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Research paper

Implementation and utilisation of Australian critical care practice standards: What do we know?

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ABSTRACT

Background: The Australian College of Critical Care Nurses published the third edition of practice standards (PSs) for specialist critical care nurses in 2015. Higher-education providers currently use these standards to inform critical care curricula; however, how critical care nurses perceive and use PSs in clinical practice is unknown.

Objectives: The objective of this study was to explore critical care nurses' perceptions about the Australian College of Critical Care Nurses PS for specialty critical care nursing, to understand how the PSs are used in clinical practice, and what opportunities exist to support their implementation.

Methods: An exploratory qualitative descriptive design was used. A purposive sampling strategy was used, with 12 critical care specialist nurses consenting to participate in semistructured interviews. The interviews were recorded and transcribed verbatim. Transcripts were analysed thematically using an inductive coding approach.

Findings: Three main themes were identified: (i) lack of awareness of the PS; (ii) minimal to no utilisation of the PS in clinical practice and the challenges contributing to this; and (iii) improving the implementation and utilisation of the PS in clinical practice.

Conclusions: There is a significant lack of awareness and utilisation of the PS in clinical practice. To overcome this, increasing recognition, endorsement, and valuation of the PSs to stakeholders at an individual, health service, and legislative level are suggested. Further research is required to establish relevance of the PS in clinical practice and understand how clinicians use the PS to promote and develop critical care nursing.

1. Background

Critical care is a unique, often siloed area of the health service offering specialised one-to-one care to the sickest cohort of patients. Patients in critical care require a variety of treatments from invasive monitoring through to life-supporting therapies such as mechanical ventilation, renal replacement therapy, and extracorporeal membrane oxygenation.[1] As the acuity of patients increases, so too does the demand for appropriately trained and experienced critical care nurses. The daily demands placed on the intensive care unit (ICU) to accept both planned and unplanned/emergency admissions require the nursing workforce to be nimble and flexible, be able to prioritise and critically analyse a variety of clinical data, and respond in an appropriate manner. A critical care nurse is required to coordinate individual patient-centred care and identify and escalate early deterioration in patient status and is central in all elements of communication in the multidisciplinary clinical care team. Providing competent, quality critical care nursing requires specialised knowledge, skills, and aptitude.[2] The need for this during the recent COVID-19 pandemic and its effects on the nursing workforce and the increasing demand for critical care beds have been acutely highlighted.[3]

The Australian College of Critical Care Nurses (ACCCN) is the peak professional body for critical care nursing (https://acccn.com.au/). Its aim is to promote, disseminate, and support evidence-based practice through the delivery of high-quality nursing care by specialist critical care nurses. One of the ways the ACCCN achieves this is through the ongoing development and evaluation of specialist critical care practice standards (PSs), providing benchmarks of

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nursing practice, and articulating behaviours unique to critical care nurses. Critical care–specific standards "… *define the needs of the critically ill patient, reflect the scope of critical care nursing practice, and clarify critical care nurses' areas of accountability* …"[4] are intended to supplement the generic registered nurse competency standards and help guide registered nurses in interpreting their specialty practice.[5]

The first edition of ACCCN specialist standards were published in 1999.[6] The critical care landscape has changed significantly since then, and as such the standards have undergone multiple iterations to ensure relevance, reliability, and validity.[7–9] The current edition (3rd edition) (see Fig. 1) released in 2015 is the result of a systematic process to ensure the standards reflect contemporary specialist critical care nurse practice.[9] The PSs are intended for three specific purposes: (i) to inform curriculum development for institutions providing critical care education; (ii) assessment of clinical practice; and (iii) as a vehicle for individual reflective practice and professional development.[9]

Despite the intended purposes of the PS, the ACCCN has provided no specific instruction regarding their implementation and translation, nor is there any registration or credentialling requirement of critical care nursing staff aligned with the PSs.[10–12] The PSs have been used by education facilities to inform critical care nursing curricula.[9] However, use of the PS in clinical practice is ad hoc and fragmented.[10] Limited research is available exploring the use of the PS in critical care practice, despite their aim to evaluate clinical performance and support professional development.[9] The reasons for this are not well understood. It is important that this complex clinical issue is explored, in the context of a real-life setting, using the experiences of those who work in this specialist environment. Doing so will provide a holistic understanding of the phenomenon of interest—to establish what value the PSs add to the scope of clinical practice.

