduce child mortality	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate (U5MR)	• Under-five mortality rate • Infant mortality rate • Proportion of 1-year-old children immunized against measles

As described in Box 3, the MDG target for improving child health is to 'reduce by two-thirds, between 1990 and 2015, the under-five mortality rate (U5MR)'. As measured by the child mortality rate, such an achievement would require greater gains in the next 15 years than those made between 1960 and 1990; the U5MR for a median country declined from 200 in 1960 to a little over 50 in 1990 [92].

There are three indicators selected for assessing progress toward reaching the target and goal: the under-five mortality rate, the infant mortality rate and the proportion of one-year old children immunized against measles. The under-five mortality rate (deaths of children under the age of five per 1000 live births per year) is not a true rate -- the numerator is not drawn from the

denominator. [89]. Children under five bear 30% of the total burden of disease in poor countries and thus measuring, monitoring, and preventing their mortality is essential to reducing poverty and improving health [93]. The infant mortality rate (IMR -- deaths under one year of age per 1000 live births per year) is also not a true rate. The usefulness of the infant mortality rate is limited by the fact that most under-one year deaths occur in the first month (and most of those in the first week of life). Both U5MR and IMR are difficult to measure. Neither births nor deaths are frequently recorded in many developing countries, and determining whether or not a child was born alive can be quite difficult. Nevertheless, both of these indicators have become well accepted in the public health community and they have proven useful as a basis for comparison over time both within and between countries.

The use of measles vaccination coverage as an indicator of progress toward the Millennium Development Goal for child mortality reduction is more problematic. Many countries have adopted mass campaign strategies for measles vaccination and are offering measles vaccines either in conjunction with the National Immunization Days being conducted as part of the polio eradication initiative or separately. In both cases, measles vaccination is not a reflection of the capacity of communities or of the health system to reduce overall childhood mortality. Because measles represents at best about 5% of all child mortality, even vaccination of all children would not make a substantial contribution toward achievement of the MDG. Some programmatic indicators of immunization coverage would be quite useful, and the Task Force will seek to determine which indicators might be more representative, more sensitive, and more directly related to the MDG targets and goals.

4.1.2 Equity considerations

The estimated child mortality rate for Africa is 173 deaths per 1000 live births per year – almost 20% of all children born on that continent die before reaching their fifth birthday. In South Asia, the risk of a child dying before five years of age is about 10%, and in Latin America it is about 4%. In the industrialized countries, the death of a child is a rare event – only six per 1000 live births per year [5]. These regional averages mask important disparities within countries, rich and poor alike. For example, vaccination coverage of children of the poorest 20% of the population in developing countries, is 35-40%, half that of the richest fifth of the population [94]. In Brazil, an infant from the Northeastern part of the country has a risk of dying that is 5.2 times

higher than that of an infant from Southern Brazil [95]. Furthermore, an analysis of 24 countries using data from the Demographic and Health Surveys showed that the gap in the under-five mortality rate between rich and poor quintiles actually increased between 1980 and 1990 [96]. Such data reveal the inequities in health service provision that characterize health intervention programs around the world.

It is important to note that the MDG target for child mortality does not take into account this equity dimension. In fact, it is possible that the MDG could be met by reducing child mortality only in the higher-income quintiles of the population [97]. Serious consideration should be given to stating the MDG targets for child health in equity terms (see section 6 for more on this).

4.2 Child mortality

Globally, five biological causes of death, acute respiratory infection (pneumonia), diarrhea, measles, malaria and malnutrition account for a solid majority of the approximately 10.8 million deaths of children under the age of five that occur each year. Perinatal deaths, i.e., stillbirths and deaths during the first week after birth, account for the majority of the remainder (the biological causes of perinatal death are delineated below).

Diarrhea and pneumonia are each estimated to account for about 18% of childhood mortality, each responsible for more than all the child deaths from HIV and malaria combined. Although diarrhea deaths have fallen substantially over the past twenty years, there are indications that the drop may not be as much as had been thought. Pneumonia incidence and mortality has remained fairly constant. Malaria is responsible for nearly 10%, with essentially all malaria deaths occurring in sub-Saharan Africa. AIDS currently accounts for 300,000 to 350,000 deaths of under-fives per year, mostly in central and southern Africa (see Figure 9, for which the proportional contribution of diarrhea is being revised upward).

These leading causes of death are largely constant in different settings, although the proportion attributable to each cause varies. In some southern African countries AIDS accounts for a very high proportion of child deaths [98] while in other tropical countries deaths from malaria represent a higher proportion of under-five mortality. In addition, as under-five mortality is lowered, it is generally the case that the proportion of deaths attributable to perinatal and

neonatal causes increases – most of the early reductions probably come through the control of mortality from diarrheal diseases. In order to allocate resources efficiently toward the achievement of the MDG, countries should establish their own cause-specific mortality profiles

4.2.1 Comorbidity

Traditionally, each childhood death, whether ascertained through vital registration systems (rare) or through surveys, has been attributed to a single cause, although several potentially fatal conditions frequently coexist. Concurrent morbidity may be associated with a synergistic increase in the risk of mortality [99]. A more accurate assessment of comorbidity will result in interventions which take into account the fact that there may be more than one way to prevent a death. The IMCI strategy (see below) is one attempt to address this problem. To further study the extent and the impact of comorbidity as it is associated with childhood mortality, WHO has established the Child Health Epidemiology Reference Group (CHERG). The work of this group will yield a far more nuanced and more accurate picture of childhood mortality than currently is available.

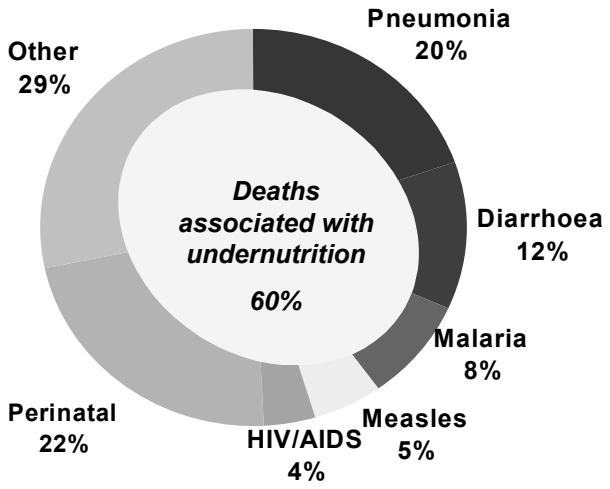
The role of some infections in increasing susceptibility to other causes of death should also be explored further. Some evidence suggests, for example, that children who contract measles have increased mortality from other causes in the months following recovery than those who have not had measles [2]. Similarly, children with AIDS are clearly at elevated risk of dying from a variety of other causes, including pneumonia and diarrhea.

