

Newborn News, Research and Resources
Compiled by Save the Children's Saving Newborn Lives Program
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Research abstracts and articles

Effectiveness of home-based management of newborn infections by community health workers in rural Bangladesh

Baqui AH, Arifeen SE, Williams EK, Ahmed S, Mannan I, Rahman SM, Begum N, Seraji HR, Winch PJ, Santosham M, Black RE, Darmstadt GL

***Pediatric Infectious Disease Journal*, 2009; 28(4):304-10**

Background: Infections account for about half of neonatal deaths in low-resource settings. Limited evidence supports home-based treatment of newborn infections by community health workers (CHW).

Methods: In one study arm of a cluster randomized controlled trial, CHWs assessed neonates at home, using a 20-sign clinical algorithm and classified sick neonates as having very severe disease or possible very severe disease. Over a 2-year period, 10,585 live births were recorded in the study area. CHWs assessed 8474 (80%) of the neonates within the first week of life and referred neonates with signs of severe disease. If referral failed but parents consented to home treatment, CHWs treated neonates with very severe disease or possible very severe disease with multiple signs, using injectable antibiotics.

Results: For very severe disease, referral compliance was 34% (162/478 cases), and home treatment acceptance was 43% (204/478 cases). The case fatality rate was 4.4% (9/204) for CHW treatment, 14.2% (23/162) for treatment by qualified medical providers, and 28.5% (32/112) for those who received no treatment or who were treated by other unqualified providers. After controlling for differences in background characteristics and illness signs among treatment groups, newborns treated by CHWs had a hazard ratio of 0.22 (95% confidence interval [CI] = 0.07-0.71) for death during the neonatal period and those treated by qualified providers had a hazard ratio of 0.61 (95% CI = 0.37-0.99), compared with newborns who received no treatment or were treated by untrained providers. Significantly increased hazards ratios of death were observed for neonates with convulsions (hazard ratio [HR] = 6.54; 95% CI = 3.98-10.76), chest in-drawing (HR = 2.38, 95% CI = 1.29-4.39), temperature <35.3 degrees C (HR = 3.47, 95% CI = 1.30-9.24), and unconsciousness (HR = 7.92, 95% CI = 3.13-20.04).

Conclusions: Home treatment of very severe disease in neonates by CHWs was effective and acceptable in a

low-resource setting in Bangladesh.

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Traditional birth attendants in rural Nepal: knowledge, attitudes and practices about maternal and newborn health

Thatte N, Mullany LC, Khattry SK, Katz J, Tielsch JM, Darmstadt GL

***Global Public Health*, May 2009; 8:1-17**

Abstract: Efforts to formalize the role of traditional birth attendants (TBAs) in maternal and neonatal health programs have had limited success. TBAs' continued attendance at home deliveries suggests the potential to influence maternal and neonatal outcomes. The objective of this qualitative study was to identify and understand the knowledge, attitudes and practices of TBAs in rural Nepal. Twenty-one trained and untrained TBAs participated in focus groups and in-depth interviews about antenatal care, delivery practices, maternal complications and newborn care. Antenatal care included advice about nutrition and tetanus toxoid (TT) immunization, but did not include planning ahead for transport in cases of complications. Clean delivery practices were observed by most TBAs, though hand-washing practices differed by training status. There was no standard practice to identify maternal complications, such as excessive bleeding, prolonged labor, or retained placenta, and most referred outside in the event of such complications. Newborn care practices included breastfeeding with supplemental feeds, thermal care after bathing, and mustard seed oil massage. TBAs reported high job satisfaction and desire to improve their skills. Despite uncertainty regarding the role of TBAs to manage maternal complications, TBAs may be strategically placed to make potential contributions to newborn survival.

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Process of neonatal tetanus elimination in Nepal

Vandelaer J, Partridge J, Suvedi BK

***Journal of Public Health*, May 2009 [Epub ahead of print]**

Abstract: In late 2005, Nepal demonstrated through surveys that it had reached the World Health Organization criterion for having eliminated neonatal tetanus (NT), i.e. NT cases occurred at a rate of less than 1 per 1000 live births in every district. This article summarizes how a combination of strategies contributed to this success. Through routine immunization of pregnant women with tetanus toxoid (TT), NT cases had decreased substantially by 1999, but the final push was provided through the national TT supplemental immunization activities in 2000-2004, which raised the proportion of children protected at birth against tetanus to above 80%. Although NT surveillance has improved since the extensive acute flaccid paralysis/polio surveillance infrastructure in Nepal was made available for the NT elimination initiative, it is likely that a number of cases still occur without being reported, particularly in rural areas. The introduction and further expansion of the school-based immunization program will, in combination with diphtheria-tetanus-pertussis vaccine given in infancy, reduce the need for future cohorts of childbearing age women to be immunized at every pregnancy. However, booster doses will still need to be given in early adulthood to ensure ongoing protection.

