
Proceedings of Technical Consultation

On Neonatal Health in Humanitarian Settings

July 16-17, 2012
Washington, DC

Executive Summary

Background: This technical consultation on neonatal health in humanitarian emergencies was organized to address the critical gap in neonatal health services. Since the Lancet neonatal survival series, the evidence base in neonatal health has expanded. There are more data on neonatal health in developing countries than ever before, but the evidence base in conflict and disaster settings remains limited.

To our knowledge this was the first meeting that brought together experts in development and humanitarian settings, to share practical and scientific information on neonatal survival strategies. The meeting also reviewed the efforts of the existing network of agencies and partnerships to build on scientific evidence and best practices to address priority areas in neonatal health in humanitarian settings.

Purpose: The main purpose of the consultation was to serve as a platform for the exchange of scientific evidence and strategies on neonatal survival and provide the humanitarian community an opportunity to share resources and guidelines in neonatal survival. The specific objectives of the meeting were as follows: 1) develop expert consensus on a basic package of services (interventions, commodities, and indicators) for neonatal health in humanitarian settings; 2) explore methodologies to measure neonatal mortality in humanitarian settings; and, 3) identify and set operational research priorities on neonatal health in humanitarian settings.

Results: The consultation drew attention to a number of critical issues. The agenda included an overview of the global epidemiology of the burden of neonatal mortality and morbidity, effective interventions, research gaps, and neonatal mortality measurement. Lastly, case studies from the field grounded discussions in the realities and challenges of working in the field to scale-up known interventions, such as strengthening human resources capacity and health systems.

Work groups were formed to develop consensus and prioritize the most pressing issues related to saving neonatal lives in humanitarian settings. The intervention group focused on prioritizing interventions needed the most at the community and health facility level during an emergency. The medical kit group developed a list of essential commodities for each level of care based on cost-saving approaches. The operational research group reviewed a list of 28 priority questions and identified four that were the most critical. The indicator group listed a minimum set of indicators that should be collected to provide data on neonatal health for improved public health action. Lastly, the neonatal mortality group developed options that could be implemented by humanitarian agencies to measure the burden of neonatal mortality.

Conclusions: During the two-day meeting, the dual perspectives provided by the development and humanitarian communities the recognition recognized the urgent need to provide practical solutions for neonatal survival in emergencies. The issues discussed focused on identifying the ways and means to move forward with concrete solutions supported by a multi-disciplinary group of expert.

Participants

Alison Wittcoff, IRC
 Basia Tomczyk, CDC
 Bernadette Daelmans, WHO
 Bryan Schaaf, BPRM
 Claudia Morrissey, Save the Children
 Colleen Hardy, CDC
 Curtis Blanton, CDC
 David Oot, Save the Children
 Diane Morof, CDC
 Emmanuel d'Harcourt, IRC
 Harriet Roggeveen, MSF
 Heather Papowitz, UNICEF
 Isabel Zuniga, MSF
 Jamie Eliades, Columbia University
 Janet Meyers, CARE
 Jonathan D. Klein, AAP
 Jorge Castilla Echeniqu, ECHO
 Joseph Johnson, Save the Children
 Julie Taft, IMC
 Kamlesh Giri, CARE
 Kate Kerber, Save the Children
 Kathryn Bolles, Save the Children
 Les Roberts, Columbia University
 Lily Kak, USAID
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 Lisa Thomas, WHO
 Marco Morelli, IMC
 Maria Tsolka, Save the Children
 Marie - Claude Bottineau, MSF
 Nadine Cornier, UNHCR
 Paul Giannone CDC
 Ribka Amsalu, Save the Children
 Ronald Waldman, George Washington University
 Sandra Krause, WRC
 Sarah Williams, Save the Children
 Sonia Khush, Save the Children
 Steve Wall, Save the Children
 Tricia Vannatter, CDC
 William Keenan, AAP
 Wilma Doedens, UNFPA
 Winnie Mwebesa, Save the Children
 Zulfiqar Bhutta, Aga Khan University