4.2.2 Malnutrition

Malnutrition deserves particular mention here for its role in child mortality. While it had long been believed that only severe malnutrition contributed to mortality, Pelletier et al. have shown that all degrees of malnutrition, mild, moderate, and severe, are risk factors for mortality. Severely malnourished children are about eight times as likely to die before their fifth birthday as those who are well-nourished, while mild malnutrition carries about a two-fold risk. But because the vast majority of malnutrition is mild or moderate, the contribution of these to mortality is

substantial. Overall, about 60% of all child deaths that occur each year are associated with undernutrition [100] (see Figure 9).

Figure 9: Major causes of death among children under five (global, 2000)



Source: WHO/EIP, 2000.

It is important to note that malnutrition, or undernutrition, is not usually the result of famine. Instead, low weight-for-age (wasting, acute malnutrition) or low height-for-age (stunting, chronic malnutrition) can be the result of disease or of chronic intake of low levels of energy and of key nutrients. Malnourished children are more susceptible to other illnesses. The risk of dying from an acute respiratory infection is two to three times higher in malnourished children than in those who are well-nourished. [101]. Likewise, a malnourished child is more likely to suffer longer and more severe bouts of diarrhea, as well as an increased likelihood of death.

The roles of three key micronutrients (vitamins and minerals) in child mortality—Vitamin A, zinc and iron—have been established [102]. It is estimated that zinc deficiencies cause about 789,000 deaths per year, iron 605,000 and Vitamin A 688,000. Not only do interventions aimed at providing adequate quantities of micronutrients to all children have the potential to substantially reduce child morbidity and mortality, but they promise to be among the most cost-effective interventions available [14].

Malnutrition, as one might expect, is concentrated among the worse-off in society. In virtually all countries, the poorest have the highest rates of malnutrition. In fact, the relative gaps (between

rich and poor) appear to be higher for measures of underweight as compared to other childhealth indicators—in many countries the poorest children are six times as likely to be underweight as compared to the richest children [103]. But malnutrition is not a problem of the poor alone – malnutrition rates increase at each successively lower level of income [104]. In addition, gender inequities confer a double disadvantage on the girl child. Discrimination against the girl child is one deeply unfair fact of life, particularly in South Asia. Studies have documented food being withheld from girl children, resulting in higher rates of malnutrition and subsequent mortality. [105-107].

Malnutrition is an issue that will be dealt with by other Task Forces as well. Those working on poverty, agricultural production, household food security, and child health should work together to explore strategies by which this pervasive and insidious problem can be addressed.

4.2.3 Perinatal and neonatal mortality

It is hypothesized that as child mortality decreases, the age pattern of childhood deaths will change. Most deaths now occur in the first year of life, but as these are increasingly reduced, a higher proportion of mortality will occur during the first month..

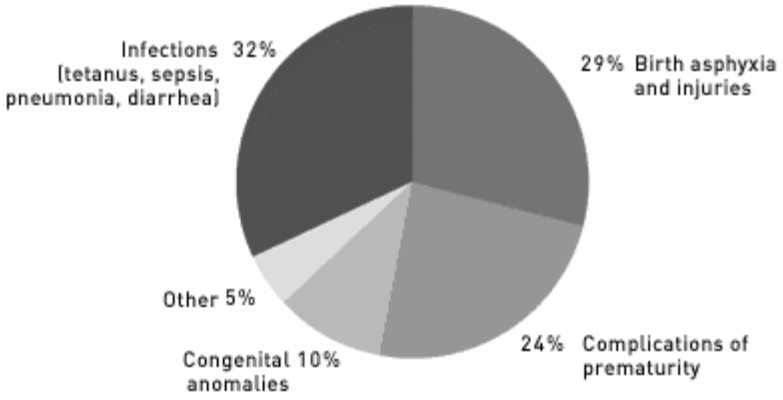
Addressing neonatal mortality will be essential if the MDG is to be achieved. Doing so will bring the child health specialists into much closer contact, programmatically, with those who deal primarily with averting maternal deaths. The death of a mother during delivery and that of a newly-born child may have strong programmatic, in addition to temporal, associations. Programs aimed at ensuring that childbirth occurs in supervised circumstances, in the presence of health personnel capable of appropriately dealing with obstetric emergencies, may have a positive impact on both maternal and childhood mortality. Another rationale for focusing attention on the neonate lies in the lifelong effects of poor fetal and neonatal health. In addition to their effect on early childhood mortality, a growing body of literature suggests that infections and other forms of morbidity in the neonatal period have an effect on health later in life [108, 109].

Neonatal mortality currently accounts for 20% or more of all under-five mortality. Its specific causes are significantly different, however, from those we have seen for older children. Mortality

in this age group is to a large degree related to maternal health during pregnancy (e.g. prematurity) and to the circumstances of the delivery (e.g. birth asphyxia and injuries). As one would expect, neonatal mortality is highest in areas where maternal mortality is high [110, 111] (see Table 5). While a majority of the neonatal mortality is due to infections and birth asphyxia/injuries, conditions such as prematurity, low birth weight (LBW) and complications of delivery, and congenital malformations also make a substantial contribution [112] (see Figure 10).

It should be noted, though, that because so many births (and deaths) take place outside the health system, data on the causes and distribution of newborn deaths are quite incomplete. Social audits, verbal autopsies, and demographic sentinel surveillance systems have provided some of the detail on the nature of these deaths [92, 112-114] and should, perhaps be used more widely to further elucidate the underlying social and biological causes of neonatal deaths. Improved vital registration would be useful too -- currently, the birth of two out of every five children goes unregistered [98].