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Neonatal mortality, risk factors and causes: a prospective population-based cohort study in urban Pakistan

Jehan I, Harris H, Salat S, Zeb A, Mobeen N, Pasha O, McClure EM, Moore J, Wright LL, Goldenberg RL

***Bulletin of the World Health Organization*, February 2009; 87(2): 130-138**

Objective: To evaluate the prevalence, sex distribution and causes of neonatal mortality, as well as its risk factors, in an urban Pakistani population with access to obstetric and neonatal care.

Methods: Study area women were enrolled at 20–26 weeks' gestation in a prospective population-based cohort study that was conducted from 2003 to 2005. Physical examinations, antenatal laboratory tests and anthropometric measures were performed, and gestational age was determined by ultrasound to confirm eligibility. Demographic and health data were also collected on pretested study forms by trained female research staff. The women and neonates were seen again within 48 hours postpartum and at day 28 after the birth. All neonatal deaths were reviewed using the Pattinson et al. system to assign obstetric and final causes of death; the circumstances of the death were determined by asking the mother or family and by reviewing

hospital records. Frequencies and rates were calculated, and 95% confidence intervals were determined for mortality rates. Relative risks were calculated to evaluate the associations between potential risk factors and neonatal death. Logistic regression models were used to compute adjusted odds ratios.

Findings: Birth outcomes were ascertained for 1280 (94%) of the 1369 women enrolled. The 28-day neonatal mortality rate was 47.3 per 1000 live births. Preterm birth, Caesarean section and intrapartum complications were associated with neonatal death. Some 45% of the deaths occurred within 48 hours and 73% within the first week. The primary obstetric causes of death were preterm labor (34%) and intrapartum asphyxia (21%). Final causes were classified as immaturity-related (26%), birth asphyxia or hypoxia (26%) and infection (23%). Neither delivery in a health facility nor by health professionals was associated with fewer neonatal deaths. The Caesarean section rate was 19%. Almost all (88%) neonates who died received treatment and 75% died in the hospital.

Conclusion: In an urban population with good access to professional care, we found a high neonatal mortality rate, often due to preventable conditions. These results suggest that, to decrease neonatal mortality, improved health service quality is crucial.

[Full text](#)

Comparison of domiciliary and institutional delivery-care practices in rural Rajasthan, India

Iyengar SD, Iyengar K, Suhalka V, Agarwal K

***Journal of Health, Population and Nutrition*, April 2009; 27(2):303-312**

Abstract: A retrospective cross-sectional survey was conducted to assess key practices and costs relating to home- and institutional delivery care in rural Rajasthan, India. One block from each of two sample districts was covered (estimated population—279,132). Field investigators listed women who had delivered in the past three months and contacted them for structured case interview. In total, 1,947 (96%) of 2,031 listed women were successfully interviewed. An average of 2.4 and 1.7 care providers attended each home- and institutional delivery respectively. While 34% of the women delivered in health facilities, modern care providers attended half of all the deliveries. Intramuscular injections, intravenous drips, and abdominal fundal pressure were widely used for hastening delivery in both homes and facilities while post-delivery injections for active management of the third stage were administered to a minority of women in both the venues. Most women were discharged prematurely after institutional delivery, especially by smaller health facilities. The cost of accessing home-delivery care was Rs 379 (US\$ 8) while the mean costs in facilities for elective, difficult vaginal deliveries and for caesarean sections were Rs 1,336 (US\$ 30), Rs 2,419 (US\$ 54), and Rs 11,146 (US\$ 248) respectively. Most families took loans at high interest rates to meet these costs. It is concluded that widespread irrational practices by a range of care providers in both homes and facilities can adversely affect women and newborns while inadequate observance of beneficial practices and high costs are likely to reduce the benefits of institutional delivery, especially for the poor. Government health agencies need to strengthen regulation of delivery care and, especially, monitor perinatal outcomes. Family preference for hastening delivery and early discharge also require educational efforts.

[Full text](#)

Neonatal hypothermia in low resource settings: a review

Kumar V, Shearer JC, Kumar A, Darmstadt GL

***Journal of Perinatology*, advance online publication January 2009**

Background: Hypothermia is increasingly recognized as a major cause of neonatal morbidity and mortality in resource poor settings. High prevalence of hypothermia has been reported widely from warmer high mortality regions of Africa and South Asia. The World Health Organization recognizes newborn thermal care as a critical and essential component of essential newborn care; however, hypothermia continues to remain under-documented, under-recognized and under-managed.

