
# A scoping literature review to support the development of a vision and strategic framework for the future direction of children's nursing in Ireland

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# Contents

## List of Figures

# Executive Summary

## Background

Children's healthcare in Ireland is undergoing radical transformation with the build of a new National Children's Hospital and two new Urgent Care Satellite Centres; aligned with the organisation and delivery of paediatric services in an integrated national clinical network. This scoping review evaluates empirical evidence to inform a nationwide vision and strategic framework for the future direction of nursing children in various health care contexts in Ireland.

## Objectives

To systematically scope the evidence on children's nursing practice (defined in this review as nursing children in various health care contexts) to inform the development of a national vision and strategic framework for the future direction of children's nursing in Ireland. Specifically, this review aimed to:

1. Identify a vision for nurses who care for children.
2. Map entry-level competencies for nurses who care for children.
3. Map the development of expertise and continuing competence for nurses who care for children.
4. Identify changing international trends in nursing practice for children and services in line with changing trends in children's health services.
5. Determine workforce planning models and career pathways relevant to nursing children and reflective of changing trends in health service delivery.
6. Identify changing trends in the educational preparation for children's nurses that are designed to meet changing health service trends.
7. Establish consensus from the literature and present recommendations to inform and support the development of a national vision and strategic framework for the future direction of nurses who care for children in Ireland.

## Methods

A full search strategy was formulated with five search strings for objectives one through six. The electronic databases MEDLINE and CINAHL were searched along with a number of grey literature sources. All search strings were limited to publications in English, published within the last 10 years (i.e. from 2009). This generated 6571 documents which after removal of duplicates and a two-step screening process, of titles/abstracts and full-texts resulted in 175 documents. A further 58 documents were identified through the grey literature searches. A total of 233 documents were included in the review. Bespoke data extraction forms were developed and relevant data were extracted from all documents with summary tables prepared for objectives one through six. Findings were narratively summarised.

## Results

The results of the review are presented according to the review objectives.

### *Vision for nurses who care for children*

Care delivery should be relationship based, child and family centred care (FCC), built on collaborative partnerships, and respect diversity. It should reflect the needs, choices and decisions of children and their families. FCC needs to be translated into real-life practice in a holistic, interdisciplinary and institutional way. To be recognised internationally as world class leaders that make a difference to the health and wellbeing of children, families and communities. Advancing children's nursing practice through the integration of practice, education, research and policy is core to the vision, as well as: leadership, quality improvement, staff development and a healthy work environment. The vision should be meaningful to staff and aligned with the organisation and national health service policy/reform strategic direction.

### *Entry-level competencies for nurses who care for children*

To advance knowledge and expertise of entry-level nurses along the novice to competent continuum, life-long learning and continued support and competency development opportunities is emphasised. Core competencies proposed for undergraduate children's nursing programmes (i.e., knowledge, skills, attitudes, and behaviours) assure the graduate has the foundational skills for entry into children's nursing (e.g., family centred care, growth and development, health promotion and disease prevention). To advance the graduate children's nurse, development of core competency domains (e.g., collaboration and teamwork, technology and health informatics, research and evidence-based practice etc.) with measurable behaviours to assist graduates, preceptors and education leaders to integrate the registered children's nurse into professional practice.

Evidence supports tailor made graduate strategies and clinical residency training programmes to assist entry-level children's nurses transition into practice and for specialised paediatric areas experiencing staff shortages and/or service expansion. Nurse leaders need to promote positive supports (e.g., supportive work environment, organisational incentives) and tackle barriers (e.g., poor feedback, strained staff) to new graduate learning and role transition. There is the need to establish standards for consistency across paediatric nurse residency programmes including evaluating outcomes. A specific outcome of graduate programmes was the engagement of experienced clinical nurses in supporting and mentoring novice nurses.

There is a critical need to develop and evaluate paediatric graduate nurse residency programmes for non-hospital settings and for paediatric nurses working in isolated settings (e.g., home care). Creative ways of bringing community-based paediatric nurses together (e.g., online technologies, developing regional partnerships etc.) need to be considered.

### *Development of expertise and continuing competence for nurses who care for children*

A supportive culture for life-long learning was emphasised with the need for children's nurses to maintain registration through evidence of sustained practice, competence and continuous professional development (CPD). Trends in literature focused on CPD relating to cultural competence, palliative care and end-of-life, paediatric mental health, and child behavioural problems. Gaps in CPD were identified for leadership and management development. CPD to enhance knowledge, practice skills and standardise competencies for nurses caring for children in adult settings (e.g., emergency departments) was noted. Competency-based workplace transition programmes, with in-built flexibility, for nurses to work in child and family community health services was recommended. Further use of simulation and technology was recognised especially for CPD for rare therapies and for rural and remote settings. The value of interdisciplinary training in managing complex patients, team working, communication, conflict resolution, and collaboration was highlighted. Having a coordinated approach to CPD training events was suggested.

A volume of literature focused on advanced nursing practice with a number of key messages to consider, including: having a national approach to advanced nurse practitioner education; recognising the growing need for education programmes for advanced nurse practitioners with expanded emphasis on chronic illness and mental health; the need for specific comprehensive training/fellowship programmes for integration of entry-level advanced nurse practitioners into children's general and specialty intensive care units; future consideration for development of clinical doctorate programme for advanced nurse practitioners; the conduct of a training needs analysis of potential and existing advanced nurse practitioners caring for children; and finding ways to attract undergraduate students and practicing registered nurses to become primary care advanced nurse practitioners in caring for children and their families.

*Changing international trends in nursing practice for children aligned with changing trends in children's health services*

Nursing children in various community contexts is the predominant trend in the literature. Health service reforms involving a shift from secondary to primary care has resulted in a growth of 'close to home care' for acutely and chronically ill children, supported by a growth in community nursing teams and home visiting. Child and maternal/family health nursing in the community is typically delivered by nurses with child specific qualifications in Australia (e.g. Child and Family Nurses) compared to other countries where nurses have a broader public health/community nursing qualification (e.g. Norway, Canada, Ireland).

Nurses have a pivotal co-ordination role to support inter-sectoral and inter-professional delivery of services regardless of context (e.g. close to home/ primary care/palliative care/hospital based services/school based nursing) to ensure seamless, continuous integrated health care for children. A trend towards advanced nurse practitioners in system level co-ordination was seen. Continuing professional development is essential to support the role of nurses in delivering nursing and health care services to children, particularly in the areas of child-specific knowledge and medical complexity, leadership and change management, inter-professional and team working across sectors, information and telehealth technology.

*Workforce planning and career pathways relevant to nursing children and aligned with changing trends in children's health service delivery*

*Workforce planning*

The need to attract and fund more nurses to acquire competencies to care for children, young people and their families was highlighted. A number of initiatives for attracting and retaining staff were identified: organisation-centric model of education and practice; specialised paediatric graduate transition programmes; professional competence and career development opportunities; inter-professional approaches to education; and improving the work environment and psychological wellbeing of nurses. Developing children's nurse practitioners/ advanced practice nurses is seen an important driver in workforce planning for child health care. Providing 'protected time' for CPD was seen as an important strategy to improve recruitment and retention, as was as having high-quality nurse mentorship relationships and a staff rotation strategy.

There was some evidence for the relationship between nurse staffing levels and child patient outcomes. It was recommended that nurse staffing level be increased to prevent adverse outcomes for child patients. However, due to staffing complexity and differences in settings and populations, it was noted that it can be difficult to automatically apply a single published ratio for nurse staffing in all settings where children receive nursing care. There was some consensus that workforce plans across all care services be reviewed on an annual basis or more frequently when problems are identified; and the need for further research in this area was emphasised.

Shortage of community children's nurses and lack of stable home healthcare nursing for children with medical complexity is contributing to substantial parent/caregiver burden indicating the urgent need to identify ways to expand the workforce and training for community-based nurses caring for children and for the use of alternative models of delivering paediatric home healthcare services including development of a new professional identity for community children's nurses/nurses caring for children and families.

Other workforce deficits noted were: child and adolescent mental health community services; stressful work environments (e.g., oncology, ICUs); paediatric emergency or urgent care within general hospital settings. Shifting from traditional models of care can have positive outcomes both for families and for children's nursing (i.e., care closer to home for families, career progression opportunities for advanced practice nurses). For future reform the following was recommended: recognise service need; appraise options with all stakeholders including the public; have governance measures with

access to robust educational preparation, assess clinical competence and have regular supervision; and plan for evaluation.

*Career pathways*

Recruitment of acute care children's advanced nurse practitioners (ANPs) is required to meet the demands of specialities and subspecialties. Implementation of a nurse practitioner professional ladder was identified as important for continued professional growth and career development. Competency modelling to target the development of new ANPs to address workforce planning and governance issues was raised.

The lack of ANPs in children's nursing was noted with the need for bespoke ANPs highlighted to assure that existing role holders have the correct level of competency for safe autonomous practice. In critical care, ANP roles should complement other medical/nursing roles with recommendations for the PICU workforce to move beyond traditional 'physician only' models of child health service delivery. Need to standardise licensure, accreditation, credentialing and education guidelines to allow for ANPs professional mobility.

Evolution and expansion of community-based child health nurses and primary care nurse practitioners was indicated to meet workforce demands of providing primary care to children and families with increasing complex social and healthcare needs. Development and implementation of specialist nurse key worker roles also indicated with a number of different models (influenced by available resources) organised along a continuum of in reach and outreach work.

Future development and accessibility of accredited training for general registered nurse practitioners in the treatment of common paediatric emergency presentations. Professional career mapping for nurses to establish lifelong learning goals, serve the profession and the community, achieve professional excellence and career advancement, and to assist organisations to retain talented staff and plan for leadership succession. Role models for men deemed a vital strategy to improve recruitment of men into children's nursing.

*Changing trends in the educational preparation for nurses who care for children that are designed to meet changing health service trends*

Simulated learning increasingly embedded in nursing curricula was identified as an effective approach to skills learning. Recommendations for further developments were: use of electronic interactive games with young people as avatars, problem solving e-simulation and service user involvement, and greater emphasis on student peer-led simulations.

Trends in clinical placement learning included innovative approaches to address challenges in placement capacity, peer and collaborative learning, community clinical placements and graduating children's nurses' ability to provide high dependency care.

Trends towards peer and collaborative learning with students working together and learning from each other while on placement; indicating a need for curricular change to go beyond the mentoring model facilitated by qualified nurses.

Some trends were seen towards use of the arts (e.g., poetry, digital storytelling) in the curriculum as a learning strategy to develop empathy, compassion, and self-awareness and to facilitate visual thinking, creativity and critical thinking.

Reference to service user involvement in nursing curricula included: children actively participating in teaching sessions by sharing experiences of living with a chronic condition and obtaining children's experiences of nursing care as a strategy for assessing nursing students' performance in care delivery.

Reference to national or major programme reforms in children's nursing education internationally included: an increase in the number of places for children's nursing in higher education to address high child mortality rates; emphasis on community nursing in line with primary health care reforms; need to clarify the children's nurse role in the health system; development of dual programmes (e.g.,

children's and neonatal); and generic preparation followed by specialist education, although concerns were raised that this would diminish the unique focus of individual branches i.e., child health nursing.

## Conclusion and Recommendations

The final chapter of this scoping review draws from the findings of the six review objectives to collate consensus from the literature in order to present review recommendations to provide an evidence based approach to inform and support the development of a strategy for the future direction of nurses who care for children in Ireland.

The key recommendations from this scoping review are outlined below.

### *Vision for nursing children and their families*

A vision for nurses caring for children and their families must:

- have child-centred and family-focused engaged care at its foundation
- be relationship based and built on inter-professional and family collaborative partnerships
- make a difference to the health and holistic wellbeing of children and their families
- include delivery of world class excellence, innovation and leadership for exemplary nursing care
- advance child and family nursing and health care through the integration of practice, education, research and policy.

### *Preparation for entry to children's nursing*

- Current points of entry to children's nursing in Ireland (i.e., integrated children's and general Bachelor's degree and post-registration diploma) needs to be retained.
- Intake and retention numbers across these entry points need to continue to be reviewed to meet the future supply and demand for children's nursing services in all care settings (hospital, home, community, primary care).
- Preparation of children's nurses needs to be 'fit for purpose' regarding changing trends and the future direction of health service delivery (i.e., community practice, closer to home care, service-user involvement, integrated care across sectors).

### *Career development and progression*

- Advancement of children's (child and family) advanced nurse practitioner roles is pivotal to meeting future workforce demands; a career trajectory towards developing these roles, across all children's healthcare settings, should be established with consideration to priority areas.
- Facilitation of increased programme capacity at masters/doctorate level and initiatives to encourage participation should be advanced. This requires additional incentives to encourage participation including innovative funding models and clearly defined career development pathways.
- Competency development for undergraduate, graduate, speciality children's nursing roles and advanced practice must traverse entry-level foundational skills to advanced, collaborative and transformative practice.
- Commitment to lifelong learning and continuous professional development for nurses working with children through inter-professional education, simulation, use of innovative technology and digital health is recommended.
- With the advent of many speciality areas within children's healthcare, consideration of the specific and multifaceted needs of the nurses working in these specialised areas requires urgent attention. This will enhance experiences, staff retention and ensure a suitably competent nursing workforce into the future. It will also improve the care and experience of children and families accessing these services.

- Need to develop and evaluate child and family health graduate nurse programmes for non-hospital and for children's nurses working in isolated settings such as in the home.

*Developing nursing services for children and families beyond 'acute' hospital services*

- Investment is needed in more children's nurses working in community nursing, child and adolescent mental health, children with complex continuing healthcare needs, palliative care and end-of-life, and in child/adolescent, maternal and family health care in collaboration with other nursing services.
- Need to enhance integration within and between children's health care teams, services and settings with the development of community child and family nursing teams, home visiting care packages, inter-professional and inter-sectoral working, clear referral pathways and continuity and coordination of care across a range of services and settings.
- Further research is required to identify where children's nurses are currently engaged in providing care to the child and family, outside acute hospital services, the nature of the services being provided and existing unmet needs in order to inform workforce requirements, governance, education and career frameworks.

*Supporting nurses working with children in non-designated child health settings and without a child-specific qualification*

- All non-designated child health settings that encounter children should have a complement of, and collaborative oversight from, registered children's nurses; with access to ongoing professional development relevant to the specialty area with child/family healthcare.
- All nurses who work with children should complete a child and family focused professional development module to enhance a partnership based approach to care for children and their families.

*Child and family wellbeing*

- A strong emphasis is needed on engaging with diverse child and family needs and building family strengths with a specific focus on holistic health and wellbeing which takes an ecological, whole population and inclusive health approach to health promotion and illness prevention; recognising that children's health and wellbeing is everyone's responsibility.
- Consideration needs to be given to child and family health and wellbeing nursing roles focusing on the first five years as a priority; this is aligned with the Government of Ireland's First Five Strategy 2019-2028 for expanded roles for advanced nurse practitioners and clinical nurse specialists.
- Professional development is required to support nurses, in all healthcare, community and societal settings, to adopt a partnership model of working with families and understand child specific and family functioning knowledge for preventative child and family health and wellbeing.

*Telehealth in children's nursing*

- The review highlighted the need for training on the functionality of technology in order to develop nurses' confidence in using e-health to support their care, however this warrants further research.

# Chapter 1: Introduction and Review Methods

## Structure of the Review

The review is divided into three chapters. This first chapter, *Introduction and Review Methods*, provides a background context and rationale for the scoping review and an overview of the methodology employed. Chapter two presents the *Results* pertaining to each review objective. In chapter three, the *Discussion and Review Recommendations* are presented, along with the review strengths and limitations. An overview of search strategies, eligibility criteria and detailed data extraction tables are provided within the *Appendices*.

## Context and Rationale for the Review

Children's healthcare in Ireland is undergoing radical transformation with the build of a new National Children's Hospital and two new Urgent Care Satellite Centres; aligned with the organisation and delivery of paediatric services in an integrated national clinical network. Aligned with health policy and service development nationally and internationally the vision underpinning this service reconfiguration is to deliver high quality child centred and family focused integrated health care closer to home (CCTH) (Health Service Executive, 2018; Houses of the Oireachtas, 2017; National Clinical Programme for Paediatrics and Neonatology, 2015). The drive to transition health CCTH requires critical restructuring to the way acute paediatric care is delivered, understood and accepted; and has implications for children's nursing including (but not limited to): enhanced ambulatory, community and home focused care; e-health and technology enabled solutions; changing demographics including increased complexity of health services, rise in mental health presentations and increase in population of children with complex care needs; focus on advanced and specialist care, prevention and innovative workforce and career pathway planning; all of which present challenges and opportunities for children's nursing now and in the future. This scoping review is timely as it evaluates empirical and political evidence to inform a nationwide vision and strategic framework for the future direction of nursing children in various health care contexts in Ireland.

## Method

This desk-based secondary research was informed and guided by Arksey and O'Malley's (2005) scoping review framework and Levac et al.'s (2010) methodological advancement of the scoping review framework. A scoping review framework was used given the specific broad

nature of the review along with the fact that scoping reviews are often used to develop 'policy maps' by identifying and mapping evidence from literature, reports and policy documents that guide a particular field of practice (Anderson et al., 2008). The scoping review framework involved five core stages, including: (i) identifying the research question, (ii) identifying relevant studies, (iii) study selection, (iv) charting the data and (v) collating, summarizing and reporting the results. These five stages are outlined below.

## Stage 1: Identifying the Research Question

### *Aim*

This broad aim of this research was to systematically scope the literature and policy to identify available evidence pertaining to children's nursing practice (defined in this review as nursing children in various health care contexts) to inform the development of a national vision and strategic framework for the future direction of children's nursing in Ireland.

### *Objectives*

Specific review objectives were to:

1. Identify a vision for nurses who care for children[1] that is applicable to service provision and practice.
2. Map entry-level competencies for the role of nurses who care for children.
3. Map the development of expertise and continuing competence in line with the scope of practice for nurses who care for children.
4. Identify changing international trends in nursing practice for children and services in line with changing trends in children's health services e.g. ambulatory care, integrated care, community and home services.
5. Determine workforce planning models and career pathways relevant to nursing children and reflective of the changing trends in health service delivery.
6. Identify changing trends in the educational preparation for children's nurses that are designed to meet changing health service trends.
7. Establish consensus from the literature and present recommendations to inform and support the development of a national vision and strategic framework for the future direction of nurses who care for children in Ireland.

[1] For this review, the term children refers to both children and adolescents unless otherwise stated.

## Stage 2: Identifying Relevant Studies

The goal of scoping the field was to identify primary studies, relevant reviews and policy documents relevant to addressing the review aim and objectives. A broad search methodology was used to identify evidence from different literature sources and policy documents nationally and internationally. A full audit trail of searches was maintained and is outlined below.

### *Search terms*

Given the broad nature of the review aim and objectives, a full search strategy was developed with five search strings for objectives (obj.) one through six (i.e., a search stream for obj. 1; obj. 2 & 3; obj. 4; obj. 5; obj.6). Objective 7 did not require a specific search string as it was a final overarching objective to collate consensus from the literature and present review recommendations. The search string for each objective was checked by three team members for inclusion of key terms and their variations with accuracy and consensus agreed among team members. Search terms were adapted as needed for each electronic database and grey literature requirements. Detailed examples of the search terms used for the five search strings are available in Appendix 1.

### *Search sources*

Literature was identified by searching the following electronic databases:

- Medical Literature Analysis and Retrieval System Online (MEDLINE)
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)

The following sources were searched for grey (unpublished) literature:

- Open Grey System for Information on Grey Literature in Europe
- Google Advanced Search
- King's Fund
- Nuffield Trust
- Department of Health websites for the UK and Ireland
- Royal College of Nurses (UK)
- Irish Nursing and Midwifery of Organisation (Ireland)
- Lenus Irish Health Research Repository

If more than ten webpages were returned, from a grey literature search, we screened the first ten pages. As recommended by Godin et al. (2015), this number of pages were searched to capture the most relevant hits while at the same time keeping the process manageable.

## Stage 3: Study Selection

### *Eligibility criteria*

Review inclusion and exclusive criteria were developed and checked for accuracy and consensus by three team members for each review objective. All search strings were limited to publications in English, published within the last 10 years (i.e. from 2009) and with a Human Development Index of seven or greater. Documents excluded from the review were those that focused specifically on the future direction of the profession of nursing without any reference to children's nursing and policy frameworks relating to adult nursing only. Full details of the inclusion and exclusion criteria for each objective are available in Appendix 2.

### *Selection process*

Results for each of the five search strings were imported into Covidence (2019) where duplicates were identified and removed. For all five search strings, two team members (allocated to each search string screening process) independently assessed the titles and abstracts retrieved according to the pre-determined eligibility criteria for the six review objectives. Any discrepancies were resolved by consensus or discussion with a third review team member. If no abstract was available, the full document was sourced and assessed. For documents that progressed to full text review these were uploaded for reading to Covidence. The same two reviewers that screened the titles and abstracts also independently assessed the full texts using the same eligibility criteria before a final decision regarding inclusion or exclusion was confirmed. Any discrepancies were resolved by consensus or discussion with a third team member. At this second stage of screening, reasons for exclusion were noted. We used an adapted PRISMA flow chart to report the screening and selection process (Figure 1).

## Stage 4: Extracting the Data

Date were presented in tabular form with bespoke data extraction forms designed, pre-tested and amended as necessary for each review objective. Aligned with the data selection processes, the same review team review members that screened titles and abstracts and full texts for each objective independently extracted and managed data for the included documents. Data extracted were: authors, date and country; document type; data specific to review objectives one to six (i.e. visionary statements for obj. 1; competency frameworks and domains for obj. 2 & 3; child health service and nursing practice reform trends for obj. 4; changing trends in workforce planning and career pathways relevant to nursing children for obj. 5; developments

in education preparation for nursing children to meet health service reform for obj. 6) and key recommendations/other comments. In keeping with the scoping review framework (Arksey and O'Malley, 2005), which aims to provide a broad narrative or descriptive map of available material, no formal appraisal of the quality of the retrieved evidence was undertaken. For each objective (obj. 1-6), data were extracted by two reviewers independently (i.e. 2 team members were allocated to extract data for each objective). Any discrepancies were resolved through discussion and consensus between the two reviewers, or if required consultation with a third reviewer. The data extracted for each objective are presented in tabular format in Appendix 3 (see Tables 1-6).

### Stage 5: Collating, Summarizing and Reporting the Results

Using the data extraction tables, evidence retrieved from the search of electronic databases and grey literature for objectives 1 to 6 was collated and summarised to address the review aim and objectives. Hence, we have reported on: vision; entry level and continuing competencies; changing trends in nursing practice for children; workforce planning and career pathways; and educational preparation for nursing children. The findings are narratively summarised and presented separately for the review objectives 1 – 6 in the next *Results* chapter.

## Chapter Summary

In summary, a scoping review was conducted to identify available evidence pertaining to children's nursing practice to inform and support the development of a national vision and strategic framework for the future direction of children's nursing in Ireland. This chapter provided the context and rationale for the review and detailed the methods applied for the five stages of the scoping review framework, including: identification of the research aims and objectives, identification of relevant studies/documents, study/document selection, data charting, and collation, summarization and reporting of results. The next chapter presents the key findings from this review pertaining to each review objective.

# Chapter 2: Results

## Introduction

In this chapter, the results of the search output and key findings from the scoping review are presented. A narrative summary of the findings is presented in relation to each review objective.

## Results of the Search Screening and Selection Process

The electronic database search yielded a total of 6571 documents. There were 5152 documents for screening after removal of duplicates. We excluded 4300 documents not meeting the review inclusion criteria on initial screening of titles and abstracts. We assessed 852 documents for eligibility at full-text screening and excluded 677 documents that did not meet the review selection criteria (see Figure 1); hence 175 documented were included in the review. A further 58 documents were identified for inclusion through the grey literature searches. Consequently, a total of 233 documents were deemed eligible for inclusion in the review. An adapted PRISMA flow diagram (Moher et al., 2009) of the search screening and selection process is presented in Figure 1.

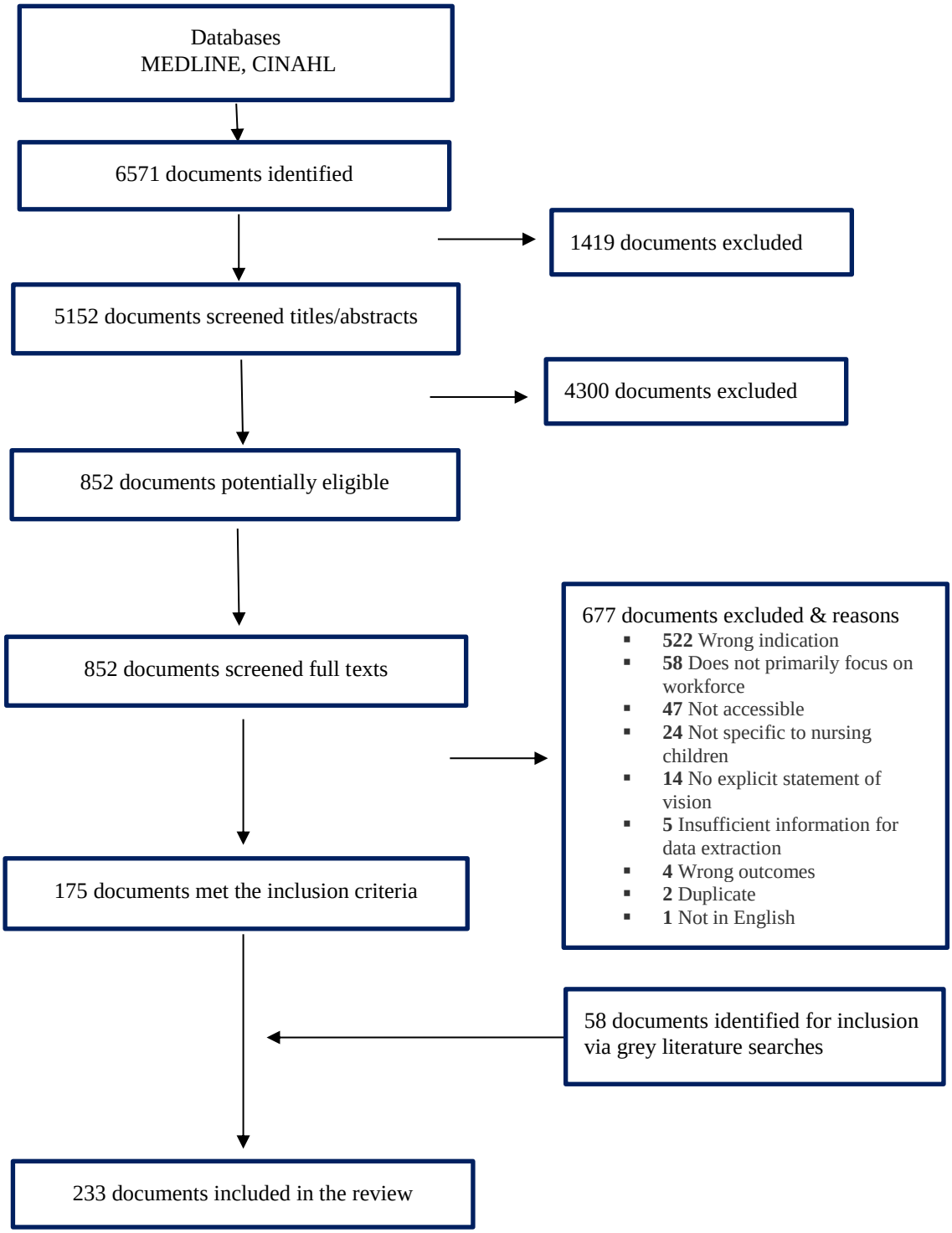


**Figure 1: PRISMA flow chart mapping the search screening and selection process to identify papers eligible for this scoping review.**

## Findings

In this section, the results of the scoping review are presented as a narrative summary according to the review objectives one to six. The key messages arising from each objective are presented in boxes after each section. To make the scoping review manageable, we reviewed the literature for each objective separately. Consequently, there may be some overlap in thematic areas and papers included across objectives. There are also some differences in how the data is presented for each objective due to different author styles and diversity of papers included in the scoping review. In the final chapter, we establish the consensus arising across the six objectives and present recommendations to address objective seven of the review. Across the objectives presented empirical studies and non-empirical papers (e.g., case reports, policy analysis, discussions/commentaries) retrieved from academic databases were included. For grey literature, we summarise any additional key points that contribute to that specific objective, as appropriate. See Tables 1 - 6, Appendix 3 for all data extracted.

### Vision for nurses caring for children related to service provision and practice (obj. 1)

The first objective of this scoping review was to identify a vision for nurses who care for children that is applicable to service provision and practice. Four documents were identified for inclusion from the electronic database searches (see Table 1 academic literature, Appendix 3). While these four documents did not explicitly state an overarching vision for children's nursing, they did provide insights into visionary elements for different contexts including: a vision for advanced practice nursing in Canada (LeGrow et al., 2010); a vision as part of a framework of nursing practice in the USA (Latta and Davis-Kirsch, 2011), a vision for community children's nursing services in the UK (Carter et al., 2012); and an international (led by Jordan/Australia) consensus vision for conceptualising family-centred care (Al-Motlaq et al., 2019). These are summarised below.

LeGrow et al. (2010) created a vision and framework to guide the evolution of advanced practice nurses[2] (APN). The developed vision statement stated that APN's are leaders who deliver expert child healthcare and "strive to build diverse partnerships, foster innovation and push boundaries to help children and families be the best they can be" (p. 38). The APN role

[2] Advanced practice nurses defined by LeGrow et al. (2010, p. 32) as "pediatric healthcare providers who integrate principles and theories of advanced nursing with specialty knowledge to provide autonomous, independent, accountable, ethical and developmentally appropriate care in complex, often ambiguous and rapidly changing healthcare environments."

in children's nursing practice was presented as a spoked wheel with the child and family at the centre surrounded by and connected to the domains of children's APN practice including: clinical practice, research and scholarly activities, inter-professional collaboration, education and mentorship, and organisational and systems management. These domains are enacted in various settings (hospital, home, ambulatory care, community) with the provision of holistic family-centred care (FCC) taking place in the context of human relationships, partnerships, collaboration, and communication and continuity of care; which enhances child and family health and advances children's nursing practice. In developing a framework/model for nursing practice, Latta and Davis-Kirsch (2011) highlighted that it was important to consider the following: alignment with organisational vision and nursing mission; that it is easily understood and meaningful to staff; and that the underpinning philosophy and theoretical basis for care delivery is relationship-based / family-centred care and caring theory. They reframed their nursing vision values from CHILD (competence, health, integrity, leadership, diversity) to ART (accountability, respect, teamwork) and used the acronym CHILD to present professional practice model components including: **C**are delivery (high quality, ethical care, respecting diversity, family focused relational care), **H**ealthy work environment, **I**nnovation and improvement (quality improvement, patient outcomes, evidence-based, research and publications), **L**eadership and governance (nursing strategic plan, leadership development and succession planning, shared governance), and **D**evelopment of staff.

Reporting on a vision for the future of community children's nursing services (CCNS), Carter et al. (2012) emphasised the need for a vision that would enable parents to be parents not caregivers. It recommended that services reflect the needs, choices and decisions of children and parents; that care packages take account of the wellbeing of family members; that agreed national service standards are developed for an integrated approach to care systems across services including documentation, information technology and training materials and that access to services is undisrupted by geographical boundaries. Finally, Al-Motlaq et al. (2019) reported on an international descriptive study to develop consensus on agreed descriptors of FCC that could be used to form the foundation for a psychometric measure of FCC and to develop recommendations for future thinking about FCC. It proposed that for FCC to become a reality a clearer vision for FCC practice was required. Some key recommendations included the need for well-staffed family-appropriate facilities; identification of organisational, environmental and individual barriers; standards for the translation of FCC into practice in a

holistic, interdisciplinary and institutional way; cultural competence and recognising diversity of families; and active child, parent, family and family members' involvement in defining, operating and evaluating FCC.

**Grey literature**

The grey literature identified was mainly from websites in the USA (n=13), with a further three from the UK and two from Ireland, which reported localised hospital visions for nursing children. These are presented in Table 1 grey literature, Appendix 3. Key overarching visionary summary points include:

- Setting a standard of excellence and innovation for exemplary nursing care that is recognised nationally and internationally
- Positively influencing the health and wellbeing of children, families and communities; and reducing health disparities
- Serving as local, national and global leaders in clinical care, education and research
- Advancing a culture and shaping the science and delivery of high quality safe compassionate care
- Child and family focused relationship based care working in partnership with families
- Interdisciplinary collaborations, integrated care delivered through inter-sectorial partnerships, and academic-clinical alliances
- Academic scholarship through inquiry, evidence-based practice and research
- Striving for continuous quality improvement in practice, education, research, child advocacy and management/leadership
- Care delivered by high-achieving and effective workforce
- Nurturing healthy work environments
- Having a vision for nursing that is aligned with the rest of the health care system.

The ***key messages*** identified for objective one are outlined in Box 1 below.

**Box 1: Key Messages – Vision**

- Holistic child and family centred care needs to take place in the context of human relationships, partnerships, collaborations, communication, and continuity of care which enhances outcomes for child and family health and wellbeing and for children's nursing practice.
- Theoretical basis for care delivery, across different settings (hospital, home, ambulatory care, community), should be relationship based, child and family focused, built on inter-professional and family collaborative partnerships, and respecting and recognising family diversity, to deliver a service reflective of the needs, choices and decisions of children and their families.
- Through active and meaningful involvement of families, clear co-designed standards are needed for translating child and family centred care into real-life practice in a holistic, interdisciplinary and institutional way.
- Being renowned internationally as world class leaders, and for world class excellence and innovation for exemplary nursing care, that makes a difference to the health and wellbeing of children, families and communities, and that advances children's nursing practice, through the integration of practice, education, research and policy is core to the vision.
- Leadership, innovation, quality improvement, staff development and healthy work environment are key concepts to consider.
- In developing a vision, its meaningfulness to staff and its alignment with organisational and national health service policy and strategic reform needs to be taken into account.

## Entry-level competencies for nurses who care for children (obj. 2)

Objective two of this scoping review was to map entry-level competencies for the role of nurses who care for children. Indeed, the importance of nurse entry-level competency in the future development of nursing education curricula is highlighted strongly in several papers. It is worth noting that most of the papers that examined competencies for entry-level nurses (either undergraduate/pre-registration education or first point of entry to healthcare as a registered nurse following graduation) did not focus specifically on children's nursing; rather the majority of papers discussed overall competencies for all nurse disciplines (i.e. not by speciality for or within children's nursing). We did identify a small number of papers (n=10; four from Australia, four from the USA, one each from the UK and Brazil) that either examined entry-level competencies relating to supporting or developing an orientation or graduate training programme for nurses during their initial months/year working as a new graduate (i.e., registered nurse) in children's nursing (e.g. Delack et al., 2015; Lima et al., 2014; 2016; Mott et al., 2018; Simmons, 2016) or to cope with increasing demands and staff shortages in speciality areas such as intensive care or radiology (e.g., Cefaratti et al., 2013; Long et al., 2013). Further details of these papers are outlined below and displayed in Table 2 academic literature, Appendix 3.

The underlying premise for developing core competencies is to advance the knowledge and expertise of entry-level nurses along the novice to expert spectrum. Having measurable actions or behaviours so that practice can be assessed or evaluated to identify progress and skill acquisition of the entry-level nurse is critical. Recognising the numerous concerns facing undergraduate nursing education and nurse residency programs (for new graduates) (e.g., recruitment difficulties, limited clinical placement time, increased pressure for graduates to demonstrate independent clinical decision-making skills, demanding environments with increased acuity and complexity of care), Mott et al. (2018) described the Society of Pediatric Nurses' development of core competencies for both undergraduate children's nursing programmes and for the transition of new graduates into practice through clinical residency education programmes. Two task force groups (pre-licensure / entry-level and residency / transition into practice) were set up to design the competencies. For the undergraduate children's nursing programme the pre-licensure taskforce reached consensus on identifying a core set of skills, attitudes and behaviours within three broad competency domains: role of paediatric nurse, child and family centred care, and growth and development. The authors

stated that together these competencies would assure that the graduate had the foundational skills for entry into the field of children's nursing. To advance the graduate children's nurse, eight domains of competence were identified: safety and quality improvement, advocacy, communication, collaboration and teamwork, leadership and professional development, evaluation and outcomes, technology and informatics, and research and evidence-based practice. The concepts of family-centred care and accountability ran throughout each of these eight domains. The authors acknowledged that by assessing each competency using measurable behaviours could assist new graduates, preceptors and education leaders to prepare children's nurse graduates for professional practice; and these could also be adapted for more experienced nurses who might not have practiced in children's nursing or not have done so in recent times. Mott et al. (2018; p. 144) concluded that "knowing up front that transition into practice is a process that requires time, knowledge and experience reminds all that both experienced and new paediatric nurses have a responsibility to advance the science as well as support one another's career development."

In Brazil, Regino et al.'s (2019) qualitative study analysed the training and evaluation of professional competency in children's nursing from the perspective of university professors. The authors recognised knowledge and skills as 'pillars' of care in children's nursing, and highlighted the importance of child development and childhood disease in nurse education. They argued that in developing professional competencies in children's nursing a broader focus is required that considers both cognitive and procedural components as well as attitudinal elements. One that acknowledges nursing care systemisation and that care is comprehensive and not only requires knowledge and skills but also "the attributes pertinent to the nurse to work with children" (Regino et al., 2019; p. 6). To truly move from a disease-focus to a child and family-focused model of care requires broadening education programmes to include these attributes. Gaps in curriculum were acknowledged that should focus more on the comprehensive care that children's nurse provide that includes health promotion and disease prevention. For change to happen teaching methods need to be less conventional and more innovative.

