



LSTM

CENTRE FOR MATERNAL  
AND NEWBORN HEALTH

# Centre for Maternal & Newborn Health Annual Report 2016





“ It has been another incredibly busy and productive year, with the end of Phase 2 of our multi-country Making It Happen programme, the introduction of a broader range of research topics and a further expansion of our grant portfolio. We thank the Ministry of Health in each country, our partners, volunteers and funders for their continued engagement, without you Centre for Maternal and Newborn Health would not be able to have the impact that it undoubtedly has on improving the availability and quality of care for mothers and babies. ”



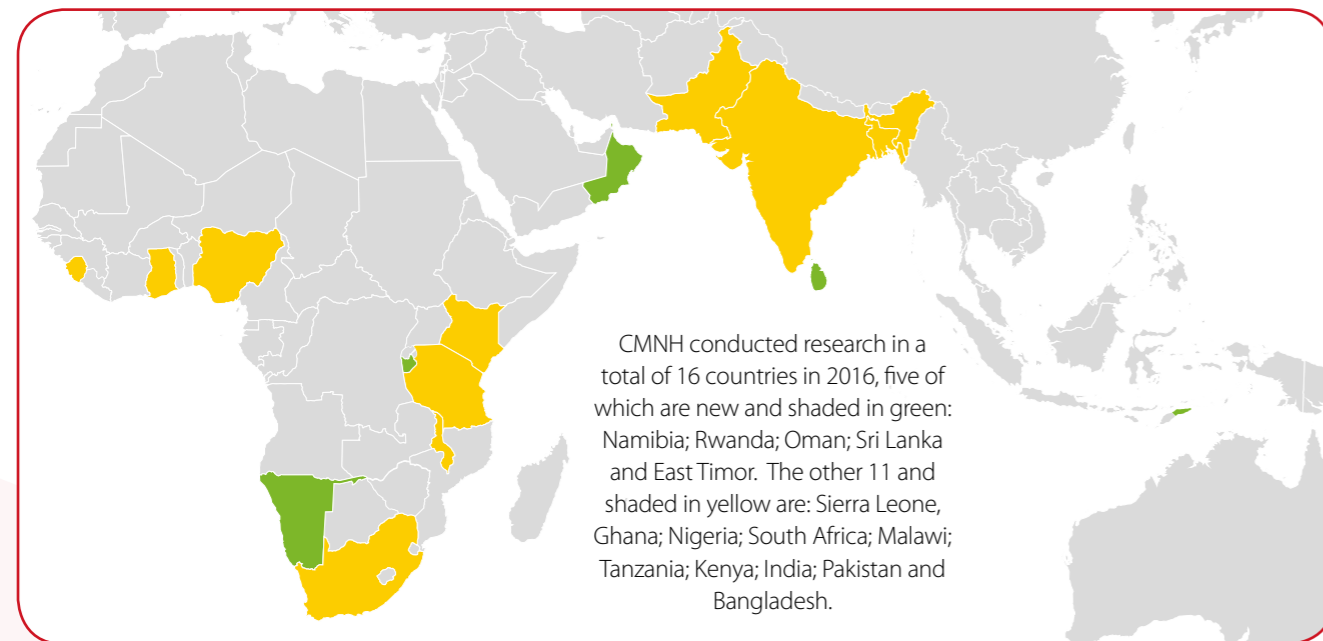
- Professor Nynke van den Broek, Head of CMNH

During this year, the Centre for Maternal & Newborn Health (CMNH) has seen further growth as an internationally recognised Centre of Excellence in Maternal & Newborn Health.