Objective: This review aims to provide a thorough patho-physio-epidemiological discussion of neonatal hypothermia applied to local risk factors within the developing country context with particular emphasis on prevention, recognition and management.

Method: All available published literature on neonatal hypothermia relevant to resource poor settings were reviewed. Studies from the developing country settings were primarily reviewed for epidemiology, domiciliary risk factors as well as potential interventions for thermal care.

Result and Discussion: Functional integrity and efficiency of biological systems is critically dependent on an

optimal and very narrow range of core body temperature. Risk factors for neonatal hypothermia differ markedly within low resource settings. A combination of physiological, behavioral and environmental factors universally put all newborns, irrespective of birth weight, at risk of hypothermia. The knowledge deficit along the continuum from health providers to primary care givers has sustained the silent epidemic of hypothermia. The challenges of recognition, understanding of local risk factors and communication have meant a lack of informed thermal care for newborns. Simple, feasible interventions exist, but need to be applied, based on local risk factors that disrupt the warm chain. Further research is needed to document local risk factors, develop better techniques for recognition, evaluation of thermal care within essential newborn care and communication strategies for program effectiveness.

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Ascertaining causes of neonatal deaths using verbal autopsy: current methods and challenges

Thatte N, Kalter HD, Baqui AH, Williams EM, Darmstadt GL

***Journal of Perinatology*, 29: 187-194; advance online publication, December 25, 2008**

Objective: ‘Verbal autopsy’ (VA) is used to ascertain cause of death in countries where vital registration systems are lacking. Current VA methods for neonatal deaths vary widely and suffer from several limitations. We aimed to: (1) review current neonatal VA methods, (2) identify gaps and limitations, (3) illustrate some limitations using VA data and (4) identify new approaches in methodology and analysis.

Study Design: Rolling techniques and database search terms were used to identify articles that described neonatal VA administration, validation and cause of death assignment.

Result: Current VA interviews include open and close-ended modules and are administered by trained interviewers. Causes of death are determined using physician review and/or computer algorithms for various neonatal causes of death. Challenges include lack of a standardized VA instrument and administration of methods, difficulty in identifying gold standards for validation studies, lack of validated algorithms for causes of death, poor existing algorithms, lack of standardized death classification terminology and the use of hierarchy to assign causes of death. Newer probabilistic methods of analysis such as Bayes Theorem or the Symptom Pattern method may improve accuracy for cause of death estimation and alleviate some of the challenges with traditional physician and algorithmic approaches, although additional research is needed.

Conclusion: Given the continued reliance on VA to determine cause of death in settings with inadequate registration systems, it is important to understand the gaps in current VA methods and explore how methods can be improved to accurately reflect neonatal disease burden in the global community.

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Birth asphyxia survivors in a developing country

Halloran DR, McClure E, Chakraborty H, Chomba E, Wright LL, Carlo WA

***Journal of Perinatology*, November 2008; 29: 243-249**

Objective: Determine the baseline incidence of birth asphyxia in neonatal intensive care unit (NICU) survivors in a developing country and the early neurodevelopmental outcomes of such infants.

Study Design: This cross-sectional, prospective study collected diagnostic and examination findings on all infants seen in the University of Zambia NICU follow-up clinic over a 4-week period.

Result: Of the 182 infants, 42 (23%) had a clinical diagnosis of birth asphyxia. Of 42 infants with birth asphyxia, 13 (31%) had an abnormal neurologic examination during the clinic visit; in contrast, 13 of 141 infants without birth asphyxia (9%) had an abnormal examination (odds ratio 4.4, 95% confidence interval: 1.8, 10.4).

Conclusion: Birth asphyxia survivors account for almost a quarter of NICU survivors in a developing country and half of those with an abnormal neurologic examination. Studies are necessary to determine the percent of birth asphyxia survivors who have permanent motor and cognitive disabilities.