Figure 10: Direct Causes of Neonatal Deaths



Source: State of the World's Newborns, 2001.
http://www.savethechildren.org/mothers/newborns/summary4.shtml

Low birth weight is one of the most significant factors associated with neonatal and infant mortality. As such, efforts to reduce maternal risks for low birth weight and to effectively care for the low birth weight baby should underpin most efforts to avert neonatal mortality.

Table 5: Lifetime risk to mothers

	Lifetime risk that a woman will lose a newborn	Lifetime risk that a woman will die of maternal causes
Africa	1 in 5	1 in 19
Asia	1 in 11	1 in 132
Latin America	1 in 21	1 in 188
More developed countries	1 in 125	1 in 2976

Source: Tinker and Ransom; Calculated from most recent rates available from Save the Children (neonatal mortality), Population Reverence Bureau (total fertility rate) and UNICEF (maternal mortality ratio)

A number of measures that can improve or protect a woman's health during pregnancy can actually prevent some portion of neonatal mortality. These include tetanus toxoid vaccination; HIV/AIDS screening (and screening for other STIs) to detect disease in the mother and to prevent maternal to child transmission; micronutrient (iron and folate) supplementation; intermittent presumptive therapy for malaria; and the use of insecticide-treated bed nets during pregnancy. However, research in the field has demonstrated that antenatal care cannot accurately predict or prevent complications at birth that adversely affect both mother and baby. In a recent study in Bangladesh, complications during labor and delivery increased the risk of perinatal death fivefold and accounted for 30% of perinatal mortality [115].

Infant death defined

A neonatal death is defined as death occurring between birth and 28 days. Two-thirds of neonatal deaths occur within the first week of life, and a large percentage of those deaths occur within 24 hours of birth. Perinatal mortality overlaps with neonatal mortality as it covers late pregnancy through the first week of life. The 4.3 million children who are stillborn each year are included in the perinatal mortality rate, but are not counted in either the infant mortality rate or the under-five mortality rate that are indicators for the child health MDG. A clear separation should be kept, and double counting needs to be rigorously avoided.

Although life-threatening, many of the illnesses which afflict newborns may be effectively managed in a community setting [113]. While averting maternal deaths due to obstetrical emergencies care requires well-equipped facilities and skilled health care providers, preventing neonatal mortality may be possible within the community through simple interventions delivered by less sophisticated health personnel. These interventions can include simple techniques of warming via the Kangaroo method (skin-to-skin contact of neonate with mother) to avoid hypothermia, and a breath counter to identify respiratory infection [108, 113, 116]. Other, more sophisticated interventions such as intramuscular injection of a broad-spectrum antibiotic to

provide protection against infection for the first days of life will require further research. Simple home-based neonatal care methods have been pioneered by SEARCH, an NGO in the Gadchiroli district of India, with promising results (see Box 4).

Breastfeeding is a simple, natural intervention that protects the newborn from illness and provides better nutrition than any alternative form of feeding. UNICEF estimates that if all babies were breastfed an additional 1.5 million lives could be saved each year [117]. The promotion of exclusive breastfeeding for the first six months of life has significantly impacted many developing countries—breastfeeding rates increased over the decade from 1990-2000 after years of decline [118].

As a result of some of the early demonstrations of the potential effectiveness of simple interventions for reducing neonatal mortality, new initiatives, such as Saving Newborn Lives (coordinated by Save the Children/US) argue that community-level interventions should be intensified, and that it should include the active participation of family members as health care providers. This apparent tension between the push to move neonatal care efforts toward the community in an effort to decrease childhood mortality, and the recognition that facility-level care must be strengthened to avert maternal mortality, should be further discussed and explored. Advocates for both improved maternal health and child health should be able to work together to develop a set of programmatic guidelines and interventions for providing optimal care to both mother and child during delivery and the immediate post-natal period.

Box 4: Home-based neonatal care in India

The Society for Education, Action and Research in Community Health (SEARCH) is an NGO in Maharashtra State, India that was established in 1986. In an area where health services are largely inaccessible and neonatal mortality is extremely high, SEARCH set out to find low-cost, home-based interventions that would save the lives of newborns. Their goal was to reduce neonatal mortality by 25%, and they were surprised to achieve significantly better results. Overall, through their efforts, the SEARCH workers were able to reduce neonatal and infant mortality by nearly 50% in the study population

The study team found that sepsis (or infection) was the leading cause of neonatal death in these malnourished, illiterate and impoverished communities, and emphasis was put on its early detection and treatment. Female village health workers were trained in the home-based management of neonatal illnesses. Parents were encouraged to seek hospital care for ill newborns, but in the event they refused, the village health worker provided home-based care. In many instances, community members preferred to be cared for by the village health worker – she was more accessible, and care was free. With community-based post-natal care, the case- fatality rate for neonatal sepsis declined from 16.6% to 2.8%.

Preterm and low birth weight babies were managed by warmth, frequent breastfeeding and multiple home visits. These high-risk infants were also treated with gentamicin, given by intramuscular injection with disposable insulin syringes and co-trimoxazole suspension. This antibiotic combination provided broad-spectrum coverage in an attempt to prevent pneumonia and other infections. Village health workers were trained to diagnose birth asphyxia and to manage it by clearing the airway with an oral mucus sucker, tactile stimulation and artificial respiration. The newborns' skin temperature was measured with a digital thermometer, and those who were hypothermic were kept in sleeping bags after being warmed with a heated cloth. Village health workers treated fever with acetaminophen.

The study notes that village health workers already addressing other health issues in the village could readily be trained to provide these simple interventions, making it likely that these results could be replicated in other settings. However, the larger issue of scaling up these promising interventions remains a challenge and a high priority for future research.

Source: Bang AT, Bang RA, Baitule SB, Reddy MH, Deshmukh MD. Effect of home-based neonatal care and management of sepsis on neonatal mortality: field trial in rural India. *Lancet* 1999; 354:1955–61.

This section would not be complete without mention of the need to increase access to and use of modern contraceptive methods in order to reduce child mortality. It has long been established that children born to mothers who are younger or older, or to those who have large families with children spaced too closely together, are at significantly greater risk. Successful family planning programs are accompanied by measurably higher rates of child survival and advocacy on their behalf should be part of any strategy to reduce child mortality.

