Nurse Education in Practice 41 (2019) 102634

Contents lists available at ScienceDirect

Nurse Education in Practice

journal homepage: www.elsevier.com/locate/nepr

Clinical education

The influence of hospital location and 'level of care' on continuing professional development

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ARTICLE INFO

Keywords:
Professional development
Midwifery
Obstetrics

ABSTRACT

Healthcare workers core skills are reinforced and knowledge of latest developments ensured by undertaking systematic continuing professional development. The current study explored the impact of health facility location and level of care provided on the continuing professional development offered to maternity services healthcare workers in Victoria, Australia. An online survey of middle to senior management staff of 71 public and private health services as well as 7 professional bodies was conducted, yielding 114 participants. Analysis was by location (metropolitan or regional/rural) and level of care provided. The findings revealed Australian Health Practitioner Regulation Agency registration is the predominant requirement to provide continuing professional development to staff. Dedicated education departments or educators are significantly underrepresented in Level 1&2 facilities, while Level 5&6 facilities are more likely to provide breastfeeding continuing professional development. Metropolitan locations provided more wide-ranging programmes compared with rural/regional locations. Key enablers are the capacity to share resources, have access to external courses and simulation equipment/centres, and the provision of relevant and timely continuing professional development programmes, indicating that 'Educational hubs' with credentialed staff working from better resourced regional facilities could deliver a complete array of CPD programmes to lower level facilities.

1. Background

Continuing professional development (CPD) is regarded as integral to the maintenance of professional standards across health professions. CPD enables nurses, midwives and other health professionals to maintain their expertise and to improve and broaden professional knowledge to enable them to grow in their chosen profession. In midwifery at the request of midwives, governments and UN agencies, the International Confederation of Midwives (ICM) developed the *ICM Global Standards for Midwifery Regulation* (International Confederation of Midwives, 2011). These standards provide explicit detail related to the requirements expected for *'Continuing competence'* in midwifery. To date, the Federation of Gynaecology and Obstetrics (FIGO) has not published a position statement with regard to CPD for continuing competence. Creatsas and Mastorakas (2010) suggest that within the discipline of obstetrics and gynaecology there is the need for the *uniform development of CPD,* both within European countries and beyond.

2. Introduction

Completing a prescribed range of CPD within a given time frame is a worldwide trend towards ongoing revalidation of clinicians' skills (Pelletier, 2010). In this vein, an editorial by Scott (2016) regarding nurses and midwives in the UK argued that CPD was not an optional extra to be supported by employers at their discretion, but a necessity for safer, more effective care outcomes. To ensure this, Pardo (2010) argues that there is a need to train the teachers, and move away from the premise that clinical knowledge and experience will license

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https://doi.org/10.1016/j.nepr.2019.102634
Received 8 April 2019; Received in revised form 18 September 2019; Accepted 4 October 2019

clinicians to teach effectively.

Of importance to effective outcomes for CPD is how practitioners are engaged, the overall accessibility and availability of programs (George et al., 2012; Webster-Benwell, 2014) and the benefits of and barriers to CPD (James and Francis, 2011). The 'MidPLUS' program, developed by the Australian College of Midwives (ACM), addresses these issues with its aim to assist midwives in planning and participating in educational activities relevant to their needs, practice and role as midwives (Monaghan and Shorten, 2008). Accessibility and availability of relevant CPD programs for all maternity services health professionals is a focus in many countries aiming to facilitate the maintenance of quality maternity services in rural and remote areas (Crowther, 2016; Francis et al., 2012; Katsikitis et al., 2013; Kornelson, 2009; Miller et al., 2012; Mills et al., 2015; Riley and Schmidt, 2016). In this realm, the utilisation of telehealth has the benefit of up-skilling health professionals in such locations (Goodwin et al., 2017; Moffatt and Eley, 2010).

Palaganas et al. (2014) outline the benefits and effectiveness of interprofessional education (IPE) and simulation in CPD as they relate to its *natural relevance and engagement for learners.* However, Davies et al. (2016) completed a recent systematic review and was unable to find rigorous supporting evidence for the effectiveness of IPE in maternity services. In addition, Fox et al. (2011) argued that simulation needs to be rigorously tested to evaluate its worth and limitations. Simulation and IPE underpins programs such as PROMPT training (Winter et al., 2018) where both Shoustarian et al. (2014) and Paliwal and Ali (2018) reported improved clinical practice and clinical outcomes and increased confidence in management of obstetric emergencies following such training.

