

Have an idea what to do next - Formulating the research question



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on behalf of the NIHR CRIBS Group

31 March 2022,
Designing Clinical Research Course



The Research Questions (RQ)

- How does the research enquiry start:
 - The problems to be resolved
 - Review existing practice & looking for new one
 - Challenging acceptable ideas
 - Looking for conflicting ideas
 - Evidence gaps
 - Identified from external sources
 - Thinking loud – wild imagination!!!, guess
 - Development of events by chance

Basis of Research Enquiry

- Review of existing practice:
 - Why particular way of treatment
 - Is there anything wrong, anything wrong with the response to treatment
- Challenging acceptable ideas:
 - Current organisation and delivery of health care not good
 - Current practice of screening for cervical cancer is not effective !!!
- Ideas identified from external sources
 - WHO research recommendations in guidelines
 - Cochrane review research recommendations

**Effects of unconditional cash transfers**
[Read the Review](#)**Diagnosing tuberculosis**
[Read the Special Collection](#)**Mass drug administration**
[Read the Review](#)<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD011135.pub3/full>

WHO recommendations on antenatal care for a positive pregnancy experience

28 November 2016 | Guideline



Overview

This comprehensive WHO guideline provides global, evidence-informed recommendations on routine antenatal care. The guidance aims to capture the complex nature of the issues surrounding ANC health care practices and delivery and to prioritize person-centred health and well-being, not only the prevention of death and morbidity, in accordance with a human rights-based approach. This guideline is relevant to all pregnant women and adolescent girls receiving ANC in any healthcare or community setting and their unborn fetuses and newborns.

This document is intended for a wide audience including national and local policymakers, implementers and managers of national and local maternal and child health programmes, non-governmental and other organizations and professional societies involved in the planning and management of maternal and child health services, health professionals including obstetricians, midwives, nurses, general medical practitioners, academic staff involved in training health professionals, managers of maternal and child health programmes and public health policymakers

WHO TEAM

Guidelines Review Committee,
[Maternal, Newborn, Child & Adolescent Health & Ageing](#),
[Nutrition and Food Safety](#),
[Sexual and Reproductive Health and Research](#)

EDITORS

World Health Organization

NUMBER OF PAGES

196

REFERENCE NUMBERS

ISBN: 9789241549912

Establish The Research Question

Are all Potential Research Idea Researchable? Are all of them transferable into research problem?

So we have a process of formulating a research question- the first and most important step.

DECIDING WHAT and WHY

- What do you want to find out in your research?
- Why do you want to find it?
- Who would like to know the answer?
- Is it worth knowing?

Planning for formulating the RQ

- Identifying the topic- initially a broad area, preferably of your interest
- Discuss with colleagues, adviser and supervisor
- Think about it
- Literature search and review to read
- Consider background-pilot work
- Everything OK? If yes - time to start formulating research question

Formulating Research Questions

- State the question clearly, precisely, dissect the questions- get key questions after refining it
- To precisely define the research question it should be tested against the following criteria:
 - a. Importance: Worthwhile topic
 - What it is supposed to achieve?
 - Will it make a difference?

Formulating Research Questions

b. Feasibility:

- Can the question be answered? Can you solve the problem, should be able to handle the problem.
- Ethical?
- If it involves information collection from secondary source- are these available.
- The magnitude of work involved in completing the proposed study.
- Resources and cost?

Formulating Research Questions

- c. Significance: - Is it an important topic? If the results only apply in your particular context they may not be of interest to anyone else.

- d. Originality: - Has the question already been asked or answered by someone else? Take a critical view.

The Research Question: Background

- What is the problem the research will tackle?
Narrow down the topic into manageable size if needed.
- What recent or current developments are there in the field?
- What is new about the research?
- To what extent does it build on previous work by you and by others?

The Research Question: Methods

- How will you achieve your aims?
- What is the timetable? (When and for how long)
- Who will do the work
- What methods will you apply, and why have you chosen them?
- Make sure you have clearly defined the concepts if you are using one and make sure you know how to measure those.

