

Perinatal / Neonatal Palliative Care: improving knowledge and multi-professional team practices of midwifery and children's nursing students through an inter-professional education initiative.

Abstract

This paper presents a study that examines the potential value of a new and innovative inter-professional education experience for final year midwifery and children's nursing students focused on improving awareness of end-of-life care for infants in conjunction with the support of their families. The study uses an action research approach to examine midwifery and children's nursing student experiences of an IPE initiative in developing knowledge regarding perinatal/neonatal palliative care. The setting is a Higher Education Institute in the South of England. Final year midwifery students (n=39) and children's nursing students (n=34). Qualitative and quantitative data indicated that the Inter Professional Education intervention had proven worth in developing knowledge and confidence in final year children's nursing students and midwifery students relating to perinatal and neonatal palliative care. Both student groupings felt they lacked knowledge and confidence about perinatal palliative care before attending the study day.

Students felt that learning with, from and about the other profession represented was important in generating their knowledge. Educators should explore innovative ways to enable the further development of the fledgling speciality of perinatal/neonatal palliative care through education on an interprofessional platform

1. Introduction

In the United Kingdom (UK), death in infancy is relatively rare. With strategy embedded in health policy, the commitment to improving care provision for children with palliative care needs and their families has been a high priority over recent years (Craft and Killen, 2007; Department of Health [DH], 2008; Department of Health and Children [DoHC], 2009, National Institute for Health and Care Excellence [NICE], 2016,) with significant improvements noted. Enhanced antenatal screening has led to an increase in the numbers of families learning during pregnancy that their baby has a life-limiting condition and will die (Peacock et al., 2015). Wilkinson (2013) however suggests, that we have reached the final frontier in the development of palliative care as the focus is now indeed on infants who require palliative care immediately following or before birth given that palliative care should start from diagnosis or recognition of the life-limiting condition. Families should be informed of the different support available to them from either the point of diagnosis or recognition, thus enabling them to be involved in decision making at different points throughout their journey (Together for Short Lives, 2017). However, evidence suggests that such information, choices and care can be fragmented, not introduced in a timely manner or not introduced at all (British Association of Perinatal Medicine [BAPM] 2010; Peacock et al., 2015, Price and Mendizabal-Espinosa, 2019). Thus, the need for continued developments to ensure all babies and families have access to equitable quality palliative care services has never been clearer or more opportune (MBRRACE-UK 2018) Such supportive care requires professionals working together to ensure that appropriate palliative care (including end-of-life care) is provided by knowledgeable individuals who have an awareness and respect for baby/family need and the role each can play to address that need. Further, the multidisciplinary approach to palliative care for infants and their families has been

highlighted as crucial through research (Price and Mendizabal-Espinosa, 2019) and the evidence based perinatal/neonatal care pathway developed by Together for Short Lives [TfSL], 2017). This paper examines the potential of an inter-professional educational (IPE) approach to address increasing the knowledge of children's nursing students and midwifery students and their awareness of the importance of enhancing multi-professional team working practices within the evolving area of perinatal/neonatal palliative care.

2. Terminology

While the terms Inter-professional Learning (IPL) and Inter-professional Education (IPE) may relate to differing processes, with IPL focusing more on micro learning processes and IPE being more strongly reflective of an overarching educational framework, they tend to be used interchangeably in existing literature. However, for the purposes of this paper, the term *IPE* will be adopted, reflecting the definition of Barr et al (2005) that IPE is an activity that occurs when two or more professions learn together on an interactive basis. The rationale for developing IPE opportunities is that learning together can enhance inter-professional practice and develop teamwork that in turn should improve the delivery of health and social care services as well as enhance patient safety practices (Barr et al 2005, World Health Organisation [WHO] 2010).

A condition which renders the infant as life-limiting may be recognised or diagnosed before birth, at birth or during the neonatal period (RCPCH, 2015). The term *perinatal* refers to the period before and immediately after birth (ie first 7 days), whereas the term *neonatal* applies to babies in the first month of life. These terms will be used throughout the paper as both

midwifery and children's nurses would be involved in providing palliative/end of life care to babies with life-limiting conditions and their families around these time scales.