**CMNH Expansion of Research Themes:**

CMNH has expanded its portfolio to include the broader continuum of care for mothers and babies including; Skilled Birth Attendance, Emergency Obstetric Care, Early Newborn Care, Antenatal and Postnatal Care, and invested in new expertise in Health Systems Strengthening and Quality of Care

**CMNH Research:**

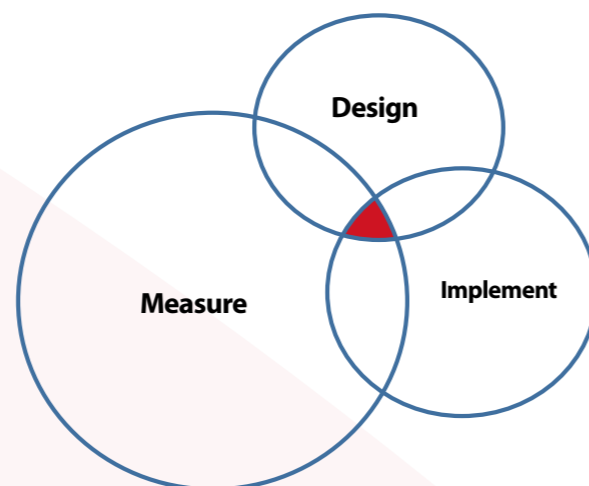


**CMNH Impact:**

CMNH continues to demonstrate the **impact of its work, by:**

- Training the healthcare leaders and influencers of the future
- Discovering and sharing what works when and where to reduce maternal and newborn mortality and morbidity
- Improving the health of the world's poorest and most disadvantaged communities
- Leading internationally significant consortia in addressing global health challenges
- Influencing global and national health systems and policies

CMNH does this through its' unique expertise in the Design, Implementation, Measurement and Evaluation of programmes.



# Implementation Research – What works, Where and Why?

**Making It Happen (MiH)**

Funded by DFID/UK Aid

The MiH Programme aimed to reduce maternal and newborn mortality and morbidity by increasing the availability and improving the quality of Skilled Birth Attendance (SBA) and



Emergency Obstetric and Newborn Care (EmOC&NC).

CMNH developed three new approaches:

- Designing and delivering a **'skills and drills' EmOC&NC training package** training critical numbers (80% or more) of healthcare providers working in the maternity areas in healthcare facilities and using expert volunteers to build in-country capacity
- Designing and delivering a **MiH with Data** workshop package that helps healthcare providers to better collect, understand and use routine data on maternal and newborn healthcare provision and health outcomes
- Designing and delivering a comprehensive workshop package to **strengthen Quality Improvement methodology** (maternal and perinatal death audit and standards-based audit) at healthcare facility level.

The four year programme (2012-2016) spanning 11 countries achieved the following results and has consistently scored A+ in DFID reviews:

- 18,600 healthcare providers trained
- 83.7% demonstrated improved knowledge and 99.2% improved skills
- 1,700 Master Trainers, 20 skills laboratories and 275 training

rooms equipped and functional

- 69% of healthcare facilities increased the availability of EmOC&NC by 12 months after training
- Improved quality of care, team work, triage and referral when needed
- Increased number of women and newborns recognised to need and received EmOC&NC
- Reduced case fatality rates with an estimated 13,161 lives saved over the life time of the programme

**Sierra Leone** was one of the target countries for the MiH programme and CMNH was active in the country throughout the Ebola epidemic. Two studies deserve special mention:

**Situational Analysis of the stress levels among Sierra Leonean healthcare workers during the Ebola epidemic**  
Funded by Voluntary Services Overseas

This study assessed the stress and resilience levels amongst healthcare workers providing maternal and newborn care during the Ebola epidemic. CMNH researchers found that healthcare workers in general received good support from their peers, but a lack of control in their working environment and the intensive pace of work were the main risk factors for developing stress. The findings have been incorporated by the Ministry of Health and Sanitation into the induction programme for new health workers to help improve their resilience in managing work place stress.