4.2.4 HIV/AIDS

The HIV/AIDS pandemic has primarily affected adults. However, women account for an increasingly large proportion of HIV infections, and mother-to-child transmission of HIV is of mounting concern. Over 300,000 children under five years of age die each year from HIV/AIDS, usually transmitted from their mothers during pregnancy, childbirth or breastfeeding. Of course, the best prevention of HIV/AIDS in children would be to ensure that mothers do not become infected. For this reason, the survival of children should be seen as intimately tied to the kind of reproductive health care available to women and to the success of HIV/AIDS programs at national and local levels. The use of anti-retroviral treatment (AZT, nevirapine) for both mother and child during the terminal stage of pregnancy and the neonatal period has been effective in substantially reducing (but not eliminating) mother-to-child transmission, but this intervention is not yet universally available. Additional research is critical to document the protective role of breastfeeding in high HIV prevalence areas and to examine new interventions like chlorhexidine cleansing and micronutrient supplementation as a means of HIV prevention [108]. Integrating HIV/AIDS awareness and prevention into ongoing maternal and child health programs is a formidable challenge facing all countries, but particularly those in sub-Saharan Africa and South and Southeast Asia where the epidemic is steadily progressing. This Task Force plans to work closely with the HIV/AIDS Task Force to suggest appropriate strategies for scaling up current efforts and for developing new technical and programmatic interventions.

4.3 What is the role of health interventions?

A great deal of literature has focused on the role of government health services in aiding or abetting access to health services. In particular, the use of user fees continues to be debated and is often cited as a major barrier to care for many in least developed countries. Health sector reforms, including decentralization, have changed the landscape of public health services and the advent of PRSPs and SWAps are simultaneously changing donor priorities-- in some cases reorganizing the way countries set health priorities and deliver services. New Global Initiatives like the Global Fund for AIDS, TB and Malaria (GFATM) and the Global Alliance for Vaccines and Immunization (GAVI) are drawing attention to long-neglected diseases of the poor, but drawing some criticism for overlooking the need to strengthen existing health systems. Major trade agreements have implications for access to essential medicines and the

privatization of health services. Amidst these sweeping changes, a burgeoning literature is beginning to focus on whether or not government health services and donor interventions are reaching the poor. Private sector health services, NGOs and traditional medicine are recognized as providing much of the health care in the developing world.

This section will address the role of the health system in prevention and treatment using the several key interventions for each as examples.

4.3.1 Vaccines: Preventive medicine

At present, routine vaccination programs fail to cover approximately 30-40 million children in the developing world. Coverage levels in many countries are leveling off or even dropping. In many countries, attention to routine vaccinations is waning, and increasing emphasis is being put on periodic mass vaccination campaigns targeting polio and measles. As a result, about 1.7 million children continue to die each year from vaccine-preventable diseases [119] (see Table 6).[10]

Equity issues are also important to vaccination programs. The gap in vaccination coverage between rich and poor within countries is growing. Differences in access to newer vaccines between rich and poor countries are also a problem. The Hemophilus influenzae vaccine, which has essentially eliminated this organism as a cause of meningitis and pneumonia in the United States and Europe, is not available in developing countries, where pneumonia is the leading cause of death in children under five years old. Hepatits B vaccine, available for more than a decade, while officially part of most national vaccination programs, is still not optimally available where it is needed most. Redressing these inequities in vaccination coverage and in access to vaccines is the responsibility of the international donor community as well as country and district level health systems.

Table 6: Number of vaccine-preventable child deaths per year by cause

Cause of death	Number of deaths
Pneumococcal disease	1.2 million
Measles	777,000
Haemophilus influenzae type b (Hib)	350,000
Pertussis	296,000
Polio	1,750: over 1/2 of all reported cases

Source: GAVI. 2003. http://www.vaccinealliance.org/home/tg_interview.php. Data from the World Health Organization (WHO), the Global Alliance for Vaccines and Immunizations (GAVI) and the Measles Initiative.

To a certain extent, the earlier success of the Expanded Program on Immunization (EPI) may have contributed to the current situation. The drive for Universal Childhood Immunization during the 1980's is generally recognized as having been successful in achieving a global vaccination level of 80% or more. Once that goal was achieved, however, donors and implementing agencies seem to have turned their attention elsewhere without maintaining needed emphasis on EPI. Yet, keeping childhood vaccinations high on the international agenda and integrating vaccination programs more fully into the work of stronger health systems are necessary priorities for reaching the MDGs.

The Global Alliance for Vaccines and Immunization (GAVI) is providing a much-needed boost for vaccine development, procurement and distribution. The innovative public/private partnership, while difficult to manage, may serve as a model for other global health initiatives. However, GAVI's early work has focused on providing funding for vaccines and vaccination programs to countries where a relatively strong health infrastructure already exists. Those that are arguably in greatest need risk being left behind. Criticism of GAVI has focused on its failure to explicitly address the strengthening of health systems as a means to developing stronger, more sustainable vaccination programs. A recent review cites the following weaknesses in the health system as impeding the work of GAVI: cold chain inadequacies, insufficient transport, fuel and maintenance, lack of staff for outreach and supervision, and poor information systems

[10] The measles figure in this table probably includes deaths in children over the age of five years. Current estimates of measles deaths are somewhat lower. In addition, the number of deaths attributed to pneumococcal pneumonia in children less than five are probably fewer than 1.2 million, since all pneumonias account for about 2 million deaths per year in this age group. Discrepancies in mortality reporting from different sources, and the inability to compare data across sources, remain major problems.

[120]. Other initiatives to improve vaccination coverage and to introduce newer antigens into routine vaccination programs are also underway.

The example of GAVI is used here to highlight once again the potential antagonism between an emphasis on implementation of technical programs in a vertical manner and that of strengthening the financial security and management capability of a health system that can provide comprehensive health care to the population it is intended to serve. Clearly, both the health system structure and the technical content are required and the Task Force will work with others to develop appropriate strategies for achieving both.

