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Unintended pregnancy prevention and care — Pivotal but passed over in curriculum: A descriptive cross-sectional survey of nursing and midwifery faculty

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A B S T R A C T

Background: Nurses and midwives are well placed to support the one-in-four Australian women who experience an unintended pregnancy. However, these clinicians may not possess the knowledge and skills to provide high-quality unintended pregnancy prevention and care (UPPC). Research is needed to evaluate the coverage of this topic in the entry to practice nursing and midwifery curricula.
Aim: To explore, from the educator's perspective, what UPPC content is delivered as part of Australian entry to practice nursing and midwifery curricula.
Methods: A descriptive cross-sectional survey was conducted using an instrument adapted from Hewitt and Cappiello's essential nursing education competencies for prevention and care related to unintended pregnancy. Nursing and midwifery faculty members from Australian institutions offering entry to practice programs were eligible to participate.
Results: Forty-four people representing all jurisdictions, except Tasmania, participated. Ninety-five percent of respondents (95%) agreed that nursing and midwifery students should be taught UPPC content. However, only 3 of the 29 identified competencies associated with this content, anatomy and physiology, communication skills, and health history taking, were identified as core curriculum.
Conclusion: Nursing and midwifery faculty believe UPPC content should be taught in entry to practice programs, however, it is poorly and inconsistently covered. Ensuring graduates have the knowledge and skills to provide appropriate care in this field will require a review of the current nursing and midwifery practice standards and an increase in related clinical and classroom hours.
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Summary of relevance
Problem or Issue
Little is known about the coverage of unintended pregnancy prevention and care content in Australian nursing and midwifery entry to practice programs.
What is already known
International literature reports limited inclusion of this content and a focus on ethical and legal contexts rather than evidence-based nursing and midwifery care.
What this paper adds
Evidence that Australian nursing and midwifery faculty believe unintended pregnancy prevention and care content should be taught in entry to practice programs, however, that it is poorly and inconsistently covered.

1. Introduction

Women's reproduction was reclassified at the 1994 International Conference on Population and Development (ICPD) from a mechanism for population control to an issue of female autonomy and empowerment (Shalev, 2000). The ICPD affirmed that reproductive health is determined by access to health care as well as social status and pervasive gender discrimination. Thus, they recommend that all reproductive health programs be based on women's right to reproductive autonomy and gender equality. Access to unintended pregnancy prevention and care (UPPC) is a component of reproductive health, allowing women to choose the timing, spacing, and number of children (World Health Organisation, 2022).

Over the last 30 years, the Australian unintended pregnancy rate has declined by 9%, and the proportion of unintended pregnancy ending in abortion has declined by 11% (Bearak et al., 2020). This has been attributed to increasing access to contraception (Bearak et al., 2020). Nevertheless, UPPC remains highly relevant; one-in-four Australian women[1] experiences an unintended pregnancy (Taft et al., 2018). Marginalised groups, such as people who have experienced gender-based violence and young Aboriginal and Torres Strait Islanders teenagers, experience higher rates of unplanned pregnancy than the national average (National Aboriginal Community Controlled Health Organisation, & Royal Australian College of General Practitioners, 2018; Sharman, Douglas, Price, Sheeran, & Dingle, 2019).

2. Background

The Australia National Women's Health Strategy 2020–2030 calls for an increase in access to sexual and reproductive healthcare information, diagnosis, treatment, and services (Australian Government, 2018). Meeting this obligation requires an adequately prepared workforce to provide UPPC. Nurses and midwives, who represent 56% of all registered practitioners (Australian Health Practitioner Regulation Agency, 2021), are at the frontline of the Australian healthcare system and optimally positioned to provide UPPC, especially to marginalised groups such as those in rural and remote areas, dependent on nurse-led services (Australian College of Nursing, 2018).

