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Research Priorities for Children's Nursing in Ireland: a Delphi Study

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## Introduction

The call for improved research in relation to ill health among children in Ireland was documented in *The National Children's Strategy: Our Children - Their Lives* (Government of Ireland, 2000). While acknowledging the importance of interdisciplinary research to address deficits in this area, this strategy did not identify specific priorities for research on child health or children's nursing. In 2003, the Department of Health and Children published a research strategy that suggested the need to identify research priorities in nursing and midwifery (Department of Health & Children, 2003). *The Nursing and Midwifery Research Priorities for Ireland* study was subsequently undertaken in 2005 (National Council for the Professional Development of Nursing & Midwifery), but did not specifically identify research priorities for children's nursing. The study on research priorities for children's nursing presented in this paper identifies and ranks the research priorities for nurses delivering care to children in an acute care setting in Ireland.

A number of studies have previously identified some research priorities for very specific areas of child health. These included a study on a parenting centre in Australia (Hauck, Kelly, & Fenwick, 2007), pediatric palliative care priorities in Canada (Steele et al., 2008), a study to determine psychosocial research priorities for adolescents with Implantable Cardioverter Defibrillators in the US (Zeigler & Decker-Waters, 2010), and determination of research priorities for young people with haematological cancer in Australia (Clinton-McHarg, Paul, Sanson-Fischer, D'Este, & Williamson, 2010). However, only one study was found which explored the research priorities for general child health, which was conducted in a tertiary referral hospital in Western Australia (Wilson, Ramelet, & Zuiderduyn, 2010). In this study 217 nurses identified research priorities relevant to patients and their families, which included health promotion strategies, impact on a family of a child requiring long-term

care, non-compliance with treatment and models of home care. The lack of research on priorities for general child health indicated a need for more work in this area.

The current study attempted to bridge a gap in knowledge of research priorities in child health from the perspective of children's nursing in Ireland. The need for exploring research priorities for this discipline is against a backdrop of significant proposed changes to the delivery of children's health care. This change in health service delivery includes the centralisation of tertiary services currently delivered in three children's hospitals in Ireland in to a national centre, with a regionalised network support. This is important as Ireland has a very young population with over 1.1 million children (25% of the total population) under the age of 18. Of these children, approximately 10% are admitted to hospital per year (Department of Health & Children 2012). At present there are approximately 4,500 children's nurses in Ireland and it is anticipated that this new model of care will also support a more centralised and co-ordinated approach to research and education for this group of health care professionals.

Given the relative absence of research priorities for children's nursing, this study was an opportune juncture to seek consensus on such priorities at the beginning of a new chapter in the delivery of health care to children. The need for this study was identified through a joint research liaison group between a children's hospital in Ireland, which provides the majority of tertiary care services for children, and its associated university which provides education to children's nurses at undergraduate and graduate level. Given the study setting, the findings may also help inform research priorities for nurses caring for children in other large centers globally.

## Methods

### Aim

The aim of the study was to identify research priorities for children's nursing, with the following specific objectives:

- inform the development of a research agenda for children's nursing in an acute hospital setting
- inform the contribution of children's nursing research to wider interdisciplinary programmes of research on child health through the dissemination and discussion of these research priorities at interdisciplinary research conferences.

### Design

The Delphi method provided a framework for this study to identify and rate the importance of child health research priorities. Originally developed in the 1950s in the US (Dalkey, 1969), the technique is defined as "a group facilitation technique that seeks to obtain consensus in areas where research is lacking" (Hasson, Keeney, & McKenna 2000, p.1010). The process has common core elements; it is an iterative process of several rounds in which participants with particular expertise anonymously complete a questionnaire, to achieve consensus in the chosen area of exploration. The Delphi survey design was chosen as it had previously been identified as an appropriate design to capture nurses' views of the most important and most urgent problems that need to be addressed (Bayley, MacLean, Desy, & McMahon, 2004; Drennan et al., 2007). The process of the Delphi survey technique in this study involved a series of data collection rounds with nurses working in the children's hospital. Responses from each round were summarized and analysed in between rounds; feedback was sent to the nurses in subsequent rounds to enable group consensus to be achieved; this is the central tenet of the Delphi technique (Lindeman, 1975). The three round Delphi method used in this study is outlined in Figure 1.

