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research findings for development policymakers and practitioners

Improving the health of mothers and babies

Breaking through health system constraints

Improving maternal health remains the most elusive of the Millennium Development Goals. Every minute, at least one woman dies from pregnancy-related causes: 99 percent of these are in developing countries. The majority of these deaths occur in sub-Saharan Africa and south Asia, and are avoidable through using standard interventions and health care which all pregnant women and their newborns need.

2007 marks the 20th anniversary of the Safe Motherhood movement. Today, only half the world's women have the care of a skilled professional when giving birth. Even less get the full package of care in pregnancy and shortly after birth which protects them and their babies from dying or from serious illness.

Even those who have skilled care often do not receive the quality of care they really need. They can often be at the sharp end of under-resourced and malfunctioning health care, or even exploitation, over-medicalisation, bad practice or abusive health workers.

The survival and health of newborn babies, an important part of the Millennium Development Goal (MDG) to tackle child mortality, goes hand in hand with maternal health. The care that can reduce maternal deaths and improve women's health is also central to the survival and health of newborns. Making sure that health systems are able to provide adequate care to women during pregnancy, at the time of birth and beyond for both mother and child, is key to making progress.

Maternal mortality is an indicator of how well a health system functions, as it encapsulates a substantial part of both primary and secondary health care. However, maternal mortality has also been described as a 'litmus test' for the status of women in a society. Given that most women will give birth, a health system that is not designed to cope with this does not value women and their babies enough to provide protection against possible death or disability.

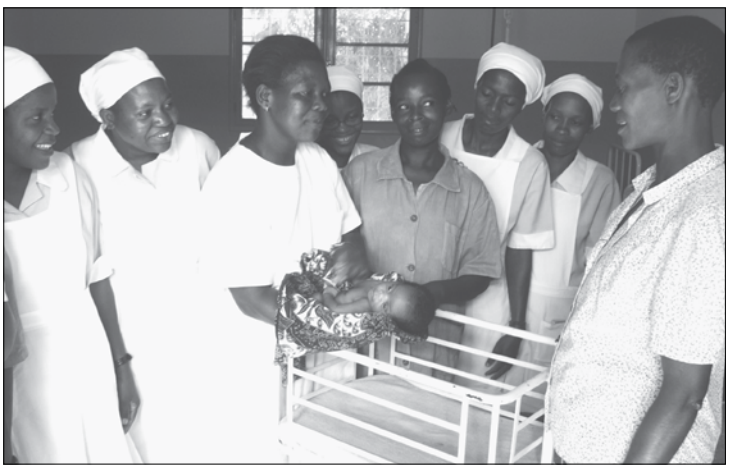
This issue of *id21 insights health* looks at the provision of maternal health care and health system constraints to making that care universal. **Malay Kanti Mridha** and **Marge Koblinsky** consider the reasons behind the key constraint to progress: the world's acute lack of maternal health workers. They also point to the serious mismatches between what is needed and what exists both in terms of skills and the geographical availability of staff at local, national and international levels. They highlight the need for professional staff, and the possible gains in efficiency from deploying teams of midwives.

Yet, drugs, supplies, equipment, buildings, vehicles and logistics systems are also needed to provide appropriate care. **Louise Hulton** reviews the challenges from weak infrastructure to the development of effective health care services.

Gwyneth Lewis reminds us that poor provision of care, although far too common, can also coexist with the provision of 'too much' care. This 'over-medicalisation' may not seem to be an important consideration when looking at resource-poor settings, but it is a growing problem in developing countries.

Interventions like caesarean section are strongly promoted among women who can afford to pay at the expense of women who cannot. This means that entire health systems are being built on the assumption that expensive interventions are needed, to the detriment of the promotion of normal birth.

The resulting heavy financial burden on families can increase poverty, as discussed by **Jane Falkingham**. Health care costs associated with childbirth can be catastrophic for poor families, especially where there is either a real or perceived need for interventions such as caesarean section. Health systems that have been able to extend financial protection to the majority of women ▶



Midwifery students are introduced to a woman with a newborn child in the maternity ward at Catandica health centre, Mozambique.
Trygve Bolstad, Panos Pictures 2004

Contents

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and their families to cover maternal and newborn health care costs can save lives as well as alleviate the poverty that goes with rising care costs.

Helga Fogstad looks to the future of extending maternity care to all women in the 75 countries that suffer 97 percent of the world's maternal deaths. Some of these countries cannot realistically 'scale-up' their maternal health services to provide care for the majority of their populations until well into this century, but can move a significant way towards their MDG target by investing in their health systems for maternal and newborn care before the next decade.