Background

In December 2011, more than 42.5 million people were displaced from their homes due to complex humanitarian emergencies or conflict worldwide. This figure includes 4.3 million persons newly displaced due to conflict in 2010--the highest number in more than a decade.¹ Protracted emergencies, mainly those labeled complex emergencies, have a severe impact on the health of the population and health systems. Of the 10 countries with the highest neonatal mortality rates in 2009, six (Afghanistan, Central African Republic, Democratic Republic of the Congo, Pakistan, Sierra Leone and Somalia) were either currently or recently affected by humanitarian emergencies.² Studies show that most neonatal deaths occur at home, principally due weakened health systems and lack of knowledge of when to seek health care.³ Even though preventing neonatal mortality is an objective of the Minimum Initial Service Package for Reproductive Health in Crisis Situations (MISP) and the Interagency Field Manual on Reproductive Health in Crisis,^{4, 5, 6} the field implementation has been very weak. A recent survey on current practices for maternal and newborn care in humanitarian emergencies found that some humanitarian organizations provide neonatal care; however, there are limitations in the quality, breadth and consistency of such care.⁷ The 2005 Lancet Series on Neonatal Survival highlighted evidence-based, cost-effective interventions that can be scaled up in settings with high mortality and weak health systems.⁸ In humanitarian settings, the evidence base and services for neonatal health are critical, high priority, gaps that need to be addressed.

Purpose & Objectives

Save the Children and the International Emergency and Refugee Health Branch (IERHB) at the US Centers for Disease Control and Prevention (CDC) hosted the "Technical Consultation on Neonatal Health in Humanitarian Settings" at the Save the Children Headquarters in Washington, DC on July 16 – 17, 2012. This two-day expert consultation aimed to advance the technical depth and scale-up of evidence-based neonatal interventions in humanitarian settings. The meeting brought together over 50 neonatal health experts, epidemiologists, and humanitarian health experts from more than 15 organizations.

The purpose of the technical consultation was to serve as a platform for the exchange of scientific evidence and strategies on neonatal survival and to provide the humanitarian community an opportunity to learn from neonatal health experts. *For a number of reasons--including the magnitude of the problem to be solved, efficiency, the interdisciplinary nature of the field, and the need for global public health strategies--partnerships between the development and humanitarian communities are important.*

The context for the meeting was focused on identifying solutions for the acute phase of the emergency, defined for the purposes of this workshop as the first six months, after health agencies have had time to build a health response.

The objectives of the meeting were the following:

- To develop expert consensus on a package of services (interventions, medical commodities, and indicators) for neonatal health in humanitarian settings
- Explore methodologies to measure neonatal mortality in humanitarian settings
- Identify and set operational research priorities on neonatal health in humanitarian settings

Technical Consultation Process

The two-day technical consultation included panelists who presented on the technical areas informing five working groups that were tasked to design and develop consensus on neonatal health service package for humanitarian response. The panel presentations covered: 1) global epidemiology of neonatal health, 2) effective and evidence-based interventions, 3) methodologies to measure neonatal mortality, 4) drugs and medical supplies for neonatal health service, 5) donor perspectives, 6) current field practice in neonatal health service and intensive neonatal health unit from Médecins Sans Frontières (MSF), 7) community-based neonatal health interventions from Pakistan, and 8) research priorities on neonatal health. Five working groups were formulated around the elements of a neonatal health service package. Each working group presented its findings and next steps for the formulation of the service package.

GLOBAL EPIDEMIOLOGY OF NEONATAL HEALTH

Professor Zulfiqar A Bhutta, Chair - Department of Pediatrics and Child Health, The Aga Khan University

Globally, maternal mortality, neonatal mortality, and stillbirths are concentrated in Sub-Saharan African Countries and South Asia. Epidemiologic data on the causes of child mortality were presented, demonstrating that neonatal deaths, as a percentage of under-five deaths, have increased from 1990 to 2011, 37% to 43%, respectively. While child mortality has continued to decline since 1990 at an average rate of 2.5% per year globally, the rate of decline for neonatal mortality at 1.8% has been slower.