Insert Figure 1 about here.

### **Participant Recruitment**

The study was set in a large acute children's hospital in the Republic of Ireland which provides many of the country's national children's specialist services. A total of three rounds of questionnaires were used to identify the research priorities for children's nursing.

In Round 1, the eligibility criteria was all Assistant Directors of Nursing (ADoN), Advanced Nurse Practitioners (ANP), Clinical Nurse Specialists, Clinical Nurse Managers (CNM) (all grades), Clinical Nurse Facilitators (CNF) (ward based staff educators) and nurses with 3 or more years experience from a service in which there was no CNM, CNF or CNS. This group was selected as they would be able to identify the research priorities relevant to their areas and to children's nursing in general; many of the clinical nurse managers included were just one grade above a staff nurse and carried a clinical caseload.

Round I yielded a large number of important topics which the research team felt were of broad interest to all nurses. This outcome, plus the belief that an all-inclusive study would lend greater support for the development of a culture of research among nurses, led to the decision by the research team that the eligibility criteria for Rounds II and III was all registered nurses working in the participating hospital. This included 202 nurses from Round I; the remaining nurses from Round I were either on leave or had left their posts at the time of the subsequent rounds.

### **Procedure**

In Round I, following ethical approval, 226 nurses were invited to complete Questionnaire I which consisted of two open-ended questions. The first question invited participants to identify their five most important broad ranging priorities for nurses caring for children in a children's hospital. Participants were then asked to indicate whether they considered each priority to be moderately important, very important or extremely important.

The second question invited participants to identify five priorities that pertained to their particular area of practice. Responses from Round I were examined by an expert group comprised of three nurse managers, one clinical/academic and two academics, chosen because of their expert clinical and research knowledge. The group identified the most frequently occurring priorities and organized these priorities into themes of care.

In Round II, following the decision to extend the study to include all nurses in the hospital, Questionnaire II was circulated to 713 nurses. In this questionnaire, the priorities identified in Round I were presented and participants were asked to rate the importance of each priority on a 7-point Likert scale, ranging from 1 (low importance) to 7 (high importance).

In Round III, the final questionnaire (Questionnaire III) was circulated to 708 nurses: this small reduction of participants from Round II was due to nurses on leave at this time. Questionnaire III had a similar layout to the Questionnaire II and included one new piece of information; participants were presented with the mean score of each research priority from round II, and asked to rate the importance of each priority on a 7-point Likert scale, ranging from 1 (low importance) to 7 (high importance). The aim was to reach a final consensus on the research priorities in Round III of this study.

A hospital administrator sent hard copies of the questionnaires and return envelopes via the intra-hospital mail system to all potential participants for each round. Reminder letters were sent to all of the potential participants two weeks following the mailing of each of the questionnaires, with three months between each round of data collection to allow time for responses, reminders and analyses of each round.

### **Ethical Considerations**

The study proposal was reviewed and approved by the hospital's Research Ethics Committee. An information leaflet was included with the questionnaire for each participant

during each round of the study advising participants of the purpose of the study, the purpose of the particular round of the study, how the data would be used and that confidentiality was assured. Potential participants were informed that participation was voluntary, and were invited to contact the researchers if they required more information. Informed consent was assumed by return of a completed questionnaire.

### **Data Analysis**

Open-ended questions from Questionnaire 1 were analysed using thematic content analysis outlined by Krippendorff (2004). All statements were coded individually by three of the researchers, who then met to re-examine the priorities and consensus was reached on the key themes which emerged. This coding and identification of themes of research priorities was used to identify patterns of priorities and to help structure the subsequent development of a research agenda. These themes and their most frequent occurring examples were then used to construct the subsequent questionnaires for rounds II and III. Analysis of questionnaires 2 and 3 entailed examination of the mean scores for each priority ranked on the 7-point Likert scale. Consensus that a research priority was of high importance was based on the fact that the priority had a mean score of 5.5 or higher (Verkade et al., 2010) and was deemed clinically relevant by the expert panel for this study.

