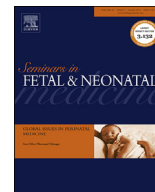




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The Global Network for Women's and Children's Health Research: A model of capacity-building research



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S U M M A R Y

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In response to the global effort to accelerate progress towards the Millennium Development Goals 4 and 5, a partnership was created between the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and the Bill and Melinda Gates Foundation to establish the Global Network for Women's and Children's Health Research (Global Network) in 2000. The Global Network was developed with a goal of building local maternal and child health research capacity in resource-poor settings. The objective of the network was to conduct research focused on several high-need areas, such as preventing life-threatening obstetric complications, improving birth weight and infant growth, and improving childbirth practices in order to reduce mortality. Scientists from developing countries, together with peers in the USA, lead research teams that identify and address population needs through randomized clinical trials and other research studies. Global Network projects develop and test cost-effective, sustainable interventions for pregnant women and newborns and provide guidance for national policy and for the practice of evidence-based medicine. This article reviews the results of the Global Network's research, the impact on policy and practice, and highlights the capacity-building efforts and collaborations developed since its inception.

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1. Introduction

Maternal and newborn mortality and stillbirth rates have remained high in low resource settings, with only slow progress in reaching goals to reduce these mortalities [1–3]. In response to this need, the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) founded a research network in 2000. Initially, the Global Network for Women's and Children's Health Research (Global Network) included 10 sites and a Data Coordinating Center (DCC) and conducted individual site studies of interventions focused on problems in pregnancy and birth [4–12]. Today, the Global Network comprises seven research sites and focuses on community-based common protocols, conducted at three or more sites, which address major maternal and newborn health challenges with the goal of developing low cost, sustainable

interventions to improve maternal and child health and simultaneously build local research capacity and infrastructure [13–24]. This unique position gives Global Network the ability to identify gaps between science and practice. Each study examines either a novel evidence-based treatment or an innovative use of a proven treatment to improve the health, well-being, and survival of pregnant women, fetuses, and infants. All studies conform to US and international ethical and safety guidelines. More than twenty trials have been conducted by investigators within the network since its inception (Table 1).

2. Our mission

The overall goal of the Global Network is to expand the scientific knowledge relevant to improving health outcomes for women and children in low income countries. This has been achieved through the development of sustainable research infrastructure and public health intervention capabilities in low–middle income countries and strengthened international collaborative research efforts that focus on the leading causes of morbidity and mortality in pregnancy and early childhood.

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[†] See Appendix.

Table 1
Global Network for Women's and Children's Health Research: studies.