A little note about discourse

Qualitative questions and aims:

- what, how, why
- explore, impinge, underlie

Quantitative questions and aims:

- how many, how strong
- measure, predict, correlate, effect

Both qualitative and quantitative aims:

- identify, relate to, relationships, links

Asking different questions: research priorities to improve the quality of care for every woman, every child



Unacceptably high rates of adverse outcomes persist for childbearing women and infants, including maternal and newborn mortality, stillbirth, and short-term and long-term morbidity.¹ In light of the challenges to achieve the UN Sustainable Development Goals, it is timely to reconsider priorities for research in maternal and newborn health. Are we asking the right questions? Recent evidence indicates the importance of seeking knowledge beyond the treatment of complications, to inform better ways of providing sustainable, high quality care, including preventing problems before they occur.²

The 2014 publication of *The Lancet's Series on Midwifery* presented a unique opportunity to generate future areas of inquiry by drawing on the most extensive examination to date of evidence on the care that all women and newborn infants need across the continuum from pre-pregnancy, birth, post partum, and the early weeks of life.^{3,4} The Series summarised the evidence base for quality maternal and newborn care in a new framework that focuses on the needs of women, infants, and families and differentiates between what care is provided, how it is provided, and

by whom.⁴ These are concepts that are often confused or ignored in existing studies. Midwifery was identified as a cost-effective and fundamentally important element of quality care, with the potential to improve over 50 different maternal and newborn outcomes including mortality and morbidity. However, there are substantive barriers to proper implementation and integration of midwifery into health systems.¹

We adapted the Child Health and Nutrition Research Initiative (CHNRI) methodology to score competing future research topics on quality maternal and newborn care and the contribution of midwifery to that care.⁷ This method has been used to set health research priorities for infant and childhood conditions,^{8,9} reduction of maternal and perinatal mortality,⁷ and preterm birth and stillbirths.¹⁰

A team representing expertise in maternal and newborn health research, including authors from *The Lancet's Series on Midwifery*, contributors from WHO, UNFPA, the International Confederation of Midwives, and a representative of or advocate for service users conducted the work. The team identified

Published Online
September 20, 2018
<http://dx.doi.org/10.1111/birt.12361>
52214-109X(16)30183-8

Research priorities	Research priority score
1 Evaluate the effectiveness of midwifery care across the continuum in increasing access to and acceptability of family planning services for women	90.4
2 Evaluate the effectiveness of midwife led care when compared to other models of care across various settings, particularly on rates of fetal and infant death, preterm birth, and low birthweight	89.8
3 Determine which indicators are most valuable in assessing quality maternal and newborn care	89.7
4 Identify and describe aspects of care that optimise, and those that disturb, the biological/physiological processes for healthy childbearing women and fetus/newborn infants and those who experience complications	89.3
5 Evaluate the effectiveness of midwifery care in providing culturally appropriate information, education, and health promotion (eg. nutrition, substance use, domestic violence, and mental health)	89.1
6 Identify and describe enabling factors from examples of successful implementation of evidence-based maternal and newborn care across a variety of settings	89
7 Describe and evaluate the effectiveness of midwives working with others (such as health professionals, community health workers, and traditional birth attendants) in achieving quality maternal and newborn care including, but not limited to: Timely transfer of women to appropriate level/site of care Management of emergency situations Maximal use of skills and competencies Shared decision-making and accountability	89
8 Assess the views and preferences of women and families across a variety of settings about their experiences of maternal and newborn care including, but not limited to, care providers and sites of care (eg. place of birth, antenatal care)	88.8
9 Develop setting-specific benchmarks to assess measurable progress on implementation of quality maternal and newborn care	88.3
10 Identify and describe aspects of maternal and newborn care that strengthen or weaken women's psychosocial wellbeing and mental health	88.0
11 Assess whether new measures of morbidity are needed to more effectively evaluate outcomes of maternal and newborn care	88.0

Table: Ranking of research topics by overall research priority score

Asking different questions: A call to action for research to improve the quality of care for every woman, every child

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Funding information

Jane Sandall is supported by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care South London at King's College Hospital NHS Foundation Trust. The views expressed are those of the author[s] and not necessarily those of the NHS, the NIHR, or the Department of Health and Social Care.

