

Meeting Challenges, Making Changes, Saving Lives

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DEAR COLLEAGUES

As there are physical and emotional connections between women and their babies, so are there programmatic connections between maternal and perinatal health. Defining these programmatic connections has been part of the Safe Motherhood Initiative's growth. It is now clear that to reduce maternal deaths and disabilities, women need to have access to health facilities providing emergency obstetric care (EmOC). In contrast, a large proportion of perinatal deaths can be prevented through services provided in health facilities and the home. The critical programmatic connections, discussed by experts from various partner agencies, is the subject of this issue of the AMDD Notebook.

UNICEF's long commitment to infants and children is reflected in the various programs it supports in more than 160 countries, territories, and areas. Since the 1960s, UNICEF's programs for promoting immunization, oral rehydration salts, growth monitoring, and breastfeeding have saved the lives of millions of children all over the world.

In the 1990s, UNICEF framed its policies and programs within human rights principles, acknowledging that the non-realization of human rights affects the lives of the most vulnerable and deprived in society. Within this framework, UNICEF recognizes the fundamental linkages between human rights and health, advocating for evidence-based interventions and structural changes which can support their sustainability.

Changes in strategies require tectonic shifts in setting priorities and designing programs and, as in all other changes, may be particularly difficult. Despite this, UNICEF is moving away from TBAs and birth kits to providing EmOC as its core strategy in reducing maternal mortality and, to some extent, perinatal mortality. Ensuring that EmOC is accessible reflects UNICEF's commitment to saving women's lives, as an end in itself, and shows UNICEF's fulfillment of its promise to newborns which is to give them the best start in life.

In this issue, Vincent Fauveau and Anne Paxton show how EmOC prevents some perinatal deaths. Preventing pre-eclampsia and eclampsia and performing cesarean sections, for instance, can prevent maternal and perinatal deaths.

Since 1991, Columbia University has collaborated with UNICEF on maternal mortality, first in South Asia, and now in sub-Saharan Africa. AMDD has provided technical assistance, documents, tools, and (more recently) financial support. Our partnership rests on shared goals and programmatic connections framed in human rights principles.

For we believe that women can go through pregnancy and delivery successfully and newborns can survive their long passage through the womb if health systems and services are in place. The most compelling argument for this can be found in human rights principles. Truly, they are – and have always been -- the cornerstone upon which everything else rests.

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THE AMDD PROGRAM

The Averting Maternal Death and Disability (AMDD) Program was launched in 1999 at Columbia University's Heilbrunn Center for Population and Family Health, Mailman School of Public Health, to work with developing countries on improving the availability, quality and utilization of emergency obstetric care (EmOC).

The basic premise of the AMDD program is that most of the obstetric complications that lead to maternal death can neither be predicted nor prevented, but the vast majority of women can be saved through prompt treatment. AMDD addresses three inter-connected areas: medical, management, and human rights.

AMDD has established partnerships with organizations that already have field operations. These partners are now implementing 86 AMDD-supported projects in 51 countries:

United Nations Children's Fund (UNICEF): projects in Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka.

United Nations Population Fund (UNFPA): projects in India, Morocco, Mozambique, and Nicaragua.

Regional Prevention of Maternal Mortality (RPMM) Network: teams and projects in 19 sub-Saharan African countries.

CARE: projects in Ethiopia, Rwanda, Tanzania, Peru, and Tajikistan.

Save the Children: projects in Mali and Vietnam.

Reproductive Health for Refugees (RHR) Consortium: projects in 12 countries.

Among the key Program tools are the process indicators developed at Columbia University and issued by UNICEF, the World Health Organization (WHO), and UNFPA.

AMDD technical partners include:

Family Health International

John Snow International

Indian Institute of Management at Ahmedabad (IIMA)

JHPIEGO

EngenderHealth

The AMDD Program is funded by the Bill and Melinda Gates Foundation.

GOOD PRACTICES

Volunteering to Make a Hospital Patient Friendly

When patients come to a hospital for the first time, they are afraid. The hospital is a new environment, the patients are sick, and they and their relatives may find no one who talks in a friendly and reassuring way or can guide them to services.

For women with obstetric complications, hospitals may be even more frightening since they can reach the hospital after a lot of pain and suffering at home. In many places in developing countries, staff have poor motivation and communication skills and are not willing to provide non-medical help to patients. Meanwhile, governments facing budgetary difficulties cannot increase the number of staff. How does one make a hospital patient-friendly in these circumstances? It is worth learning from the innovative effort by Dr. Hegdewar Hospital in Aurangabad—a district level town in Maharashtra State, India.