The true constraints are political

Increases in funding are required: US$39 billion for the 75 most severely burdened countries. Given that the projections show that the costs associated with providing such care will require further investment both by countries and the international community, **Jeremy Shiffman** considers the factors that influence political actors to provide long-term sustainable investment in maternal health.

Debates in safe motherhood have emphasised various technical approaches to solve the problems inherent in reaching the MDG for maternal health. We now know that good maternal health is based on good sexual and reproductive health, including family planning and safe abortion care.

But the articles in this issue show that the true constraints to improving care are within the health systems of developing countries: a lack of human resources, poor infrastructure, inadequate financial protection and non-evidence-based medical practices.

Ultimately, given the resources needed to scale-up care, political perspectives need to be understood to break through the health system constraints. To make further progress, we need to understand more about how politicians have succeeded in improving safe motherhood in resource-constrained settings. Political choices for popular, visibly effective health system solutions which are acceptable to health professionals should be studied and could provide the inspiration to reach as far as we can towards the MDG for maternal health.

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World Health Report 2005: Making Every Mother and Child Count
www.who.int/whr/2005
The Lancet Sexual and Reproductive Health Series
www.thelancet.com/collections/series/srh
The Lancet Maternal Health Survival Series
www.womendeliver.org/pdf/Maternal_Lancet_series.pdf
The Lancet Neonatal Survival Series
www.thelancet.com/collections/series/neonatal

'Too much care' threatens maternal health

Whilst the major focus of international advocacy and policy for maternal health is on enabling women to have access to skilled care during pregnancy and childbirth, some women face severe morbidity, even death, from an excess of maternity care.

Excessive care and over reliance on unnecessary technology is common in developed countries. However, it is also a problem in countries with thriving private obstetric sectors and where obstetric and midwifery care does not follow recognised evidence-based guidelines, such as in India and Brazil. Unnecessary caesarean section, for example, although a life saving intervention for those who need it, can cause problems during current and future pregnancies and can divert scarce health system resources away from basic service provision.

Recent evidence shows that there has been a phenomenal increase in the rates of caesarean birth. With the exception of Africa, urban rates are now well above ten percent in most countries. Even in some rural areas rates of caesarean section have doubled over the last ten years. Irrational demand, commercial exploitation and medical malpractice are not uncommon, and the potential for unintended harm to both mother and child are significantly greater in the developing world. In poor countries, very high rates of caesarean section among the few women who can afford the intervention, often coexist with dangerously low rates among the larger rural and urban poor populations of childbearing women.

Overuse of caesarean section

Caesarean section is becoming widespread at the expense of the practice of normal birth. The development of appropriate health systems for maternal and newborn care is being undermined by the lack of midwifery training that focuses on care in normal birth. Exaggerating the risks of normal birth to women who are able to pay, or who can borrow the money, for both the convenience and the financial gain of medical institutions, is a damaging development in low-resource settings.

A recent study in Bangladesh found that women's distrust of medical facilities at birth is increasing due to some doctors inappropriately recommending caesarean section. The authors conclude that little progress will be made in increasing skilled attendance and reducing maternal death without addressing the fundamental health system elements that cause health care staff to undertake procedures without medical need.

This over-medicalisation of childbirth relates not only to caesarean sections but also to a range of other unnecessary, non-evidence based medical practices. For example, in some eastern European hospitals over 20 different drugs are given to women in normal labour, together with enemas, constant foetal monitoring and labouring and giving birth whilst in stirrups. Episiotomy, a surgical incision through the perineum to enlarge the vagina and assist childbirth, is often routinely practiced without strong evidence that it protects the perineum. It can cause an increased risk of HIV transmission, fetal distress, trauma, perineal tears and painful sexual intercourse.

Overuse of drugs

The drug oxytocin is useful during the third stage of labour (the delivery of the placenta) to reduce the risk of postpartum haemorrhage and also, in carefully controlled situations, to induce or enhance labour. But its use is becoming increasingly common in settings where medical supervision during childbirth is minimal. In some parts of India, Mali, Nepal and Senegal, one third of women have received oxytocin during childbirth. Inappropriate use of oxytocin, especially in settings without medical supervision, can lead to fetal distress, stillbirth, rupture of the uterus and maternal death.

The safe motherhood movement argues against harmful traditional practices, but it also needs to address harmful and unnecessary clinical practices and their consequences for women and health systems.

