Mapping and optimising the implementation of a national, living postnatal care guideline: protocol for a qualitative research study

Amanda Blair[1,2] (corresponding author amanda.blair@student.burnet.edu.au)

Samantha Chakraborty[3]

Caroline S. E. Homer[1,2]

Joshua P. Vogel[1,2]

[1] Maternal, Child and Adolescent Health Program, Burnet Institute
[2] Melbourne School of Population and Global Health, The University of Melbourne
[3] School of Public Health and Preventive Medicine, Cochrane Australia, Monash University

Version

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1.0	First draft (AB)	21 November 2023
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Table of contents

Executive summary

Background

Underutilisation and a lack of adherence to clinical practice guidelines remains a problem in numerous clinical and policy areas and can result in non-standardised care practices within and across jurisdictions, and the delivery of non-evidence-based and low-quality care practices (1,2). Identifying clinician, facility, and health facility barriers to guideline implementation and then addressing these with tailored implementation strategies has been shown to increase guideline use and to a lesser extent, to improve clinical outcomes.

The Living Evidence of Australian Pregnancy and Postnatal care (LEAPP) guideline is currently under development and will be Australia's first national, and first living, postnatal guideline (3). Evidence surrounding the barriers to postnatal guideline implementation is scarce, as is evidence for the implementation challenges – and opportunities – associated with the living guideline model (whereby recommendations are continually updated as new evidence comes to light). This project will address this paucity of evidence with the following aims and objectives:

Aim:

This project aims to identify barriers, facilitators and potential strategies for implementing living postnatal care guidelines in Australia.

The specific research objectives are:

1. Identify the barriers and facilitators encountered during implementation of previous postnatal care guidelines in Australia and explore how these may differ for living guidelines.
2. Explore what strategies have been or could be used to optimise implementation of national, living postnatal care guidelines in Australia.

We intend to conduct a subsequent project that will combine findings from objectives 1 and 2 to generate a prioritised list of implementation strategies, to guide future activities of the LEAPP postnatal guideline team.

We will address the above objectives from the perspective of postnatal care guideline developers, postnatal facility managers, and postnatal care providers (primarily midwives and obstetricians).

Methods

Qualitative research methods (semi-structured interviews) will be used to collect data from postnatal guideline developers, maternity facility managers, and midwives/obstetricians. Interviews will be via Microsoft Teams or telephone and will be audio and video recorded. Topics covered during the interviews will include:

- How the participants normally keep up to date with the latest evidence-based postnatal care practices.
- Previous experiences with postnatal guidelines including the living Covid-19 postnatal guideline recommendations, in particular:
    - The barriers and facilitators to their implementation.
    - Strategies used to enhance their implementation.
- Ideas for strategies to enhance implementation of the LEAPP postnatal guideline.

After verbatim transcription of all interviews, thematic analysis will take place in multiple stages. Firstly, data relating to guideline implementation barriers and facilitators will be identified and deductively mapped to the Theoretical Domains Framework and the COM-B model. Secondly, implementation strategies (both previously used and ideas for future use) will be thematically analysed and matched to the identified barriers/facilitators. These findings will be combined with a review of implementation literature to establish a list of potential strategies to enhance implementation of the LEAPP postnatal guideline.

Intended outputs and dissemination

The findings from this project will be submitted for publication in peer review journals and will form results chapters of AB's PhD thesis. The list of tailored implementation strategies selected for LEAPP will be shared directly with the guideline developers who will be able to utilise these strategies, or distribute them to their member organisations, when the

guideline is ready for publication. By doing so, we hope to increase the awareness and uptake of the LEAPP postnatal guideline.

Background and rationale

In mid-2023 work began on the production of Australia's first national postnatal care guideline as part of the Living Evidence of Australian Pregnancy and Postnatal Care (LEAPP) guideline (4). Clinical practice guidelines (guidelines) are designed to optimise patient health outcomes and quality of care by providing clinicians and health services with evidence-based recommendations to inform their care choices (5). The LEAPP postnatal guideline has the opportunity to inform the care of women, newborns, and their families in the first six weeks after birth, with the aim of standardising and improving postnatal care provision across the country (3).

Unfortunately, the development of a high-quality guideline does not automatically lead to the intended changes in clinical practice or in health outcomes. Underutilisation and a lack of adherence to guidelines remains a problem in numerous clinical and policy areas and can lead to can non-standardised care practices within and across jurisdictions and the delivery of non-evidence-based and low-quality care practices (1,2). To enable implementation of a guideline's recommendations, healthcare services and clinicians need to be aware of the guideline's existence, agree with its recommendations, have the agency to apply them, as well as having access to the appropriate infrastructure and resources (6). There are many factors at the individual, organisational, and health system levels that can affect guideline awareness and uptake (7). Previous research on guideline implementation has focused on overcoming implementation barriers identified at the individual (clinician) level (7). While this research is important, it has the potential to overlook barriers to implementation at the level of health facilities or health systems, some of which individual clinicians may be unaware of.

Guideline implementation

An overview of systematic reviews by Pereira et al. summarised the effectiveness of implementation strategies employed to improve clinical guideline implementation and dissemination (2). From the 36 included systematic reviews, 30 implementation strategies that targeted clinicians, consumers, and/or healthcare organisations were identified (2). There was heterogeneity in both the design and evaluation methods used for these 30 strategies, making comparisons between them challenging. Overall, active strategies that

targeted care pathways (e.g. facility policies), instigated educational meetings, improving organisational culture, and establishing audit and feedback processes were found to be effective at improving guideline recommendation uptake and adherence, and to a lesser extent effective at improving patient outcomes (2). The National Institute for Health and Care Excellence (NICE), the United Kingdom's key producer of evidence-based guidelines, also champions many of these strategies. NICE states in their guide, *Principles for putting evidence-based guidance into practice*, that fostering environments that are committed to quality improvement, have effective leadership, the "right" culture, and that work together are key to improving clinical practice and health outcomes (8).