**The effect of the Ebola Virus epidemic on the availability, uptake, and outcomes of maternal and newborn health services in Sierra Leone**  
Funded by Voluntary Services Overseas

Research carried out by CMNH found that despite adequate numbers of healthcare workers remaining in post, the quality of care was suboptimal and patients stayed away for fear of catching Ebola. Key findings from the report show that during the EBV epidemic this was associated with a:

- 18% decrease in women accessing antenatal care
- 22% decrease in women accessing postnatal care
- 11% decrease in deliveries at healthcare centres
- 30% increase in maternal deaths
- 24% increase in newborn deaths
- 7 out of 9 critical areas of maternity care were still provided

**Maternal Death Surveillance and Review (MDSR)**

*Funded by WHO*

MDSR is a new approach, advocated by WHO, international donors and UN partners for reviewing and acting on the results of maternal death reviews. CMNH, a WHO Collaborating Centre for Research and Training on Maternal and Newborn Health, was commissioned by WHO to review country experiences of implementing MDSR. The review highlighted the need for:

- Strengthened social and team processes at facility level, for example, positive attitude towards the benefits of MDSR, the existence of a 'no blame' culture
- Increased knowledge among healthcare workers regarding classification methods for establishing cause of, and factors associated with maternal and neonatal death such as the use of, and factors associated with death such as the International Classification for Maternal Mortality (ICD-MM)
- Improved health system inputs including adequate funding and reliable health information systems to enable identification and analysis of cases
- Central co-ordination and monitoring of implementation. Improved capacity to use data to develop recommendations for facility or national level

Working in close partnership with the Government of Kenya, Professional Associations and UN partners, CMNH has established a national MDSR secretariat in Kenya. In the first three years, this secretariat will support a review of all maternal deaths that occur in major county and national referral hospitals. Through training 74 national assessors to review case notes, the first confidential enquiry, into maternal deaths in 2014, will be published in early 2017. This report will highlight leading causes of maternal deaths and will identify the contributing conditions and associated factors. It will also make actionable recommendations for each of the health system levels (policy, county, health facility and community level) to be taken to prevent future maternal deaths.

**Perinatal Death Surveillance and Review**

*Funded by WHO*

CMNH is working in collaboration with WHO to develop a series of algorithms that can be used for modelling via a desktop programme or an Android smartphone app to help healthcare providers in low and middle income countries aggregate data on cause of stillbirth and neonatal death with a view establishing what needs to be done to reduce preventable deaths.

The app will perform the following functions:

- Provide a quick reference guide on how to conduct perinatal death reviews
- Allow for easy entry of data to help assign cause of death for stillbirth and early neonatal deaths

- The new WHO International Classification of Diseases for Perinatal Mortality (ICD-PM) is used for classification
- Assist in the identification of areas of care for which quality is sub-standard. This will provide useful information to inform strategies and action for improvement in quality of care

**Stillbirth Review**

*Funded by DFID/UK Aid*

With 98% of the annual 2.6 million stillbirths occurring in LMICs, it is important to understand the cause of, and factors contributing to, stillbirth in low resource settings. CMNH has completed a multi-country study to assess cause of death and contributing conditions for stillbirths occurring at health facility level in Kenya, Malawi, Sierra Leone and Zimbabwe, with a view to identifying priority areas where improvement in quality of care is needed and likely to reduce preventable stillbirths. Data generated will also be used to test the newly released WHO classification for perinatal mortality.

**Improving maternal health and well-being during and after pregnancy**

*Funded by WHO and DFID/UK Aid*

CMNH firmly advocate that all women have the right to the highest attainable standard of health and well-being, including physical, psychological and social aspects. The team undertook a large multi-country descriptive cross-sectional study to measure maternal morbidity in a holistic and comprehensive manner using self-reported symptoms, clinical examination and simple one-shop laboratory investigations. Psychological and social health were also assessed during and after pregnancy.

CMNH assessed 11,454 women in India, Malawi, Kenya and Pakistan to determine their health needs during and after pregnancy.