To better understand the requirements of providing CPD to maternity services staff in a diversity of settings, a landscape review was undertaken in the state of Victoria, Australia. Victoria is approximately the size of Britain and has a population of 6.5 million people, with more than 70% living in the capital, Melbourne. The aim of the review was to provide:

1. A summary of CPD offered by maternity units across Victoria
2. A comparative analysis of the approaches used by various maternity services
3. The identification of any gaps or issues
4. Possible solutions and opportunities towards the development of a State-wide maternity program and a step towards a good to go concept.
5. The provision of recommendations

The main research questions were:

1. What is the credentialing of those providing CPD to maternity services?
2. What are the drivers and/or barriers to implementation of maternity services education?
3. How do community contexts affect the implementation of CPD in maternity services?

3. Method

3.1. Design

A mixed methods approach was used in this study. Data were collected between May-July 2018.

3.1.1. Quantitative method

A survey was purpose built for the review (and developed in collaboration with experts from maternity care services who participated in an expert advisory group). The survey questions were centred on the key areas of interest – such as, current CPD for all staff in maternity care services, the frequency of *in situ* multi-professional and other mandatory or non-mandatory in-house training; the frequency and types of externally provided training courses for staff; questions related to maternity education of rural and remote services; and questions related to policies and procedures related to maternity training and competencies. The survey consisted of sixty (60) questions, and while consisting of predominantly closed questions, three (3) questions prompted respondents for additional comments and twenty five (25) provided 'Other (Please specify)' as an option. The open questions in the survey is the qualitative data of the survey.

3.1.1.1. Sample size calculations. An initial calculation of the population size was undertaken. The likely study population of middle management (Unit Manager/Education Co-ordinator) and upper management (CEO/GM/Chief Nurse or Midwife) personnel was estimated for hospitals and other sites in each of the Level 1 to Level 6 range as N = 370. The recruitment sites included private hospitals, ancillary services and peak bodies. To have a confidence level of 95% a sample of n = 189 participants was required. However, an acceptable response rate for research which involves surveys can lie between 10 and 30%, therefore a response rate of n = 132 would represent a 30% response rate and deemed acceptable, but with the risk of the project being unable to detect some associations of interest.

3.1.1.2. Data analysis and power calculations. All of the analyses contain effect size calculation where appropriate. These are expressed as phi (ϕ) for the 2 × 2 tests, and as Cramer's V for larger tests. These are interpreted similar to other effect sizes (the larger the value = the larger the effect). Regarding power, this was taken into consideration and varied depending on which analysis type:

- For the 2 × 2 tables, with 114 respondents there was 99.96% Power to detect large effects (w = 0.5), and 89.31% to detect moderate effects (w = 0.3).
- For the 2 × 3 tables, with 114 respondents there was 99.36% Power to detect large effects (w = 0.5), and 69.05% to detect moderate effects (w = 0.3).

3.1.2. Recruitment

Emails were forwarded to the CEO/GM/Executive Director/Chief Nursing Officer or Organisation Head for distribution to all staff who were at middle to senior management levels and involved in maternity and newborn services. The email contained a link to the online survey. Following distribution of the initial email, a first reminder, a second reminder and a final reminder were forwarded every seven days. The final reminder informed recipients of the closing date for the survey. The survey was open for seven weeks within the period approved by ethics (14th May – 31st July 2018).

3.1.3. Participating sites

The survey was made available to staff at 71 public and private health services across Victoria (26 metropolitan and 45 regional and rural) as well as seven peak bodies. Participating sites were stratified according to the level of maternity services provided at their place of work specifically – primary maternity services (level 1, 2 and 3); secondary maternity services (levels 4 and 5); and tertiary maternity services (level 6).

3.1.4. Qualitative method

In addition to the quantitative survey semi-structured interviews were conducted and collected through telephone interviews with five key informants, including midwife, allied health, manager, healthcare educator, and outlier services. Two doctors agreed to be interviewed, but later withdrew due to lack of availability within the time frame for the survey. Each participant was provided with a pseudonym to be used during the interview and analysis to maintain anonymity. A descriptive

exploratory approach employing thematic analysis was considered the most appropriate to report the content of the interviews. The steps as described by Braun and Clarke (2006) were followed. The full qualitative data was published in another paper (Edward et al., 2019).

