



## How valuable is an implementation toolkit for midwives? An exploratory study

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### ABSTRACT

**Background:** Incorporating evidence-based approaches in maternity care throughout the entire trajectory from pregnancy through to the postnatal phase is integral to good public health. Yet, despite developing theories, frameworks, and models to guide midwives' implementation efforts, implementing new evidence-based practices in midwifery practice settings remains challenging.

**Methods:** An exploratory study design was used to conduct an initial assessment of the appeal and suitability of an implementation 'how to' Toolkit for Australian change-leader midwives. We aimed to determine the effectiveness of the intervention by evaluating midwives' experience of using the Toolkit, and report on the usability of the Toolkit in maternity care. We also sought to establish the degree to which the intervention could reach a broad cross-section of midwives, confirming the usability of the Toolkit across a range of public and private maternity services.

**Results:** Twenty-four midwives participated in our study. Participants provided practical Toolkit evaluation data, contextual information related to Toolkit content, their understanding of what implementation in a healthcare context is, and factors that hindered midwives' implementation efforts in clinical settings. The importance of co-design research and involving end-users in product development were also highlighted as crucial factors underpinning the effectiveness of resources like ours, particularly those designed to support specialist disciplines and the implementation challenges experienced by health practitioners in clinical environments.

**Conclusions:** It is crucial to progress health care practitioners understanding of how to accelerate the implementation and sustainment of new evidence-based practices in clinical settings, including strategies to support organisational readiness, local barriers or challenges, and partnerships between researchers and end-users. Evaluation of our midwifery-specific implementation Toolkit indicates health professionals require tailored materials and information specific to their disciplines and clinical work environments; ideally, packaged in a centralised, open-access format. Future research is required to evaluate the mid-to-longterm impact of our Toolkit on implementation initiatives in midwifery contexts, and to establish the adaptability of our Toolkit in other settings, and with other disciplines.

### Introduction

High-quality maternity care plays a pivotal role in fostering good public health (RANZCOG 2017). Incorporating evidence-based

approaches in maternity care throughout the entire trajectory from pregnancy through to the postnatal phase serves as a cornerstone for improving the quality of care, patient satisfaction, and return on investment for healthcare systems (Connor et al., 2023). Yet, timely and

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effective implementation of new evidence-based practices (EBP) in healthcare settings is often difficult (Dadich et al., 2021); reportedly, it takes an average of 15 years to move research evidence from bench to bedside (Shayan et al., 2019). Although healthcare practitioners have favourable attitudes towards EBP, in itself, this is not sufficient to effect the adoption of new clinical innovations (McNett et al., 2023). It is now well-known that introducing a healthcare innovation is more likely to be effective if Implementation Science (IS) is used to guide the initiative (Bauer and Kirchner, 2020).

Implementation Science is a discipline dedicated to scientifically examining methods to facilitate the adoption of research findings and evidence-based practices into every day routines (Bauer and Kirchner, 2020) to improve the quality and effectiveness of health service delivery. The conduct of implementation research, either on its own or alongside effectiveness studies, is increasingly popular (Theobald et al., 2018). There is now an extensive array of implementation theories, models, frameworks and tools to guide the introduction of the latest evidence-informed treatments, practices and processes in healthcare (Lynch et al., 2017; Nilsen, 2020). Not surprisingly, many organisations concerned with health care delivery and research have incorporated these into 'toolkits' for practitioners and scientists, some of which include step-by-step process guides and educational materials (Hempel et al., 2019). However, while these offerings provide generic guidance to facilitate health implementation efforts (Melbourne Academic Centre for Health 2024), to the best of our knowledge, no tailored tools or educational resources exist to support midwives in implementing EBP.

Coined in the 1980s, the term 'Toolkit' describes the bundling of a combination of resources (e.g., templates, instruction sheets, videos, posters) presented in a variety of formats (e.g., web-based, hard copy, manuals) to inform a diverse audience (e.g., health practitioners, organisations, consumers) (Barac et al., 2014). When considering factors crucial to implementing EBP in maternity care, De Leo and colleagues (2021) suggest a midwifery-specific implementation resource may be useful to support midwives to expedite the implementation of effective, timely EBP in that specific healthcare context. Arguably, without clear direction for health practitioners and appropriate resources to support implementation activities that are tailored for specific healthcare practice settings, the research-to-practice gap will continue to burden health systems, compromising the quality and safety of global maternity care.