A small-scale pre–post-intervention study conducted in the United States (US) demonstrates that sexual and reproductive health education increases graduate nurses' overall preparedness, comfort, and confidence in providing sexual health care to diverse populations (White, Abuelezam, Dwyer, & Fontenot, 2020). Therefore, introducing UPPC concepts at the pre-registration nursing and midwifery education level may be effective in preparing the future workforce to provide quality reproductive health care. However, evidence from the US and Australia suggests that healthcare curricula is shifting towards more generalist education (Auerbach et al., 2012; Schwartz, 2019) with limited exposure to specific topics, limited opportunities for clinical training, and a lack of standards for core competencies (Auerbach et al., 2012). Studies from Japan and the US also highlight that where it is included, nursing and midwifery curricula tend to present UPPC topics such as abortion as part of ethical discussions, rather than part of technical evidence-based instruction on provision of care (Cappiello, Coplon, & Carpenter, 2017; Mizuno, 2013). Likewise, a review of commonly used textbooks in Australian undergraduate nursing and midwifery courses found that abortion was often situated in the context of an intended but non-viable or medically unrecommended pregnancy with the view for counselling for grief and loss, or within an ethical or legal framework (Downing, Dean, Mainey, & Peacock, 2019).

National bodies are currently calling for the urgent introduction of UPPC content in healthcare curricula. The Centre of Research Excellence in Sexual and Reproductive Health for Women in Primary Care (SPHERE) Women's Sexual and Reproductive Health COVID-19 Coalition, a national group of sexual and reproductive health experts and stakeholders, has also released a consensus statement calling for increased training in early medical abortion (EMA) for all registered nurses and midwives to support task-sharing models of care, and administration of mifepristone and misoprostol for EMA under appropriate policy and protocols (Women's Sexual and Reproductive Health COVID-19 Coalition, 2020). Additionally, there is a call for undergraduate education programs to include contraceptive implant and intrauterine device insertion and removal within their curriculum to increase the number of skilled providers who can administer long-acting reversible contraception (Australian Healthcare and Hospitals Association, 2017).

To achieve the National Women's Health Strategy 2020–2030 goals and address women's right to sexual and reproductive health care, research is needed to explore the barriers and enablers of providing UPPC content in undergraduate healthcare curricula. There is a paucity of Australia data evaluating how UPPC is integrated within undergraduate nursing and midwifery entry to practice programs. This study aimed to explore, from the educator's perspective, what UPPC content is delivered as part of Australian entry to practice nursing and midwifery curricula, and what they believe should be included.

3. Methods

This study is a descriptive cross-sectional survey of academic faculty working in delivery of the nursing and midwifery entry to practice programs in Australian institutions. Ethical approval was granted by the James Cook University Human Research Ethics Committee (HREC: H8237, Approval: 9/10/2020).

3.1. Participants

Participants were recruited using convenience sampling. All academic faculty staff working in the delivery of the nursing and midwifery entry to practice programs in Australian institutions were eligible to participate regardless of the continuity of their appointment or the content area they teach. Thirty-eight Australian institutions offered an approved registered nurse or midwifery program of study as on June 2020 (Australian Health Practitioner Regulation Agency, 2020a, 2020b).

The primary investigator sent an initial promotional email to the Head of Nursing/Midwifery departments at all 38 institutions. This was followed up with an invitation email with attached participant

[1] We acknowledge that not everyone who has an unintended pregnancy identifies as a woman.

information sheet and link to the online survey. Some institutions had internal processes and means of promoting the study, while others forwarded the invitation to appropriate staff at their discretion. Three institutions declined to participate and six did not respond. Reminder emails were sent out twice during the open-survey period. The study was also promoted through professional organisations and via social media, including the Australian College of Nurses, Australian College of Midwives, Maternal Child and Family Health Nurses of Australia, Australian Woman's Health Nurse Association Inc., Australian Student and Novice Nurses Association, Australian Nurse Teachers Society, Australian College of Children and Young People's Nurses, Australian Nursing & Midwifery Federation and State/Territory Nursing, and Midwifery Federation branches. Nursing and midwifery entry to practice programs in Australia differ markedly in the size of the faculty who teach into them. The faculty numbers from each institution were not able to be determined, so a sound estimate of sample size was not possible.

Informed consent was ascertained by the participant electing to continue with the survey after reading the participant information sheet and the opening webpage. All responses were anonymous, and participants had the option to not answer any of the questions.

3.2. Study instrument and data collection

A study instrument was developed using the 27 essential nursing education competencies for prevention and care related to unintended pregnancy developed through a Delphi process in the US (Hewitt & Cappiello, 2015). These competencies are grouped under four key domains: attitudes, knowledge, skills (counselling), and skills (clinical). One competency, where US legal requirements were noted, was reworded to reflect the Australian context. The research team, who possess considerable expertise in UPPC, added a fifth domain, public health, which included two knowledge-based competencies. One public health competency focused on knowledge of unintended pregnancy and abortion trends in Australia, while the second competency focused on global trends, including unsafe abortion and maternal mortality.