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id21 focus on unsafe abortion

Unsafe abortion is a major cause of maternal death.

This issue of id21 focus highlights the key debates around unsafe abortion and includes important lessons for decision-makers.

To view the publication online (html):
www.id21.org/focus/unsafe_abortion/index.html

To view the publication in PDF:
www.id21.org/focus/unsafe_abortion/id21focus_unsafe_abortion.pdf

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Achieving universal coverage of maternal health care

Maternal health can only be improved if mothers receive care from pregnancy through to childbirth and beyond. For this to happen, health systems need to be strengthened with maternal, newborn and child health care at the core. For some countries this can be done relatively quickly, for others it will take far longer.

Auxiliary Nurse Midwife Padmabati Samal checks the foetal heart beat of Sailabala Samal. She has two years training and provides antenatal and postnatal care for women but doesn't deliver babies. Less than half of tribal women in Orissa, India have access to any professional antenatal care.
Ami Vitale, Panos Pictures 2005

The 75 countries that rank highest in the world in terms of both rates and gross numbers of maternal and newborn deaths account for more than 75 percent of the world's population, 86 percent of births and 97 percent of maternal deaths worldwide.

By 2015 the same countries will represent a total of 137 million births each year. In 2005, 43 percent of mothers and newborns in the 75 countries received some care, but by no means the full package through pregnancy and childbirth to six weeks after birth.

Looking to the future and adding up optimistic, but also realistic, scale-up scenarios for each of these 75 countries would feasibly give access to a full package of care for 73 percent of pregnant women by 2015. This would include care for both normal and complicated births and newborn care, as well as safe abortion and post-abortion services (to the extent allowed by law) and advice on family planning.

Given these projected improvements, the MDG for maternal health would not be reached in every country, but globally mortality reduction for both mothers and babies would be well on the way. The WHO estimates that these 75 countries can reduce the number of maternal deaths from 485 per 100,000 live births in 2000 to 242 by 2015. Newborn deaths likewise could be decreased from 35 to 29 per 1,000 live births over the same period.

Of the 75 countries analysed, 20 highly constrained countries were not, on average, expected to reach 95 percent coverage of care (seen as high enough to be 'universal') until 2030 (See Figure 1). These countries, such as Nepal, Cambodia and Haiti, include many experiencing conflict or recovering from conflict, civil unrest and/or political instability: scaling-up is highly constrained in these fragile states.

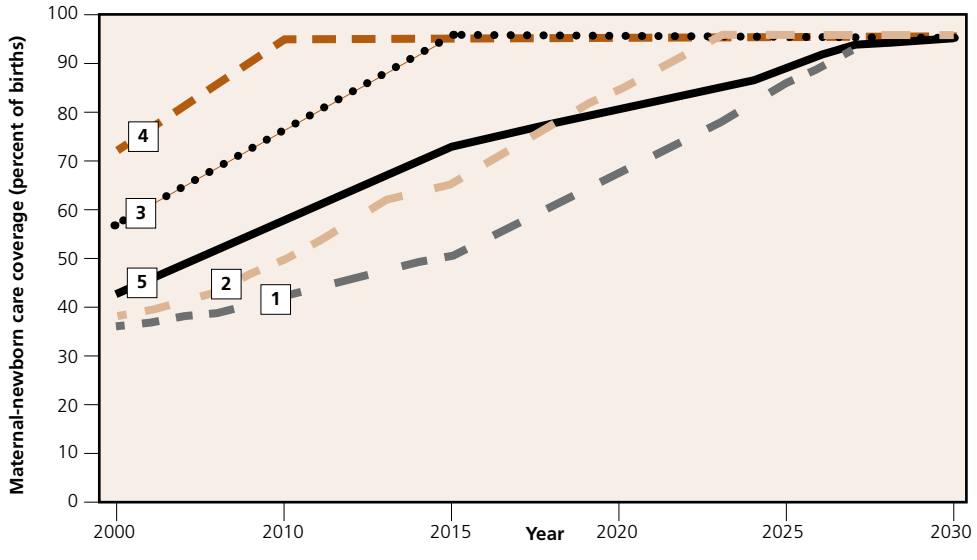
Regardless of current maternity care coverage, the situation in many of the 75 countries, weak governance and ineffective government-donor relationships, will cause considerable barriers to scaling-up services even with additional external aid. A country can take at least three to four years after the end of conflict to organise and strengthen its infrastructure, before meaningful development and expansion of maternal health care services can occur. In 2007, 37 percent of the 75 countries had a recent or ongoing humanitarian crisis.