The aim of the study reported in this paper was to conduct an initial assessment of the appeal and suitability of an implementation 'how to' Toolkit for Australian change-leader midwives. This study was conducted to answer the research question: *'What is the appeal and suitability of an implementation Toolkit for Australian change-leader midwives?'*. Our objectives were to determine the effectiveness of the intervention by evaluating midwives' experience using the Toolkit and reporting on its usability in maternity settings. We also sought to establish the degree to which the intervention could reach a broad cross-section of midwives, confirming its usability across a range of public and private maternity services.

The Toolkit was developed through a collaborative process, incorporating the professional expertise of eight midwifery leaders and 17 practising midwives who had led or overseen a practice-change improvement in their workplace. The expertise of two academic learning advisors was also sought to assist with the design and interface of the Toolkit. The content of the Toolkit features a stepped approach to implementation, outlining four core concepts: 'Planning and preparing for practice change', 'Implementing EBP', 'Sustaining and scaling up EBP', and 'Evaluating outcomes'. Within each module, relevant readings, interactive exercises, and downloadable resources are accessible to develop midwives' knowledge of implementation science (IS) and how IS can be applied to address clinical gaps between evidence and practice.

## Methods

### Study design

The study was designed to be participatory in nature, employing the 'enablers' described by Walsh et al. (Walsh et al., 2017) to enhance effective implementation of evidence-based care. This involved a commitment to a shared purpose, openness and sharing of ideas, and relationship building. Our approach was guided by mixed-methods, drawing on the four broad phases of Participatory Action Research (Lewin, 1946), to plan, act, observe, and reflect throughout the research process.

### Setting and sample

The study was set in Australia. Our sample comprised midwives working in Australian maternity services who were tasked with leading a practice or process innovation in their workplace.

### Participant recruitment

Participants were recruited between August 2022 and June 2023. The initial recruitment strategy involved requesting midwifery managers to share the participation invitation with midwives under their supervision whom they recognised as change leaders. Our second approach to recruitment was to enlist the Australian College of Midwives (ACM) to send an email invitation to participate to its members on our behalf and to run an advertisement for the study in one edition of the member magazine.

### Evaluation strategy

#### Phase 1: planning

*Engaging the Australian college of midwives (ACM).* Our initial focus was to obtain support for the study through the ACM. The Principal Midwifery Officer endorsed the Toolkit's evaluation in 2021, offering to host the Toolkit on the ACM's eLearning website. The Toolkit was made freely available to all midwife members and included 4 continuing professional development points upon completion.

#### Phase 2: action

*Accessing the Toolkit and completing the pre-start survey.* Consenting midwives received instructions on how to access the online Toolkit, including a direct link to the intervention. Participants were invited to complete a pre-start survey once access was obtained. The survey consisted of 10 questions. The quantitative questions collected information on participants' demographics, employment status, and self-rated confidence to lead a practice change initiative. The qualitative questions asked participants to describe the practice change they were undertaking, whether they anticipated any barriers to implementation, their understanding of the term 'Implementation Science', to identify the key attributes of midwives leading practice-change projects, and what they hoped to gain from using the Toolkit.

#### Phase 3: observation

*Monitoring engagement.* Ongoing monitoring of participants' use of the Toolkit was conducted using simple program metrics to record the length of time participants accessed the Toolkit, and how often participants contacted support services to troubleshoot technical issues relating to the Toolkit.

#### Phase 4: evaluation

**Evaluation survey and collation of data.** After working through the modules and activities embedded in the Toolkit, an evaluation of the Toolkit was undertaken through an evaluation survey that was hyper-linked to the last module of the Toolkit. Primarily, the evaluation survey was used to collect quantitative and qualitative information about the effectiveness and usability of the Toolkit to support midwives' implementation initiatives in maternity settings.

#### Data collection

Data was collected using a mixed methods approach. Participants completed a pre-start survey hosted in Qualtrics™, which consisted of qualitative and quantitative questions that were collated into data set 1. An evaluation survey was hosted in Qualtrics™ guided by the same questions used in the pre-start survey. The data collected from this survey was collated into data set 2. A third data set was generated from the software used to host the Toolkit (Articulate Rise 360), which collated information on the use of the Toolkit, participation rates, and the location of participants accessing the Toolkit (according to region only).

#### Data analysis

A combination of simple quantitative metrics and content analysis was employed during data analysis. Quantitative data was analysed using frequency counts and cross-tabulations where appropriate. Qualitative data was analysed using content analysis. Two researchers reviewed participants' responses and assigned codes, which were then aggregated to form descriptive categories. Any discrepancies between the reviewers were discussed to reach an agreement. Where possible, illustrations were used to contextualise the patterns and themes that emerged from the data.