3. Background

The findings of the Francis (2013) Inquiry investigating substandard care within Mid Staffordshire NHS Trust attributed failings in patient care to a constant lack of multidisciplinary team-working, as did Kirkup (2015) in the report of baby deaths at Morecambe Bay. Furthermore the General Medical Council [GMC] (2009) and the Nursing and Midwifery Council [NMC](2009, 2018a) endorse that doctors, midwives and nurses should understand and respect the roles and expertise of health and social care professionals in the context of working and learning as a multi-professional team as well as appreciate the contribution this makes to the delivery of safe and high quality care, for example working together to ensure parents are enabled to make informed choices about their infant's care.

While there has been an increase in reviews that substantiate the value of IPE focussing mainly on learner outcomes in terms of their collaborative competence and ability to provide safe and effective care (Reeves et al 2010, 2013, 2016a, Brandt et al 2014, Lawlis et al 2014, Sunguya et al 2014), there is a paucity of reviews that have sought to synthesise the evidence regarding the facilitation / teaching approaches utilised by individuals who deliver IPE. A qualitative systematic review (Reeves et al (2016b) revealed various factors that contribute to the actual facilitation / teaching of IPE. These include the vital role that facilitator, teacher, mentor and/or preceptor plays in the delivery of effective IPE, the importance of co-facilitation (i.e. between two facilitators from different backgrounds) and

that engaging service users in the IPE facilitation process can provide authenticity to the IPE learning experience. The use of different teaching approaches to IPE, such as a student-centred approach that provides the learner with opportunities to share reflection, displaying enthusiasm, humour and empathy, were also reported as positively impacting on the IPE learning experience. Furthermore, Lindblom et al (2007) purported that students expressed how important inter-professional role modelling was in assisting them to learn about collaborating more effectively in the clinical setting.

The Faculty of the University in the study currently provides the pre-registration (initial), post-registration education and training programmes for eight professional groups, namely: *midwives, nurses, paramedics, occupational therapists, physiotherapists, radiographers, social workers* and *school teachers*. Consequently, organising IPE opportunities for an entire student cohort is particularly challenging at pre-registration level in terms of timetabling as well as finding a sizeable physical space. The Faculty's strategy therefore is to support IPE opportunities between learners who have a shared interest and who are most likely to work alongside each other in practice. Such an approach aims to ensure that the IPE opportunities are meaningful to all learners who participate and are placed in the context of their professional discipline. A number of examples have been presented in the literature including the work of Feltham et al (2016) in respect of student midwives and paramedic students' experiences of shared learning in pre-hospital childbirth and by Frisby et al (2015) about the effect of IPE between students from medicine, nursing, physiotherapy, occupational therapy, dietetics, pharmacy and paramedic science, relating to care of stroke patients.

Considering the evidence from the IPE literature, provided a basis to develop a meaningful learning experience for final year students from midwifery and children's nursing to explore end-of-life care for babies and their families. A grant of £3,000 was awarded from the Faculty *Teaching Enhancement Fund* to undertake this evaluative IPE study with the intent to further develop the provision and eventually embed it within the two curricula.

4. Methods

a. Study Aim

The aim of this study was to introduce and evaluate a new and innovative inter-professional education experience for final year midwifery students (3 year BSc / PG Diploma) and children's nursing students (3 year BSc students and 2 year PG Diploma) that focused on improving their awareness of perinatal/neonatal palliative care in conjunction with collaborative support required by their families. Such an interactive experience was to enable both professional groups of students to learn with, from and about each other as they explored key elements of perinatal/neonatal palliative care. As a result, it was anticipated that the students would have more insight into how they could work together in a professional partnership in order to meet the palliative care needs of the baby and family (BAPM 2010, Peacock et al, 2015).

4.2 Research Approach

This study followed the principles of an '*action research approach*' to examine potential added value of an Inter-professional learning intervention in a group of midwifery and children's nursing students. Action research is an approach that it is not necessarily trying to create objective generalizable findings, rather the aim is to be of use to practitioners

solving problems, answering questions, developing new practices and new understanding. Action research is therefore, participative and collaborative (Reason and Bradbury, 2008). Increasingly used within education, action research has proven itself as enabling reflection, decision- making and the development of more effective classroom strategies, to enhance student learning (Parsons and Brown, 2002). Given that action research has the ability to solve problems, answer questions and develop new practices, endorsed the decision of using the methodology in this study which aimed in partway to help address the problem of the timing and involvement of a palliative care approach to babies who are identified as life limited before and after birth, by educating professionals early in their professional career.