## **Results**

### **Participants**

The demographic characteristics for participants in round I and II are presented in Table 1. The majority of staff were between 31 and 40 years of age, with a wide range in number of years of nursing experience, ranging from one to forty-one years or more. The majority of those who participated in round I were at management grade, while over 50% ( $n = 131$ ) of nurses participating in round II were at staff nurse level. Only 5.6% ( $n = 6$ ) of

respondents in round I and 12.6% ( $n = 29$ ) of respondents in round II held one qualification, a specialist qualification in children's nursing. The majority of participants were registered children's nurses who were also registered in another discipline. Ninety percent ( $n = 97$ ) of respondents in round I were educated at a bachelor's degree level or higher, with just over 70% ( $n = 161$ ) of respondents in round II having this academic qualification. Considering the response rate from round II, the decision was made not to collect demographic detail in round III to avoid survey burden on participants and in anticipation of encouraging greater participant response.

Insert Table 1 about here.

### **Results - Round I**

Two hundred and twenty-six nurses were surveyed in round I, with 107 questionnaires returned, resulting in a response rate of 47%. The initial response rate was 38% ( $n = 86$ ), however this was increased by a further 9% ( $n = 21$ ) after follow-up reminder letters. In round I of the study, 44 research priorities pertaining to child health in hospital were identified. From the priorities identified, nine main themes emerged including resuscitation concerns, end of life care, child's clinical care concerns, childhood pain, adolescent concerns, family centered care, infection control, chronic illness and nurses' role in care delivery and education. Following consultation with an expert group including three nurse managers, two clinicians and two researchers, the most frequently occurring examples of these themes were then used to construct the subsequent questionnaires containing 27 priorities for rounds II and III. There was general agreement amongst all of the expert group regarding the priorities chosen for inclusion.

### **Results - Rounds II & III**

Of the 713 nurses surveyed in round II, there was an initial response rate of 25.2% ( $n = 180$ ), with an increase of 7.1% ( $n = 51$ ) after reminder letters, giving a total response rate of

32.6% ( $n = 180$ ). The top research priorities following round II included care of the deteriorating child, end of life care, transfer of the critically ill child between acute health care facilities and childhood pain. Questionnaire 3 was then developed to reach a final consensus on the research priorities for acute child health. The Delphi method is a structured communication with participants, facilitated by providing feedback on respondents' judgments from the previous round. Therefore in round III, participants were presented with the same 27 items as round II, together with the mean score of each research issue from the second questionnaire. In this final round, 708 nurses were surveyed. This resulted in an initial response rate of 25% ( $n = 178$ ), with an additional 10% ( $n = 71$ ) responding after reminder letters (total response rate = 35.2%).

The means scores and ranking of priorities were then compared from round II to round III to identify changes in rankings across rounds to indicate emerging consensus. Seven research priorities, of the top ten ranked priorities from round II, remained in the top ten positions in round III with very little difference in the ranking of the top six priorities (Table 2). These included recognition and care of the deteriorating child, safe transfer of the critically ill child between acute health care facilities, pain assessment and management and three factors pertaining to end of life care, namely the child and family's perceptions of care, symptom management and access to services. The results of round III also show a dominance of priorities for particular areas, as demonstrated in Table 3 which identifies the greatest number of priorities under the themes 'clinical care concerns' and 'family centred care'.  
Insert Table 3 about here.

## Discussion

This study identifies important research priorities for children's nursing in a large acute care setting in Ireland. The significant proposed changes suggested for the delivery of care to children in Ireland mean that this was an opportune time to understand and map out

these priorities. A particular strength of this study is it is representative of nurses with a specialist qualification in children's nursing as they have received specific education on the care and needs of hospitalized children and would have the expertise regarding their care. This means that these nurses have received specific education on the care and needs of a child in hospital and would have expert opinion on the specific research needs to enhance care for these children. The initial survey identified 44 priorities and after further consultation, 27 priorities emerged for children's nursing. The variety of priorities that emerged, regarding improving quality of care across acute and chronic areas of care, reflects the scope of care delivery of children's nurses in a large acute care centre and mirrors many global care concerns in caring for children.