#### Results

Twenty-four midwives (eight from recruitment strategy one, and 16 from recruitment strategy 2) consented to participate in the study. Twenty of these participants completed the pre-start survey and 14 provided evaluation data. Participants represented six states of Australia (New South Wales, Victoria, Queensland, Tasmania, Western Australia, and South Australia) and one territory (Australian Capital Territory). Our results are presented in sequential order, commencing with the results of the pre-start survey.

#### Pre-start survey results

##### Participant demographics

Twenty-four midwives commenced the pre-start survey, although only twenty midwives completed and submitted sufficient data for analysis ( $n = 20$ ). The majority of participants were aged 45–54 years ( $n = 8$ , 40%) and were employed full time ( $n = 8$ , 40%). Just over half of all participants ( $n = 11$ , 55%) considered they were 'somewhat confident' to lead a practice-change project in their workplace prior to using the Toolkit, with one in five ( $n = 4$ , 20%) considering they were 'really confident'. There was no discernible pattern or difference in the level of confidence of pre-start participants by age group (Table 1).

##### Identified areas for practice-change improvement in the clinical setting

Nineteen of the 20 participants identified one or more areas where practice change was indicated (i.e., care of women experiencing a breech birth, induction of labour, biomechanics of labour, EBP in the golden hours). The majority of participants nominated *clinical practice change* topics ( $n = 11$ , 55%) as opposed to *process change* topics ( $n = 4$ ,

**Table 1**

Descriptive information for the pre-start survey participants ( $n = 20$ ).

Characteristic	Values	N	%
Age group	25–34 years old	4	20.0
	35–44 years old	3	15.0
	45–54 years old	8	40.0
	55–64 years old	5	25.0
Employment status	Full time	11	55.0
	Part-time	8	40.0
	Other	1	5.0
Confidence rating	Not at all confident	5	25.0
	Somewhat confident	11	55.0
	Really confident	4	20.0

20%). Intra-partum practices were most frequently reported, with only one topic identifying the need for the specific care of women in rural areas.

##### Previously experienced barriers and challenges to initiating practice change

Except for one participant, all midwives provided one or more examples of challenges and barriers they had previously experienced when initiating practice change (See table 2). The most commonly cited barriers related to midwives not having enough 'time to incorporate clinical changes into their practice', staffing levels ( $n = 7$ ), the experience of resistance due to 'old school practices' or opposition to change ( $n = 8$ ), and the absence of 'support or the promise of help that was never forthcoming' ( $n = 5$ ). Lack of funding was the least frequently cited barrier ( $n = 2$  participants).

##### Participants understanding of the term 'implementation'

Encouragingly, the majority of participants ( $n = 13$ , 65%) expressed a reasonably informed understanding of the term 'implementation science (IS)'. However, while most participants clearly understood what 'implementation science (IS)' means in relation to health care, others confused the term with 'translation'. For example, one participant wrote 'It's like transforming what you read in a journal to what you practice'. Additionally, seven (35%) participants did not provide a description or an interpretation of the term, but rather referenced how much knowledge they had of the term: one having good knowledge following the completion of a PhD and teaching research, and six ( $n = 6$ ) having little or no knowledge'.

##### Anticipated challenges to implementing practice-change

All participants provided one or more examples of the anticipated challenges to implementing a practice change (Table 3). These challenges related to 'changing peoples' attitudes', 'overcoming budget constraints' and 'getting buy-in from overworked frontline midwives' ( $n = 16$ ). The impact of workplace culture and competing priorities also featured as other anticipated challenges ( $n = 4$ ).

##### Managing anticipated challenges

When asked to identify ways to manage anticipated challenges to implementing a practice change, participant responses were varied. While most participants described strategies relating to collaboration and communication: 'You need multi-disciplinary collaboration ... stakeholder engagement ... and good communication skills' ( $n = 10$ ), others

**Table 2**

Barriers and challenges to initiating practice-change.