In addition to the increase in the proportion of deaths occurring in the neonatal period, countries that are affected by conflict and instability have the highest neonatal mortality rate (NMR). The WHO data from 2010 rank Somalia, Mali, Democratic Republic of Congo, Sierra Leone, Afghanistan, Central African Republic, Burundi, Angola, Pakistan, and Chad as the top 10 countries with severely high NMR.

Where?

The countries with highest neonatal mortality rates

- 1 **Somalia (52)**
- 2 **Mali (48)**
- 3 **DR Congo (46)**
- 4 **Sierra Leone (46)**
- 5 **Afghanistan (45)**
- 6 **Central African Republic (43)**
- 7 **Burundi (42)**
- 8 **Angola (41)**
- 9 **Pakistan (41)**
- 10 **Chad (41)**

90% of the 20 highest NMR countries are in **Africa**

Many have recent & ongoing conflict

The need to focus on strategies for newborn care in emergencies & conflict zones

Causes of child mortality, at the global level, rank preterm birth complications (14%) as the 2nd main cause of mortality after pneumonia (18%), followed by diarrhea (11%), intrapartum-related events (9%), and malaria (7%). Most of the main causes of neonatal mortality in the neonatal period – complication of prematurity, birth asphyxia, and sepsis –are preventable and treatable at low cost.

While there is progress in the reduction of neonatal tetanus and diarrhea through public health interventions, the other major causes of mortality (sepsis, prematurity, intrapartum complications) require skilled providers, medical commodities, and diagnostics. The panelist highlighted gaps in improving better diagnostics and treatment options for these main causes of mortality at both community and facility level. The presentation also highlighted that known simple solutions are not being prioritized and implemented at scale. For example, while prematurity is recognized as a major contributor to neonatal mortality, globally, more than fifty percent (58%) of babies were not weighed at birth and even less had accurate gestational age recorded.

Challenges in Humanitarian Contexts: country specific data illustrate that countries affected by conflict and instability have high NMR; there is lack of data on burden of death in the neonatal period among specific demography, like internally displaced persons or refugees. This lack of disaggregated data contributes to the continued neglect of neonatal health services in emergencies. It is critical that the humanitarian community

begin to define the epidemiologic profile and burden of death in the neonatal period in emergency contexts and to scale-up proven interventions.

EVIDENCE-BASED NEONATAL INTERVENTIONS

Dr. Bernadette Daelmans opened the session by describing the basic and specialized neonatal interventions that have demonstrated impact on reduction of neonatal mortality. The panel then focused on the three main causes of neonatal mortality

Neonatal Resuscitation William Keenan MD, American Academy of Pediatrics

Most babies' spontaneously breathe at birth, but an estimated 6-10% will require assistance to initiate breathing. While most will begin breathing with stimulation (clearing airway, rubbing back...) approximately 3-5% will need bag and mask ventilation. Only a very few babies, <1%, will need advanced resuscitation (e.g. chest compressions, intubation, drugs). Administration of basic resuscitation, stimulation and bag-and-mask ventilation, are skills that can be acquired by mid-level health workers with adequate training. Pakistan Lady Health Workers were able to perform bag-and-mask neonatal resuscitation after training. Anticipatory planning – that includes training of skilled birth attendants and making sure that supplies for resuscitation are available is critical to avert death. The Helping Babies Breathe – action plan and neonatal resuscitation curriculum was shared as resources that are applicable in resource-limited settings <http://www.helpingbabiesbreathe.org>. The panelists recommended that basic resuscitation ought to be provided universally in humanitarian settings.