3.1.5. Ethical statement

Ethical approval was obtained from the Swinburne University of Technology Human Research Ethics Committee (#SHR Project, 2018/117). For the quantitative method, an online link was embedded in the recruitment email for participants to access the survey. An information page was located on the first page of the survey and participants were informed that consent was implied if they continued to completion of the survey. For the qualitative method participants were asked to provide verbal consent for the telephone interview to be recorded. Following the provision of consent, they were informed that recording would begin and the interview proceeded.

3.1.6. Funding and conflict of interests

This project was funded with a grant from the Victorian Managed Insurance Authority (VMIA). VMIA had no role in the data collection, interpretation of the data, or development of the report. The research team have no employment or other association with VMIA and have no other conflicts of interest in relation to this project to declare.

4. Results

A total of 116 responded to the quantitative survey, but an examination of the demographic data revealed two respondents listed their location as interstate and therefore they were excluded from the final data set. The survey responses were considered in terms of the location of the organisation and the level of care the organisation provided.

Due to a lower than required response rate the organisation location was dichotomised from 3 categories (metropolitan, regional, and rural to metropolitan and rural/regional). Similarly, the (6) levels of maternity care, these were truncated to three (Levels 1&2, Levels 3&4, Levels 5&6).

The majority of respondents to the survey were located in levels 3 and 4 maternity care services and interestingly, over 70% of respondents were located in rural and regional Victoria (see Table 1).

The overall demographic components for these staff are summarised below:

A final sample of participants are listed above in Table 2.

5. Results by location

5.1. Staff credentialing

Australian Health Practitioners Regulation Agency (AHPRA) registration is the most commonly required credential for those providing education to staff for CPD.

Table 1
Location/level of maternity care.

Factor	*n*	%
Location		
Metropolitan VIC	32	28.3
Rural/Regional VIC	82	71.7
Total	114	100.0
Level of Maternity Care		
Levels 1&2	13	11.5
Levels 3&4	53	46.9
Levels 5&6	38	33.6
External to hospital	10	8.00
Total	114	100

Table 2
Participant position held.

Position	*n*	%
CEO	1	0.90
Chief Nursing Officer/Midwifery Officer	19	16.81
General Manager	2	1.77
Medical Director	2	1.77
Nurse/Midwifery Unit Manager	41	36.28
Consultant Medical Officer	5	4.42
Education coordinator	20	16.81
Clinical Director	2	1.77
GP/Shared Care	4	3.54
Executive Director	2	1.77
Other	16	14.16
Total	114	100

For metropolitan organisations a statistically significant difference in the proportion of organisations and the requirements of their educational staff was identified, χ^2 (3, N = 32) = 34.94, $p < .001$. *Post hoc* comparisons, using the Bonferroni adjusted McNemar tests were conducted to identify differences among different types of credentials. The proportion of organisations that require education staff to hold AHPRA credentials (55.0%) is significantly higher than those that hold either Post Graduate qualifications (12.5%), Diploma of Education (12.5%) or Certificate in Training (20.0%) $p <$ Bonferroni adjusted level of 0.004.

For rural/regional organisations a statistically significant difference in the proportion of organisations and the requirements of their educational staff was also identified, χ^2 (3, N = 82) = 105.87, $p < .001$. Post hoc comparisons, using the Bonferroni adjusted McNemar tests were conducted to identify differences among different types of credentials. The proportion of organisations that require education staff to hold AHPRA credentials (62.2%) is significantly higher than Post Graduate qualifications (12.5%), Diploma of Education (3.3%) and Certificate in Training (22.2%) $p <$ Bonferroni adjusted level of 0.004. The proportional difference between Diploma of Education and Certificate in Training was also significant.

5.2. 'In-house' CPD offered

Participants were asked about the CPD programmes offered to staff through their respective organisations. This was broken down into four components: Programme Type, Duration of programme, Frequency of programme, and Facilitator's profession. The programmes types were *obstetric emergency, neonatal resuscitation, fetal monitoring, adult life* support, *obstetric care, breastfeeding, journal club.*

Using a chi square test of independence the association between organisation location and the *type* of in-house CPD programmes offered was investigated. A significant association was found for the programme *breastfeeding*, $\chi^2(1, N = 114) = 10.51$, $p = .001$, Cramer's $V = -0.30$. An examination of the adjusted residuals indicated that organisations from metropolitan Victoria are more likely to offer in-house CPD *breastfeeding* (56.3%). By comparison, organisations from Rural/Regional Victoria are less likely to offer in-house CPD *breastfeeding* (24.4%).