In a PhD thesis, which, recognised the concerns of nurse leaders over new nurse graduate poor performance, Simmons (2016) investigated environmental and individual factors that influence new graduate children's nurses' performance. In this thesis, graduate nurses identified that

communication, receiving adequate resources, a supportive work environment and organisational incentives as positive supports while poor feedback and challenges with preceptors inhibited them as new nurse graduates. While the study acknowledged that educational programmes are positive, the author argued for tailor made graduate strategies and programmes designed to support the unique and specialised needs of entry-level graduate nurses to achieve competence. Issues such as strained relations with staff, stress management and lack of self-care were also highlighted as inhibitors to learning. Simmons (2016) emphasised that nurse leaders need to tackle barriers to support new graduate role transition.

Lima et al. (2014; 2016) examined entry-level competency development in the first year after graduating for new graduates in a tertiary paediatric setting. The authors found nursing students had gained significant competencies in the first year following a 12-month graduate training programme. In the first six-months competencies increased significantly with a stabilisation in the second six-months of the programme. Specifically, the authors examined competencies that included: helping or caring role, teaching - coaching, diagnostic functions, managing situations, therapeutic interventions, quality care (including evidence based care and critical thinking) and role in coordinating care and working within teams. Overall competency was examined at 3-monthly intervals and improved sequentially over a 12-month period. Entry-level competence of newly graduate nurses were found to be higher in the quality domain than any other competency at the commencement of the graduate programme but dropped significantly behind other competencies over the 12-months. The helping or caring role and the diagnostic and monitoring domain remained consistently high throughout the 12-month graduate programme. Therapeutic interventions remained low and this was consistent with the literature with possible reasons being the complexity and ever-changing nature of healthcare interventions making it difficult to move from novice to expert. Lima et al. (2016) emphasised the need for continued support and professional development opportunities to facilitate ongoing development of competence across the trajectory from undergraduate student to advanced practice nurse.

In their paper, Delack et al. (2015) presented a summary of discussions from an Institute of Pediatric Nursing (IPN) forum (held in 2013) on residency programmes for new graduate children's nurses. The authors highlighted that the need for, and value of, new graduate residency programmes has been demonstrated, however the challenge has been in establishing standards for consistency across programmes and the ability to evaluate outcomes to ensure

safe, high-quality nursing care. The IPN forum put forward recommendations for the essential components of children's nurse residency programmes; for content (i.e., clinical competence, communication, coordinating care, data management, family-centred care, leadership, life-long learning, professionalism, work-life balance), preceptor needs (i.e., burnout prevention, education, evaluation, recognition, selection), and outcomes (i.e., assessing individual and organisational outcomes, determine cost, evaluate use of technology, identify opportunities for collaboration and education). With changing demographics and the shift towards community care, the IPN forum also highlighted the critical need to develop and evaluate children's nursing graduate nurse residency programmes for non-hospital settings, however acknowledged the inherent challenges in doing so (i.e., structure, funding, quality). The IPN forum indicated the need for further attention to be given to children's nurses working in isolated settings (e.g., schools, home care, private practice) who may have limited opportunities to benefit from expert practitioners or where limited staff exist to act as preceptors; and to consider creative ways of bringing community-based nurses together (e.g., use of online technologies and/or hybrid approaches; developing regional partnerships).

A study by Fowler et al. (2015) from Australia examined child and family health (CFH) nurses'[3] readiness for clinical practice after completion of a postgraduate child and family health nursing qualification and engagement with continuing education (i.e., maintenance of competence and specialist knowledge). Findings revealed the value of retaining experience gained through clinical placement with the opportunity to have 'real life' exposure to the complexity of families, the difficulties parents experience and the strategies parents find most helpful; the significant contribution of expert CFH nurses mentoring new graduates; the crucial importance of recognising and supporting ongoing learning over time and continued professional development and self-education beyond the CFH nursing qualification (i.e., recognising that the CFH nurse qualification provided a foundation for continued learning); and the removal of barriers (e.g., financial and distance) to accessing education opportunities.

[3] Child and family health (CFH) nurses are defined by Fowler et al. (2015, p. e67) as "registered nurses with additional qualifications in CFH nursing"; in some Australian states they are referred to as Maternal and Child Health nurses and international equivalents are: health visitors (UK), child health nurses (Sweden) and public health nurses (Canada). Fowler et al. highlights that CFH qualifications range from post-registration hospital-based certificates to Masters degrees with marked variation between CFH nursing qualifications with no national requirements or provision for specialist nursing registration in Australia.

The introduction of novice nurses to specialty areas, such as the paediatric intensive care unit (PICU), can raise concerns around competency. The aim of Long et al.'s (2013) practice analysis survey with nurse educators was to determine the knowledge, skills and attributes of competent level PICU nurses, to specifically explore the patients most commonly cared for; frequency and criticality of activities performed; and level of independence against critical care nursing competency standards. Findings revealed that respiratory and cardiac conditions account for over 50% of patients cared for by competent level nurses in PICU. The competency domains of teamwork and professional practice were performed with minimal supervision, clinical problem solving required further supervision and assistance, and reflective practice and leadership required the most support. The authors raised a question concerning skill acquisition for entry (competent) level PICU nurses on whether "curriculum matches practice" (Long et al., 2013; p. 394). Increased patient acuity and improved technological advances have an impact on workforce competencies and educational preparation. This study identified that a practice analysis of an area is important in determining the educational needs, expectations and content of a programme for graduate nurses in PICU. Investing in this aspect is not only an important part of the process of developing graduate programmes but should also be considered as investing in long-term lifelong learning for graduate nurses. Similarly, confronted with the need to recruit enough nurses for a rapid expansion of radiology services, Cefaratti et al. (2013) reported on the process and outcomes of structuring a 12-week comprehensive new graduate orientation programme specifically designed for radiology nurses at the Children's National in Washington DC. The three phases of the programme (team building, skill sets, and professional development) resulted in positive outcomes, including: 100% retention of the new graduate nurses at the end of their first year; development of four new radiology nurses entering a unique workforce setting; and the graduates engagement in professional practice. The programme also engaged experienced clinical nurses in supporting and mentoring novice nurses.

Finally, Cassidy's (2012) paper discussed competency based education for pre-registration learning disability nurse education drawing on the UK Nursing and Midwifery Council 2010 standards. The article described the aim to ensure that students develop essential generic nursing competencies as well as field specific specialist competencies (e.g., such as those required for caring for people, including children, with a learning disability). The authors recommended that the development of competencies for specialist areas be given equal weighting to that of the generic nurse education approach. This would have two effects, firstly

newly registered nurses in all branches would be able to meet the immediate needs of children (physical, cognitive and mental health), and secondly it might improve the uptake of specialist areas such as children's nursing programmes in the future. Additionally, if the emphasis on specialist competencies is increased across all branches this would ensure that children's nurses would be able to provide care for those with intellectual disability and mental health conditions.

**Grey literature**

The grey literature identified was limited and mainly from oral presentations, guidance/standard documents, position statements and workbooks in the UK (n=2), Ireland (n=2), USA (n=1), Australia (n=1), and from European (n=1) and International (n=1) organisations. These are presented in Table 2 grey literature, Appendix 3. Data from these eight documents supported the academic literature with limited additions in relation to foundational competencies related to, for example, professional values, patient-centred care, child and family health and wellbeing, children and young person rights, evidence-based practice, teamwork, communication and interpersonal skills, technology, leadership and interdisciplinary and interagency collaboration. The need to support continuous professional development and life-long learning with career progression opportunities was further highlighted. In their position statement, the Paediatric Nursing Associations of Europe (2012) highlighted that variations across Europe in educational preparation of nurses who care for children and young people are a barrier to mutual recognition and geographical nurse mobility and indicate variability in the quality of care provided to child citizens. They indicated that children's nurse education programmes need to be in place that can be recognised by individual member states to facilitate the registered children's nurse to work across Europe.

The ***key messages*** identified for objective two are outlined in Box 2 below.

**Box 2: Key Messages - Entry-Level Competencies**

- The importance of life-long learning and the need for continued support and competency development opportunities is emphasised to advance the knowledge and expertise of entry-level nurses along the novice to competent to expert continuum and across the trajectory from undergraduate nursing to advanced practice.
- Core competencies proposed for undergraduate children's nursing programmes, included knowledge, skills, attitudes, and behaviours to assure the graduate has the foundational skills for entry into this area of nursing (e.g. role of children's nurse, child and family centred care, growth and development, childhood illness, health promotion and disease prevention) and for continued learning.
- To advance the graduate children's nurse, the development of core competency domains (e.g. quality and safety, collaboration and teamwork, leadership, technology and health informatics, research and evidence-based practice etc.) with measurable behaviours to assist new graduates, preceptors and education leaders to integrate the children's nurse graduate into professional practice is recommended.
- Evidence supports the need for, and value of, tailor made graduate strategies and clinical residency training programmes to support the unique and specialised needs of entry-level graduate children's nurses to achieve competence as the new graduate's transition into practice during initial months/year working as a registered children's nurse; including for specialised child health care settings experiencing staff shortages and/or service expansion.
- Nurse leaders need to promote positive supports (i.e., effective communication, adequate resources, supportive work environment and organisational incentives) and tackle barriers (e.g. poor feedback and challenges with preceptors, strained relations with staff, stress management and lack of self-care) to support new graduate learning and role transition.
- There is a need to establish standards (e.g. content, preceptor needs, outcomes) for consistency across child health and children's nurse residency programmes and the ability to evaluate outcomes to ensure safe, high-quality nursing care.
- A practice analysis of an area (e.g. PICU) is an important part of developing graduate programmes to determine education needs, expectations and content of programmes; and to take account of clinical advances (e.g., increasing patient acuity and improved technological advances) impacting on workforce.
- The critical role and significant contribution of expert nurses in mentoring new graduates in caring for children and families across all settings was emphasised.
- With changing demographics and the movement towards community care, there is a critical need to develop and evaluate children's graduate nurse residency programmes for non-hospital settings and for nurses working with children in isolated settings (e.g. schools, home care, private practice).
- Creative ways of bringing community-based children's nurses, and nurses who care for children, together (e.g. online technologies, hybrid approaches; developing regional partnerships etc.) needs to be considered.

## Developing expertise and continuing competence for nurses caring for children (obj. 3)

Objective three of this scoping review explored the evidence for expertise and continuing competence for nurses caring for children. A total of 25 documents were retrieved from electronic databases for this objective with the analysis of data revealing that the overall continued professional development (CPD) literature could be divided into seven categories:

- CPD for children's nurses in a generic context (n=3)
- Competencies advanced nurse practitioners (n=6)
- CPD for specific topics and/or speciality areas (n=9)
- CPD for rare therapies and/or nurses located in rural/remote settings (n=3)
- CPD for transitioning to work in child/family community health service (n=1)
- CPD for nurses working in adult settings encountering child patients (n=1)
- Use of simulation in CPD education and training (n=2).

These are outlined below, with data extraction displayed in Table 3 academic literature, Appendix 3.

### *CPD for children's nurses in a generic context*

Three documents (one each from Iran, the UK and the USA) focused on CPD for children's nurses in a generic context (Alavi et al., 2015; Cornock, 2011; Taylor, 2015). Cornock (2011) briefly described clinical competency in children's nursing, giving a legal commentary arguing that nurses should be aware of their limitations and abilities and not take on a task or role for which they do not feel competent. A well-known quote was cited from Christine Hancock back in 1997, who was the general secretary of the UK Royal College of Nursing, who stated that "nurses are continuously pushing at the boundaries of care. We are creating new and expanding roles, based on our skills and experience. As a result, we are raising standards of patient care" (p. 19). Yet, how far, argued Cornock (2011), can nurses take on tasks and roles for the benefit of their patients and maintain the competence to undertake them? The author concluded that it is part of professional accountability to know one's limitations and to accept or refuse tasks and roles based on whether one feels competent to accomplish them. The author also highlighted the requisite for registered nurses to maintain competence and keep their knowledge and skills up to date throughout their working life. The authors relayed that in the UK there was a requirement for nurses to have completed 450 hours of registered practice and 35 hours of continuing professional development, in the preceding three years, to maintain their registration. One study, a PhD thesis entitled "paediatric nurses' perceptions of continuing

professional development opportunities", used a qualitative case study approach with a sample of children's nurses employed at a tertiary freestanding children's hospital in the USA (Taylor, 2015). The nurses provided a detailed composite of CPD within the hospital that they illustrated through seven themes: participation, motivation, barriers, adequacy/quality, knowledge incorporated into practice, improving nursing practice and patient outcomes, and a wish list. The key findings are summarised below:

- *Participation*: nurse participants highlighted a plethora of available CPD opportunities including life support training classes, formal academic programs, hospital-wide and unit-based classes, teaching opportunities, and research.
- *Motivation*: motivators to participate in CPD included: money, time, support, intrinsic/extrinsic value, teaching methodology, ease of learning, and research.
- *Barriers*: barriers to participating in CPD were: money, no management or leadership classes, time/workload, and lack of resources and support.
- *Adequacy/quality*: mostly, nurses found the CPD courses/programs offered to be adequate and helpful but disclosed that some courses required improvement and some were missing and lacking altogether.
- *Knowledge incorporated into practice:* a supportive culture helped nurses to incorporate new knowledge into their nursing environment. There were also instances of resistance from others and a lack of desired information required to use in practice.
- *Improving nursing practice and patient outcomes*: many nurses felt CPD knowledge improved nursing practice and patient outcomes and narrated several examples of positive results. Other nurses disagreed and sometimes felt that practice was not supported with evidence based best practices.
- *Wish list*: bring in dynamic speakers, offer more simulation, make the courses more interactive and fun, offer more research classes, more use of technology (i.e., online courses, webinars, and a video library), and the need for coordination of events (e.g., central clearinghouse to avoid bombardment of education initiatives).

Although the nurses in Taylor's (2015) study found the CPD programmes adequate, they did recommend areas for improvement including a specific gap in leadership and management development. Consequently, a project aimed at providing nurse managers with professional development in leadership was created to improve CPD.

Another study investigated caring self-efficacy attributes among children's nurses; with self-efficacy seen as important for translating competencies into action and for understanding how people perceive their abilities (Alavi et al. 2015). Interview data revealed four main themes:

- *professional communications:* ability to establish *effective therapeutic relationships* with children and parents was viewed as the basis of self-efficacy in children's nursing; and that a self-efficient nurse has the ability to *interact with inter-professional teams*
- *management of care process*: ability to provide process-based care (i.e., within a nursing process framework) for children was an important attribute in self-efficient paediatric nursing, along with *responsibility* and commitment to patient and task
- *altruism*: when nurses care for children and families, they must show compassion and provide *empathetic* and *family-oriented care*
- *proficiency*: in *clinical skills*, *creativity in care* and *know-how* (i.e., using knowledge appropriately in clinical settings).

The authors concluded that nurse managers and instructors could use these results to help develop nurses' empowerment and self-efficacy, especially in child health care.

### *Competencies for advanced nurse practitioners*

Competencies for advanced nurse practitioners (ANPs)[4] were addressed in six papers – five from the USA and one from Canada (Aruda et al., 2016; Creamer and Austin, 2016; Hawkins-Walsh et al., 2011; Hendricks-Ferguson 2014; Howard and Barnes, 2012; Simone et al., 2016). These are summarised below.

Howard and Barnes (2012) argued that competency modelling can be used to govern the increased autonomy of advanced practitioners in nursing[5], and to assist in workforce

[4] According to the National Association of Pediatric Nurse Practitioners (https://www.napnap.org/students/), paediatric-focused advanced practice registered nurse (APRN) is a broad term that includes paediatric nurse practitioners (PNPs), family nurse practitioners (FNPs), clinical nurse specialists (CNSs) and other APRNs who care for children. The association goes onto say that "regardless of specific titles, all are advanced practice registered nurses and health care providers dedicated to improving children's health in primary, acute and specialty care settings."

[5] Howard and Barnes state that the Nursing and Midwifery Council (2006) define advanced nursing practitioners as "highly skilled nurses who can: take a comprehensive patient history; carry out physical examinations; use their expert knowledge and clinical judgement to identify the potential diagnosis; refer patients for investigations where appropriate; make a final diagnosis; decide on and carry out treatment, including the prescribing of medicines, or refer patients to an appropriate specialist; use their extensive practice experience to plan and provide skilled and competent care to meet patients' health and social care needs, involving other members of the health care team as appropriate; ensure the provision of continuity of care including follow-up visits; assess and evaluate, with patients, the effectiveness of the treatment and care provided and make changes as needed; work independently, although often as part of a health care team; provide leadership; and make sure that each patient's treatment and care is based on best practice." (p. 318/319).

development in the UK. However, they acknowledged that "competency modelling for ANPs in the UK is in its infancy, but the lack of a safe and competent workforce is a barrier to innovation for commissioners of services" (p. 317). In comparing three approaches to competency modelling for advanced nurse practitioners from the UK and the USA, the authors proposed an adaption of Benner's novice to expert model, suggesting it provides a richer description than the basic competencies mapped to the NHS Knowledge and Skills Framework. While not specific to children, the authors acknowledged that further local adaptation for certain populations (e.g. children) or for specific settings (e.g. intensive care) would be possible to take account of diversity of roles, settings and client groups in which advanced practitioners work. The authors demonstrated how the adapted novice to expert ANP model had been integrated into an online tool to conduct a training needs analysis of potential ANPs, and the competence of ANPs in post. This would enable identification of competency areas that require further training and development and guide potential ANPs towards suitable education, as well as, form the basis for a competency-based appraisal process to ensure ongoing competence of in-service ANPs. While, the area of ANP's caring for children in any health care setting is not specifically addressed in the paper, the authors raised the point that, there should be a commensurate increase in regulation to manage risk and from the advanced practitioner perspective, greater professional clarity should lead to greater acceptance allowing more rapid development of the role in innovative services. This point can equally be applied to the child population and the clinical nursing staff who care for them.

Hawkins-Walsh et al. (2011) conducted a national examination of the educational programming needs of dual (combined) track paediatric nurse practitioner (PNP) programmes (i.e. primary care and acute care) that prepare graduates to provide care to children and adolescents across the health and illness continuum in the USA. They used a two-phase, exploratory, mixed method design. The survey included an examination of educational competencies of PNPs. The study found that the vast majority of clinical competencies were common to both the primary care and acute care PNP programmes. Just three competencies were unique to the acute care programmes: management of unstable chronic conditions, complex acute illnesses, and critical illness. There was significant overlap in the preparation of acute and primary care PNPs with support amongst participants for dual (combined) PNP programmes. The authors concluded that there is a growing role for PNPs in caring for children with chronic illnesses and special needs and education programmes for PNPs would benefit

from an expanded emphasis on chronic illness. They also found that participants reported previous clinical learning experience as the greatest preparation for taking on their new role which indicates that an agreed period of time should be spent within the child health care setting prior to entry into a PNP educational programme.

Simone et al.'s (2016) paper described the integration of entry-level nurse practitioners into adult and child general and specialty intensive care units highlighting the need for comprehensive training and a commitment to continued professional development beyond the orientation period. The authors described a standardised general and specific competency-based orientation programme and a postgraduate fellowship programme to train a small cohort of postgraduate (adult) critical care nurse practitioners. For the competency-based orientation programme, all newly hired nurse practitioners attended a 2-day hospital orientation and a 1-day advanced practice providers' orientation (i.e. regulatory requirements, computer training, access to systems, and business and office supplies etc.). Each nurse practitioner was provided with an orientation manual including: general orientation; job description; competency assessment tool; learning methods and evaluation tools; and unit-specific learning resources and tools. The specialty competency-based assessment tool included: knowledge, systems, procedural skills, communication, professionalism, and performance improvement competencies. The postgraduate fellowship programme provided standardised didactic sessions, high-fidelity simulation, procedural education and weekly educational and networking opportunities. Nurse practitioner fellows were supervised by a nurse practitioner or physician preceptor and were not credentialed to practice independently until they had successfully completed the programme. Survey results, post the orientation programme, indicated a steady increase in novice nurse practitioners' perception of readiness to practice. Similarly, the fellowship programme survey results indicated that all nurse practitioner fellows rated themselves as fully competent to practice and valued the simulation and skills laboratory aspect of the fellowship programme for growth and learning.

In their paper Hendricks-Ferguson et al. (2014) described how the American Association of Colleges of Nursing's (AACN) eight core elements and competencies could be used by Doctorate in Nursing Practice (DNP; a clinical practice–focused doctorate)-advanced practice nurses (APN) in children's oncology settings. They outlined the DNP-APNs' leadership role in advocating for translation of evidence and promotion of interdisciplinary collaboration to

improve health care outcomes for child oncology patients. They acknowledged that the role of the DNP prepared advanced practice nurse was still not widely used in children's clinical settings but they offered a concise depiction of the AACN's core elements and competencies as applied to the DNP-APN in paediatric oncology, including: advocate translation of evidence-based research into practice; participate in and promote interdisciplinary communication; participate in and promote collaborative interdisciplinary research; promote use of information technology to foster quality patient care; and advocate for improved patient care and related healthcare policy development. The authors suggested that the Newman Systems Model (a multidimensional and comprehensive approach to assessing a client system interacting with stressors in their environment) could be used as a framework for implementing the key DNP elements and competencies in paediatric haematology/oncology practice. The authors concluded by stating that health care system business plans in children's oncology should include DNP-prepared APNs, and indicated that such business plans should pay reference to the DNP-nurse candidate's advanced technology skills and knowledge of how to critically appraise published evidence-based research for translation into clinical practice; proposed time allotted for clinical practice and scholarship (or research) activities (e.g., 80% clinical practice role, 20% research role); the DNP-prepared nurse's role, responsibilities, and proposed salary; and the significance of recruiting an APN with a DNP degree in a collaborative practice. They also stated that the DNP-prepared APN should propose future research to collect data on the reduced cost-yet-improved care for children dying of cancer. This was considered an area likely to see further evolution if and when more nurses undertake a Doctorate in Nursing Practice.

Aruda et al. (2016) informed us about findings from the national paediatric nurse practitioner (PNP) job analysis surveys which identified the changes in knowledge and skills required for advanced practice. For this paper a comparison of three surveys conducted by the American Nurses Credentialing Center in 2003, 2008, and 2011 was reported. The results revealed a shift from "assessment" to "performance" activities with changes in the role or work activities of paediatric primary care nurse practitioners (PPCNP)[6] identified as; prescription of medication (top work activity), reporting of suspected child abuse, and immunization. The authors contended that the identification of the changes in role or work activities of children's nurses is linked to the knowledge and skills required to perform those activities and needs to be

[6] Aruda et al. highlight that paediatric nurse practitioners (PNPs) have integrated as key primary care providers for the paediatric population in the USA with a recent name change to 'pediatric primary care nurse practitioners (PPCNPs)' to distinguish the role from paediatric acute care nurse practitioners.

incorporated within nursing curriculums. Specifically, the importance of the three "P" foundational courses (i.e., patho, pharm, and physical assessment) was supported. The authors highlighted that nurse educators need to find ways to attract undergraduate students and practicing RNs to become PPCNPs to fill the healthcare gap for children and families (e.g., training dedicated PPCNP to teach in undergraduate and graduate programs, introducing online and/or accelerated programmes, using simulation to address shortage of clinical placement sites). Aruda et al. (2016) concluded by stating that more research was needed to determine the effective means to meet the demand for NPs with focused paediatric training.

Creamer and Austin (2016) addressed the Canadian Council of Registered Nurse Regulators which identified core competencies in three nursing practice fields (adult, family/all ages, and paediatrics) for entry-to-practice nurse practitioners (NPs) across Canada. It was envisaged that these core national competencies could allow for a national approach to NP education, rather than via provincial and multiple different examinations and licensure requirements. The authors highlighted the significant numbers of Canadians with mental health conditions and argued that NPs themselves had been advocating for more mental health/illness education and competencies within the NP curriculum along with role support and therapeutic commitment to promoting therapeutic capacity.

***CPD for specific topics and/or speciality areas***

A total of nine papers (six from the USA, two from Sweden, one from the Netherlands) focused on CPD for specific topics and/or speciality areas (Berlin et al., 2010; Brynes et al., 2017; Eche and Aronowitz, 2017; Martinez, 2011; Parant et al., 2014; Petersen et al., 2017; Price et al., 2017; Suurmond et al., 2017; Tavallali et al., 2013). These were categorised into four areas each of which is outlined in turn below:

- cultural competence
- palliative care and end-of-life
- mental health
- behavioural problems.

*Cultural competence*

Four papers focused on cultural competence in child health care settings (Berlin et al. 2010; Eche and Aronowitz, 2017; Suurmond et al., 2017; Tavallali et al., 2013). In Sweden, Berlin et

al. (2010) identified an urgent and specific need to improve cultural competence among nurses working in primary child health services with immigrant parents and children. Cultural competence training was designed as a randomized controlled trial with a three-day educational programme delivered via lectures and group discussion. Evaluation of the training after 4-weeks follow-up did not show statistically significant results in overall cultural competence. The authors suggested that this might have been due to the short duration of the post-training follow-up. Several other statistically significant improvements were revealed: cultural knowledge, cultural skills, cultural encounters, and difficulties and concerns. The authors concluded that formal and continuing training in cultural competence should be provided to all nurses working in the health services as well as carrying out supervision on a regular basis in order to maintain the positive effects of training. These findings are supported by Eche and Aronowitz's (2017) cross-sectional descriptive study which evaluated self-rated cultural competence (i.e., cultural desire, knowledge, skill, encounters, and awareness) of children's nurses' on a haematology/oncology unit at a large urban children's hospital in the USA. Findings revealed that cultural desire had the highest mean score indicating nurses were motivated to becoming culturally competent. Cultural knowledge, followed by cultural skill, had the lowest mean scores indicating nurses perceived that they were not well informed in these areas. In relation to overall cultural competent scores only one nurse self-reported at the "culturally competence" level; the remainder of the nurses scored at the "culturally aware" level. No nurses scored in the "culturally proficient" or "culturally incompetent" levels. The authors concluded by highlighting the need for targeted interventions to improve cultural competence. In the Netherlands, Suurmond et al. (2017) examined culturally competent children's oncology care (i.e. working with Turkish and Moroccan immigrant families) from the perspective of care providers (i.e., nurses and paediatric oncologists) on two different children's oncology wards. The care providers described contact with Turkish and Moroccan parents as more difficult for the following reasons: language barriers between care providers and parents which hindered information exchange; and cultural barriers between care providers and parents about sharing the diagnosis with the child and palliative perspective hindered communication. In relation to cultural competence training or CPD for care providers in children's cancer care, the authors recommended that the results of their study could be translated into concrete objectives for cultural competencies, which reflect obstacles that care providers are both aware and unaware of. An important part of training suggested by the authors was creating awareness of care providers' "unconscious incompetence" (i.e., do not understand

or know how to do something and do not recognise the deficit). In their study, Tavallali et al. (2013) explored how parents with ethnic Swedish backgrounds experienced minority ethnic nurses' cultural competence in Swedish child health care. The findings revealed that nurse ethnicity did not have much impact on parents' satisfaction related to their child's care, rather parents attached great importance to nurses' language skills, nurses' adaptation to and awareness of the Swedish culture and to nurses' professional knowledge and personal attributes. The importance of education and training about Swedish norms and values was highlighted by parents.

*Palliative care and end-of-life*

Three papers focused on palliative care or end-of-life with reference to child health care contexts (Martinez, 2011; Petersen et al., 2017; Price et al., 2017). In a descriptive paper Martinez (2011) described the journey to defining a new nursing speciality through the development of hospice and palliative nursing certification in the USA, including palliative paediatric care (i.e., Certified Hospice and Palliative Pediatric Nurse 2011). The author stated that certification "provides one mechanism for demonstrating continuing competence in a nursing specialty, as it provides a benchmark of knowledge on a national level and requires re-demonstration of competency via a validated process reflective of current practice" (Martinez, 2011; p. S31); and noted that there was growing evidence that speciality certification was associated with clinical competence and improved patient outcomes. The author also noted that the top values of speciality certification identified by nurses were: enhanced feeling of personal accomplishment and enhanced professional challenge; enhanced professional credibility; and demonstrated evidence of professional commitment. Notwithstanding this, barriers to certification existed, nominally: cost of examination, lack of institutional reward and support, and lack of access to preparation courses or materials. While recognising that numerous studies have examined perceived competence of nurses working in palliative and end of life (EOL) care in various acute and critical care settings, Price et al. (2017) highlighted that this area remains a high priority for health care settings. The purpose of Price et al.'s study was to assess nurses' perceived competency regarding the provision of palliative and EOL care to hospitalised patients (i.e., 25 child and adult acute and intensive care units in the USA). The authors found that self-perceived competencies in palliative and EOL care were significantly higher in ICU nurses which is perhaps unsurprising as nurses in this setting have more clinical experience of EOL care and thus a potential higher experiential knowledge base. Price et al.

(2017) also found that educational needs may be different according to patient population and the acuity setting as well as demographic variables of staff (e.g., greater perceived competency with more years of experience). Nurses in this study identified the need for more education in communication, decision-making, symptom management, family and patient support, and staff support. The authors provided strategies to address palliative care learning needs such as baseline needs assessment, interdisciplinary EOL workshop for communication skill development, train-the-trainer programme for unit-based champions, interdisciplinary comfort rounds and reassessment; and concluded by stating that "all nursing units should have resources available to promote basic competencies in providing quality palliative and EOL care and opportunities to receive staff support as needed" (Price et al., 2017; p. 335). Another study, evaluated a three-hour online self-study programme focused on the spiritual care of a child with cancer at the end of life, with asynchronous interaction in an online discussion forum (Petersen et al., 2017). The programme evaluation highlighted the potential impact of an online educational programme on children's oncology nurses' perceived attitudes towards and knowledge of spirituality and spiritual care and their level of spiritual care competence. Data were collected at baseline, post completion of the programme and at 3-month follow-up. A statistically significant difference in level of spiritual care competence over time was reported. Further research was recommended to evaluate any direct effects of the educational intervention on patient outcomes.

*Mental health*

One paper focused on competency specific to mental health nursing of children (Parant et al., 2014). Parant et al. (2014) presented an educational programme which was developed to promote competency in child mental health nursing in the USA. As in many countries, the USA has huge demand for inpatient mental health services. The programme was devised to prepare nurses who would staff a new dedicated inpatient child medical-psychiatric unit within an urban children's hospital, focusing on the knowledge, skills, and attitudes (KSAs) necessary to care for child inpatients in this setting. The developers of the educational programme wished to create a paradigm shift in the children's nurses from the medical model (i.e., medical-surgical-based nursing care) to one which was based on child psychiatric principles involving therapeutic use of self. The programme was largely delivered online with eight computer-based learning modules plus a 'conference day' to be completed by the nurses. The programme was well evaluated (pre- and post-survey of self-assessed knowledge) and the authors concluded

that competencies based on KSA's are more appropriate for this health care field. They also identified a need for future educational programmes on topics such as paediatric psychopharmacology.

*Behavioural problems*

One paper reported on a staff training initiative for nurses caring for children with special health care needs (CSHCN) who have behavioural problems in the child emergency department (ED) setting (Brynes et al., 2017). An educational module covering definition and identification of CSHCN, verbal and nonverbal de-escalation, least-restrictive measures to decrease child agitation and so forth was delivered. This CPD was delivered face-to-face in both group and individual sessions. The intervention was open to a range of disciplines, with 95% of emergency nurses participating. The intervention was evaluated using a pre- and post-survey of self-reported perceived care (i.e., competence, confidence, and satisfaction) with findings showing positive impacts. The authors concluded that a large-scale educational module is a practical option for improving ED staff competence in caring for children with behavioural special needs.

***CPD for rare therapies and/or nurses located in rural/remote settings***

One study (USA) examined CPD for nurses encountering rare therapies (Windt, 2016) and two studies (Australia and USA) highlighted opportunities for maintaining competencies for children's nurses who live in rural and remote areas including online delivery of CPD education and simulation (Guest et al., 2013; Wodrich et al., 2013). Windt (2016) discussed the development of two online learning modules, to provide additional exposure to continuous renal replacement therapy (CRRT), as an adjunct to skills fairs and lectures to maintain nurses' competency in the highly specialist area of CRRT for child patients. The author highlighted that the complexity of CRRT and its rare occurrence in child health care made it difficult to maintain staff competency. Assigning the two online modules once per quarter, with the skills fair on a different quarter, assured that nurses were exposed to CRRT material every few months. The modules were also constantly available on the learning site. Windt (2016) found that the online modules were an efficient, effective, and inexpensive way to provide additional education and information and better addressed the need of training large numbers of staff with the basic skills of CRRT. The author concluded that the online learning modules were a valuable adjunct to the "superuser" (i.e., nurses willing to accept responsibility for providing

bedside support and extra education through hands-on experience with CRRT equipment to other staff) training and hands-on skill fairs for ICU nurses; thereby providing an additional structure to help address the needs of nurses caring for acute, complex, and rare therapy.

Following government health policies changes, in Australia in 2010, the focus of Child Family Health Nursing in Practice (CFHN)[7] shifted 'from an expert, problem-oriented model to a strengths-based approach where the nurse strives to work in partnership with families to promote family, child health and wellbeing and parenting capacity' (Guest et al., 2013; p. 394). This national change of focus needed to be reflected in nurses continuing education opportunities. Guest et al.'s (2013) aim was to provide guidance on CFHN professional standards which addressed the government health policy changes including supporting CFHN CPD using a partnership and consultancy approach, assessing competency in specific areas of clinical knowledge and skills, and building a culture of reflective practice. The new/updated CFHN professional development elements were aligned with overarching professional competency standards. This was articulated within a framework model, which incorporated a partnership approach for the provision of clinical support to staff. The CPD education was delivered online and the importance and strength of online CPD for children's nurses who live in rural and remote areas, have varying levels of access to clinical support, standardised education, guidelines and mentorship was indicated. Likewise, Wodrich et al. (2013) relayed the difficulties rural nurse educators encounter with creating appropriate learning environments to assess and maintain nursing competencies in resource-limited areas in the USA. Their paper described the pilot testing and evaluation of a simulation education programme using a manikin from a local community college to provide a hands-on learning environment for rural nurses working with child patients in respiratory distress. Scenarios and theoretical knowledge was also provided in the pilot study. Of the 15 questions asked on the pre- and post-simulation survey (self-reported competence and confidence), scores for nine items were the same before and after the simulation. However, there was a significant increase in self-reported nursing competence after training on the child simulator manikin. The simulation exercises helped nursing staff feel comfortable identifying and using equipment in an emergency situation. For continuing staff CPD, the authors, concluded that full-time access to a high-fidelity simulator

[7] Guest et al. highlight that Child and Family Health Nurses (CFHN) are registered nurses with specialty qualifications in child and family health nursing and have provide free, primary health care to families that have infants and young children aged 0-5 years in a variety of settings from community health centres, families' homes and residential family centres.

would be beneficial to rural nurse educators to enable just-in-time simulation exercises to meet urgent clinical needs.

***CPD for transitioning to work in child/family community health service***

Cusack et al. (2013) examined competency-based workplace transition programmes for nurses. The authors interviewed nurses and preceptors who transitioned to work in the child and family community health service in Australia. They argued that when designing professional development programmes, particularly in highly diversified health services such as child and family community health, an adaptable framework to make learning relevant is required. Five themes, that described enablers and barriers to applying a flexible transition programme using competency-based assessment were identified, including *flexibility* - in the program design, on the part of preceptors, to enable recognition of previous learning, in the assessment of competencies, and in workload. While no operational definition of 'flexibility' was provided, the findings were summarised into three key points: firstly, is the understanding that there are enablers and barriers to preceptors' use of a flexible and interactive transition programme that applies competency based assessment in the workplace. Secondly, preceptors can significantly influence the degree of flexibility of a transition programme based on their interpretation and application of competency-based assessment. Finally, the preceptors must feel confident in their understanding and interpretation of the flexibility built into a competency-based assessment process to provide a positive transition experience for newly employed nurses. The authors concluded that, while staff development personnel can design a flexible programme, unless preceptors fully understand how to apply flexible arrangements, and feel empowered to do so, the desired flexibility will not be realised. They recommended that training programmes for preceptors include learning activities to build confidence in adapting to meet the needs of new nurses; indicating that this might require a shift in culture from one of "that is how we have always done it" to one of continuing reflection on practice. They indicated the requisite to ensure that new staff are not treated as "students" but that prior experience is respected by adapting the competency-based assessment transition programme accordingly.

***CPD for nurses working in adult settings encountering child patients***

Macyk (2011) described how a children's hospital in New York introduced a paediatric development curriculum entitled 'Special T' to enhance knowledge, practice skills and

standardise child health care competencies of seasoned nurses working in predominant adult areas that also care for children (i.e., emergency departments, ambulatory centers, post-anaesthesia units). Using a hybrid curriculum delivery, the educators used online training prior to a daylong class. A prerequisite for adult nurses to take the programme was to undertake asynchronous online modules (accessible from home) focusing on very specific child topics (e.g., fluids and electrolytes, medication administration). A score of 80% or more on a post-test was required to meet the objectives and receive a certificate of completion (which students must bring to class). The daylong class was scenario based and simulation focused and performance was assessed in an interactive environment using storytelling, demonstration and debriefing sessions. Whilst no formal rigorous evaluation appears to have taken place, the authors relayed that the programme received positive feedback with learners feeling better prepared to address the unique needs of the children in their work environment.

***Use of simulation in CPD education and training***

Two papers (both from the USA) focused on the use of simulation in CPD education and training (Birkhoff and Donner, 2010; Clark and Yoder-Wise, 2015). With the increased acuity and complexity of patient care, Birkhoff and Donner (2010) emphasised the critical need for continual validation of clinical competency of registered nurses especially in low-volume, high-risk situations, such as cardiopulmonary arrests, in order to ensure child patient safety. In their paper, the authors discussed the enhancement of clinical judgement in caring for children, critical thinking and clinical competency with the incorporation of high-fidelity simulation into the traditional American Heart Association (AHA) Paediatric Advanced Life Support (PALS) course. The course offered the same content and learning objectives as the traditional AHA PALS course; with standard case scenarios enhanced by incorporating high-fidelity simulators. In a post-course survey, participants (mainly registered nurses, with some paramedics and physicians) commented that collaborating within a team with alternating roles for different scenarios facilitated learning. Participants liked the realism with changes in vital signs and the patient's condition based on different interventions, the team interaction, increased communication, hands-on approach, and instant feedback. The authors concluded that implementing a PALS high-fidelity simulation course might be one way to reinforce high-risk, low-volume skills that are needed to care for critically ill paediatric patients.