Prevention & Management of Newborn Infections Steve Walls, Save the Children USA

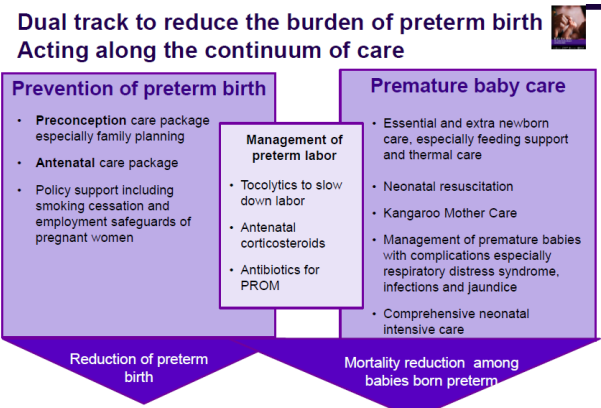
The presenter outlined key interventions to prevent newborn infection, including the WHO “six cleans” (clean hands, clean perineum, clean surface, clean cord and tying instruments, clean cutting instrument, and clean cutting surface) and highlighted the latest evidence on the benefit of chlorhexidine application to the umbilical cord to prevent omphalitis and neonatal sepsis. The presenter shared research that is taking place globally, including efficacy studies on simplified antibiotic regimens for serious newborn infection (sepsis and pneumonia), algorithm considerations for diagnosis, delivery strategies for community-level case detection, and administration of antibiotics at the community level.

Care for Preterm and Low Birth Weight Babies

Joseph de Graft-Johnson MCHIP

Majority of preterm births (84%) are babies born 32 to <37 weeks of gestational age.

The presenter shared the latest evidence base in the use of low-cost corticosteroids, like dexamethasone injection for the management of preterm labor as a lifesaving intervention.



The panel discussion focused on Kangaroo Mother Care (KMC). While the majority of the evidence base on KMC is from hospital settings, there is ongoing research and data that strengthens the evidence base on community-based KMC. Management of premature babies with complications--especially respiratory distress syndrome, infections and jaundice--was also highlighted as an area that needed attention, especially in hospital settings.

METHODOLOGIES TO MEASURE NEONATAL MORTALITY

Measuring Mortality in Emergencies: thinking about options with regard to neonatal mortality

Les Roberts Program on Forced Migration and Health, Columbia University

Measuring Newborn Indicators Kate Kerber, Saving Newborn Lives/Save the Children

Research to Measure Neonatal Mortality in Refugee Setting: Exploring Methods Nadine Cornier, UNHCR

Three panelists began the discussion by describing the paucity of data on neonatal mortality in humanitarian settings. Of the 1000 mortality studies done in emergency settings that were accessed and analyzed, only one included NMR and only 23 had other indicators relevant to newborn health.

The methodologies used to measure neonatal mortality include vital registration, surveillance, and household population-based surveys. Other options to estimate mortality were presented, including the capture-recapture method, sisterhood method, respondent driven sampling, exhaustive method, active representative surveillance, crowd sourcing, and pregnancy surveillance. The significant majority (75%) of neonatal mortality data available globally from low and middle income countries (LMIC) is based on household surveys. The recommendation from the newborn indicator working group is to administer the full pregnancy history method to capture neonatal mortality through household surveys.

The main indicators to measure the severity of humanitarian crises or monitor the impact of humanitarian response are mortality rates. In the absence of data on neonatal mortality in humanitarian settings, neonatal health may not be prioritized for public health action in emergencies. This was an important issue to consider for the group. The panelists discussed several challenges in measuring neonatal mortality including: a) the specific cause of death in the neonatal period is usually not captured and simply recorded as a “neonatal death”, b) surveillance systems tend to underreport (fail to capture) early neonatal deaths, c) “heaping” of deaths on certain days like the 1st day, 7th day, 14th day (DHS survey data), d) population specific (IDPs and refugee) or sub-national mortality estimates are usually not available, e) people tend not to report ‘bad events’, recall interviews with mothers tend to miss infants (especially neonatal deaths), and f) possible misclassification of early neonatal deaths with stillbirths. The panel recommended that the group conduct at least one or two neonatal mortality studies in humanitarian setting to inform the wider humanitarian community.