Two reviews included in Pereira et al.'s overview focused on implementation strategies within the field of obstetrics (9,10). One of these, by Chaillet et al., included studies from high-income countries including Australia (9). This review found the most effective strategies to enhance guideline adaptation and implementation within obstetrics were multifaceted, included elements of audit and feedback, and were facilitated by local champions (26). Contrary to the findings of the broader overview of systematic reviews, educational strategies with medical providers were found to be ineffective within the obstetric context and had mixed effects in nurses, midwives and allied health professionals (2,9). Chaillet and colleagues suggest the difference in effectiveness for educational strategies may be due to the nature of care provided by the different professions - obstetricians often attending women with more complex pregnancies and births, or provide care in emergency situations. While Chaillet's review included studies published prior to 2004 and may not be representative of today's clinical context and workforce, it does provide the valuable insight that both obstetricians and midwives need to be consulted when identifying factors affecting guideline implementation as these are likely to be unique to each profession.

While there is much uncertainty of what the most effective strategies are to enhance guideline adoption and implementation, there is general consensus that strategies prospectively tailored to the clinical and consumer context are more effective at increasing guideline uptake, compared to non-tailored interventions or an absence of active implementation strategies (2,7,9,11). This was confirmed in a Cochrane review by Baker et

al. that assessed the effectiveness of tailored interventions versus non-tailored interventions and no interventions (7).

Evidence surrounding barriers specific to postnatal guideline implementation is limited. A 2021qualitative study by Evenstad et al. in Norway found that barriers to implementing a caesarean postnatal care guideline included: 1) clinicians lack of awareness and understanding of guideline recommendations, 2) ambiguity in how to approach non-conformity to recommendations, and 3) recommendations competing against professional traditions and personal values (12). A 2005 Canadian mixed-methods study by Watt et al. found that a lack of postnatal beds, no additional hospital funding, and a shortage of staff were the key barriers to implementation of a universal program to increase postnatal length of stay (13). WHO's 2022 postnatal guideline also included a description of potential implementation barriers. Those that may be relevant to the Australian context include skills shortages, lack of time for health workers, resistance of health workers to change their practices, and a lack of effective referral systems and care pathways (14). Understanding which barriers are present within Australia's postnatal environment will be important as it will allow us to select specific implementation strategies that minimise these barriers and enhance postnatal guideline awareness and adoption.

Living guidelines

Until now, implementation research on translating guidelines into clinical practice has focused on traditional guidelines and does not consider the additional challenges associated with implementing living guidelines. Living guidelines are a relatively new model of guideline development, gaining traction over the past five years particularly during the Covid-19 pandemic. One of the key producers of living guidelines in Australia, The Australian Living Evidence Collaboration (ALEC), defines living guidelines as "evidence-based guidelines that comprise one or more living recommendations that are continually updated as new information becomes available" (15). As a result, living guidelines are more frequently updated compared to traditional guidelines, (which are often only updated every 3-5 years) (16,17). This model allows living guidelines to keep guidance as up-to-date as possible and enable evidence informed care practices (15). The living guideline model was particularly useful during the Covid-19 pandemic where new evidence was rapidly emerging and

recommendations required updating frequently. Many Covid-19 living guidelines included postnatal care recommendations. For example, the Australian [living] guidelines for the clinical care of people with COVID-19 contained recommendations that supported (with precautions) breastfeeding, skin-to-skin contact, and rooming-in practices for women who are positive for coronavirus (18).

The living guideline model means recommendations can be updated responsively when new evidence comes to light – this has the potential to reduce the knowledge-to-practice gap. However, frequent guideline updates may overwhelm busy clinicians and health services, or to be missed entirely. Given the novelty of the living guideline model, the implementation challenges and opportunities are yet to be fully understood. We have a unique opportunity to explore these as ALEC undertakes a five-year project, funded by the Australian government, to develop Australia's first living guidelines for pregnancy and postnatal care (the LEAPP guideline). By exploring the barriers and facilitators to postnatal guideline implementation, we will also be able to identify strategies that can enhance the effectiveness and sustainability of Australia's living postnatal guidelines.

Research aim and objectives

This project aims to identify barriers, facilitators and potential strategies for implementing living postnatal care guidelines in Australia.

3. The specific research objectives are: Identify the barriers and facilitators encountered during implementation of previous postnatal care guidelines in Australia and explore how these may differ for living guidelines.
4. Explore what strategies have been or could be used to optimise implementation of national, living postnatal care guidelines in Australia.

We will address the above objectives from the perspective of:

- Postnatal care guideline developers
- Postnatal facility managers
- Postnatal care providers.

Methods

Overview of study design

We will utilise qualitative research methods. The choices for data collection and analysis have been guided by the overarching principles of the Knowledge to Action Framework (KAF) (19). The KAF provides detailed guidance in mapping complex implementation plans, assessing barriers and facilitators to implementation, and selecting strategies to enhance implementation (Figure 1) (20).

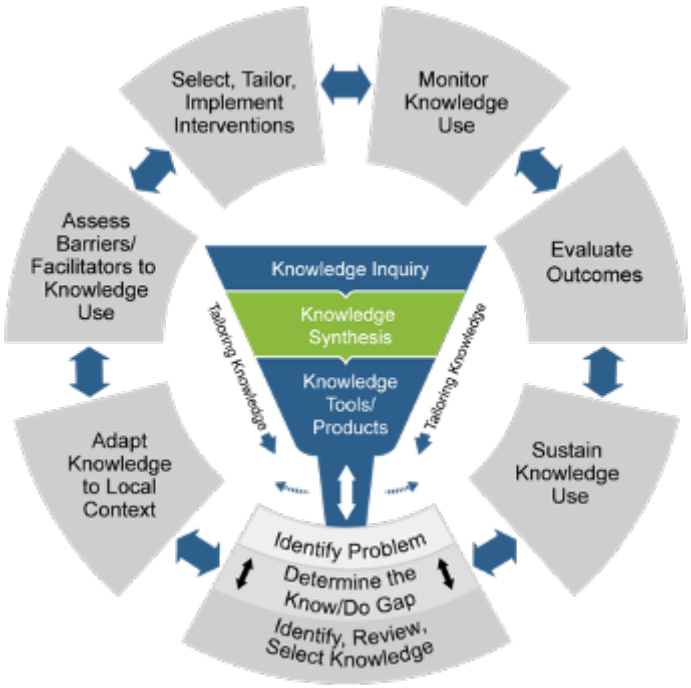

Figure 3. The Knowledge to Action framework sourced from Knowledge Translation in Health Care: Moving from Evidence to Practice (11).

Setting

Postnatal care in Australia is delivered in a mixed and fragmented fashion. As such, we will use stratified purposive sampling to ensure a variety of perspectives is obtained, from different postnatal settings. Stratification will be based on the profession of the participant, maternity care setting, and the location of workplace.