4.3.2 IMCI

The most extensively promoted approach to the prevention and treatment of the leading causes of childhood mortality IMCI, Integrated Management of Childhood Illnesses. Developed on the basis of extensive research by the World Health Organization and UNICEF, and implemented since 1996, IMCI is intended to provide a more holistic approach to child health than had previously been available. In essence, it replaces the highly vertical and narrowly-focused Control of Diarrheal Diseases and Control of Acute Respiratory Infection programs with a more complete package of evidence-based strategies. IMCI is based on the premise that integrating nutritional interventions, immunization, and case-management of potentially fatal serious infectious diseases (especially diarrhea, pneumonia, and malaria) will avert more child deaths more efficiently than any single intervention could [101]. In addition to a health facility component, IMCI also addresses ways in which the health system could be strengthened and interventions that can be implemented within the community.

To date, a substantial number of countries have adopted IMCI as their principal strategy for addressing childhood illnesses, but only a quarter of them are past the early implementation phase [91]. On-going evaluation of the IMCI program revealed many positive features. In outpatient facilities in Tanzania and Uganda, the introduction of IMCI was significantly associated with correct treatment of child illnesses with antibiotics, a reduction in the misuse of antibiotics, more frequent administration of the first doses of appropriate medications at the facility and improved efforts by health workers to counsel caregivers regarding follow-up home treatment.

Perhaps the most salient finding of the review was that in countries with weak health systems, IMCI would not be able to make the critical difference between life and death for many children. Where under-five mortality is highest, health systems are often too weak to support IMCI. The key problems cited were: inadequate and infrequent supervision, limited management capacity at national and district level, difficulties in scaling up, problems with referral and poor health worker motivation and high turnover rates [99]. For the most part, in poorer countries, the only component of IMCI being adequately addressed was the training of health workers.

Issues of inequity have also been raised in relation to IMCI implementation. A study of the very poor in a rural district in Tanzania, which was part of the on-going IMCI evaluation, found that better-off families in the area were more likely to bring their sick children to a health facility and that their children also had a higher likelihood of receiving anti-malarials and antibiotics for pneumonia [77]. The reasons for this disparity – perhaps due to the differences in behavior of both caretakers and health care professionals – should be explored in greater depth.

Overall, the promise of IMCI has not been fully realized. It has not been able to achieve a level of 'integration' that would adequately address the health problems of the young child, nor does it cover the needs of the youngest children – those in the first week of life. Of its three principal components – training, strengthening the health system, and increasing the level of community care – the greatest emphasis has been put on training health workers in the use of a series of algorithms. The implementation of this technically sound initiative remains a considerable challenge and further improvements of both its content and its programmatic strategies are needed if it is to fulfill its potential.

Obviously, many other child health programs are currently being implemented. Vaccination programs and IMCI are certainly two of the most widespread. They are cited here in order to throw light on some of the problems that will need to be solved in order to take these important interventions to scale in an effective way. Much more can be said about them, of course, and this very general background paper will be supplemented by a series of focused, commissioned papers.

4.4 Child health and well-being

In the midst of efforts to avert child deaths, a focus on the *quality* of the lives of children who survive must not be overlooked. WHO defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity," a definition no less applicable to children than to adults. The Convention on the Rights of the Child, ratified in 1990 and supported by some 192 countries enshrines many of the other dimensions of child well-being—including education, protection from harsh labor conditions and safe drinking water. Children's health and well-being is affected by violence and war, by witnessing and experiencing rape and physical assault, by child labor, homelessness, school enrollment and parent's survival. Women and children comprise 80% of the millions of refugees and internally displaced persons (IDPs) who are uprooted and traumatized in increasing numbers. The special needs of these populations deserve high priority. At a fundamental level, children deserve the right to innocence and to play, and protection from the horrors of violence and war, and these are issues that are increasingly coming to the fore. Aside from simply committing to addressing the multiple dimensions of well-being, there do exist causal pathways from trauma and maltreatment to mental disorders amongst children. The resulting mental disorders are a problem often overlooked because such morbidity is not recognized or treated, but one which the health system should address. These issues of quality of life, as opposed to quantity of life as reflected in excessively high child mortality rates, are not included in the Millennium Development Goals.

4.5 Key messages

In an attempt, at least partially successful, to bring about impressive reductions in child mortality in a relatively short period of time, disease-specific interventions, both preventive and curative, were promoted while the more cumbersome task of building efficient and equitable health systems was often given inadequate attention. As a result, effective child survival programs are proving difficult to sustain. In addition, the drive to show early successes has led to programs directed at those populations which could be most easily reached -- the more vulnerable members of society, i.e., the poor, have at times been left behind. In a sense, health systems may be seen as a public good—a good that both donors and national authorities need in order for their highest priority projects to achieve long-term benefits. But initiatives aimed at

“strengthening health systems” would require substantial investments of money and time, and do not have the same appeal as programs that can show short-term improvements in the health status of the population. Many advocates of disease-specific programs have argued that their programs will contribute to the development of stronger health systems, but in their pursuit of early successes these secondary objectives have been neglected. One of the most important issues raised in this document is that *both* excellent technical programs and stronger systems are needed – the question is whether disease-specific programs will lead to stronger systems or whether strong systems are a prerequisite for successful programs.

In either case, there is no question but that the current state of technical knowledge is sufficient to bring about additional substantial reductions in childhood mortality. For the most part, the research that needs to be done is programmatic. Ways must be found to take successful interventions to scale. The important task at hand is to prioritize key interventions and areas of research in a way that ensures that these reductions in mortality are shared by all, regardless of nationality, ethnic group, gender, or economic status.

5. The role of social and economic factors in reducing mortality and improving health

The Millennium Project builds on the fundamental recognition that social and economic development is inextricably bound together with health. In order to draw out the concrete strategies that should flow from that connection, it is essential to examine the interaction carefully: what are the mechanisms through which broader social and economic changes influence health status and what are the implications for expenditure and policy decisions? It will also be essential to recognize that these mechanisms vary across different dimensions of child health and maternal health [121, 122].

Of course, poverty in itself can be a powerful determinant of poor health (and, conversely, poor health can often lead to impoverishment). In many settings, poverty interacts with other forms of social disadvantage such as gender discrimination or status as an ethnic minority, conferring greater health risks than any of the factors alone. The effects of income poverty are manifold—fewer resources means less household consumption of food, fewer funds with which to pay user fees for education and health care, social stigma, higher risk jobs and perhaps most importantly,

a sense of powerlessness. In fact, the psychological toll of poverty for all people should not be underestimated [123].