The last presenter shared an operational research opportunity being explored by the Office of the United Nations High Commissioner for Refugees (UNHCR). The UNHCR Health Information System (HIS) attempts to gather data on live births and neonatal deaths at the health facility level but faces challenges with underreporting, data quality, and misclassification of cause of death. The UNHCR HIS is a facility-based surveillance system that captures neonatal deaths that occur in the facility. In many refugee settings majority of

births occur at home. Neonatal care is also poor during this period. In order to better understand the burden of neonatal mortality, UNHCR is proposing to conduct a research to assess the sensitivity of HIS for capturing neonatal deaths and the causes and contributing factors of neonatal mortality in post-emergency refugee camps. The knowledge gained from this study will help inform future work on capturing neonatal mortality in emergency settings.

NEONATAL DRUGS AND MEDICAL SUPPLIES

Commodities for Neonatal Health in Humanitarian Settings

Heather Papowitz Senior Advisor Health-Emergencies

The UN commodity commission has prioritized four commodities for neonatal health: antenatal corticosteroid injectable antibiotics, chlorhexidine, and resuscitation equipment. In addition to these essential commodities, the presenter shared the recommended drugs and medical equipment for basic and specialized neonatal care. The discussion emphasized the importance of ensuring the neonatal health kits are complementary to existing kits such as the reproductive health kit for crises and the inter-agency emergency health kit. A starting point for estimating the amount of supplies in each kit can be based on models that are used for reproductive health (RH). However, the participants urged the group to revisit the demographic model that is used to estimate RH kit content. The neonatal health kit working group was tasked with finalizing the contents of the kit.

FIELD EXPERIENCE IN NEONATAL HEALTH

Ron Waldman, George Washington University School of Public Health – reflected on the critical importance of reaching out to all humanitarian actors, ensuring that trainings and latest guidance are available and that we collectively need to invest in making sure that evidence based interventions are applied and practiced widely.

Offering neonatal care in a district hospital in Burundi – How well are we doing?

Isabel Zuriga, Médecins Sans Frontières (MSF)-OCB

Isabel shared experiences from MSF and Ministry of Health in Burundi a pioneering program that linked emergency obstetric care with specialized neonatal care. The case study illustrated that of the total number of live births in the district hospital, the majority of newborn (79%) received routine neonatal care. Among the babies that needed specialized care in the neonatal intensive care unit, the main causes of admission were low-birth weight (LBW), prematurity, and birth asphyxia. The inpatient case-fatality ratio also was high among LBW babies and those with birth asphyxia. KMC was effectively practiced at the hospital. Lessons learned from this MSF program were that neonatal care can indeed be introduced with simple measures and emergency obstetric care services need to be linked with specialized neonatal care. The presenter raised the need to have standard benchmarks for inpatient neonatal case-fatality and other neonatal indicators.

Neonatal Policy: MSF Experience Dr. Marianne Bottineau, MSF International Pediatrics WG Leader

The presenter shared MSF's field experience in advocating for and integrating neonatal health services in field programs. The lessons learned include that neonatal health programs in as much as possible need to be

integrated to existing program and systems and packaged as maternal and neonatal service in emergency obstetric care and other services. The three levels for neonatal care proposed by MSF included: basic, intermediary, and comprehensive package of neonatal care. The presenter also shared the staffing needs for neonatal health, drugs/medical supplies, and the monthly data collection that will be needed at each level of care. The presentation included examples from Guinea, Haiti, and Cote d'ivoire, demonstrating the neonatal health services can be delivered in remote settings and reduction in case fatality can be achieved.