The identification of the top research priority in this study, 'recognising and care of the deteriorating child' reflects the increased acuity and dependency of children in hospital (Adshead & Thomson, 2009), and that children often present with subtle signs of clinical deterioration (Edwards, Powell, Mason, & Oliver, 2009). Nurses caring for these children therefore require an effective paediatric assessment tool to assist in skilful assessment of a deteriorating child. This coincides with the publication of the *Guiding Framework and Policy for the National Early Warning System to Recognise and Respond to Clinical Deterioration* (Health Service Executive, 2011). Unfortunately, this initiative to implement a national early warning scoring system within the acute health sector in Ireland has only been implemented in acute adult services. The effectiveness of Paediatric Early Warning Systems has not been widely studied; the findings from the current study identify that nurses are concerned about this issue and see the care of the deteriorating child as a key priority for research in children's nursing. The findings suggest the need for the imminent roll-out of an assessment tool specifically for the paediatric setting. There is now added impetus for the roll-out of this tool for the paediatric population following a publication on the care of patients at risk of clinical

deterioration (Health Information Quality Authority 2013) which has recommended the national implementation of a pediatric early warning score.

Emphasis on the quality of care delivery to children is also evident in the emergence of the second priority for children's nurses, the safe transfer of the critically ill children between acute health care facilities. Challenges to transferring an ill child include clinical complications, deterioration of the child and technical difficulties (Gillman et al., 2006). It has been identified that specialist transfer teams lead to improved outcomes for the child (Ajizian & Nakagawa, 2007) and there is evidence of good outcomes in terms of survival for transfer of neonates in Ireland (Aherne & Hourihane, 2009). A National Neonatal Transfer Team has been in place in Ireland since 2001, however, no such service is in place for the transfer of children which may explain why the safe transfer of critically ill children between acute health care facilities emerged as the second highest ranked research priority by participants in this study. A limited number of studies have examined nurses' experience of transferring a critically ill child (Hall, 2001; Leslie & Middleton, 1995). These studies identified the various responsibilities of the nurses, such as the clinical and psychological needs of the child and support required by parents, including the challenge of being hopeful without offering false hope. Whilst acknowledging what is currently known about transferring critically ill children between acute health care facilities, there is strong support from the participants in this study for continued research in this area.

Three end-of-life priorities emerged in the top ten priorities, the child and family's perceptions of care, symptom management and access to relevant services. These findings reflect a growing emphasis on improving the provision of end-of-life care to children with life-limiting conditions. The emergence of these three priorities is supported in a report on *Palliative Care for Children with Life-Limiting Conditions in Ireland* (Department of Health & Children, 2009). This report suggests that there are 1,400 children in Ireland with a life-

limiting condition and that 71% of childhood deaths due to life-limiting conditions occur in the first year of life. The priorities for research in this area reflect those reported in other priorities for research (Association for Children with Life-Threatening or Terminal Conditions and Their Families and the Royal College of Paediatrics and Child Health, 2003). The results of this current study also support a recommendation that children's palliative care education should be incorporated in the children's education strand in existing academic programmes (Department of Health & Children, 2009). It is recognised that not all nurse practitioners are required to be experts in the field of end-of-life care due to their irregular and inconsistent contact with these children. Nonetheless, it is recommended that nurses would have an understanding of the nature of the issues faced by these children and young people in order to identify their needs and refer them to appropriate palliative care services (Dawson, 2010; Griffiths & Pfund, 2010).

The assessment and management of children's pain was ranked as the fourth highest research priority. It is possible that this finding reflects a gap between theoretical knowledge and clinical practice regarding the assessment and management of a child's pain. Significant progress has been made in research into pain assessment and management in children and this information is generally available in the form of practice guidelines (MacLaren & Kain 2008). However, the application of such knowledge into clinical practice may be suboptimal. Reasons cited include lack of training on pain assessment tools, myths such as infants feel less pain than adults and organisational culture (Twycross 2010, Scott et al. 2013).