At the other end of the spectrum, 30 of the 75 countries are expected to be fully scaled-up by 2010 or 2015. Twenty-five countries with moderate health system constraints would be expected to follow between 2020 and 2025.

The costs of scaling-up maternal health services in these 75 countries were estimated in 2005 to require an increase in spending in the region of US$39 billion. This corresponds to a 14 percent growth in spending on maternal and newborn health by 2015. In the 20 highly constrained countries public expenditure would have to rise to 43 percent of current and newborn maternal health spending by 2015.

The estimates, however, are based on current health workforce salaries, which are unlikely to be sufficient to recruit, retain and deploy health workers to the areas where they are most needed. This implies that these calculations are probably underestimated and that more public funding is likely to be required if countries are to effectively scale-up high quality accessible maternal and neonatal health services.

Figure 1: Feasible averages for the scale-up of maternal-newborn care coverage for births in 75 key countries by category of health system constraint (HSC)



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See also
Estimating the Cost of Scaling-Up Maternal and Newborn Health Interventions to Reach Universal Coverage: Methodology and Assumptions, World Health Organisation Departments of Making Pregnancy Safer and Health Systems Financing Technical Working Paper for the World Health Report 2005, March 2005
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The impact of maternal health on poverty

The links between poverty and poor maternal health are well established. Poorer countries experience the highest rates of maternal mortality, whilst maternal death and life-threatening and debilitating illness are higher among women from poorer households. However, there is now growing evidence that poor maternal health can also exacerbate poverty.

Pregnant ethnic Sudanese Uduk women wait to receive antenatal care at a clinic in the Bonga Refugee camp in Ethiopia, on the border with Sudan. There are on average 100 births a year in the camp.
Natalie Behring, Panos Pictures 2003

Out-of-pocket spending on maternal health care can impose a significant financial burden on households and contribute to impoverishment. In Rajasthan, India, the costs of antenatal and postnatal care constituted 2.4 percent of total annual household spending in the late 1990s. The costs of a normal delivery in Bangladesh were approximately one month's income in 2004.

For a healthy pregnancy, women have to pay further costs, including travel expenses for antenatal visits and payments for consultations. Whilst these expenditures may not necessarily be related to poor health, costs are usually higher if there are complications, involving additional expenditures including medicines, laboratory tests and hospital visits.

If these complications lead to a stay in hospital, out-of-pocket expenditures can escalate rapidly. A recent review by the World Health Organization (WHO) found that the direct costs of maternal health care range between one and five percent of total annual household expenditures, rising to between five and 34 percent if the woman suffers a maternal complication.

There may also be costs in terms of the loss of earnings, both for the woman herself, family members who may accompany her to hospital and other carers who step in to provide care for children at home. Households often have to borrow money, forcing them into debt. Taken together, the costs of pregnancy and poor maternal health can push a family into poverty or further impoverish families already living in poverty.

If poor maternal health results in a woman dying, then families could be driven deeper into poverty due to the direct costs of the funeral and the subsequent loss of earnings. In many industrialised countries this cost is often borne by life insurance, but in developing countries, most insurance is 'informal' (often dependent on friends and family support) and not guaranteed.

There is also evidence of longer term costs in terms of the lifelong absence of a mother and the subsequent impact on care for children. Children who lose their mothers can perform poorly at school. In many cases older children will be taken out of school and younger children may not go to school. In Indonesia between 1993 and 1997, a study of 2,513 children aged 6 to 10 showed that 14 percent of bereaved children dropped out of school compared to only 7 percent of non-bereaved children. Poor performance in school can then lead to these children being more likely to live in poverty as adults.

Worse still, there is some evidence that maternally orphaned children, and particularly girls, face a higher risk of malnutrition and premature death. The same study in Indonesia suggested that maternally orphaned children are approximately four times more likely to die compared to non-bereaved children.

As well as affecting individuals and households, these factors can lead to increased poverty at the community and country level by depleting the workforce and resulting in lower productivity leading to lower gross domestic product (GDP). A 2006 WHO study estimates totals of US$95 million and US$85 million are lost each year by Ethiopia and Uganda respectively.

These associations between maternal health and poverty highlight the importance of maternal health interventions as tools for tackling poverty as well as for reducing maternal ill health in its own right.

Receipts for health care payments collected by a woman during the birth of her child at a hospital in Burkina Faso.
Katerini Storeng, 2004

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See also

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Shortages and shortcomings

The maternal health workforce crisis

Providing maternal care requires a viable and effective health workforce. In many countries, and certainly in all countries where maternal mortality is high, the size, skills and infrastructure of the workforce is inadequate.