Profession

Guideline developers

While LEAPP will be Australia's first national postnatal guideline, many sub-national guidelines currently exist that inform Australia's clinicians and facilities on postnatal care. Our 2023 scoping review found 31 Australian postnatal guidelines published since 2010 (21). We want to learn from the implementation experiences of those who developed these guidelines, including the barriers and facilitators they encountered, the strategies they used to overcome or utilise these, and the success of such strategies. Guideline developers from guidelines included in the review will be invited to participate. Guidelines which cover core components of postnatal care and have an implementation section in the guideline will be given priority to participate.

Maternity (postnatal) facility managers

Maternity facility managers are responsible for overseeing the staff at a given facility, allocating resources appropriately (including educational supports for staff), and instigating quality improvement projects. They are therefore key players in ensuring guideline recommendations can be implemented in their facilities. Postnatal facility managers from Australia's public and private hospitals, and birthing centres will be eligible to participate.

Postnatal care providers

Many providers are involved in the delivery of postnatal care in Australia. Midwives and obstetricians have a large role, especially in the first 1-2 weeks after birth, while community nurses (often called maternal and child health nurses) play a larger role after this period, including conduct of home visits. General practitioners will often see women for a follow-up visit six weeks after birth and provide ongoing care thereafter. All these providers of postnatal care can play an important role in the implementation of postnatal care guidelines and we wish to capture their views in this study.

Maternity setting

In Australia approximately 75% of women and families receive their maternity and postnatal care in the public health system (22). For most this means giving birth in a public maternity hospital, receiving 1-2 home visits from a domiciliary midwife, community health appointments with maternal and child health nurses and a six-week follow-up visit with a hospital midwife/obstetrician or general practitioner.

Most of the remaining 25% of women in Australia receive their maternity care in the private hospital system (22). One of the primary differences for postnatal care in the private system is the increased length of stay in hospital after birth compared to the public system. This has implications for how and when essential components of postnatal care are delivered (components that will be covered in postnatal clinical guidelines). As such, we aim to recruit clinicians and maternity facility managers from a mix of public and private hospitals.

Location of practice

Australia has substantial diversity in the density of populations and subsequently the accessibility of health facilities varies for metropolitan, regional, rural, and remote regions. The majority of births occur in metropolitan regions, therefore we expect most participants for our study will be from these areas (23). However, some implementation issues are likely to be unique to regional, rural, and remote settings. Stratifying our sample by location of practice will ensure we hear implementation experiences unique to each type of region.

Participants, sampling, and recruitment

Participants will be individuals who have been involved with developing or implementing postnatal guidelines in Australia. We will explore guideline implementation from the perspective of guideline developers, health facility managers, and maternity providers. Examples of the types of participants can be seen in table 2 alongside their eligibility criteria and target sample size.

Table 2. Example participants

Participant strata (by profession)	**Example participants**	**Eligibility criteria**	**Target sample size**
Guideline developers	Developers of Australian postnatal care guidelines.	- Developers of Australian postnatal guidelines included in Blair et al. Scoping review (21).	5-10
Health facility managers from:	- Hospital postnatal wards - Birthing centres	- Role must include management of postnatal services. - Employed at an Australian public or private maternity hospital, standalone	12-15

		birthing centre, or community health centre.	
Clinicians	- Midwives - Obstetricians - General practitioners - Nurses who deliver postnatal in the community	- Registered Australian midwife, obstetrician, or GP. - Employed at an Australian public or private maternity hospital, standalone birthing centre, or working as a private practice midwife (midwives and obstetricians). - Employed at a GP clinic, community family health service, or Aboriginal community controlled health service (GPs and nurses).	12-15 2-3 obstetricians 2-3 GPs 4-5 midwives 4-5 MCH nurses

Stratified purposive sampling will be used to ensure sufficient data is obtained from individuals from each stratum. Overall, we aim to recruit approximately 30-40 participants in total, with approximately 5-10 guideline developers, 12-15 facility managers, and 12-15 clinicians. We anticipate this will ensure saturation is reached within each major stratum, while also being feasible to complete. We will use the stopping criteria described by Hennink and Kaiser's to determine saturation, where two further interviews for each strata will be conducted after no new codes are generated (24).

Different recruitment strategies will be used for the different participant strata. Postnatal guideline developers will be emailed or phoned using contact information available on the guideline/guideline website. We will use contacts known to the research team to send recruitment emails to maternity facility managers. For clinician recruitment we will ask the Australian College of Midwives (ACM) and the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG), both of which are involved in the LEAPP guideline, to share a recruitment message with their members via newsletter/emails. Recruitment emails will include a link to the plain language summary of the project, participant consent form, short demographic survey (hosted on Qualtrics), and a link to the LEAPP guideline website. AB's email address will be provided for any potential participants

who would like to request more information before consenting to participate. All participants will be asked to electronically sign and return an informed consent form.

Data collection

Data will be collected using semi-structured interviews. Given the expected geographical diversity of participants, most/all interviews will be conducted online via Microsoft Teams or by telephone.

Semi-structured interviews

Participants will be instructed to find a private, quiet location of their choice to conduct the interview. With participant's consent, interviews will be audio and video recorded (with one back up recording). Recordings will be destroyed once interviews have successfully been transcribed. It is anticipated each interview will take between 30-45 minutes to complete.

The interview guide will be tailored to the three strata of participants (see appendices A-C for full interview guides). Questions will relate to the following topics:

- General experiences with postnatal care guidelines and sources of evidence-based practice recommendations.
- Barriers and facilitators to implementing changes to postnatal clinical practices.
- Strategies previously used to enhance implementation of postnatal evidence-based practices.
- Knowledge of, and experiences with, living guidelines.
- Ideas for strategies to enhance awareness and uptake of national, living postnatal guidelines.

The interviewer (AB) will pilot the interview guides with approximately 3 to 5 individuals to ensure the interviews have a logical flow and are worded appropriately. Each pilot interviewee will be asked to provide feedback on the content and style of the interview so that it can be improved upon.