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A multilayered approach for the analysis of perinatal mortality using different classification systems

Gordijn SJ, Korteweg FJ, Erwich JJ, Holm JP, van Diem MT, Bergman KA, Timmer A

***European Journal of Obstetrics & Gynecology and Reproductive Biology*, 2009; 144(2):99-104**

Abstract: Many classification systems for perinatal mortality are available, all with their own strengths and

weaknesses: none of them has been universally accepted. We present a systematic multilayered approach for the analysis of perinatal mortality based on information related to the moment of death, the conditions associated with death and the underlying cause of death, using a combination of representatives of existing classification systems. We compared the existing classification systems regarding their definition of the perinatal period, level of complexity, inclusion of maternal, fetal and/or placental factors and whether they focus at a clinical or pathological viewpoint. Furthermore, we allocated the classification systems to one of three categories: ‘when’, ‘what’ or ‘why’, dependent on whether the allocation of the individual cases of perinatal mortality is based on the moment of death (‘when’), the clinical conditions associated with death (‘what’), or the underlying cause of death (‘why’). A multilayered approach for the analysis and classification of perinatal mortality is possible by using combinations of existing systems; for example the Wigglesworth or Nordic Baltic (‘when’), ReCoDe (‘what’) and Tulip (‘why’) classification systems. This approach is useful not only for in depth analysis of perinatal mortality in the developed world but also for analysis of perinatal mortality in the developing countries, where resources to investigate death are often limited.

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Resources

Stillbirth Factsheet

Global Alliance to Prevent Prematurity and Stillbirths

Excerpt: “More than 3.2 million stillbirths occur each year worldwide. 99% of all stillbirths occur in developing countries, with the highest incidence in countries located in south Asia and sub-Saharan Africa. 27% of all stillbirths occur during labor and delivery. One third of these could be prevented.”

The factsheet provides definitions of stillbirth and a graph on prevalence of stillbirths by region.

http://gappsseattle.org/images/uploads/2009-04-09_Stillbirth_FAQ.pdf

Prematurity Factsheet

Global Alliance to Prevent Prematurity and Stillbirths

Excerpt: “More than 1 million die from prematurity in the first month of life. Many who survive suffer serious health problems. Prematurity is the leading cause (28%) of all deaths in the first month of life. U.S. costs related to prematurity exceed \$26 billion.”

http://gappsseattle.org/images/uploads/2009-04-09_Prematurity_FAQ.pdf

Newborn Deaths in Developing Countries Factsheet: A Serious Problem with Real Solutions

US Coalition for Child Survival

Excerpt: “Over the past 17 years, the number of under-5 child deaths around the world has declined — from about 13 million in 1990 to 9.2 million in 2007. Despite this encouraging news, the decline has involved little progress in reducing newborn mortality: the death of a child in the neonatal period within 28 days of birth. Each year, approximately 3.7 million children die within those first 4 weeks, which accounts for about 40 percent of all under-5 deaths.”

<http://www.child-survival.org/downloads/factsheets/newborn-health.pdf>

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Project to cut neonatal deaths

May 26, 2009, Kathmandu

The Kathmandu Post, Dev Kumar Sunuwar

Excerpt: The Ministry of Health (MoH) is all set to launch a pilot project—community-based newborn care program (CBNBCP)—in eight districts this year to reduce neonatal (neonatal stage refers to the first four weeks of a newborn's life) mortality rate.

“In the last 10 years, we have launched a number of child health programs and child mortality rate (under five years) has gone down significantly because of this move. But we have been unable to reduce neonatal mortality rate significantly,” said Dr. Bhim Acharya, Chief of the Integrated Management of Childhood Illness (IMCI) section of the Department of Health.

In collaboration with the United Nations Children’s Fund (UNICEF), Save the Children and Plan Nepal, the government will launch the Rs. 70-million pilot project in Dhankuta, Palpa, Chitwan, Dang, Kailali, Bardiya, Doti and Sunsari.

<http://www.ekantipur.com/kolnews.php?&nid=196113>

Home based care successful in reducing neonatal deaths & infant mortality

June 1, 2009, New Delhi

India PRWire

Excerpts: There is mounting evidence, that some of the most common causes of infant mortality i.e. diarrhea, malaria, neonatal infection, pneumonia, nutritional deficiencies etc can be prevented and managed at home, through timely detection and intervention.

UNICEF, a key player in the national effort to operationalize an innovative, newborn-centric child survival strategy started the Integrated Management of Neonatal and Childhood Illness (IMNCI) – used to strengthen the skill sets of community workers. IMNCI, the Indian adaptation of IMCI (Integrated Management of Childhood Illness) – a global model currently being tested in 100 countries worldwide – is pivotal to the Government of India’s vision of child health and comes under the overarching policy framework of the National Rural Health Mission and Reproductive and Child Health Program (RCH –II, a 5 year program, 2005-2010).

<http://www.indiaprwire.com/pressrelease/other/2009052926392.htm>

Child Mortality: Nigeria’s Ranking Worries Turai

April 30, 2009; From Juliana Taiwo in Abuja

This Day

Excerpt: First Lady, Hajiya Turai Yar’Adua, has decried the fact that Nigeria ranks third in the world and first in Africa in the maternal, newborn and child mortality rate; describing it as uncomfortable that Nigeria is one of the worst in the world.