The management at the 150-bed NGO (non-governmental organization) hospital, which was established in 1989, introduced the idea of "Seva-vrati" (service-volunteer). This simple concept is based on the assumption that in any community there are people with some free time that are ready to help other people in need without remuneration.

The management of Hegdewar Hospital carefully identified community volunteers, trained them in simple tasks, and then gave them space near the hospital entrance. The tasks the volunteers undertake include:

- Reception service and staffing an information desk in the hospital, where patients are received, provided with directions, and have questions answered in a friendly way.
- When the patient is taken to the operations theater, one volunteer remains with the relatives and provides support, reassurance and information, which helps alleviate family anxiety.
- If the patient develops complications, or dies, the volunteers provide whatever help is needed, including emotional support, securing supplies, calling doctors and staff, and helping to arrange transport of the patient or the dead body. In extreme cases, they have also provided financial help to the patients.
- Women volunteers provide special support to women patients who have no other family members in the hospital.
- The volunteers also provide simple health education, encourage blood donation, and encourage the family and patient to consent to surgery if this is necessary, so as to avoid a delay in carrying out life-saving operations.

Currently, the hospital has 40 such volunteers who serve for four hours a day on a rotational basis. They arrive 5 minutes before their scheduled time and may stay later if needed. This system not only helps patients and their families, it improves the hospital's image in the community and increases volunteers' self-esteem and social value. The hospital's investment is minimal: some management time for selection and training of volunteers. The hospital does not even reimburse the volunteers for transport, so the volunteers actually spend their own money to come and provide this free service.

In developed countries, hospital volunteers (the so-called "pink ladies") are a well-developed and

accepted concept, but developing country hospitals do not generally have such systems. Hospitals in developing countries always face shortages of paramedical staff, and a volunteer force can address this by taking up important non-clinical work. The key for managers is to look beyond the four walls of the hospital to find some of the solutions to the needs within the hospitals. ■

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MONITORING OBSTETRIC SERVICES

By Anne Paxton, DrPH

This column addresses questions that arise in using UN process indicators to monitor progress in the provision of crucial obstetric services.¹ Anne Paxton is an epidemiologist who has worked in Asia and Africa. She is a Senior Program Officer for Monitoring and Evaluation at AMDD.

Q: How can we measure progress in the prevention of perinatal mortality in EmOC facilities?

A: Prevention of newborn deaths and stillbirths are already being monitored in some AMDD-supported projects.

In the Government of Morocco-UNFPA project, neonatal resuscitation is considered an additional signal function alongside the eight signal functions used to determine whether or not a facility is a comprehensive EmOC facility, as per the UN Guidelines. In the obstetric registers used to obtain data for calculation of the UN Process Indicators, additional data are gathered such as numbers of stillbirths, complicated neonatal cases and neonatal deaths within the first 24 hours. A neonatal case fatality rate—the proportion of neonatal deaths out of all complicated neonatal cases—is calculated from these data. These obstetric registers have been used nationwide in Morocco for over two years.

Data on stillbirths have also been gathered in a number of AMDD-supported needs assessments. In Senegal, the Ministry of Health and UNFPA calculated an indicator called "la mortinatalite", or stillbirth rate, defined as the proportion of deliveries in the facility that result in a stillbirth. Information on the number of stillbirths is often recorded in facilities, making these data relatively easy to collect.

Some experts are proposing an indicator to measure the impact of EmOC on perinatal mortality—a modified perinatal mortality rate, defined as fresh stillbirths + early (24 hours) neonatal deaths divided by total deliveries in the facility.² This indicator could measure the impact of delivery and early postpartum care on the

survival of the infant. The idea behind this indicator is that EmOC activities aimed at prevention of maternal deaths also prevent some neonatal deaths. Additional interventions undertaken immediately postpartum in the EmOC facility, such as neonatal resuscitation and thermal stabilization, will further reduce neonatal deaths. The modified perinatal mortality rate aims to capture the impact of these interventions.

The numerator for this indicator, fresh stillbirths + early (24 hour) neonatal deaths, is chosen based upon physiologic and practical considerations. Fetal deaths of some duration (macerated stillborns) reflect pathologies during pregnancy, while fresh stillbirths reflect the quality of the delivery care and response to maternal obstetric complications such as prolonged/obstructed labor, or eclampsia.³ Likewise, early neonatal deaths (within the first week) are more related to the delivery process while later neonatal deaths (from the second through fourth week of life) reflect causes other than those related to delivery. However, women and their infants are unlikely to remain in the EmOC facility for longer than one day, so it is unrealistic to attempt to gather data for a longer period, such as the first week of life.