In their paper, Clark and Yoder-Wise (2015) discussed enhancing trifocal (i.e. patient, parent, team member) leadership practices using simulation (i.e., scenario of caring for a deteriorating infant) in a children's charge nurse orientation programme. The desired outcome of this transition programme for this entry-level nursing management role was to demonstrate improved competencies in communication skills, conflict resolution, and collaboration. Thematic analysis of qualitative reflective data reported enhanced understanding of managing complex patients, a code situation, and teams; guiding a team's novice nurse; leading as a charge nurse; and using clinical and critical thinking skills. The authors concluded that: a trifocal view helped new leaders gain relevant leadership experiences in simulation; simulation enriched learning by integrating and synthesising knowledge and skills into clinical management performances; and paediatric simulations designed to include the parent role created realistic situations.

**Grey literature**

Fourteen documents were identified for objective 3. These documents were mainly competency standards or frameworks, policy documents, position statements or guidance papers from the UK (n=9), Ireland (n=2), Australia (n=2), and an international organisation (n=1). Data extracted for these documents are presented in Table 3 grey literature, Appendix 3. Aligned with the academic literature the documents presented competencies for continued professional development for nurses who care for children and young people for various topics, contexts and specialities, including, safeguarding/child protection, children looked after away from home, palliative care, oncology, congenital heart disease, orthopaedic and trauma nursing, endocrine nurse specialists, child and family health nursing, and general practice nurses who might not have a children's nursing qualification. Summary of key points include:

- In Australia, child and family health nurse competencies include working in community settings in partnership with children and families to establish relationships and identify strengths and resilience to promote health and healthy communities for improved health outcomes.
- Family-focused nursing advanced practice include competency domains in establishing relationships with families for prevention and early intervention, and for maintaining and restoring health and wellbeing, requiring additional skills/knowledge related to child development, family functioning, mental health, health promotion etc.

- Competencies for working in inter- and multi-professional and multi-agency collaborative teams, nursing leadership in the care of children and families at systems level, and integration of research and evidence based approaches to care.
- Competencies (generic and specialist) for delivery of palliative care in all care settings (i.e., hospital, home, community, hospice etc.).
- Competency frameworks can be used to help nurses develop their practice and provide evidence of how they are maintaining competence, assist managers to assess workforce competence and provide a map for role development and succession planning. They can help with identifying gaps in knowledge and skills to assist with planning of ongoing CPD training and support career progression in specialist fields.

The ***key messages*** identified for objective three are outlined in Box 3 below.

**Box 3: Key Messages – Continuing Competence**

- The promotion of a supportive culture for life-long learning was emphasised with the requisite for children's nurses to maintain registration through evidence of sustained practice, competence and continuous professional development (CPD) throughout their working life.
- Trends in the literature focused on CPD relating to the following topics - cultural competence, palliative care and end-of-life, child mental health, and child behavioural problems:

i. Formal and continuing training in cultural competence should be provided to all nurses working in the health services as well as carrying out supervision on a regular basis in order to maintain the positive effects of training.

ii. All nursing units should have resources available to promote basic competencies in providing quality palliative and end-of-life (EOF) care and opportunities to receive staff support as needed. Palliative care and EOF educational needs may differ according to patient population, acuity of setting (e.g. ICU) and staff demographic variables (e.g. years of experience). Some proposed strategies to address palliative and EOF care learning needs were baseline needs assessment, interdisciplinary workshops for communication skills development, train-the-trainer programme for unit-based champions, interdisciplinary comfort rounds and reassessment.

iii. Promoting competency in child mental health nursing was indicated with a focus on knowledge, skills, and attitudes required to care for children in inpatient child medical-psychiatric units within children's hospitals; including child psychiatric principles involving the therapeutic use of self and paediatric psychopharmacology.

iv. Interdisciplinary staff training for nurses caring for children with special health care needs who have behavioural problems, particularly in emergency department settings, was noted.

- Gaps in CPD were identified for leadership and management development.

**Box 3: Key Messages – Continuing Competence**

- The need for CPD to enhance knowledge, skills and standardise competencies for nurses working in adult settings (e.g. emergency departments) who encounter child patients was indicated.
- Competency-based workplace transition programmes with in-built flexibility for nurses to work in child and family community health services was recommended; with a particular emphasis on training programmes for preceptors to build confidence in adapting to the integration of new nurses (i.e., recognition of previous experience).
- Use of simulation (i.e., realism, hands-on, instant feedback) and technology (i.e., online courses, webinars, video library) was recommended particularly for nurses encountering rare therapies and for nurses located in rural/remote settings with varied access to clinical support, education, guidelines and mentorship.
- The value of interdisciplinary simulated training scenarios to improve team working, communication, conflict resolution, and collaboration was highlighted.
- The need for coordination of CPD training events (e.g. central clearinghouse) to avoid a barrage of education initiatives was recommended.
- A volume of literature focused on children's advanced nursing practice with a number of key messages to consider:

i. Having core national competencies for entry-level nurse practitioners, including children's, would allow for a national approach to paediatric nurse practitioner (PNP) education; these competencies would identify changes in knowledge and skills required for advanced practice with a shift from assessment to performance.

ii. A growing role for PNPs in caring for children with chronic illnesses and special needs and education programmes for PNPs with an expanded emphasis on chronic illness was identified. Also, greater emphasis on mental health/illness education and competencies for nurse practitioners, along with role support and therapeutic commitment to promoting therapeutic capacity, was highlighted.

iii. Specific comprehensive training/fellowship programmes for integration of entry-level nurse practitioners into children's general and specialty intensive care units with a commitment to continued professional development beyond the orientation period.

iv. Future consideration for development of clinical doctorate programmes for advanced nurse practitioners with specific leadership role in advocating for translation of evidence, research and promotion of interdisciplinary collaboration to improve health care outcomes for children and families; proposed time allotted for both clinical practice and scholarship/research activities (e.g. 80% practice, 20% research).

v. Conduct training needs analysis of potential advanced nurse practitioners (ANPs), and of ANPs in post, to enable identification of competency areas requiring further training and development and guide potential ANPs towards suitable education, as well as, form the basis for a competency-based appraisal process to ensure ongoing competence of in-service ANPs.

vi. Need to find ways to attract undergraduate students and practicing registered nurses to become child health primary care nurse practitioners to fill the healthcare gap for children and families; with more research required to determine the effective means to meet the demands for nurse practitioners with child and family-focused health and wellbeing training.

## Changing international trends in nursing practice for children aligned with changing trends in children's health services (obj. 4)

For objective 4 of this scoping review concerning changing international trends in nursing practices and services for children, a total of 63 studies or non-empirical papers (i.e. service or practice case reports, policy analysis, discussions/commentaries) retrieved from academic databases were included. The overwhelming majority of studies and non-empirical papers related to nursing children within some community setting. The analysis of data yielded 8 categories of trends overall (see Table 4, Appendix 3).

- Close to home care for children with acute and chronic conditions (n=16)
- Child and maternal/family health care in the community (n=18)
- Enhancing the role of nursing in child protection (n=3)
- Nursing in primary care settings (n=5)
- Palliative care nursing (n=5)
- School child health based nursing (n=6)
- Hospital based nurse-led/co-ordinated services (n=7)
- Nursing within the context of telehealth care (n=3)

These categories reflect the primary focus of studies/non-empirical papers included in each category. The country of origin across all categories was predominately the USA followed by the UK and Australia. Only two papers from Ireland for this objective were identified and are reported within the category of primary care (Mulcahy et al., 2012) and palliative care (O' Brien and Duffy, 2010).

### *Closer to home care for children with acute and chronic conditions*

The healthcare context on closer to home care has evolved as a major driver for government policy development and services for children reported mostly for the USA and the UK. This policy is largely concerned with the need for alternative models of care to keep children out of hospital involving a shift to community services for the growing number of children with chronic and medically complex needs (e.g. Caiedo, 2016; Carter et al., 2016; Mendes et al., 2013; Nageswaran and Golden, 2017; Samuelson et al., 2015) as well as children during acute episodes of illness (e.g. Callery et al., 2013, 2014; Kyle et al., 2012; Ng et al., 2014). The shift was described as involving a major reconfiguration of health services to reduce inpatient

(Callery et al., 2014) and emergency and unscheduled care (Ng et al., 2012) so that a single point of access to healthcare for children could be created in the community (Alcock and Smith, 2014). There was some evidence of impact on reductions in the number of emergency department, and outpatient visits following the introduction of community children's nursing teams in a UK primary care trust (Callery et al., 2014). Telephone calls supporting home care of children increased by 50%. This service also found that the overall cost to the National Health Service reduced by 55% (Callery et al., 2014). Similar findings were reported in terms of reduced emergency department, unscheduled and re-admissions following introduction of children's community nursing outreach service as a model of acute care in the UK (Ng et al., 2014). A nurse-led sleep service scheduled over 8 weeks of home visiting for children with disabilities was also found to have positive results on community waiting lists and clinic appointments (Ryan et al., 2014).

Closer to home care predominately concerned community based nursing of children with home visiting integral to this service. A shift from hospital based to home based care was noted to result in a growth of children's community nursing teams in the UK (Callery et al., 2013, 2014; Carter et al., 2016; Dean, 2016; Kyle et al., 2012; Ng et al., 2104; Parker et al., 2011; Spiers et al., 2016). Episodic or long-term holistic nursing were integral to closer to home care depending on children's acute or chronic healthcare needs. Regarding acute care, specific nursing practice involved intravenous medication administration such as antibiotic therapy and monitoring health status such as vital signs (Dean, 2016; Duffin, 2015; Ng et al., 2011). Referral pathways for acutely ill children to and from community nursing teams were evident. Community nursing teams accepted referrals from emergency and inpatient units at the point of children's discharge to home care (Ng et al., 2011), from GPs (Duffin, 2010) and other acute care and nurse practitioner teams (Spiers et al., 2016) as well as self-referral from parents (Spiers et al., 2016). A case study analysis of two children's community nursing teams in one UK primary care trust identified a referral caseload of 3,390 over a 12-month period which equated with 103.4:1000 child population in the trust catchment area. Community nursing teams were also reported to initiate referrals for acutely ill children to GPs (Kyle et al., 2012) and other healthcare professionals and services based on clinical criteria and clear referral pathways, also applicable for children with chronic conditions (Ng et al., 2014). There was little evidence of 24/7 service offered. Rather, a time-limited service was reported spanning

from early morning to close to midnight (Ng et al., 2011). However, visits to children's homes could vary to several daily if needed (Dean, 2016; Parab et al., 2013).

Regarding children with chronic or medically complex conditions, continuity of care through home care visiting was evident (Caicedo, 2016; Carter et al., 2016; Parab et al., 2013; Samuelson et al., 2015). Scheduling home visits was viewed by community nurses in Sweden as a priority to ensure continuity of care for these children (Samuelson et al., 2015). Evidence from a Cochrane review provided an example of scheduling specialist home-based nursing involving a minimum package of one initial assessment followed by one monthly visits for six months following which the frequency of visits was reassessed. Home visiting packages of care were complemented with telephone calls to children's homes. Condition specific programmes of care e.g. diabetes management were also reported in the review (Parab et al., 2013). Condition specific supports for home visiting by community nursing teams included the introduction of advanced nurse practitioners in the UK who were involved in case management, assessment and prescribing (Spiers et al., 2016), and support from hospital settings in Sweden (Samuelson et al., 2015).

Co-ordination across a range of services was identified as a key role of nurses in providing close to home care of children. To be successful, however, the need for multi-sectoral and inter-professional collaborations with the integration of home care nursing into the health services was highlighted (Caicedo, 2016; Carter et al., 2016; Kyle et al., 2012). Carter et al. (2016) described a combination of community in-reach and hospital outreach services to support transition from hospital to home of children with complex needs. However, there was evidence that collaborations and support were lacking including a lack of ownership over community nursing teams, poor communication the hospital sector (Kyle et al., 2012), nurses feeling isolated and uncertain regarding their role (Carter et al., 2016) and inadequate resources for clinical care (Nageswaran and Golden, 2017). The lack of integration and collaboration in supporting community children's nursing teams in the UK was found to result in limited early discharge of children from hospital, duplication of workload, and inequities for families in accessing home care nursing services (Kyle et al., 2012). Gaps in services were also identified in a UK national survey which found fewer close to home services (5% or less) for hospice, palliative, technological or continuing complex care (Parker et al., 2011).

Although not always explicit, closer to home care seemed supported by children's nurses rather than general nurses. There was some reference to community nursing teams comprising both generic and specialist services (Parker et al., 2011; Parab et al., 2013; Spiers et al., 2016). A national survey on care closer to home nursing services in the UK found that generic community home care teams were most common focusing on either a wide range of conditions (33%) or condition specific services (14%). Specialist community team nursing was found to comprise 12.5% of services (Parker et al., 2011). In the UK, the introduction of community matrons as advanced practitioners and leaders (Alcock et al., 2014) managing the community team services overall (Ng et al., 2012) was reported. The need to expand community matron services what allows for skill mix across wider geographic areas was identified in a parental survey on this role in the UK (Alcock and Smith, 2014). One study from the USA reported that specialised paediatric advanced nurse practitioners provided nursing services to technologically dependent children by being involved in co-ordinating care across various settings (Caiedo, 2016). A Cochrane review by Parab et al. (2013) that evaluated specialist home-based nursing for children with acute and chronic illnesses found positive results including increased parental satisfaction, reduction in parental anxiety, and improvements in children's behaviours. Although hospital stay for children was shorter, there was no difference to conventional care on hospital readmission rates. The evidence from this review remains inconclusive however since the included studies were diverse in terms of participants, interventions and outcomes. Furthermore, it is unclear from the studies reviewed if this specialist service was delivered by nurses with child-specific nursing qualifications or general nursing qualifications.

In addition to the role of nursing in closer to home care having a key preventative role in keeping children out of hospital as noted above, the role was described as involving support (Carter et al., 2016; Mendes, 2013), advocacy (Carter et al., 2015), health promotion (Duffin, 2010), and trusting relationships with children and families (Samuelson et al., 2015). The need for home care nurses to be experienced, knowledgeable and skilled in clinical and psychosocial aspects of working with acutely sick children and those with medical complexities was highlighted as important by parents and nurses (Carter et al., 2016; Mendes, 2013; Nageswaran and Golden, 2017; Samuelson et al., 2015). Concerns were expressed by parents in one study about the lack of child specific training of home care nurses to care for technologically dependent children (Nageswaran and Golden, 2017). Lack of child specific training, education

and experience was also shared by nurses delivering home care services (Nageswaran and Golden, 2017; Samuelson et al., 2015). Carter et al. (2016) commented that it takes time for nurses to develop knowledge and skills to care for children in their homes. These researchers, with reference to a WellChild Children's Nursing programme, developed staff training programmes for staff in various settings. In addition, this WellChild programme involved nurses journeying with children with complex needs across various healthcare settings. This programme was implemented by a national charity organisation however rather than by the national health services in the UK (Carter et al., 2016). The practice of nurses journeying through services was also noted by Callery et al. (2014) with reference to children's community nursing teams providing home care for acutely ill children. These nurses rotated through emergency/assessment units which formed part of their training in caring for acutely ill children.

***Child and maternal/family health nursing in the community***

Child and maternal/family health nursing in the community was reported in the literature from Australia mostly focusing almost exclusively on early to middle childhood period. In Australia, it was evident that developments and implementation of child and maternal/family health nursing are part of a universal health care system (Barnes et al., 2010; Bennett et al., 2016; Eronen et al., 2010; Kearney and Fulbrook, 2012; Kemp and Harris, 2012; McLachlan et al., 2016; Psaila et al., 2015; Rossiter et al., 2019a,b; Schmied et al., 2010). In the USA, legislation concerning patient protection and affordable care has influenced a shift from predominately medical interventions and hospitalised care to social models of care and primary prevention of disease including early childhood home visiting (Dodge et al., 2014; Wu et al., 2017) with neonatal mortality rates a significant health metric (Holland et al., 2018). Five additional papers were reviewed from Norway, South Korea, Brazil, and the UK. The health system context for these countries was reported as a universal child health service already in place in Norway (Lierbakk et al., 2018) or being pursued by Governments in South Korea (Kim and Roh, 2018) and Brazil (De Cavalho Furtado et al., 2017). The need to make child health and development more accessible to vulnerable families using online support in the UK (Lunt, 2010). Also from the UK, Cowley et al. (2012) discussed the potential for implementing a child and maternal home visiting service, drawing on the Australian experience of universal health care. While the need to pay particular attention to vulnerable, at-risk or disadvantaged children and families was evident (Barnes et al., 2010; Bennett et al., 2016; Dodge et al., 2014; Wu et al., 2017;

Kemp and Harris, 2012; Lierbakk et al., 2018; Lunt, 2010), pregnancy, childbirth, parenting and early childhood in general were seen as critical periods for support towards positive child and family outcomes (Eronen et al., 2010; Holland et al., 2018; Psaila et al., 2015; Rossiter et al., 2019a,b).

There were differences on how child and maternal/family health nursing was delivered. In Australia, child and maternal/family health through community well child clinics following an initial home visit consultation was delivered by child health nurses (Barnes et al., 2010; De Cavalho Furtado et al., 2017; Eronen et al., 2010; Kearney and Fulbrook, 2012; Psaila et al., 2015; Rossiter et al., 2019a,b). A nurse led service in child healthcare centres was reported in the South Korean study (Kim and Roh, 2018). Well child clinics were organised as group sessions (Rossiter et al., 2019a,b), some of which were described as a reformed shift from individual consultations with parents and children (Barnes et al., 2014; Eronen et al., 2010) including a 'drop-in' open access clinic (Kearney and Fulbrook, 2012). Other studies reported the provision of child and maternal/family health through home visiting by nurses in Australia (Bennett et al., 2016; Kemp and Harris, 2012), USA (Dodge et al., 2014; Holland et al., 2018; Wu et al., 2017), and Norway (Lierbakk et al., 2018). In Bennett et al.'s (2016) Australian study, home visits were conducted jointly by child health nurses and social workers. A consistency across these studies was that home visiting aimed to support vulnerable, disadvantaged or at-risk children and families. A Family Partnership Model was also reported as integral to child and family health nursing (Fowler et al., 2012; Holland et al., 2018; Wu et al., 2017), although detailed description of what this model involves was lacking apart from one study (Fowler et al., 2012). According to Fowler et al. this model requires nurses to promote active problem-solving and decision making of parents/families about child care. The model acknowledges the expertise of nurses as practitioners of child and family care and at the same time acknowledges parents' knowledge and skills in their own child's health care.

Child and maternal/family health nursing across studies reflected a broad educational and support agenda. Taken together, this included practical advice on infant and child care, infant feeding, child development, child health matters, information on child health services, health promotion and prevention, and parenting skills and confidence building. Although some studies indicated a focus on family health, the principal areas of education and support offered seemed to be child and maternal wellbeing as well as parenting. Aspects of family health

specifically mentioned included psychosocial risk assessment (Dodge et al., 2014), family economic self-sufficiency (Holland et al., 2018), family and social relationships and networks (Bennett et al., 2016; Kemp and Harris, 2012). The timing of scheduled education and support evaluated across studies ranged from pregnancy (Wu et al., 2017; Kemp and Harris, 2012) up to a child's second birthday (Holland et al., 2018; Wu et al., 2017; Kemp and Harris, 2012; Leirbakk et al., 2018) although not limited to this timeframe since these services can extend up to middle childhood.

Child and maternal/family health services were evaluated positively overall, although areas for further development were noted. Parents expressed satisfaction with the education and support received through home visiting (Dodge et al., 2014), online support service (Lunt, 2010), and clinic well child groups sessions (Barnes et al., 2010; Kearney and Fulbrook, 2012; Kim and Roh, 2018). While group sessions were viewed as resource efficient regarding nursing personnel and time (Barnes et al., 2010), the need to incorporate individual sessions with parents was identified (Barnes et al., 2010; Eronen et al., 2010). Likewise, while universal health care, free for all children, was viewed positively, the need for services to be tailored to specific populations was raised (Dodge et al., 2014; Kemp and Harris, 2012). Cowley et al. (2012), who explored the implications of implementing the Australian experiences of universal child health care into the UK, called for a whole population approach with increased frequency of services where most needed.

The importance of child specific knowledge for child and maternal/family health nursing in the community was evident. In Australia, nurses had the title child health nurse (Barnes et al., 2010; Eronen et al., 2010; Kearney and Fulbrook, 2012) or child and family health nurse (Fowler et al., 2012; Kemp and Harris, 2012; Psaila et al., 2015; Rossiter et al., 2019a,b; Schmied et al., 2010). Health visitors in the UK were viewed as having a similar community role to child health nurses in Australia (Rossiter et al., 2019a,b), highly skilled and well positioned to provide holistic child and family care within the context of universal child health services if introduced to the UK (Cowley et al., 2012). Public health nurses were reported as delivering child and maternal health care in Norway involving home visiting. It was unclear from the USA studies if nurses had child-specific knowledge and the role title of nurses was not explicit. Although nurses in most countries had child-specific nursing education within the context of community nursing, the need for ongoing professional development was noted.

Professional development needed to support nurses changing roles and practices related to shifting from individual well-child clinic consultations to group education (Barnes et al., 2010), and adopting a partnership model of working with families (Barnes et al., 2010; Fowler et al., 2012). In addition, nurses need support in developing their roles to work towards an integrated service (Leirbakk et al., 2018; de Carvalho Furtado et al., 2017; Psaila et al., 2015) and inter-professional team working (Bennett et al., 2016). For example, in the Norwegian study, public health nurses expressed concerns about the introduction of ante-natal home visiting to their services since only midwives and GPs were traditionally involved in this phase of pregnancy. Based on a discursive paper on the nature of collaboration and integration services for child and maternal/family health care, professional development needs to include care co-ordination and case management models as well as an emphasis on building trusting relationships between professionals, suggesting inter-professional education (Schmied et al., 2010). Likewise, in order to progress inter-professional collaboration, Psaila et al. (2015) recommended the need for organisational support, joint team working and training, shared professional development, shared meetings, shared informal 'coffee' meetings. This Australian study which examined inter-professional collaboration between child and health family nurses and midwives at the point of transition from maternity hospital to home following birth found that relationships were more connected than collaborative.

***Enhancing the role of nurses in child protection***

Child protection was addressed in three papers reviewed. Enhancing the role of nursing within the context of child protection services was a common theme across these papers. A case report from the USA detailed the development and implementation of a trauma informed model based on adverse childhood experience (ACE) education. This report described the role of public health nurses being enhanced to incorporate ACE conversations and screening into home visits to vulnerable families (Ballard et al., 2019). A grounded theory study in the USA on increasing nurses' collaboration with child protection services using a nurse family partnership model reported the need for better alignment of the mission, methods, and service population of nurses and other child protection workers (Tung et al., 2019). Finally, a qualitative study with public health nurses and other professional groups in Ireland regarding the development of specialist public health nurses for child protection was reported. This study explored participants' views regarding the development of specialist public health nurses for the area of child protection, noting that public health nurses in Ireland are currently generalists. While there was consensus

for the development of specialist roles, concerns were expressed by public health nursing assistant directors because they had a substantial role in child protection (Austin and Holt, 2017).

***Nursing children in primary care settings***

Four studies and one discussion paper on nursing children in primary care settings. Three of the studies were linked to general practitioners (GPs) services including a nurse-led clinic by practice nurses on obesity management of children in the UK (Banks et al., 2019), a nurse-managed programme by practice nurses for unscheduled visits of children with minor illnesses in Spain (Fabrellas et al., 2015), and an out of hour telephone triage nursing service supporting GP co-operatives in Ireland (Mulcahy et al., 2012). A fourth study related to nurse managed clinics by certified paediatric advanced nurse practitioners (ANPs) focusing on health promotion and prevention for underserved children and young adults. These clinics operated out of a School of Nursing with ANPs collaborating with a primary care paediatric consultant (Coddington et al., 2011). A theme evident across all four studies is that the primary care nursing initiatives has potential to increase accessibility to child healthcare thereby potentially reducing the burden on an overstretch hospital system (Banks et al., 2019; Fabrellas et al., 2015); ensure safe and effective health advice, service co-ordination and referrals for children needing out of hour care (Mulcahy et al., 2012), and contribute to an equitable health service (Coddington et al., 2011). A discussion paper from the USA highlighted the need to integrate child mental health services into primary care as a strategy to addressing the growing number of children with mental health problems (Van Cleve et al., 2013). These authors advocated that both paediatric and family nurse practitioners who have expertise through postgraduate education and practice in developmental/behavioural child health and mental health are well positioned to provide care for children and adolescents in the primary care settings. Apart from this paper, the only other reference to child-specific qualifications was for ANPs in the USA who were certified paediatric nurses (Coddington et al., 2011), although the need for nurses to be skilled and competent in working with children in primary care settings was noted across the remaining three studies.

***School based child health nursing***

School based child health nursing programmes, addressed in seven studies, indicated a trend towards integrating health and educational systems in the USA involving nurse practitioners

(Daley et al., 2019) or school nurses (Ramos et al., 2013), Canada (Sanders et al., 2019) and Norway (Granrud et al., 2019) involving public health nurses, and the UK involving health visitors (Turner, 2016) in addition child health nurses (O' Brien, 2011). Collaboration with school nurses and public health department was reported in one study (Robins et al. 2014). The school settings included primary schools (O' Brien, 2011; Robins et al., 2014; Turner, 2016), and high schools/secondary schools (Daley et al., 2019; Granrud et al., 2019; Ramos et al., 2013; Robins et al., 2014). Both primary and secondary schools seemed evident in the Canadian study, although not explicit apart from referring to school health for children and youths (Sanders et al., 2019). The principal focus of health care in schools was on health promotion with two of the studies specifically focusing on mental health and behavioural problems among adolescents (Granrud et al., 2019; Ramos et al., 2013), one of which reported concerns among school nurses regarding their need to access continuing education on child behavioural problems and to be better integrated with councillors and behavioural specialists (Ramos et al., 2013). The need for adolescent friendly school health services was highlighted in one study with reference to key features of this service including accessibility, flexibility, confidentiality, and respectful and trusting relationships with health care professionals (Daley et al., 2019).

While the potential for inter-agency and inter-professional working across the health and education sectors in promoting the health of children and adolescents in school contexts was noted, the need for improved working relationships between nurses and teachers was evident. Findings across studies indicated differing priorities between nurses/health visiting and teachers (O' Brien, 2011), lack of visibility in school settings with teachers having greater autonomy regarding the role of public health nurses (Granrud et al., 2019), and lack of clarity on the role of public health nurses in providing school based health care (Sanders et al., 2019), and lack of knowledge among teachers on school based health services offered by nurses (Daley et al., 2019). The need for ongoing professional development to support nurses in developing inter-professional collaboration was highlighted by Sanders et al. (2019) with reference to collaborative leadership competencies, partnerships and change management. A need for clinical leadership (Turner, 2016) and high-level strategic co-operation was also recommended (O' Brien, 2011).

***Children's palliative care nursing***

An international trend seen regarding children's palliative care nursing was a need to address notable deficits in these services, evident from research/policy/discussion papers published from the USA (Lindley, 2011; Kaye et al., 2019), the UK (Neilson et al., 2013; Reid, 2013), and Ireland (O' Brien and Duffy, 2010). Overall, children's palliative care services were viewed as suboptimal due to reliance on adult (Kaye et al., 2019; Reid, 2013) or voluntary palliative care services (Neilson et al., 2013), difficulties with accessing these services (Lindley, 2011) including a lack of palliative community, home and respite services (O' Brien and Duffy, 2010), and a lack of standardisation of palliative care services or pathways for children (Neilson et al., 2013; Reid, 2013). Recommendations for developing children's palliative care services included the development of core paediatric teams in the community (Kaye et al., 2019), extending the role of children's nurses in the community incorporating a hospice at home model (O' Brien and Duffy, 2013), inter-professional working (Neilson et al., 2013), standardizing services (Neilson et al., 2013), and outreach services for continuity of care (O' Brien and Duffy, 2010).

Palliative care of children and young people was described as a complex process involving physical care such as end of life medication and pain management, management of equipment (Kaye et al., 2019; Lindley, 2011; O' Brien and Duffy, 2010). Psychosocial care of child and whole family was described as integral to providing palliative care including preparation for impending death and bereavement support (Kaye et al., 2019; Reid, 2013), ethical, legal and spiritual care (Lindley, 2011; O' Brien and Duffy, 2010). The need for palliative care nursing to be delivered within the context of whole system health services was noted with reference to effective communication pathways with other professionals (Neilson et al., 2013) and liaising with hospital services (Reid, 2013). It was reported that adult nurses were ill prepared to offer palliative care to children due to lack of experience in working with children and their families (Kaye et al., 2019; Reid, 2013). However, lack of palliative care and end of life knowledge and skills to care for children was not exclusive to adult nurses. The need for specialist training was evident across all papers reviewed. It was suggested that palliative care services for children need to be delivered by registered children's nurses (O' Brien and Duffy, 2010) who have undertaken specialist palliative care education (Reid, 2013).

***Hospital based nurse led/co-ordinated services***

Hospital based nurse-led/co-ordination services were reported from the USA (Auger et al., 2018a,b; Evangelista et al., 2012; Mason et al., 2019; Petitgout et al., 2013), Canada (Paquette et al., 2013), and Turkey (Ozalp Gerçeker et al., 2016). Most related to the role of nurses in hospital discharge of children following acute illnesses (Auger et al., 2018a,b), or surgery (Ozalp Gerçeker et al., 2016; Mason et al., 2019; Paquette et al., 2013) designed to provide support and prevent hospital readmissions. In these studies, nurses were reported to provide clinical advice, education and support in relation to child's health care and offered support to parents. Two additional services reported were care co-ordination of children with special needs (Petitgout et al., 2013) and nurse-managed outpatient cardiology clinics (Evangelista et al., 2012), both of which involved paediatric nurse practitioners. Discharge support in one study involved a one-time telephone call to parents using standardised templates including warning signs needing medical attention; no impact on urgent service utilisation was found (Auger et al., 2018a). A co-ordinated discharge programme which involved one nursing home visit unexpectedly led to increased rate of child readmission possibly because nurses tended to refer children to the emergency department rather than primary care (Auger et al., 2018b). The Turkish study on a nurse-led telephone counselling service involving daily contact with parents until clinic follow-up showed a significant decrease in parental anxiety (Ozalp Gerçeker et al., 2016). A more co- ordinated approach to discharge planning led by a paediatric nurse practitioner student was evident in Mason et al.'s (2019) study. The student nurse practitioner developed education materials for medical and nursing team on discharge processes. She also assessed child's readiness for discharge and educated them including provision of individualised materials, and proactively ensured that all resources were in place for child's discharge home e.g. care goals, community resources, instructions for schools. The service was viewed positive by parents and the need for follow up calls was lessened by almost 50%. Finally, the nurse-led cardiology clinic by a paediatric nurse practitioner involved a diagnostic and referral role, collaborating with cardiologists and other disciplines (Evangelista et al., 2012). This service was found to facilitate quality patient experience and improve access to services. The need for formal continuous education and clinical training for this nurse-led service was highlighted.

***Nursing within the context of telehealth care***

Three studies were identified that explicitly focused on nursing children within the context of telehealth care, that is, involving some form of electronic communication. These were published from Sweden (Gund et al., 2013), Australia (Ridgway et al., 2011), and the USA with multiple papers published on one study (Looman et al. 2012, 2015; Cady, 2014, 2015). Telehealth care technology was introduced to support close to home care and co-ordination of care across services for premature neonates (Gund et al., 2013) and children with complex needs (Looman et al., 2015). The types of telehealth technology included the medium of video (Gund et al., 2013; Looman et al., 2015) which in addition was compared with a web application (Gund et al., 2013). In the Australian study which surveyed nurses' use of information communication technology, some nurses were found to use email communication and some had electronic diaries; however, there was little evidence of nurses using technology overall (Ridgeway et al., 2011). Access to electronic health records was reported in two studies (Looman et al., 2015; Ridgeway et al., 2011).

In the telehealth project conducted in the USA by Looman and colleagues, known as Telefamilies, a paediatric advanced nurse practitioner was introduced to a medical home team to lead care co-ordination for children with complex needs from a primary care clinic affiliated to a children's hospital. Electronic health records were found to facilitate information sharing between clinic and hospital services. The use of tele-healthcare was found to expedite care pathways across services and led to more effective service utilisation. The nurse practitioner had direct access to families in the clinics and in their homes, the latter by telephone and videoconferencing. However, there was greater reliance on communicating by telephone than by video conferencing. In the Swedish study by Gund et al. (2013), continuity of care for premature neonates was augmented by web applications through which parents submitted data or queries regarding their child's health status and care and nurses provided feedback. Parents indicated that they would prefer face to face contact. In contrast video calls by skype were appreciated more by enabling parents to see nurses and show them their babies. Some nurses were reported to be less motivated to use e-technology than others. The need for training on the functionality of technology was highlighted in order to develop nurses' confidence in using e-Health to support their care.

**Grey Literature**

For objective 4, a total of 8 documents were included. Of these 6 focused on maternal and child health services; 4 from Australia and 2 from the UK. The additional 2 documents focused on child protection in Ireland, one of which related to palliative care, and one related to child protection. Data extraction from these documents are presented in Table 4, Appendix 3, under the relevant subheading. The grey literature, mostly policy documents, were congruent with the academic literature.

A summary of these points are:

- Universal childcare offered by child and family health nurses in Australia in collaboration with maternity services and social care services offers support to vulnerable families and early assessment of risks.
- Nurse-led home visiting is integral to a national framework for child health in Australia.
- Enhanced information technology viewed as integral to providing safe and responsive and continuous health care for children in the UK towards an integrated service across sectors. The establishment of a child protection public health nurse (PHN) has potential to improve relationships and collaborations with social workers, other professionals and voluntary organisations.
- Palliative care needs development for children in Ireland including primary care services for children requiring palliative care.

The ***key messages*** identified for objective four are outlined in Box 4 below.

**Box 4: Key Messages - International trends in nursing services and practices**

- Nursing children in various community contexts is the predominant trend seen in the literature.
- Health service reforms involving a shift from secondary to primary care has resulted in a growth of 'close to home care' for acutely and chronically ill children, supported by a growth in community nursing teams and home visiting.
- Child and maternal/family health nursing in the community is typically delivered by nurses with child specific qualifications in Australia (e.g. Child and Family nurses) compared to other countries where nurses have a broader public health/community nursing qualification (e.g. Norway, Canada, Ireland).
- Nurses have a pivotal co-ordination role to support inter-sectoral and inter-professional delivery of services regardless of context (e.g. close to home/primary care/palliative care/hospital based services/school based nursing) to ensure seamless, continuous integrated health care for children. A trend towards advanced nurse practitioners in system level co-ordination was seen.
- Continuing professional development is essential to support the role of nurses in delivering nursing and health care services to children, particularly in the areas of child-specific knowledge and medical complexity, leadership and change management, inter-professional and team working across sectors, information and telehealth technology.

## Workforce planning and career pathways relevant to nursing children and aligned with changing trends in health service delivery (obj. 5)

Objective five of this scoping review set out to determine workforce planning models and career pathways relevant to nursing children and reflective of the changing trends in health service delivery. For the purpose of this fifth objective, the literature is summarised in two sections: (i) workforce planning and (ii) career pathways; while also recognising that there is potential overlap between both of these streams. See Table 5 in Appendix 3 for extracted data.

### (i) Workforce planning

In this scoping review, 42 documents that focused primarily on workforce planning as applied to nursing children were identified. Documents stemmed from the USA (n=25), the UK (n=9), Canada (n=2), Australia (n=1), Sweden (n=1), Italy (n=1), Korea (n=1), Taiwan (n=1), and Saudi Arabia (n=1). Within the broad area of workforce planning, a number of different contexts were covered including:

- education and training (n=14)
- staffing levels and retention (n=12)
- area/speciality specific workforce planning (n=16).

Further details of each of these contexts are summarised below.

#### *Education and training*

In relation to education and training, in the context of workforce planning, 14 documents were identified (Agosto et al., 2017; Bean and Dearmun, 2019; Bennett at al., 2016; Freed et al., 2010; 2012; 2014; 2015; Friedman et al., 2013; Gigli et al., 2019; Hu et al., 2017; Martyn et al., 2013; Messmer et al., 2011; Schell et al., 2015; Smith et al., 2016). In a recent editorial focusing on the area of workforce planning in children's nursing, Bean and Dearmun (2019) suggested that a crisis is looming due to a number of converging factors resulting in deficits to children's nursing workforce. Factors included high nursing student attrition rates during training and an increase in numbers leaving the profession within two years of qualifying. In response to concerns about sustainability of children's nursing workforce, in this paper the Association of Chief Children's Nurses (ACCN) discussed different models of post-registration education. These discussions prompted suggestions about how to attract and fund more nurses to acquire competencies to care for children and young people; with the ACCN planning to report findings in the future. The role of education and training for qualified nurses

was also explored by Agosto et al. (2017) who reported on a quality improvement project's impact on workforce planning. The project implemented a Central Staffing Office Intensive Care Nurse Residency Programme (CSO-ICU Nurse Residency). Twenty-seven new nurses were hired as part of CSO-ICU Nurse Residency Programme. The CSO-ICU Nurse Residency Programme had a designated nurse manager, orientation coordinator, and centrally based education nurse specialist. Recommendations included moving from a unit- to an organization-centric model of education and practice. It was also suggested that by creating an overall departmental ICU training programme for nurse residents at the beginning of their children's nursing careers, in a variety of ICUs, helped to create a mobile team of ICU nurse residents which could help control costs, improve morale, satisfaction, teamwork, and enhance recognition for new staff entering the profession. In a national survey of children's nurse residency programmes (NRP), Smith et al. (2016) identified benefits associated with development of professional role confidence and peer support networks, increased safe nursing practices, and a decrease in nursing turnover (i.e., over half reported a turnover rate of 5% or less). Smith et al. (2016) recommended that in the ongoing development of NRPs in children's hospitals, issues such as appropriate content, optimal length, standardisation across settings, impact on nurse retention, safe practice and patient outcomes all need to be addressed.