The most visible features of the maternal health workforce crisis are the staggering shortages and imbalances in the distribution of health workers. With insufficient production, downsizing and caps on recruitment under structural adjustment and with frozen salaries and losses to the private sector, migration and HIV and AIDS, filling the supply gap will remain a major challenge for years to come.

With the world's 136 million births every year, an estimated 152,000 doctors and 759,000 midwives or nurses (according to WHO 2005 benchmarks) are needed to provide adequate pregnancy, delivery and postnatal care for both mothers and babies. More than 80 percent of these workers are needed in the 75 countries that rank highest in the world in terms of both rates and gross numbers of maternal deaths.

In many countries the shortage is acute, especially in sub-Saharan Africa. In Ethiopia, a total of only 1,936 doctors are estimated to be working in a country that needs over 80 percent more than that just for maternal health.

In south and south-east Asia there are also shortages, but primarily the issue is one of poor distribution. In India, for example, a national assessment found that only six percent of the required obstetricians and 27 percent of the required nurses/midwives are currently fully deployed in rural postings. Urgent action is therefore required to correct the geographical distribution, skills mix and working environment of the current maternal health workforce.

Recruitment and retention

In many countries salary levels are unfair and insufficient to provide for daily living costs, let alone to meet the expectations of health professionals. This situation is one of the root causes of demotivation, lack of productivity and the various forms of brain drain and migration: rural to urban, public to private and from poorer to richer countries.

It also seriously hampers service delivery as health workers practice simultaneously in the public and private sectors, leading to a drain on the public sector, conflicts of interest between health workers and their patients, and sometimes financial exploitation of women and their families.

Apart from taking urgent corrective action on salaries and conditions, strategic decisions must be made in three areas: training, deployment, and retention of health workers. This is not impossible. Results from simulations show that, in Bangladesh, teams of midwives and midwife assistants working in facilities could increase coverage of maternity care by up to 40 percent by 2015. Such an approach creates the possibility of scaling-up maternal services as much as 10 times more quickly than would be the case with deploying solo dedicated or even multipurpose health workers for home deliveries.

Means to address geographic gaps include:

- greater attention to deployment procedures
- improving incentives for nurses and doctors to serve in rural areas
- improving working conditions
- contracting with non-governmental organisations or self-employed doctors.

However, evidence to guide some of these strategies is currently varied and will require further development. Delegation of responsibility to lower level cadres along with additional training have also been used effectively to fill some surgical skills' gaps in Mozambique and Malawi.

Tackling the problems of safe motherhood today requires scaling-up professional skilled care provided mainly in facilities

Progress in professionalising maternity care has been held back by stagnation in many areas of the world. There is an urgent need for country specific comprehensive health plans with a clear understanding of the current situation of maternal health workers, facilities, workforce needs and constraints.

Health workforce projections have shown that there is very little benefit in finding short-cut solutions. Tackling the problems of safe motherhood today requires scaling-up professional skilled care provided mainly in facilities. Reaching this goal requires strong political leadership and a sustained commitment over time to tackle the severe crisis in human resources for maternal health through efficient production, effective deployment, competent management of staff leaving the health sector, and appropriate utilisation of already existing resources.

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See also

African Health Workforce Observatory: Health Workforce Information
www.afro.who.int/hrh-observatory/hwinformation/index.html

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Generating political priority to reduce maternal mortality

Why do some serious health issues receive significant attention from political leaders and others get very little? To achieve the Millennium Development Goal target of reducing maternal mortality, governments must prioritise this issue.

Research led by Syracuse University (USA) investigated how far maternal mortality reduction is up the political agenda in five developing countries: Guatemala, Honduras, India, Indonesia and Nigeria.

The degree to which political leaders actively pay attention and allocate resources to this issue varies considerably across the countries:

- very high in Honduras
- high in Indonesia
- moderate in India (with a recent rise)
- low in Guatemala and Nigeria.

A number of factors shape the degree to which maternal mortality reduction emerges on national policy agendas. International actors, such as aid agencies and multilateral organisations, first put the issue on the global agenda, promoting a norm that maternal death was unacceptable and generating the interest of national health officials with financial resources. Prior to this global advocacy, little national attention existed.