As improvements are made in the quality of EmOC for women with obstetric complications, the maternal case fatality rate will decrease. It is expected that improved treatment of women with obstetric complications will lead to increased survival of their infants as well. Tracking progress in perinatal survival in EmOC facilities will give providers concrete information on the quality of both emergency obstetric care and care of newborns. ■

¹ The UN Process Indicators are set out in the Guidelines for Monitoring the Availability and Use of Obstetric Services developed in 1991 by Columbia University and UNICEF, and issued by UNICEF, WHO, and UNFPA in 1997.

² Informal communication with Vincent Fauveau, UNFPA.

³ Informal communication with Isabelle Moreira, UNFPA.

AVERTING MATERNAL DEATH CONTRIBUTES TO AVERTING PERINATAL DEATH

Each year, an estimated four million infant deaths occur within the first month of life. While progress in immunization and childhood disease control programs has led to reductions in mortality at 1 to 11 months of age, deaths from birth to one month of age have remained unchanged in many countries. Indeed, nearly half of all neonatal deaths occur within the first 24 hours of life.

The causes of infant mortality and maternal mortality are very different, as has been clearly demonstrated by history¹ and contemporary studies. Infant mortality is often attributable to poor nutrition and lack of a clean environment, whereas 80% of maternal deaths are due to direct obstetric complications that require medical treatment. However, in the case of perinatal mortality (from 28th week of pregnancy until one week after birth), some of the underlying causes are related to obstetric complications. Thus, interventions to avert maternal death and disability can also reduce perinatal mortality and morbidity.

Indeed, many partners in the Averting Maternal Death and Disability (AMDD) Program Network are addressing these inter-relationships through their efforts to provide emergency obstetric care (EmOC), and are discussing how to do so in more systematic ways.

This special feature focuses on the links between maternal and perinatal deaths. **Deborah Maine**, Dr PH, Director, AMDD discusses the meaning of overlap between maternal and perinatal mortality. **Vincent Fauveau** (MD, MPH, PhD), technical advisor to UNFPA and AMDD, and **Anne Paxton** (Dr PH, MA), Senior Program Officer for Monitoring and Evaluation at AMDD, lay out the issues and discuss the ways in which specific components of EmOC help to prevent perinatal deaths as well as maternal deaths. In separate pieces, CARE and Save the Children also describe their approaches and their experiences.

THE MEANING OF OVERLAP

By Deborah Maine, DrPH, Director, AMDD

This issue of the AMDD Notebook is devoted to the overlap between maternal and perinatal mortality—specifically how programs designed to improve treatment of women with obstetric complications can also benefit newborns.

Clarifying the relationship between maternal and child health has been fundamental to the work on maternal mortality done at Columbia University. In 1985, we published an article in the *Lancet*, which had the subtitle, "Where is the M in MCH?"² We felt that it was necessary to ask that question because international maternal and child health (MCH) programs did not address the major cause of premature death and disability among women, life-threatening obstetric complications.

One reason for this glaring oversight was an assumption (perhaps unconscious) that women and babies are so inextricably linked that they have the same needs. However, this is not true, as the following studies show:

- In the United States during 1915-1929, neonatal mortality declined by 17% while maternal mortality actually increased. A similar pattern was found in the United Kingdom and the Netherlands.³
- In a study of maternal mortality ratios (MMRs) and perinatal mortality ratios (PNMRs) in Matlab, Bangladesh, during 1976-1989, there was no significant correlation between changes in MMR and PNMR from year to year, in the magnitude or even in the direction of change.⁴

Since maternal and perinatal mortality do not vary together at the population level, it is not appropriate to use one as a proxy for the other in program design, or in monitoring and evaluation. There are, however, still important areas of overlap. For example, in Matlab, roughly half of maternal deaths were from complications that could cause perinatal death. Such areas of overlap, described in this issue, provide the happy opportunity to benefit both women and babies.

¹ Irvine Loudon, "On Maternal and Infant Mortality 1900-1960" *Social History of Medicine* April 1991, Vol. 4, No. 1, pp 29-73.

² Rosenfield, A., Maine, D. "Maternal Mortality -- A Neglected Tragedy: Where is the M in MCH?" *The Lancet*, July 13, 1985, 2(8446):83-85.