4.3 The IPE Workshop an educational intervention

Given that the workshop was a way of improving inter-professional collaborative working in perinatal/neonatal care, objectives were set that followed the five stages of the McNiff and Whitehead's (2011) Action Research Cycle as shown in Figure 1.

Insert Figure 1 here

- *To plan and implement an IPE workshop with final year midwifery students and children's nursing students (Action Research stages 1,2 and 3)*
- *To explore the impact the IPE workshop on specific aspects of learning (Action Research stage 4)*
- *Develop a plan for future similar IPE activities with midwifery students and nursing students (Action Research stage 5)*

Planning the day was a carefully thought out process and involved academics from both midwifery and children's nursing. A published case study by Peacock et al (2015) highlighted the issues experienced by a family and the professionals providing perinatal/neonatal palliative care to that family. The issues identified in discussion with the academics enabled the development of the content of the day. The workshop was delivered in two parts. The morning session served in preparing the students for their afternoon of integrative group work by providing them with an overview of the key elements of perinatal/neonatal palliative care. It was essential that all students had some knowledge to enable them to contribute to the afternoon's group work. Sessions, each lasting 30 minutes, were delivered by local, national and international specialist healthcare practitioners. Topics included an overview of current perinatal/neonatal palliative care (including a framework to guide practice), parental grief and loss and insights on practice in the hospice and community settings. As service user involvement is a cornerstone to good practice and good education, a '*parent's voice*' was essential and a mother, with personal experience of perinatal loss, shared her experience and perspective.

The afternoon sessions were held in four breakout rooms that accommodated three groups and one facilitator. Facilitators were those midwifery and children's nursing academics who were involved in the planning of the day and in developing the scenarios. Both group size and professional mix were carefully considered to ensure there was balanced representation of students from midwifery and children's nursing and from both the BSc and PG Diploma programmes. Each group consisted of between 8-9 students.

Each group was given one of three authentic scenarios from practice with a set of questions for them to explore through group discussion and develop a response around their knowledge and approach to perinatal/neonatal palliative care. The IPE activity lasted a total of 90 minutes: 40 minutes for the group activity that included reading time, with 50 minutes for each group to feedback to the whole group. Each group was asked to identify from their scenarios three take home messages that were shared at the plenary session. The facilitators observed the interactions and the extent of collaborative working as the group work took place in order to provide feedback / feed forward to future similar learning initiatives.

4.4 Sample

Students from midwifery and children's nursing in their final year of studies were invited by a lecturer from their respective programmes, to participate in the IPE Perinatal/Neonatal workshop. Seventy three students attended the whole workshop and their characteristics are shown in Table 1. Responses to a pre-study (85) and post- workshop questionnaire (76) are shown in Table 2. Previous attendance at IPE workshops and/or sessions relating to other aspects of palliative care is shown in Table 3.

Table 1: Students' characteristics

	Item	Frequency	%
Age range	Under 21	4	5
	21-30	49	67
	31-40	13	18
	41 years and over	7	10
Gender	Female	72	99
	Male	1	1
Programme of study	Midwifery	39	53
	Children's Nursing	34	47

Table 2: Response rate

	Midwifery Students	Response rate	Children Nursing students	Response rate
Pre	48	81% (n=39)	37	92% (n=34)
Post	45	87% (n=39)	31	97% (n=30)

Table 3: Previous attendance to sessions relating to palliative care and previous experience attending IPE sessions.