Many other dimensions of poverty also have profound effects on health. For example, a vast literature points to the strong effect of maternal education on child health outcomes and on overall household health, and argues that this social determinant of health ought to be a priority for all governments [124-126]. Other factors such as exposure to environmental pollutants, quality and quantity of water access, dangerous work environments, involvement in child labor, and vulnerability of the family to drought and other disasters affecting food supply are all determinants of health and health inequities. Intrahousehold dynamics, particularly the role of gender in apportioning power and resources within the family, are increasingly recognized as determinants of health. Girl children are often expected to do more household chores than boys, are less likely to be educated and, sometimes are fed less than their male siblings. The ability of women to seek and control independent sources of income, including microcredit, has had implications for their status in the household and, ultimately, for the health of all its members.

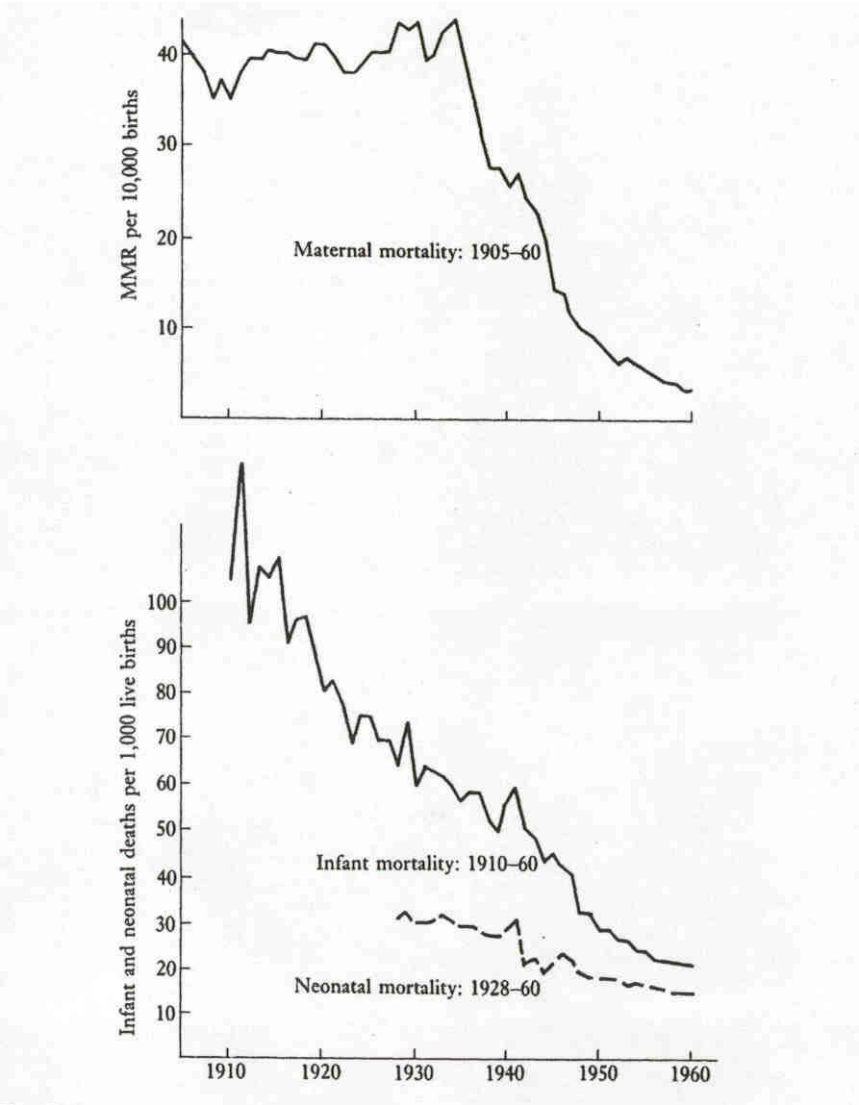
A major cross-country analysis undertaken by IFPRI looks at 63 developing countries over 25 years and concludes that four major factors act as basic determinants of child malnutrition: national food security, women's education, women's status relative to men's, and the quality of the health environment [125]. A study in Bangladesh points to the potentially critical role of social and economic development policies in addressing many of these factors. Improvements in socioeconomic and gender equity in child mortality were shown to be due, in large part, to a national-level priority on improving the status of women and to large-scale poverty reduction and public health programs undertaken by both the Government and the large and influential NGO sector [127].

Given these relationships, the successful achievement of each of the other MDGs – including poverty reduction, trade, water and sanitation, protection of the environment, education and gender equity – is likely to have a significant impact on women's and children's health. But, as one commentator put it, the benefits for health that derive from these aspects of socioeconomic development do not fall like manna from heaven [128]. In order to ensure that investments outside the health sector yield optimal benefits for health status, it is crucial to understand the extent to which they function *via* their impact on the health sector, and so to recognize the synergistic effect of inter-sectoral expenditures [129]. Simulation models developed at the

World Bank to analyze the impact and dynamics of inter-sectoral initiatives on different dimensions of child and maternal health show that health sector spending will be essential for reaching both the child and maternal health MDGs – and that it will be especially important for maternal mortality [129].

The particularly crucial role of interventions delivered through the formal health care system for maternal mortality is supported by historical evidence. As shown in Figure 11 using data from England and Wales, during the first half of the 20th century, as overall living conditions (sanitation, nutrition, housing) improved, infant mortality steadily declined. By contrast, maternal mortality stayed virtually unchanged until there was widespread access through the health system to the medical interventions developed in the 1930s and 1940s to treat life-threatening obstetric complications [9].

Figure 11: Trends in maternal and infant mortality, 1905-1960



Source: [130] Loudon, I., *On maternal and infant mortality 1900-1960.* Social History of Medicine, 1991. 4(1): p. 29-73.

This again suggests the complex relationship between maternal health and maternal death. Measures such as improved education, increased decision making power, and control over income are unquestionably good for women and essential for their health; but these changes *in themselves* are likely to have little impact on levels of maternal mortality. Although these traditional markers of women's status can influence the first delay (by facilitating the initial decision to seek care), the far more significant mechanism of action lies in their impact on a health system that continually, sometimes brutally, fails women, particularly those who are poor

and from marginalized communities. Until we focus specifically on how women's status and other socioeconomic factors influence health system functioning with respect to reproductive health, including management of the complicated deliveries that kill, we are missing the crucial point for strategic intervention.

