

REPORT TO CONGRESS

Health-Related Research and Development Activities at USAID

An Update on the Five-Year Strategy, 2006–2010

NEWBORN HEALTH

Newborn Health

Issues and Rationale

Despite the steady decline in child mortality rates worldwide, an estimated 8.1 million children under 5 died in 2009. About 41 percent of these deaths were among newborn infants in their first month of life. Newborn deaths are caused mainly by severe infection (sepsis or pneumonia, diarrhea, and tetanus), preterm births, asphyxia, obstructed labor, and congenital abnormalities. Low birthweight is the most important indirect cause of neonatal mortality.

Areas of Research and Introduction

Neonatal Research and Newborn Care Practices

A recent article in *The Lancet*² noted USAID's seminal role working to focus global attention on the issue of newborn survival as well as its investments in establishing the research foundation for action in this area.

Essential Newborn Care

USAID-supported research studies have established the groundwork for community-based ENC. Current USAID-supported research in this area seeks to document and assess efforts to expand ENC in country-level MCH systems.

An assessment of ENC programs in Asia and Africa highlighted the role of both program coverage level and the ratio of CHWs per population in achieving significant impact. Programs varied significantly in the degree to which they were able to facilitate home care, increase family-initiated care-seeking behaviors and community mobilization, and train CHWs. The study concluded that implementers must understand fully the program context and dynamics in order to achieve substantial changes in practices.

Treatment and Prevention of Newborn Infections

Approximately one-third of the 3.1 million neonatal deaths that occur each year can be attributed to infections that develop into life-threatening conditions. USAID-supported research is strengthening the evidence base on infection management in young infants, especially in community-based settings.

USAID-supported research has shown that topical cleansing of the umbilical cord using a 4-percent

chlorhexidine (CHX) solution – a low-cost, readily available antiseptic drug – reduces the risk of neonatal death from infections. A USAID-supported study in Bangladesh assessed the effectiveness and feasibility of a one-day versus seven-day application of CHX within a community setting and measured the impact of these regimens on newborn mortality and morbidity. Results of this study, expected in late 2010, will contribute to the evidence base on the use of CHX cord cleansing to prevent newborn infections in community-based settings. Preliminary results from meta-analysis of three CHX trials in Bangladesh, Nepal, and Pakistan indicate a positive effect of CHX in reducing all-cause neonatal mortality during the first week of life.

A parallel research effort assessed low-cost scalable approaches to delivering CHX to families with neonates in Bangladesh. Findings indicated a broad acceptance of and demand for CHX in the study communities. For CHX to be effective, families should obtain it prior to delivery and apply it correctly, as soon as possible after delivery.

Approximately one-third of newborn deaths can be attributed to infections caused by birth in unhygienic conditions. A multicountry trial supported by USAID, in partnership with the Bill & Melinda Gates Foundation; Save the Children/Saving Newborn Lives program; and WHO, is researching different combinations of oral and intramuscular antibiotic regimens for simplified treatment of newborn sepsis in the community. USAID is supporting study sites in Bangladesh and Pakistan to test the safety, effectiveness, and acceptability of implementing treatment regimens in periphery facilities and the community.

Gentamicin in Uniject™, a commonly used antibiotic, can be administered by trained CHWs and trained birth attendants at the first sign of a neonatal infection, along with complementary antibiotics to ensure the timely delivery of treatment in peripheral health care settings and homes. Preliminary data from Nepal support the feasibility and acceptability of the use of the device for

2 Shiffman, J. (2010). Issue attention in global health: The case of newborn survival. *The Lancet*, 375(9730), 2045–2049.

Spotlight: Moving Research to Practice

USAID has supported the development and validation of newborn resuscitation training materials and devices used to develop the American Academy of Pediatrics' Helping Babies Breathe (HBB) training curriculum. In June 2010, USAID launched a public-private partnership called the HBB Global Development Alliance (GDA), along with several partners – the Eunice Kennedy Shriver National Institute of Child Health and Human Development, Laerdal Medical AS, the American Academy of Pediatrics, and Save the Children – in collaboration with other organizations, including UNICEF and WHO. The goal of this GDA is to reduce newborn mortality by expanding access to the HBB program, strengthening health systems, and promoting global commitment and resources for lifesaving newborn care. The GDA has begun introducing HBB in multiple countries and offers evidence-based training and technical support on newborn resuscitation and high-quality, affordable resuscitation devices to birth attendants in low-resource settings. USAID implements the HBB activities through its implementing partners: the Maternal and Child Health Integrated Program, Health Care Improvement, HealthTech, and CORE Group.

the management of neonatal sepsis. USAID is supporting efforts to facilitate marketing of the Gentamicin in Uniject™ device in order to expand the use of this promising intervention.

Strategies for Care of Low-Birthweight Infants

Kangaroo mother care (KMC), or skin-to-skin care, is an approach practiced in hospitals in developed and some developing countries to care for low-birthweight infants (less than 2,500 grams). USAID is working to build the evidence base and implementation strategy for KMC use at the health facility and community levels through its introduction into facility settings in Rwanda, Nigeria, Malawi, Nepal, the Democratic Republic of the Congo, India, and Bangladesh. At the community level, USAID is supporting a study to define community-based KMC, develop an appropriate implementation strategy, design tools for effective M&E, and also is conducting feasibility studies in Bangladesh and Malawi.

Increasing Availability of Resuscitation Devices

Each year, 10 million babies suffer from birth asphyxia; 10 percent of these newborns do not survive. Reducing birth asphyxia requires that appropriate technologies are available to birth attendants trained in neonatal resuscitation.

A USAID-supported study in Zambia demonstrated the effectiveness of resuscitation training as a component of neonatal care in the community. Traditional birth atten-

dants were trained to prevent hypothermia, initiate treatment for sepsis, and manage birth asphyxia using simple practices and devices. Study data found 40 percent fewer neonatal deaths in newborns tended to by trained traditional birth attendants than in control groups. The study site now has been converted into a standing program within that district to train traditional birth attendants and other CHWs.

An evaluation of a Helping Babies Breathe program in Kenya on birth attendants' recognition of asphyxia and appropriate neonatal resuscitation responses found a statistically significant increase in knowledge, with 98 percent of participants passing the bag-and-mask ventilation skills test. Close to 300 birth attendants – including CHWs, traditional birth attendants, health facility nurses, reproductive health/FP nurses, and clinical officers – have been trained, with more than two dozen newborns resuscitated in a six-month period. As a result of this study, the Government of Kenya intends to scale up the newborn resuscitation Helping Babies Breathe program nationally. In addition, a similar effort is taking place in Bangladesh.

USAID is supporting a WHO systematic review of the evidence for basic newborn resuscitation in resource-limited settings. This review is anticipated to result in revised WHO policy and guideline materials designed for resource-limited settings.