2. Objectives

The aim of this study was to explore critical care nurses' perceptions of the ACCCN PSs for specialty critical care nurses. We specifically sought to better understand how critical care nurses use the PS in their clinical practice, what challenges critical care nurses identify that inhibit use of the PS in critical care practice, and what do critical care nurses identify as the opportunities for implementation and utilisation of the PS in critical care.

The formal research question was "How do critical care registered nurses (CCRN) utilise the ACCCN PS in their clinical practice and what perceived challenges and opportunities exist to the use of the PS in clinical practice?"

3. Methods

An exploratory qualitative descriptive design was used to explore critical care nurses' perceptions of the current PS. The Consolidated Criteria for Reporting Qualitative health research guidelines were used as a guidance tool.[13] A descriptive exploratory qualitative approach is useful in summarising and understanding an area of interest[14] and was selected for this study to allow for an in-depth understanding of the experiences and meanings that individuals attach to a phenomenon.[15]

3.1. Sample

A purposive sampling strategy[16,17] was used to recruit current, postgraduate qualified, critical care nursing staff working in ICUs in Australia. This was achieved via an Expression of Interest (see Appendix 1) posted through the ACCCN mailing list, inviting interested CCRNs to participate. The recruitment strategy enabled the recruitment of a wide variety of participants with representation of a range of states and both public and private health services. Recruitment continued until data saturation[18] was reached; this occurred at 12 participants.

3.2. Data collection

Data were collected via semistructured, conversational style interviews using the Zoom video conferencing platform owing to the COVID-19 pandemic and widespread lockdowns. This method of data collection has been reported as a suitable, cost-effective, and easy-access medium to interview participants of qualitative research.[19,20] The semistructured format allowed specialty critical care nursing staff to share their perceptions surrounding the ACCCN PSs and how they relate to the critical care practice. An interview guide was developed by the research team (see Supplementary material). However, following the initial interviews, questions regarding the explicit use of the PS in the clinical environment were modified due to participant responses and offered an opportunity for explanation of the PS.

Interviews were undertaken by the first author and ranged from 15 to 40 min. All interviews were recorded, and data were transcribed verbatim, with accuracy checking through subsequent review of the audio files. Additional case notes were taken during the interview, to alert the research team of specific, memorable content and context. Case notes provide important context and allow the collection of nonverbal cues, behaviours, and initial impressions not captured in the audio recording.[21]

Practice Standards for Specialist Critical Care Nurses.

Domain	No	Standard
Professional practice	1	Functions within professional and legal parameters of critical care nursing practice
	2	Protects the rights of patients and their families
	3	Demonstrates accountability for nursing practice
	4	Demonstrates and contributes to ethical decision making
Provision and coordination of care	5	Provides patient and family centred critical care
	6	Promotes optimal comfort, well-being and safety in a highly technological environment that is often unfamiliar to patients and families
	7	Manages and coordinates the care of a variety of patients
	8	Manages therapeutic interventions
Critical thinking and analysis	9	Applies integrated patient assessment and interpretive skills to achieve optimal patient outcomes
	10	Develops and manages a plan of care to achieve desired outcomes
	11	Evaluates and responds effectively to changing situations
	12	Engages in and contributes to evidence based critical care nursing practice
Collaboration and leadership	13	Collaborates with the critical care team and other health professionals to achieve desired outcomes
	14	Acts to enhance the professional development of self and others
	15	Contributes towards a supportive environment for all members of the healthcare team

Fig. 1. Practice standards for specialist critical care nurses.[8]

3.3. Data analysis

Data were analysed using qualitative thematic analysis.[22,23] Thematic analysis involves the search for and identification of common threads that extend across an entire interview or a set of interviews.[24] Coding of the data was undertaken using the NVivo software (QSR International Pty Ltd. Version 12, 2018). The audio recordings of the interview sessions were listened to and compared with the transcriptions to ensure accuracy and encourage familiarisation with the data. Initial coding [YC] was completed to identify patterns in the data and assign short descriptors or codes. Following initial coding, codes were compared and combined to create preliminary themes and subthemes. Generation of initial codes included identification of raw data which could be categorised in a meaningful way. After the initial themes were developed, codes within each theme were reviewed by two authors [YC + DM] to ensure they were consistent with the theme and modifications were made where necessary. Thematic analysis of each interview transcript was conducted to check if new themes were being generated. Moving from creating codes to synthesising broader themes involved examining commonalities and searching for and collating broader themes that captured the essence of participants' responses and patterns of responses. Two researchers [YC + DM] developed an in-depth understanding of the data through a combination of conducting or listening to interviews and reading transcripts and field notes. To maintain accuracy of coding, a sample of coded information was checked by a member of the research team [DM].