Friedman et al. (2013) sought to identify why new graduate registered nurse (RN) retention in the first year of employment was challenging. They identified that specialised children's nursing orientation programmes that support new graduate RNs resulted in increased retention and decreased turnover and boosted health care. Another initiative explored by Messmer et al. (2011) was a transitional model/programme for new graduate nurses that examined intent to stay and the relationship between work satisfaction and burnout in a sample of newly registered nurse graduates hired at a freestanding children's hospital in the US. The programme showed a decrease in staff turnover and supported the allocation of resources to provide support to new nurses with the intent to improve retention and prevent burnout. Other studies relevant to education included work by Bennett et al. (2016), who demonstrated that inter-professional approaches to education contribute to knowledge development and to workforce development and planning and Hu et al. (2017) who identified a range of potential stressors in newly graduate nurses working in a children's hospital in China; for example, insufficient professional competence, heavy workload, inadequate supportive systems and uncertainty of career development. The authors proposed a number of recommendations to prevent turnover

including offering newly educated nurses professional competence and career development opportunities and that nurse managers should give increased attention to improving the work environment and psychological wellbeing of nurses in order to prevent turnover.

Development of paediatric nurse practitioners (PNPs)[8] is prevalent in the literature (Freed et al., 2010; 2012; 2014; 2015; Gigli et al., 2019; Martyn et al., 2013, Schell et al., 2015) and an important driver in workforce planning for nursing children. In 2010, Freed et al. sought to gain a better understanding of the roles, focus of practice, professional setting, and responsibilities of PNPs. Recommendations from this study were that significant change in PNP workforce distribution or a marked increase in the number of nurse practitioners pursuing child health training was required to ensure sufficient child health/nursing workforce to address demand. This was further reflected in Freed et al.'s (2012) survey which found that, as a consequence of changes to paediatric residency training hours, the non-resident workforce needs of children's hospitals were increasing with many hospitals hiring additional PNPs and neonatal nurse practitioners (NNPs) to address this deficit; however, whether the supply of PNPs and NNPs was poised to meet the increasing demands was of concern. These findings were also in line with a study by Schell et al. (2015) who identified that the current system was incapable of satisfying the growing demand for PNPs. Further to this in 2014, Freed et al. suggested that although the demand for hiring PNPs was high, the number of newly educated PNPs was not increasing and limited knowledge existed about when and why practicing nurses decide to pursue PNP education. This study identified that the most important factors in becoming an advanced practice nurse with a focus on children were: interest in working with children, greater autonomy and the provision of comprehensive care, lifestyle and family and financial considerations. Recommendations were that efforts to increase PNPs need be directed to students during primary education and opportunities for current nurses to follow advanced practice nurse education focused on children be created. Schell et al. (2015) recommended that by improving PNP education and workforce systems, this forecasted shortage could be reduced. Two further studies sought to determine the reasons for a lack of PNPs (Freed et al.,

[8] Freed et al. (2010, p. 847) state that paediatric nurse practitioners (PNPs) represent a segment of advanced-practice nurses - a designation that requires advanced education in a specific discipline after completion of registered nurse training as well as successful completion of a national certification examination. Freed et al. (2014, p. 115) highlight that, in USA, PNPs can be nationally certified in primary or acute care; with acute care PNPs providing care for children with acute, chronic, or critical health conditions. Further information available from the National Association of Pediatric Nurse Practitioners (https://www.napnap.org/).

2015; Martyn et al., 2015). Both studies recommended an increase in efforts to promote PNP education and utilise current capacity in educational programmes, increase capacity and ensure high-quality faculty in order to secure the academic integrity of PNP educational programmes. Additionally, a recent scoping review by Gigli et al. (2019)[9] identified that only 5% of licenced nurse practitioners in the USA are certified to practice with children; the majority of these (85%) are certified to practice in a primary care setting with only 10% certified to practice in an acute care setting.

***Staffing levels and retention***

Twelve papers addressed the area of nurse retention and staffing levels (Alonazi and Omar, 2013; Glasper, 2017; Healy-Ogden et al., 2012; Hickey, 2010; Jakubik et al., 2011; Keogh, 2013; Kim et al., 2018; Sasso et al. 2018; Staggs and Dunton, 2012; Van Allen, 2012; 2016; Voepel-Lewis et al., 2013). In relation to nurse retention, in a retrospective cohort study, Alonazi and Omar (2013) sought to identify and explore factors that influence turnover and retention for children's nurses. Factors influencing staff retention were nationality, marital status, job title, pay and job satisfaction. Recommendations included the recruitment of experienced staff with introduction of a staff rotation strategy. Healy-Ogden et al. (2012) introduced a nurse retention initiative to address staff shortages and improve recruitment and retention. An innovative model 80/20 staffing that provides staff 20% protected time, away from direct care, to pursue professional development activities such as education, mentoring and work-related activities to enhance patient-centred care and allow time for engagement in research. Benefits included nurses learning experiences positively affected personal growth, work environment and relationships with staff. Job satisfaction and staff engagement improved despite staff shortages. Challenges identified were: resources, staffing, and challenges for participating nurses. In their correlational study, Jakubik et al. (2011) explored the relationships between mentoring quality, quantity, type, length of employment, and mentoring benefits for children's nurses. Implications included the relationship between high-quality mentoring relationships and retention in a single organisation and indicate that high-quality nurse mentoring relationships may have a role in nurses' longevity in an organisation. In a cross-

[9] Drawing on the American Nurses Association, Gigli et al. (2019, p. 347) state that paediatric nurse practitioners (PNPs) are "uniquely qualified advanced practice registered nurses (APRNs) with specialized education and focused clinical practice dedicated to the care of all children". PNPs can work in primary, acute, and specialty care settings to influence child health and offer clinical expertise and care which focuses on child development, health promotion, disease prevention, and anticipatory guidance, which contribute to child health and family well-being.

sectional survey exploring the associations between nursing unit turnover rates and several hospital- and unit-level variables, including staffing level and skill mix, Staggs and Dunton (2012) found lowest nurse turnover in nursing units in government and Magnet designated hospitals, and in neonatal units. Children's units had lower turnover than adult units and units with higher skill mix had lower nurse turnover. Total nurse staffing level did not have a significant effect on turnover.

In relation to staffing levels, Keogh (2013; p.7) reported on the Royal College of Nurses (RCN) recommended staffing levels for safe children's care. The RCN recommended a minimum ratio 70:30 registered to unregistered nursing staff and a minimum of two registered children's nurses in inpatient and day care at all times. Recommendations were that workforce plans across all care services were to be reviewed on an annual basis or more frequently where problems were identified. Staffing numbers and skill mix were to reflect the new guidance, and if they did not a full risk assessment was to conducted. Notwithstanding this, Glasper (2017) indicated that no tangible rules exist to prohibit a nurse annotated on the UK nursing register as an adult nurse from delivering care to children. Glasper (2017) highlighted that the RCN directives for staffing of children's units indicate that unregistered healthcare staff must have completed a training course specific to the setting and in the care of infants, children, and young people; including having undergone competence assessment before carrying out care and delegated tasks. Further to this, Van Allen (2016) reported on safe staff numbers suggested by the Society of Pediatric Nurses (SPN). Although a ratio of 1:4 is published for nurse-to-patient for children's service units, they acknowledged that "staffing is a complex issue composed of multiple variables and that no single published ratio for nurse staffing is automatically applicable in all settings where children receive care" (Van Allen, 2016; p. 114).

In a retrospective case control study, Voepel-Lewis (2013) examined the relationship between surveillance, staffing, and serious adverse events in children on general care postoperative units. Findings reported that the relationship between patient risk and surveillance was significant at lowest staffing levels, and suppressed at the highest levels, suggesting that nurses prioritised surveillance for sicker children during low staffing, but increased surveillance overall during higher staffing. Hickey (2010) examined the relationship of nurse staffing, skill mix, and Magnet recognition to institutional volume and mortality for congenital heart surgery at 38 freestanding children's hospitals. The results revealed that nursing characteristics (i.e.

worked hours per patient day and skill mix) varied in ICUs in children's hospitals treating congenital heart surgery but were not associated with mortality. However, higher ICU nursing worked hours per patient day was significantly associated with higher institutional volume of congenital heart surgery. Congenital heart surgery case volume was significantly associated with risk-adjusted mortality. Nursing skill mix was lower in Magnet recognised hospitals. The authors conclude that future research is required "to determine nursing characteristics that have a protective effect on mortality and what factors influence the variation in nurse staffing, skill mix, and Magnet recognition in children's hospitals" (p. 232). Kim et al. (2018) undertook a retrospective analysis of data that explored the association between children's nursing sensitive outcomes and nurse staffing levels. In their findings, they demonstrated evidence for the relationships between nurse staffing levels and patient outcomes and concluded that nurse staffing level should be increased to prevent adverse outcomes for child patients. In their editorial, Sasso et al. (2018) acknowledged that due to differences in terms of settings and study populations it is not possible to propose a common evidence-base to guide the allocation of human and material resources in the field of child health care. The authors highlighted the need for a specific study to "correlate the characteristics of: (i) health professionals (i.e., job satisfaction, work environment, burnout, experience, education, and staffing levels); (ii) the various patients that present to the children's services (i.e., heterogeneous diseases and complexities, age, and diverse needs); and (iii) patient-centred outcomes" (p. 1223); and as a consequence indicate that the University of Genoa (Italy) is extending the RN4CAST@IT study to the field of child health care.

***Area/speciality specific workforce planning***

From the literature, 16 documents addressing seven areas related to workforce issues were identified:

- community care for children (n=5)
- child and adolescent mental health (n=3)
- children's oncology (n=3)
- children's radiology nursing (n=1)
- caring for children within general hospital contexts (n=2)
- workforce diversity (n=1)
- robotic use in a children's unit (n=1).

*Community care for children*

In relation to workforce, community care for children was addressed in five documents (Darvill et al., 2014; Horner, 2016; Kendall-Raynor, 2015; Nageswaran and Golden, 2017; Parker et al., 2012). Two UK briefing papers addressed the issue of a shortage of community children's nurses that is putting additional pressure on parents to meet their child's complex care needs (Horner, 2016; Kendall-Raynor, 2015). Horner (2016) suggested that a review of workforce and training for community-based clinicians was essential, whilst Kendall-Raynor (2015) indicated the need for a national approach to training so that all people in contact with children are trained to the same level. From a community care perspective, a qualitative study by Darvill et al. (2014) explored the experiences of newly qualified children's nurses who had taken up first destination posts in community children's nursing teams. In their findings, they suggested an ideal transition experience needs an individualised approach that allows for different rates of progression. They also suggested that the development of a new professional identity as a community children's nurse is dependent on the actions of the newly qualified nurse and those with whom they work. Additionally, in another qualitative study, Nageswaran and Golden (2017) identified that a lack of stability in home healthcare nursing services for children with medical complexity was common. Reasons for lack of stability of home healthcare nursing were multifactorial including nurse-, child-, caregiver-, residence-, agency-, and system-level factors. The lack of stable home healthcare nursing affected the child's well-being and contributed to substantial caregiver burden. Recommendations recognised an urgent need to identify ways to expand the nursing workforce and the use of alternative models of delivering children's home healthcare services needs to be considered. In a national survey of all primary care and hospital trusts in England, Parker et al. (2012) identified a three-model typology for children's health care closer to home (CCTH) services: hospital-based, condition-specific services; children's community nurses and other community services; and other (mainly therapy-based) services. Models differed in staffing, costs, functions, type of care and geographical coverage. Indeed, only a third of nurses in teams had child-specific trained. Additionally, while many nurses were working in the community, not all of them were trained for this type of work. Furthermore, some community services reported problems in recruiting suitable staff and this has the potential to hamper further development of CCTH if training, recruitment and retention issues are not addressed. While Parker et al. (2012) acknowledged that workforce issues in children's nursing as it expands its work into community settings is an issue that other health service systems are facing, the authors highlighted that nurses are key to

the delivery of care closer to home but recruitment, retention and child health training issues require attention.

*Child and adolescent mental health*

In relation to workforce child and adolescent mental health was addressed in three documents (Delaney, 2014; 2017; Ellington, 2013). In their papers, addressing a shortage of nursing staff working in child and adolescent mental health (CAMH) community services, Delaney (2014; 2017) suggested that child psychiatric nurses must bring transformational change to improve systems of child mental health care. This requires a strengthening of the skills of psychiatric mental health nurse practitioners who specialise in children, increased collaboration with school nurses and building shared efforts across universities for training the workforce. Further to this, Ellington (2013) also suggested a shortage of CAMH nurses and describes a paediatric telepsychiatry service, delivered by psychiatric advanced practice registered nurses and presents results of a parental satisfaction survey of the service. Recommendations included a responsibility to explore ways to deliver greater access to specialty care and that telepsychiatry is one potential solution.

*Children's oncology*

In relation to workforce three documents addressed children's oncology (Conley et al., 2010; Mahon, 2018; Pergert et al., 2016). In their qualitative ethnographic study, Mahon (2018) explored the environment of children's haematology/oncology units (PHOU) as it was thought that stressful environments can be difficult areas to work in; so these units can present issues for both recruiting and retaining health care professionals including nurses. Findings identified that the ability to develop long-term relationships with children and families, belonging to the oncology team and ongoing learning opportunities as a significant source of satisfaction to all participants. However, the lack of autonomy in making decisions surrounding everyday workings of PHOU caused staff significant distress and could lead to attrition in this area (Mahon, 2018). In their statement paper, Conley et al. (2010) sought to develop global statements focusing on aspects of children's oncology ambulatory practice standards including staffing/scheduling/wait times, acuity, ambulatory nursing care model, information technology, chemotherapy administration, telephone triage guidelines and patient education. They suggested that staffing models need to consider indirect care needs, patient acuity and that total patient load be recalculated at least annually. Additionally, Pergert et al. (2016)

evaluated a national educational programme in children's oncology nursing in Sweden and demonstrated that retention levels were 93% improved, career advancement improved and nurses had increased confidence and security in their work.

*Children's radiology nursing*

One paper addressed children's radiology nursing. In their paper Cefaratti et al. (2013) highlighted the evolution of the children's radiology nursing role with advanced imaging and sedation procedures. They reported on the design and implementation of a 12-week new graduate nurse orientation programme with three phases (i.e., team building, skill sets, and professional development) to develop the skill set and competency of novice nurses for radiology nursing and to meet the expanded service/specialty needs. The programme was designed to parallel and augment an existing hospital-wide nurse intern programme. The outcomes were recruitment and retention of four children's radiology sedation nurses and the engagement of experienced clinical nurses in supporting and mentoring the novice nurses which resulted in positive transition into the first year of practice for new graduate nurses.

*Caring for children within general hospital contexts*

Two documents made reference to the care of children within general hospital contexts (Cimiotti et al., 2012; Grant et al., 2011). In a discussion paper, Grant et al. (2011) argued that challenges exist in developing a workforce fit to provide care to children/young people in need of emergency or urgent care within a general hospital emergency setting. The gold standard is for children to be cared for by registered children's nurses with appropriate emergency department experience and competence. They stated that a lead nurse for children in emergency care settings holds a key role to assist adult nurses achieve competencies required to care for children and that a competency tool for emergency children's nursing should be pragmatic, safe and sustainable to help with skill mix shortfall. Based on their experience, the authors indicated that core competency frameworks necessary to nurse children requiring emergency care appear to be a safe and effective way to enhance core skills and knowledge for adult nurses to enable them to care for children/young people. In addition, emergency department leaders must invest in development of a workforce fit to nurse children/young people. In a quantitative survey with children's nurses working in 498 acute care hospitals (i.e. general adult acute care hospitals with a children's unit; children's hospital within a larger adult acute care hospital; and freestanding children's hospitals) in four States in the USA, Cimiotti et al. (2012) found

that children's nurses employed in children's hospitals within a hospital and general acute care hospitals were more likely to report inadequate staffing and inadequate resources than nurses in freestanding children's hospitals; and were also significantly more likely to report incomplete surveillance on their last shift and missed changes in patients' conditions.

*Workforce diversity*

One paper focused on workforce diversity (Sporing et al., 2012). With the aim of addressing the need to expand racial and ethnic diversity among the nursing profession in their organisation, the Children's Hospital Boston (CHB) created and piloted the nursing career lattice programme (NCLP) (Sporing et al., 2012). The programme participants were CHB employees working in non-nursing positions who were either recommended to participate by their supervisors or who expressed an interest in joining the programme. The programme was a mechanism for promotion within the organisation and showed promise as a method to address racial and ethnic disparities in the nursing workforce with 35% of employees in the NCLP enrolled in nursing school and 15% having completed nursing school at the end of the two-year pilot phase.

*Robotic use in a children's unit*

One paper explored nurses' views on the potential use of robotics in a children's unit (Liang et al., 2019). Three themes represented the benefits and drawbacks with children's nursing roles and the potential use of robotics. With specific reference to workforce, Liang et al. (2019) reported that nurse respondents' believed that an increase in the use of robotics could mean that many nursing tasks would be replaced, leading to reduced nurse employment opportunities. Respondents also felt that if robots assumed many nursing tasks, nurses would have fewer opportunities to maintain clinical skills, and interactive communication skills would reduce. The authors concluded by stating that "it seems inevitable that the increased use of robotics and AI will affect job descriptions and employment opportunities in nursing, as some tasks will be replaced or heavily modified; it is also possible that advances in technology will expand opportunities for nurses by augmenting their abilities and roles" (Liang et al., p. 63).

**Grey literature**

The grey literature identified for workforce planning included 12 documents stemming from the UK (n=7), USA (n=3) and Ireland (n=2). These are presented in Table 5 grey literature,

Appendix 3. There was clear support for innovative methods to address workforce planning into the future, especially in areas such as community care, palliative care, and emerging speciality areas within child health care where a shortage of children's nurses is anticipated.

In support of the academic literature findings, key issues highlighted in the grey literature were:

- Use of float pool/resource teams in children's hospitals, including suggestions on resources for floating such as being assigned a buddy when floated, having written or electronic information about the unit, having an orientation/training on other units and access to or check-in from a charge nurse.
- Alignment of workforce to models of care and the provision of nursing teams based around the children's needs not in professional silos.
- Attention to retaining children's nurses post qualification, offering transition fellowships, creating new roles, providing career opportunities for existing staff, supporting ongoing education and training opportunities, promoting quality clinical learning environments including preceptorship programmes, and creating working conditions that enhance job satisfaction for all generations.
- Improving retention strategies by developing nurse leadership, providing more flexible shift patterns, aligning patient mix and staffing, providing mentorship and professional development, implementing performance-related rewards, offering flexible retirement options and developing staff engagement activities.
- Individual children's nurses, managers and health care providers must take responsibility for ensuring safe staffing levels and skill-mix. Workforce plans should be reviewed on annual basis and more frequently in response to service pressures (e.g. increased clinical acuity, seasonal activity); with deficiencies/variations escalated to senior management/organisation board. Feedback from children/young people, families and carers should be an early warning to identify service quality concerns/variations.
- A number of documents report standards for staffing numbers and qualifications for various contexts (e.g. general and specialist children's wards/departments, child critical care and non-designated child health care settings). Recommended that for inpatient children's wards the ratio of children's nurse to patients should not fall below 1:4 with the skill mix for each ward a minimum of 70:30.
- Specifically, for non-designated child health care settings (where children are seen and admitted), having access to a registered children's nurse 24-hours a day, having a lead

registered children's nurse on-site (one per shift), having staff trained in child-focused skills and competencies and in child resuscitation, and having access to a more senior specialist advice promptly for children was recommended.

- It was suggested that key issues to consider to support children's nurses and team members that work in posts outside of a designated children's setting included having effective structures, professional support and guidance, continuing professional development and revalidation and recruitment and retention.
- It was noted that education and service providers work with nursing boards to seek opportunities for formal recognition of overseas recruits who often have extensive experience of working with children/young people but do not have a qualification that enables them to register as a children's nurse.
- Suggested the requirement for a robust workforce plan across children's services with the development of national (international) formula for staffing and skill mix (including capacity, skills, and patient dependency and acuity etc.).
- Highlighted that undergraduate training programmes for children's nursing must evolve in line with changing health service needs to ensure nurses can care for children in all care settings; particularly with the need to provide increased nursing in the community.
- The risk to and need for school nurses and health visitors being at the forefront of providing care to children and young people; acting as knowledge brokers, working at the interface between families and core health, social care and education services to support vulnerable children and young people was acknowledged.

The ***key messages*** identified for objective five in relation to workforce planning are outlined in Box 5a below.

**Box 5a: Key Messages – Workforce Planning**

- Need to attract and fund more nurses to acquire competencies to care for children/families with concerns raised about the sustainability of children's nursing workforce due to number of factors (e.g. high student attrition rates during training, increase in numbers leaving the profession within two years of qualifying). Number of initiatives for attracting workforce and retaining staff were identified, nominally specific to the role of education and training for qualified nurses, as outlined below.
- Move from a unit- to an organisation-centric model of education and practice e.g. creation of an overall departmental ICU training programme for nurse residents at the beginning of their child health care careers helped to create a mobile team of ICU nurse residents which helps control costs, improve morale, satisfaction, teamwork, and enhance recognition of new staff entering the profession.
- Specialised child focused orientation, transition, or residency modules/programmes that promote positive transition and support new graduate registered nurses may assist with increasing staff retention, decreasing turnover, preventing burnout and boosting health care; along with offering graduate programmes for speciality areas.
- Offering newly educated nurses professional competence and career development opportunities and nurse managers giving increased attention to improving the work environment and the psychological wellbeing of nurses were recommendations for preventing turnover.
- Inter-professional approaches to education were suggested to contribute to knowledge development and to workforce development and planning.
- Development of paediatric nurse practitioners (PNPs)/advanced practice nurses (APNs) is an important driver in workforce planning to work with children. With improved PNP/ANP education and workforce systems, forecasted shortages of nurse practitioners pursuing children's nurse training could be reduced. Efforts to increase PNPs/APNs needs to be directed to students during undergraduate education and opportunities need to be created for current nurses to follow advanced practice nursing focused on children.
- Protected time for CPD was seen as an important strategy to improve recruitment and retention (e.g. 80/20 model that provides staff 20% protected time to pursue further education, mentorship and work-related activities to enhance patient-centred care and to engage in research).
- Engagement of experienced clinical nurses in supporting and mentoring novice nurses with high-quality nurse mentorship relationships having a potential role in staff longevity in an organisation.
- Another potential staff retention initiative is the implementation of a staff rotation strategy for high stress environments.
- In relation to staffing levels, some recommendations suggested a minimum ratio of 70:30 for registered to unregistered nursing staff and a minimum of two registered children's nurses in inpatient and day care at all times.

**Box 5a: Key Messages – Workforce Planning**

- Unregistered healthcare staff must have completed a training course specific to the setting and in the care of infants, children, and young people; including having undergone competence assessment before carrying out care and delegated tasks.
- Safe staff numbers suggested for nurse-to-patient ratio for children's units was 1:4, however it was acknowledged that staffing is a complex issue with multiple variables and subsequently difficult to automatically apply a single published ratio for nurse staffing in all settings where children receive nursing care.
- There was some consensus that workforce plans across all care services be reviewed on an annual basis or more frequently when problems are identified (i.e., where staffing numbers and skill mix do not reflect proposed guidance a full risk assessment should be conducted).
- It was noted that the relationship between patient risk and surveillance was significant at lowest staffing levels, and suppressed at highest levels, indicating nurses prioritised surveillance for sicker children during low staffing, but increased surveillance overall during higher staffing.
- There was some evidence of a relationship between nurse staffing levels and patient outcomes and it was recommended that nurse staffing levels be increased to prevent adverse outcomes for child patients.
- Nurses employed in children's hospitals within a hospital and in general acute care hospitals were more likely to report inadequate staffing and resources than nurses in freestanding children's hospitals; and were also more likely to report incomplete surveillance on their last shift and missed changes in patients' conditions.
- It was noted that due to differences in settings and populations it is not possible to propose a common evidence-base to guide allocation of human and material resources in child health care; with the need for further research emphasised in order to correlate the characteristics of health professionals, the various patients that present to children's services and patient-centred outcomes (with ongoing work referred to in Italy i.e., RN4CAST@IT study extending to child health care).
- Deficit in community children's nurses and lack of a stable home healthcare nursing service for children is seen to affect children's wellbeing and contributes to substantial parent/caregiver burden.
- A review of workforce and training for community-based nurses caring for children is critical with consideration of a national approach to training so that all health care professionals in contact with children are trained to the same level.
- Urgent need to identify ways to expand the nursing workforce and to identify and implement alternative models of delivering child home healthcare services including development of a new professional identity for community children's nurses/nurses providing care to children and families.
- Nurses are key to the delivery of care closer to home for children and families but recruitment, retention and child specific training issues require critical attention.
- Shortage of nurses in child and adolescent mental health community services requires strengthening skills of psychiatric/mental health nurse practitioners who specialise in children and for child psychiatric nurses to bring transformational change to improve systems of child mental health care (e.g. children's advanced practice tele-psychiatry service for greater access to specialty care).
- Stressful work environments (e.g. oncology, ICU) can present issues for recruiting and retaining nurses and some factors to consider include: team belonging; access to

**Box 5a: Key Messages – Workforce Planning**

learning opportunities and education programmes; autonomy in unit decision-making; and staffing models (i.e., indirect care needs, patient acuity etc.).

- Emergency department leaders must invest in developing the workforce to provide nursing care to children in need of emergency/urgent care within general hospital settings. Core competency frameworks necessary to nurse children requiring emergency care appear to be a safe and effective way to enhance core skills and knowledge for adult nurses to enable them to care for children/young people. A lead nurse for children in emergency care settings holds a key role to assist adult nurses achieve competencies required to care for children.
- Give consideration to workforce racial and ethnic diversity.
- In the future increased use of robotics may inevitably affect job descriptions and employment opportunities in nursing with some tasks being replaced or heavily modified but it is also possible that advances in technology will expand opportunities for nurses by augmenting abilities and roles.

**(ii) Career pathways**

In this scoping review, 13 documents that focused primarily on career pathways as applied to nursing children were identified. Literature stemmed from the USA (n=6), the UK (n=5), Australia (n=2). The majority of these documents explored the role of paediatric nurse practitioners/advanced nurse practitioners across a variety of diverse clinical areas including: general/specialist children's settings (n=4), critical care settings (n=3) and community care settings (n=3). Role development and establishing/facilitating career pathways was explored in three papers. Further details of these papers are outlined below.

***General/specialist children's settings***

In relation to role of the paediatric nurse practitioner/advanced nurse practitioner, four documents referred to general/specialist children's settings (Evans et al., 2019; Howard and Barnes, 2012; Hyde, 2017; Okuhara et al., 2011). In a statement piece by Okuhara et al. (2011) a review of the history and emerging role of the acute care paediatric nurse practitioner (AC PNP)[10] in cardiothoracic surgery in a children's hospital in the USA was discussed. They reported that the recruitment of PNPs was required to meet the demands of this speciality and other subspecialties. The authors acknowledged that recruitment into children's subspecialty services is often challenging because of the need for specialised knowledge and skill but that the utilisation of the acute care PNP may be a vital option for providing comprehensive care into the future. Hyde's (2017) paper illustrated a case example of service reform with the creation of an advanced nurse practitioner (ANP)[11] service for out-of-hours neonatal and acute child care in a district general hospital in response to diminished availability of medical trainees. The author acknowledged the complex and lengthy process of service redesign, however demonstrated that the shift from traditional models of care can have positive outcomes i.e., care delivered closer to home for families and career progression opportunities for advanced practice nurses. For future reform, the author recommended: recognising service need; appraising options with all stakeholders including the public; having governance measures with access to robust educational preparation, assessment of clinical competence and regular supervision; and planning for evaluation.

[10] AC PNP is master's degree-prepared "who provides comprehensive care across the continuum of health care services" and "completes education that qualifies them to sit for national certification exams" (Okuhara et al., 2011, p. 137).

[11] Hyde's (2017, p. 36) states ANPs are "nurse registrants working at level seven of the Skills for Health career framework" (i.e., have critical awareness of knowledge in field and at interface between different fields; are innovative, and responsible for developing and changing practice and/or services in complex and unpredictable environments).

In a recent study, Evans et al. (2019) sought to evaluate the impact of the development and implementation of a nurse practitioner professional ladder (NPPL) at a large freestanding urban children's hospital in the USA. The authors stated that the "NPPL was created to recognise advanced practice registered nurses[12] and differentiate levels of clinical expertise, role development, leadership, and professional contributions into a three-tiered approach, designated as NP I, NP II, and NP III" (p. 111). They found that a NPPL helped create an empowering environment for continued nurse practitioner professional growth and career development. As part of their recommendations, the authors emphasised the need to recognise ongoing professional contributions towards improving patient outcomes, clinical leadership and developing new knowledge. This recognition provides nurse practitioners (NPs) with a sense of organisational engagement resulting in increased job satisfaction and retention of expert NPs. Howard and Barnes[13] (2012) reviewed the evolution of competency frameworks for ANPs in the UK and compared three approaches to competency modelling for ANPs from the UK and US. The authors adapted Benner's novice-to-expert framework to develop a competency framework for ANPs, and demonstrated a simple online tool to assess the training needs of potential ANPs, and the competence of ANPs in post. The authors then demonstrated how competency modelling can be deployed to target the development of new ANPs to address workforce planning and governance issues over ensuring the right skill mix for safe autonomous practice. Similar to many other papers the authors lamented the lack of ANP's, in particular in children's nursing. and the need for bespoke ANP's to assure that existing role holders have the correct level of competency for safe autonomous practice.

***Critical care settings***

In relation to paediatric nurse practitioners/advanced nurse practitioners in critical care three documents were identified (Brown et al., 2010; Fry, 2011; Tume, 2010). Tume (2010) suggested that ANP roles should be complementary to (and not in competition with) other

[12] In the USA, the American Nurses Association define advanced practice registered nurses (APRNs) as "nurse practitioners, clinical nurse specialists, nurse anesthetists, and nurse midwives" who are often "primary care providers and are at the forefront of providing preventive care services to the public." "APRNs treat and diagnose illnesses, advise the public on health issues, manage chronic disease, and engage in continuous education to remain ahead of any technological, methodological, or other developments in the field. APRNs hold at least a Master's degree, in addition to the initial nursing education and licensing required for all Registered Nurses." [Available at: https://www.nursingworld.org/practice-policy/workforce/what-is-nursing/aprn/].

[13] Howard and Barnes is also cited under objective 3. See footnote 4 for the Nursing and Midwifery Council's (2006) definition of advanced nursing practitioners as cited by Howard and Barnes.

existing medical and nursing roles in the PICU. Recommendations were for the future PICU workforce to move beyond the traditional 'physician only' model of child health service delivery to a more flexible team responsive to patient/family needs. Further to this, Fry (2011) explored the impact of nurse practitioners[14] in critical care, including the children's setting. For paediatric and neonatal critical care nurse practitioners (PNCCNP), the evidence was weaker when compared with the adult critical care nurse practitioner. There were positive trends in PNCCNP models of care whilst indicating scope for further development of the critical care nurse practitioner role within Australia. In their quantitative study, Brown et al. (2011) sought to identify the current scope of practice and professional facets of PICU NPs. Their findings indicated that NPs play an integral role in education, research, and quality improvement activities of PICU. However, a lack of a standardized national credentialing mechanism restricts professional mobility. In their recommendations, the US Advanced Practice Registered Nurse Consensus Document was recommended to standardise licensure, accreditation, credentialing and education guidelines to allow NP professional mobility.

***Community care settings***

Three documents referred to ANPs in community care settings (Aruda et al., 2016; Borrow et al., 2011; Martins et al., 2016). In their statement paper, Aruda et al.[15] (2016) reviewed the changing role of paediatric primary care nurse practitioners (PPCNP). They outlined how the role had evolved and expanded to meet workforce demands of providing primary care to children and families with increasing complex social and healthcare needs. The authors identified a shift from "assessment" to "performance" activities that provide knowledge for curriculum planning and practicing nursing to remain current. Additionally, in their descriptive qualitative study Borrow et al. (2011) identified that community-based child health nurses[16] undertake a more complex and expanded child health service role for an increasingly diverse

[14] Fry (2011, p. 59) states that "while there are no international Nurse Practitioner standards the role is widely accepted to involve advanced practice knowledge and skills with which clinicians autonomously manage a range of patient conditions and injuries."

[15] Aruda et al. also cited under objective 3. Aruda et al. (2016, p. 68) highlight that paediatric nurse practitioners "have integrated as key primary care providers for the pediatric population in the United States" and acknowledge the recent name change to paediatric primary care nurse practitioners (PPCNPs) in order to distinguish the role from paediatric acute care nurse practitioners.

[16] Borrow et al. (2011) state that, while the role changed considerable over time, the role of the community-based child health nurse, has always been a specialist practice role. They highlight that in recent decades the child health nurse practice domain has been expanded as a result of changes in the complexity of the social determinants of health faced by parents/caregivers of young children and changes in health service delivery (e.g., shift to population health approach with focus on health promotion approaches along with secondary and tertiary prevention strategies etc.).

child and family population, while also maintaining traditional practices. A number of recommendations were made for child health nurse roles to optimally function including the need to: increase allocation of physical resources and the allocation of resources to assist community based child health nurses to support culturally and linguistically diverse families; map child health nurses' workloads; provide greater staff development opportunities to mirror increased workload complexity; and support formal clinical (reflective) supervision. In their qualitative study, Martins et al. (2016) described the development and implementation of the specialist nurse key worker role[17] in oncology across eighteen child cancer centres in the UK. Four models, influenced by available resources, were identified with key worker roles organised along a continuum of in reach and outreach work with the presence/absence of home visits and presence/absence of direct delivery of clinical care, as follows:

- Model 1: key worker role mainly characterised by outreach support, involved in coordinating care, supporting the family transition from hospital to home, visiting families at home and involvement in clinical care delivery at home.
- Model 2: coordination aspect of the role is critical as while key workers do home visits these do not include direct clinical care.
- Model 3: key workers mainly involved in care coordination and not directly involved in the delivery of direct clinical care or conducting home visits; key workers involved in direct care delivery in the hospital.
- Model 4: includes palliative and end of life care; key workers more involved in the patient's care, through home visits and regular phone contacts in conjunction with the coordination of the care and management of medication.

Irrespective of the model they worked in, the key worker provided clinical, emotional, educational, and practical support to families through (i) care coordination (being the main point of contact for families and professionals in the hospital and community), (ii) experience and expertise (communication and interpretation of information to/for families and professionals) and (iii) the relationship with families (approachable, compassionate, open and honest relationship and communication between key workers and family members). The main challenges identified were: time, caseload size, geographical area covered, staffing numbers and resources available in the hospital and community. Also many participants disliked the

[17] Martins et al. (2016, p. 70) draw on the NICE 2005 definition for key worker: 'a person who, with the patient's consent and agreement, takes a role in co-ordinating the patient's care and promoting continuity, ensuring the patient knows who to access for information and advice'.

label ‘key worker’ as they felt that the loss of ‘specialist nurse’ in the title failed to reflect the professional group.

***Role development and establishing/facilitating career pathways***

The importance of role development and establishing/facilitating career pathways was explored in three papers (Aitkenhead and Lee, 2019; Lecher, 2016; Webb et al., 2017). Aitkenhead and Lee (2019) explored expanding the scope of practice of NPs (general registered) to the child population. Recommendations for future practice included the development and accessibility of accredited training courses for NPs aimed specifically in the treatment of common children’s emergency presentations including minor illness, injuries and interpretation of paediatric radiographs. Ideally, general registered NPs would be trained with child specific skills, whilst acknowledging that these do not replace children’s NPs or children’s nurses. The authors highlighted that the gold standard of care for children “is qualified children’s nurses or paediatric NPs” (Aitkenhead and Lee, 2019; p. 42). At a large children’s hospital in the USA, Webb et al. (2017) evaluated a quality improvement initiative of professional career mapping for nurses, including a career map tool. The outcome for the organisation was the creation of a well-designed structure and evidence-based process that enhanced and enabled professional development, career advancement, and succession planning. The model of career mapping enhanced the relationships of the participants with the leaders and educators serving as the coaches and mentors. Career mapping became hardwired into nursing orientation and clinical ladder progression processes. The authors concluded by stating that career mapping can assist individual nurses to establish lifelong learning goals, serve the profession and the community, and achieve professional excellence in a way that is meaningful to each nurse, along with assisting organisations to retain talented staff and plan for leadership succession. Additionally, Lecher (2016) reported on their qualitative study to investigate and identify facilitators for, and barriers to recruitment, and solicit recommendations to improve recruitment of men in children’s nursing at a US children’s hospital. Role models for young men and role model provision as children’s nursing was deemed a vital strategy.

**Grey literature**

The grey literature identified for career pathways included three documents, two from the UK and one from Ireland. These are presented in Table 5 grey literature, Appendix 3.