Concept	Illustration
Staff, staffing, and workload	'Staff burnout, they can't face another change' 'Midwives do not have the time to incorporate clinical changes into their practice'
Resistance to change and from staff	'I've been involved in a couple of small changes and one of the main barriers was simply resistance to change'
Funding	'Limited access to funding'

**Table 3**  
Participants' anticipated challenges to implementing practice-change.

Theme	Illustration
Preparing others for change	'People don't like change' 'Staff [people] already feel like they have too much on their plate', introducing something new is just too hard'
Facilitating engagement and support	'Achieving support at all levels' 'I think the most challenging part is to engage the managers to support the project'
Challenging workplace culture	'The negative culture around EBP and those with authority to approve new practices' '[EBP] can be at odds with the cultural practices of the workplace' 'Competing priorities'

highlighted the importance of education, skill development, and commitment (n = 7). Four participants also described strategies relating to planning, costing, and securing funding. For example, 'having a good plan and obtaining funding' was considered crucial by one participant who had previously led a practice-change initiative.

*Anticipated learning or gains from using the Toolkit*

Participants' anticipated learning or gains from using the Toolkit are presented in Table 4. Nine (45%) participants expressed expectations related to the practical implementation of evidence-based initiatives to effect positive practice change. For example, participants wanted to learn 'How to be a confident advocate for change' and 'how to implement change effectively'. In contrast, six (30%) participants expected the Toolkit would provide the theory, knowledge and skills required to implement a practice-change initiative. Three other participants anticipated the Toolkit would provide a more strategic approach to implementing practice change. For example, one participant wanted to 'learn strategies to develop a workplace that truly supports best practice', while two others expected the Toolkit would provide them with 'tools' to implement and effect a sustainable practice-change.

*Evaluation survey results*

Fourteen midwives who trialled the Toolkit submitted an evaluation survey. Demographic details were not collected for these participants. Thus, participants' responses cannot be linked with the pre-start survey demographics or responses due to the absence of a common pre-post Toolkit identifier.

*Time taken to work through the Toolkit*

The time spent working through the Toolkit learning activities was completed by 13 participants, with times varying from less than one hour to eight hours. Overall, three participants (23%) took less than 2 h, nine participants (69%) took 2–4 h, and one participant took eight hours (8%).

*The most useful features of the toolkit*

The most frequently described useful features of the Toolkit reported

**Table 4**  
Participants' anticipated learning or gains from using the Toolkit.

Concept	Illustration
'How to'	'How to be a confident advocate for change' 'How to implement evidence-based practice in day-to-day...'
Strategies	'Learn strategies to develop a workplace that truly supports best practices'
Tools	'Tools to effect sustainable change' 'Tools to implement change'
Theory, knowledge, and skills	'Understanding of theory and practice of implementation' 'Gain skills in implementing clinical change at work'

was the availability of centralised resources, followed by the format and structure of the learning materials. One participant also highlighted the ease of navigating through the modules and resources: 'It was easy to navigate ... step-by-step guides were great'.

*The usefulness of the Toolkit*

Three midwives who submitted an evaluation survey did not rate the toolkit's usefulness. Overall, the remaining respondents were positive in their ratings, with n = 7 (63.6%) providing a rating of 9 or higher.

*Recommended modifications or improvements to the Toolkit*

Five (35%) participants did not provide suggestions for modifications or improvements to the Toolkit, nor did they indicate a need for additional information on how to lead a practice-change initiative. The remaining participants' feedback focused on two main areas: 'Adding short videos explain key concepts' and 'reading midwives' stories about practice change ... what they found most challenging and how they overcome barriers to change'. The recommendations made by participants are presented in Table 5.

*Confidence to lead a practice-change initiative*

Of the 13 participants who completed this question, they indicated they were 'somewhat' (n = 9, 69.2%) to 'really' (n = 4, 30.8%) confident in leading a practice change initiative after having access to the Toolkit. However, we were unable to establish if these ratings represent a change associated with the completion of the Toolkit, as it was not possible to link participants' pre-start ratings with the evaluation ratings.

*Perceived key attributes needed to lead an evidence-based initiative*

Having trialled the Toolkit, eleven (78.5%) participants reported one or more attributes required of midwives to lead a practice change initiative. The most frequently reported attributes described the need for midwife change-leaders to be 'resolute'. This term reflected qualities such as 'persistence, resilience, focus, having grit, courage, and determination', which was reported by n = 5 (35.7%) midwives. The second most frequently reported attribute was 'passion'. Four (28.6%) midwives expressed passion for the profession and passion and enthusiasm