5.3. Focus of CPD programmes provided

Participants were asked to select the main focus of continuing professional development education in maternity/obstetric care offered from within their organisation. The focus of programmes included *antenatal, postnatal, birth suite, operating room, emergency/urgent care* and *lactation/breastfeeding.* To compare the type of in-house focus across organisation location, separate Chi Square tests were conducted in relation to each programme. It revealed that organisations from metropolitan Victoria are more likely to have an *antenatal* main focus (70.4%) compared to organisations from rural/regional Victoria

(36.1%). Post-hoc comparisons of the adjusted standardised residuals (with Bonferroni correction, $p < .05/4 = 0.013$) indicated this to be a significant difference ($p < .001$).

A similar result occurred for *postnatal* where results indicated a significant association for location, $\chi^2(1, N = 88) = 7.07$, $p = .008$, $\phi = -0.283$. An examination of the adjusted residuals indicated that organisations from metropolitan Victoria are more likely to have a *postnatal* main focus (66.7%) compared to organisations from rural/regional Victoria (36.1%). Post-hoc comparisons of the adjusted standardised residuals (with Bonferroni correction, $p < .05/4 = 0.013$) indicated this to be a significant difference ($p < .001$).

With regard to *lactation/breastfeeding*, once again there was a significant association with location, $\chi^2(1, N = 86) = 16.70$, $p < .001$, $\phi = -0.441$. An examination of the adjusted residuals indicated that organisations from metropolitan Victoria are more likely to have a *lactation/breastfeeding* main focus (77.8%) compared to organisations from rural/regional Victoria (30.5%). Post-hoc comparisons of the adjusted standardised residuals (with Bonferroni correction, $p < .05/4 = 0.013$) indicated this to be a significant difference ($p < .001$).

5.4. Barriers and enablers to CPD

Participants were also asked to consider barriers and enablers to participating in and/or providing maternity/obstetric CPD for staff at the macro (municipal), meso (management) and micro (workforce) levels.

Enablers explored at the broader macro or 'municipal' level included *capacity to share resources, access to simulation equipment/centres* and *ease of access to external courses.* A significant association was indicated between location and these enablers, $\chi^2(3, N = 77) = 8.94$, $p = .030$, $\phi = 0.341$. Post-hoc comparisons of the adjusted standardised residuals (with Bonferroni correction, $p < .05/8 = 0.006$) indicated that the proportion of Metropolitan respondents who had *access to simulation equipment/centres* (47.6%) to be significantly higher than Rural/Regional respondents (16.1%) for the same factor.

No significant association was found between location and enablers or barriers at the meso or 'management' level for the possible enablers of *supportive/proactive frontline managers, flexibility of rostering* and *relevant and timely CPD programmes.* However, at the micro or 'workforce' level a chi square test of independence indicated a significant association, $\chi^2(3, N = 77) = 9.73$, $p = .021$, $\phi = 0.355$. Post-hoc comparisons of the adjusted standardised residuals (with Bonferroni correction, $p < .05/8 = 0.006$) indicated that the proportion of Metropolitan respondents who found *relevant and timely CPD programmes* as an enabler (47.6%) was significantly higher than Rural/Regional respondents (16.1%).

6. Results by level of care

6.1. Staff credentialing

Across all levels of care, the majority of respondents indicated that AHPRA registration is the most commonly required credential for providing staff CPD.

For maternity services at Levels 1&2, a statistically significant difference in the proportion of organisations and the requirements of their educational staff was identified, χ^2 (3, N = 13) = 23.00, $p < .001$. Post hoc comparisons, using the Bonferroni adjusted McNemar test showed that the proportion of organisations that require education staff to hold AHPRA credentials (63.2%), is significantly higher than Diploma of Education (5.3%) and Certificate in Training (10.5%).