	Item	Frequency	%
Attended previous teaching session relating to grief and loss and palliative care.	Midwifery Students (39)	35	90
	Children's Nursing Students (34)	33	97
Attended previous teaching session relating to neonatal care pathways.	Midwifery Students (39)	12	31
	Children's Nursing Students (34)	16	47
Had previously participated in a course of study with another healthcare discipline (IPE)	Midwifery Students (39)	15	38
	Children's Nursing Students (34)	12	35

4.5 Data Collection

The data collected included both quantitative and qualitative data that were generated from a specifically designed two-part questionnaire created by the academic facilitators (see Figure 2). The questionnaire undertaken prior to the IPE event included a self-efficacy assessment, demographic details of the participants and their experiences in palliative care. A similar questionnaire was undertaken at the end of the IPE activities that also included an evaluation of the perinatal/neonatal palliative care workshop. The design was adapted from Plaza et al's (2002) curricular evaluation measurements.

The self-efficacy questionnaire in the first section of the questionnaire consisted of a 10-item, six-point Likert scale that invited students to reflect on their perceived level of confidence on key aspects of perinatal/neonatal palliative care to babies and their families, in terms of pre- and post-workshop knowledge and skills. This formed the quantitative data elements of the study. It is important to remember this is the students' perception rather than an actual measurement of an increase in skills. In order to gain in-depth insight into the

students' experiences, qualitative data were collected from a series of open-ended questions that asked students to reflect on their experiences of the day, such as memorable events and areas for improvement, as well as the possible impact on their practice and future collaborative working within a multi-professional team.

4.6 Ethics

Ethical approval was gained from the University's Faculty Research Ethics Committee (FREC) and the study was undertaken according to ethical principles and Faculty policy. Students received information about the project two weeks prior to attending the workshop, this allowed them time to consider participating in the study and ask questions if needed. Both the pre- and post- IPE workshop questionnaires contained a statement about informed consent and the participants were assured anonymity regarding the data they provided.

4.7 Data Analysis

Quantitative data were imported into Statistical Package for the Social Sciences (SPSS) version 23. Four comparisons were made using t-tests and independent t-test was performed for each student group (midwifery and children's nursing). Qualitative data were manually coded. One of the authors (SML) collated answers to each open-ended question into codes and categories, searching for patterns that formed initial themes. Another author (RME) then carried out further analysis with the initial themes, using the same procedure of looking for patterns led to finding over-arching themes.

Insert Figure 2

4.8 Results and Findings

In order to establish whether the IPE workshop had impact on the students' knowledge and their self-perception of skills of perinatal/neonatal palliative care, four group comparison tests were computed, using SPSS version 23 as follows: -

1. *Midwifery students Pre- and Post-workshop*
2. *Children's nursing students Pre- and Post-workshop*
3. *Pre-workshop midwifery students and Pre-workshop children's nursing students*
4. *Post-workshop midwifery students and Post-workshop children's nursing students*

When the mean of each of the ten six-point Likert items was compared between the pre- and post-workshop samples of midwifery students' questionnaires and those of children's nursing students, the independent t-test was performed, as the two samples of students were not in matched pairs. The t-test showed significant differences ($p=0.001$) between the pre- and post- workshop questionnaire results for the two sets of students' level of confidence measures, of perinatal/neonatal palliative care. Hence, both groups significantly benefitted from the IPE workshop as the group means increased from *very unconfident*, *unconfident*, *somewhat unconfident* (point 0-2) to *somewhat confident*, *confident*, *very confident* (point 3-5) measures of the Likert scale (Table 4).

Table 4: Nursing and Midwifery Students: Impact of IPE Study Day on Perceived Level of Confidence

Items	Pre-IPE Mean (SD)	Post- IPE Mean (SD)	Significance (p-value)
1. Confident with explaining the purpose of perinatal/neonatal palliative care to first year students	2.07 (.893)	3.48 (.779)	.001

2. Confident with listing key elements of perinatal palliative care	1.48 (.801)	3.35 (.724)	.001
3. Confident with listing key elements of neonatal palliative care	1.79 (.849)	3.36 (.891)	.001
4. Confident with engaging in perinatal/neonatal palliative care with families	1.73 (.902)	3.26 (.902)	.001
5. Confident with engaging in perinatal/neonatal palliative care with other healthcare practitioners	1.86 (.887)	3.39 (.861)	.001
6. Confident with identifying appropriate healthcare practitioners in the delivery of perinatal/neonatal palliative care	2.22 (.932)	3.52 (.868)	.001
7. Confident with assisting families during palliative care of neonates and babies with life-limiting conditions	1.75 (.863)	3.13 (.803)	.001
8. Confident with helping families identify support and adjustment required for perinatal/neonatal palliative care	1.73 (.838)	3.30 (.792)	.001
9. Confident in engaging with babies and infants requiring palliative care in partnership with families	1.89 (1.021)	3.35 (.855)	.001
10. Confident in providing perinatal/neonatal palliative care with other healthcare practitioners	2.12 (.897)	3.46 (.833)	.001