**Table 5**  
Recommended modifications or improvements to the Toolkit.

Category	Illustration
Practical Toolkit resources	'Adding short videos explaining the concepts would be beneficial' 'Perhaps a flow chart with links to the tools' 'Having a summary of the Toolkit to download would be more user friendly'
Learning resources: Case studies, stories, and exemplars	'It would be interesting to read midwives' practice-change stories.....what they found most useful, challenging, and success stories for motivation and inspiration' 'Case studies of 'how to' to apply IS to midwifery problems' 'Example of an evidence-based change to guide each step of the Toolkit' 'Changes other than clinical practice' 'Links to examples of successful and not-so-successful practice change'
Engaging key stakeholders and support personnel	'Engaging with stakeholders and getting buy-in from the start' '[How to] identify the right members of executive teams'
Clarifying key concepts and applications	'How to decipher what is 'Gold Standard' research' 'How you can use resources from practice change implemented elsewhere' 'More clarification on the process of defining the project scope' 'Determining what changes are worth pursuing, i.e., is any change too big or too small... when are these principles relevant to apply?'

for change as being a key attribute to leading a practice-change initiative. Being 'communicative' (e.g., having good communication skills) and being 'collegial/collaborative' (e.g., engaging support from others; working collaboratively with others) were each cited by three (21.4%) midwives.

## Discussion

This study is limited by the fact that it was conducted with only Australian midwives, and therefore, our findings may not resonate with midwives internationally or with other health professions. We also acknowledge the low response rate in the evaluation survey compared with the pre-start survey. Nonetheless, our aim, which was to conduct an initial exploration of the value to midwives of a Toolkit designed to guide their implementation of evidence-based innovations, was achieved. In addition to providing Toolkit evaluation data, participants also gave valuable contextual information related to Toolkit content, their understanding of what implementation in a healthcare context is, and the factors that hindered their historical (pre-Toolkit access) healthcare innovation efforts that helped affirm the value of including content on these topics in the Toolkit. The significance of co-design research and the engagement of end-users in product development was emphasised as essential elements supporting the efficacy of implementation resources, especially those tailored to address the specific needs of specialised fields and the implementation challenges encountered by health care practitioners in clinical settings.

The Toolkit we report on in this paper supports midwives to lead the implementation of EBP innovations, and the discussion that follows positions our study findings against relevant previous research. First, though, we wish to acknowledge that the use of our Toolkit is dependent on midwives being in a practice environment that permits and supports them to drive new initiatives in the first place and we recognise that this is not the case for all. Systemic barriers to midwives' power and leadership exist in many maternity care contexts, particularly where maternity care is medicalised, and this in itself is, arguably, the first hindrance to evidence implementation (Najmabadi et al., 2020; Prosen, 2022; Ferguson et al., 2022). Our participants' understanding of the term 'implementation science' in relation to health care practice change before accessing our Toolkit was varied: some participants clearly understood what 'evidence implementation' means in relation to health care, however, others confused it with knowledge transference or knowledge translation. It is not surprising that not all participants had a clear understanding about what implementation is in this context: many different terms are used in relation to health care improvement, and they are used interchangeably in the literature (Thomas and Bussieres, 2021; Wensing and Grol, 2019). Having a clear understanding of the difference is, however, crucial for health care innovators and change leaders, because the processes associated with each are very different (Munn et al., 2020). Daraz and Morshed (Daraz and Morshed, 2023) have also recognised that lay stakeholders such as 'patient representatives' (p. 1) experience confusion about both concepts and have proposed that explanations of knowledge transfer and implementation are 'streamlined' for them; it is clear from our data that this approach, which we take in our Toolkit, would also be beneficial for health practitioners.

All except one participant who completed our pre-start survey reported experiences of having encountered a range of challenges or barriers when trying to implement innovations in their workplace. Like midwives in previous studies by members of our team and others (Bayes et al., 2019; McLellan et al., 2019; Sangy et al., 2023; Zettergren et al., 2024), our participants cited staff, staffing levels and workloads, resistance to change from colleagues and management, the absence or lack of support and follow-through for a practice change initiative, and lack of funding to hinder their implementation efforts. These data confirm that the information and instructional content in our Toolkit about the need to assess what Harrison et al. (Harrison et al., 2022) calls 'change readiness' is strongly warranted, and about the use of specific context

assessment tools for specific practice contexts, for example, Davis and team's 'Midwifery Tool for Change' for midwifery practice settings (Davis et al., 2023), is warranted.

Prior to accessing our Toolkit, and although most had tried to make changes in their workplace previously, one quarter of our participants said that they were not at all confident to lead a practice or process change initiative in their workplace, just over half felt somewhat confident, and only one fifth were really confident. After accessing the Toolkit, however, no participant said they were 'not at all confident' (compared to four pre-start), and nine felt 'somewhat confident' (compared to 11 pre-start), indicating a positive shift in at least some of our participants. A degree of confidence is a crucial factor to consider with regard to change leadership, because as Bandura et al. (Bandura et al., 1999) identified that a person's belief in their capability to do something directly informs their motivation to do it, with low confidence negatively impacting that motivation.