An alternative explanation may be that the nurses in this study were caring for children with cognitive and sensory impairments with chronic health problems that require repeated admissions to hospital (Office of Minister for Children & Youth Affairs, 2010). This group of children may have a health profile which lends itself to particular challenges for pain assessment and management. The challenges in assessing and managing pain in

children with such impairments are supported in the literature, which suggests that a child's pain experience is multidimensional, influenced by their ability to cope, their mental age, their cognitive and functional ability and their family and social support structures (Azize, Humphreys, & Cattani, 2011; Burkitt, Breau, & Zabalia, 2011; Lynch, Kashikar-Zuck, Goldscheider, & Jones, 2007). This study supports the view that clinicians and researchers need to work together using translational research methods to continue to address the key issue of assessment and management of children's pain.

In preparation for the new model of care, there is increasing collaboration across child health services and associated higher education institutions. The research priorities highlight specific concerns about the delivery of health care to children in Ireland, which can guide this process further. For example, a collaborative approach, inclusive of the three children's hospitals and regional networks, is required to roll out and evaluate a suitable pediatric early warning tool. The increasing collaboration of the child health care network in Ireland, in preparation for a new model of care delivery, also provides a platform for the implementation of a National Pediatric Retrieval Team in preparation for a cohesive functioning service for the transfer of critically ill children between acute health care facilities. Furthermore, the research priorities identified for end-of-life care may be more easily accommodated in the proposed centralised health system.

It would be worthwhile comparing how the priorities identified in this study compare with research priorities from children's hospitals with similar specialties in other countries. It would also be worthwhile to compare the results of this study more broadly to the research priorities of pediatric nursing organizations or societies internationally. These suggestions for international comparison could be realized by establishing a collaborative research group of interested parties.

**Limitations**

The low response rate in rounds II and III in this study may be explained by a busy clinical workload and associated lack of time to complete the survey as the overall time for returning each questionnaire was four weeks. An alternative explanation may be that initial enthusiasm diminished over time as a Delphi study can be slow and time consuming (Franklin & Hart, 2007). It is also acknowledged that this is a study in one children's hospital, though the site was chosen as it provides the majority of acute health care services to children in Ireland.

The findings do not reflect any community child health issues, which are problems for children in Ireland and globally, such as obesity or mental health concerns. The absence of these issues in the final list of priorities may be explained by the fact that participants were focusing on research issues for children with acute care needs. However, this does suggest the value of widening this study in future to include the views of nurses caring for children in the community and mental health setting, to ascertain their views on priorities for child health research.

Finally, it is acknowledged that inter-rater reliability was not calculated to determine the extent to which independent coders reached the same conclusion during content analysis following Round I of this study; calculation of this in future studies would enhance the reliability of the content analysis.

**Conclusion**

This study identified twenty-seven research priorities for children's nursing which has informed the development of a research agenda for children's nursing in an acute care setting. The participation of nurses was valuable in the identification of these priorities. This fostered discussion on research and initiated engagement in a research process. Furthermore, the

invitation to all nurses to participate in this study has engendered an enhanced research culture in the organisation. Examples of this include nurses using the priorities to inform Masters by Research projects, and increased participation of nurses in the organisation's annual multidisciplinary research conference. The positive engagement of staff with the study also gave rise to identification of specific education needs to facilitate on-going and future collaborative work. Measures to meet these needs include the development of a peer support research group within the hospital, the delivery of information and education sessions on various aspects of the research process to nurses of all grades in the hospital and curriculum changes at undergraduate and graduate level in the affiliated university.

The variety of priorities that emerged, regarding improving quality of care across acute and chronic areas of care, reflects the scope of care delivery of children's nurses in a children's hospital and mirrors many global care concerns in caring for children. It is anticipated that the final aim of the study, informing the contribution of children's nursing research to wider interdisciplinary programmes of research on child health, will now be addressed through a programme of dissemination and discussion of these research priorities at interdisciplinary research meetings locally and internationally. With proposed changes for the delivery of care to children in Ireland, this study was completed at an opportune juncture and identified priorities for research to support best practice. The areas worthy of further exploration can help guide construction of a clinical programme for research in children's nursing. Finally, it would be of interest and value to compare the priorities identified in this study with those from other children's hospitals or pediatric nursing organizations or societies internationally.