The data shows that the nursing group had somewhat higher confidence ratings than the midwifery group at all time points, except for item 2 (confident with listing key elements of perinatal palliative care) at the pre-workshop time point. These differences between the nursing and midwifery groups were statistically significant at the pre-workshop time point ($p \leq 0.01$), but not at the post-workshop time point as shown in Tables 5 and 6.

Table 5. Group Statistics: Pre-study Midwifery vs Nursing students

Item	Group	N	Mean	Std. Deviation	Std. Error Mean
1. Confident with explaining the purpose of perinatal/neonatal palliative care to first year students	Pre-study midwifery students	*38	1.76	.883	.143
	Pre-study nursing students	34	2.41	.783	.134

2.	Confident with listing key elements of perinatal palliative care	Pre-study midwifery students	39	1.49	.823	.132
		Pre-study nursing students	34	1.47	.788	.135
3.	Confident with listing key elements of neonatal palliative care	Pre-study midwifery students	39	1.51	.790	.127
		Pre-study nursing students	34	2.12	.808	.139
4.	Confident with engaging in perinatal/neonatal palliative care with families	Pre-study midwifery students	39	1.49	.885	.142
		Pre-study nursing students	34	2.00	.853	.146
5.	Confident with engaging in perinatal/neonatal palliative care with other healthcare practitioners	Pre-study midwifery students	39	1.51	.790	.127
		Pre-study nursing students	34	2.26	.828	.142
6.	Confident with identifying appropriate healthcare practitioners in the delivery of perinatal/neonatal palliative care	Pre-study midwifery students	39	2.08	1.010	.162
		Pre-study nursing students	34	2.38	.817	.140
7.	Confident with assisting families during palliative care of neonates and babies with life-limiting conditions	Pre-study midwifery students	39	1.54	.822	.132
		Pre-study nursing students	34	2.00	.853	.146
8.	Confident with helping families identify support and adjustment required for perinatal/neonatal palliative care	Pre-study midwifery students	39	1.44	.754	.121
		Pre-study nursing students	34	2.06	.814	.140
9.	Confident in engaging with babies and infants requiring palliative care in partnership with families	Pre-study midwifery students	39	1.33	.869	.139
		Pre-study nursing students	34	2.53	.788	.135
		Pre-study midwifery students	39	1.77	.959	.154

10. Confident in providing perinatal/neonatal palliative care with other health care professionals	Pre-study nursing students	34	2.53	.615	.105
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One case missing

Reliability Statistics

Cronbach's Alpha	N of Items
.906	10

Internal consistency pre questionnaire (Cronbach's alpha) = .91

Table 6. Group Statistics: Post-study Midwifery vs Nursing students

Item	Group	N	Mean	Std. Deviation	Std. Error Mean
1. Confident with explaining the purpose of perinatal/neo-natal palliative care to first year students	Post-study midwifery students	39	3.33	.898	.144
	Post-study nursing students	30	3.67	.547	.100
2. Confident with listing key elements of perinatal/neonatal palliative care	Post-study midwifery students	39	3.26	.785	.126
	Post-study nursing students	30	3.47	.629	.115
3. Confident with listing key elements of perinatal/neonatal palliative care	Post-study midwifery students	39	3.15	.961	.154
	Post-study nursing students	30	3.63	.718	.131
4. Confident with engaging in perinatal/neonatal palliative care with families	Post-study midwifery students	39	3.13	.978	.157
	Post-study nursing students	30	3.43	.774	.141
Post-study midwifery students		39	3.31	.922	.148