In line with the academic literature findings, key issues highlighted were:

- All children's nurses must be supported to undertake continuous professional development relevant to their role and clinical area.
- Innovative nursing roles and new ways of working need to be explored particularly for community nursing in caring for children.
- Need to establish and enhance career pathways in children's nursing, including development of children's nurse specialist, advanced nurse practitioner and nurse consultant level roles, so that services continue to develop and meet the needs of children/young people and their families across a range of health care settings/contexts.
- Career framework required for community children's nursing traversing from practitioner to consultant nurse practitioner (prepared to doctorate level); with a focus on multiagency integration and joint working across education, social care, other agencies and the third sector. Early intervention and prevention, reducing poverty, social inclusion and identifying and reducing health inequalities are key challenges and community children's nurses can play a crucial role in contributing to this agenda and to improving outcomes for children and young people.
- Development and implementation of innovative roles in children's nursing requires robust planning, governance, education programmes, and career frameworks.
- Also highlighted the need to give attention to clinical academic training pathways and clinical academic research roles for children's nursing to integrate education, research and practice, and to advance career progression from master's through to clinical doctorate and clinical fellowship awards.

The ***key messages*** identified for objective five relating to career pathways are outlined in Box 5b below.

**Box 5b: Key Messages – Career Pathways**

- Acute care children's nurse practitioners considered a vital option for providing comprehensive care for speciality and sub-speciality areas; however, recruitment is challenging because of the need for specialised knowledge and skills.
- While redesign of services can be complicated and have financial implications, shifting from traditional models of care results in positive outcomes for families (i.e., receive care as near to home was possible) and for nurses (i.e., career progression opportunities e.g. advanced nurse practitioner service for out-of-hours child health care in district general hospital settings).
- For future reform the following was recommended: recognise service need; appraise options with all stakeholders including the public; have governance measures with access to robust educational preparation, assess clinical competence and have regular supervision; and plan for evaluation.
- Implementation of a nurse practitioner professional ladder creates an empowering environment for continued nurse practitioner (NP) professional growth and career development. The need to recognise ongoing professional contributions to improving patient outcomes, clinical leadership and developing new knowledge was emphasised; such recognition provides NPs with a sense of organisational engagement resulting in increased job satisfaction and retention of expert NPs.
- Lack of advanced nurse practitioners (ANPs), particularly in children's nursing, was noted with the need for bespoke ANPs highlighted to assure that existing role holders have the correct level of competency for safe autonomous practice. Competency modelling can be deployed to target the development of new ANPs to address workforce planning and governance issues over ensuring the right skill mix for safe autonomous practice.
- In relation to ANPs in critical care, ANP roles should be complementary to other existing roles with recommendations for PICU workforce to move beyond traditional 'physician only' model of child health service delivery to a more flexible team responsive to patient/family needs.
- Scope for further development of the critical care nurse practitioner role was indicated; it was recommended to standardise licensure, accreditation, credentialing and education guidelines to allow for nurse practitioners professional mobility.
- Evolution and expansion of community-based child health nurses and primary care children's nurse practitioner roles were indicated to meet workforce demands of providing community-based and primary care to children and families with increasing complex social and healthcare needs.
- A number of recommendations were made for child health nurse roles to optimally function including the need to: increase allocation of physical resources and the allocation of resources to assist community based child health nurses to support culturally and linguistically diverse families; map child health nurses' workloads; provide greater staff development opportunities to mirror increased workload complexity; and support formal clinical (reflective) supervision.

**Box 5b: Key Messages – Career Pathways**

- Development and implementation of specialist nurse key worker role (e.g., in oncology) was indicated with a number of different potential models (influenced by available resources) organised along a continuum of in reach and outreach work. Irrespective of the model, the key worker provides clinical, emotional, educational, and practical support to families through care coordination; experience and expertise; and the relationship with families. Challenges identified were: time, caseload size, geographical area covered, staffing numbers and resources available in the hospital and community. Many disliked the label 'key worker' with the loss of 'specialist nurse' in the title failing to reflect the professional group.
- A recommendation for future practice included the development and accessibility of accredited training courses for nurse practitioners (general registered) aimed specifically in the treatment of common child health emergency presentations including minor illness, injuries and interpretation of paediatric radiographs.
- Professional career mapping for nurses using a specific career map tool can assist nurses to establish lifelong learning goals, serve the profession and the community, achieve professional excellence and career advancement in a way that is meaningful to the nurse, along with assisting organisations to retain talented staff and plan for leadership succession.
- Role models for men and role model provision as children's nurses was deemed a vital strategy to improve recruitment of men in children's nursing.
- Need to establish and enhance career pathways in children's nursing (i.e., specialist, advanced practice and consultant level roles) so that services continue to develop and meet the needs of children and families across a range of settings. Development and implementation of these roles requires robust planning, governance, education programmes, and career frameworks.
- Need to give attention to clinical academic training pathways and clinical academic research roles for children's nursing to integrate education, research and practice, and to advance career progression from master's through to clinical doctorate and clinical fellowship awards.

## Changing trends in the educational preparation for nurses who care for children that are designed to meet changing health service trends (obj. 6)

The final objective of this scoping review was to identify trends specific to educational preparation for children's nursing in relation to changing health service trends. This preparation was considered only in the context of first point of entry to the nursing professional at undergraduate/pre-registration level. Therefore, educational preparation of qualified nurses for entry to children's nurses were not considered. A total of 17 studies or non-empirical papers retrieved from academic databases were included. The analysis of data yielded five categories as follows (see Table 6, Appendix 3):

- Simulation learning (n=5)
- Clinical placement learning (n=5)
- Use of the arts in the curriculum (n=3)
- Service user involvement (n=2)
- National perspectives on children's nursing education (n= 2)

### *Simulation learning*

All five papers on simulated learning were from the UK. One explanation for the absence of papers from other countries may relate to entry to children's nursing role in many countries such as the USA, Canada and USA is at post-registration level rather than through undergraduate education. This contrasts with the UK where a child branch pathway is available in undergraduate programmes. Patient safety was a cross-cutting health service trend across the five papers reviewed, all of which were primary studies, focusing on complex care experiences (Davies et al., 2012), young people's mental health (Eade and Winter, 2017; Felton et al., 2013), clinical peer learning (Valler-Jones, 2014), and safeguarding children (Wyllie and Batley, 2019). Simulated learning was noted to be increasingly embedded in nursing curricula as an effective approach to skills learning such as developing therapeutic relationships with young people, working with suicidal thoughts, aggression and breakaway techniques (Eade and Winter, 2017), emotional distress (Felton et al., 2013), physical and behavioural observations in relation to child safeguarding (Wyllie and Batley, 2019), and cardiovascular or respiratory resuscitation (Valler-Jones, 2014). It was evident across studies that role play was integral to the teaching and learning process including the use of scripted scenarios. In one study, collaboration with a youth theatre group to facilitate role play was noted (Felton et al., 2013).

Simulated learning was evaluated positively by students, facilitating them to learn in a safe environment (Eade and Winter, 2017), transfer learning into practice (Davies et al., 2012; Wyllie and Batley, 2019), and reflect on their learning (Valler-Jones, 2014). Recommendations made for further development of simulated learning included use of electronic interactive games with young people as avatars, problem solving e-simulation and service user involvement (Eade and Winter, 2017), and greater emphasis on student peer-led simulations (Valler-Jones, 2014).

***Clinical placement learning***

While the number of papers reviewed for this theme was small, the analysis revealed some trends. These were innovative approaches to addressing challenges around placement capacity (Abbott, 2011; Cummins et al., 2010), peer and collaborative learning (Carey et al., 2018; Cust, 2018), and community clinical placements (Cummins et al., 2010; Perrin and Scott, 2016). Issues around clinical placement capacity, raised in two studies, concerned increased pressures on qualified staff to accommodate student learning in their roles (Abbott, 2011) and access to placement settings including intensive care units (Abbott, 2011) and community (Cummins et al., 2010).

Concerns around placement capacity and the need for innovative approaches to clinical learning were situated within broader healthcare contexts with reference to graduating children's nurses being able to provide high dependency care for children and young people as part of a national framework in the UK (Abbott, 2011), and orientating their roles beyond hospital to community care in line with health system reforms towards primary care and community nursing in Ireland (Cummins et al., 2010). In Birmingham City University, UK, a partnership approach with a regional hospital resulted in a rotational programme with 5 students at a time being placed in intensive care unit (Abbott, 2011). Both students and staff were supported by a lecturer practitioner. Through this partnership, access to placements increased from 5% to 40% of students per annum. The placement was viewed positively by students including a desire to pursue this speciality. The innovative approach to addressing limited community placements for the integrated children's and general nursing programme at University College Cork, Ireland, involved the introduction of short experiential field visits in community contexts (Cummins et al., 2010). Field visits were introduced in the second year of the programme, for example, toy story, children's library, mother and toddler groups. Students

evaluated field visits positively with reference to learning about community resources for children and their families. Notably, both aforementioned approaches to clinical placement were integrated into theory modules, thereby linking theory to practice and vice versa.

An emphasis on community nursing placement was also raised by Perrin and Scott (2016) in a discussion paper. A changing healthcare context involving an increasing shift from acute to community care underpinned a discussion on the unique role of health visitors in facilitating student learning on caring for children and young people in the community. This role was noted to involve mentoring students, thereby, facilitating a broad range of community learning such as community services and resources, child development, health promotion and education, and family centred care. Mentoring by health visitors during community placements was noted as a strategy for facilitating current healthcare trends towards transitioning from acute to community health service delivery (Perrin and Scott, 2016).

The two papers on peer and collaborative learning concerned students working together and learning from each other while on placement (Carey et al., 2018; Cust, 2018). From the University of Plymouth, UK, Carey et al. (2018) noted the need for curricular change by going beyond an over reliance on the mentoring model facilitated by qualified nurses to peer learning during placements. Peer learning was facilitated for 1st through to 3rd year students but not always in the same year of programme. At Staffordshire University, UK, peer learning was purposively planned so that 3rd year students were peer mentors for 1st year students but not working together on the same placement; rather, senior students as peer mentors were a support and resource to junior students while on placement and who could make contact with their mentors as needed (Cust, 2018). A dual aim of peer learning described from this study was to facilitate junior students' transition to clinical placement learning from the classroom context and at the same time facilitate senior students transition to being qualified nurses with opportunities to reflect on their level of experience and knowledge base. Both approaches to peer learning were viewed positively by students with reference to: enhanced collaborative learning and relationships in care delivery (Carey et al., 2018); supportive approach to clinical learning among junior students that alleviated fears around making mistakes or not knowing, and that was motivating to stay on the nursing programme (Cust, 2018); and affirming the level of experience and knowledge among senior students that was empowering and confidence building (Cust, 2018).

***Use of the arts in the curriculum***

The three studies on the use of the arts in the curriculum related to learning strategies involved poetry (Clancy and Jack, 2016), digital storytelling (Petty and Treves, 2017), and museum of childhood field visits (Clarke et al., 2019). A common pattern across these studies concerned an increasingly technological healthcare environment that has resulted in a growth of technology-enhanced learning in nursing curricula (Clarke et al., 2019), and stressful clinical placement environments for nursing students with specific reference to neonatal nursing (Clancy and Jack, 2016; Petty and Treves, 2017). The use of poetry as a learning strategy was to develop empathy, compassion, and self-awareness. During a critical care module, 3rd year students chose one poem from these poems presented to them following which they explored their thoughts and feelings concerning neonatal nursing (Clancy and Jack, 2016). Digital storytelling involved the recording of stories from nursing students on their neonatal placement experiences used to explore their emotional experiences which were subsequently used to orient and prepare other students for this placement (Petty and Treves, 2017). Visits to a childhood museum was described as a learning strategy aimed to facilitate visual thinking, creativity and critical thinking. The visits involved students exploring childhood topics such as play, family centred learning, and childhood identities (Clarke et al., 2019). Positive evaluations were reported by students across the three studies with reference to developing deeper thinking and learning (Clancy and Jack, 2016; Clarke et al., 2019), creativity, empathy, emotional and relational aspects of caring (Clancy and Jack, 2016), emotional preparation for placements (Petty and Treves, 2017), and active participation in learning (Clarke et al., 2019).

***Service user involvement***

Service user involvement in nursing curricula was evaluated in two studies (Barnley, 2017; Ward and Benbow, 2016). Both studies were from the UK and referred to regulatory requirements to involve service users in pre-registration education. The need to have children's voices heard was noted as a context within healthcare in one study (Barnley, 2017). Service user involvement was described as having children actively participate in teaching sessions by sharing their experiences of living with a chronic condition with final year children's nursing students (Barnley, 2017), and by obtaining children's experiences of nursing care as a strategy for assessing nursing students' performance in care delivery (Ward and Benbow, 2016). In the latter study, children identified fundamental values that underpinned excellent care. These were

compassion, care, communication, competence, courage and commitment (Ward and Benbow, 2016). In the former study, nursing students valued learning from children, noting that it facilitated them to develop empathy, and feel confident and empowered in their interactions with children (Barnley, 2017).

***National or major programme reforms in children's nursing education***

Four discussion papers addressed some aspect of major reform to children's nursing education. In South Africa, the need to increase the number of places for children's nursing students in higher education was noted. This emphasis on children's nursing education was raised to address high mortality rates in children in this country (Coetzee, 2014). The emphasis on education was on community nursing in line with primary health care reforms in the country. The need to clarify the role of children's nurses in the health system was also raised (Coetzee, 2014). The development of a dual programme (children's and neonatal) as a major curricular reform at the University of Worcester UK was reported by Stretton and Richards (2010). The programme was developed because chid health branch nursing students were considered inadequately prepared to take up neonatal nursing on qualifying. Addressing staff workforce shortages in neonatal settings was also a consideration. First year students offered the option of taking this route. Additional neonatal knowledge and skills introduced to programme. Neonatal placements included 8 weeks in year 2 and twelve weeks in year 3 of their programme. Evaluation of the programme, albeit based on one graduate only, was positive in terms of learning, support and transitioning to the neonatal environment. There was confusion however in that the course was viewed as equivalent to a post-registration programme resulting in the expectations of graduates being too high (Stretton and Richards, 2010).

Discussions around a major overhaul of nurse education at entry level were presented in two papers (Dean, 2017; Hunt, 2016) with the latter referring to this being a response to the Mid Staffodrshire scandal in the UK. Hunt (2016) presented a proposal from the UK Committee towards a 2 + 1 + 1 programme comprising generic preparation over two years followed by a specialist year of education and then one year of post-registration preceptorship. Dean (2017) reported on a more generic report to nursing education with the advantage of greater flexibility within the services and more holistic in approach. Concern was expressed however that a generic approach to education would diminish the unique focus of individual branches currently in the UK, one of which is child health nursing.

**Grey Literature**

A number of documents (n=18) were retrieved from grey literature search. None of these documents specifically addressed educational preparation for children's nursing at the first point of entry to the nursing profession at undergraduate/pre-registration level. Therefore, this section does not include any grey literature.

The ***key messages*** identified for objective six are outlined in Box 6 below.

**Box 6: Key Messages – Trends in educational preparation for children's nursing**

- Simulated learning was noted to be increasingly embedded in nursing curricula as an effective approach to skills learning; role play was integral to the teaching and learning process including the use of scripted scenarios.
- Recommendations for further development of simulated learning included: use of electronic interactive games with young people as avatars, problem solving e-simulation and service user involvement, and greater emphasis on student peer-led simulations.
- Trends in clinical placement learning saw the use of innovative approaches to address challenges around placement capacity, peer and collaborative learning, and community clinical placements.
- Concerns around placement capacity and the need for innovative approaches to clinical learning were situated within broader healthcare contexts with reference to graduating children's nurses being able to provide high dependency care for children and young people and orientating their roles beyond hospital to community care in line with health system reforms towards primary care and community nursing.
- Trends also towards peer and collaborative learning with students working together and learning from each other while on placement; indicating the need for curricular change by going beyond an over reliance on the mentoring model facilitated by qualified nurses to peer learning during placements.
- Some trends towards use of the arts (e.g., poetry, digital storytelling, museum visits) in the curriculum as a learning strategy to develop empathy, compassion, and self-awareness and to facilitate visual thinking, creativity and critical thinking.
- Some reference to service user involvement in nursing curricula included: having children actively participate in teaching sessions by sharing experiences of living with a chronic condition and obtaining children's experiences of nursing care as a strategy for assessing nursing students' performance in care delivery.
- There was reference to national or major programme reforms in children's nursing education internationally recognising the need to increase number of places for children's nursing students in higher education to address high child mortality rates; the emphasis on community nursing in line with primary health care reforms; the need to clarify the role of children's nurses in the health system; the development of dual programmes (e.g., children's and neonatal); and move towards generic preparation followed by specialist education, although concerns were expressed this would diminish the unique focus of individual branches i.e., child health nursing.

## Chapter Summary

In this chapter, the results of the search output and key findings from the scoping review were presented, along with a narrative summary of the findings in relation to each of the six review objectives. In the next chapter final reflections, conclusions and recommendations to inform a national strategy for the future direction of children's nursing will be presented (in line with objective seven of this scoping review).

## Chapter 3: Reflections, Conclusions and Recommendations

This review systematically scoped the evidence to inform the development of a national vision and strategic framework for the future direction of nurses caring for children in Ireland. The results of the review were presented in line with the review objectives, which in the context of nurses caring for children were to:

1. Identify a vision relevant to service provision and practice
2. Map entry-level competencies
3. Map developing expertise and continuing competence
4. Identify changing international trends aligned with changing trends in children's health services
5. Determine workforce issues and career pathways aligned with changing trends in children's health services
6. Identify changing trends in the educational preparation to meet changing health service trends.

In line with objective seven of this review, this final section draws from the findings across all the above six objectives to collate consensus from the literature and present review recommendations to provide an evidence based approach to inform and support a proposed strategy for the future direction of nurses caring for children in Ireland. Importantly this review has identified clear evidence that in order for a vision to be meaningful for all involved it must be underpinned by National Health Service Policy and Reform. Currently, Ireland is at a crossroads in relation to how it provides healthcare with the implementation of Sláintecare (Houses of the Oireachtas, 2017) signalling a new direction for health and social care services in Ireland. Also, of particular relevance to the context of this scoping review is the National Model of Care for Paediatric Health Services in Ireland (National Clinical Programme for Paediatrics and Neonatology, 2015) that sets out a model of how children with healthcare needs should be cared for in acute and community settings. This model sets out a vision for high quality, integrated, accessible healthcare services for children from birth to adulthood. Key to the aim of the model is to keep children healthy and out of hospital thus keeping the health prevention and promotion agenda to the forefront of care. The establishment of Children's Health Ireland in 2018 to oversee this transition in child health services marked an important milestone in moving towards achieving these ambitions. This review provides timely insight into possible directions and innovations that might positively influence the future of nurses caring for children in Ireland.

This scoping review has established that advancing children's nursing health care services is a critical component towards developing excellence and innovation in care, which ultimately will make a difference to the health and wellbeing of children, families and communities in Ireland. With this in mind, the development of children's nursing practice and education must acknowledge the changing and evolving trends in child healthcare driven by new technologies, research, evolving government policies, increasing child and family expectations and financial pressures. In particular, the ongoing change in the nature and complexity of children requiring care in acute, home and community settings must also be deliberated as it means that children's nurses must adapt and evolve so that safe, high quality care is to the forefront in all child healthcare settings no matter where care is provided.

To this end, time, knowledge, experience and commitment to a lifelong approach to learning (Mott et al., 2018) was deemed essential for the development of the science of children's nursing. The international evidence reviewed supported the concept of Benner's (1982) novice to expert model and highlighted the need for continued support and professional development opportunities to advance the trajectory from undergraduate to advanced practice and for career progression opportunities. There was evidence to support the value of graduate nurse clinical residency training programmes to meet the needs of entry-level graduate children's nurses to achieve competence and for specialised children's units and child health areas experiencing staff shortages and/or service expansion (e.g., Delack, 2015; Long et al., 2013). The role of general and specialist CPD was deemed essential for children's nurses to maintain (up-to-date) and progress their knowledge and skills throughout their career. Trends in the literature highlighted the need for CPD for children's nursing related to, for example, cultural competence, palliative care and end-of-life, child and adolescent mental health, child behavioural problems, and rare therapies. These areas are consistent with future service directions for children's healthcare in Ireland. Acknowledging a diverse and changing population of children with unique and challenging healthcare needs, regardless of the setting, the challenge of children's nurses maintaining competence is evident in the literature. It is evident that the evolvement of speciality services within children's nursing are increasing internationally and in Ireland, therefore there is a need at this time, and moving forward, to ensure competency development ideally as part of interdisciplinary and inter-professional education that integrates new modalities (e.g. simulation) and technology (e.g. eHealth).

However, in order to provide consistent, innovative programmes with outcomes that ensure safe, high-quality nursing care potential barriers (e.g., poor feedback, challenges with preceptors, strained relations with staff, stress, workload, financial) must be removed and supportive learning environments (e.g., communication, resources, support, incentives, mentorship) developed.

A key feature of this review was the evidence that developing the role of the children's nurse / child and family nurse advanced nurse practitioner (ANP) was critical to the future of children's nursing and the future trends in how care is provided to children in all care settings. The concept of advanced nursing practice has existed in the United States since the 1960s and in the United Kingdom since the early 1980s. The first signs of advanced nurse practice began to emerge in Ireland in the late 1990s (Callaghan, 2007). In Ireland, one of the main functions of the National Council for the Professional Development of Nursing and Midwifery as determined by the Final Report of Commission on Nursing (Carroll, 1998) was to bring about a coherent approach to the progression and development of the clinical career pathways for nurses and midwives. Notwithstanding this, this review identified that a deficit in ANPs in children's nursing and child and family healthcare services exists. From an educational perspective, the provision for opportunities, pathways and advancement towards the ANP (children / children and family) across all settings (hospital, home, community, primary care) was seen to traverse and underpin many of the objectives in this review so its importance and urgency must be emphasised. Importantly this review has identified the need for a career trajectory towards developing these roles in children's nursing and child and family health care and how they could ultimately improve the quality of care provided for children and their families. This should include the facilitation of increased programme level capacity at Masters/Doctorate (clinical practice) level and initiatives to encourage participation, directed initially at nursing students during their primary education, for instance (Freed et al., 2015; Martyn et al., 2015; Schell et al., 2015). The evolution of advanced practice roles has occurred mainly due to professional and management pressure to meet growing service needs, but initiatives to address shortfalls in healthcare provision have often taken place in a sporadic and ad hoc manner (Marsden et al., 2003; Wilson-Barnett, 2001; Woods, 1999). This review has highlighted that the development and implementation of innovative roles in children's nursing requires robust planning, governance, education programmes, and career frameworks.

International trends reflect the move towards community care and care closer to home for children with acute and chronic illness to reduce inpatient, emergency and unscheduled care. This is also the reality in Ireland where as part of the new Model of Care for Paediatrics and Sláintecare the move towards community care will, for example, increase the critical need to develop and evaluate child health graduate nurse programmes for non-hospital and for children's nurses working in isolated settings such as in the home. Health service reforms, involving a shift from secondary to primary care, has resulted in a growth of close to home care for children with acute, chronic and complex continuing health care needs. However international evidence indicates that further support and development of community child and family nursing teams, home visiting care packages, and inter-professional working is critical for success, including clear referral pathways (to and from community nursing teams) and continuity and coordination of care across a range of services and settings (e.g. Kyle et al., 2012; Ng et al., 2014). A vision for the future of community children's nursing services, emphasises the need for a collaborative and supportive approach to reflect the needs, choices and decisions of children and parents and to take account of the wellbeing of family members through an integrated approach to care systems across services (Carter et al., 2012). A hybrid approach to collaborative systems that creates a combination of in- and out-reach services with established network links and effective communication mechanisms and pathways between acute and community care, and among professionals, is crucial. In this way children's nurses are critical to supporting inter- and multi-sectoral and inter-professional delivery of services regardless of context (e.g. close to home/primary care/palliative care/hospital based services/school based nursing) and to ensure seamless, continuous integrated health care for children and families (Caicedo, 2016; Carter et al., 2016).

Identifying ways to expand the workforce (including specialised children's ANPs) and address the forecasted shortage of children's nurses in the community must identify and use alternative models of delivering healthcare to children in their homes. It must address equity for all families in accessing home care services (Kyle et al., 2010) and address gaps in community, home and respite services (e.g., hospice, palliative care, technological or continuing complex care) (Parker et al., 2011). While nurses in many countries had child-specific nursing education within the context of community nursing, there was also evidence of lack of child specific training, education and experience by nurses delivering home care services. Ongoing professional development to support nurses in delivering health care services to children,

particularly in the areas of child-specific knowledge (clinical and psychosocial), medical complexity, technological dependency, palliative care, and in relation to changing roles and practices to work towards an integrated service and for inter-professional team working and education across sectors (i.e., collaborative leadership competencies, co-ordination and case management, partnerships and change management, joint team training and shared professional development etc.) is needed (e.g. Leirbakk et al., 2018; Psaila et al., 2015; Sanders et al. 2019). Furthermore, the need for undergraduate training programmes for children's nursing to evolve in line with changing health service needs to ensure nurses can care for children in all care settings; particularly with the need to provide increased nursing in the community was highlighted.

This scoping review identified limited evidence of nurses using telehealth care (i.e., using some form of digital information and communication technologies) in the nursing care of children and families and supporting remote child health care. While the current pandemic may have forced some advancements in telehealth children's nursing, and this warrants further investigation, our review highlighted the need for training on the functionality of technology in order to develop nurses' confidence in using e-health to support their care (Gund et al., 2013). Where implemented, however, the limited evidence identified in this review signalled that electronic health records facilitated information sharing between clinic and hospital services, and tele-healthcare use expedited care pathways across services and led to more effective service utilisation (Looman et al., 2015). Notwithstanding this, as telehealth comes with risks including exacerbating the digital divide (e.g. lack of technology access, digital literacy, and internet coverage), future considerations will need to take account of digital inclusion, data security and solutions that are intuitive and tailored to the user needs (Blandford et al., 2020), including children, their families and, particularly, marginalised communities.

This review highlighted the need to make child health and development more accessible to vulnerable families with child, maternal and family health nursing implemented as part of a universal health care system internationally. Consensus across the evidence was that home visiting by nurses, and in some cases jointly by nurses and social workers, aimed to support vulnerable, disadvantaged or at-risk children and families with pregnancy, childbirth, parenting and early childhood being critical periods for support towards positive child and family outcomes (e.g., Jinjing et al., 2017; Holland et al., 2018; Rossiter et al., 2019a,b). While there were differences in how child, maternal and family health nursing was delivered internationally

(e.g., community clinics, home visits, group sessions, online support), a family partnership approach (i.e., nurses promoting active problem-solving and decision making of parents/families in their own child's care) was seen as integral to child and family health nursing, as was a whole population approach with services tailored to specific populations with increased frequency where most needed (Cowley et al., 2012; Fowler et al., 2012). The main focus of child, maternal and family health nursing was for education and support related to child and maternal wellbeing (e.g., infant and child care, child health matters, health promotion and prevention), parenting, and family health (e.g., psychosocial risk assessment, family and social relationships and networks). Professional development to support nurses to adopt a partnership model of working with families and the importance of child specific, and family functioning, knowledge for preventative child, maternal and family health nursing in the community was evident (Barnes et al., 2010; Fowler et al., 2012).

Primary care nurse-led initiatives were also seen as having potential to enhance accessibility to child healthcare; in addition to integrating developmental/behavioural child health and mental health services into primary care (Van Cleve et al., 2013). Additionally, there was a trend towards integrating health and educational systems involving nurse practitioners or school nurses; also with a primary focus on health promotion (e.g., mental health and behavioural problems among adolescents) (Granrud et al., 2019; Ramos et al., 2013). This highlighted the need for improved working relationships between nurses and teachers and further access to continuing education for adolescent health and health service provision and for inter-professional and team working across sectors. International trends also identified a particular deficit in children's palliative care services with recommendations including the need for core paediatric palliative care community teams, for extension of the children's nursing community role to incorporate a hospice at home model and for outreach services for continuity of care. Specialist training, standardised care pathways and the need for whole system wide approach to children's palliative care nursing was emphasised (Neilson et al., 2013; Reid, 2013).

In relation to workforce and retention for children's nursing there was an identified need to attract and fund more nurses to acquire competencies to care for children, young people and their families across all care settings. Recruitment and retention initiatives included innovative working models that provided nurses with time away from direct care to pursue professional development activities such as education, mentoring and work-related activities to enhance

patient-centred care and allow time for engagement in research. In relation to staffing levels, it was evident that consensus on staffing was a complex issue with multiple variables and subsequently difficult to automatically apply across care setting (acute and community). However, there was some consensus that workforce plans across all care services be reviewed on an annual basis or more frequently when problems are identified. Importantly, as eluded to previously, developing APNs was an important driver in workforce planning for children's nursing in all settings. In particular, two key areas of practice requiring urgent attention for workforce planning were community care for children (Darvill et al., 2014; Kendall-Raynor, 2015; Horner, 2016; Nageswaran and Golden, 2017) and child and adolescent mental health (e.g., Ellington, 2013; Delaney, 2014; Delaney, 2017). Both areas were identified as having a shortage of nurses that was affecting the lives of children and their families by contributing to caregiver burden at home. Recommendations recognised an urgent need to identify ways to expand the children's nursing workforce and for the use of alternative models of delivering child healthcare services at home including the development of a new professional identity for children's nurses in the community (Kendall-Raynor, 2015) and for transformational change through inter-professional collaboration (Delaney, 2017). Additionally, the review highlighted the need to give attention to clinical academic training pathways and clinical academic research roles for children's nursing to integrate education, research and practice, and to advance career progression from master's level through to clinical doctorate and clinical fellowship awards. The 'integration' of children's nursing - research, education, practice and policy - with the meaningful involvement of children and families will be vital to transforming child and family health and wellbeing, and for child and family health service/system reform.

### Recommendations of the Scoping Review

The key recommendations from this scoping review to inform the development of the strategy for the future direction of nurses caring for children in Ireland are outlined in Box 7 below; followed by the strengths and limitations of this scoping review.

**Box 7: Recommendations to inform the development of the strategy for the future direction of nurses who care for children in Ireland**

### *Vision for nursing children and their families*

A vision for nurses caring for children and their families must:

- have child-centred and family-focused engaged care at its foundation and involve consensus from all stakeholders across all settings so that it is meaningful and transformative.

- be relationship based and built on inter-professional and family collaborative partnerships that make a difference to the health and holistic wellbeing of children and their families.

- include the delivery of world class excellence, innovation and leadership for exemplary nursing care that advances child and family nursing and healthcare through the integration of practice, education, research and policy.

### *Preparation for entry to children's nursing*

- The current points of entry to children's nursing in Ireland through (a) the integrated children's and general Bachelor's degree programme, and (b) post-registration diploma programme need to be retained.

- Continue to review the intake and retention numbers across the current entry points to meet the supply and demand for children's nursing services in the future across all care settings (hospital, home, community, primary care etc.).

- The preparation of children's nurses needs to be 'fit for purpose' regarding changing trends and the future direction of health service delivery, particularly, community practice, closer to home care, service-user involvement, and integrated care across sectors.

### *Career development and progression*

- The advancement of the role of children's (child and family) advanced nurse practitioner in Ireland is pivotal to meeting future workforce demands and retention in children's nursing. In order for this to happen, a career trajectory towards developing these roles, across all care settings, should be established with consideration to priority areas.

- The facilitation of increased programme level capacity at masters/doctorate (clinical practice) level and initiatives to encourage participation should be advanced. This requires additional incentives to encourage participation including innovative funding models and clearly defined career development pathways.

**Box 7: Recommendations to inform the development of the strategy for the future direction of nurses who care for children in Ireland**

- Competency development for undergraduate, graduate (newly qualified), speciality children's nursing roles and advanced practice must traverse entry-level foundational skills to advanced, collaborative and transformative practice that are child-centred and family-focused rather than medically driven.

- A commitment to lifelong learning and continuous professional development for nurses working with children through inter-professional education, simulation, use of innovative technology and digital health is recommended.

- With the advent of many speciality areas within child healthcare, consideration of the specific and multifaceted needs of the nurses working in these specialised areas requires urgent attention. This will enhance their experiences, promote staff retention and ensure a suitably competent nursing workforce into the future. It will also improve the care and experience of children and families accessing these services.

- There is the need to develop and evaluate child and family health graduate nurse programmes for non-hospital and for children's nurses working in isolated settings such as in the home.

***Developing nursing services for children and families beyond 'acute' hospital services***

- A change in the direction of healthcare provision for children (care closer to home) requires children's nurses to provide care in a range of community/home settings and to a diverse and complex child population. This will require investment in more children's nurses working in community nursing, child and adolescent mental health, children with complex continuing healthcare needs, palliative care and end-of-life, and in child/adolescent, maternal and family healthcare in collaboration with other nursing services, such as, public health nurses, midwives etc.

- There is the need to enhance integration within and between children's healthcare teams, services and settings with the development of community child and family nursing teams, home visiting care packages, inter-professional and inter-sectoral working, clear referral pathways (to and from community nursing teams) and continuity and coordination of care across a range of services and settings.

- Further research is required to identify where children's nurses are currently engaged in providing care to the child and family, outside acute hospital services, the nature of the services being provided and existing unmet needs in order to inform workforce requirements, governance, education and career frameworks.

***Supporting nurses working with children in non-designated child health settings and without a child-specific qualification***

- It is recommended that all non-designated child health settings that encounter children will have a complement of, and collaborative oversight from, registered

**Box 7: Recommendations to inform the development of the strategy for the future direction of nurses who care for children in Ireland**

children's nurses; with access to ongoing professional development that is relevant to the specialty area with child/family healthcare.

- It is recommended that all nurses who work with children will complete a child and family focused professional development module to enhance a partnership based approach to care for children and their families.

***Child and family wellbeing***

- A strong emphasis is needed on engaging with diverse child and family needs and building family strengths with a specific focus on holistic health and wellbeing which takes an ecological, whole population and inclusive health approach to health promotion and illness prevention; recognising that children's health and wellbeing is everyone's responsibility.
- Consideration needs to be given to child and family health and wellbeing nursing roles focusing on the first five years as a priority; this is aligned with the Government of Ireland's First Five Strategy 2019-2028 for expanded roles for advanced nurse practitioners and clinical nurse specialists.
- Professional development is required to support nurses, in all healthcare, community and societal settings, to adopt a partnership model of working with families and understand child specific and family functioning knowledge for preventative child and family health and wellbeing.

***Telehealth in children's nursing***

- The review highlighted the need for training on the functionality of technology in order to develop nurses' confidence in using e-health to support their care, however this warrants further research.

## Strengths and Limitations of the Scoping Review

This review has a number of limitations and strengths which are now reported herein. As a method for examining evidence, scoping reviews are inherently limited because they typically focus on breadth rather than depth of information. This review reflects breadth around six objectives across a range of topic areas relevant to nursing children. The scoping review method was appropriate however given that the overarching aim of the review was to map out the relevant literature for each of the objectives. Our review was limited to papers published in the English language, and so evidence, if published in papers including grey literature in languages other than English, has been missed. A further limitation is that the quality of papers, particularly empirical papers, included in the scoping review was not assessed.

Notwithstanding the limitations, a strength of the review is that rigorous synthesis and analysis of the literature were conducted following the guidelines of Arksey and O Malley's (2005) approach for scoping reviews. We anticipate that the evidence presented in this review will provide key information to policy makers, health service providers, and educators to support the strategic direction in relation to the nursing care of children across all health care settings into the future.

## Chapter Summary

In this final chapter, we summarised the over-arching consensus identified from the literature in relation to the six scoping review objectives and presented the scoping review recommendations to inform the development of the strategy for the future direction for children's nursing in Ireland.

## References


Abbott, L. Rotation placements help students' understanding of intensive care. Nursing Children and Young People. 2011; 23(6): 20-23.

Agosto, P; Cieplinski, JA; Monforto, K; Griffin, MD; Roberts, KE; Tracy, E; et al. The central staffing office intensive care nurse residency program: A pilot program. Nursing Economics. 2017; 35(3):147-149.

Aitkenhead, A; Lee, GA. The accuracy of paediatric limb radiograph interpretation by nurse practitioners in a single centre. International Emergency Nursing. 2019; 45:36-42.

Alavi, A; Bahrami, M; Zargham-Boroujeni, A; Yousefy, A. Characteristics of caring self-efficacy in pediatric nurses: A qualitative study. Journal for Specialists in Pediatric Nursing. 2015; 20(3):157-164.

Allcock D; Smith K. Exploring parent views of community matrons. Nursing Times. 2014; 110(16): 21-3.

Al-Motlaq, MA; Carter, B; Neill, S; Hallstrom, IK; Foster, M; Coyne, I; et al. Toward developing consensus on family-centred care: An international descriptive study and discussion. Journal of Child Health Care. 2019; 23(3): 458-467.

Alonazi, NA; Omar, MA. Factors affecting the retention of nurses. a survival analysis. Saudi Medical Journal. 2013; 34(3):288-294.

Anderson, S; Allen, P; Peckham, S; Goodwin, N. Asking the right questions: Scoping studies in the commissioning of research on the organisation and delivery of health services. Health Research Policy and Systems., 2008; 6(1):7. doi: 10.1186/1478-4505-6-7.

Arksey, H; O'Malley, L. Scoping studies: towards a methodological framework. International Journal of Social Research Methodology. 2005; 8:19-42.

Aruda, MM; Griffin, VJ; Schartz, K; Geist, M. Evolving role of pediatric nurse practitioners. Journal of the American Association of Nurse Practitioners. 2016; 28(2):68-74.

Auger, KA; Shah, SS; Tubbs-Cooley, HL; Sucharew, HJ; Gold, JM; Wade-Murphy, S; et al. Hospital-to-home outcomes trial study group: Effects of a 1-time nurse-led telephone call after pediatric discharge: the H2O 11 randomized clinical trial. JAMA Paediatrics. 2018a; 172(9): e181482.