Data analysis

All interview data will be transcribed verbatim. NVivo software will be used to assist in organising and coding the data. All transcribed data will be analysed/coded by AB and at least 50% of transcripts will be independently coded by a second author. The first six transcripts will be coded by both AB and the second coder. AB and the second coder will meet after every 3 interviews to discuss any discrepancies in the coding framework. If discrepancies are minimal, the two coders will meet after approximately every sixth interview is coded thereafter.

Objective 1: Barriers and facilitators to postnatal care guideline implementation

Descriptive content analysis will occur to map the actions involved in implementing postnatal guidelines. Any steps unique to implementation of living postnatal guidelines (e.g. the Covid-19 breastfeeding, skin-to-skin, and rooming in recommendations) will be highlighted. Implementation steps will be mapped separately for each participant stratum (guideline developers, health facilities, and clinicians) while also illustrating connections between the three strata where appropriate.

We will then move onto a thematic analysis of implementation barriers and facilitators using the steps described by Braun and Clarke (25). The analysis will involve a mix of inductive and deductive coding. Data that fits within the 14 categories of the Theoretical Domains Framework (TDF) and the 6 COM-B model categories will be deductively coded into these (see Appendix D) (26,27). Any data that does not fit appropriately into the TDF or COM-B will be reported using inductive created codes.

Objective 2: Implementation strategies for postnatal care guidelines

Data relating to implementation strategies for postnatal guidelines will also undergo thematic analysis. We will attempt to link previously employed implementation strategies to the barriers and facilitators identified in part 1 of the analysis. The effectiveness of strategies will be explored; objectively for strategies that were formally evaluated, and subjectively for those that were not formally evaluated (using participants descriptions of perceived effectiveness). We will attempt to describe the causal mechanisms (how the strategy enhances guideline implementation) using both the participants descriptions and

expanding on these with ideas from implementation science literature. Other factors including the feasibility and sustainability of the strategies will be discussed, with special consideration given to how the strategies would work, or could be adapted to work, with the living guideline model. Participants ideas for implementation strategies for the LEAPP guideline will undergo a similar analysis to previously used strategies (minus the exploration of past effectiveness).

Once we have explored previous strategies, we will move onto generating our own list of potential implementation strategies for the LEAPP postnatal care guideline. As is suggested in the KAF, we will use a behaviour change model such as the COM-B's behavioural wheel to identify a selection of knowledge translation strategies that address the identified implementation barriers and facilitators (11,20). Alongside this analysis, AB will review the literature surrounding knowledge translation strategies and their effectiveness both broadly and within the maternity and postnatal environments. The review findings will assist in our selection of appropriate implementation strategies. The list of implementation strategies generated in objective 2 will feed into a subsequent research project where LEAPP guideline users will be asked to discuss the usefulness, feasibility and sustainability of the various strategies with the aim of prioritising strategies to implement for the LEAPP guideline.

Reflexivity

The study team consists of metropolitan-based, Australian researchers with backgrounds in public health, physiotherapy, midwifery, implementation science, and medicine. The team's breadth of knowledge has assisted in the design of the project, particularly the interview guides. However, we acknowledge most of our interactions with Australia's postnatal care services (as consumers, providers, and/or researchers) have been within metropolitan regions, and this may influence our perceptions of guideline implementation barriers and potential implementation strategies. To ensure these preconceptions do not cloud our data collection and analysis processes, the research team will practice critical reflexivity.

After each interview is conducted, the interviewer (AB) will take reflective notes. This will involve firstly noting when certain interviewee responses resonate closely with her own preconceptions and when certain responses surprise her, and secondly, how she follows up

in both scenarios (e.g. what follow-up questions are asked). These reflections and improved understandings of her own viewpoints will assist AB to improve the conduct of future interviews, and in performing transparent data analysis. Having two researchers independently code most of the interview data will also assist in minimising misinterpretations of the data. Any disagreements in coding/the coding framework will be discussed between the two researchers and if a consensus is not reached, a third member of the team will be asked to assist in interpreting the data.

Data presentation

Written descriptions of the thematic analyses will be accompanied by a visual depiction of results that link the implementation barriers and facilitators to implementation strategies (including those used previously used and those selected for use with LEAPP). This visual depiction may use a template similar to that of an Implementation Research Logic Model (IRLM) (28). This visual depiction will be particularly useful within AB's PhD thesis to help draw together findings from objectives 1 and 2 of the project. IRLMs can be used during the planning of implementation projects (as we are here) to understand what aspects of the project may require more support and how certain strategies are expected to work to deliver the intended outcomes. IRLMs can then be revisited and adapted during the execution and evaluation of a project's implementation as we learn what worked (or didn't) in reality and why (28). See Appendix E for a template for an IRLM template.

More simple results tables (such as Table 3) that summarise parts of the IRLM are likely to be included in the publication.

Table 3. Example results table

Implementation barriers and facilitators by level of health system	**Relevant to traditional guidelines?**	**Relevant to living guidelines?**	**Matched implementation strategies**	**Implementation strategy notes (level of effectiveness and in what context)**
Guideline developers				
B1 – lack of resources/funding for guideline implementation activities.	√	√	S1 S2	S1 was considered effective at reducing/increasing XX in YY context.
B2		√	-	

F1	√	√	S3	
Postnatal facility managers				
B3 – difficulties changing workflows	√	√	S2	
B4 – resources required to frequently update policies		√	S4	
F1 – organisational culture		√	-	
F2	√		S5	
Maternity providers				
B4 – lack of awareness of guideline	√	√	S4 - educational outreach	
B5 – perceptions of recommendation benefits vs risks		√	-	
F1 – organisational culture	√	√	S6 – organisational culture	

Dissemination and implications

The main outputs of this project will include:

1. A description of the steps involved in implementing postnatal guidelines and evidence-based practices in Australia at the level of guideline developers, health facilities, and maternity providers. Differences in implementation for traditional and living guidelines will be highlighted.
2. An analysis of the barriers and facilitators to implementing postnatal guidelines in Australia.
3. An analysis of implementation strategies previously used to enhance awareness and uptake of postnatal care guideline recommendations and the effectiveness of these strategies.
4. Rationale for a selection of implementation strategies to assist with implementation of the LEAPP postnatal guideline.

These outputs will be disseminated in manuscript(s) that will be submitted to peer review journals within the maternal and child space. Any publications will be disseminated via professional networks of the research team. They will also form chapters of AB's PhD thesis and she will endeavour to present these findings at domestic (Australian) and/or

international conferences. The list of implementation strategies will be shared with the LEAPP team and developed further in a subsequent research project.