Respondents were asked to identify which competency statements they believed were taught in their program, and what they believed should be taught in their program. The online survey was piloted with several nursing/midwifery colleagues from the research team's institutions. Minor adjustments to formatting were made as a result of feedback. The final survey was deployed using Research Electronic Data Capture (REDCap), a secure workflow methodology and software application for online data input (Harris et al., 2009), and was open for 10 weeks between February and April 2021.

Data were collected and managed using REDCap electronic data capture tools hosted at Queensland Cyber Infrastructure Foundation Ltd. REDCap is a secure, web-based software platform designed to support data capture for research studies, providing (i) an intuitive interface for validated data capture; (ii) audit trails for tracking data manipulation and export procedures; (iii) automated export procedures for seamless data downloads to common statistical packages; and (iv) procedures for data integration and interoperability with external sources (Harris et al., 2009, 2019). Data were downloaded into Microsoft Excel (Microsoft Corporation, 2016) for analysis using descriptive statistics (proportions and frequency counts).

The results are presented under the five key domains relevant to delivering UPPC education: public health, attitudes, knowledge, skills (counselling), and skills (clinical).

Each competency is presented to reflect the proportion of respondents who indicated whether they believe it should be a core requirement or an elective option and if it is currently taught as a core requirement or available as an elective. The proportions have been divided into four colour-coded categories: Green = 75+%, Blue = 50–74%, Yellow = 25–49%, and Pink = < 25%.

Table 1
Participant demographics.

Demographic	Category	n	%
Age group	< 30	3	6.8
	30–39	9	20.5
	40–49	8	18.2
	50+	23	52.3
	Prefer not to state	1	2.3
Gender	Female	38	86.4
	Male	3	6.8
	Prefer not to state	3	6.8
Religious affiliation	No	26	59.1
	Yes	14	31.8
	Prefer not to state	4	9.1
Time working in higher education (years)	< 5	14	31.8
	5–9	18	40.9
	10–19	12	27.3
Clinical experience in UPPC	Yes	24	54.5
	No	20	45.5

UPPC: unintended pregnancy prevention and care.

4. Results

Forty-four faculty members responded to the survey. Respondents were largely aged over 40 years (70.5%), female (86.4%), had no religious affiliation (59.1%), and had worked in higher education for more than 5 years (68.2%). Just over half (54.5%) of the respondents had clinical experience in providing UPPC services (Table 1).

All states and territories except Tasmania, where there were no respondents, were represented, with the majority respondents employed by institutions located in New South Wales (32%), Victoria (29%), and Queensland (25%). Most participants (70%) were employed with institutions that offered both registered nurse and midwifery entry to practice programs with less than 1000 enrolments (43%). Forty-one participants (95%) agreed that nursing and midwifery students should be taught UPPC, two participants disagreed, and one did not respond.

4.1. Attitude, knowledge, and public health domains

The results, by proportions, for attitudes, knowledge, and public health domains are presented in Table 2. Over 75% of respondents indicated that 10 out of the 14 competencies within the 3 domains of attitudes, knowledge, and public health should be core curriculum.

All participants were in agreement that reproductive anatomy and physiology should be taught as core, and contraceptive methods should be taught as either core or elective curriculum. However, only 78.6% respondents indicated reproductive anatomy and physiology is currently taught in a core or elective manner, 73% as a core and 16.7% were unsure. Similarly, contraception methods were indicated as taught by just over half (54.7%) of the respondents as either core or elective, only just over one-third (35.7%) as core curriculum, and nearly as many respondents (33.3%) were unsure if it was taught at all.

The most commonly taught competencies were identified in the attitude and knowledge domains. The respondents identified anatomy and physiology (73.8%), application of ethical principles (54.8%), and the ability to identify personal beliefs (40.5%), as being taught as core or elective. Just over 30% of respondents were unsure whether the last two topics were covered in the curricula. Competencies relating to policies, legislation, abortion methods, and epidemiology were less frequently taught.

Table 2
Attitudes, knowledge, and public health competencies.