Auger, KA; Simmons, JM; Tubbs-Cooley, HL; Sucharew, HJ; Statile, AM; Pickler, RH; et al. Postdischarge Nurse Home Visits and Reuse: The hospital to home outcomes (H2O) trial. Pediatrics. 2018b; 142(1): e20173919.

Austin, J; Holt, S. Responding to the support needs of front-line public health nurses who work with vulnerable families and children: a qualitative study. Contemporary Nurse. 2017; 53(5): 524-535.

Australian Health Ministers' Advisory Council. National Framework for Universal Child and Family Health Services. 2011. Australian Government. Available at: https://www1.health.gov.au/internet/main/publishing.nsf/Content/nat-fram-ucfhs. [Accessed 23rd September 2020].

Ballard, J; George, L; Zavueta-Lara, E; Turner, L; Aguada, J; Law, J; et al. Trauma informed public health nursing visits to parents and children. Public Health Nursing. 2017; 36(5): 694-701.

Banks, J; Sharp, DJ; Hunt, LP; Shield, JP. Evaluating the transferability of a hospital-based childhood obesity clinic to primary care: a randomised controlled trial. British Journal of General Practice. 2012; 62(594): e6-12.

Barnes, MI; Pratt, J; Finlayson, K; Pitt, B; Knight, C. The First Steps Program: a case study of a new model of community child health service. Australian Health Review. 2010: 34(4): 386-9.

Barnley, R. Service user involvement in preregistration child nursing programmes. Nursing Children and Young People. 2017; 29(10): 38-40.

Bean, D; Dearmun, A. More must be done to address the children's nursing workforce crisis. Nursing Children and Young People. 2019; 31(3):5-5.

Benner, P. From novice to expert. American Journal of Nursing. 1982. 82(3):402-407.

Bennett, E; Hauck, Y; Radford, G; Bindahneem, S. An interprofessional exploration of nursing and social work roles when working jointly with families. Journal of Interprofessional Care. 2016; 30(2):232-237.

Berlin, A; Nilsson, G; Törnkvist, L. Cultural competence among Swedish child health nurses after specific training: A randomized trial. Nursing Health Sciences. 2010; 12(3):381-391.

Birkhoff, SD; Donner C. Enhancing pediatric clinical competency with high-fidelity simulation. Journal of Continuing Education in Nursing. 2010; 41(9):418-23.

Blandford, A; Wesson, J; Amalberti, R; AlHazme R; Allwihan, R. Opportunities and challenges for telehealth within, and beyond, a pandemic. The Lancet. 2020; 8: e1364-e1365.

Borrow, S; Munns, A; Henderson, S. Community-based child health nurses: An exploration of current practice. Contemporary Nurse: A Journal for the Australian Nursing Profession. 2011; 40(1):71-86.

Brown, AM; Christie, LM; Higgerson, RA; Mikhailov, TA; Stojadinovic, BJ; Forbes, ML. A national survey of PICU nurse practitioners - opportunities to standardize practices and optimize service delivery. Pediatric Nursing. 2012; 38(5):249-50.

Brynes, N; Lee, H; Ren, D; Beach, M. Improvement of patient- and family-specific care for children with special behavioral needs in the emergency setting: A behavioral needs education. Journal of Emergency Nursing. 2017; 43(3):202-207.

Cady, RG; Kelly, AM; Finkelstein, SM; Looman, WS; Garwick, AW. Attributes of advanced practice registered nurse care coordination for children with medical complexity. Journal of Pediatric Health Care. 2014; 28(4): 305-312.

Cady, RG; Looman, WS; Lindeke, LL; LaPlante, B; Lundeen, B; Seeley, A; et al. Pediatric care coordination: lessons learned and future priorities. The Online Journal of Issues in Nursing. 2015; 20(3): e1-22.

Caicedo, C. Children with special health care needs: child health and functioning outcomes and health care service use. Journal of Pediatric Health Care. 2016; 30(6): 590-598.

Callaghan, L. (2007) Advanced Nursing Practice: an idea whose time has come. Journal of Clinical Nursing. 2017; 7(2):205-13.

Callery, P; Kyle, RG; Weatherly, H; Banks, M; Ewing, C; Powell, P; et al. Comparison of the costs of care during acute illness by two community children's nursing teams. Emergency Medical Journal. 2013; 30(12):1029-1032.

Callery, P; Kyle, RG; Weatherly, H; Banks, M; Ewing, C; Powell, P; et al. Substituting community children's nursing services for inpatient care: a case study of costs and effects. Emergency Medical Journal. 2014; 31(e1): e55-59.

Carey, MC; Chick, A; Kent, B; Latour, JM. An exploration of peer-assisted learning in undergraduate nursing students in paediatric clinical settings: An ethnographic study. Nurse Education Today. 2018; 65: 212-217.

Carroll, M. Report of the Commission on Nursing: a blueprint for the future. 1998. Available from: http://hdl.handle.net/10147/46443 [accessed 03/11/2020]

Carter, B; Coad, J; Brady, L; Goodenough, T; Moore, A; Anderson, C; et al. Home-based care for special healthcare needs: community children's nursing services. Nursing Research. 2012; 61(4):260-268.

Carter, B; Bray, L; Sanders, C; van Miert, C; Hunt, A; Moore, A. Knowing the places of care": how nurses facilitate transition of children with complex health care needs from hospital to home. Comprehensive Child and Adolescent Nursing. 2016; 39(2): 139-153.

Cassidy, S. Competence-based education: learning disability nursing in Wales. Nursing Standard. 2012; 27(10):42-47.

Cefaratti, M; Benninger, R; Nguyen, R. Implementing a hospital-based radiology nursing orientation program for new graduate pediatric nurses. Journal of Radiology Nursing. 2013; 32(4):170-179.

Child and Family Health Nurses Association. Competency standards for child and family health nurses. 2009. Child and Family Health Nurses Association. New South Wales, Australia.

Cimiotti, JP; Barton, SJ; Chavanu Gorman, KE; Sloane, DM; Aiken, LH. Nurse reports on resource adequacy in hospitals that care for acutely ill children. Journal of Healthcare Quality. 2014; 36(2):25-32.

Clancy, MA; Jack, K. Using poetry to explore difficult issues in children's nursing. Nurse Education Today. 2016; 44: 127-129.

Clark, TJ; Yoder-Wise, PS. Enhancing trifocal leadership practices using simulation in a pediatric charge nurse orientation program. Journal of Continuing Education in Nursing. 2015; 46(7):311-317.

Clark, Z; Ashbrooke, L; Price, J. Creating meaningful learning for children's nursing students: can museum field trips offer added value? Comprehensive Child and Adolescent Nursing. 2019; 42(1): 71-84.

Clarke, DT; Duffy, ME; Saupe JL. Developing competent float pool nurses through collaboration and communication. 2013. Conference Presentation. Available from: https://sigma.nursingrepository.org/handle/10755/291001 [accessed 31/10/2020]

Coddington, J; Sands, L; Edwards, N; Kirkpatrick, J; Chen, S. Quality of health care provided at a pediatric nurse-managed clinic. Journal of the American Academy of Nurse Practitioners. 2011; 23(12): 674-80.

Coetzee, M. Re-envisioning paediatric nurse training in a re-engineered health care system. Curationis. 2014; 37(2): 1-8.

Cowley, S; Kemp, L; Day, C; Appleton, JV. Research and the organization of complex provision: conceptualising health visiting services and early years programmes. Journal of Research in Nursing. 2012; 17(2): 108-124.

Conley, SB; Curry, JH; Hines, M; Baker, K; Schmidt, K; Zwier, K; et al. Consensus statements: Ambulatory pediatric oncology nursing practice. Journal of Pediatric Oncology Nursing. 2010; 27(1):6-9.

Cornock, M. Clinical competency in children's nursing: a legal commentary. Nursing Children and Young People. 2011; 23(10):18-9.

Covidence systematic review software, Veritas Health Innovation 2019: Melbourne, Australia. Available from www.covidence.org.

Cramer, RL; McLachlan, HL; Shafiei, T; Amir, LH; Cullinane, M; Small, R; et al. Implementation and evaluation of community-based drop-in centres for breastfeeding support in Victoria, Australia. International Breastfeeding Journal. 2017; 12(46): e1-14.

Creamer, AM; Austin, W. Canadian nurse practitioner core competencies identified: An opportunity to build mental health and illness skills and knowledge. The Journal for Nurse Practitioners. 2017; 13(5):e231-e236.

Cummins, A; McCloskey, S; O'Shea, M; O'Sullivan, B; Whooley, K; Savage E. Field visit placements: An integrated and community approach to learning in children's nursing. Nurse Education in Practice. 2010; 10(2): 108-112.

Cust, F. Increasing confidence of first-year student nurses with peer mentoring. Nursing Times. 2018; 114(10): 51-53.

Daley, AM; Polifroni, EC; Sadler, LS. The essential elements of adolescent-friendly care in school-based health centers: A mixed methods study of the perspectives of nurse practitioners and adolescents. Journal of Pediatric Nursing. 2019; 47: 7-17.

Darvill, A; Fallon, D; Livesley, J. A different world? The transition experiences of newly qualified children's nurses taking up first destination posts within children's community nursing teams in England. Issues in Comprehensive Pediatric Nursing. 2014; 37(1):6-24.

Dean, E. Visiting children at home and reducing admissions. Nursing Standard. 2016; 31(14): 38-39.

Dean, E. Is NMC education reform the beginning of the end for nursing branches? Nursing Standard. 2017; 31(46):18-21.

de Carvalho Furtado, MC; de Mello, DF; Pina, JC; Vicente, JB; de Lima, PR; Rezende, VD. Nurses' actions and articulations in child care in primary health care. Texto & Contexto – Enfermagem. 2018; 27(1): e0930016.

Delack, S; Martin, J; McCarthy, AM; Sperhac, AM. Nurse residency programs and the transition to child health nursing practice. The Journal of Nursing Administration. 2015; 45(6):345-350.

Delaney, KR. 2015 is here: the impact of LACE on the child/adolescent psychiatric nursing workforce. Journal of Child and Adolescent Psychiatric Nursing. 2014; 27(4):161-162.

Delaney, KR. The child mental health system is faltering: Why is nursing not providing solutions? Journal of Child and Adolescent Psychiatric Nursing. 2017; 30(2):70-71.

Department of Health. Palliative Care for Children with Life-Limiting Conditions in Ireland.: A National Policy. 2009. Available at: https://www.gov.ie/en/publication/ed697f-palliative-care-for-children-with-life-limiting-conditions-in-irelan/ [Accessed 23/09/2020].

Department of Health. A Policy on the development of graduate to advanced nursing and midwifery practice. 2019. Department of Health: Ireland.

Dickson G. Workforce planning in the NHS. 2015. Together for short lives. The King's Fund. UK.

Dodge, KA; Goodman, WB; Murphy, RA; O'Donnell, K; Sato, J; Guptill, S. Implementation and randomized controlled trial evaluation of universal postnatal nurse home visiting. American Journal of Public Health. 2014; 104(Suppl 1): S136-143.

Duffin, C. Treating children at home. Primary Health Care. 2010; 20(3): 6-7.

Duffin, C. Virtual children's ward brings the hospital into the home. Nursing Children and Young People. 2015; 27(10): 8-9.

Eade, AC; Winter, C. Using simulated practice in pre-registration education to explore mental health issues. British Journal of Nursing. 2017; 26(12): 690-694.

Eche, IJ; Aronowitz T. Evaluating cultural competence of pediatric oncology nurses at a teaching hospital: A pilot study. Journal of Pediatric Oncology Nursing. 2017; 34(6):422-426.

Ellington, E. Telepsychiatry by APRNs: An answer to the shortage of pediatric providers? Issues in Mental Health Nursing. 2013; 34(9):719-721.

Eronen, R; Pincombe, J; Calabretto, H. The role of child health nurses in supporting parents of young infants. Collegian. 2010; 17(3):131-141.

Evangelista, JA; Connor, JA; Pintz, C; Saia, T; O'Connell, C; Fulton, DR; et al. Paediatric nurse practitioner managed cardiology clinics: patient satisfaction and appointment access. Journal of Advanced Nursing. 2012; 68(10): 2165-2174.

Evans, A; Loera, K; Harris, D; Carson, S; Boutros, L; Okuhara, C. Development, implementation, and satisfaction with a nurse practitioner professional ladder: a children's hospital experience. Journal of Pediatric Healthcare. 2019; 33(1):111-116.

Felton, A; Holliday, L; Ritchie, D; Langmack, G; Conquer A. Simulation: a shared learning experience for child and mental health pre-registration nursing students. Nurse Education in Practice. 2013; 13(6): 536-540.

Fowler, C; Rossiter, C; Bigsby, M; Hopwood, N; Lee, A; Dunston, R. Working in partnership with parents: the experience and challenge of practice innovation in child and family health nursing. Journal of Clinical Nursing. 2012; 21(21-22): 3306-3314.

Fowler, C; Schmied, V; Psaila, K; Kruske, S; Rossiter, C. Ready for practice: What child and family health nurses say about education. Nurse Education Today. 2015; 35:e67-e72.

Freed, GL; Dunham, KM; Lamarand, KE; Loveland-Cherry, C; Martyn, KK. Pediatric nurse practitioners: roles and scope of practice. Pediatrics. 2010; 126(5):846-850.

Freed, GL; Dunham, KM; Moran, LM; Spera, L.; on behalf of The Research Advisory Committee of the American Board of Pediatrics. Resident work hour changes in children's hospitals: impact on staffing patterns and workforce needs. Pediatrics. 2012; 130(4):700-704.

Freed, GL; Dunham, KM; Martyn, K; Martin, J; Moran, LM; Spera, L. Pediatric nurse practitioners: influences on career choice. Journal of Pediatric Healthcare. 2014; 28(2):114-120.

Freed, GL; Moran, LM; Dunham, KM; Hawkins-Walsh, E; Martyn, KK. Capacity of, and demand for, pediatric nurse practitioner educational programs: a missing piece of the workforce puzzle. Journal of Professional Nursing. 2015; 31(4):311-317.

Friedman, MI; Delaney, MM; Schmidt, K; Quinn, C; Macyk, I. Specialized new graduate RN pediatric orientation: a strategy for nursing retention and its financial impact. Nursing Economics. 2013; 31(4):162-177.

Fry, M. Literature review of the impact of nurse practitioners in critical care services. Nursing in Critical Care. 2011; 16(2):58-66.

Gigli, KH; Beauchesne, MA; Dirks, MS; Peck, JL. White Paper: Critical shortage of pediatric nurse practitioners predicted. Journal of Pediatric Healthcare. 2019; 33(3):347-355.

Glasper EA. Does a shortage of specially trained nurses pose a threat to the provision of optimum care for sick children in hospital? Comprehensive Child and Adolescent Nursing. 2017; 40(1):1-5.

Godin, K; Stapleton, J; Kirkpatrick, SI; Hanning, RM; Leatherdale, ST. Applying systematic review search methods to the grey literature: a case study examining guidelines for school-based breakfast programs in Canada. Systematic Reviews. 2015; 4 (138): https://doi.org/10.1186/s13643-015-0125-0

Grant, K; Crouch, R. Who should nurse children requiring emergency care? International Emergency Nursing. 2011; 19(4):209-211.

Granrud, MD; Anderzèn-Carlsson, A; Bisholt, B; Steffenak, AKM. Public health nurses' perceptions of interprofessional collaboration related to adolescents' mental health problems in secondary schools: A phenomenographic study. Journal of Clinical Nursing. 2019; 28(15-16): 2899-2910.

Guest, EM; Keatinge, DR; Reed, J; Johnson, KR; Higgins, HM; Greig, J. Implementing and evaluating a professional practice framework in child and family health nursing: A pilot project. Nurse Education in Practice. 2013; 13(5):393-399.

Gund, A; Sjöqvist, BA; Wigert, H; Hentz, E; Lindercrantz, K; Bry, K. A randomized controlled study about the use of eHealth in the home health care of premature infants. *BMC* Medical Informatics and Decision Making. 2013; 13(22): e1-11.

Hall, S; Brady, S. The transformative power of a transition fellowship. Undated. Conference Presentation. Available from: https://sigma.nursingrepository.org/bitstream/handle/10755/17168/HallBradyS305.pdf?sequence=1&isAllowed=y [accessed 31/10/2020]

Hawkins-Walsh, E; Berg, M; Docherty, S; Lindeke, L; Gaylord, N; Osborn, K. A national survey of the primary and acute care pediatric nurse practitioner educational preparation. Journal of Pediatric Healthcare. 2011; 25(1):5-15.

Health Service Executive. Stay Left, Shift Left: eHealth Strategy for Ireland. 2018: Available from: https://www.ehealthireland.ie/News-Media/News-Archive/2018/Stay-Left-Shift-Left.html [accessed 31/10/2020]

Healey-Ogden, M; Wejr, P; Farrow, C. British Columbia: improving retention and recruitment in smaller communities. Nursing Leadership. 2012; 25:37-44.

Hendricks-Ferguson, VL; Akard, TF; Madden, JR; Peters-Herron, A; Levy, R. Contributions of advanced practice nurses with a DNP degree during palliative and end-of-life care of children with cancer. Journal of Pediatric Oncology Nursing. 2015; 32(1):32-39.

Hickey, P; Gauvreau, K; Connor, J; Sporing, E; Jenkins, K. The relationship of nurse staffing, skill mix, and MAGNET recognition to institutional volume and mortality for congenital heart surgery. Journal of Nursing Administration. 2010; 40(5):226-232.

Hoffman, A; von Sadovszky, V. A descriptive study of resources needed during floating among nurses in a tertiary pediatric facility. (undated) Conference Presentation. Available from: https://sigma.nursingrepository.org/handle/10755/620425 [accessed 31/10/2020]

Holland, ML; Groth, SW; Smith, JA; Meng, Y; Kitzman, H. Low birthweight in second children after nurse home visiting. Journal of Perinatology. 2018; 38: 1610–1619.

Horner, A. Gaps in community workforce putting pressure on parents. Nursing Children and Young People. 2016; 28(5):7-7.

Houses of the Oireachtas. Committee on the Future of Health Care. Sláinte Care Report. 2017: Available from: https://www.gov.ie/en/campaigns/slaintecare-implementation-strategy/ [accessed 31/10/2020]

Howard, J; Barnes, K. Addressing workforce capacity and safety issues for new nurse-led services through competency modelling. Clinical Governance: An International Journal. 2012; 17(4):317-331.

Hu, Y; Zhang, Y; Shen, N; Wu, J; Wu, J; Malmedal, WK. Stressors of newly graduated nurses in Shanghai paediatric hospital: a qualitative study. Journal of Nursing Management. 2017; 25(3):184-193.

Hunt, L. Has HEE got the balance between generic and specialist training right? Nursing Children and Young People 2016; 28(6): 8.

Hyde, R. An advanced nurse practitioner service for neonates, children and young people. Nursing Children and Young People. 2017; 29(8):36-41.

International Family Nursing Association (IFNA). IFNA Position Statement on Generalist Competencies for Family Nursing Practice. 2015. Available from: https://internationalfamilynursing.org/2015/07/31/ifna-position-statement-on-generalist-competencies-for-family-nursing-practice/ [accessed 05/11/2020]

International Family Nursing Association (IFNA). IFNA position statement on advanced practice competencies for family nursing. 2017. Available from: http://internationalfamilynursing.org/2017/05/19/advanced-practice-competencies/ [accessed 05/11/2020]

Jakubik, LD; Eliades, AB; Gavriloff, CL; Weese, MM. Nurse mentoring study demonstrates a magnetic work environment: predictors of mentoring benefits among pediatric nurses. Journal of Pediatric Nursing. 2011; 26(2):156-164.

Joint Faculty of Intensive Care Medicine of Ireland (JFICMI). National standards for paediatric critical care services. 2018. JFICMI, Ireland. Available from: https://jficmi.anaesthesia.ie/wp-content/uploads/2019/02/National-Standards-for-Paediatric-Critcal-Care-2018-07.02.2019.pdf [accessed 31/10/2020]

Kaye, EC; Gattas, M; Kiefer, A; Reynolds, J; Zalud, K; Li, C; et al. Provision of palliative and hospice care to children in the community: A population study of hospice nurses. Journal of Pain Symptom Management. 2019; 57(2):241-250.

Kearney, L; Fulbrook, P; Open-access community child health clinics: the everyday experience of parents and child health nurses. Journal of Child Health Care. 2012; 16(1): 5-14.

Kemp, L; Harris, E. The challenges of establishing and researching a sustained nurse home visiting programme within the universal child and family health service system. Journal of Research in Nursing. 2012; 17(2):127-138.

Keogh, K. Essential staffing levels for safe children's care updated by RCN. Nursing Standard. 2013; 27(43):7-7.

Kendall-Raynor, P. Social media campaign exposes reliance on parents for skilled care. Nursing Standard. 2015; 30(13):11-11.

Kim, C-G; Kim, J-S. The association between nurse staffing levels and paediatric nursing-sensitive outcomes in tertiary hospitals. Journal of Nursing Management. 2018; 26(8):1002-1014.

Kim, SS; Roh, YS. Effects of nurse-led child health service in child-care centers: A survey study. Nursing & Health Sciences. 2018; 20(4): 523-529.

Kyle, RG; Banks, M; Kirk, S; Powell, P; Callery, P. Integrating community children's nursing in urgent and emergency care: a qualitative comparison of two teams in North West England. BMC Pediatrics. 2012; 12(101): e1-13.

Latta, LC; Davis-Kirsch S. Developing a robust professional practice model using a shared governance approach. Journal of Pediatric Nursing. 2011; 26(6):580-585.

Lecher, WT. Men in pediatric nursing: facilitators for, and barriers to recruitment. InterAction. 2016; 33(1):8-8.

LeGrow, K; Hubley, P; McAllister, M. A conceptual framework for advanced practice nursing in a pediatric tertiary care setting: The SickKids' experience. Nursing Leadership. 2010; 23(2):32-46.

Levac, D; Colquhoun H; O'Brien, KK. Scoping studies: advancing the methodology. Implementation Science. 2010; 5(1):69. doi.org/10.1186/1748-5908-5-69.

Liang, H-F; Wu, K-M; Weng, C-H; Hsieh, H-W. Nurses' views on the potential use of robots in the pediatric unit. Journal of Pediatric Nursing. 2019; 47:e58-e64.

Lima, S; Newall, F; Kinney, S; Jordan, HL; Hamilton, B. How competent are they? Graduate nurses' self-assessment of competence at the start of their careers. Collegian (Royal College of Nursing, Australia). 2014; 21(4):353-358.

Lima, S; Newall, F; Jordan, HL; Hamilton, B; Kinney, S. Development of competence in the first year of graduate nursing practice: a longitudinal study. Journal of Advanced Nursing. 2016; 72(4):878-888.

Long, DA; Young, J; Rickard, CM; Mitchell, ML. Analysing the role of the PICU nurse to guide education of new graduate nurses. Nurse Education Today. 2013; 33(4):388-395.

Looman, WS; Erickson, MM; Garwick, AW; Cady, RG; Kelly, A; Pettey, C; et al. Meaningful use of data in care coordination by the advanced practice RN: the TeleFamilies project. Computers, Informatics, Nursing. 2012; 30(12): 649-654.

Looman, WS; Antolick, M; Cady, RG; Lunos, SA; Garwick, E; Finkelstein, SM. Effects of a telehealth care coordination intervention on perceptions of health care by caregivers of children with medical complexity: A randomized controlled trial. Journal of Pediatric Health Care. 2015; 29(4): 352-363.

Lunt, J. Health visitors support new parents with NHS Baby LifeCheck. Primary Health Care. 2010; 20(2): 26-27.

Macyk, I. A creative strategy to enhance pediatric competency among adult care nurses. Journal of Continuing Education in Nursing. 2011; 42(1):14-15.

Mahon, PR. The social determinants of nursing retention in a pediatric hematology/oncology unit. Journal of Pediatric Oncology Nursing. 2018; 35(6):417-427.

Marsden, J; Dolan, B; Holt, L. Nurse practitioner practice and deployment: electronic mail Delphi study. Journal of Advanced Nursing. 2003;43(6):595-605.

Martins, A; Aldiss, S; Gibson, F. Specialist nurse key worker in children's cancer care: professionals' perspectives on the core characteristics of the role. European Journal of Oncology Nursing. 2016; 24:70-78.

Martinez, JM. Hospice and palliative nursing certification: the journey to defining a new nursing specialty. Journal of Hospice and Palliative Nursing. 2011; 13(6):S29-S34.

Martyn, KK; Martin, J; Gutknecht, SM; Faleer, HE. The pediatric nurse practitioner workforce: meeting the health care needs of children. Journal of Pediatric Healthcare. 2013; 27(5):400-405.

Mason, S; Chike-Harris, KE; Gyr, BM; Johnson, E. Effect of facilitated discharge in pediatric orthopedic patients at an academic medical facility. Journal of Pediatric Health Care. 2019; 33(1): 58-63.

McLachlan, HL; Forster, DA; Amir, LH; Cullinane, M; Shafiei, T; Watson, LF; et al. Supporting breastfeeding ln Local Communities (SILC) in Victoria: protocol for a cluster randomised controlled trial. BMC Pregnancy and Childbirth. 2016; 14 (346): e008292.

Mendes, MA. Parents' descriptions of ideal home nursing care for their technology-dependent children. Pediatric Nursing. 2013; 39(2): 91-96.

Messmer, PR; Bragg, J; Williams, PD. Support programs for new graduates in pediatric nursing. Journal of Continuing Education in Nursing. 2011; 42(4):182-192.

Moher, D; Liberati, A; Tetzlaff, J; Altman, DG; The PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Medicine. 2009; 6(7):e1000097. doi:10.1371/journal.pmed1000097.

Mott, S; Fogg, N; Hollier, M; Lewis, DA; McDowell, BM; Saunders, K; et al. Society of pediatric nurses' core competencies for the pediatric nurse. Journal of Pediatric Nursing. 2018; 38:142-144.

Mulcahy, D; O'Callaghan, C; Hannigan A. Nurse triage in an Irish out-of-hours general practice co-operative. Irish Medical Journal. 2017; 110(3): 530.

Nageswaran, S; Golden, SL. Improving the quality of home health care for children with medical complexity. Academic Pediatrics. 2017; 17(6): 665-671.

Nageswaran, S; Golden, SL. Factors associated with stability of health nursing services for children with medical complexity. Home Healthcare Now. 2017; 35(8):434-444.

National Clinical Programme for Paediatrics and Neonatology. Model of Care for Paediatric Healthcare Services in Ireland. 2015: Available from: https://www.hse.ie/eng/about/who/cspd/ncps/paediatrics-neonatology/moc/chapters/ [accessed 31/10/2020]

National Quality Board (NQB). Safe, sustainable and productive staffing: An improvement resource for children and young people's inpatient wards in acute hospitals. 2018. NQB, UK. Available from: https://improvement.nhs.uk/documents/2981/Safe_Staffing_CYP_Appendices_FINAL_PROOF_27_June_2018.pdf [accessed 31/10/2020]

Neilson, SJ; Kai, J; McArthur, C; Greenfield, S. Using social worlds theory to explore influences on community nurses' experiences of providing out of hours paediatric palliative care. Journal of Research in Nursing. 2013; 18(5): 443-456.

New South Wales Department of Health. Child and Family Health Nursing Professional Practice Framework 2011–2016. 2011. New South Wales Department of Health, Australia.

Ng, M; Mariguddi, S; Coward, S; Middleton, H. Paediatric community home nursing: a model of acute care. British Journal of Nursing. 2014; 23(4): 209-212.

NHS Education for Scotland. A capability framework for nurses who care for children and young people who are looked after away from home. 2009. NHS Education for Scotland, Scotland.

NHS Education for Scotland. Career and development framework for community children's nursing. 2012. NHS Education for Scotland, Scotland.

NHS England. Healthy Children: Transforming Child Health Information. 2016. Available at: https://www.england.nhs.uk/wp-content/uploads/2016/11/healthy-children-transforming-child-health-info.pdf [Accessed 23/09/2020].

Northern Ireland Practice and Education Council for Nursing and Midwifery. Safeguarding children and young people: a core competency framework for nurses and midwives. 2012. Practice and Education Council for Nursing and Midwifery, Northern Ireland.

O'Brien, I; Duffy, A. The developing role of children's nurses in community palliative care. British Journal of Nursing. 2010; 19(15): 977-981.

O'Brien, M. Convergence at the surface; divergence beneath: cross-agency working within a small-scale, schools-based project. Journal of Child Health Care. 2011; 15(4):370-379.

O' Dwyer, P; Cullinane, S; Pellican-Kelly, S. Evaluation of the Contribution of the Child Protection Public Health Nurse to Inter-professional Working in Child Protection: An Integrated Health and Social Care Model of Child Protection. 2015. Available at: https://www.drugsandalcohol.ie/24247/1/24247%20Evaluation_of_the_child_protection_Public_Health_Nurse.pdf. [Accessed 23/09/2020].

Okuhara, CA; Faire, PM; Pike, NA. Acute care pediatric nurse practitioner: a vital role in pediatric cardiothoracic surgery. Journal of Pediatric Nursing. 2011; 26(2):137-142.

Özalp Gerçeker, G; Karayağız Muslu, G; Yardimci, F. Children's postoperative symptoms at home through nurse-led telephone counseling and its effects on parents' anxiety: A randomized controlled trial. Journal of Specialists in Pediatric Nursing. 2016; 21(4):189-199.

Paediatric Nursing Associations of Europe. Paediatric nurse education in Europe. A position statement by the paediatric nursing associations of Europe (PNAE). 2012. Available from: https://pnae.eu/position-statements/ [accessed 05/11/2020]

Palliative Care Competence Framework Steering Group. Palliative Care Competence Framework. 2014. Health Service Executive, Ireland.

Parant, RL; Pingitore, FRB; LaRose JA. An educational program to promote competency in pediatric psychiatric mental health nursing. Journal of Continuing Education in Nursing. 2014; 45(7):321-26.

Parker, G; Spiers, G; Cusworth, L; Birks, Y; Gridley, K; Mukherjee, S. Care closer to home for children and young people who are ill: developing and testing a model of service delivery and organization. Journal of Advanced Nursing. 2012; 68(9):2034–46.

Parab, CS; Cooper, C; Woolfenden, S; Piper, SM. Specialist home-based nursing services for children with acute and chronic illnesses. Cochrane Database of Systematic Reviews. 2013; Issue 6 Art. No. CD004383.

Paquette, J; Le May, S; Lachance Fiola, J; Villeneuve E, Lapointe, A; Bourgault, P. A randomized clinical trial of a nurse telephone follow-up on paediatric tonsillectomy pain management and complications. Journal of Advanced Nursing. 2013; 69(9): 2054-2065.

Pergert, P; Af Sandeberg, M; Andersson, N; Márky, I; Enskär, K. Confidence and authority through new knowledge: An evaluation of the national educational programme in paediatric oncology nursing in Sweden. Nurse Education Today. 2016; 38:68-73.

Petersen, CL; Callahan, MF; McCarthy, DO; Hughes, RG; White-Taut, R; Bansal NK. An online educational program improves pediatric oncology nurses' knowledge, attitudes, and spiritual care competence. Journal of Pediatric Oncology Nursing. 2017; 34(2):130-139.

Petitgout, JM; Pelzer, DE; McConkey, SA; Hanrahan, K. Development of a hospital-based care coordination program for children with special health care needs. Journal of Pediatric Health Care. 2013; 27(6): 419-425.

Petty, J; Treves, R. Development of a digital storytelling resource to support children's nursing students in neonatal care. Nursing Children and Young People, 2017; 29(2): 32-37.

Price, DM; Strodtman, L; Montagnini, M; Smith, HM; Miller, J; Zybert, J. Palliative and end-of-life care education needs of nurses across inpatient care settings. Journal of Continuing Education of Nurses. 2017; 48(7):329-336.

Psaila, K; Schmied, V; Fowler, C; Kruske, S. Interprofessional collaboration at transition of care: perspectives of child and family health nurses and midwives. Journal Clinical Nursing. 2015; 24(1-2):160-172.

Ramos, MM; Greenberg, C; Sapien, R; Bauer-Creegan, J; Hine, B; Geary, C. Behavioral health emergencies managed by school nurses working with adolescents. Journal of School Health. 2013; 83(10): 712-717.

Reid, FC. Lived experiences of adult community nurses delivering palliative care to children and young people in rural areas. International Journal of Palliative Nursing. 2013; 19(11): 541-547.

Regino, DSG; Nascimento, JSG; Parada, CMGL; Duarte, MTC; Tonete, VLP. Training and evaluation of professional competency in pediatric nursing: perspective of university professors. Rev Esc Enferm USP (Journal of School of Nursing, University of Sao Paulo). 2019; 53:e03454. doi.org/10.1590/S1980-220X2018002703454.

Ridgway, L; Mitchell, C; Sheean, F. Information and communication technology (ICT) use in child and family nursing: what do we know and where to now? Contemporary Nurse. 2011; 40(1):118-129.

Rossiter, C; Fowler, C; Hesson, A. Australian parents' experiences with universal child and family health services. Collegian 2019a; 26: 321–328.

Rossiter, C; Fowler, C; Hesson, A; Kruske, S; Homer, CS; Schmied, V. Australian parents' use of universal child and family health services: A consumer survey. Health and Social Care in the Community. 2019; 27(2): 472-482.

Royal College of Paediatrics and Child Health (RCPCH). Standards for children and young people in emergency care settings. 2012. RCPCH, UK. Available from: https://www.rcpch.ac.uk/sites/default/files/Standards_for_children_and_young_people_in_emergency_care_settings_2012.pdf [accessed 31/10/2020]

Royal College of Nurses (RCN). Defining staffing levels for children and young people's services. 2013. RCN: UK.

Royal College of Nursing (RCN). Competencies: caring for teenagers and young adults with cancer: a competence and career framework for nursing. 2014a. RCN: UK.

Royal College of Nursing (RCN). Children and young people's cardiac nursing: RCN guidance on roles, career pathways and competence development. 2014b. RCN: UK.

Royal College of Nurses (RCN). Specialist and advanced children's and young people's nursing practice in contemporary health care: guidance for nurses and commissioners. 2014c. RCN: UK.

Royal College of Nursing (RCN). Getting it right for children and young people self-assessment tool for general practice nurses and other first contact settings providing care for children and young people. 2017a. RCN: UK.

Royal College of Nurses (RCN). Supporting children's nurses working outside of designated children's wards. 2017b. RCN: UK.

Royal College of Nursing (RCN). The best start: the future of children's health valuing school nurses and health visitors in England. 2017c. RCN: UK.

Royal College of Nursing (RCN). RCN competencies: caring for infants, children and young people requiring palliative care. 2018. RCN: UK.

Royal College of Nursing (RCN). Safeguarding children and young people: roles and competencies for healthcare staff. 2019a. RCN: UK.

Royal College of Nursing (RCN). An integrated career and competency framework for children and young people's endocrine nurse specialists. 2019b. RCN: UK.

Royal College of Nursing (RCN). A competence framework for orthopaedic and trauma practitioners. 2019c. RCN: UK.

Ryan, G; Burton, L; Bromley, D. A nurse-led sleep service for children and young people with disability. Primary Health Care. 2014; 24(6); 16–23.

Sanders, T; O'Mahony, J; Duncan, S; Mahara, S; Pitman, V; Ringstad, K; et al. Opening the doors for school health-An exploration of public health nurses' capacities to engage in comprehensive school health programs. Public Health Nursing. 2019; 36(3):348-356.

Sasso, L; Bagnasco, A; Petralia, P; Scelsi, S; Zanini, M; Catania, G; et al. RN4CAST@IT-Ped: Nurse staffing and children's safety. Journal of Advanced Nursing. 2018; 74:1223-1225.

Schell, GJ; Lavieri, MS; Li, X; Toriello, A; Martyn, KK; Freed, GL. Strategic modeling of the pediatric nurse practitioner workforce. Pediatrics. 2015; 135(2):298-306.

Schmied, V; Mills, A; Kruske, S; Kemp, L; Fowler, C; Homer C. The nature and impact of collaboration and integrated service delivery for pregnant women, children and families. Journal of Clinical Nursing. 2010; 19(23-24): 3516-3526.

Spiers, G; Allgar, V; Richardson, G; Thurland, K; Hinde, S; Birks, Y; et al. Transforming community services for children and young people who are ill: a quasi-experimental evaluation. Health Services Delivery Research. 2016; 4(25): Available from: https://www.ncbi.nlm.nih.gov/books/NBK384567/

Simmons, NL. Identifying environmental and individual factors that influence new nurse graduate performance. 2016. PhD thesis, Capella University, Minnesota, USA.

Simone, S; McComiskey, CA; Andersen B. Integrating nurse practitioners into intensive care units. Critical Care Nurse. 2016; 36(6):59-69.

Smith, JB; Rubinson, D; Echtenkamp, D; Brostoff, M; McCarthy, AM. Exploring the structure and content of hospital-based pediatric nurse residency programs. Journal of Pediatric Nursing. 2016; 31:187-195.

Sporing, E; Avalon, E; Brostoff, M. A nursing career lattice pilot program to promote racial/ethnic diversity in the nursing workforce. Journal of Nursing Administration. 2012; 42(3):138-143.

Staggs, VS; Dunton, N. Hospital and unit characteristics associated with nursing turnover include skill mix but not staffing level: An observational cross-sectional study. International Journal of Nursing Studies. 2012; 49:1138-1145.

Stretton, J; Richards, R. First student graduates from the University of Worcester pre-registration childhealth/neonatal route. Journal of Neonatal Nursing. 2010; 16: 49-52.

Suurmond, J; Lieveld, A; van de Wetering M; Schouten-van Meeteren, AYN. Towards culturally competent paediatric oncology care. A qualitative study from the perspective of care providers. European Journal of Cancer Care. 2017; 26(6): e12680. doi: 10.1111/ecc.12680.

Tavallali, AG; Kabir, ZN; Jirwe, M. Ethnic Swedish parents' experiences of minority ethnic nurses' cultural competence in Swedish paediatric care. Scandinavian Journal of Caring Sciences. 2014; 28(2): 255-263.