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**Table 1 Demographic profile of the participants from round I and II**

<i>Characteristic</i>	<i>Round I n =107</i>	<i>Round II n = 231</i>
<b>Age Group</b>		
21-30	5	41
31-40	50	106
41-50	37	62
51-60	15	20
61 years or older		2
<b>Years of Nursing Experience</b>		
1-10	17	86
11-20	49	92
21-30	32)	42
31-40	9	10
41 or more years nursing experience		1
<b>Nursing Grade n (%)</b>		
Staff Nurse	9	131
CNM 1, 2 or 3	42	59
CNF, CNS & ANP	4	29
ADoN	11	12
<b>Professional Qualification* n (%)</b>		
Registered Children's Nurse	6	29
Registered General Nurse	7	50
Registered Children's Nurse & Registered General Nurse	90	141
Registered Children's Nurse & registered in any other discipline	4	11
<b>Academic Qualification n (%)</b>		
Certificate or Diploma	10	67
Bachelors Degree or higher	97	164

\*There are five points of entry to register as a nurse or midwife in Ireland including Children's Nursing, General Nursing, Mental Health Nursing, Intellectual Disabilities Nursing and Midwifery. Nurses, depending on when they qualified, may be educated to certificate level or higher.

**Table 2 Comparison of research priorities from round II and round III**

Theme	Priority	Rank Round III	Mean (SD) Round III	Rank Round II
<b>Resuscitation Concerns</b>	Timely recognition, communication and intervention of the deteriorating child	1	6.64 (0.75)	1
<b>Child's Clinical Care Concerns</b>	Safe transfer of critically ill children in hospital and between hospitals	2	6.44(0.90)	3
<b>End of life care</b>	Parent's/family's perceptions of care at end of life	3	6.36(0.91)	2
<b>Childhood pain</b>	Pain assessment and management in children's nursing	4	6.25(1.04)	6
<b>End of life care</b>	Symptom management in end of life care – healthcare professional's knowledge	5	6.25(0.96)	5
<b>End of life care</b>	Access to services for children with life limiting conditions	6	6.23 (0.97)	4
<b>Chronic Illness</b>	Parental participation in the care of children at home with a chronic condition – their perceptions	7	6.18(0.91)	17
<b>Child's Clinical Care Concerns</b>	Psychological preparation of children prior to procedures	8	6.16(0.96)	15
<b>Family Centred Care</b>	Effective communication with children in hospital	9	6.15(0.97)	9
<b>Childhood pain</b>	Chronic pain in children – prevalence and it's impact on child and family	10	6.14(0.97)	7
<b>Child's Clinical Care Concerns</b>	Compliance with medication/treatment regimes	11	6.14(1.06)	10
<b>Nurses' role in care delivery</b>	Child protection- disclosure	12	6.13(0.94)	21
<b>Infection Control Concerns</b>	Improving hand hygiene compliance in paediatric settings	13	6.11(1.07)	14
<b>Nurses' role in care delivery</b>	Factors influencing advocacy, confidence of children's nurses' in the clinical area	14	6.07(0.93)	31
<b>Adolescent concerns</b>	Adolescent's understanding of their chronic illness	15	6.07(1.01)	8
<b>Family Centred Care</b>	Nurses' role in supporting/guiding parents	16	6.04(0.97)	11
<b>Child's Clinical Care Concerns</b>	Deferral of surgery and it's impact on child/family	17	6.00(1.13)	25
<b>Child's Clinical Care Concerns</b>	Wound care in children	18	5.99(1.14)	13
<b>Adolescent concerns</b>	Adolescent's communication needs in relation to their condition	19	5.98(0.95)	12
<b>Infection Control Concerns</b>	Impact of infection control education on practice	20	5.94(1.08)	16
<b>Family Centred Care</b>	Effect of prolonged hospitalisation on child/parents quality of life	21	5.92(1.05)	24
<b>Adolescent concerns</b>	Adolescent involvement in care	22	5.90(1.00)	18
<b>Infection Control Concerns</b>	Psychological needs of the child and family in isolation	23	5.85(1.02)	19
<b>Child's Clinical Care Concerns</b>	Children's involvement in care	24	5.80(1.00)	30
<b>Family Centred Care</b>	Children's/parent's perspectives on transition to adult service	25	5.59(1.19)	29
<b>Child's Clinical Care Concerns</b>	Needle phobia in children- strategies for management	26	5.49(1.22)	20
<b>Resuscitation Concerns</b>	Family witnessed resuscitation	27	5.14(0.97)	36

