
Plan Overview

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Title: Integrating a Neonatal Healthcare Package for Malawi

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Project abstract:

The project is part of the Innovating for Maternal and Child Health in Africa (IMCHA) initiative funded by the Canadian International Development Research Centre (IDRC), Global Affairs Canada (GAC) and the Canadian Institutes for Health Research (CIHR). With a focus on implementation science and quality improvement, the project seeks to strengthen neonatal care at health facilities in low-resource settings such as Malawian central and district hospitals. We are exploring the barriers and facilitators of implementation to the following five interventions: 1) Bubble continuous positive airway pressure (CPAP) to help babies breathe 2) LED phototherapy to manage neonatal jaundice 3) Infant warming devices to keep babies warm 4) Kangaroo mother care where skin-to-skin contact with mothers is a low technology alternative to incubators 5) Lactation support by medical staff to help mothers exclusively breastfeed For more information: https://www.idrc.ca/en/initiative/innovating-maternal-and-child-health-africa

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Copyright information:

Integrating a Neonatal Healthcare Package for Malawi

Project and author details

Please enter your project title.

Integrating a neonatal healthcare package for Malawi: a facility assessment and qualitative analysis of health worker perspectives on using bubble CPAP

Project description.

Integrating a Neonatal Healthcare Package in Malawi (IMCHA 108030)

Neonatal mortality has become an increasingly important contributor to overall global child mortality and is now estimated to be over 45% of all under-5 mortalities. In Africa alone, it is estimated that approximately 1 million babies per year die in their first four weeks of life. Although many countries, such as Malawi, have recently been able to make significant reductions in their under 5 child mortality (Millennium Development Goal #4), improvements in under-5 mortality have not been accompanied by reductions in neonatal mortality. In Malawi, three conditions—complications of preterm birth, severe infection and intrapartum-related (birth asphyxia)—account for 89% of all newborn mortality. Malawi has among the highest preterm delivery rates in the world at 18%. Approximately 35% of neonatal deaths are attributed to preterm birth, making prematurity the leading direct cause of neonatal mortality. Preterm infants pose particular challenges; they are especially vulnerable to feeding difficulties because their sucking and swallowing reflexes are immature, they develop breathing problems and have body temperature instability. Furthermore, the premature babies who survive the immediate postnatal period have an increased risk of death, chronic medical problems and malnutrition later in life.

In this project, we are conducting mixed-methods research to understand how best to scale up essential life-saving neonatal interventions at the district level in the Malawian context. The database includes data from a comprehensive facility survey for newborn quality of care adapted from the integrated WHO Quality of Care assessment tool (2014). The facility survey conducted at two government district hospitals, one private mission hospital and one primary health centre in Southern Malawi. The database will also include qualitative analyses of health worker perspectives on barriers and facilitators to implementing bubble continuous positive airway pressure (CPAP) in the three district level hospitals and the largest tertiary hospital in Malawi as part of a neonatal care package. Qualitative data includes the following dimensions and variables: training, initiation, monitoring, perceptions of health care workers, perceptions of mothers and guardians, daily living activities for neonates, infrastructure and supplies. This data would be of value to researchers seeking to strengthen newborn care in other low resource settings, especially in understanding barriers and facilitators to implementing innovative technologies and conducting facility assessments. The database with both qualitative and quantitative datasets may lead to novel insights into the factors that impact implementation and scaling up of innovations and this information can be used by researchers, healthcare professionals and government stakeholders working on implementing neonatal care packages.

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Data description

Describe the datasets you will submit.

Description	Format and justification	Volume
Facility survey	The dataset will be recorded in .cvs file. Variables assessed included infrastructure, ward layout, organisation of care including staffing, emergency care, in patient care, infection control and supportive care, essential drugs, equipment and supplies, case management, and monitoring and follow up. Dimensions of the dataset are by facility, which will be described by type and linked with the qualitative dataset by number of health facility. With over 600 questions, the resulting data are a comprehensive evaluation of the capacity for neonatal care available in 2016 at secondary level care facilities in rural southern Malawi. The resulting data are largely quantitative, with some open-text comments to qualify numbered responses. This survey used modules that dealt specifically with neonates from the integrated WHO Quality of Care assessment tool (2014) and can be compared with other studies using the same tool.	The scale of the data does not pose challenges when sharing
Qualitative dataset	The dataset will be recorded as a .cvs file, which is recommended by the UK Data Service for data sharing . The qualitative dataset of health worker perspectives on barriers and facilitators to implementation of bubble CPAP includes the following variables: training, initiation, monitoring, perceptions of health care workers, perceptions of mothers and guardians, daily living activities for neonates, infrastructure and supplies. Dimensions of the dataset are by facility type and health worker cadre. Health facility numbering will be the same as in the facility survey to provide a link between the two datasets in this database. This data could be used by other researchers to understand barriers and facilitators to implementing innovative technologies in resource constrained settings and as a baseline for the scale up of neonatal care packages in Malawi.	The scale of the data does not pose challenges when sharing

Describe how the data was collected.