Taylor, SL. Pediatric nurses' perceptions of continuing professional development opportunities. 2015. PhD thesis, Walden University, California, USA.

Tume, L. Remodelling the paediatric ICU workforce: there is a case for implementing advance nurse practitioner roles into all paediatric intensive care units. Nursing in Critical Care. 2010; 15(4): 165-167.

Tung, GJ; Williams, VN; Ayele, R; Shimasaki, S; Olds, D. Characteristics of effective collaboration: A study of nurse-family partnership and child welfare. Child Abuse and Neglect. 2019; 95:104028.

Turner, J. Innovation from the inside: Collaborating for school readiness. Community Practitioner. 2016. 89(8): 42-48.

Van Allen K. The society of pediatric nurses safe staffing for pediatric patients' literature review. Society Pedaitric Nurses News. 2012; 599-601.

Van Allen, K. SPN Position Statement on safe staffing: recommendations for an evidence-based and outcomes-driven staffing plan. Journal of Pediatric Nursing. 2016; 31(1): 113-116.

Van Cleve SN. The role of nurse practitioners in pediatric mental health. Journal of Pediatrics and Health Care. 2013; 27(3):162-163.

Valler-Jones, T. The impact of peer-led simulations on student nurses. British Journal of Nursing. 2014; 23(6): 321-326.

Voepel-Lewis, T; Pechlavanidis, E; Burke, C. Nursing surveillance moderates the relationship between staffing levels and pediatric postoperative serious adverse events: A nested case-control study. International Journal of Nursing Studies. 2013; 50(7):905-913.

Webb, T; Diamond-Wells, T; Jeffs, D. Career mapping for professional development and succession planning. Journal for Nurses in Professional Development. 2017; 33(1):25-32.

White J. Interim paediatrics inpatients nurse staffing principles. 2019. Department of Health, Social Services, Welsh Government. Available from: https://gov.wales/sites/default/files/publications/2019-07/interim-paediatrics-inpatients-nurse-staffing-principles.pdf [accessed 31/10/2020]

Wilson-Barnett, J. Freedom to practice: The development of patient-centred nursing. International Journal of Nursing Studies. 2001; 38(3):369.

Windt, K. Development of online learning modules as an adjunct to skills fairs and lectures to maintain nurses' competency and comfort level when caring for pediatric patients requiring continuous renal replacement therapy (CRRT). Nephrology Nursing Journal: Journal of The American Nephrology Nurses' Association. 2016; 43(1):39-46.

Wodrich, E; Gilmartin, H; Fink, RM. Simulation to the rescue! Caring for a pediatric patient in the rural setting. Journal for Nurses in Professional Development. 2013; 29(4):197-201.

Woods, A. Advanced practice nurses - a growing role in acute care. Dimensions of Critical Care Nursing. 1999; 18(3):56.

Wu, J; Dean, KS; Rosen, Z; Muennig, PA. the cost-effectiveness analysis of nurse-family partnership in the United States. Journal of Health Care for the Poor and Underserved. 2017; 28(4):1578-1597.

Wyllie, E; Batley, K. Skills for safe practice – A qualitative study to evaluate the use of simulation in safeguarding children teaching for pre-registration children's nurses. Nurse Education in Practice. 2019; 34: 85-89.

# Appendices

## Appendix 1: Search Terms and Strings for Review Objectives 1 – 6.

Search Terms for Objective 1

| **Electronic databases:** | | |
|---|---|---|
| S1 | TI (child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs*) | Expanders - Apply equivalent subjects<br>Search modes - Boolean/Phrase |
| S2 | AB child* N5 nurs* OR AB paediatric N5 nurs* OR AB pediatric N5 nurs* | |
| S3 | S1 OR S2 | |
| S4 | (MM "Pediatric Nursing") | |
| S5 | S3 OR S4 | |
| S6 | TI (vision or strategy or "future direction") OR AB (vision or strategy or "future direction") | |
| S7 | S5 AND S6 | |

| **Grey Literature** | | |
|---|---|---|
| *Search Engine* | *Terms Searched_1* | *Terms Searched_2* |
| Open Grey System for Information on Grey Literature in Europe | <u>All these words:</u><br>Children's Nursing<br><br><u>Any of these words:</u><br>vision OR strategy OR plan OR policy | Children's Nursing Vision OR Children's Nursing Strategy OR Children's Nursing Policy OR Children's Nursing Plan OR Children's Nursing Vision |
| Advanced Google Search | 'Children's Nursing' AND ['vision' OR 'strategy' OR 'plan' OR 'policy'] | Children's Nursing Vision OR Children's Nursing Strategy OR Children's Nursing Policy OR Children's Nursing Plan OR Children's Nursing Vision |
| Royal College of Nurses<br>King's Fund<br>Nuffield Trust<br>Irish Nursing and Midwifery Organisation<br>Department of Health (Ireland)<br>Department of Health (UK) | Search using the following terms separately:<br>➢ Children's Nursing Vision<br>➢ Children's Nursing Strategy<br>➢ Children's Nursing Policy<br>➢ Children's Nursing Plan | N/A |

Search Terms for Objectives 2 & 3

| **Electronic databases:** | | |
|---|---|---|
| S1 | TI (child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs*) OR AB (child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs* ) | Expanders - Apply equivalent subjects<br>Search modes - Boolean/Phrase |
| S2 | (MM "Pediatric Nursing") | |
| S3 | S1 or S2 | |
| S4 | TI competenc* OR AB competenc* | |
| S5 | (MM "Professional Competence") OR (MM "Clinical Competence") OR (MM "Education, Competency- Based") | |
| S6 | S4 OR S5 | |
| S7 | S3 AND S6 | |

| | | |
|---|---|---|
| S8 | TI (scope N3 practice OR expert* OR "professional development" OR contin* N3 education) OR AB (scope N3 practice OR expert* OR "professional development" OR contin* N3 education) | |
| S9 | (MM "Scope of Practice") OR (MM "Professional Development") OR (MM "Education, Nursing, Continuing") OR (MM "Professional Role") | |
| S10 | S8 OR S9 | |
| S11 | S3 AND S10 | |
| S12 | S7 OR S11 | |
| S13 | S7 OR S11 | |

| **Grey Literature** | | |
|---|---|---|
| *Search Engine* | *Terms Searched_1* | *Terms Searched_2* |
| Open Grey System for Information on Grey Literature in Europe | <u>All these words:</u><br>1) competenc* AND nurse<br>2) nurse* competenc* | <u>All these words:</u><br>1) knowledge AND nurse<br>2) nurse* knowledge |
| https://sigma.nursingrepository.org/ | <u>All content:</u><br>nurse AND competency AND child | N/A |
| Advanced Google Search | <u>All these words:</u><br>competency AND nurse<br><br><u>Any of these words:</u><br>child OR children OR paediatric OR paediatrics OR pediatric OR pediatrics | <u>All these words:</u><br>knowledge AND nurse<br><br><u>Any of these words:</u><br>child OR children OR paediatric OR paediatrics OR pediatric OR pediatrics |
| Royal College of Nurses | Search using the following terms separately:<br>➢ children's nurse competency<br>➢ paediatric nurse competency | Search using the following terms separately:<br>➢ children's nurse knowledge<br>➢ paediatric nurse knowledge |
| King's Fund | | |
| Nuffield Trust | | |
| Irish Nursing and Midwifery Organisation | | |
| Department of Health (Ireland) | | |
| Department of Health (UK) | Children's nurse | Paediatric nurse |

Search Terms for Objective 4

| **Electronic databases:** | | |
|---|---|---|
| S1 | TI (adolescen* N5 nurs* ) OR AB (adolescen* N5 nurs*) OR TI (child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs*) OR AB (child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs*) | Expanders - Apply equivalent subjects<br>Search modes - Boolean/Phrase |
| S2 | (MM "Pediatric Nursing") | |
| S3 | S1 OR S2 | |
| S4 | TI (trend* or reform* OR transform* OR resdesign) OR AB (trend* or reform* OR transform* OR redesign) | |
| S5 | (MM "Health Care Reform") | |
| S6 | S4 OR S5 | |
| S7 | TI (integrat* OR ambulatory OR community OR "primary care" OR "home care" OR "home health" OR ehealth or e-health or telecare or telemedicine OR telehealth OR "digital health") OR AB ( integrat* OR ambulatory OR community OR "primary care" OR "home care" OR "home health" OR | |

| | | |
|---|---|---|
| | ehealth or e-health or telecare or telemedicine OR telehealth OR "digital health") | |
| S8 | (MM "Health Care Delivery, Integrated") OR (MM "Ambulatory Care Nursing") OR (MM "Community Health Nursing") OR (MM "Community Mental Health Nursing") OR (MM "Primary Health Care") OR (MM "Home Health Care") OR (MM "Telehealth") OR (MM "Telemedicine") OR (MM "Child Health Services") | |
| S9 | S7 OR S8 | |
| S10 | S6 OR S9 | |
| S11 | S3 AND S10 | |

| **Grey Literature** | | |
|---|---|---|
| *Search Engine* | *Terms Searched_1* | *Terms Searched_2* |
| Open Grey System for Information on Grey Literature in Europe | 1) ((polic* OR strateg*) AND health)<br>2) child* AND health<br>3) ((paed* OR ped*) AND health) | 1) health polic*<br>2) health strateg* |
| https://sigma.nursingrepository.org/ | 1) Policy AND child AND nurse<br>2) Strategy AND child AND nurse | 1) Policy AND paediatric AND nurse<br>2) Strategy AND paediatric AND nurse |
| Advanced Google Search | All these words:<br>"Children nurse"<br>Any of these words:<br>transform OR reform OR change | All these words:<br>(Nurse) AND (Paediatric OR Pediatric OR Child OR Children)<br>Any of these words:<br>transform OR reform OR change |
| Royal College of Nurses | 1) 'Services for children'<br>2) 'changes in children's care' | 1) reforms in child health services<br>2) changing trends in child health services |
| King's Fund | | |
| Nuffield Trust | | |
| Irish Nursing and Midwifery Organisation | | |
| Department of Health (Ireland) | | |
| Department of Health (UK) | 1) Child (in 'Guidance and regulation' OR 'policy papers and consultations')<br>2) Children (in 'Guidance and regulation' OR 'policy papers and consultations') | 3) Paediatric (in 'Guidance and regulation' OR 'policy papers and consultations') |

Search Terms for Objective 5

| Electronic databases: | | |
|---|---|---|
| S1 | TI (child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs*) OR AB (child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs*) | Expanders - Apply equivalent subjects Search modes - Boolean/Phrase |
| S2 | (MM "Pediatric Nursing") | |
| S3 | S1 OR S2 | |
| S4 | TI (career* OR "clinical ladder" OR occupation* OR employment OR "intention to stay") OR AB (career* OR "clinical ladder" OR occupation* OR employment OR "intention to stay") | |
| S5 | (MM "Employment") OR (MM "Intention") OR ((MM "Clinical Ladder") OR (MM "Careers in Nursing") OR (MM "Careers in Allied Health") OR (MM "Career Planning and Development") OR (MM "Career Mobility, International") OR (MM "Career Mobility")) | |
| S6 | S4 OR S5 | |
| S7 | TI (workforce OR manpower OR staffing OR "under staff*" OR retention* or retaining OR turnover OR "labour market" OR shortage* or recruit*) OR AB (workforce OR manpower OR staffing OR "under staff*" OR retention* or retaining OR turnover OR "labour market" OR shortage* or recruit*) | |
| S8 | (MM "Workforce") OR (MM "Job Market") OR (MM "Personnel Retention") OR (MM "Personnel Recruitment") OR (MM "Nursing Manpower") OR (MM "Health Manpower") OR (MM "Personnel Staffing and Scheduling") OR (MM "Personnel Turnover") OR (MM "Understaffing") | |
| S9 | S7 OR S8 | |
| S10 | S6 OR S9 | |
| S11 | S3 AND S10 | |

| Grey Literature | | |
|---|---|---|
| *Search Engine* | *Terms Searched_1* | *Terms Searched_2* |
| Open Grey System for Information on Grey Literature in Europe | (Workforce OR staffing) AND nurses | career AND nurses |
| https://sigma.nursingrepository.org/ | (Workforce OR staffing) AND nurses | career AND nurses |
| Advanced Google Search | All these words: 1) "Children's nurse" 2) "paediatric nurse" Any of these words: workforce OR staffing | All these words: "career" "nurse" Any of these words: children OR pediatric OR paediatric |
| Royal College of Nurses | 1) Children's nurse workforce 2) Staffing children's hospitals | 3) Children's nurse career pathway 4) Children's nurse career framework |
| King's Fund | | |
| Nuffield Trust | | |
| Irish Nursing and Midwifery Organisation | Children | Children's nurse |
| Department of Health (Ireland) | Children's nurse | N/A |
| Department of Health (UK) | Children's nurse | Children AND nurse |

Search Terms for Objective 6

| Electronic databases: | | |
|---|---|---|
| S1 | TI (adolescen* N5 nurs* ) OR AB ( adolescen* N5 nurs* ) OR TI ( child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs* ) OR AB ( child* N5 nurs* OR paediatric N5 nurs* OR pediatric N5 nurs* ) | Expanders - Apply equivalent subjects Search modes - Boolean/Phrase |
| S2 | (MM "Pediatric Nursing") OR (MM "Nurses, Pediatric") | |
| S3 | S1 OR S2 | |
| S4 | TI (undergraduate* OR preregistration OR baccalaureate* OR postgraduate* OR postregistration OR graduate* OR student*) OR AB (undergraduate* OR preregistration OR baccalaureate* OR postgraduate* OR postregistration OR graduate* OR student*) | |
| S5 | (MM "Education, Nursing, Baccalaureate") OR (MM "Students, Nursing") OR (MM "Education, Nursing, Graduate") | |
| S6 | S4 OR S5 | |
| S7 | S3 AND S6 | |

| Grey Literature | | |
|---|---|---|
| *Search Engine* | *Terms Searched_1* | *Terms Searched_2* |
| Open Grey System for Information on Grey Literature in Europe | Student AND Nurse | 1) Student AND nurse AND pediatric/ paediatric 2) Student AND nurse AND children |
| https://sigma.nursingrepository.org/ | Student AND Nurse AND children | 1) Student AND Nurse AND paediatric 2) Student AND Nurse AND pediatric |
| Advanced Google Search | All these words: "student nurse" Any of these words: children OR child OR paediatric OR pediatric | N/A |
| Royal College of Nurses | Student nurse | Student children's nurses |
| King's Fund | | |
| Nuffield Trust | | |
| Irish Nursing and Midwifery Organisation | | |
| Department of Health (Ireland) | | |
| Department of Health (UK) | | |

## Appendix 2: Eligibility Criteria for Review Objectives 1 – 6.

Inclusion and Exclusion Criteria for Objective 1

| Inclusion | Exclusion |
|---|---|
| Explicit reference/statement of vision/future direction for children's nursing with reference to:<br>* Professional development,<br>* Career<br>* Role in health care<br>* Educational preparation | Focus on nurses other than children's nursing |
| | Vision/future direction for children's nursing relating to specific aspects of clinical care/practice |

Inclusion and Exclusion Criteria for Objective 2

| Inclusion | Exclusion |
|---|---|
| Population is nurses who are newly graduated and work in children's healthcare (can include undergraduate students if discussing them transiting to employment) | Population is non-nurses, student nurses or qualified nurses who do not work in children's healthcare |
| Includes a set of generic competencies for entry level capturing the dimensions of nurses' role | Doesn't contain any competency statements for nurses who have graduated and work in children's healthcare |

Inclusion and Exclusion Criteria for Objective 3

| Inclusion | Exclusion |
|---|---|
| Population is nurses who work in children's healthcare | Population is non-nurses, student nurses or qualified nurses who do not work in children's healthcare |
| Set of generic competencies and/or set of specialist/advanced competencies for the nurse's changing role. Either set of competencies capture the dimensions of nurses' role. | Doesn't contain any competency statements for nurses who have graduated and work in children's healthcare |

Inclusion and Exclusion Criteria for Objective 4

| Inclusion | Exclusion |
|---|---|
| Papers that focus on registered nurses (any discipline/registration division e.g. children's mental health, ID, PHN etc. (i.e. not limited to registered children's nurses). | Does not consider nursing role |
| Papers relating to changing trends/reforms in nursing services and/or practices within the context of changing trends/reforms in child health services (e.g. ambulatory/ community/primary care/home healthcare, integrated care, ambulatory, telehealth) | |
| Any type of paper – i.e. studies, reviews, discussion, consensus papers, grey literature reports, policy documents, strategies etc. | |

Inclusion and Exclusion Criteria for Objective 5

| Inclusion | Exclusion |
|---|---|
| Papers that focus on workforce planning for nurses that work with children in relation to recruitment, retention and staffing challenges, including impact (such as quality of work life, safe staffing, missed care etc.). | Papers that do not relate to nursing or nursing services and papers that do not relate to working with children or child health services. |
| Papers that focus on career pathways including strategies to transition to promotional grades of employment (for all nursing grades) and new innovative roles that are broadening the scope of practice for nurses that work with children. | Papers that do not primarily focus on or discuss workforce planning for nurses that work with children in relation to recruitment, retention and staffing challenges, including impact. |
| Papers that relate to changing trends/ reforms in nursing workforce within the context of child health workforce planning and career advancements. | Papers that do not primarily focus on or discuss career pathways for nurses that work with children in relation to advancement to promotional grades of employment and new innovative roles that broaden the scope of nursing practice. |

Inclusion and Exclusion Criteria for Objective 6

| Inclusion | Exclusion |
|---|---|
| Population are studying for a qualification as a children's nurse (either undergraduate or postgraduate | Population are not student nurses or student nurses that are not seeking a qualification in children's nursing |
| Papers focus on the changing trends/reforms in children's services and/or practices (e.g. community/primary care/home healthcare placements, telehealth, simulation exercises) | Paper does not examine/ include education/learning relevant to the broader context of changing trends/reforms in children's services and/or practices |
| | Papers focusing on specific skills (for example: wound care, naso-gastric feeding etc.) |

## Appendix 3: Data Extraction Tables for Review Objectives 1 – 6.

### Table 1: Vision for nurses caring for children related to service provision and practice (obj. 1)

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| **ACADEMIC LITERATURE** | | | |
| Al-Motlaq et al. (2019) International - led by researchers in Jordan/Australia | Publication based on international collaboration of children's nurses to develop consensus on family-centred care (FCC); documents reports on the international descriptive study and discussion<br><br>Purpose was to develop contemporary and internationally agreed descriptors of FCC that could be used to form the foundation for a psychometric measure of FCC across settings and countries | Secondary aim: develop recommendations for future thinking about FCC<br><br>Proposes that need for a clearer vision for FCC practice | 27 statements, from children's nurses, on the family-centred care. Statements were labelled as weaker, moderate or strong agreement among the group. Acknowledged that FCC is difficult to implement effectively. Results indicated that for FCC to become a reality a clearer vision of FCC practice is needed with the nine recommendations proposed. Verbatim from Al-Motlaq (2019, p. 465):<br>1. FCC requires well-staffed family-appropriate facilities, along with the necessary resources, guidelines and tools.<br>2. Barriers to FCC must be overcome. Barriers can exist at the organizational, environmental and individual levels consequently, and these need to be first identified in each setting.<br>3. Healthcare providers must acknowledge and act upon the fact that families are the main stable and permanent source of nurturance for children, while hospitalization is temporary.<br>4. A universal template or guideline and a set of standards are needed to operationalize FCC and transfer it into practice.<br>5. FCC should be holistic, interdisciplinary and available across an institution.<br>6. FCC views family as part of the healthcare team, regardless of the patient's condition or reason for admission to a health service.<br>7. Culture plays an important role in the perception of FCC and what it means in relation to family participation in the child's care, and expectations of family involvement. Cultural competence is critical. Because people are diverse, nurses must use their professional expertise and judgment to decide the best approach for each case. |

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| | | | 8. Different means can be used to foster the application of FCC. While a charter of rights is a good initiative, policies and facilities should be modified to reflect the philosophy of FCC and its major components.<br>9. Children and young people, and parents and family members, need to be actively involved in defining, operationalizing and evaluating FCC. |
| Carter et al. (2012)<br>UK | Publication focused on community children's nursing services (CCNS)<br><br>Purpose: to gather children, family and health professionals or stakeholder perspectives on and experiences about CCNS specifically in relation to what things that are working well or what things that could be improved; including the *vision* for services | Proposed vision for the future of CCNS<br><br>During data collection there was a specific activity about Mapping the future (What is the vision for the future?) | The sub-theme, of the global theme, vision for the future was "parents supported to be parents, not caregivers" (p. 265).<br>▪ In the future CCNS would enable parents to be parents rather than their parenting role being subsumed into a caregiver role.<br>▪ Services would support children's and parents' choices and decision making; and reflect things of importance to families and promote independence.<br>▪ The well-being of all family members would be taken into account when designing care packages and determining service delivery.<br>▪ Best practice would be shared and common systems with other services and agencies would be adopted such as documentation, information technology, and training materials.<br>▪ An integrated approach to care through agreed national minimum service standards with clear responsibility for meeting the needs of children and their families undisrupted by geographical boundaries would be achieved.<br>▪ Five elements cited as cornerstones of an effective service: equity, access, flexibility, sustainability, and communication. |
| Latta and Davis-Kirsch (2011)<br>USA | Free-standing children's hospital<br><br>Published article describes development & implementation of a framework for nursing practice; including the improvement process used | Current<br><br>A locally developed model – aim that future nurses would be attracted if held similar values | CHILD - Previous acronym used to describe nursing core values at the organisation<br>C – competence<br>H – health<br>I – integrity<br>L – leadership<br>D – diversity<br>Framework/model needed to: (a) be aligned with the organisations vision and nursing mission, (b) be easily understood and meaningful to staff, (c) retain relationship-based/family-centred care and caring theory as the underpinning philosophical and |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| | to transition the framework into a robust professional practice model (PPM) required in pursue of Magnet status | | theoretical basis for care delivery, (d) include all five elements of a PPM identified in a literature review, and (e) be informed by and retain acronym CHILD (see above).<br><br>Informed by a gap analysis the existing nursing vision and values were reframed using the ART acronym which the organization uses for its service standards<br>A – accountability<br>R – respect<br>T - teamwork<br>The ART acronym enabled the translation of the core nursing values of nursing in a simple, clear way; reinforcing a message already familiar to staff<br><br>The CHILD acronym, previously used to describe values (see above), was now used to represent the missing PPM components (identified through gap analysis)<br>C - care delivery<br>▪ delivery of high quality care<br>▪ ethical care with respect for diversity<br>▪ family centred – relationship based care framework<br>H - healthy work environment<br>▪ Caring, healthy work environment<br>▪ Recruitment and retention of best nurses<br>I - innovation and improvement<br>▪ Staff involvement in Continuous Process Improvement (CPI) to improve patient outcomes<br>▪ Evidence-based practice<br>▪ Staff nurses contributing to profession through research and publications<br>L - leadership and governance<br>▪ Nursing Strategic Plan<br>▪ Leadership development and succession planning<br>▪ Shared Governance Leadership Model<br>D - development of staff |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
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| | | | ▪ Robust staff development programs<br>▪ Orientation, training, annual competencies and continuing education<br>▪ Professional development plans<br>▪ Support for national certification<br>∗See article for schematic representation. |
| LeGrow et al. (2010) Canada | Paediatric tertiary care hospital<br><br>Published article describes the evolution of advanced practice nursing (APN) and the process used to create a common vision and framework to guide APN practice | Current<br><br>Visioning exercises included activities such as:<br>"Think about Your Past"<br>"Do the Something You Want to Do"<br>"Newspaper Headline" | The developed vision statement was:<br><br>"Advanced practice nurses at SickKids are leaders who deliver expert pediatric healthcare. We strive to build diverse partnerships, foster innovation and push boundaries to help children and families be the best they can be." (p. 38)<br><br>The APN framework:<br>APN role in paediatric nursing practice presented as spoked wheel<br>▪ Child/family are in the centre as the focus, surrounded by and connected to the domains of paediatric APN practice which include: paediatric clinical practice, research and scholarly activities, inter-professional collaboration, education and mentorship, and organisational and systems management<br>▪ Domains are enacted in various settings across the care continuum including: hospital, home, ambulatory care clinics and community (thereby enhancing continuity of care for children and families)<br>▪ Provision of holistic FCC takes place in context of human relationships, partnerships, collaboration, and communication and continuity of care<br>▪ Outcomes include: enhancement of child & family health and advancement of paediatric nursing practice<br>▪ Theoretical foundations were the Illness Beliefs Model, the Leadership Practice Model, the APN Model of Advanced Practice, and the Canadian Nurses Association APN Standards & Competencies.<br>∗See article for visual figure of the framework |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| **GREY LITERATURE** | | | |
| Akron Children's Hospital (2020) USA | Children's hospital Magnet Recognised | Current | Vision: "Akron Children's nurses will set the standard of excellence for exemplary, nationally recognized nursing practice to improve, maintain and promote the health and well-being of our patients, families and community" Available: https://www.akronchildrens.org/pages/Nursing-Overview.html |
| Boston Children's Hospital (2005-2020) USA | Children' Hospital Magnet Recognised | Current | "Through powerful partnerships with patients and families, Boston Children's nurses and interprofessional teams serve as local, national and global leaders in shaping the science and delivery of safe and high-quality pediatric health care, while nurturing healthy work environments." Values: Communication, Accountability, Teamwork, Collegiality, Excellence and Innovation Available: http://www.childrenshospital.org/clinician-resources/for-nurses/how-we-work |
| Children's Hospital Colorado (2019) USA | Children's Hospital Magnet Recognition | Current | "At Children's Colorado, our mission, vision, values and strategic plan are aligned to prioritize patient care and a healthy work environment. Nurses have access to the resources they need to deliver the best care to our patients and families. Our nursing leaders support teams through mentoring and succession planning." "Our vision: Child Health. Reimagined. Realized." Available: https://www.childrenscolorado.org/health-professionals/pediatric-nursing/professional-nursing-practice/ |
| Children's Mercy Kansas City Hospital (2019) USA | Children's Hospital Magnet Recognition | Current | Nursing vision statement: "The nurses of Children's Mercy are committed to advancing a culture of quality caring that values relationship-based care in a professional practice environment. We are nursing leaders in clinical care, education, and research that positively influence the health care of children and families in our local and global communities." Available: https://www.childrensmercy.org/health-care-providers/nursing/ |
| Children's Hospital at Montefiore (2019) USA | Children's Hospital | Current | No vision explicitly stated, however mission and values stated. Mission is "nurses focused on ways to provide better patient care". "At the Children's Hospital at Montefiore (CHAM), nurses never lose sight of our non-negotiable goal of providing the best patient care possible. Nurses do this by focusing on: |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| | | | • Evidence-based practice,<br>• Interdisciplinary collaboration and participatory decision-making, and<br>• Innovation and excellence."<br>"Values: Nurses Provide the Impetus for Superior Care: Our nurses support critical elements of healthcare services, including: Accountability; Educational, interpersonal and technical competence; Leadership; Mentoring; Scholarship; Scientific knowledge and critical thinking; Scope of service; Shared governance; Standards of practice"<br>Available: https://www.cham.org/for-health-professionals/nursing-at-cham |
| Children's Hospital New Orleans (2019) USA | Children's Hospital | Current | Vision: "To provide comprehensive pediatric healthcare, which recognizes the special needs of children, through excellence and the continuous improvement of patient care, education, research, child advocacy and management.<br>Available: https://www.chnola.org/careers/nursing/ |
| Cornwell (2012) UK | Organisation | Proposed | "What is troubling about this vision and the others is the attempt to create an independent vision for nursing, midwifery, and care-giving separate from the rest of the health care system. All the visions acknowledge that nurses and midwives are members of a 'wider team', but they are not co-produced with health professionals and managers or with patients and relatives. Of course the professions have their own cultures, their own bodies of knowledge and practice, and their own hierarchies and ways of working. And values and behaviours in nursing and midwifery are critically important. But nurses, midwives and care-givers look after patients in the context of organisations, not in isolation."<br>Available: https://www.kingsfund.org.uk/blog/2012/10/developing-culture-compassionate-care |
| Great Ormond Street Hospital (2015) UK | Hospital | Current | "Nursing is delivered by a high-achieving and effective workforce, committed to continually improving quality care. We aspire to demonstrate that nursing at Great Ormond Street Hospital is 'top five globally'."<br>"We fully adopt the NHS Chief Nursing Officer's vision for Compassion in Practice. Our shared purpose is to maximise our contribution to high quality compassionate care and to achieve excellent health and well-being outcomes."<br>"Caring for children, young people and their families is our business" |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| | | | Care, Compassion, Competence, Commitment, Courage, Communication<br>Available: file:///C:/Users/lamberv/Downloads/Vision%20for%20Nursing%20(1).pdf |
| Irish Hospice Foundation (undated) Ireland | Children's Palliative Care Services | Current | "Our vision is that no-one will face death or bereavement without the care and support they need. Over the last 30 years one core aspect of our work is in making sure our precious children are fully supported through a life limiting condition or grief following the death of a significant person in their life."<br>Available: https://hospicefoundation.ie/programmes/childrens-palliative-care/children-life-limiting-conditions-palliative-care/ |
| John Hopkins All Children's Hospital (2019-2020) USA | Children's Hospital Magnet Recognised | Current | "The Johns Hopkins All Children's Hospital nursing mission is to be leaders in patient-centered care, advocacy and compassion. Each patient has unique needs and our nurses are committed to providing every family with high-quality, evidence-based and safe patient care."<br>Available: https://www.hopkinsallchildrens.org/Health-Professionals/Nursing |
| Monroe Carell Jr. Children's Hospital at Vanderbilt (2017) USA | Children's Hospital Magnet Recognition | Current | "Children's Hospital nurses realize patient- and family-centered care through a practice model that incorporates shared decision making, interdisciplinary teamwork, and evidence-based practice. Our nurses are dedicated to providing excellence in pediatric nursing through quality clinical and psychosocial care, education, and research. This vision is achieved through collaboration with all members of the health care team, including patients, families, and the community"<br>Available: https://www.childrenshospital.vanderbilt.org/services.php?mid=1005 |
| Nicklaus Children's Hospital (2019) USA | Children's Hospital Magnet Recognised | Current | "The delivery of nursing care is guided by comfort care principles and family centered care. The nursing department believes that each patient is a unique and integral part of the family unit. The delivery of patient care ensures respect for the dignity, values, religious and cultural needs of our children and families"<br>"The Nursing Department has adopted Dr. Katharine Kolcaba's Comfort Theory as its conceptual framework and foundation for the Nursing Professional Practice Model (PPM)"<br>"The Nursing mission statement to "provide compassion and comfort through innovative advanced care for our children and families" and vision "we will be where the children are, providing comfort through exceptional nursing care"." |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| | | | Available: https://www.nicklauschildrens.org/medical-professionals/nursing/art-of-nursing/philosophy-of-care |
| Seattle Children's Hospital (1995–2020) USA | Children's Hospital Magnet Recognised | Current | Mission Statement: "We provide hope, care and cures to help every child live the healthiest and most fulfilling life possible."<br><br>Vision Statement: "Seattle Children's will be an innovative leader in pediatric health and wellness through our unsurpassed quality, clinical care, relentless spirit of inquiry, and compassion for children and their families."<br>"Our founding promise to the community is as valid today as it was over a century ago. We will care for all children in our region, regardless of their family's ability to pay."<br>"We will:<br>• Practice the safest, most ethical and effective medical care possible.<br>• Discover new treatments and cures through breakthrough research.<br>• Promote healthy communities while reducing health disparities.<br>• Empower our team members to reach their highest potential in a respectful work environment.<br>• Educate and inspire the next generation of faculty, staff and leaders.<br>• Build on a culture of philanthropy for patient care and research."<br><br>Professional Practice Model<br>Our professional practice model, using the acronym CHILD, has five core elements:<br>Care delivery<br>Healthy work environment<br>Innovations and improvements<br>Leadership and governance<br>Development of nurses<br>Available: https://www.seattlechildrens.org/about/careers/nursing/ |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| Lucile Packard Children's Hospital, Stanford (2020) USA | Children's Hospital Magnet Recognised | Current | "The Professional Practice Model is a visual representation of our nursing core values, captures the essence of our vision and the spirit of our practice. Our professional practice is deeply rooted in the nursing Code of Ethics, social policy, scope and standards of practice, and Jean Watson's Theory of Human Caring".<br><br>"Our vision is caring with open hearts, hands and minds. This vision brings together the knowledge, skills and attitude needed to provide extraordinary patient care. Our vision is accomplished through collaboration, using the Shared Governance structure to make practice decision and we recognize each other for delivering extraordinary care."<br><br>**"**Our values are demonstrated through: nurturing individuals, having unity with others, respecting diversity, valuing self-care, using evidence-based practice and focus on safety at all times."<br>Available: https://www.stanfordchildrens.org/en/for-health-professionals/nursing/professional-practice-model |
| Temple Street Children's University Hospital (2015) Ireland | Hospital | Current | Provides an insight into the vision for nursing research in a paediatric hospital<br>"To promote and support nursing research, audit and quality improvement that brings tangible benefits to children who engage with our organisation. This will be achieved through the integration of rigorously developed nursing research and quality improvement initiatives along with effective collaboration and positive collegial relationships with other healthcare organisations and universities, thus creating safer and better healthcare standards for the children and their families." https://www.cuh.ie/wp-content/uploads/2014/03/TSCUH-Nursing-Research-Strategic-Plan-2015-2020.pdf |
| Texas Children's Hospital (1998-2019) USA | Children's Hospital | Current | "Our nurses provide exemplary, evidence-based, pediatric, maternal and fetal healthcare through a relentless focus on the development of nursing expertise, collaborative relationships and supportive and strong leadership at all levels."<br>"At the core of this professional environment are the following principles/concepts:<br>• Excellence in care and service<br>• Family-centred care and interdisciplinary collaboration<br>• Patient safety and continuous quality improvement |

| Authors, Date & Country | Source and purpose of document (i.e. hospital, government, publication etc.) | Proposed Vision or Current Vision | Statement on Vision for Children's Nursing |
|---|---|---|---|
| | | | • Academic scholarship through evidence-based practice and research"<br>Available: https://www.texaschildrens.org/health-professionals/nursing/about-us |
| UPMC Children's Hospital of Pittsburgh (2020)<br>USA | Children's Hospital Magnet Recognised | Current | 11 standards (each with action points) of nursing care based on P.R.I.D.E. values:<br>P: Patients and Families First<br>R: Responsibility<br>I: Innovation<br>D: Dignity and Respect<br>E: Excellence<br>Available: https://www.chp.edu/for-parents/before-your-childs-visit/during-visit/nursing-services |
| Walsall Healthcare NHS Trust (2019)<br>UK | NHS Trust/ Hospital | Current | "The Community Children's Nursing service provides holistic care to sick children by providing nursing care in the community setting, empowering and enabling the child, family/carers' to become more competent in the management of the child's condition, thereby reducing the need for hospital admissions or enabling early discharge."<br><br>"Our vision: Caring for Walsall together"<br>"We recently revised our vision to be "Caring for Walsall together" to reflect our ambition for safe integrated care, delivered in partnership with social care, mental health, public health and associated charitable and community organisations. It is underpinned by five strategic objectives which are to:<br>▪ Provide safe, high-quality care<br>▪ Deliver care at home<br>▪ Work with partners<br>▪ Value our colleagues<br>▪ Use resources well"<br>Values: Respect, Compassion, Professionalism, Teamwork<br>Available: https://www.walsallhealthcare.nhs.uk/our-services/community-childrens-nursing/ |