5.	Confident with engaging in perinatal/neonatal palliative care with other healthcare practitioners	Post-study nursing students	30	3.50	.777	.142
6.	Confident with identifying appropriate healthcare practitioners in the delivery of perinatal/neonatal palliative care	Post-study midwifery students Post-study nursing students	39 30	3.38 3.70	.990 .651	.158 .119
7.	Confident with assisting families during palliative care of neonates and babies with life-limiting conditions	Post-study midwifery students Post-study nursing students	39 30	3.03 3.27	.932 .583	.149 .106
8.	Confident with helping families identify support and adjustment required for perinatal/neonatal palliative care	Post-study midwifery students Post-study nursing students	39 30	3.21 3.43	.894 .626	.143 .114
9.	Confident in engaging with perinatal/neonatal palliative care in partnership with families	Post-study midwifery students Post-study nursing students	39 30	3.18 3.57	.885 .774	.142 .141
10.	Confident with engaging with other healthcare practitioners in providing perinatal/neonatal palliative care	Post-study midwifery students Post-study nursing students	39 30	3.31 3.67	.922 .661	.148 .121

Reliability Statistics

Cronbach's Alpha	N of Items
.953	10

Internal consistency post questionnaire (Cronbach's alpha) = .95

The qualitative data from both pre- and post- study questionnaires generated three overarching themes, which reflect the three dimensional perspectives of learning that the students of midwifery and children's nursing experienced during the IPE workshop, namely: *Learning about perinatal/neonatal palliative care*; *Learning alongside other professionals* and *Impact of IPE on midwifery and children's nursing students' practice*. Each will be examined in turn.

1. *Learning about perinatal/neonatal palliative care*

This overarching theme is formed by two sub-themes: *students' understanding of perinatal/neonatal palliative care* and *memorable learning outcomes*. The first sub-theme emerged from comparing students' definitions of perinatal/neonatal palliative care before and after the workshop. The second sub-theme emerged by grouping together students' responses about memorable elements of what they had learnt and their highlights of the day.

Before the workshop, the notion of end-of-life care at a holistic level was prominent in the midwifery students' responses and not limited to only to the infant with life- limiting conditions. Their understanding embraced the physical, emotional and psychosocial care as well as the largely emotional, supportive, assistive and guiding families/ parent elements. Children's nursing students also reported the importance of holistic end-of-life care with emphasis on the caring role, namely, "*pre- and post- death*" and "*providing comfort care*" as well as the emotional supportive role, "*working with parents, siblings, parents, families*".

New elements that were apparent after the workshop in both professional groups of students referred to palliative care as being “*more*” than end of life care:

*"it is not [only] end of life care but complex care to infants
with an array of complex or life limiting conditions"*
(children's nurse [CN]).

*".....it is to care for babies and their families who are not
expected to survive or have a life limiting condition. Helping
them to make the most of life as well as preparing for
possible death"* (midwife [MW])

This included the planning of care before birth and extending to bereavement “*for as long as is needed*”. “*Multi-disciplinary team collaboration*” and “*offering choices to families as the key stakeholders*” were recurring elements in students’ answers and the notion of individualised, family centred care was more predominant among the children’s nursing students.

Learning about perinatal/neonatal palliative care by listening to a mother’s experience was identified by both groups as creating the most memorable learning, however children’s nursing students thought this was highly sensitive and did not feel as comfortable to ask the mother questions as the midwifery students. Learning about children’s hospice services was also highly valued by most participants (from both groups of students).

Differences in choice of key learning outcomes arose from the two different professions. Midwifery students valued having learned about ante-natal referrals to palliative care and developing a better an understanding of the midwife’s role in palliative care during the ante-

natal and perinatal period. Children's nursing students felt they benefited from the group work discussion, particularly having learnt more about the role of midwives and "*seeing the subject from the midwife's point of view*".

2. Learning alongside other professionals

This overarching theme emerged from students' views about IPE and is integrated by three sub-themes: *meaning of IPE, advantages and disadvantages of learning alongside other healthcare professionals* and *the specific learning attained by studying with other healthcare professionals*. These sub-themes emerged after grouping students' replies together.