³ Loudon, I. *Death in Childbirth: An International Study of Maternal Care and Maternal Mortality 1800-1950*. Oxford: Clarendon Press, 1992.

⁴ Akalin, M.Z., Maine, D., de Francisco, A., and Vaughn, R. "Why Perinatal Mortality Cannot Be a Proxy for Maternal Mortality," *Studies in Family Planning*, 28(4):330-335, 1997.

PERINATAL DEATHS: CAUSES, TREATMENT, AND HOW EMOC CAN HELP

By Vincent Fauveau and Anne Paxton

Approximately four million deaths in the first month of life occur annually, or 10,000 every day, 98% of them in developing countries. In addition, there are approximately four million stillbirths (dying between the 28th week of pregnancy and birth). Infection, birth asphyxia, and complications of low birth weight are the main causes of neonatal death. Some 70% of these deaths occur during the first week; indeed, many occur during the first 24 hours of life. Many of these deaths are preventable, depending on the level of care during pregnancy and during birth.

Although major changes in maternal survival do not correlate with changes in neonatal survival, several obstetric complications can have a potential negative impact on the fetus or newborn. This means that the availability of good quality EmOC in health facilities can have a positive impact on the health of the fetus or the newborn as well as on the health of the mother.

Perinatal mortality is the sum of late fetal deaths (after 28 weeks of pregnancy) plus infant deaths within 7 days of birth. (Perinatal relates to the period surrounding the birth event.)

Neonatal mortality is the number of deaths of infants under 28 days of age, per 1,000 live births.

Source: CDC Website (National Center for Health Statistics (NCHS) Definitions)

Maternal and Perinatal Death and Disability: the Inter-Relationships

The direct obstetric complications that affect the fetus or the newborn are:⁵

- Obstructed/prolonged labor: obstructed or prolonged labor cause asphyxia, fetal distress, or stillbirth.
- Eclampsia and other hypertensive disorders: most cases of hypertensive disease are harmful to the fetus as well as to the mother. Postpartum hypertensive disease is harmful to the mother but not the fetus.
- Hemorrhage: bleeding during pregnancy can harm the fetus. However, antepartum hemorrhage accounts for a minority of all hemorrhage cases. Postpartum hemorrhage, which has no medical effect on the newborn, causes the most maternal deaths.
- Infection: antepartum infection can be harmful to the fetus or the newborn. Again, this is a relatively

rare cause of maternal death compared to postpartum sepsis.

The EmOC functions that can have a positive impact on the health of the fetus or the newborn include:

- C-Section, particularly in case of prolonged or obstructed labor and other conditions leading to fetal distress.
- Assisted vaginal delivery, particularly when indicated for fetal distress.
- Oxytocics, when these are given for prolonged labor, (but not if given for the delivery of the placenta after the baby is born.)
- Blood transfusion, if given to treat severe bleeding during the last stages of pregnancy.
- Adequate administration of antibiotics to the mother and the newborn e.g. in case of amniotic infection.
- Anti-convulsants and anti-hypertensives for treatment of hypertensive diseases of pregnancy.

In summary, six of the eight EmOC signal functions - have significant potential to reduce perinatal mortality. More specifically of all the causes of perinatal mortality (see below) the first three are addressed at least to some extent through EmOC.

CAUSES OF PERINATAL MORTALITY

- Birth asphyxia
- Birth trauma
- Neonatal infection
- Premature birth
- Intra-uterine growth retardation

It should be noted that only a few deaths due to premature birth or intra-uterine growth retardation can be treated through EmOC. To summarize, a significant part, but certainly not all, of perinatal deaths can be avoided by proper use of EmOC, assuming that it is available, accessible, and of good quality.

Maximizing the Opportunity

There is a short window of opportunity during which the health provider is in contact with both the mother and the fetus and/or newborn. Often, in the least developed areas of the world, this time does not last

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⁵ Some indirect obstetric complications can also harm the fetus or the newborn. These include diseases during pregnancy, such as malaria, TB, HIV, diabetes, hypertension, and severe nutritional deficiencies.

PERINATAL DEATHS (CONT.)

more than a few hours, less than a day in most cases. It is during this period that measures can be taken to avert perinatal death and disability.