3.4. Ethics approval

Ethical approval to undertake this study was granted by The University of Melbourne - Office of Research Ethics and Integrity. Written informed consent was obtained from each participant prior to interview.

3.5. Rigour/trustworthiness

Recommended guidelines were used to strengthen the trustworthiness of the data.[25] The inclusion of an audit trail facilitated dependability of the study. Prolonged engagement with the data through repeated analysis of the interview transcripts and emerging themes enabled a deeper understanding of the data and ensured credibility. Credibility was also achieved through continuous discussion and reflection between research team members (YC + DM). Independent review of the transcripts by two [YC and DM] researchers with different clinical and research lenses enhanced the veracity of the theme identification. Data from participants were collected to enable reviewers/readers to evaluate applications to other settings (transferability) and the findings. A clear and transparent audit trail facilitated the dependability of the study.

3.6. Reflexivity statement

In qualitative research, the researcher is regarded as a research instrument, and this necessitates the identification of personal values, assumptions, and biases at the outset of the research study.[16] As a 20-year veteran of critical care nursing, and 10 of these years devoted to clinical education in critical care, the lead researcher [YC] is passionate about the critical care nursing profession and the provision of high-quality care. This provides an insider perspective but introduces potential bias to the research question. The wider research team consisted of a context expert [DM], bringing both extensive academic and critical care nursing experience to the project, and a medical education academic [JB] with no lived experience of critical care. Through extensive discussion, the research teams were able to resolve assumptions, bias, and interpretation of the data, ensuring a balanced view of the perspectives shared from the recruited participants.

4. Results/findings

Twelve CCRNs participated (see Fig. 2) in this study. Following completion of the interviews and subsequent analysis of the data, three main themes emerged, providing insight into the implementation and utilisation the PS: (i) awareness of the PS in clinical practice; (ii) utilisation of the PS in clinical practice; and (iii) opportunities for more effective use of the PS (see Fig. 3).

4.1. Awareness and relevance of the PS in critical care practice

Awareness of the PS in critical care practice was varied between those who were aware of the PS and could see current relevance to clinical practice, compared to those who were not aware of the standards and were unable to articulate clear examples of how the PSs are used in their clinical practice. For this latter group, this resulted in confusion and ambiguity, highlighted by the following factors: (i) participants not identifying a clear distinction between the general nursing registration as determined by the Nursing and Midwifery Board Australia (NMBA) requirements and the PS; (ii) no explicit use of the standards following postgraduate studies; (iii) no easy access or visibility of the PS outside of paid membership to the ACCCN; (iv) no promotion of the standards in the workplace; and (v) no prior knowledge of the PS. These factors identified a widespread lack of awareness of the PS amongst a relatively experienced cohort of critical care nurses:

> *"…If people know about them, they can measure themselves against a yard stick. But if you don't have the yard stick, it's hard to measure yourself …"* (Participant 2)

Of note, confusion between the PSs and other ACCCN-published working documents was evident, and this included workforce standards and provision of critical care education:

> *"…I didn't know that they had competency standards, to be honest. I know that they've got guidelines on staffing and how to set that up in ICU. But yeah, I didn't really know that they had any around competencies…"* (Participant 11)

To overcome this lack of awareness during the interview process, additional explanation and provision of further information about the PS was required by the interviewer. This was not anticipated in the initial design of the interview schedule but was needed to facilitate further discussion and ascertain a deeper level of understanding of the PSs and their application in critical care practice. Another facilitator of discussion was the voluntary use of 'Google' searching of the PSs by the participants during the interview process. This was not requested by the interviewer (YC) but evolved as the interview became more challenging because of lack of knowledge or awareness by participants. Interestingly, following this "*in vivo*" Google search and subsequent "speed review", participants identified relevance of the PS to clinical practice and expressed embarrassment and apology at not being acutely "*…aware…*". This is evidenced by the following participant comments:

> "*…now I'm critiquing myself against the standards, how have I not been aware of this for so long…*" (Participant 2)

Participant	State	Gender	Public/Private Health Sector	Post Grad Qualifications	Current Role	Years as ICU nurse
1	WA	F	Public	Y	Academic	>20
2	VIC	F	Public	Y	CNS	>15
3	VIC	F	Public	Y	Academic	<5
4	VIC	F	Public	Y	CNC	>5
5	NSW	M	Public	Y	CCRN	>5
6	VIC	F	Pub/Priv	Y	CCRN	>20
7	NSW	F	Public	Y	CNS	>10
8	QUEENSLAND	F	Pub/Priv	Y	CNE	>20
9	VIC	F	Public	Y	CNS	>10
10	VIC	F	Pub/Priv	Y	CNE	>15
11	WA	F	Pub/Priv	Y	CCRN	>10
12	WA	F	Public	Y	Academic	>20

Fig. 2. Participant information. Abbreviations: CCRN: Certified Critical Care Registered Nurse; CNC: Clinical Nurse Consultant; CNE: Certified Nurse Educator; CNS = Clinical Nurse Specialist; ICU = Intensive Care Unit; NSW = New South Wales; VIC = Victoria; WA = Western Australia; Y = Yes.

Awareness of the Practice Standards to clinical practice

- Relevance of the Practice Standards

Utilisation of the Practice Standards in clinical practice

- Visibility/accessibility
- Organisational support

Strategies for more effective implementation of the Practice Standards into clinical practice

- Workplace modifications
- Australian College of Critical Care Nurses suggestions

Fig. 3. Themes and subthemes related to implementation and utilisation of the Australian critical care practice standards.

"*…I had a pretty good read through them, I think they're very well set out. I think they make a lot of sense. I've found reading through, without even thinking about it, these are things that you just do as a nurse in your everyday practice anyway…*" (Participant 9)

4.2. Utilisation of the PSs in critical care clinical practice

Participants were asked to describe how the PSs are utilised in clinical practice. None were able to provide explicit examples in their clinical setting. A variety of challenges to utilisation of the PS in clinical practice were identified, and these were grouped around the broad subthemes of visibility and accessibility and organisational support.

4.2.1. Visibility and accessibility

Most participants felt the greatest barrier to the use of the PS was their lack of visibility to clinicians. The PSs were not advertised, marketed, or promoted through the ACCCN or their respective clinical working environments:

"…It's about advertising more for the ACCCN. Maybe it's more about getting that message out there that this is the gold standard. This is the expectation of behaviour…" (Participant 10)

"…I don't know whether they (ACCCN) have actively been doing that, whether they need help for marketing and penetration…" (Participant 12)

4.2.2. Organisational support

Participants spoke about the importance of clinical organisations being visibly supportive of the PS. Health service middle management, the nurse unit manager (NUM), and/or hospital education departments were identified as drivers of the PS. Participants believed these groups should recognise the importance of the PS and act as a vehicle for implementation into practice. Recognition of the ongoing chronic lack of financial and human resources in critical care nursing practice and no clear champion to drive the standards also contributed to lack of utilisation. Participants stated organisational values and Australian Safety and Quality Accreditation standards often hijacked the ICU environment and dominated professional development frameworks. The lack of PS as a benchmark for practice and the recognition of the importance of the PS at an organisational level are evidenced by the following comment:

"…Governance and maintenance of professional standards is the responsibility of the nursing unit manager, I feel. At the end of the day every nurse working under the NUM, she's responsible for all of them and for ensuring that they are working at a level that's appropriate to the setting that they're in…" (Participant 2)

It is clear from participant responses that the lack of the PS as an embedded "gold standard" benchmark for practice and the recognition of the importance of the PS at an organisation level have contributed to the PS not being visible, utilised, or articulated in clinical practice.

4.3. Strategies for more effective implementation of the PS in clinical practice

Participants were asked to provide suggestions for promoting the PS in critical care practice. Suggestions for both the ACCCN and health service organisational level emerged.