Indeed, the imperative to engage the full health system in this way is perhaps even more significant in the health and development policy environment prevailing today. Over the last few decades, economic crisis and IFI-initiated solutions have often had a devastating impact on primary health care systems [64]. Yet, even in the academic and NGO circles where much critical analysis of IFI policies has been done, issues of health system development – highly influenced by overall trends in international development policy – are too often left unaddressed, or denounced in terms too general and sweeping to contribute to concrete solutions. Experience in reproductive health has taught us that unless advocates (including advocates within UN and other international and bilateral agencies) bring the perspectives developed in broader women's health and human rights movements to the nitty-gritty details as well as the broader sweep of health sector reform initiatives, the key decisions that set priorities and determine the distribution of power and resources will rarely yield the necessary change on issues affecting women – especially poor women whose deaths literally define maternal mortality.

This analysis of the link between socioeconomic development, women's status and maternal mortality has significant implications for the role of human rights and rights-based approaches to maternal mortality reduction at both the policy and program level [87, 131]. In the broadest sense, women's health and rights advocates must certainly work cross-sectorally – and this Task Force must work with other Task Forces – to ensure that gains in the many facets of women's empowerment will translate into increased access to essential care. But access depends not only on a woman's ability to afford and decide to seek care; it also depends on the existence of that care to start with. Thus, rights-based strategies must also be premised on an analysis of the nature and role of the health system and its relationship to the people and communities it is meant to serve. Building from that understanding, rights-based strategies must analyze the dynamics of international development policies, including health sector reform initiatives, in order to ensure that priority-setting done by all relevant actors (including human rights advocates) contributes to the progressive realization of the right to health, including the right to go through pregnancy and childbirth safely [87, 131, 132].

This will require the Task Force to move beyond the technical literature on the "architecture" of global health policy today [133]. In reflecting on the ways in which interaction with the health care system shapes the experiences of both poverty and impoverished citizenship, Mackintosh points out the "curious dissociation" between the "cast of thought" of the health sector reform literature and the social, political and economic context of reform. The health sector reform literature puts forward prescriptive solutions built on arguments about increased efficiency, equity and accountability. Yet, in vast parts of the world, health sector reform has been experienced and perceived as *unequalizing* in content and effect [18, 64].

An emerging literature is beginning to expose the gender-differentiated impact of health sector reform [134] and the gender biases built into the burden of disease measures on which so much of international health policy is currently based [133, 135, 136]. These analyses form a useful starting point for the Task Force as we consider how to build strategies for meeting the MDGs that view long-term, sustainable change as itself an element of the fulfillment of fundamental human rights.

6. Health Equity and the Millennium Project

Finally, we return briefly to the question of equity. As Davidson Gwatkin has demonstrated, it is possible to meet the MDG targets for maternal mortality and child mortality – reduction by three-quarters and two-thirds, respectively – by improving health services only for the top quintiles of the population resulting in widening mortality differentials and *increased* inequity [97]. Others have argued that it will, in fact, be impossible for most countries to meet the health MDGs without explicit focus on narrowing the gaps in health between rich and poor [103]. There is good reason to believe that, unless strategies for increasing the coverage and utilization of health services give specific attention to reaching the poor, precisely this kind of increased inequity is likely. More than 30 years ago, the observation that more privileged segments of the population disproportionately benefit from improvements in public services (even those theoretically meant for the poor) was coined with the term "the inverse care law": "the availability of good medical care tends to vary inversely with the need for it in the population served" [137].

Experience with effective child mortality interventions would tend to confirm that this holds true in poor as well as rich countries today. For example, in Bangladesh, a country considered more equitable in terms of distribution of health services than others in South Asia, inequities in immunization coverage have been reported with some groups having a coverage of 90% compared to some others having as low as 5%, with the aggregate hovering just above 50% [138]. In terms of overall under-five child mortality, DHS data indicates that over the course of the 1990s, infant and child mortality decreased on average, by 35% for the top income quintile of the population but by only 15%, on average, for the lowest income quintile—with many countries showing no improvement at all for the poorest [103]. The growing acknowledgment of the universality of the "inverse care law" has implications for the way we set priorities and monitor progress. The MDG indicators themselves ought to be framed in equity-sensitive terms in order to ensure that they are aligned with our priority of reaching the poor.

The following are examples of targets that are more equity-sensitive, though the Task Force has not determined which of these, if any, would be most appropriate: 'reduce by two-thirds the child mortality rate in all socioeconomic strata by 2015' or perhaps most succinct, 'reduce child mortality amongst the poorest quintile of the population by two-thirds. The maternal health targets could worded so as to be similarly equity sensitive. Alternatively, the MDGs could stay as they are but be *monitored* by disaggregating data by socioeconomic level, gender and other stratifiers of significance. Countries have already led the way in adapting the MDG targets to their own unique circumstances—Vietnam, for example, has indicators which track whether ethnic minorities are faring as well as the rest of the population. The most appropriate way to make the MDGs equity sensitive would need to be determined based on further research and consultation, but the principle of ensuring that the poorest are reached is of paramount importance.

In focusing on equity, we recognize that the challenge is not simply how to mobilize more financial resources in order to do more of the same *in the same way*. Reaching the poor, reaching populations marginalized by their gender, race, religion, class or age, will require close attention to the specific dynamics prevailing on the ground in country and local settings. It will also require serious attention to the ways in which international policies and practices have often created or reinforced deep patterns of inequality both within and between countries [64, 134, 139]. Outliers—countries where the health outcomes of the poor have improved at the same rate or faster than those of the rich should be examined for the lessons they might provide

on the appropriate mix of policies and interventions for moving toward health equity. An analysis of DHS health indicators over the 1990s indicated that although in many countries there existed a four-fold difference in use of skilled attendants at birth, Indonesia and Bolivia did show *relative* improvements amongst the poorest quintile—such a finding deserves further scrutiny [103].