Competency Statements	Should be taught as		Is taught as			
	Core (%)	Elective (%)	Core (%)	Elective (%)	Not covered (%)	Unsure (%)
Attitude						
Demonstrate ability to apply the ethical principles of respect for autonomy, beneficence, non-maleficence, and justice as they relate to the provision of unintended pregnancy prevention and care	93	4.7	40.5	14.3	14.3	31
Demonstrate ability to identify personal beliefs which may interfere with provision of unintended pregnancy prevention and care	90.9	6.8	40.5	11.9	14.3	33.3
Demonstrate the ability to provide unintended pregnancy prevention and care that is free of evidence of bias and judgment	90.9	6.8	35.7	11.9	16.7	35.7
Demonstrate knowledge of the nurse's professional responsibilities in providing health care to clients in need of unintended pregnancy prevention and care	88.6	9.1	31	9.5	19	40.5
Demonstrate ability to recognize unique reproductive health needs of women from vulnerable and special populations (e.g., adolescents, women with mental or physical disabilities, survivors of violence) affected by many factors (e.g., relationship status, sexual orientation)	84.1	13.6	35.7	9.5	16.7	38.1
Knowledge						
Demonstrate basic understanding of female and male anatomy and physiology related to conception and reproduction	100	0	73.8	4.8	4.8	16.7
Demonstrate knowledge of confidentiality regulations specific to unintended pregnancy prevention and care	93.2	4.5	45.2	4.8	19	31
Demonstrate understanding of how contraceptive methods work (e.g., hormonal methods, postpartum and emergency contraception, lactational and fertility methods, IUD, barrier methods, sterilization), risks, benefits, alternatives, effectiveness, and eligibility	79.5	20.5	35.7	19	11.9	33.3
Demonstrate knowledge of current evidence-based guidelines for primary prevention of unintended pregnancy	79.5	18.2	22	14.6	22	41.5
Demonstrate knowledge of current state-specific laws regulating minors' access to reproductive care including contraceptive access and abortion care	60	35.4	21.4	11.9	26.2	40.5
Demonstrate knowledge of types of induced abortion methods, including risks and benefits, which are legally available in each Australian jurisdiction	61.4	36.4	16.7	16.7	26.2	40.5
Demonstrate knowledge of state and local adoption options and resources and applicable regulatory laws and statutes	43.2	40.9	9.8	14.6	39	36.6
Public Health						
Demonstrate knowledge of unintended pregnancy and abortion in Australia (statistics/trends)	84.1	0	28.6	9.5	26.2	35.7
Demonstrate knowledge of unintended pregnancy and abortion internationally (statistics/trends/unsafe abortion/maternal mortality)	68.2	0	14.3	7.1	40.5	38.1

4.2. Counselling and clinical skill domains

The proportions for counselling and clinical skill domains are presented in Table 3. The majority (> 85%) of respondents indicated that each of the 15 competencies related to counselling and clinical skills should be taught as either core or elective. Four of these competencies were identified by over 78% of respondents as 'should be' core. These were obtaining a complex history (93%), effective communication (88.4%), intimate partner violence risk assessment (83.7%), and referring clients to area providers. Of these four competencies, only two were identified as currently being core curriculum by over 50% of respondents — this included the competencies of effective communication (56.1%) and proficiency in history taking (54.8%). The other two competencies were less likely to be included as core: assessment of intimate partner violence (40.5%) and proficiency in referring clients to area providers and support services (21.4%).

The ability to provide client-centred pregnancy option counselling, including parenting, adoption, and abortion, was the competency least likely to be included in current curriculum and least likely to be considered as 'should be' core, however, 88% of respondents agreed that it should be offered as either core or elective content.

Respondents' uncertainty regarding the coverage of content ranged between 21% for obtaining a complex health history and 46.3% for unintended pregnancy risk-reduction counselling.

5. Discussion

This descriptive cross-sectional study survey provides insight into the delivery of UPPC content in Australian entry to practice nursing and midwifery curricula from the perspective of educators.

We found a substantial disconnect between what the faculty believed should be taught compared with what is taught. For each of the 29 competencies, over 84% of respondents believed it should be taught as either core or elective, however, no competency was identified as being taught by more than 79% of respondents. Nineteen competencies (65.5%) were identified as being taught by less than 50% of respondents. These findings suggest that while faculty appreciate the importance of UPPC in undergraduate education, it is not prioritised in the curriculum. It was unsurprising, therefore, that competencies such as attitudes, confidentiality, communication, anatomy, and physiology and taking a health history, which are applicable across the curriculum, tended to be more likely included as core or elective content than the more UPPC-specific content.