Impact of Community Based Approaches on Newborn Health

Zulfiqar A Bhutta Founding Chair Division of Women and Child Health Aga Khan University Pakistan

Professor Bhutta presented on community approaches to reach the unreached. Researches have demonstrated that a shortage of skilled providers at health facility level and limited access to health services are directly associated with higher infant mortality. The findings from the randomized control trial (RCT) in Pakistan and the Cochrane review on 'community based newborn intervention packages' was presented. The Pakistan research, demonstrated a statistically significant reduction in early neonatal mortality in the intervention group where trained Lady Health Workers (LHWs) were providing basic newborn care⁶ as compared to the control group. The Cochrane systematic review of the evidence base on community-based intervention packages, illustrated a significant reduction in neonatal mortality, perinatal mortality, and maternal morbidity⁷. While community health workers and women's empowerment are critical, these approaches need to be part of and linked to quality care in the health system to have an impact.

Mortality Audit Kate Kerber, Saving Newborn Lives/Save the Children

The purpose of mortality review process is to improve the quality of care mothers and children receive in the health system. Perinatal mortality audits - if implemented systematically with high quality, if audit loop is closed and recommendations implemented – could result in improved quality of care and reduction in case fatality. Is there a role for perinatal mortality audit in humanitarian settings? In contexts where there is already an audit system – maintain it, where audit doesn't exist, start small – single site: count deaths, causes of death, modifiable factors (family and community, management and administration, health care providers), establish multidisciplinary committee that meets weekly, and implement recommendations of the audit. In situations where there is a system for maternal audit add newborn deaths to the review process. If there is a mortality surveillance system – ensure that it is inclusive of newborn deaths and that there is a review system to act on the recommendations.

RESEARCH PRIORITIES IN NEONATAL HEALTH

Setting Research Priorities to reduce neonatal mortality Bernadette Daelmans, World Health Organization

The WHO has applied the Child Health and Nutrition Research Initiative (CHNRI) process in the past and is planning to apply similar exercises to develop research priorities for 2013 and beyond. Areas of interest for 2013

and beyond include identifying research priorities that can improve the rate of progress in reducing global neonatal mortality, including the prevention of stillbirths and disabilities. The priority setting to reduce global mortality from newborn infections, low birth weight, and birth asphyxia was completed (2007-8). Of the 15 top research priorities, 12 were related to improved delivery of known interventions at community and facility level.

Neonatal Health Identifying Priority Questions and Gaps Study findings Diane Morof, CDC

For the humanitarian setting, in July 2011, 36 questions and the criteria for scoring were distributed among humanitarian community for prioritization. A total of 28 participants completed the survey. Four criteria were used: answerability (likelihood that research would lead to new knowledge in an ethical way), feasibility (likelihood that research can be conducted cost-efficiently and lead to generalizable new knowledge), relevance (likelihood that research would address important condition and critical gap in knowledge and could be readily translated to inform policies and programs) and equity (likelihood that the proposed epidemiological research would have positive impact on equity and local ownership). The priority questions selected centered on: a) effective implementation strategies to increase uptake of clean delivery practice and skilled birth attendance and b) feasibility of mortality measurement methods, including community-based pregnancy surveillance systems. Results of the prioritization exercise and the list of questions were shared in the research working group to further narrow down the research questions and identify next steps.

References

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9. Lam JO, Amsalu R, Kerber K, Lawn JE, Tomczyk B, et al. (2012) Neonatal survival interventions in humanitarian emergencies: a survey of current practices and programs. *Conflict and health* 6: 2.