Students' earlier views on IPE encompassed the value of learning together/alongside other healthcare professionals and working collaboratively in an integrative manner, within a multi-disciplinary framework. However, the post-workshop questionnaire highlighted that a further element had emerged: *gaining insight into each other's roles and responsibilities*. This insight, which embraces a level of awareness, understanding and perspectives, was considered essential for both groups of students. Added to that, being able to learn from each other by sharing knowledge, ideas and experiences and collaborative working was also highly valued by students. However, learning alongside another healthcare professionals also comes with challenges such as the lack of specificity (issues related to own healthcare discipline). A minority of students from both groups commented that there had been less discussion that was midwifery specific and one of the scenarios was not very nurse focused and more to do with the role of the midwife.

When examining what each student group of health professionals had learned from each other. The children's nursing students reported to have learnt about the midwife's role, their involvement and the service provision relating to perinatal/neonatal palliative care whereas

midwifery students recognised the specialist knowledge and skills that are essential to the role of children's nurses. Both groups clearly acknowledged the collaborative learning and working alongside each other in their respective caring and supportive role. They also recognised the benefit to their patients:

"Each professional can help one another in ensuring patient-centred care" (MW) and

"The significance of working together is to provide excellent support to patients and users" (CN).

3. Impact of the workshop on midwifery and children's nursing students' practice

This final theme arose from the students' reflections about how their practice might change as a result of undertaking the IPE experience. Students considered the learning and IPE experiences they had acquired from the workshop would enhance the support and care they could apply to babies with a life-limiting condition and their families. Improving the care and support included raising their awareness of the facilities and options available in the area of perinatal/ neonatal palliative care, for example:

"... a better understanding of choices parents may have to make..." (MW)

"Greater awareness of other services, when and where to refer..." (CN),

Improved working within a multi-disciplinary team was also seen as a positive outcome of the IPE experience and as a midwifery student succinctly articulated:

".....working better and developing relationships with other professionals" (MW)

with a children's nursing student stating:

"A more collaborative practice, improve communication with midwives and midwifery team". (CN)

There was also reported evidence of a self-assessed perceived increased confidence among both groups, as a midwifery student explained:

"More awareness, confidence, empathy, compassion and better understanding in this area... to know what to do"

Children's nursing students acknowledged feeling *"more confident, knowledgeable to give information on this topic to families"*. However, two of the midwifery students thought their practice would not change much and a third stated: *"I still need to apply the local policies"*.

5. Discussion

Given that reflection is central to the action research process, the research study team examined the findings from the pre and post questionnaires to explore the impact of the IPE workshop on the students' learning, alongside reflecting on their own experiences and facilitation of the workshop. In keeping with the IPE literature base (Barr et al, 2005) this initiative demonstrates that there is value in professionals learning with, from and about each other in relation to perinatal/neonatal palliative care. Evidence has been gathered which demonstrates that through the educational intervention both professional groups of students gained a better understanding of the philosophy of perinatal/neonatal palliative care as well

as a greater appreciation of the importance of timely referrals to palliative care both before and after birth. In addition, the students reported improved understanding of each other's roles and responsibilities and awareness of the different services available in the community. These outcomes are commensurate with recommendations in the specific training of neonatal staff on aspects of palliative care (Mancini et al 2013). The academics reflected independently and collectively on the formal sessions in the morning were appropriate and addressed the main elements of this type of care., with a good mix expert practice, theories, research and user perspectives. With regards to curricula management, meticulous organisation of the IPE workshop by the academics in midwifery and children's nursing appeared to have facilitated the students' learning by ensuring a balance between theory and interactive participation. Co-facilitation of the specific group work activities by a member of academic staff from both midwifery and children's nursing may have enhanced the outcome as Reeves et al (2016b) advocate; however this was not directly addressed within the students' questionnaire but is definitely a consideration for the facilitation of future IPE workshops.

Given the potential emotional impact of the day it was felt that the group work could be carried out in a slightly shorter time period. In addition, one of the scenarios seemed to be more orientated towards the role of the children's nurse with less of a role for the midwife, it was agreed that this could be refined slightly for future runs.

As in all research endeavours, it is important to recognise the limitations of this study. The fact that some students only attended part of the day restricted certain comparisons of their knowledge and understanding of palliative care before and after. It was noted that most of the children's nursing students had some prior knowledge of perinatal/neonatal palliative care which had an influence on their slightly higher perceived level of confidence in the pre-

study questionnaire for the majority of items (Table 5). This however makes a strong case for the need of perinatal/neonatal palliative care education for both professional groups of students in their respective curricula.