Some of these measures are set out in the competency-based curriculum Emergency Obstetric Care for Doctors and Midwives, produced by AMDD and the Maternal and Neonatal Health program at JHPIEGO. The curriculum, now in its final draft stages, was used last year in a training of trainers workshop for district hospital teams in South Asia in collaboration with UNICEF (see AMDD Notebook Issue 6, February 2003). It is now being used in six countries. In addition to the materials on EmOC, the curriculum covers newborn resuscitation in a step-by-step skills practice session. The curriculum also deals in-depth with the care that should be provided to normal newborns including maintenance of adequate body temperature, appropriate clamping and cutting of the cord, and support of breastfeeding.

The needs assessment form used by AMDD and its partners to identify gaps in provision of EmOC

services and design projects also lists the supplies and equipment needed for neonatal resuscitation, for example mucus extractor, infant face mask, and so on. These forms are now being used widely in needs assessments beyond the AMDD-supported projects.

In the course of training in EmOC, existing health providers are given the skills and motivation to implement simple, effective, affordable, neonatal care functions during birth and immediately after birth, keeping in mind the principle of improving the outcome of birth without compromising the care of the mother.

Given the historic neglect of international public health attention to the health of the mother⁶, AMDD has appropriately focused on the woman's reproductive health and survival. Yet it is tragic if an obstetric complication has been overcome but pregnancy results in a stillbirth, an infected newborn, or a handicapped infant, who will bring an additional burden to the family. Ensuring that EmOC services cover the infant's health and survival during the perinatal period helps avert death and disability for mother and child alike. ■

⁶ Rosenfield A. & Maine D. Maternal mortality – A neglected tragedy: Where is the M in MCH? *Lancet* 1985;2 (8446):83-85

REPRODUCTIVE HEALTH FROM DISASTER TO DEVELOPMENT

One of AMDD's Project Partners, the Reproductive Health for Refugees Consortium (RHRC), is holding a conference in Brussels, Belgium October 7-8, 2003 to focus on applied research, program findings and use of data to improve reproductive health programs serving populations in crisis throughout the world. The conference is co-sponsored by UNFPA and UNHCR, and the International Centre for Reproductive Health at Ghent University is a collaborating partner.

This two-day professional conference will bring together approximately 300 field staff, managers, researchers, policy makers, and donors to:

- share their findings, lessons, and perspectives on reproductive health in conflict settings in a professional and thought-provoking environment, and
- engage in discussion of the preliminary findings of the global InterAgency Working Group evaluation of reproductive health service provision to refugees and internally displaced persons.

The conference sessions will focus on three central topics:

- Applied research and program findings on family planning, STI/HIV/AIDS, gender-based violence and safe motherhood among women, men and adolescents affected by armed conflict.
- Evidence of successful models of service delivery in the emergency phase, in stable settings, in post-conflict re-development efforts.
- Collection and use of data for needs assessments, program monitoring and evaluation, and program management.

The program will include plenary sessions, panel presentations, poster sessions and roundtable discussions. After the conference, a volume of conference proceedings will be published along with selected articles in a special issue of a professional journal.

The registration fee is US \$150. Registration can be done on-line at <https://secure.entango.com/donate/CrciKnjpaD4>. A limited number of scholarships may be available. More information and updates on Conference 2003 are available at: www.rhrc.org. ■

CARE'S EXPERIENCES IN NEWBORN HEALTH

By Milly Kayongo, MD, MPH Technical Officer Reproductive Health, CARE

CARE has been supporting communities as well as formal health care systems to improve maternal and newborn health. Under the CARE and CDC (Centres for Disease Control and Prevention) Health Initiative project, CARE has developed a systematic approach to identifying maternal, perinatal and neonatal problems, analyzing data, prioritizing problems, and selecting interventions. Through this partnership, CARE and CDC have produced a manual – The Healthy Newborn – to support program managers in maternal and neonatal health programming.

CARE now has experiences in several countries of incorporating newborn health aspects into programs to upgrade facilities to provide EmOC to avert maternal death and disabilities. For example, CARE is supporting an integrated reproductive health project in Peru that includes upgrading facilities to provide EmOC, organizing transport to EmOC services, training health workers, mobilizing the community, and encouraging behavior change. In order to strengthen its emphasis on newborn interventions, CARE Peru implemented the BABIES approach to raise awareness regarding specific care issues leading to neonatal mortality. The BABIES matrix incorporates the analysis of data on birth weight and age of death of the newborn to create deeper understanding of the causes of neonatal mortality, and determine appropriate interventions at both the facility and community levels.

This process led to more importance being given to

newborn care and an effort to standardize newborn protocols. The project has developed a Self-Training Guide for Essential Newborn Care to be used by doctors and nurses, which was launched by the Ministry of Health (MOH) nationwide in October 2002. In addition, the project developed essential newborn care job guides for the hospital staff, also launched by the MOH in 2002.