Abstract

Despite decades of considerable economic investment in improving the health of families and newborns world-wide, aspirations for maternal and newborn health have yet to be attained in many regions. The global turn toward recognizing the importance of positive experiences of pregnancy, intrapartum and postnatal care, and care in the first weeks of life, while continuing to work to minimize adverse outcomes, signals a critical change in the maternal and newborn health care conversation and research prioritization. This paper presents "different research questions" drawing on evidence presented in the 2014 *Lancet Series on Midwifery* and a research prioritization study conducted with the World Health Organization. The results indicated that future research investment in maternal and newborn health should be on "right care," which is quality care that is tailored to individuals, weighs benefits and harms, is person-centered, works across the whole continuum of care, advances equity, and is informed by evidence, including cost-effectiveness. Three inter-related research themes were identified: examination and implementation of models of care that enhance both well-being and safety; investigating and optimizing physiological, psychological, and social processes in pregnancy, childbirth, and the postnatal period; and development and validation of outcome measures that capture short and longer term well-being. New, transformative research approaches should account for the underlying social and political-economic mechanisms that enhance or constrain the well-being of women, newborns, families, and societies. Investment in research capacity and capability building across all settings is critical, but especially in those countries that bear the greatest burden of poor outcomes. We believe this call to action for investment in the three research priorities identified in this paper has the potential to achieve these benefits and to realize the ambitions of Sustainable Development Goal Three of good health and well-being for all.

Different questions, different methods

What is the effect of midwife led care on clinical outcomes?	RCT
What is the effect of midwife led care on psychosocial outcomes?	RCT
What do women feel / is their experience of midwife led care?	In depth interviews with women and observation
How our decisions about referral from midwife led care made? Who makes them?	Observation and interviews with clinical staff Analysis casenotes
How many women receive midwife led care in the UK? -- in this region? -- does it varied by class, ethnicity, parity, consultant, hospital? What are the variations in practice?	Survey or secondary analysis of routine data
What is the history of midwife led care?	Documentary analysis
How did the policy become implemented?	Interviews with 'experts' and key informants
How has the policy changed the occupational role of the midwife in practice?	Observation Survey
Does it excludes particular groups in the workforce?	Survey
How do midwives manage the work?	Observation Interview

Number crunchers and naval gazers?

	‘NUMBER CRUNCHERS’	NAVAL GAZERS
Aspect	Quantitative	Qualitative
Type of research	RCT Case control study Questionnaire	In-depth interview Participant observation Ethnography Focus group Video
Research questions	How much, how many, how often, what is the effect	What is the experience, feeling regarding, why, how
Type of question	Precise, requiring numeric answer	Broad, requiring global answer
Use of hypothesis	Present at the start and tested on data	May emerge as a result of the study
Treatment of data	Isolates and defines variables	Starts with general concepts that may change during research
Sample size	Large	Small
Sampling	Random or representative - infer from sample to population	Theoretical - to minimise and maximise differences
Issues/items described	Through eyes of researcher	Through eyes of respondents

Aspect	Quantitative	Qualitative
Data collection	Extensive Pre-designed instrument	Intensive uses self as instrument
Logic of generalisation	Hypothesis testing against data Statistical generalisability	By examining data to determine axiom that fits all cases Theoretical generalisability of concepts and categories
Analytical approach	Deductive	Inductive
Strengths	Causal inferences Analysis explicit	Explores lived experience of respondents Analysis implicit
Sources of bias	Poor randomisation in RCT Poor Case control Biased survey sample	Selecting data to fit a preconceived idea Selecting the exotic at the expense of the mundane
Weaknesses	RCT - lower external validity / does it work in the real world?	Lower internal validity / difficulty establishing cause and effect

The Research Question: Outcomes

- What are the objectives of the research?
- What will be the expected findings or outcomes?
- What are the implications for policy and practice and how will these be taken up?

The Research Question: Dissemination


- How will you disseminate the results of your research project? The target group, the means and mode
- What it will cost? (Make sure that your budget is feasible and realistic)
- Ethical and other implications

Qualities of successful scientists ?

- 1) They have a vision – and can articulate it.
- 2) They are passionate. But don't necessarily wear it on their sleeve.
- 3) They work hard at communication... even if they make it look deceptively easy.
- 4) They are generous and think beyond their own work to support others.
- 5) They take risks and are willing to fail – sometimes publicly.
- 6) They are resilient. And pick themselves up and keep on going when they fall.
- 7) They are self-examining and adaptive.
- 8) They seek solutions. And address the “so what” so people care.
- 9) They have a fun factor or *some* kind of charisma – but are not necessarily extroverted.
- 10) They are persistent. Patience eventually pays off.



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<http://www.kcl.ac.uk/lsm/research/divisions/wh/index.aspx>