This implies that "blueprint", "one-size-fits-all" solutions to child health and maternal health problems will not work. Strategies for meeting the MDGs must, of course, be technically sound, erected on appropriate data, and funded at an adequate level. But ultimately, design and implementation must turn on the solid conviction that health for all is a fundamental human right and human rights are about people, the relationships between them – individually and as social groups – and between citizens and their government. The implications of that commitment to human rights will be developed – either explicitly or implicitly -- in all the work of the Task Force, as we address strategies for ensuring access, utilization, and equity through the currents of health and development policy that wash over the world today and propel us into the future.

7. Lessons for the way forward: toward the MDGs

The following is an initial set of recommendations – addressed to both the global and the country level – that will underpin much of the work of the Task Force.

Global health policy and funding mechanisms

- The primary aim of global health policymaking and funding should be the strengthening of primary health care systems (broadly defined to include emergency obstetric care, through the first referral level) through which the essential services related to maternal health and child health are made accessible to all parts of the population, with specific attention to reaching the poor and marginalized and to reducing inequity.

- With this aim in mind, we endorse the overall goal of substantially increased aid to the health sector, as proposed by the Commission on Macroeconomics and Health.
    - In this regard, we must engage national ministries of finance in a paradigm shift to mandating dramatic increases in the levels of funding allocated to the health sector and to understanding the economic, as well as social, benefits of such investments.

- In addition, the donor community must recognize that, for the poorest countries, a significant increase in funding is an economic investment, with benefits globally as well as nationally, and that such investments need to be long-term commitments.

- The mechanisms for ensuring that such increased funding strengthens health systems must turn on processes in countries themselves that include participation of citizens, including women, as choices are made. The Poverty Reduction Strategy Papers (PRSPs) and Sector-Wide Approaches (SWAps) have this potential in theory and further work of the Task Force will examine how those processes *in fact* can be strengthened in this direction.

- Health sector actions must be supported by and linked to actions in other sectors such as education, water and sanitation, nutrition, that are crucial for improving maternal health and child health. Again, the PRSP has this potential and we need to examine whether in its implementation, the potential is being met.

- We must simultaneously look outside the health sector to ensure that while the "right hand" of health sector funding is taking steps to strengthen maternal health and child health via the primary health system, the "left hand" of international development regimes is not engaging in other measures that, in practice, will undercut it. Debt-to-health conversions are one important step in this direction.

- But, as an international health community, we need to understand better how international forces and policies influence key elements of health system functioning. For example, just as Task Force 5 of the Millennium Project is examining the role of transnational pharmaceutical corporations and intellectual property regimes on access to essential medicines, we need to examine how international polices and forces relate to human resources (most obvious being "brain drain" and the potential impact of General Agreement on Trade in Services (GATS)), insurance and financing schemes, and other aspects of health system functioning.

- We must avoid a myopic focus on indicators. An approach to policies and funding focused on meeting the current MDG indicators (as distinct from MDG goals) on paper without strengthening the primary health system or addressing inequity will yield, at best,

a pyrrhic and short-lived victory. So, for example, ensuring a high proportion of births are attended by skilled health personnel without ensuring a health system that enables such personnel to perform the functions that can save a woman's life if she experiences a serious obstetric complication, is hardly a victory over maternal mortality. Similarly, a decrease in child mortality that technically meets the MDG of two-thirds reduction, but does it by reducing mortality only among the wealthiest – thereby increasing inequality – creates one problem while purporting to solve another. International funding and program initiatives should not include conditionalities so tightly bound to the MDG indicators as currently written, that they ultimately misdirect resources and attention in this way.

- Research programs supported and implemented by the international health community need to give more attention to questions of access and utilization. This means that the bulk of research funding in maternal health and child health should be devoted to research on the implementation of interventions proven to be effective, aimed at scaling up and ensuring access and utilization in practice. This includes attention to improved delivery systems, monitoring and evaluation.

- MDG targets, if they are not equity-sensitive in and of themselves, should at least be monitored so as to track progress amongst different socioeconomic groups.

- To ensure that international health initiatives – particularly those designed to accelerate progress toward the MDGs – ultimately strengthen rather than weaken countries' health systems, we recommend the use of a "health system impact statement" that will consciously assess the effect of the initiative on health systems themselves (and not just on immediate changes in health status). The Task Force will explore the potential content and feasibility of such a statement.

Country-level actors

- The challenge is to ensure that policymakers at the country level can and do wrestle with key obstacles, which often require challenging entrenched power interests both domestically and internationally (e.g., professional societies, local power brokers,

patriarchal structures). This means also examining how international involvement in country-level processes can constructively support – not undercut – those efforts.

- Among the most difficult obstacles that must be addressed are:
  - Policy barriers to appropriate human resources development and deployment, specifically more effective utilization of general physicians where there are no specialists and the establishment of rational guidelines for the effective use of other health care workers including, most critically, those with midwifery skills.
  - The unregulated private sector
  - "Informal", hidden or illicit costs that deter utilization
  - Conditions that result in decentralization and integration schemes that detract from rather than enhance "responsiveness", accountability, and equity in the health system.

- Social inequities and mechanisms of social exclusion, which influence the functioning and impact of health systems, must be tackled. Health interventions must be carefully crafted so as to reach the most vulnerable including the poor, unemployed, ethnic minorities, female-headed households, adolescents, refugees and internally displaced persons.

- MDG targets, if they are not equity-sensitive in and of themselves, should at least be monitored so as to track progress amongst different socioeconomic groups.

- Key steps to meet maternal health and child health MDGs will need to respond to the specific situation in each country. There is no "one-size-fits-all" plan or "blueprint." Among the areas most likely to require attention in high mortality countries are:
  - Human resources
  - Leadership at national and sub-national levels
  - Human rights/transparency/accountability
  - Financing
  - Financial and other barriers to access and utilization
  - Management at the district level and in health facilities
  - Vital registration and health management information systems
  - Implementation of evidence-based programs

- Building and supporting the capacity of citizens to effectively address these issues in their own countries
- Scaling up successful pilot programs
- Harnessing appropriate emerging technologies

The aim of the Task Force over the course of the Millennium Project is to develop and recommend feasible strategies to address the most important of these areas. Working with other Task Forces where our goals overlap, we plan to tackle many of these issues, guided by our tripartite focus on health systems, health equity and human rights.

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