The significant time distance between the production of evidence for health care and its use in care was first identified almost two decades ago (Cooksey, 2006), and it continues to be the case that the implementation of evidence into health care practice is unreasonably protracted. In the interim, significant efforts have been invested in addressing this situation, however despite this, Braithwaite and team recently reported that only 60% of care reflects best evidence, and that of the remaining 40%, three quarters (30%) is wasteful or inappropriate, and one quarter (10%) is harmful (Braithwaite et al., 2020). Intentional, proactive and stakeholder-engaged strategies are key to improving the efficient and sustained adoption of EBP into healthcare (Rangachari, 2018), and our evaluation data suggests that the inclusion of guidance related to strategising innovation in this way in our Toolkit was valuable to participants.

The value of co-design research, spanning from product development to its evaluation, was also highlighted in our findings. Three-quarters of participants (9/14) offered practical insights and recommendations to improve the scope and content of the Toolkit. This feedback not only informed adjustments to the Toolkit but possibly fostered a sense of ownership among our midwife participants. While this concept was not directly evaluated in our study, the potentiality of end-user engagement in product design, implementation and evaluation is well-known. The application of 'ownership' in research is explored by Singh, Sah (Singh et al., 2023), who indicate that in order to design and implement effective health innovations, 'collaboration...joint-ownership and power-sharing' between researchers and end users are key principals in co-design research (p. 6). Similarly, our previous work and the work of others indicate strong partnerships and early involvement of health care practitioners in the development of health interventions are critical for achieving successful implementation (De Leo and Bloxsome, 2021; Ramage et al., 2022).

Finally, the Toolkit we sought to evaluate in this study was designed specifically for midwives seeking to implement EBP or process innovation in midwifery practice settings. Three-quarters of those who completed the evaluation survey (9/14) provided suggestions for improving the Toolkit, and these reflect the features of other models and approaches designed for health care practitioners in general, or for those in allied health, nursing, medicine, management, and cancer control that have engendered improved knowledge, skills, or confidence in those who have used them (King et al., 2024).

## Conclusions

It is crucial to progress health care practitioners understanding of how to accelerate the implementation and sustainment of new evidence-based practices in clinical settings, including strategies to support organisational readiness, local barriers or challenges, and partnerships between researchers and end-users. Although a range of generic programs and resources exist to support health care practitioners' implementation efforts, their suitability in specialist fields such as midwifery

remains unclear. Evaluation of our midwifery-specific implementation Toolkit indicates health professionals require tailored materials and information specific to their disciplines and clinical work environments, ideally packaged in a centralised, open-access format. Future research is required to evaluate the mid-to-longterm impact of our Toolkit on implementation initiatives in midwifery contexts and to establish the adaptability of our Toolkit in other settings and with other disciplines.

### Ethical approval and consent to participate

Ethical approval for this study was granted through Edith Cowan University's (ECU) Human Research Ethics Committee (2022-03,809-DELEO). Other participating sites provided reciprocal approval upon receiving the initial letter of ethical approval from ECU. Participants received an information sheet and consent form prior to accepting the invitation to participate. All consent forms were collected prior to the study commencing.

### Consent for publication

Consent for publication was included in our Study Information Letter and Consent Form.

### Availability of data and materials

All data and materials are available upon request.

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### CRedit authorship contribution statement

**Annemarie (Annie) De Leo:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Conceptualization. **Linda Sweet:** Writing – review & editing, Formal analysis, Data curation, Conceptualization. **Peter Palamara:** Writing – review & editing, Writing – original draft, Formal analysis, Data curation. **Dianne Bloxsome:** Writing – review & editing, Formal analysis, Data curation, Conceptualization. **Sara Bayes:** Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization.

### Declaration of competing interest

The authors declare no competing interests.