Participants believed a level of responsibility lay with the ACCCN to advertise, market, and promote the "practice standard" of specialist practice, but participants also believed health services had a responsibility to recognise the standards as intended and imbed them into clinical appraisal process and as a tool for professional development.

Several suggestions were offered in the narratives that targeted an organisational/health service level. Overwhelmingly, these were focused on the use of the PS to form a part of the annual performance review process and a framework for career development opportunities. Participants were also of the strong belief that the PS should form a part of role descriptions for advanced practice nurses. Importantly, participants emphasised the need for nursing management to see the value in the PS and champion their adoption at a clinical level:

"… I think it would need to come from management, CNS's and educator level, and have them enforce it and bring it onto the floor for the rest of the RNs and the CNs. So, I think it needs to come from a local management team saying, "This is what we support. We're going to implement it." And then I guess it would be up to them to kind of run through it, benchmark where they currently are against those standards …" (Participant 11)

If the PSs are to be valued, implemented, and utilised within the health service, membership to professional organisations such as the ACCCN needs to be encouraged and viewed as desirable. Participants highlighted the need for government regulation through use of the PS as benchmarks for practice, similar to those used by the NMBA for entry to practice and registration requirements.

Participant suggestions for more effective implementation on behalf of the ACCCN focused on marketing, visibility, accessibility, promotion, and shortened review periods. Increasing the professional profile of the organisation to individual critical care nurses and health services and at a government level was also seen as imperative. The participants felt the ACCCN did not have the "profile" that other specialty nursing organisations have:

"…I think there needs to be more noise made about them. People need to be aware of them. Squeaky wheels get oil. And if you're not aware, you don't know what you don't know. So, put them out there. Get them advertised…" (Participant 9)

5. Discussion

This study explored critical care nurses' knowledge of the current ACCCN PS and how these PS are used in critical care clinical practice. Three key findings were identified: (i) lack of awareness of the PS; (ii) limited utilisation of PS in clinical practice; and (iii) strategies for more effective utilisation of the PS in critical care clinical practice. These findings are important because despite their previously established adoption at tertiary education level,[9] the PSs have not previously been evaluated for their use in a clinical context. This study is the first to identify a significant lack of awareness and concerning gaps in the implementation and utilisation of the PS into critical care nursing practice. This is important as the benchmark for specialty critical care nursing practice, set by the ACCCN, is neither recognised nor articulated as intended in clinical practice.

The most significant finding of this study is the apparent lack of awareness of the PSs in those for whom they are supposed to apply. The looming question is why the apparent lack of awareness? Despite their evidence-based creation, there have been no explicit instructions to stakeholders regarding the processes for implementation and utilisation of the standards at an individual, organisational, or policy level, and the reasons for this are unexplored.[9,10,26] This has occurred despite the extensive work of Gill et al.[9,10,27] who were responsible for developing the current edition of the PS,[8] advocating for the creation of such resources.

This lack of awareness is concerning given the ACCCN promotion of the PS as the "gold standard" of clinical practice. If critical care nurses are unaware of the PS, then what determines the benchmark for this specialty level of practice? All registered nurses must comply with national registration and credentialing requirements as set by the NMBA[28]; however, there is no legislated governance around critical care nursing compliance with specialist PS. Benchmarking criteria may be even more important as the critical care fraternity scramble to respond to the increased demand for critical care beds in response to the current COVID-19 pandemic.[3] The proliferation of "critical care" short courses to provide education to an otherwise "unqualified" specialist workforce requires benchmarks for education development, delivery, and utilisation to ensure safe and competent critical care nursing practice.[29,30]

It has previously been identified that the process of policy/guideline/practice standard development and implementation is a two-phased approach.[31,32] This requires the intellectual resources of content experts, coupled with a concerted energy to the implementation of the guidelines into practice. If this does not occur, a clear disconnect develops between those tasked with creation of guidelines and those tasked with operationalising them.[32,33] The results of this study demonstrate this "disconnect". Whilst concerted efforts have gone into

the creation and revision of the PS, it is clear there has been limited consideration into their dissemination and implementation resulting in a significant lack of awareness and utilisation in the clinical context. This provides exciting opportunities for the peak professional critical care body in Australia to work with other critical care organisations and its members to identify important knowledge translation strategies. A key responsibility of professional organisations, such as the ACCCN, is to work with its members and engage stakeholders. There is an opportunity for further development of these relationships to highlight relevance and importance of the PS to everyday critical care practice. This will ensure standards are not just being developed to validate specialty practice but are valuable for nurses in their workplace and assist development of the critical care nursing profession.[5]