Annex 1

Technical Working Groups

Working Group: Neonatal Health Interventions	
<p>Purpose: To build expert consensus on a set of select interventions for use in the acute phase and recovery (post-crisis) period of an emergency response.</p> <p>Process: The working group reviewed the list of effective interventions at the community, primary health care, and hospital level.</p> <p>Focal Point: Sandra Krause SandraK@wrcommission.org</p> <p>Working Group Participants: Jorge Castilla, Sarah Williams, Bill Keenan, Alison Wittoff, Marco Morelli Parie-Claude Bottimeau, Kathryn Bolles, Winnie Mwebesa, Bernadette Dailawaus</p>	<p>Next steps: The group discussed the list of interventions that can be provided universally at all levels of health care as 'basic interventions'. More advanced 'comprehensive interventions' can be provided at the health facility level and intensive neonatal health units. The working group will finalize and share widely as part of the technical brief</p>
Working Group: Neonatal Medical Kits	
<p>Purpose: To build expert consensus on the Neonatal Medical Kit – at the community, primary health facility, and hospital level – and identify next steps to operationalize the neonatal medical kit for humanitarian settings.</p> <p>Process: The working group reviewed the list of essential commodities for neonatal health, and identified what items are missing from the reproductive health kit in emergencies and the inter-agency emergency health kit</p> <p>Focal Point: Heather Papowitz hpapowitz@unicef.org</p> <p>Working Group Participants: W. Doedens, Z. Bhutta, H. Papowitz, I. Zuniga, L. Thomas</p>	<p>Next steps: The working group proposed drugs and medical supplies for the community, primary health care, and hospital level. The working group will continue the discussion to finalize the content of each kit.</p>
Working Group: Health Information System & Indicators	
<p>Purpose: To develop consensus on a set of select neonatal indicators that can supplement Sphere 'health action in crisis' indicators for use in humanitarian response evaluation and to assess the status of an affected population.</p> <p>Process: The working group reviewed service delivery and coverage indicators that can be measured at community and health facility level.</p> <p>Focal Point: Ribka Amsalu ramsalu@savechildren.org</p> <p>Working Group Participants: Maria Tsolka, Kate Kerber, Janet</p>	<p>Next steps: Define the next steps will be achieved through monthly meetings on how to integrate the list of indicators in health information systems for routine collection in humanitarian responses.</p>

Meyers, Basia Tomczyk	
Working Group: Neonatal Mortality Measurement	
<p>Purpose: To formulate methodologies to measure neonatal mortality in humanitarian settings.</p> <p>Process: The working group defined an algorithm depicting the following three context-dependent approaches: 1) If there is a small, defined population then we should pursue vital registration and advocate for this as a best practice and gold standard; 2) If there is a larger confined population, where vital registration is much harder to obtain, set up a surveillance system in the health facility with ongoing evaluation within the community; and 3) If there is large rural or urban displacement, use a surrogate or other type of survey.</p> <p>Focal Point: Basia Tomczyk bet8@cdc.gov</p> <p>Working Group Participants: Diane Morof, Jamie Eliades, Les Roberts, Nadine Cornier</p>	<p>Next steps: The working group agreed to conduct a neonatal mortality study with UNHCR in two refugee camps in Chad and Tanzania.</p>
Working Group: Research	
<p>Purpose: To prioritize 4-5 research questions for neonatal health in humanitarian settings and document the next steps needed to operationalize the research.</p> <p>Focal Point: Diane Morof: igd6@cdc.gov</p> <p>Next steps: Publish the findings of the prioritization exercise and share widely with the humanitarian community.</p> <p>Working group participants: Ribka Amsalu, Basia Tomczyk, Kate Kerber, Curtis Blanton</p>	