In terms of specific UPPC content, the ethics of UPPC (54.8%), contraceptive methods (54.7%), and referral of clients for UPPC (47.7%) were the most commonly covered topics in entry to practice nursing and midwifery curricula. Similarly, Mizuno (2013) found that family planning and contraception was the most included topic in Japanese curricula, though covered by more educational programs (83%). In our study, options counselling (parenting, adoption, and abortion) (24.4%), international trends related to unintended pregnancy and abortion (21.4%), and unintended pregnancy risk-reduction counselling (19.5%) were the topics least likely to be covered. A 2019 unpublished study of all (n = 97) US pre-licensure nursing programs found early pregnancy management of a continuing pregnancy was covered in 88% of programs, abortion and adoption was covered in 59% and 46%, respectively (J. Cappiello, personal communication, December 05, 2021). This suggests that Australian entry to practice nursing and midwifery courses receive less information compared to their US counterparts in terms of UPPC content, which at the time of survey deployment, was reasonably well covered. However, the repeal of Roe versus Wade and its legal and clinical sequelae across the country may have caused a reduction of UPPC content in curriculum. Once again, we must remain cautious when comparing Australian studies with those from the US, where midwifery remains on the margins of maternity care. Most care

Table 3
Counselling and clinical skill competencies.

Competency Statements	Should be taught		Is taught as			
	Core	Elective	Core	Elective	Not covered	Unsure
Skills: Counselling						
Demonstrate proficiency in effective communication skills that encompasses respect for culture, sexual orientation, and gender identity	88.4	11.6	56.1	4.9	14.6	24.4
Demonstrate proficiency in promoting sexual-health self-care practices	72.1	25.6	31.7	12.2	26.8	29.3
Demonstrate proficiency in providing pregnancy test results in patient-centred manner	65.1	30.2	19	11.9	35.7	33.3
Demonstrate proficiency in using essential counselling techniques (e.g., motivational interviewing, shared decision making, and patient engagement) in provision of unintended pregnancy prevention and care	48.8	34.9	14.3	9.5	35.7	40.5
Demonstrate proficiency in providing client-centred risk reduction counselling specific to unintended pregnancy prevention	48.8	37.2	12.2	7.3	34.1	46.3
Demonstrate proficiency in providing client-centred pregnancy options counselling including parenting, adoption, and abortion	39.5	48.8	12.2	12.2	34.1	41.5
Skills: Clinical						
Demonstrate proficiency in obtaining a complete health history (inclusive of sexual and reproductive history, sexual orientation, partner preference, and appropriate to the developmental level of the client)	93	7	54.8	7.1	16.7	21
Demonstrate proficiency in assessing risk for intimate partner violence (including sexual violence and coercion)	83.7	14	40.5	9.5	16.7	33.3
Demonstrate proficiency in referring clients with unintended pregnancy to area providers and support services	78.6	16.7	21.4	11.9	28.6	38.1
Demonstrate ability to participate effectively in interprofessional, team-based care for unintended pregnancy prevention and care	71.4	23.8	14.3	14.3	33.3	38.1
Demonstrate proficiency in identifying preconception health risks	69.8	27.9	42.9	9.5	19	28.6
Demonstrate ability to make appropriate referrals to community-based prenatal care providers and resources	67.4	27.9	31	16.7	19	33.3
Demonstrate proficiency in evaluating outcomes of plan of care and referrals for women with unintended pregnancies	59.5	31	11.9	9.5	35.7	42.9
Demonstrate ability to confirm pregnancy and determine gestation age	48.8	41.5	35.7	11.9	23.8	28.6
Demonstrate ability to obtain or refer for appropriate laboratory tests specific to unintended pregnancy prevention and care	40.5	50	14.3	14.3	26.2	45.2

providers in US hospital maternity units tend to be registered nurses (National Academies of Sciences Engineering and Medicine, 2020), which likely impacts on the entry to practice curriculum content.

The findings of our study demonstrate that Australia is not on track to meet the National Women's Health Strategy 2020–2030 because graduating nurses and midwives do not possess the knowledge and skills to provide UPPC services. A recent study

(n = 624) of Queensland midwives and sexual health nurses found that a third of respondents were already involved in abortions as part of their routine practice and 93% agreed that the availability, practice, and possible complications of abortion should be included as core curriculum for Australian midwifery and/or nursing students (Desai, Maier, James-McAlpine, Prentice, & de Costa, 2022). We recommend a consistent, evidence-based curriculum to prepare the graduating workforce to provide quality UPPC. This would require re-imagining of the Australian Nursing and Midwifery Accreditation Council (ANMAC) standards for nursing (Australian Nursing & Midwifery Accreditation Council, 2019) and midwifery education (Australian Nursing & Midwifery Accreditation Council, 2021), which currently do not require inclusion of the topic in either curriculum.