Suggestion for more effective implementation and utilisation of the PS was closely related to the barriers identified—with actions for the ACCCN to undertake around engagement with clinicians and work to establish recognition, endorsement and value at a legislative level. This latter approach is vital to allow for standardisation across health services and opportunities for benchmarking.[34] The notion of legislation is similar to that of the NMBA legislative requirements associated with annual registration and is in compliance with NMBA general nursing standards. Early work around credentialling critical care staff using the ACCCN PS as a framework has been explored but has never progressed beyond pilot stages.[12] This may need to be revisited as a potential option for encouraging legislative use of the PS.

If the PSs are going to be accepted as a benchmark for practice, the issue of "awareness", or rather raising awareness, needs to be addressed. One way this could be achieved is through consideration of theory-based implementation and knowledge translation models relevant to the clinical environment.[32] The PSs are promoted as a "gold standard" of critical care practice with three clear intended purposes: (i) inform curriculum development for institutions providing critical care education; (ii) assessment of clinical practice; and (iii) as a vehicle for individual reflective practice and professional development—but only the first of these intentions is being met—how can the gold standard be met or upheld? What is their value in the clinical context and what does this mean for critical care practice?

5.1. Strengths/limitations

In this study, a detailed exploration of the perceptions of critical care nursing staff members within the context of critical care specialty PS was undertaken. The study was able to recruit qualified critical care staff from a variety of health services and Australian states, providing a good cross section of the critical care community, adding strength to the study.

However, a limitation of the study was the interview guide used assumed participants would have prior knowledge of the standards, creating a space for explicit explanation and "live" online research concomitant with the interview. Although this explanation allowed for a more in-depth exploration of the PSs and how they may be utilised, this was not experiential working knowledge but rather surface level and implied an attitude " … *well, it seems like a good idea …*".

We acknowledge that those who did not reply to the invitation to be involved may have had a very different experience of the PS from who presented in this research. We are also aware that while one of the strengths of our work is that it captured critical care nurses' perspectives *during* the interview, we did not follow up with them after the interview. There may have been instances, where with more time to reflect on their use of the PS, they may have provided additional insights into the use of the PS in their clinical practice.

5.2. Implications for application/recommendations

Despite its limitations, this study is the first of its kind exploring the perceptions of critical care nurses and the use of critical care specialist PS in the clinical context. Further study is required to investigate "… *relevance* …" of the PS to critical care nurses and how they relate to safety and quality of patient care. It is recommended that the ACCCN focus their efforts on engagement with critical care nursing administration and legislative bodies to draw attention to the importance of the PS and develop strategies to facilitate implementation into critical care practice. Acknowledgement of the role of implementation science and relevant knowledge translation strategies and the documented value it adds to increasing awareness is a must if this is to succeed.

6. Conclusions

The critical care practice environment houses a vulnerable, high-acuity patient population that requires those tasked with the responsibility of delivering high-quality patient care to be suitably skilled. The purpose of the ACCCN PS is to articulate the behaviours required to facilitate this level of nursing care and offer a "gold standard" of expected clinical practice. However, widespread lack of awareness of the PS has led to minimal utilisation and implementation outside of the tertiary education. This leaves the question, what is the point of articulating a "gold standard" that is neither recognised nor met by the intended audience?

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Credit authorship contribution statement

Yolanda Cox: Conceptualisation, Methodology, Investigation, Data Curation, Formal Analysis, Writing - Original draft preparation.

Justin Bilszta: Conceptualisation, Methodology, Formal Analysis, Writing - Reviewing and Editing, Supervision.

Debbie Massey: Methodology, Formal Analysis, Validation, Writing - Reviewing and Editing, Supervision.

Conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this manuscript.

Data availability statement

The interview schedule, deidentified interview transcripts, and NVivo data coding files used during the current study are available from the corresponding author on request.

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Appendix A. Supplementary data

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