3 out of 4 women

- Reported suffering from at least one physical abnormal symptom (74.8%)
- Had abnormalities when examined by a trained healthcare provider (71.3%)
- Had abnormalities on laboratory investigations (73.5%)

1 out of 2 women were anaemic (47.4%)

1 out of 4 women:

- Had clinical signs of early infection (23.1%)
- Reported psychological ill-health (22.5%)
- Reported social ill-health (domestic violence or substance misuse) (26.3%)

The study shows that women have a significant burden of ill-health during and after pregnancy that is at present largely unrecognised and untreated. CMNH are working to adapt current antenatal and postnatal care packages in low and middle income countries such that these will meet the identified health needs of women in a comprehensive holistic way, to improve maternal health and well-being.



**Quality Improvement of Integrated HIV, TB and Malaria services in antenatal and postnatal care facilities**

*Funded by Global Fund*

CMNH will, from late 2016 onwards, implement, document and disseminate innovative approaches that demonstrably improve the availability and quality of antenatal and postnatal care inclusive of the identification (screening, testing) and management (prevention and care) of HIV, TB and Malaria; integrated into comprehensive, holistic health service delivery, which addresses the identified health needs of mothers and babies during and after pregnancy.

**Improving Neonatal Health**

*Funded by WHO*

With 2.9 million deaths occurring each year, neonatal mortality (death in the first month of life) accounts for 47% of all under-5 child mortality. The majority of these deaths happen in low-and middle-income countries (LMICs). Better respiratory support may help in reducing neonatal mortality. Continuous Positive Airway Pressure (CPAP) is a type of respiratory intervention which has the potential for large scale implementation in LMICs as it is relatively simple and cheap. However, using CPAP is not free of adverse events such as pneumothorax or severe nasal lesions.

A national survey was conducted in India to assess use of CPAP for newborn babies with respiratory distress. Out of 694 health facilities identified as likely to use CPAP, a random sample of 142 healthcare facilities was visited and assessed with regard to availability of structure and process in place for safe and

effective use of CPAP. health outcomes were also determined.

Overall, 59.5% of Medical College Neonatal Care Units (79 assessed) and 36.4% of Special Newborn Care Units (63 assessed) used CPAP. The basic equipment was in place in many settings but there was generally insufficient trained staff available to provide high quality care especially in case of complications. The quality of CPAP was generally better at Medical Colleges than at smaller non-teaching hospitals. Overall, there is a need to strengthen knowledge and skills of healthcare providers, update guidelines ensuring these are available and adhered to. Healthcare providers are enthusiastic about using CPAP and work well in teams to support CPAP implementation. CPAP is used in 10.2% of all babies admitted to Medical College NCUs and 3.2% of babies admitted to Special NCUs at non-teaching hospitals. The rate of treatment failure was similar in both settings.

**Programme Evaluation**

CMNH has recently successfully completed the following external programme evaluations:

**Evaluation of the Health Transition Fund in Zimbabwe**

*Funded by UNICEF:*

CMNH conducted:

- An evaluation at three levels of the health system and covered 44 district health offices; 47 district level hospitals and 118 Level 1 facilities.
- A nationwide assessment to measure availability of health services at district and primary care levels through a modular survey administered at three levels of the health system: District Health Management, District Level Hospitals and Level 1 Facilities.
- Key Informant Interviews to gather the views and perspectives of stakeholders at three levels: national, district in health facilities, and community in health centre committees.
- Focus Group Discussions with members of district health offices, village health workers and beneficiaries (women of reproductive age, caregivers of children under-5).

CMNH's evaluation showed that the design of the Health Transition Fund had a good degree of relevance, effectiveness and flexibility to respond to emerging needs with a catalytic approach to health system strengthening. The evaluation highlighted some areas for improvement particularly related to opportunities to maximise efficiency in implementation and a need to focus on equity in the future, as well as to engage more comprehensively at community level. CMNH was delighted to receive a score of 3.2 out of 4 from the internal UNICEF Quality Assurance system for the final report.