The Australian Government recently commissioned an independent review of nursing education in the context of a larger, more ethnically diverse and aging population (Schwartz, 2019). Several recommendations from this review are relevant to our findings. First, nursing practice standards, upon which entry-level courses are built, should specify core knowledge, skills, and procedural competence newly graduated nurses require to function in any workplace setting (recommendation 6) and these standards should be developed using national and local health priorities as a guide (recommendation 21). In the case of UPPC, we recommend the Nursing and Midwifery Board of Australia use the National Women's Health Strategy 2020–2030 and higher education providers adopt a UPPC education framework such as the one we have adapted for this study. The review also recommends that nursing placement hours should increase to 1000 h (currently 800 h) (recommendation 10) and consideration should be given to extending the nursing degree to a 4-year program (recommendation 12). Our findings support this recommendation as UPPC is squeezed out of the curriculum.

During consultation on the review of ANMAC standards for midwifery education (Australian Nursing & Midwifery Accreditation Council, 2021), the majority of respondents agreed that Australian midwifery students should be educated to meet the full scope of midwifery practice. Full scope of midwifery practice, as described by the International Confederation of Midwives (ICM) (2019) includes provision of care to women with unintended or mistimed pregnancy. The ICM has also urged member associations to seek to influence the education of midwives to ensure they have the knowledge and skills to provide abortion-related services (ICM, 2014). While the revised ANMAC standards make note of contemporary midwifery practice, integration of care across the childbearing continuum, and women's social and emotional well-being and their right to make choices, there is no direct reference to unintended or mistimed pregnancies or abortion-related care. We recommend that ANMAC, when discussing and describing the full scope of midwifery practice, explicitly includes these terms.

For 23 of the 29 competencies, respondents indicated uncertainty levels of over 30%, which may be a consequence of what has been referred to as the McDonalization of nursing education in Australia (Ralph, 2013). A drive for efficiency and profitability in the higher education sector has resulted in inadequate resourcing for development and enhancement of programs, fast-tracked teaching, and overcrowded curricula (Ralph, 2013). We contend a further outcome of McDonaldization is that academics become siloed within their subject areas due to time pressures caused by the above factors.

Our study has several limitations that must be considered when interpreting the results. First, 9 of the 38 institutions (24%) providing nursing and midwifery entry to practice programs did not promote our survey to faculty with six non-responding to emails and three declining to participate, thus, the results may not be generalisable. Second, as reported above, there was significant uncertainty about what was taught across the curricula; it is possible we have underestimated the extent to which UPPC is taught across curricula. Third, choosing to not ask respondents to identify their institution was a deliberate strategy to encourage participation, however, it has limited the ability to discern how representative our sample is. Finally, 24 of the 44 respondents (54.5%) indicated that they had clinical experience in providing UPPC. It is possible that this experience may bias their responses towards believing content is worthy of inclusion into the curriculum.

6. Conclusion

While nurses and midwives are well placed in Australia's health system to provide UPPC to help meet the National Women's Health Strategy 2020–2030, current Australian undergraduate entry to practice nursing and midwifery programs are inadequate to meet their educational needs. A re-imagining and reform of the ANMAC standards for nursing and midwifery education is necessary to ensure graduating nurses and midwives are equipped to work to their full scope of practice and provide the level of UPPC contemporary Australia demands.

Authorship contribution statement

Sandra G Downing: Conceptualization, Methodology, Investigation, Writing – original draft, Visualization. **Mary-Claire Balnaves**: Methodology, Writing – review & editing. **Lydia Mainey**: Conceptualization, Methodology, Writing – review & editing. **Jemma King**: Software, Writing – review & editing. **Ann Peacock**: Methodology, Writing – review & editing. **Joyce Cappiello**: Methodology, Writing – review & editing. **Lisa Peberdy:** Methodology, Writing – review & editing. **Judith Dean**: Conceptualization, Methodology, Writing – review & editing, Visualization.

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Ethical statement

Ethical approval was granted by the James Cook University Human Research Ethics Committee (HREC: H8237, Approval: 9/10/2020).

Conflict of interest

The authors have no conflict of interest to declare.

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