	Principal investigator	Field sites
Multi-site studies		
First Breath: a community-based cluster randomized trial of Neonatal Resuscitation Training in Developing Countries	Waldemar Carlo	Guatemala, DRC, Zambia, India (Orissa, Belgaum), Pakistan
First Bites: complementary feeding a Global Network Cluster Randomized Controlled Trial	Michael Hambidge	Guatemala, DRC, Zambia, Pakistan
Verbal autopsy of perinatal deaths	Cyril Engmann	Guatemala, DRC, Zambia, Pakistan
BRAIN Home-based Intervention Trial	Waldemar Carlo	Belgaum, India, Pakistan, Zambia
EMONC (Emergency Obstetric Maternal and Neonatal Care): a combined community- and facility-based approach to improve pregnancy outcomes in low-resource settings	Robert Goldenberg, Omrana Pasha	Argentina, India (Belgaum, Nagpur), Kenya, Zambia, Pakistan, Guatemala
Maternal and neonatal health registry	Carl Bose, Waldemar Carlo	India (Belgaum, Nagpur), Kenya, Zambia, Pakistan, Guatemala, DRC
Antenatal Corticosteroid Trial	Pierre Buekens, Jose Belizan, Fernando Althabe	Argentina, India (Belgaum, Nagpur), Kenya, Zambia, Pakistan, Guatemala
The Intrapartum Indicator: pilot study	Robert Goldenberg	Guatemala, Pakistan, India (Belgaum and Nagpur), DRC
Survey of Tobacco Use among Pregnant Women	Robert Goldenberg, Michele Bloch	Argentina, Brazil, Guatemala, DRC, Zambia, India (Orissa, Belgaum), Pakistan
Survey of Community Birth Attendants: Knowledge, Care and Practices	Ana Garces	Argentina, Guatemala, DRC, Zambia, Belgaum, India, Pakistan
Women First: Preconception Nutrition ^a	Nancy Krebs, Michael Hambidge, Ana Garces	Guatemala, Pakistan, India (Belgaum), DRC
First Look: Ultrasound at Antenatal Care ^a	Robert Goldenberg, Elizabeth McClure	DRC, Guatemala, Kenya, Pakistan, Zambia
Aspirin to reduce preterm birth ^b	Richard Derman, Matthew Hoffman, Shiva Goudar	India (Belgaum and Nagpur), Kenya, Zambia, Pakistan, Guatemala, DRC
Single site research (completed)		
Clustered Trial for Improving Perinatal Care in Uruguay/Argentina	Jose Belizan, Pierre Buekens	Argentina
Safe Pregnancy by Infectious Disease Control in Kinshasa, Democratic Republic of the Congo: Pilot Study and Biologic Specimen	Antoinette Tshetu, Robin Ryder	DRC
Neonatal Resuscitation in Zambia	Elwyn Chomba, Waldemar Carlo	Zambia
Systematic Pediatric Care for Oral Clefts in South America	Ed Castilla, Jeff Murray,	South America
Oral Cleft Prevention Trial in Brazil	Ed Castilla, Jeff Murray,	South America
Cluster Randomized Trial of Antioxidant Therapy to Prevent Preeclampsia in Brazil	Freire, Joe Spinnato	Brazil
Randomized Placebo-Controlled Trial (RPCT) of Maize/Zinc in Guatemala	Manolo Mazariegas, Michael Hambidge	Guatemala
Prevention of Infection in Indian Neonates: Phase II Probiotics Study	S.N. Parida, Pinaki Panigrahi	Orissa, India
Randomized controlled trial of Misoprostol for Postpartum Hemorrhage in India	Bhala Kodkany, Richard Derman	Belgaum, India
Study of Perinatal Outcomes in Pakistan	Rozina Karmaliani, Omrana Pasha, Robert Goldenberg	Pakistan
Chlorhexidine Wash to Prevent Neonatal and Maternal Mortality in Pakistan	Sarah Saleem, Robert Goldenberg	Pakistan
Zhi Byed 11 (ZB11) versus Misoprostol in Tibet	Michael Varner	Tibet
Caterpillar as a complementary food	Carl Bose	DRC
Chicken liver as a complementary food	Omrana Pasha, Robert Goldenberg	Pakistan
Monkeypox surveillance	Anne Rimoin	DRC

^a Trial underway.

^b Trial in development.

3. Successful collaborative research unit structure

The Global Network currently comprises seven Research Units (RUs) composed of multidisciplinary teams of collaborating US scientists linked to investigators and their institutions in low income countries as full and equal partners; an independently funded single DCC) which provides research support services and methodological and statistical expertise; and the NIH (represented by the NICHD Project Scientist and Program Official) (Table 2). The current sites include India (Belgaum and Nagpur), Pakistan, Guatemala, Zambia, Kenya, and the Democratic Republic of Congo (Fig. 1). Former member sites were located in Argentina, Uruguay, Tibet, and Brazil. The administrative and funding instrument used for this program is the cooperative agreement (NIH U10), an “assistance” mechanism (rather than an “acquisition” mechanism), in which substantial NIH programmatic involvement with the awardees is anticipated during the performance of the activities. Under the cooperative agreement, the NIH purpose is to support and stimulate the recipients' activities by involvement in, and otherwise working jointly with, the award recipients in a

partnership role; it is not to assume direction, prime responsibility, or a dominant role in the activities. Global Network grantees are selected based on NIH review of meritorious applications which are submitted in response to a request for applications. Applicants, who must represent sites from low income countries, are graded based on the scientific rigor of their application as well as the ability to demonstrate scientific productivity, access to the relevant populations of interest, in-country organizational capability, a history of collaboration, evidence of foreign institution support, appropriate multidisciplinary expertise, and sensitivity to the ethical and cultural issues related to global health research.

4. Leaders in global health research

With more than 102 research clusters in six countries around the world and seven highly experienced RUs with a cadre of academic, clinical, epidemiologic professionals working in collaboration with universities, health organizations and ministries of health, the Global Network is unique in its role in promoting the health and well-being of mothers and their children in the settings

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