**Evaluation of the Nigeria Maternal, Newborn & Child Health Weeks (MNCH Weeks) Initiative**

Funded by UNICEF:

- A cross-sectional community survey was conducted in 320 clusters with 5,139 children under 24 months of age, 2,531 children between 24 and 59 months, and 5,180 women of reproductive age (15-45 years). The survey was conducted in 12 States and in the Federal Capital Territory of Abuja.
- 22 Key Informant Interviews conducted to gather views and perspectives of stakeholders at national and state level.
- 14 Focus Group Discussions with beneficiaries (community men and women separately) and 15 FGDs with healthcare providers and health managers.
- Secondary data analysis of existing national data conducted.
- Observational study of the planning of the 2015 MNCH Weeks at national level and for the Federal Capital Territory was under taken.



- Redesign of the social mobilisation strategy for MNCH Weeks
- Rebranding of the MNCH Weeks to improve accountability
- Design of context specific MNCH Weeks to improve effectiveness
- Streamlined the MNCH Weeks approach in line with other activities to improve coverage

**Evaluation of the Rwanda Community Health programme**

Funded by UNICEF:

CMNH conducted:

- A cross-sectional survey including 400 Community Health Workers
- 50 Key Informant Interviews to gather views and perspectives of stakeholders at three levels: national, district and health facility.
- 12 Focus Group Discussions with community health workers and beneficiaries (community men and women separately).

Preliminary findings showed that the programme contributed to increase access to antenatal care and facility-based deliveries, increased use of modern contraceptive methods and access to treatment of childhood diseases for children under 5 years of age. However, irregularity of trainings, lack of means for supervision and regular shortage of supplies hampered the programme. With the decrease in external funding in the last years, the sustainability of the programme is jeopardised. Community Health Workers' cooperatives that were created to substitute for Performance-Based Financing did not provide the expected benefits.



The evaluation made a series of policy recommendations including:

- Development of an accountability framework in collaboration with partners and state governments at central and state levels to monitor, input, activities and outputs
- Establishment of a national steering committee with clear Terms of Reference developed in collaboration with UNICEF and other partners to provide strategic oversight, drive the implementation of the accountability framework and develop an exit strategy.

**CMNH Publications - Top 5 cited papers in 2015/16**

Adegoke AA and van den Broek N (2009) 'Skilled birth attendance-lessons learnt', BJOG: An International Journal of Obstetrics & Gynaecology, vol. 116, no. S1, pp. 33-40.
van den Broek NR and Graham WJ (2009) 'Quality of care for maternal and newborn health: the neglected agenda', BJOG: An International Journal of Obstetrics & Gynaecology, vol. 116, no. 7, pp. 18-21.
Ameh CA, Msuya S, Hofman J, Raven J, Mathai M and van den Broek N. (2012) 'Status of Emergency Obstetric Care in Six Developing Countries Five Years before the MDG Targets for Maternal and Newborn Health', PLoS ONE, vol. 7, no. 12, pp. e49938.
Gladstone M, Nyirenda M, Lancaster GA, Umar E, Kayira E, van den Broek NR and Smyth RL (2010) 'The Malawi developmental assessment tool (MDAT): The creation, validation, and reliability of a tool to assess child development in rural African settings', PLoS Medicine, vol. 7, no. 5, pp. 1000273.
Kongnyuy EJ, Mlava G and van den Broek N (2009) 'Facility-Based Maternal Death Review in Three Districts in the Central Region of Malawi', Women's Health Issues, vol. 19, no. 1, pp. 14-20.