Photo by Czikus Carriere

CARE Nicaragua has been working with health facilities to use data to improve newborn health.

CARE Nicaragua has included an EmOC component in their new child survival grant but as they have little experience in this area, CARE organized a visit to its reproductive health project in Peru to share information and lessons on set up of EmOC services. The visit also provided an opportunity for Peruvian staff to gain more understanding of the implementation of newborn interventions.

In Bangladesh, CARE has been implementing the Dinajpur SafeMother Initiative, as a collaborative effort involving the Government and UNICEF to improve the maternal health status in Dinajpur. While implementing activities for maternal health, the project felt the need to expand the scope to include newborn health. Consequently, CARE has plans to conduct a community-based survey on newborn care in the region. The survey will provide relevant information on trends of neonatal disability and mortality to support future neonatal health programming. ■

AMDD Conference Scheduled for October

The Averting Maternal Death & Disability (AMDD) Program has scheduled a conference for October 21-23, 2003 in Kuala Lumpur, Malaysia. This will be the third global gathering AMDD has organized for its partner network, but it is different in nature from the first two meetings held in Morocco (2001) and Thailand (2002).

The first two global gatherings were workshops in which project staff, government counterparts, and other professionals involved in the implementation of emergency obstetric care (EmOC) met to discuss the progress of their projects and to share ideas. These stimulating and productive meetings provided an opportunity for learning on areas as diverse as human rights, indicators, implementation, procurement, and documentation.

This year, since the first phase of the AMDD Program is drawing to a close, the gathering will be a results conference with presentations selected on the basis of abstracts submitted by representatives of AMDD-supported projects. The conference will provide an opportunity to discuss lessons learned over the past four years and to consider future activities. In order to present the results of the AMDD Program to a broader audience, invitations are being extended beyond those directly involved in program activities to include others active in the field of maternal health.

LEARNING FROM SAVE THE CHILDREN'S SNL INITIATIVE

By Anne Tinker, Director, and Dr. Stephen Wall, Senior Research Manager,
Saving Newborn Lives, Save the Children

In 2000, Save the Children/US launched the Saving Newborn Lives (SNL) initiative to address the special health care needs of the newborn in developing countries, complementing the important work of averting maternal death and disability. Like AMDD, SNL is funded by the Bill & Melinda Gates Foundation.

SNL works to integrate essential newborn care interventions into existing programs, focusing primarily on improving community-based health care. Currently, SNL is working in six countries (Bangladesh, Bolivia, Malawi, Mali, Nepal, and Pakistan) and supporting innovative model projects in another six (Ethiopia, Guatemala, India, Indonesia, Myanmar, Vietnam).

Learning from both AMDD and SNL, there are many opportunities for synergistic impact that can be taken forward.

- Perinatal death audits, which are being implemented at primary and referral facilities in several developing countries (e.g, South Africa, Bangladesh), provide key information that enables facilities and health authorities to address critical deficiencies in the care of both mothers and newborns. This can be factored into EmOC programs.
- SNL is working with national governments to incorporate essential newborn care skills into pre- and in-service training programs. Facility-based health providers and the community should be enabled to recognize danger signs in both mother and baby and avoid delay in seeking care and referral; recognizing and resuscitating asphyxiated

babies immediately; promoting breastfeeding and warming and drying of newborns, with special attention to preterm and low birth weight babies.

- Community-based advocacy and education efforts may be effective tools to strengthen community acceptance of—and demand for—improved availability and quality of EmOC services. The verbal autopsy, an important community-based tool being introduced in a number of developing countries, offers unique opportunities to integrate mothers' and newborns' needs in community-level problem-solving and action initiatives.

A model for complementary and mutually reinforcing services comes from Bougouni, Mali. SNL focuses on improving the newborn care



Photo by Czikus Carriere

practices of families and community health workers, raising awareness of complications, and increasing demand for facility-based care when needed. This is an important complement to the AMDD-supported CARE EmOC project, which is strengthening EmOC at the district hospital level and increasing the health system's capacity to respond to emergency referrals.

Such complementary projects also allow for more effective supervision and follow-up, and more innovative problem-solving for missed opportunities or failures in referral, while continuing to search for the most effective way to treat certain complications, such as asphyxia and infections in the newborn.

For more information about Saving Newborn Lives, visit Save the Children's website at www.savethechildren.org ■

AVERTING MATERNAL DEATH AND DISABILITY (AMDD)

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