**Table 3. Priority themes for research in children's nursing**

<b>Theme [priority rank]</b>
Resuscitation concerns [1,27]
Clinical care concerns [2,8,11,17,18,24,26]
End of life care [3,5,6]
Childhood pain [4,10]
Chronic Illness [7]
Family-centred care [9,16,21,25]
Nurses' role in care delivery [12,14]
Infection control concerns [13,20,23]
Adolescent concerns [15,19,22]

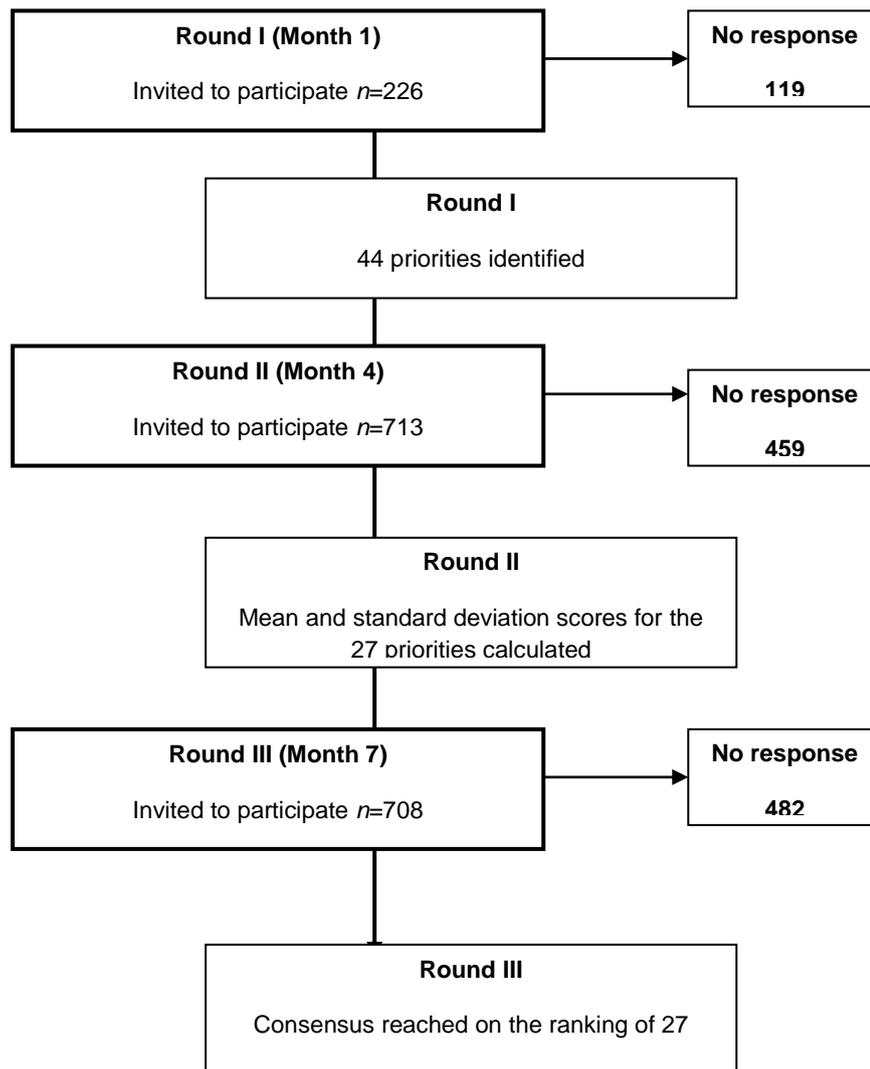


Figure 1 Flowchart of 3 round Delphi study