Data management

Data management plan

During recruitment each participant will be assigned a code according to their profession and interview number (e.g. D01 = guideline developer interview 1, F02 = facility manager interview 2). Once assigned, these codes will be documented and managed in a participant log file that will be stored separately to all interview audio/video flies, transcripts, and consent forms, on a password protected computer accessible only to the research team. Participant's non-identifying codes will be used for all file names and when attributing quotes in any publications resulting from the project. Personal identifying information will not be collected during recruitment or data collection.

The various digital files to be generated throughout the course of the project are listed in table 4 alongside information about where they will be stored, for how long, and who will have access to them.

Table 4. Data storage and access

File type	Storage location and duration	Access
Informed consent forms and demographic short survey (.pdf)	Hosted on a University of Melbourne license of Qualtrics (data stored securely in Sydney data centre). A copy will also be kept on a shared OneDrive folder maintained for 5 years after final manuscript published.	Shared OneDrive folder accessible to AB and JV.
Participant log (.csv)	Shared OneDrive folder maintained for 5 years after final manuscript published. Hard drive of AB's password protected computer with continuous local encrypted back-ups. Maintained for 5 years after final manuscript published.	Shared OneDrive folder accessible to AB and JV.
Audio/video files (.m4a)	Hard drive of AB's password protected computer with continuous local encrypted back-ups.	AB

	OneDrive folder. Both copies (hard drive and OneDrive) will be deleted immediately after transcription or participant withdrawal from study.	
De-identified transcripts (.doc and .pdf)	Uploaded to NVivo on AB's and XX's password protected computers. Shared OneDrive folder maintained for 5 years after final manuscript published.	Shared OneDrive folder accessible to all members of research team.
Interviewer reflective notes (.doc)	Hard drive of AB's password protected computer with continuous local encrypted back-ups.	AB
Hard copy of de-identified transcripts (for ease of analysis)	Locked filing cabinet on the Burnet Institute's premises for 5 years after final manuscript published.	JV responsible for long term storage of hard copies at Burnet.

Transcription will be performed by AB with the assistance of Descript transcription software. Transcripts will be created in Microsoft Word. Transcripts will use participant's assigned codes only (no personal identifying features included). Transcription is expected to be complete within 2-3 weeks of each interview and audio/video recordings will be deleted after transcription is complete. Only the research team will have access to the transcripts. If any participants withdraw during or after an interview and prior to commencement of data analysis, audio/video files and transcripts will be deleted immediately. All participants will be offered the opportunity to review their interview transcript before data analysis begins. If no response is received within two weeks of them being emailed their transcript, we will assume they do not want to make any changes.

Transcribed data will be uploaded to NVivo software on the password protected computers of the research team members primarily responsible for coding (AB's and TBD). Transcripts will also be stored on a shared OneDrive folder accessible only to the research team. These copies will be stored for five years after the publication of all project publications in line with the University of Melbourne's Research Integrity and Misconduct Policy. If any hard copies are made to assist in the analysis process, these will be stored in a locked filing cabinet on the Burnet Institute's premises.

Data management systems

All files will be saved in preservable formats (e.g. .pdf or .csv) for long term storage. A README.txt file will be created that provides an overview of all project files, naming conventions and notes on their usage.

Security

Data will be stored on a project OneDrive folder, which is restricted to members of the project team and requires Burnet Institute authentication. Non-anonymised data (informed consent forms, participant log) will be kept in a separate folder to anonymised data (de-identified transcripts).

The transcription software we will be using, Descript, employs end-to-end encryption so that the data will only be available to the logged in user (AB).

Transferring/transporting data

As all project team members will have access to the relevant files in the shared OneDrive folder, we do not anticipate a need to transport or transfer data.

Data quality assurance

Transcripts will be reviewed by AB to ensure the quality of both the recordings and to correct any mistakes in the transcribing process performed by Descript software.

Data protection procedures

The following measures will be taken to ensure confidentiality:

- All data files (audio/video files and transcripts) will identify participants by their participant code only. Identifying information will not be collected during interviews.
- The participant log file linking participant names and contact details to their participant code will be kept separately to audio/video files and transcripts (see table 4).
- Data management of de-identified transcripts will be done using the cloud service OneDrive, with access only permitted to research team members. The use of cloud

storage for de-identified data is compliant with the University of Melbourne's data management procedures.

- After completion of the project, data and documents will be digitally archived for 5 years after publication of results.
- All resultant publications/presentations from the project will not contain any personal identifying information of participants. Illustrative quotes will be linked to the profession of the participant plus/minus the type of maternity setting (e.g. public or private) or location (e.g. metropolitan or rural) where this is relevant to the discussion.

Data archiving

In accordance with Australian legislation and the University of Melbourne's Research Integrity and Misconduct Policy, the digital dataset will be archived on a Burnet Institute OneDrive folder for five years after publication. This folder will be maintained by project supervisor JV. Only authorised research staff (those listed on page 1) will have access to these records.

Ethical considerations

This project will be conducted in line with the NHMRC's National Statement on Ethical Conduct in Human Research and has been designed with consideration of the ethical principles respect, beneficence, justice, and research merit and integrity (29).

Ethics approval

Human research ethical approval will be sought for this project from the University of Melbourne's Human research ethics committee and from the Alfred Hospital Ethics Committee. If any modifications are made that impact the conduct of the project (including changes to the objectives, design, population, sample size etc.) these will be submitted to the relevant ethics committees as a formal amendment prior to implementation of the change. The ethics committees will also be notified in the unlikely event of any serious ethical breaches, protocol deviations, serious adverse events or other safety concerns.

Informed consent

All participants will be asked to sign an online informed consent form during the recruitment process (prior to data collection). Recruitment material will have a QR link to both the plain language statement and the informed consent form. The form will confirm that participants have read and understood the project's plain language statement, that they understand their participation in the project is voluntary, that they can withdraw at any time before data analysis has commenced, and that their confidentiality will be maintained throughout the project.

Confidentiality

Once a participant signs an informed consent form and an interview time has been arranged, they will be assigned a code according to their profession and interview number. Participant's non-identifying codes will be used for all file names and when attributing quotes in any publications resulting from this project. If the maternity setting (public or private) or location (metropolitan, regional, rural, remote) is relevant for the analysis this information will also be reported. No personal identifying information will be collected or reported.