For maternity Levels 3&4, a statistically significant difference in the proportion of organisations and the requirements of their educational staff was identified, χ^2 (3, N = 53) = 69.66, $p < .001$. Post hoc comparisons, using the Bonferroni adjusted McNemar test showed that the proportion of organisations that require education staff to hold AHPRA credentials (59.3%), is significantly higher than Post Graduate qualifications (11.9%), Diploma of Education (3.4%) and Certificate in Training (25.4%). There was also a significant difference in proportion between Diploma of Education and Certificate in Training.

For maternity Levels 5 & 6, a statistically significant difference in the proportion of organisations and the requirements of their educational staff was identified, χ^2 (3, N = 38) = 43.53, $p < .001$. Post hoc comparisons, using the Bonferroni adjusted McNemar test showed that the proportion of organisations that require education staff to hold AHPRA credentials (71.1%), is significantly higher than Post Graduate qualifications (13.2%), Diploma of Education (10.5%) and Certificate in Training (5.3%).

6.2. 'In-house' CPD offered

The type of maternity education offered by organisations was explored according to programme type, duration of programme, frequency of programme, and facilitator's profession.

In relation to the programme *adult life* support being offered, examination of the adjusted residuals indicated that organisations providing level 3–4 maternity care were less likely to provide this CPD programme (level 1&2 53.8%, level 3&4 35.8%, level 5&6 65.8%). Post-hoc comparisons of the standardised residuals (with Bonferroni correction) indicated that level 3&4 organisations provided significantly less than other levels ($p < .05/6 = 0.008$).

Similarly, an examination of the adjusted residuals for the *breastfeeding* CPD programme revealed level 5–6 organisations were more likely to offer this programme (level 1&2 15.4%, level 3&4 26.4%, level 5&6 57.9%). Post-hoc comparisons of the adjusted standardised residuals (with Bonferroni correction) indicated that only organisations with Level 5/6 maternity care contributed significantly ($p < .05/6 = 0.008$).

6.3. Organisations with a dedicated education department or educator

A chi square test of independence was conducted to investigate the association between level of maternity care provided and whether the organisation contained a 'dedicated education department' (DED). The overall relationship between these two variables was significant, $\chi^2(2, N = 78) = 21.58$, $p < .001$, Cramer's $V = 0.53$. An examination of the adjusted residuals indicated that organisations with Levels 1&2 maternity care are less likely to have a DED (Yes = 36.4%). By comparison, organisations of maternity care levels 5&6 (Yes = 96.7%) and levels 3&4 (Yes = 86.5%) are more likely to have a DED. A post-hoc comparison of the adjusted standardised residuals (with Bonferroni correction) confirmed that organisations with levels 1&2 maternity care are significantly underrepresented in having this facility ($p < .05/6 = 0.008$).

7. Discussion

The results have revealed an association was found between dedicated education department (DED) and level of maternity care provided. The overall relationship between these two variables was significant ($p < .001$). Specifically, organisations with Levels 1&2 maternity care were highly underrepresented with regards to possessing a DED ($p = .008$). It is accepted that continuing professional development (CPD) is essential to the maintenance of professional standards for healthcare providers and has the power to improve healthcare delivery and minimise medical errors and costs (Pelletier, 2010). Central to the effectiveness of CPD is the overall accessibility and availability of programs, where access to educators or DED can overcome these potential barriers to CPD access/availability. Credentialing of education staff, the availability of educational staff and facilities, the programmes delivered internally by organisations, were identified as enablers and barriers to the uptake of CPD in terms of location (metropolitan or

regional/rural) and level of care provided (levels 1&2, levels 3&4, levels 5&6).

For both metropolitan and regional/rural organisations, an important finding related to the credentialing of staff providing CPD. For both (a) level of maternity care provided and (b) organisation location, AHPRA (Australian Health Practitioner Regulation Agency) registration as a requirement was significantly greater than any other form of training/credentialing for those who provided education. For Levels 1& 2 ($p < .001$), Levels 3&4 ($p < .001$) and Levels 5&6 ($p < .001$). In addition, Metropolitan sites ($p < .001$) and Rural/Regional ($p < .001$).

Historically, experiential learning and the concept of '*see one, do one, teach one'* has been a cornerstone of learning in healthcare. This premise prompted Pardo (2010) to query the effectiveness of this approach arguing for the need to develop faculty programs to *train our teachers,* particularly in light of new technologies.