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### References

- Bandura, A., Freeman, W.H., Lightsey, R., 1999. *Self-efficacy: The Exercise of Control*. Springer.
- Barac, R., Stein, S., Bruce, B., Barwick, M., 2014. Scoping review of toolkits as a knowledge translation strategy in health. *BMC Med. Inform. Decis. Mak.* 14, 1–9.
- Bauer, M.S., Kirchner, J., 2020. Implementation science: what is it and why should I care? *Psychiatry Res.* 283, 112376.
- Bayes, S., Juggins, E., Whitehead, L., De Leo, A., 2019. Australian midwives' experiences of implementing practice change. *Midwifery*. 70, 38–45. <https://doi.org/10.1016/j.midw.2018.12.012>.
- Braithwaite, J., Glasziou, P., Westbrook, J., 2020. The three numbers you need to know about healthcare: the 60-30-10 challenge. *BMC Med.* 18, 1–8.
- Connor, L., Dean, J., McNett, M., Tydings, D.M., Shrout, A., Gorsuch, P.F., et al., 2023. Evidence-based practice improves patient outcomes and healthcare system return on investment: findings from a scoping review. *Worldviews. Evid. Based. Nurs.* 20 (1), 6–15. <https://doi.org/10.1111/wvn.12621>. Epub 20230208PubMed PMID: 36751881.
- Cooksey D.S. A review of UK health research funding. 2006.
- Dadich, A., Piper, A., Coates, D., 2021. Implementation science in maternity care: a scoping review. *Implement. Sci.* 16 (1), 16. <https://doi.org/10.1186/s13012-021-01083-6>. Epub 20210204PubMed PMID: 33541371; PubMed Central PMCID: PMC7860184.
- Daraz, L., Morshed, K.G., 2023. Can we streamline the concepts of knowledge translation, dissemination and implementation for lay stakeholders? A perspective. *BMJ Open*. 13 (3), e068946.
- Davis, S.D., Bayes, S., Geraghty, S., 2023. Development of a tool to identify barriers and enablers to practice innovation in midwifery: a participatory action research study. *Eur. J. Midwifery*. 7, 1. <https://doi.org/10.18332/ejm/157459>. Epub 20230130PubMed PMID: 36761447; PubMed Central PMCID: PMC9885374.
- De Leo, Bayes, Bloxsome, Butt, 2021. Exploring the usability of the COM-B model and theoretical domains framework (TDF) to define the helpers of and hindrances to evidence-based practice in midwifery. *Implement. Sci. Commun.* 2 (1), 7. <https://doi.org/10.1186/s43058-020-00100-x>.
- Ferguson, B., Baldwin, A., Henderson, A., Harvey, C., 2022. The grounded theory of coalescence of perceptions, practice and power: an understanding of governance in midwifery practice. *J. Nurs. Manage* 30 (8), 4587–4594.
- Harrison, R., Chauhan, A., Le-Dao, H., Minbashian, A., Walpola, R., Fischer, S., et al., 2022. editors. *Achieving change readiness for health service innovations*. Nursing Forum. Wiley Online Library.
- Hempel, S., O'Hanlon, C., Lim, Y.W., Danz, M., Larkin, J., Rubenstein, L., 2019. Spread tools: a systematic review of components, uptake, and effectiveness of quality improvement toolkits. *Implement. Sci.* 14 (1), 83. <https://doi.org/10.1186/s13012-019-0929-8>. Epub 20190819PubMed PMID: 31426825; PubMed Central PMCID: PMC6701087.
- King, O., West, E., Alston, L., Beks, H., Callisaya, M., Huggins, C.E., et al., 2024. Models and approaches for building knowledge translation capacity and capability in health services: a scoping review. *Implement. Sci.* 19 (1), 7. <https://doi.org/10.1186/s13012-024-01336-0>. Epub 20240129PubMed PMID: 38287351; PubMed Central PMCID: PMC10823722.
- Lynch, E.A., Luker, J.A., Cadilhac, D.A., Fryer, C.E., Hillier, S.L., 2017. A qualitative study using the theoretical domains framework to investigate why patients were or were not assessed for rehabilitation after stroke. *Clin. Rehabil.* 31 (7), 966–977. <https://doi.org/10.1177/0269215516658938>. Epub 2016/07/17PubMed PMID: 27421878.
- McLellan, J.M., O'Carroll, R.E., Cheyne, H., Dombrowski, S.U., 2019. Investigating midwives' barriers and facilitators to multiple health promotion practice behaviours: a qualitative study using the theoretical domains framework. *Implement. Sci.* 14 (1), 64. <https://doi.org/10.1186/s13012-019-0913-3>. Epub 20190618PubMed PMID: 31215450; PubMed Central PMCID: PMC6582467.
- McNett, M., Gorsuch, P.F., Gallagher-Ford, L., Thomas, B., Mazurek Melnyk, B., Tucker, S., 2023. Development and evaluation of the full institute evidence-based implementation and sustainability toolkit for health care settings. *Nurs. Adm. Q.* 47 (2), 161–172. <https://doi.org/10.1097/NAQ.0000000000000569>. Epub 20230117PubMed PMID: 36649578.
- Melbourne Academic Centre for Health. Implementation science resource directory 2022 [cited 2024]. Available from: <https://machaustralia.org/resource/implementation/#>.
- Munn, Z., McArthur, A., Mander, G., Steffensen, C., Jordan, Z., 2020. Evidence-based healthcare, knowledge translation, implementation science and radiography: what does it all mean? *Radiography*. 26, S8–S13.
- Najmabadi, K.M., Tabatabaie, M.G., Vedadhir, A.A., Mobarakabadi, S.S., 2020. The marginalisation of midwifery in medicalised pregnancy and childbirth: a qualitative study. *Br. J. Midwifery*. 28 (11), 768–776.
- Nilsen, P., 2020. Making sense of implementation theories, models, and frameworks. *Implementation Sci.* 30, 53–79.
- Prosen, M., 2022. A systematic integrative literature review of the factors influencing the professionalization of midwifery in the last decade (2009–2019). *Midwifery*. 106, 103246.
- Ramage, E.R., Burke, M., Galloway, M., Graham, I.D., Janssen, H., Marsden, D.L., et al., 2022. Fit for purpose. Co-production of complex behavioural interventions. A practical guide and exemplar of co-producing a telehealth-delivered exercise intervention for people with stroke. *Health Res. Policy. Syst.* 20 (1), 2. <https://doi.org/10.1186/s12961-021-00790-2>. Epub 20220103PubMed PMID: 34980156; PubMed Central PMCID: PMC8722305.
- Rangachari, P., 2018. Innovation implementation in the context of hospital QI: lessons learned and strategies for success. *Innov. Entrep. Health* 5, 1–14. <https://doi.org/10.2147/IEH.S151040>. Epub 20180221PubMed PMID: 29546884; PubMed Central PMCID: PMC5849396.
- RANZCOG, 2017. *Maternity Care in Australia: a Framework for a Health New Generation of Australians*. RANZCOG, East Melbourne, Victoria.
- Sangy, M.T., Duaso, M., Feeley, C., Walker, S., 2023. Barriers and facilitators to the implementation of midwife-led care for childbearing women in low- and middle-income countries: a mixed-methods systematic review. *Midwifery*. 122, 103696. <https://doi.org/10.1016/j.midw.2023.103696>. Epub 20230418PubMed PMID: 37099826.
- Shayan, S.J., Kivanuka, F., Nakaye, Z., 2019. Barriers associated with evidence-based practice among nurses in low-and middle-income countries: a systematic review. *Worldviews. Evid. Based. Nurs.* 16 (1), 12–20.
- Singh, D.R., Sah, R.K., Simkhada, B., Darwin, Z., 2023. Potentials and challenges of using co-design in health services research in low-and middle-income countries. *Glob. Health Res. Policy*. 8 (1), 5.