Access to data

All audio/video-recordings and de-identified transcripts will be kept on the hard drive of a password protected computer and in a shared OneDrive folder (accessible only to the research team listed on page 1). Audio/video-recordings will be destroyed after interviews have been transcribed. Transcripts will be retained on the OneDrive folder for the standard 5 years after publication.

Declarations of interest

The research team has no conflicts of interest to declare.

Reimbursement or compensation to participants

Participants will not be reimbursed or compensated for their participation in the project as they are providing perspectives on aspects of their professional work (for which they are paid). This will be made clear in the plain language statement.

Any possible risks and benefits of the study for individuals and the community

Only minor potential inconveniences/harms to participants have been identified and these are strongly outweighed by the potential benefits of the project (enhancing implementation of an evidence-based guideline). The time taken to participate in an interview could be seen as an inconvenience to participants, however we intend to be flexible in the scheduling of interviews, keep interviews to less than 45 minutes in duration, and conduct interviews online to be as unobtrusive as possible.

The topics covered during interviews are non-intrusive and are unlikely to induce discomfort or distress in participants. Participants may have concerns that their identity or place of work will be revealed. This may affect how they respond to interview questions, particularly those relating to organisation level implementation barriers. The plain language summary and consent form will reassure participants that interview data will be de-identified upon transcription and only general professional titles (such as midwife or maternity facility manager) will be attached to any published quotes alongside non-identifying demographic information (public vs private hospital, metropolitan vs rural) where this is relevant. Participants will have the opportunity to review and edit their transcribed interview data before it is analysed.

Benefits to the participants include having their views taken into consideration in the choice of strategies that we will present to the LEAPP team to enhance guideline implementation. By considering the needs of future users of the LEAPP guideline when identifying implementation strategies, it is more likely that these any strategies chosen will address their individual and/or facility needs and enhance guideline awareness and uptake. This will then have flow on effects for the community, as improving the awareness and uptake of an evidence based postnatal guideline is likely to result in higher quality, standardised care across the country.

Timeline

Activity	Nov ’23	Dec ’23	Jan ’24	Feb ’24	Mar ‘24	Apr ‘24	May ‘24	Jun ’24	AB on leave	May ‘25	Jun ‘25	Jul ‘25	Aug ‘25	Sep ‘25
Development of study protocol and study instruments														
Ethics approval														
Pilot interview guides														
Data collection (interviews) and transcription														
Data analysis Objective 1														
Data analysis Objective 2														
Interpretation and write up														

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Appendix A: Interview guide for maternity providers

Interviewer instructions:

- Probes and further interviewer instructions are in grey.
- Questions are in black.
- The questions below are intended as guides only, the exact wording and emphasis of questions may subtly vary depending on each participant's background and experiences with guideline implementation.

Maternity providers

Participant information gained during recruitment:
Profession:
Number of years in current profession:
Type of workplace (public hospital, private hospital, birthing centre, community health service - tick all that apply)
Setting (metro, inner regional, outer regional, rural, remote)

Preamble

- Welcome/introductions
- Re-explain aims of study – what we will be talking about
- Confirm participant is fine to have interview audio/video recorded

Questions:
General experiences with postnatal guidelines/evidence-based practice recommendations

1. If you were to have a clinical dilemma or a situation with a postnatal patient where you're not sure what your next steps should be, how would you approach making a decision or coming up with a care plan?
    - Where/who would you seek information from? (e.g. publications, guidelines, conferences, attend talks or ground rounds etc.)

2. In the absence of a clinical problem where you are looking for specific information, do you usually try and keep up to date with the latest postnatal clinical evidence?
    a. If so, where do you look for this information? (e.g. publications, guidelines, conferences, attend talks or ground rounds etc.)
    b. If you come across an evidence-based recommendation that is different to what you currently do, what would your next steps be?

    (Go straight to question 2b if participant already brought up guidelines in Q1).
3. Have you had any experiences with postnatal clinical guidelines?
    If yes:

a. How did you become aware of these guidelines/recommendations?
b. What is your approach to getting information from guidelines? (e.g. read from start to finish, look up topics of interest, summaries, flow charts, attend talks or grand rounds etc.)
c. If a guideline recommends something different to what you currently do, what would your next steps be?
d. To what extend do you think the facility/facilities you work at follows guideline recommendations?

Barriers and facilitators to implementing changes to clinical practice

4. I'd like you to think about a time when you've tried to adopt a new or different care practice based on an evidence-based recommendation. What were some of the challenges you encountered when trying to make the change to your clinical practice? (let participant lead conversation, probe if needed)

5. Can you think of a time when you adopted a new care practice and it went really well? What factors do you think helped make it easier? (let participant lead conversation, probe if needed)

If conversation about barriers/facilitators has been limited, use the probes below:
I'll now jump in with some other factors that may or may not have impacted your ability to adopt postnatal care recommendations. If they do not feel relevant to you, that's fine let me know and we'll move on. If they do feel relevant, feel free to discuss how they've either positively or negatively impacted your ability to implement postnatal care recommendations.

PROBES

- Are there structural components within your workplace that either help of hinder the adoption of guideline recommendations? (things like access to resources, workloads, systems/policies, training opportunities)
- Do you feel like your current knowledge or skills to implement a recommendation influence whether or not you would adopt a recommendation?
- Do you think the culture within your workplace influences the adoption of guideline recommendations?
- Is there anything about a guideline or its recommendations that would make you more or less likely to adopt its recommendations? (e.g. endorsements from organisations or respected colleagues, perceived quality of guideline, how clearly and succinctly recommendations are presented, level of certainty of the benefits and

risks of the recommendation, changes to current workload, expectations from patients)

Understanding of, and experiences with, living guidelines

We are now going to chat more specifically about living guidelines. Living guidelines are a relatively new model of developing guidelines.

6. First of all, I'm interested to understand if you've heard of living guidelines and if so, what do you know about them?

If good understanding of living guidelines skip explanation of what they are (fill in blanks/make corrections to understanding if needed).

If not aware of living guidelines skip next question.

7. Have you had any personal experiences with using living guidelines? What was this experience like?
    a. What were the challenges?
    b. Were there factors that made implementing a living guideline easier? If so, what were they?