Only organisation location was significantly associated with the CPD programme topic of "Breastfeeding" ($p < .001$). In particular, metropolitan organisations were more likely to offer this programme compared to rural/regional organisations. Health professionals in rural areas face various costs in maintaining their skills (Crowther, 2016) and it was found that rural/regional organisations provide significantly fewer opportunities for staff to update their breastfeeding knowledge. This finding identifies a potential opportunity for developing CPD related to breast feeding using technology as a potential medium of delivery to overcome the barrier of distance.

A perhaps incongruous finding in relation to 'in-house' programmes offered occurred for adult life support. The likelihood of level 1&2 or level 5&6 providing this CPD programme significantly exceeded that of level 3&4 organisations. It is possible that the 'tyranny of distance' experienced by level 1&2 organisations (that were more remotely located) and the patient acuity of level 5&6 created a heightened awareness of the need to maintain well skilled and knowledgeable staff by providing this programme.

As an extension to the question of what 'in-house' programmes were provided by organisations, participants also indicated those programmes that were a main focus for CPD. It is noteworthy that it was reported that metropolitan organisations had a significantly greater focus on antenatal, postnatal and lactation/breastfeeding CPD when compared with regional/rural organisations. This indicates that regional/rural organisations focused on CPD that provided education and updating in the more acute areas of birth suite and emergency/urgent care to the detriment of CPD education in the areas of antenatal, postnatal and lactation/breastfeeding.

7.1. Implications

There are a few aspects to consider with these reported findings, access/availability, funding for resources to support CPD, dedicated educator/education teams to provide CPD, CPD delivered in multi -modal formats (using technology to deliver CPD) and credentialing of education staff. Evidence supports that CPD provided in supportive organisations that facilitate effective learning for staff is a driver of effective CPD education (Manley et al., 2018). In addition, support from management which positively influences staff attitudes to towards the value of CPD (Katsikitis et al., 2013) is central to an effective learning environment.

Workload issues that prevent staff from attending CPD and the consequences of non-attendance (to non-mandatory CPD) has implications that can affect staff competence, quality of patient care, retention and recruitment (Coventry et al., 2015) and caution where decisions of cuts to these areas are made. Subsidised education for staff may well increase the attendance of staff to (non-compulsory) CPD. A correlation has been observed in other research between CPD job satisfaction in nursing (Hariyati and Safril, 2018) which has implications for making CPD education more accessible and affordable for maternity services staff.

In-house offered CPD has to potential to reduce the barriers of access and affordability, however content needs to target the learning needs of attendees, be developed in relation to best available evidence and also delivered in an interactive multi-model format to enhance attendee engagement and motivation to attend (Ryder et al., 2018). Resources can be both financial and human and need to accommodate workload pressures to support staff wanting to undertake CPD in an increasingly part-time or casual midwifery workforce (Barnes et al., 2013).

7.2. Limitations

The sample size ($n = 114$) fell within the acceptable range in terms of response rate for the estimated population ($n = 370$), but a sample of $n = 189$ was required to have a confidence level of 95% with confidence interval of 5. The collapsing of 'rural' and 'regional' into one category will have homogenised the results for these two groups meaning specific differences between them could not be discerned. Similarly, the same will have occurred with the combining of the 'levels of care' from 6 to 3 groups.

8. Conclusions

Delivering CPD programmes to ensure all health care providers are equally provided for regardless of organisation location remains a challenge. Predominant is the location and access to CPD where some rural/remote communities lacked the range of resources (equipment, credentialed education staff) that were readily available in larger regional and metropolitan organisations. Added to this is the difficulty for these staff to leave their community/region to attend CPD. An 'educational hub', with suitably credentialed staff, and augmented by the use of telehealth facilities, could be created at regional organisations to collaborate with those organisations without a DED. A range of CPD programmes could be planned on a rotational basis to assist healthcare professionals to better plan attendances in line with their educational, practice, and reregistration needs in the context of their role, which would mitigate issues of accessibility and availability. The oversight of such programmes could be incorporated into existing regulatory bodies that already provide oversight of reregistration of healthcare professionals. This would assist in the uniform development of CPD programmes to ensure their relevance and integrity and conceivably be the catalyst for the development of further appropriate interprofessional educational programmes regardless of organisational size or location.

Funding

This project was funded with a grant from the Victorian Managed Insurance Authority (VMIA). VMIA had no role in the data collection, interpretation of the data, or development of the report. The research team have no employment or other association with VMIA and have no other conflicts of interest to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.nepr.2019.102634.

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