Annex 2: Meeting Schedule**Monday, 16th July**

		Facilitator
8:30 - 9:00	Welcome and Opening Remarks David Oot & Paul Giannone	Claudia Morrissey, Save the Children
9:00 - 10:00	Overview & Objective of meeting Basia Tomczyk & Ribka Amsalu Humanitarian Crisis: Defining the Context Diane Morof, CDC	
10:00 – 11:00	Global Epidemiology of Neonatal Mortality: When? Where? Why? Zulfiqar A Bhutta, Aga Khan University Evidence-based Neonatal Health Interventions Bernadette Daelmans, World Health Organization	James Eliades Columbia University
11:15 – 12:30	Neonatal Resuscitation William Keenan, American Academy of Pediatrics Prevention and Management of Neonatal Sepsis Steve Wall, Save the Children Care for Preterm & Low-Birth Weight Babies Joseph Johnson, MCHIP	Lisa Thomas World Health Organization
13:30 – 14:30	Methodologies to Measure Neonatal Mortality Kate Kerber, Save the Children Methodologies to Measure Mortality in Humanitarian Settings Les Roberts, Columbia University Research to measure neonatal mortality in Refugee Settings: exploring methods Nadine Cornier, UNHCR	Emmanuel d’Harcourt International Rescue Committee
14:45 – 15:45	Intensive Neonatal Care Unit: Experience from Burundi Isabel Zuniga, Medecins Sans Frontieres (MSF) Drugs & Medical Supplies for Neonatal Health Heather Papowitz, UNICEF Child Health Practice in Humanitarian Settings Ron Waldman, George Washington University	Wilma Doedens UNFPA
15:45 – 16:10	Donor Panel: Paul Giannone - USAID/OFDA; Bryan Schaaf - BPRM & Jorge Castilla Echenique, ECHO	Sandra Krause, Women’s Refugee Committee
16:10 – 17:45	Developing Consensuses on Neonatal Health Package & Research Priorities, WG1: Prioritizing Interventions, WG2: Neonatal Medical Kit, WG3: Neonatal Mortality Measurement, WG4: Research Priorities WG5: Service Availability & Utilization: Indicators & Tools	Claudia Morrissey
Tuesday, 17th July		
9:00 - 10:30	Improvement of perinatal and newborn care in rural Pakistan through community-based strategies: a cluster-randomized effectiveness trial Zulfiqar A Bhutta, Agha Khan University Neonatal Health Care: Field Experiences of Medecins Sans Frontières Marianne Bottineau, Medecins Sans Frontières Perinatal and Neonatal Mortality Audit: South Africa and Uganda Kate Kerber, Save the Children	Jorge Castilla Echenique, ECHO
10:45 - 11:45	Global Research Priorities Bernadette Daelmans, World Health Organization Research Prioritization for Neonatal Health in Humanitarian Settings Diane Morof, CDC	Basia Tomczyk, CDC
11:45 - 12:30	Developing Consensus on Neonatal Health Package & Research Priorities Working Group Panel Presentation	Bryan Schaaf BPRM
13:30 - 14:30	Healthy Newborn Network (JoAnn Paradis)	
15:00 – 15:45	Meeting Summary & Next Steps Ribka Amsalu & Basia Tomczyk	
16:00	Closing Remarks by David Oot	

How to get involved

We would like to sincerely thank all of you for your input and participation at the consultative meeting. The working group leads will be in touch to finalize the deliverable from each working group. The meeting organizers will work with the group leads to finalize the neonatal package for humanitarian setting and disseminate final product widely for use by humanitarian actors and others.

We welcome your continued comments and input to move the agenda forward.

Event manager: Jessica Hulse

Note-takers: Brendan Wackenreuter, Jessica Hulse, Amy Cannon, Yvonne Codl, Maria Tsolka

Proceedings write-up: Samira Sami

Organizing committee: Diane Morof, Jessica Hulse, Samira Sami, Basia Tomczyk, Ribka Amsalu, Kate Kerber, Steve Wall, Kathryn Bolles, Claudia Morrissey

For more information on the meeting agenda, presentations and documents, please visit the Healthy Newborn Network (HNN) at

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

The HNN connects advocates from around the world and provides a platform for discussions and interactions on a vast range of newborn and maternal health topics. In addition, the HNN boasts a vast library of newborn health resources, featuring the latest in newborn health research, news, resources, events, articles, success stories

Co-hosts of the event



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