Explanation of living guidelines for participants with low awareness of model:

- Traditional guidelines usually updated only every 3-5 years.
- Living guidelines are continually updated as new evidence emerges.
- Frequency of recommendation updates depends on how high a priority the clinical question is, the current level of uncertainty in the evidence, and the likelihood that new evidence will be emerging soon.
- Overall aim is to reduce the evidence to practice gap.

Looking ahead to the LEAPP guideline

The reason we're particularly interested in living guidelines is that the national postnatal guideline currently under development (the Living Evidence for Australian Pregnancy and Postnatal care (LEAPP) guideline is a living guideline. We want to understand how we can help increase awareness and use of the new guideline.

8. How do you think having a living postnatal guideline will impact how you provide care to your patients?
9. Do you have any thoughts about what some of the challenges may be when trying to put the living postnatal guideline into your clinical practice?

- May be the same as for other guidelines you've encountered or unique to being a living guideline

10. What could make it easier for you to apply the LEAPP postnatal guideline into your clinical practice?
11. How would you ideally like the new, national living postnatal guideline (LEAPP) to be communicated with you?
    a. How about any updates or changes to this guideline?
12. Would you want to hear about guideline updates? How frequently?
13. Can you think of any strategies that you or your workplace could employ that may assist you to increase your use of the LEAPP guidelines in your clinical practice? (e.g. training, changes to electronic medical records, etc).

Finishing up

14. Do you have anything else you would like to add about what we've discussed?
15. Are there any other maternity providers or postnatal facility managers you think would have valuable insights into what we've discussed today and may be willing to participate in an interview? (ask for their email or share my email to pass along).

Appendix B: Interview guide for postnatal facility managers

Maternity facility managers

Participant information gained during recruitment:
Number of years in current role:
Type of workplace (public hospital, private hospital, birthing centre, community health service - tick all that apply)
Setting (metro, inner regional, outer regional, rural, remote)

Preamble

- Welcome/introductions
- Re-explain aims of study – what we will be talking about
- Confirm participant is fine to have interview audio/video recorded

Questions:
General experiences with postnatal guidelines/evidence based recommendations

1. Have you had any interactions with postnatal clinical guidelines?
   If no, go to question 2.
   If yes:
   a. What did you use them for? (reorganising/planning services, communicating with patients)
   b. Tell us about your experiences of using postnatal care guidelines.
   c. How did you become aware of these guidelines/recommendations?
   d. What is your approach to getting information from guidelines? (e.g. read from start to finish, look up topics of interest, summaries, flow charts etc.)
   e. To what extent does your facility follow guideline recommendations?
   f. (Skip if covered earlier) If a guideline recommends something different to what you or your facility currently does, what would your next steps be?

2. How do you usually keep up to date with the latest evidence on postnatal care?
   a. How do you normally access/search for these (publications/guidelines/conferences etc.)?
   b. How do you decide what recommendations/practices are relevant to your facility and what you will try to implement?

Barriers and facilitators to implementing changes to clinical practice

3. I'd like you to think of a time when you have tried adopting a new or different evidence based practice at your facility. What are some of the challenges you encountered when trying to make those changes at your facility? (let participant lead conversation, probe if needed)

4. Can you think of a time when you adopted a new care practice at your facility, and it went really well? What factors do you think helped make it easier? (let participant lead conversation, probe if needed)

I'll now jump in with some other factors that may or may not have impacted your ability to adopt postnatal care recommendations. If they do not feel relevant to you, that's fine let me know and we'll move on. If they do feel relevant, feel free to discuss how they've either positively or negatively impacted your ability to implement postnatal care recommendations.

PROBES

- Are there structural components within your workplace that either help of hinder the adoption of guideline recommendations? (resource access, workloads, systems/policies, training opportunities)
- Do you feel like your current knowledge or skills to implement a recommendation influence whether or not you would adopt a recommendation?
- Do you think the culture within your workplace influences the adoption of guideline recommendations?
- Is there anything about a guideline or its recommendations that would make you more or less likely to adopt its recommendations? (e.g. endorsements from organisations or respected colleagues, perceived quality of guideline, how clearly and succinctly recommendations are presented, level of certainty of the benefits and risks of the recommendation, changes to current workload, expectations from patients)

Implementation strategies

5. Can you think of any strategies that you have employed at your facility to assist in raising awareness of guidelines/evidence-based practices, or in adopting guideline recommendations?
   (e.g. training courses, changes to electronic medical records, MORE EXAMPLES)
   a. What were you trying to achieve using this strategy? Did you achieve these? Why/why not?

Understanding of, and experiences with, living guidelines

We are now going to chat more specifically about living guidelines. Living guidelines are a relatively new model of developing guidelines.

6. First of all, I'm interested to understand if you've heard of living guidelines and if so, what do you know about them?

If good understanding of living guidelines skip explanation of what they are (fill in blanks/make corrections to understanding if needed).

If not aware of living guidelines skip next question.

7. Have you had any personal experiences with implementing a living guideline? What was this experience like?
    a. What were the challenges?
    b. Were there factors that made implementing a living guideline easier? If so, what were they?

Explanation of living guidelines for participants with low awareness of model:

- Traditional guidelines usually updated only every 3-5 years.
- Living guidelines are continually updated as new evidence emerges.
- Frequency of recommendation updates depends on how high a priority the clinical question is, the current level of uncertainty in the evidence, and the likelihood that new evidence will be emerging soon.
- Overall aim is to reduce the evidence to practice gap.

Looking ahead to the LEAPP guideline

The reason we're particularly interested in living guidelines is that the national postnatal guideline currently under development (the Living Evidence for Australian Pregnancy and Postnatal care (LEAPP) guideline is a living guideline. We want to understand how we can help increase awareness and use of the new guideline.

8. Do you have any thoughts about what some of the challenges may be when trying to implement a living postnatal guideline at your facility?
9. How can we make it easier?
10. How would you ideally like the new, national living postnatal guideline (LEAPP) to be communicated with you?
    a. How about guideline updates?
    b. How frequently do you want to hear about guideline updates?
11. Can you think of any strategies that could be employed at your facility to assist in the use of the LEAPP guidelines at your facility? These could be things you have already

done for other guidelines or new things? (e.g. training, changes to electronic medical records, etc.).

Finishing up

12. Do you have anything else you would like to add about what we've discussed?
13. Are there any other maternity providers or postnatal facility managers you think would have valuable insights into what we've discussed today and may be willing to participate in an interview? (ask for their email or share my email to pass along).