National advocates have achieved varying degrees of success in promoting the cause. They were most successful when they:

- formed cohesive policy communities and were led by respected national political champions, such as in Indonesia where the minister for women developed the idea for a national campaign for pregnant women
- developed credible indicators to show a problem existed, as with Guatemala's 1989 Reproductive Age Mortality Survey
- organised focusing events such as national forums to promote the cause, including a march to the Taj Mahal in 2000 organised by the White Ribbon Alliance of India
- developed clear policy alternatives to demonstrate to national leaders that the problem could be overcome. One midwife was placed in nearly all of Indonesia's 68,000 villages.

Many factors in their political environments shaped the effectiveness of advocates' efforts, but two were key: major political reforms such as democratisation in Nigeria or decentralisation in Indonesia that altered the policy-making process and the degree of resource competition with other priorities, for instance HIV and AIDS in Nigeria.

While each country is different, there are systematic features to the agenda-setting process that increase the likelihood that national health advocates will be able to influence political elites to act. Advocates must develop political, not just technical strategies, to promote the issues that concern them.

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A forgotten priority

Maternal health service infrastructure

Weak health service infrastructure contributes to poor maternal health. Apart from inadequate skilled human resources, substandard infrastructure includes poor access to functioning equipment and a lack of essential drugs and supplies.

What are the challenges?

Scarcity of health workers is perhaps the most fundamental challenge to maternity and newborn services worldwide, but increasing the number and competency of skilled health professionals is not enough. To be effective, health workers need access to the right reliable equipment, essential drugs and supplies, and basic and comprehensive care facilities that are well maintained and effectively distributed.

Well documented problems with maternal health service infrastructure include:

- equipment available is ineffective or inappropriate
- technical support and training is insufficient to operate equipment
- up to a third of equipment is not in service or not formally installed
- a shortage of skilled maintenance personnel and a quick turnover of technical staff in the public sector
- a lack of tools and spare parts
- inadequate funds allocated for inputs, maintenance or replacement.

Essential drugs

Shortages of essential drugs are also a major constraint to delivering high quality maternal care and have contributed both directly and indirectly to the high number of maternal and newborn deaths and disabilities worldwide. In 2002 the World Health Organization estimated that at least one third of the world's population lacks access to essential drugs. In poorer areas of Asia and Africa this figure may be as high as one half. In addition, the geographical distribution and quality of drugs is variable. Also, inappropriate handling, storage and distribution can alter the quality of drugs leading to serious health consequences and wasted resources. Users can associate a lack of drugs with a poorer quality of care.

Facilities

Whilst the poor availability and accessibility of health facilities with appropriate services and effective referral systems is well known, the poor state of existing facilities is less discussed. Lack of maintenance has led to many existing health care facilities being in extreme disrepair. This requires the rebuilding of new facilities at a greater cost.

The facilities themselves can be further hampered by weak infrastructural systems such as water supply and electricity. Uninterrupted supplies of water and electricity to the operating suite are critical. Even a brief power cut resulting in a rise in temperature of a refrigerator could lead to the breakdown of a drug and loss of its potency.

Useful web links

Department for International Development (UK): Maternal Health Strategy
www.dfid.gov.uk/pubs/files/maternal-deaths-strategy.pdf

Immpact, University of Aberdeen, UK
www.immpact-international.org

Partnership for Maternal, Newborn and Child Health
www.who.int/pmnch

Realising Rights Research Programme Consortium
www.realising-rights.org

Towards 4+5 Research Programme Consortium
www.towards4and5.org.uk

United Nations Children's Fund (UNICEF)
www.unicef.org/health/index_maternalhealth.html

United Nations Population Fund: Safe Motherhood
www.unfpa.org/mothers

United Nations Millennium Development Goals
www.un.org/millenniumgoals/index.html

Unmet Obstetric Need Network
www.uonn.org/uonn/eng/home1.html

White Ribbon Alliance
www.whiteribbonalliance.org

World Health Organization: Making Pregnancy Safer
www.who.int/making_pregnancy_safer

Policy priorities

The restoration and renovation of facilities should be part of a package of improvements in maternal and newborn care. Upgrading out of use operating theatres in particular should be a priority. This requires emphasis on the operating cost of health facilities when planning their construction.

To ensure the availability of appropriate equipment and supplies at a reasonable cost, effective procurement systems and staff training programmes need to be put in place. A strong lead must be taken by ministries of health.

National lists of essential drugs are needed to improve the quality of care and to save funds on drug costs. In addition a national drug policy and supervision undertaken by specially trained pharmacy staff on stock management and adherence to standard treatment guidelines are key components of any strategy to improve the management and use of drugs.

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