**Top 5 cited papers published in 2015/16**

Banke-Thomas AO, Madaj B, Ameh C and van den Broek N (2015) 'Social Return on Investment (SROI) methodology to account for value for money of public health interventions: a systematic review', BMC Public Health, vol. 15, no. pp. 582.
McCauley ME, van den Broek N, Dou L and Othman M (2015) 'Vitamin A supplementation during pregnancy for maternal and newborn outcomes', The Cochrane Database of Systematic Reviews, vol. 2015, no. 10, pp. CD008666.
Ameh CA and van den Broek N (2015) 'Making It Happen: Training health-care providers in emergency obstetric and newborn care', Best Practice & Research Clinical Obstetrics & Gynaecology, vol. 29 no. 2015 pp. 1077-1097.
Pattinson RC, Makin JD, Pillay Y, van den Broek N and Moodley J (2015) 'Basic and comprehensive emergency obstetric and neonatal care in 12 South African health districts', South African Medical Journal, vol. 105, no. 4, pp. 5
Pyone T, Dickinson F, Kerr R, Boshi-Pinto C, Mathai M and van den Broek N (2015) 'Data collection tools for maternal and child health in humanitarian emergencies: a systematic review', Bulletin of the World Health Organization, vol. 93, no. 9, pp. 648-658A.

This year, CMNH welcomed Matthews Mathai as Professor in Maternal & Newborn Health. Matthews previously led the implementation of Maternal Death Surveillance and Response (MDSR) and development of the WHO Stillbirth and Neonatal Death review tool in WHO, Geneva. He co-chaired the Every Newborn Action Plan Metrics Working Group. His earlier work in Making Pregnancy Safer included the development, update and implementation of WHO's Integrated Management of Pregnancy and Childbirth (IMPAC) guidelines and tools.

**“ I am delighted to join Nynke and the CMNH team at such an exciting stage of the Centre's development. Given the breadth and scope of research being conducted I look forward to contributing to the global effort to improve the lives of mothers and babies. ”**



**Matthews Mathai**  
Professor in Maternal & Newborn Health

**B!rth: a Global Festival of Theatre and Debate**

CMNH worked together with the Royal Exchange Theatre to deliver the festival which provoked debate on global health inequality through the performance of seven plays, written by seven female writers from seven different continents, exploring the issue of childbirth and women's health across the world. CMNH was the scientific advisory group and participated in panel discussions and debate following the performances, alongside other leading experts in the field of women's health. Covered by The Guardian via articles and a livestream, the BIRTH festival presented a unique opportunity for CMNH to engage with the wider community and brought together science and art to highlight the importance of improving maternal and newborn health globally.



**International Conference on Maternal & Newborn Health**

CMNH hosted an international conference in 2016 to present the results of the MiH programme and present our wider implementation research. The event was attended by over 60 partners, including colleagues from governments, professional associations and UN organisations from 15 countries. It provided an

opportunity to reinvigorate international efforts ensuring CMNH informs the global agenda around maternal and newborn health and to showcase the work of CMNH as an international Centre of Excellence.

**Recognition by National Award from the Northern Ireland Medical and Dental Training Academy (NIMDTA)**

Dr Mary McCauley, Clinical Research Associate in CMNH won a prestigious award from NIMDTA in recognition of CMNH winning the Women's Health team at the British Medical Journal (BMJ) annual awards in 2015.



Dr Mary McCauley

**“ We are really excited for Mary and thanks for her hard work as part of the team at CMNH to assess the health needs of women and their babies in some of the world's poorest communities. ”**  
 Professor Nynke van den Broek

**Award as Fellow Honoris Causa by Royal College of Obstetricians and Gynaecologists (RCOG)**


Dr Charles Ameh, Senior Clinical Lecturer at CMNH, has been awarded a Fellow Honoris Causa from RCOG. This award acknowledges the highest level of dedication and achievement in clinical care and support to development of women's healthcare services.

**“ We are very proud to award Dr Ameh this prestigious award in recognition of his tireless work in maternal and newborn health in Africa. ”**  
 Professor Lesley Regan, President RCOG



Dr Charles Ameh





Centre for Maternal and Newborn Health  
Liverpool School of Tropical Medicine  
Pembroke Place, Liverpool L3 5QA UK

**Tel:** +44(0)151 705 3707 **email:** [cmnh@lstmed.ac.uk](mailto:cmnh@lstmed.ac.uk)

 [@cmnhlstm](https://twitter.com/cmnhlstm)