One of the most memorable learning outcomes reported by children's nursing students was gaining a better insight into the midwife's role in perinatal/ neonatal palliative care; acquired through discussions with the student midwives during the group work activities. This could have been as a result of the role of the midwife being more prominent through the IPE workshop with the presence of student midwives, compared to palliative care input the children's nursing students had previously. In comparison, the midwifery students, having learned how midwives can play a more significant role in antenatal referrals to palliative care services was considered a valuable learning outcome they could apply in their future practice. This suggests that initially the work of nurses in relation to palliative care was more obvious as both groups of students had perceived that midwives had little to offer in this particular area of practice. As noted by Wilkinson (2013), raising awareness that palliative care is needed from the *point of diagnosis* of a life-limiting condition antenatally is paramount and education is needed for those professionals caring for pregnant women and newborn babies. The findings of this study suggest that the IPE workshop contributed to raising such awareness.

The involvement of a bereaved mother sharing her personal experience was identified by both professional groups of students as the single most memorable element of the workshop. While this is in keeping with the increasing drive of service users in the teaching of healthcare delivery (Reeves et al 2016b, GMC 2011, Health and Care Professions Council [HCPC] 2012, NMC 2018b), further attention needs to be given to the fact that some

children's nursing students felt uncomfortable when invited to ask questions due to the sensitivity of the topic. In their study of junior neonatal nurses caring for a baby at the end-of-life and their family, Nurse and Price (2016) suggest that these group of nurses might be '*shielded*' by senior nurses from the taxing job of caring for a dying baby and their family. As such, having these difficult conversations with parents might bring about anxiety. Much more needs to be done to support junior nurses and midwives in gaining experience to face these sad, nevertheless real events. The authors suggest more extensive education on perinatal/neonatal palliative care at the undergraduate level would be a good start (European Association of Palliative Care [EAPC], 2013).

The fact that both professional groups of students were impressed when learning about the range of services provided by children's hospices is not surprising. Lack of knowledge about community services has been identified as a matter of concern for healthcare professionals in a tertiary children's hospital (Gallagher et al 2012) and as a distinct barrier in supporting families during end-of-life care of their child (Midson and Carter 2010). This IPE learning initiative shows potential in linking staff from hospitals and hospices as it continues to develop and be facilitated with future cohorts of students.

6. Conclusion

Through undertaking this study using action research, the intended aim and objectives that were initially identified, were achieved, demonstrating the value of IPE in contributing to successful facilitation and learning of perinatal/neonatal palliative care provision as reported by midwifery and children's nursing students. In learning together, students were able to advance their understanding of the all-encompassing philosophy of perinatal/neonatal

palliative care. Through engaging in meaningful conversations, students learned from and about each other's unique role in supporting babies diagnosed with life-limiting conditions and their families.

Whilst this study supports the implementation of IPE in developing students' knowledge and skills in perinatal/neonatal palliative care, it also highlights that future development of IPE should be experienced as a complementary component rather than replace profession specific teaching of midwives and nurses in this area of practice. Further, future plans arising from this action research study include developing a clear plan to develop both the midwifery and children's nursing curricula whereby specific elements related to perinatal/neonatal palliative care relevant to each respective profession, are embedded. Following the acquisition of such foundation knowledge a dedicated IPE activity such as the one implemented here would seem important to further enhance and advance professional knowledge/development and inter-professional team working. The parent voice will be central to this learning/teaching strategy as would the contribution that children's hospices play in such situations.

There is potential for universities to collaborate and organise IPE workshops that bring together students from other health and social care professions such as law, medicine, physiotherapy, radiology and social work. Such an approach, albeit challenging to facilitate a much larger group of students, could ultimately contribute to advancement of knowledge/awareness, the development of effective team working and the delivery of high quality perinatal/neonatal palliative care to babies and their families. It is essential to undertake further research to evaluate the value of extending this workshop outside of the

midwifery and children's nursing professions in order to ensure that the entire IPE learning experience remains meaningful to all who participate.

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