- Theobald, S., Brandes, N., Gyapong, M., El-Saharty, S., Proctor, E., Diaz, T., et al., 2018. Implementation research: new imperatives and opportunities in global health. *Lancet* 392 (10160), 2214–2228. [https://doi.org/10.1016/S0140-6736\(18\)32205-0](https://doi.org/10.1016/S0140-6736(18)32205-0). Epub 20181009PubMed PMID: 30314860.
- Thomas, A., Bussieres, A., 2021. Leveraging knowledge translation and implementation science in the pursuit of evidence informed health professions education. *Adv. Health Sci. Educ. Theory. Pract.* 26 (3), 1157–1171. <https://doi.org/10.1007/s10459-020-10021-y>. Epub 20210302PubMed PMID: 33651210.
- Walsh, K., Ford, K., Morley, C., McLeod, E., McKenzie, D., Chalmers, L., et al., 2017. The development and implementation of a participatory and solution-focused framework for clinical research: a case example. *Collegian*. 24 (4), 331–338. <https://doi.org/10.1016/j.colegn.2016.06.003>.
- Wensing, M., Grol, R., 2019. Knowledge translation in health: how implementation science could contribute more. *BMC. Med.* 17, 1–6.
- Zettergren, L., Larsson, E.C., Hellsten, L., Kosidou, K., Nielsen, A.M., 2024. Implementing digital sexual and reproductive health care services in youth clinics: a qualitative study on perceived barriers and facilitators among midwives in Stockholm, Sweden. *BMC. Health Serv. Res.* 24 (1), 411.