Appendix C: Interview guide for postnatal guideline developers

Postnatal guideline developers

Participant information gained during recruitment:
Guideline developed:
Intended audience of guideline:

Preamble

- Welcome/introductions
- Re-explain aims of study – what we will be talking about
- Confirm participant is fine to have interview audio/video recorded

Questions:
General experiences with developing and implementing postnatal guidelines

1. What drove the development of your guideline? Who asked you to develop it, how was the scope chosen?
2. Did you use any formal guideline development processes?
3. Did you have a formal implementation plan for your postnatal guideline? Or did you have informal plans of how you were going to disseminate the guideline and enhance adoption of guideline recommendations?
    a. Who did you interact with for these implementation activities? (e.g. policy makers, health facilities, providers?)

Implementation strategies

4. Did you utilise any specific implementation strategies/interventions to optimise the dissemination of your guideline and increase clinicians and services uptake of guideline recommendations?
    a. If so, what were they and what were they trying to achieve?
    b. How were they chosen?
    c. Were they effective? How did you know/measure effectiveness?
    d. Why do you think these strategies worked/didn't work?

Barriers and facilitators to implementing postnatal care guidelines

5. What are some of the challenges you encountered when trying to increase awareness of your guideline and adoption of its recommendations? (let participant lead conversation, probe if needed)

6. Are there any factors you can think of that made it easier to increase awareness and uptake of your guideline?

- Did some settings seem to take up recommendations more than others? Why do you think this may have been the case?

Understanding of, and experiences with, living guidelines

We are now going to chat more specifically about living guidelines. Living guidelines are a relatively new model of developing guidelines.

7. Have you had any experiences with living guidelines? Can you describe your experience(s)?

If participant has limited understanding of living guidelines model, use following explanation before moving on:

- Traditional guidelines usually updated only every 3-5 years.
- Living guidelines are continually updated as new evidence emerges.
- Frequency of recommendation updates depends on how high a priority the clinical question is, the current level of uncertainty in the evidence, and the likelihood that new evidence will be emerging soon.
- Overall aim is to reduce the evidence to practice gap.

Looking ahead to the LEAPP guideline

The reason we're particularly interested in living guidelines is that the national postnatal guideline currently under development (the Living Evidence for Australian Pregnancy and Postnatal care (LEAPP) guideline is a living guideline. We want to understand how we can help increase awareness and use of the new guideline.

8. How do you think the LEAPP guideline will impact your work as a developer of a postnatal guideline?
9. Do you have any thoughts about what some of the challenges may be when incorporating LEAPP's living guideline recommendations into your guideline work?
10. What do you think could help you as a guideline developer to incorporate LEAPP's guideline recommendations into your guideline work?
11. What advice do you have for the LEAPP guideline team to make your role easier?

Finishing up

12. Do you have anything else you would like to add about what we've discussed?
13. Are there any other postnatal guideline developers you think would have valuable insights into what we've discussed today and may be willing to participate in an interview? (ask for their email or share my email to pass along).

Appendix D: TDF and COM-B model categories for analysis

Framework categories to be used during thematic analysis and selection of implementation strategies (adapted from (26,30,31)).

Theoretical Domains Framework	**COM-B model**	**RE-AIM framework**
Knowledge - An awareness of the existence of something.	**Sources of behaviour** Capability - Physical - Psychological Opportunity - Social - Physical Motivation - Automatic - Reflective	Reach - The absolute number, proportion, and representativeness of individuals who are willing to participate in the initiative, intervention, or program.
Skills - Ability or proficiency acquired through practice.	**Intervention functions:** - Education - Persuasion - Incentivisation - Coercion - Training - Enablement - Modelling - Environmental restructuring - Restrictions	Effectiveness - The impact of an intervention on important outcomes, including potential negative effects, quality of life, and economic outcomes.
Social/professional role and identity - A coherent set of behaviours and personal qualities of an individual in a social or work setting.	**Policy categories** - Guidelines - Environmental/social planning - Communication /marketing - Legislation - Service provision - Regulation - Fiscal measures	Adoption - The absolute number, proportion, and representativeness of: a) settings; and b) intervention agents (people who deliver the program) who are willing to initiate a program.
Beliefs about capabilities - Acceptance of the truth, reality or validity about an ability/talent/facility that a person can put to constructive use.		Implementation - At the setting level, implementation refers to the intervention agents' fidelity to the various elements of an intervention's protocol, including consistency of delivery as intended and the time required. Also includes adaptations made and the costs of implementation. At the individual level,

		implementation refers to clients' use of the intervention and implementation strategies.
Optimism - The confidence that things will happen for the best or that has desired goals will be attained.		Maintenance - The extent to which: a) behaviour is sustained 6 months or more after treatment or intervention; and b) a program or policy becomes institutionalized or part of the routine organizational practices and policies. Includes proportion and representativeness of settings that continue the intervention and reasons for maintenance, discontinuance, or adaptation
Beliefs about consequences - Acceptance of the truth, reality or validity about outcomes of a behaviour in a given situation.		
Reinforcement - Increasing the probability of a response by arranging a dependent relationship, or contingency, between the response and a given stimulus.		
Intentions - A conscious decision to perform a behaviour or a resolve to act in a certain way.		
Goals - Mental representations of outcomes or end states that an individual wants to achieve.		
Memory, attention and decision processes - The ability to retain information, focus		

selectively on aspects of the environment and choose between two or more alternatives.		
Environmental context and resources - Any circumstances of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence and adaptive behaviour.		
Social influences - Those interpersonal processes that can cause individuals to change their thoughts, feelings, or behaviours.		
Emotion - A complex reaction pattern, involving experiential, behavioural, and physiological elements, by which the individual attempts to deal with a personally significant matter or event.		
Behavioural regulation - Anything aimed at managing or changing objectively observed or measured actions.		

Appendix E. Implementation Research Logic Model

Implementation Research Logic Model: Australian postnatal care guidelines

Intervention: Postnatal care (PNC) guidelines provide clinicians and maternity health services with recommendations designed to assist in providing evidence-based care to women, newborns, and families in the first 6 weeks after birth. The Living Evidence for Australian Pregnancy and Postnatal Care (LEAPP) guideline will be Australia's first national, and first living postnatal guideline, where recommendations will be continually updated as new evidence comes to light.