<http://www.thisdayonline.com/nview.php?id=142161>

New Global Research into Prematurity and Stillbirth

May 2009

Global Health TV Interview

Excerpt: Global Alliance to Prevent Prematurity and Stillbirth (GAPPS) is leading an international team of investigators researching prematurity and stillbirth - funded by the WHO. There are 13 million premature births and 3.5 million stillbirths worldwide each year. Ahead of its international conference in May, Craig Rubens, Executive Director, speaks to Global Health TV about the road map GAPPS hopes to create to address these health crises.

http://www.globalhealthtv.com/news/new_global_research_into_prematurity_and_stillbirth/

Maternal and Newborn Survival Rates Not Improving-WHO

May 21, 2009; By Katie Reid

Reuters

Excerpt: Mothers and newborns are no more likely to survive today than two decades ago, with prospects

worst in countries battling AIDS, conflict and poverty, the World Health Statistics 2009 report showed... Although the number of child deaths had fallen 27 percent globally since 1990, with an estimated 9 million children aged under five dying in 2007, there had been little improvement in the health of newborns, according to the report.

<http://www.reuters.com/article/latestCrisis/idUSLL582112>

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Upcoming events

Day of the African Child

Date: June 16, 2009

Description: The African Union (AU) formally adopted a Child Survival Strategy in 2005, calling upon all African States to design and begin implementation of a child survival plan by 2010. The key objective of the AU Child Survival Strategy is to reduce infant mortality by 2/3rds (Millennium Development Goal 4). Each year The African Committee of Experts on the Rights and Welfare of the Child determine a theme for the Day of the African Child which is celebrated on June 16th. This year the theme is child survival.

Monitoring and Evaluation Course on Maternal and Neonatal Health Programs

Date: August 17 – September 2, 2009

Location: Arusha, Tanzania

Course Description: This course will train program managers in the theory and practice of monitoring and evaluation of maternal and neonatal health programs, enabling them to examine, evaluate and enhance current practice in monitoring, to design and implement evaluations and to use results to advocate for improved maternal and neonatal health.

Course Fees: \$3,000 (Excludes travel, accommodation and food)

Application Deadline: July 1st, 2009

<http://www.ipact-int.com/documents/IpactMonitoringandEvaluationTrainingTanzania.pdf>

XIX International Federation of Gynecology and Obstetrics (FIGO) Conference

Date: October 4 – 9, 2009

Location: Cape Town, South Africa

Description: This event, which brings together specialists in obstetrics and gynecology from all parts of the world, attracted over 6,000 delegates from in more than 120 countries in 2006. The first FIGO Congress to be held in Africa, themes will focus on improving women's health. Presentations include but are not limited to: reproductive health service delivery, emergency contraception, reproductive technology, family planning, pre-eclampsia, sexual and reproductive rights, menopause, miscarriages, abnormal uterine bleeding, HIV/AIDS, fistulas, abortion, cancer, postpartum hemorrhage, female genital cutting etc.

Newborn presentations will feature birth asphyxia, stillbirths, maternal and newborn health: a FIGO initiative funded by the Bill & Melinda Gates Foundation, FIGO safe motherhood and newborn health projects: midpoint review, Partnership for Maternal, Newborn and Child Health, FIGO committee on safe motherhood and newborn health: task shifting: a response to limited human health resources, as well as presentations on prevention of preterm births.

<http://www.figo2009.org.za/>

8th International Conference on Urban Health

Date: October 19 – 23, 2009

Location: Nairobi, Kenya

Description: The annual International Conference on Urban Health (ICUH) meetings provide an international forum for knowledge exchange among urban health stakeholders. They address issues pertaining to urban health, with emphasis on interventions that help to alleviate barriers to urban health care and to promote strategies and policies that enhance the health of urban populations. The ultimate goal of the ICUH is to mobilize and energize like-minded professionals addressing the effects of urbanization and urban

environments on the health of urban populations.

<http://www.icuh2009.org/>

African Midwives Research Network

Date: November 30 – December 5, 2009

Location: Dar es Salaam, Tanzania

Description: Africa Midwives Research Network (AMRN) is a network of midwives aiming at sharing information, strategies, and solutions based on scientific evidence for provision of quality midwifery care in the region. The Network focuses also on enhancing the expanded role of the midwife in sexual and reproductive health and rights by identifying the research evidence available and encouraging its use and also encouraging more action-oriented research among midwives.

Theme: Strengthening Health Systems to reduce maternal, neonatal and child morbidity and mortality.

Abstract: Deadline for submission is July 31, 2009

<http://www.amrn.org/>

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Notes

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