The facility surveys were conducted health facilities providing secondary-level care in three districts in southern Malawi in November 2017. The WHO integrated two existing survey instruments, the Health Facility Survey to evaluate the quality of care for sick children and the quality assessment and improvement tool for hospital care for mothers and newborn babies in 2014. In contrast to existing facility assessment tools, this survey collected data related to quality of care, as well as quantity and availability of care. This study focuses only on neonatal care and consequently, only the modules on infrastructure, neonatal care and maternal care, as related to labour and delivery, were included. Using a series of structured checklists, each aspect of care was observed and scored 1 to 5. A score of five indicated good practice complying with standards of care recommended by the WHO, a score of four indicated minor need for improvement to reach standard of care, a score of three indicated some need for improvement, a score of two indicated considerable need and a score of one indicated totally inadequate care or a potentially life-threatening practice. Variables assessed included infrastructure, ward layout, organisation of care including staffing, emergency care, in patient care, infection control and supportive care, essential drugs, equipment and supplies, case management, and monitoring and follow up. Each facility assessment was manually entered by two independent people and results compared to reduce inaccuracies in data entry and interpretation. Descriptive statistics on Excel were calculated to summarize average scores for each area of care.

The 30 to 60 minute long semi-structured interviews were conducted in June to August 2018 and covered training, initiation, monitoring, differences in opinions, perception and personal experiences, and perception on parental understanding of bubble CPAP. Face-to-face interviews were conducted by trained Malawian researchers at the health facilities in a private setting with 46 health workers purposefully sampled to obtain a wide range of perspectives. These included nurses, clinical officers, district health management (district health officer, district medical officer and district nursing officer), pediatric consultants and registrars. Interviews were conducted in English, the language of instruction for medical professions in Malawi, and Chichewa, the local language in Malawi. Interviews were audio recorded, transcribed in verbatim and Chichewa phrases translated into English. Completed transcripts were sent to the transcription coordinator for review with audio to ensure quality and transcripts were uploaded to Nvivo 12 (QSR International, Melbourne, Australia) as a data management program for qualitative coding. Two qualitative researchers developed a codebook after familiarizing themselves with the transcripts and in discussion with data collectors. A third qualitative researcher completed the coding, which was independently reviewed by the first two qualitative researchers for quality and completeness.

What is the value of your data to the research community?

The specific instruments and inputs that can be reused are: the facility survey to conduct environmental scans, the topic guide for qualitative interviews and the accompanying standardized codebook. This can support other researchers interested in conducting implementation research into barriers and facilitators for scaling up innovative technologies in a resource-constrained global health setting. Additionally, this dataset may be used by other researchers for insights into health systems of low income countries and frame future research questions without the need to pull health workers out of service in resource-constrained health facilities to replicate research on similar topics.

What documentation and metadata will accompany the data? Please consider the use of metadata standards when explaining your data.

The following metadata will accompany the data:

1. Facility assessment questionnaire: The integrated WHO Quality of Care assessment tool (2014) modules used. This file will be recorded in a word document.
2. Qualitative interview guide: Topic guide used for the bubble CPAP qualitative semi-structured interviews with health care workers. This file will be recorded in a word document.
3. Standardized codebook: Definition of qualitative analysis variables. This file will be recorded in a word document.

Ethical and Legal issues

Are there any ethical issues that will complicate the publication of the data? If so, what provisions have been made regarding the sharing of research results?

Sensitive data includes personally identifiable information such as names and indirect identifiers that may allow the identification of individuals through a combination of other available information such as place and specific details on job position. Because interviews may reference names of people and places, audio files of the qualitative interviews and transcripts will not be a part of the dataset. To maintain participant's privacy and prevent sharing identifying information, published datasets will be de-identified and qualitative data coded to general topics and aggregated. This means that quotes will be reviewed for any identifing information and any names (place or people) will be replaced by pseudyoms. Study sites will be numbered instead of named. Aggregation means that participants will be group according to overall medical cadre category instead of specific positions. For example, nurses instead of nursing officer, senior nurses, registered nurses and nurse techicians to protect confidentiality.

Is there an obligation to re-submit your project to an ethical review to assess whether the data from the project can be shared?

Participants consented to use of data for possible future research. Databases will not include transcripts or audio recordings of the interviews. Though we are not sharing raw data, we will undertake ethics review for an amendment for data sharing on a public repository. No data will be shared on the public repository until ethics approval for the amendment is obtained.

Are there any issues regarding Intellectual Property Rights (e.g., copyright, database rights etc.) associated with your data? How will the data be licenced?

We do not foresee any limitations on the curated datasets included in our database. The data will be licenced under Creative Commons 4.0 Attribution (CC-BY). CC-BY allows for anyone to use the resource without restriction on terms but any user must attribute the database as the source. It is the default licence for figshare, a widely used online open access repository, and the UK Data Service recommends CC-BY for generic digital content including text.

Data sharing/openness

How will you provide access to the data? We strongly recommend depositing it in a public repository. If this is your plan, plese name the intented repository. Please suggest several repositories you feel are relevant, and explain your logic behind the choice.

The database consisting of the facility survey and qualitative datasets will be available in a public repository. We identified potential repositories that best fit our needs:

1. cIRcle: An institutional open access digital repository for materials created by University of British Columbia members and affiliates. It is supported by UBC staff, which makes it simple for us to submit and index the repository. cIRcle context is indexed by both high profile public search engines such as Google as well as academically focused search engines. It is permanent, provides a DOI, freely available for users and freely provided to UBC members and affiliates.
2. FIGSHARE: A widely used, general, online open access repository that is both cloud and web-based meaning that it is accessible anywhere. It has unlimited public space and data can up uploaded in any format. It provides a DOI and has the potential to create collections, which will allow to group other potential datasets from our overall IMCHA project. Figshare is integrated with a number of other platforms including ORCID and is a source tracked by Altmetric. Furthermore, it is recommended by Scientific Data and integrated with their manuscript submission system.

While both options are relevant to our data, we consider figshare to be the most appropriate repository because of its integration with the Scientific Data manuscript submission system.