**Table 2: Entry level competencies for nurses who care for children (obj. 2)**

| Authors, Date, Country | Type of paper | Context | Competency framework/origins | Competency: Domains/ Statements/ Themes | Recommendations/other comments, if any, reported in paper |
|---|---|---|---|---|---|
| **ACADEMIC LITERATURE** | | | | | |
| Cassidy (2012) UK | Discussion | Competency based education for intellectual disability nursing noted as applicable to children's nursing. | Nursing and Midwifery Council (NMC) (2010) standards for degree level competencies | ▪ Professional values: dignity, human rights, empowerment.<br>▪ Communication & interpersonal skills.<br>▪ Nursing practice & decision making.<br>▪ Leadership, management & team working. | The NMC (2010) standards are presented below under grey literature. |
| Cefaratti et al. (2013) USA | Discussion | Historically, the department only employed experienced critical care nurses but due to an immediate need to attract staff graduate nurses were hired. | Nursing team developed a program for novice nurses (as unable to find graduate orientation programs in paediatric radiology in the literature). | The Radiology New Graduate Nurse Orientation Program was a structured 12-week program composed of a purposefully integrated mix of clinical and didactic components:<br>▪ Phase 1 (weeks 1-3): Team Building<br>▪ Phase 2 (weeks 4-12): Skill development<br>▪ Phase 3 (week 10 to end of first year): Professional development | ▪ 100% retention after the first year<br>▪ To make an orientation program successful and make improvements for the future, it is essential that there is open communication between new nurses, their peers, and the management team. |
| Delack et al. (2015) USA | Discussion | Evaluation of residency programmes for newly qualified registered nurses (RNs) transitioning to child healthcare settings. | Paediatric nurse leader forum convened by Institute of Paediatric Nursing | ▪ Professionalism: patient advocacy, professional boundaries, ethical principles, interprofessional education<br>▪ Family-centred care: awareness of values and beliefs of families with diverse cultures and social backgrounds; family care planning including future palliative and end of life if needed.<br>▪ Co-ordinating care: communication, leadership, & data management e.g. electronic records, informatics. | ▪ Residency programmes for all RNs entering into child health care settings in view of limited experiences in this area in undergraduate education.<br>▪ The need for well-designed quasi-experimental studies to evaluate outcomes of residency programmes was noted. |

| Authors, Date, Country | Type of paper | Context | Competency framework/origins | Competency: Domains/ Statements/ Themes | Recommendations/other comments, if any, reported in paper |
|---|---|---|---|---|---|
| Fowler et al. (2015) Australia | Survey | Child and Family Health (CFH) nurses' views on their readiness to practise after qualification and about their continuing engagement with learning. | Marked variation between CFH nursing qualifications across Australia and no national requirements or provision for specialist nursing registration in Australia. | ▪ Hands-on experience (clinical practice/placement)<br>▪ Drawing on prior experience and knowledge<br>▪ Learning on the job<br>▪ Never stop learning<br>▪ Barrier to learning/ lack of support for ongoing learning activities and opportunities. | The need for clinical placement to be retained and enhanced; the significant contribution of more experienced CFH nurses as mentors; the need for some CFH education courses to be reviewed to ensure they achieve an outcome of graduate readiness for practice; the importance of supporting ongoing professional development; and the removal of barriers to accessing education opportunities. |
| Lima et al. (2014) Australia<br>Lima et al. (2016) Australia | Longitudinal study | Competence development in the first year as a newly registered nurse in a tertiary paediatric setting. | Self-assessment using Nurse Competence Scale | Mean scores for each domain from commencement to 12 months post-registered:<br>▪ Helping role (mean 45.5 to 84.4)<br>▪ Teaching coaching (mean 35.0 to 76.2)<br>▪ Diagnostic functions (mean 44.0 to 79.2)<br>▪ Managing situations (mean 41.1 to 76.4)<br>▪ Therapeutic interventions (mean 35.9 to 73.4)<br>▪ Ensuring quality (mean 47.5 to 73.7)<br>▪ Work role (mean 39.9 to 76.6)<br>▪ Overall competence (mean 41.4 to 76.7) | ▪ Acceptance of Benner's model of novice to expert was that competence continues to develop.<br>▪ Expectation that new nurses will 'hit the floor running', quickly gaining the clinical knowledge and skills necessary for practice. However, rate at which competence develops varies between professional domains of practice. |
| Long et al. (2013) Australia/ New Zealand | Survey | Determine the content needed for graduate nurses (first 12 months of working as registered nurses) in the PICU. | Australian College of Critical Care Nurses (ACCCN)'s "Competency Standards for Specialist Critical Care Nurses (2002)." Level (1- | ▪ Leadership: Acts as a consultant outside critical care (mean level: 1.8)<br>▪ Reflective practice: Promotes research to improve critical care nursing practice (mean level: 2.67)<br>▪ Teamwork: Establishes and maintains collaborative and constructive relationships with colleagues in the critical care team (mean level: 4.67) and Recognises and | One quarter of the ACCCN Competency Standards for Specialist Critical Care Nurses<br>are expected to be performed at the supervised or higher level, indicating that reasonable levels of independence are required in graduate nurses, in the PICU, within one year of entering the workforce. |

| Authors, Date, Country | Type of paper | Context | Competency framework/origins | Competency: Domains/ Statements/ Themes | Recommendations/other comments, if any, reported in paper |
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| | | | 5) of skill for each competency: 1=dependent; 3= assisted; 5=independent. | respects the roles of members of the critical care team in the delivery of health care (mean level: 4.60)<br>▪ Professional Practice: Accepts responsibility for own actions (mean level: 4.60) | The majority of competency standards are expected to be performed at the assisted level, suggesting that facilitating and mentoring may be required beyond the graduate program period. |
| Mott et al. (2018) USA | Discussion | For the transition of new graduates into practice through clinical residency education programs. | Society of Pediatric Nurses' Core Competencies for the Pediatric Nurse | Eight domains: Safety & Quality Improvement; Advocacy; Communication; Collaboration & Teamwork; Leadership & Professional Development; Evaluation & Outcomes; Technology & Informatics and Research & Evidence-Based Practice.<br><br>Two key concepts Family-Centred Care and Accountability run through each domain. Each domain was defined followed by a list of behaviours prescribing the expected competencies. The competencies were all stated as measurable behaviours. | While SPN holds the copyright on the competencies in their completed format, it encourages different schools of nursing and institutions to use them as a framework and modify as needed to coincide with what is unique to their mission and vision statements. |
| Regino et al. (2019) Brazil | Survey | Training and evaluation of professional competency in paediatric nursing from the perspective professors (who lead the training and development of nurses) | Thematic categories, context units and recording units obtained from the analysis of the statements | Thematic categories:<br>Definition of professional competency; Attributes to work with children; Advances in professional competency training in paediatric nursing; Challenges for professional competency training in paediatric nursing; Evaluating acquiring competency to perform in paediatric nursing. | Competency is characterized by the ability to act successfully in facing the situations that present themselves, necessitating the support of a set of knowledge, but not restricted to it. In applying knowledge to practice, it is essential that you also access skills and attitudes that, when integrated, enable the professional to do, reflect and evaluate. Despite this approach, the attributes pertinent to nurses to act with children presented by teachers were basically related to knowledge and skills, |

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| | | | | | with little or no allude to attitudes, distancing themselves from the definition of dialogical competency. |
| Simmons (2016) USA | PhD | Factors that support new nurse graduates' work performance and role transition. | New Graduate Nurse Performance and the updated PRObing BEhavior questionnaires. | Acute care-nursing competencies: clinical knowledge; technical skills; critical thinking; communication; professionalism; and management of responsibilities.<br><br>Caucasian new nurse graduates rated their performance in the six acute care competencies higher than new nurse graduates of other ethnic origins, with notable differences in overall performance and satisfaction ratings. | The integration of recommended nursing competencies and revisions to nursing education to prepare nurses to practice effectively and competently were essential and vital components to the effective role transition and learning transfer of the novice nursing student.<br>NB: Students' self-rated their skill set but were not assessed for this PhD. |
| **GREY LITERATURE** | | | | | |
| Bradley et al. (2015) USA | Oral presentation | Quality Safety Education for Nurses (QSEN) Competencies | Using the QSEN Framework for Redesigning a Clinical Advancement Program<br><br>A twelve step process was used to build a competency-focused, clinical advancement program, or clinical ladder. | Seven domains of practice<br>▪ Patient Centered Care<br>▪ Teamwork & Collaboration<br>▪ Evidence Based Practice (EBP)<br>▪ Quality Improvement<br>▪ Safety<br>▪ Informatics<br>▪ Leadership | New Graduate Nurse Residency:<br>▪ Year-long program<br>▪ 10 + weeks of 1:1 preceptor<br>▪ Provides 34 classes (80 hours) over 12 months<br>▪ EBP project required<br>▪ Portfolio with exemplars<br>▪ Feedback and evaluation<br>▪ Mentoring |

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| Department of Health (2019) Ireland | Policy | Model to support the development of nurses to advance practice is needed. | Nursing and Midwifery Board of Ireland. | The graduate nurse demonstrates competencies in the following domains:<br>▪ Professional and ethical practice<br>▪ Holistic approach to care and integration of knowledge<br>▪ Communication and interpersonal skills<br>▪ Organisation and management of care<br>▪ Personal and professional development | |
| International Family Nursing Association (IFNA) (2015) International | Position statement | Generalist competencies for family nursing practice - competencies for undergraduate level or generalist level nurses to guide nursing practice when caring for families and provide a focus for nursing education | Developed by IFNA the Family Nursing Practice Committee | ▪ Enhance and promote family health.<br>▪ Focus nursing practice on families' strengths; the support of family and individual growth; the improvement of family self-management abilities; the facilitation of successful life transitions; the improvement and management of health; and the mobilization of family resources.<br>▪ Demonstrate leadership and systems thinking skills to ensure the quality of nursing care with families in everyday practice and across every context<br>▪ Commit to self-reflective practice based on examination of nurse actions with families and family responses.<br>▪ Practice using an evidence-based approach. | |
| Nursing and Midwifery Council (2010) UK | National standards | Competences required to register, and maintain status, as a children's nurse. | | ▪ Communication and interpersonal skills<br>▪ Nursing practice and decision-making skills<br>▪ Leadership, management and team competencies<br>▪ Professional values | These are the standards that nurses must meet when they qualify. This will also reinforce that all nurses must maintain these standards by keeping their knowledge and skills up to date as long as they are on the NMC register. |

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| Paediatric Nurse Education in Europe (2012) Europe | Position Statement | Paediatric Nursing Associations of Europe (PNAE) position statement<br><br>PNAE states that children and young people have the right to be cared for by appropriately qualified and educated nursing staff, that children and their families/guardians have a right to know that nurses who cares for them are specifically educated and competent to do so i.e. one who has successfully completed a recognised course of study/practice experience in the nursing care of | Paediatric Nursing Associations of Europe (PNAE) network carried out a survey of European countries to investigate the education of nurses to prepare them to care for children and young people.<br><br>This document presents a consensus position of organisations representing paediatric nurses across European countries in relation to education and competencies for nurses providing care to children/ young people. | Common framework for competency development for paediatric nursing in Europe encompasses:<br><br>Children and Young People's Rights (from the UN Convention on the Rights of the Child 1989) and European and national children's legislative frameworks<br><br>Child health and well-being (physical, mental and emotional) incorporating child protection and safety<br><br>Developmental needs of children and young people: physical, emotional, intellectual, social (cultural), moral and spiritual<br><br>Child and family centred care<br><br>Family support, child health information, education and promotion in the context of population/public health.<br><br>Provision of care for children with acute/chronic/life-threatening/limiting physical and mental conditions and disability/impairment (physical/intellectual/sensory) in any community or healthcare setting<br><br>Interdisciplinary and interagency collaboration i.e. working across children's service agencies | Variations across Europe in educational preparation of nurses who care for children/young people are a barrier to mutual recognition and geographical nurse mobility and indicate variability in quality of care provided to child citizens.<br><br>Paediatric nurse education programmes need to be in place that:<br><br>-enable the student to achieve required competencies and academic credits<br><br>-have approval of professional regulatory body, national paediatric nursing association, an education institution and or combination of these<br><br>-enable the student completing the programme to register as a paediatric nurse with the professional regulatory organisation of the country<br><br>-can be recognised by individual member states to facilitate the registered paediatric nurse to work across Europe. |

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| | | infants, children and young people. | | such as health, education, social care services and voluntary/charity organisations including parent/consumer bodies.<br><br>Competency framework headings (for 'general' nursing competencies, complying with EU directives)<br>▪ Professional values and the role of the nurse<br>▪ Nursing practice and clinical decision-making<br>▪ Knowledge and cognitive<br>▪ Communication, interpersonal and technology<br>▪ Leadership, Management and team working | |
| Quinn et al. (2016) Ireland | Oral presentation | Support the development of competencies for nurses that work in a new children's hospice | PaedPAL TASK (Tool for Assessing Skill and Knowledge) to support professional learning and development in children's palliative care nursing | Career development: Skill Matrix for Continuous Professional Development for the specialty of children's palliative care within Laura Lynn Children's Hospice<br>▪ Level 1 - Basic Knowledge (novice/ graduate nurse)<br>▪ Level 2 - Seeking development of competence in CPC (children's palliative care) and differing career options (CNM1, Senior staff nurse)<br>▪ Level 3 - Proficient Nursing Expert (fully competent CNS, CNM 2 or 3)<br>▪ Level 4 - Advancing Nursing Practice (e.g. Established CNS, possible aim ANP)<br><br>Domain of Competence | |

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| | | | | 1: Principles of palliative care<br>2: Communication<br>3: Optimizing comfort and quality of life<br>4: Care planning and collaborative practice.<br>5: Loss, grief and bereavement:<br>6: Professional and ethical practice in the context of palliative care | |
| Royal Children's Hospital, Melbourne (2011) Australia | Workbook | Royal Children's Hospital (RCH) Nursing Competency Workbook | Australian and Nursing Midwifery Council | Knowledge skills<br>▪ Basic<br>▪ Specialised<br>Skills<br>▪ Assessment<br>▪ Communication<br>▪ Critical thinking<br>▪ Time management<br>▪ Customer service<br>▪ Technical skills<br>▪ Teaching<br>Essence of Nursing<br>▪ Caring<br>▪ Character<br>▪ Professional presentation | Key components of the competency framework<br><br>Familiarisation – up to a ten week familiarisation period, individualised with respect to previous nursing experience; includes goal setting using professional development and achievement plan<br><br>Supernumerary time – to allow for workload sharing with preceptor and time away from direct patient care for orientation and additional learning<br><br>Preceptorship - formally assigned a preceptor to assist with transition to new practice setting. |
| Royal College of Nursing (2015) UK | Guidance paper | Core competences for neonatal practice | Using the Benner model for level of competency from standards as set by the Department of Health's Toolkit for high quality | Core competences for neonatal practice<br>▪ Communication and interpersonal relationships<br>▪ Personal, professional and people development<br>▪ Health, safety and security<br>▪ Service development | The best-prepared new graduate candidates would be registered as nurses in the child field of practice.<br><br>If adult field of practice is considered or registered midwife (RM). Holding either diploma/degree qualification the entrant |

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| | | | neonatal services and the neonatal care in Scotland: a quality framework (Scottish Government, 2013) | ▪ Quality<br>▪ Equality, diversity and rights<br>▪ Responsibility for patient care | will need considerable induction and a fast track programme. |

**Table 3: Development of expertise and continuing competence in nurses who care for children (obj. 3)**

| Authors, Date, Country | Type of paper | Context/focus | Competency framework/origins | Competency: Domains/ Statements/ Themes | Strategies for continuing development | Recommendations/other specific comments, if any, reported in paper |
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| **ACADEMIC LITERATURE** | | | | | | |
| Alavi et al. (2015) Iran | Qualitative study | Caring self-efficacy attributes among paediatric nurses. Self-efficacy seen an important for translating competencies into action. | Interviews with paediatric nurses-clinical, managers and instructors | ▪ Professional communication: effective therapeutic relationship, interactions with inter-professional teams.<br>▪ Management of care: provide process-oriented care, responsibility.<br>▪ Altruism: empathetic care, family centred care.<br>▪ Proficiency in practice: clinical skills, creativity care, know-how. | | Nurse managers and instructors could use results to help develop nurses' empowerment and self-efficacy. |
| Aruda et al. (2016) USA | Discussion | Paediatric nurse practitioner (PNP) job description analysis to examine for changes in the knowledge and skills required for advanced practice. | Examining the requirements for certifications in 2003, 2008, and 2011 by the American Nurses Credentialing Center (ANCC). | ▪ Dramatic shift from "assessment" activities to actual "performance" activities<br>▪ Changes in the role or work activities of paediatric primary care nurse practitioners (PPCNP) identified as; prescription of medication (top work activity), reporting of suspected child abuse, and immunization. | Analysis of changes in work activities over the decade provides knowledge for educators planning curriculum and for practicing clinicians to have the knowledge to remain current.<br><br>The importance of the three "P" foundational courses, patho, pharm, and physical assessment, was highlighted. | More research is needed to determine the effective means to meet the demand for NPs with focused paediatric training. |

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| Berlin et al. (2010) Sweden | RCT | Intercultural interaction in health care has been described as challenging and problematic.<br><br>Identified need to improve cultural competence among nurses working in primary child health services with immigrant parents and children. | Cultural competence training as per Campinha-Bacote's 2002 cultural competence model. | 1. Cultural awareness: providers start to examine their own bias, culture, and professional background.<br>2. Cultural knowledge: providers obtain knowledge of different cultures and ethnic groups (e.g. their worldview, traditions, religion, and differences in health-seeking behaviour).<br>3. Cultural skills: the providers' ability to conduct cultural assessment; that is, collecting relevant data concerning the client's present problem, as well as making a physical assessment.<br>4. Cultural encounters: providers' opportunity to gain experience by directly engaging in face-to-face cultural interactions with clients from different cultural backgrounds, trying to modify existing beliefs, or to prevent the possible stereotyping of these individuals.<br>5. Cultural desire: providers' motivation and willingness to become culturally competent. | | Three-day course will not make a nurse culturally competent but nurses positively rated their cultural skills, knowledge and encounters awareness and encounters post-intervention. |

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| Birkhoff and Donner (2010) USA | Discussion | Continued competency of nurses' in low-volume, high-risk situations. | American Heart Association's Pediatric Advanced Life Support | 1: The simulated setting provides a risk-free environment in which learners can incorporate cognitive, psychomotor, and affective skill acquisition without the fear of harming patients.<br>2: High-fidelity simulation provides the ultimate training environment in which participants can practice critical assessment and communication skills before engaging in practice.<br>3: Important disadvantages of simulation may include the lack of realism of the simulator, the need for personnel to run the simulator, and the high cost of simulators.<br>4: Implementation of high-fidelity simulation has been used in a Pediatric Advanced Life Support course and during hospital wide skills fair days to evaluate and validate nursing competencies. | | With current limitations on research studies, it will be some time before the full effects of either high-fidelity or low-fidelity simulation are known. |

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| Brynes et al. (2017) USA | Intervention study | Caring for children with special health care needs (CSHCN) in ED | Authors own educational training module for ED staff | ▪ Obtain all necessary elements of health history<br>▪ Know age-appropriate modifications for health history<br>▪ Recognize and respond to verbal cues presented by the client<br>▪ Recognize and respond to nonverbal cues presented by the client<br>▪ Evaluate the effectiveness of my teaching<br>▪ I feel confident when I am caring for patients with behavioural special needs in the emergency department<br>▪ I am comfortable consulting child life services for patients with behavioural special needs | | The feasibility of this brief education on the care of paediatric behavioural patients offers an opportunity for just-in-time resources for a busy ED staff member. |
| Clark and Yoder-Wise (2015) USA | Discussion | Introduction of a leadership simulation to enhance nurses' preparedness to become Charge Nurses. | Simulation addressed three attributes of competence acquisition: environment, demonstration, and evaluation as described by Hansen and Bratt 2015. | ▪ Cognitive performance<br>▪ Behavioural performance | Suggests frequent practice is needed when working with new CNs in developing their skills, especially when implementing care while supporting a novice nurse and an upset or anxious parent. | |

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| Cornrock (2011) UK | Legal commentary | Nurses should be aware of their limitations and abilities and not take on a task or role for which they do not feel competent. | United Kingdom's Nursing and Midwifery Council | ▪ Have the knowledge and skills for safe and effective practice when working without direct supervision.<br>▪ Recognise and work within the limits of their competence.<br>▪ Keep knowledge and skills up to date throughout their working life.<br>▪ Take part in learning and practice activities that maintain and develop competence and performance. | To maintain registration a nurse needs to have completed 450 hours of registered practice and 35 hours of learning activity in the previous three years. | UKCC framework abolished the term extended role, and nurses can perform any task, procedure or role, that is not expressly prohibited or restricted by legislation, provided that they believe themselves to be competent to undertake the role to the required standard. |
| Creamer and Austin (2017) Canada | Discussion | Examining requirements for nurse practitioners' entry-to-practice examinations: Mental Health and Illness Skills and Knowledge | Canadian Counsel of Registered Nurse Regulators<br><br>Identified entry-to-practice core competencies for adult, family/all ages, and paediatric nurse practitioners (NPs) across Canada | Family nurse practitioners should be able to:<br>▪ Identify, evaluate, and treat common physical and mental health problems that present in a primary care situation in a holistic manner<br>▪ Show an understanding of family NPs' scope of practice in caring for the mental health needs of underserved patients and within an integrated mental health clinical practice, including knowledge | Proposed education/ training methods:<br>▪ 2-day training session aimed for nurses working with people who have personality disorders improved knowledge and skills<br>▪ Access to regular ongoing group supervision improved | |

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| | | | | of when to provide mental health care solo, when to consult, and when to refer<br>▪ Incorporate culturally competent practices in primary care | knowledge, understanding, and confidence<br>▪ Integrated mental health model that situates an interprofessional clinical rotation | |
| Cusack et al. (2013) Australia | Discussion | Building flexibility into the use of competency-based assessment within the design of a transition to practice program | Partnerships for Entering the Pathway of Education (PEPE) is a learning pathway structured over 12 weeks. | Five themes identified that described the enablers and barriers to flexibility in applying a transition to practice program in the workplace using competency-based assessment:<br>1. Flexibility in the program design.<br>2. Flexibility on the part of preceptors.<br>3. Flexibility to enable recognition of previous learning.<br>4. Flexibility in the assessment of competencies.<br>▪ 5. Flexibility in workload. | The amount of flexibility that newly employed nurses experienced affected the length of time it took them to complete the competency-based assessment in PEPE. | For successful application of a transition to practice program using competency-based assessment, preceptors need to understand the flexible arrangements built into the program and have the confidence and competence to apply them. |
| Eche and Aronowitz (2017) USA | Survey | Current breadth of ethnic and cultural backgrounds of individuals in the United States requires that the nursing profession be culturally competent. | Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals. | ▪ Cultural desire<br>▪ Cultural knowledge<br>▪ Cultural skill<br>▪ Cultural encounters<br>▪ Cultural awareness | | Majority of paediatric oncology nurses reported they were culturally aware yet scored low on the subscales of cultural knowledge and skill. |

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| Guest et al. (2013) Australia | Discussion | Implementing new Child and Family Health Nursing Professional Practice Framework | Child and Family Health Nursing Professional Practice Framework | CFHN professional practice framework underpinning strategies:<br>▪ Reflective practice<br>▪ Clinical practice consultancy (CPC)<br>▪ Clinical skills assessment (CSA)<br>▪ Clinical supervision<br>▪ Professional portfolio<br>Nurses spent about 2 days completing online learning, clinical practice consultancies and skill assessments. | | CPD education was delivered online and the importance and strength of online CPD for paediatric nurses who live in rural and remote areas, have varying levels of access to clinical support, standardised education, guidelines and mentorship was indicated. |
| Hawkins-Walsh et al. (2011) USA | Two-phase survey | Educational programming needs of combined (acute and primary care) track paediatric nurse practitioner (PNP) graduates. | Combined track is growing in popularity and there is a need for national educational guidelines for combined primary and acute care PNP programs. | Main differences between two programmes:<br>▪ Acute care programs report teaching all competencies taught in the primary care programs.<br>▪ Three acute care competencies not listed for primary care competencies: management of (a) unstable chronic illnesses; (b) complex acute illness; and (c) critical illness.<br>▪ List of competencies for combined track: Health history; development screening; behavioural | ▪ Many participants believed much of preparation for their current role came from former experience as registered nurses providing care for children with similar health issues.<br>▪ Majority of participants stated a dual-track program would be an optimal blend of competencies in | Growing role for PNPs in caring for children with chronic illnesses and special needs and education programmes for PNPs would benefit from an expanded emphasis on chronic illness. |

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| | | | | screening; mental health screening; physical assessment; identification of genetic variations; abuse or violence assessment; health promotion, maintenance and anticipatory guidance; identification and management of common acute diseases/ conditions; diagnostic test indication and interpretation; primary care needs of children/adolescents with chronic illness/disabilities; management of stable chronic illness/disabilities; collaboration/ referrals to community resources; pharmacodynamics and medication prescription; identification and early intervention with children with mental/ behaviour problems | acute and outpatient care. | |
| Hendricks-Ferguson et al. (2015) USA | Discussion | Paediatric oncology care has expanded to include comprehensive care during cancer | American Association of Colleges of Nursing's eight Core Elements for Doctorate in | 1. Scientific underpinnings for practice<br>2. Organizational and systems leadership for quality improvement and systems thinking | | Attention should be given to DNP-nurse candidate's advanced technology skills and knowledge of how to critically appraise published evidence-based |

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| | | treatments, palliative care support and end-of-life care. | Nursing Practice (DNP) Education | 3. Clinical scholarship and analytical methods for evidence-based practice<br>4. Information system/technology and patient care technology for the improvement and transformation of health care<br>5. Health care policy for advocacy in health care<br>6. Interprofessional collaboration for improving patient and population health outcomes<br>7. Clinical prevention and population health for improving the nation's health<br>8. Advanced nursing practice | | research for translation into clinical practice<br><br>Time allotted for clinical practice and scholarship (or research) activities (e.g., 80% clinical practice role, 20% research role) |
| Howard and Barnes (2012) USA | Discussion | Proposed competencies for ANP's | Authors' own adaptation of Benner's novice-to-expert framework | Authors' propose:<br>▪ 23 competencies at proficient level<br>▪ 16 competencies at competent level<br>▪ 2 competences at learner level | | Competency modelling can contribute to effectiveness of ANP education, help to address workforce planning issues and provide re-assurance for commissioners in terms of governance and safety. |
| Macyk (2011) USA | Discussion | One 15-hospital health system in New York addressed establishing and maintaining | The children's hospital, of this health system, introduced a | Prerequisite learning is prescribed 1 month before the classroom time. The department has created a rich database of | | |

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| | | competence to care for paediatric patients | paediatric development curriculum entitled "Special T". | Internet-based e-learning modules. Participants are prescribed 6 hours of modules.<br><br>Learners must achieve a score of 80% or more on a post-test to meet the objectives and receive a certificate of completion. The modules are accessible from home and award contact hours.<br><br>The 8-hour, instructor-led class covers aspects of care less practiced in the adult setting. The class is scenario based and simulation focused. | | |
| Martinez (2011) USA | Discussion | Development of national certification for hospice nursing practice, including palliative paediatric care | National Board for Certification of Hospice and Palliative Nurses | Seven domains of competencies and 18 accreditation standards teaching programmes are required to meet. | | |
| Parant et al. (2014) USA | Discussion | Educational program for paediatric medical-surgical nurses who were expected to staff the paediatric medical-psychiatric unit was developed. | The American Psychiatric Nurses Association's 2007 standards of practice for psychiatric and mental health nursing, the | Paediatric Psychiatric Mental Health Nursing Competency Knowledge, Skills, And Attitudes:<br>▪ Therapeutic modalities of care<br>▪ Communication, therapeutic dialogue, and boundaries | | Nurses and patients benefit when nursing education programs use varied teaching modalities, build on existing knowledge, and are based on QSEN knowledge, skills, and |

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| | | | educational strategies outlined by the Institute of Medicine 2010, and Quality and Safety Education for Nurses (QSEN) 2012 were the basis for the development of nursing competencies. | ▪ Autism<br>▪ Disruptive behaviour disorders<br>▪ Psychotic disorders<br>▪ Substance abuse<br>▪ Eating disorders<br>▪ Personality disorders<br>▪ Anxiety disorders<br>▪ Mood disorders | | attitudes (KSAs), and professional nursing organizations' standards of practice. |
| Petersen et al. (2017) USA | Longitudinal study | Spiritual care education is not consistently provided in nursing curricula.<br><br>3-hour online self-study program focused on spiritual care for oncology children at the end of their life | Spiritual Care Competence Scale and Spirituality and Spiritual Care Rating Scale | Content areas of the educational program focused on (1) the definition of spirituality, (2) attributes of spiritual care for a child with cancer at the end of life, (3) goals of spiritual care for children and their families, (4) Fowler's stages of faith and Erikson's theory of psychosocial development as guiding frameworks, (5) techniques for therapeutic communication, (6) spiritual assessment tools, and (7) use of the nursing process to guide the provision of spiritual care | | The true effects of spiritual care educational programs may need to be re-evaluated after allowing time for new knowledge and skills to become fully integrated into practice. |

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| Price et al. (2017)<br>USA | Discussion | Educating nurses about palliative and end-of-life (EOL) care is a high priority in health care settings. | End-of-Life Care Questionnaire (EOLC-Q) | ▪ Knowledge<br>▪ Attitudes<br>▪ Behaviour<br>▪ Decision making<br>▪ Communication<br>▪ Continuity of care<br>▪ Patient and family support<br>▪ Symptom management<br>▪ Staff support | Strategies to address palliative care learning needs:<br>-baseline needs assessment<br>-interdisciplinary EOL workshop for communication skill development<br>-train-the-trainer programme for unit-based champions<br>-interdisciplinary comfort rounds<br>-reassessment | Nurses in all settings identified that the palliative care specialists are not consulted soon enough to help with patient decision making, symptom management, and communication.<br><br>Nurses identified the desire to obtain more education in palliative and EOL care, particularly on how to have goals of care discussions with patients and families, cultural preferences, and how to handle moral distress when personal values conflicted with family values. |
| Simone et al. (2016)<br>USA | Discussion | Adding nurse practitioners to intensive care settings requires strategic planning to develop a comprehensive program for integrating and training these nurses. | Based on the scope-of-practice competencies for specific populations of patients as outlined by professional organization | Core competencies headings:<br>▪ Obtains a relevant comprehensive or problem-focused health history from patient/medical records<br>▪ Performs a physical assessment<br>▪ Laboratory and diagnostic testing<br>▪ Establishes medical diagnosis | | Orientation is 12 to 26 weeks long, depending on competency expectations and individual nurse practitioners' knowledge needs.<br><br>Each newly hired nurse practitioner meets weekly with the lead nurse |

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| | | | | ▪ Plan of care<br>▪ Evaluation<br>▪ Procedures<br>▪ Patient Management<br>▪ Organizational | | practitioner to evaluate progress and tailor learning methods as needed. |
| Suurmond et al. (2017) Netherlands | Discussion | It is suggested that culturally competent care can improve cancer care to ethnic minority patients (Turkish and Moroccan immigrant families). | Authors' own content and thematic analysis of data | Competence themes (each had sub-headings within the themes):<br>▪ Knowledge<br>▪ Awareness<br>▪ Skills | Results of the study can be translated into concrete objectives for cultural competencies, which reflect obstacles that care providers are both aware and unaware of. | Important part of training is creating awareness of care providers' "unconscious incompetence". |
| Tavallali et al. (2013) Sweden | Discussion | How parents with ethnic Swedish backgrounds experience minority ethnic nurses' cultural competence and the care the nurses provide in a Swedish paediatric care context. | Cultural competence categories: cultural sensitivity, cultural understanding and cultural encounters | ▪ Cross-cultural skills<br>▪ Cross-cultural communication<br>▪ Influences of nurses' ethnicity<br>▪ Importance of nursing education (training should include information about the Swedish norms and values) | | The importance of including transcultural nursing in nursing education is also highlighted in previous research. |
| Taylor (2015) USA | PhD | Many nurses encounter difficulties engaging in continuing professional development (CPD) activities | The State of California requires registered nurses to complete 30 hours of continuing education every 2 | Seven themes that describe paediatric nurses' perceptions of CPD:<br>1) Participation<br>2) Motivators<br>3) Barriers<br>4) Adequacy/ Quality | | Recommended area for improvement was leadership and management development. |

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| | | | years to qualify for license renewal. | 5) Knowledge incorporated into practice<br>6) Improves Nursing Practice & Patient Outcomes<br>7) Wish list | | |
| Windt (2016) USA | Discussion | Development of Online Learning Modules as an Adjunct to Skills Fairs and Lectures to Maintain Nurses' Competency | Advancing Practice/Education (APE) Shared Governance Council members and the Education Nurse Specialist (ENS) of the hospital | Videos demonstrating continuous renal replacement therapy (CRRT) procedures were filmed; written content developed and interactive exercises to support the skills we were trying to demonstrate. | Two modules, initially, which would be assigned once per quarter with the skills fair on a different quarter. This was to assure that nurses were exposed to CRRT material every few months to increase retention. | Just-in-time (JIT) training is a method of providing instruction on a certain topic, skill, or procedure just prior to an individual's need to utilize or perform the knowledge or skill in real time. JIT training does not guarantee better patient outcomes in every instance. |
| Wodrich et al. (2013) USA | Discussion | Rural nurse educators are challenged with creating appropriate learning environments to assess and maintain nursing competencies in resource-limited areas. | Used Knowles' 1973 theory of adult learning to guide the creation of the simulation exercises.<br><br>Self-reported nurse competence and confidence | 1. Complete a head-to-toe paediatric assessment.<br>2. Demonstrate proper airway positioning.<br>3. Demonstrate the necessary interventions for a paediatric patient in respiratory distress, including the application of a nasal cannula, appropriate-size oxygen masks including simple mask, non-rebreather mask, and proper use of a bag-valve mask. | | Total cost to the organization was US$11,000.<br><br>Competency statistically increased for:<br>▪ Assess the blood pressure of a 6-month-old infant.<br>▪ Recognize stridor.<br>▪ Competent using a bag-valve mask on a 3-month-old who is still breathing. |

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| | | | | 4. Auscultate and identify normal vs. abnormal breath sounds.<br>5. Verbalize the normal respiratory rate of a 6-month-old infant.<br>6. Demonstrate the use of age-appropriate suction catheters.<br>7. Identify the normal heart rate and blood pressure parameters for a 6-month-old infant.<br>8. Verbalize the location of paediatric crash carts in the institution and locate emergency equipment on the crash cart.<br>9. Demonstrate the proper use of the Broselow tape | | ▪ Provide nasopharyngeal suctioning to a 9-month-old infant.<br>▪ Understand the significance of seesaw breathing in a 4-month-old infant. |
| **GREY LITERATURE** | | | | | | |
| Child and Family Health Nurses Association (2009) Australia | Competency standards document | Competency standards for child and family health nurses | Child and family health nurses must demonstrate ability to work within competency standards for registered nurses defined by Australian Nursing and Midwifery Council, and scope of practice and specialty standards | Three domains - professional practice, clinical practice, and promoting health and healthy communities - each with a number units of competency.<br><br>Professional practice – units of competency<br>1: Child and family health nurse functions in accordance with legislation and common law affecting child and family health nursing practice | | |

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| | | | defined by Child and Family Health Nurses Association | 2: Child and family health nurse acts in accordance with professional and ethical codes of conduct for registered nurses<br>3: Child and family health nurse maintains requirements / standards for continuing competence within scope of practice<br>4: Child and family health nurse uses in practice and contributes to nursing research and quality improvement<br>5: Child and family health nurse models the principles of mentorship/preceptorship within the context of child and family health nursing practice and acts to enhance the professional development of self and others<br>6: Child and family health nurse maintains a safe environment within the work place setting<br><br>Clinical practice – units of competency<br>1. Child and family health nurse works in partnership with children and families using effective communication to | | |

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| | | | | establish a relationship and identify strengths and resilience<br>2. Child and family health nurse uses evidenced based knowledge and skills to provide coordinated assessment, identify goals, plan strategies, implement and evaluate nursing care of children and families<br>3. Child and family health nurse works collaboratively and in partnership with colleagues, multidisciplinary health care teams and other service providers<br>4. Clinical practice of child and family health nurse includes group work within various community settings.<br>5. Child and family health nurse manages and maintains a safe and secure work environment within scope of clinical practice<br><br>Promoting health and healthy communities – units of competency<br>1. Child and family health nurse works with children and families in community setting | | |

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| | | | | using a primary health care approach.<br>2. Child and family health nurse is competent in building capacity and resilience to sustain and improve health outcomes | | |
| Department of Health (2019) Ireland | Policy | Model to support the development of graduate nurses to advanced practice.<br><br>Evidence suggests creating a critical mass of nurses as specialist and advanced practitioners has benefits for service provision (i.e., improved timely access to services, hospital avoidance, reduced waiting lists and integration of services). | Policy underpinned by an evidence review and informed by consultation with key stakeholders including national and international experts, educationalists, regulators, managers, policymakers and chief nurses. | Clinical Nurse Specialist competency domains:<br>▪ clinical focus<br>▪ patient/client advocacy<br>▪ education and training<br>▪ audit, research<br>▪ consultancy/clinical leadership<br><br>Advanced Nurse Practitioner competency domains:<br>▪ professional values and conduct<br>▪ clinical decision-making<br>▪ knowledge / cogitative<br>▪ management / team<br>▪ clinical leadership / professional scholarship | | |
| International Family Nursing Association (IFNA) (2017) | Position **s**tatement | Advanced practice competencies for family nursing - applicable to graduate nursing programs preparing advanced | Developed by the IFNA Family Nursing Practice Committee and approved by the | Competency domains<br>1. Family nursing - advanced practice care<br>2. Collaboration and leadership<br>3. Evidence-based family nursing | | |

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| International | | practice nurses to provide effective family nursing care, regardless of role or setting. | IFNA Board of Directors in 2017. | 4. Professional responsibility and accountability | | |
| NHS Education for Scotland (2009) Scotland | Capability framework | Capability framework for nurses at senior practitioner and advanced practitioner levels who care for children and young people who are looked after away from home<br><br>∗capability describes extent to which an individual can apply, adapt and synthesise new knowledge from experience and continue to improve their performance) | NHS Education for Scotland charged by Scottish Government to prepare capability framework that built upon a scoping exercise of current and future role of nurses caring for looked-after children<br><br>Stakeholder group (i.e. professionals from all parts of Scotland) was established to direct the project | Common capabilities built around five domains of practice:<br>• Practising ethically assumptions about values and attitudes needed to practise with looked-after children.<br>• Knowledge for practice capability of practitioner involves interplay between knowledge and the practical application of nursing skills.<br>• Leadership for practice addresses need for leadership, professional judgement and knowledge to co-ordinate, maintain and develop the nursing team within a multi-professional and multi-agency context.<br>• Multi-professional approach capabilities to work effectively in partnership with looked-after children and multi-professional and interagency teams.<br>• Care delivery and intervention | | |

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| | | | | capabilities specific to evidence-based approaches to providing care for looked-after children. | | |
| Northern Ireland Practice and Education Council for Nursing and Midwifery (2012) Northern Ireland | Competency document | Competency framework for nurses and midwives in safeguarding children and young people<br><br>*Safeguarding includes all preventable harm that impacts on the lives of children, including children in need, with a focus on children's personal development and well-being and making children's lives better | Competency framework developed through: literature review on competency frameworks for safeguarding children; review of current practices, consultation with healthcare staff, review of safeguarding training, advice from expert reference group | ▪ 18 core competencies for all staff working with children<br>▪ Additional 7 competencies for safeguarding nurse advisors/child protection nurse specialists | Competency framework can be used to:<br>-identify relevant expertise and skills needed when in contact or working directly with children/families<br>-assist to identify gaps in knowledge and skills, assist in planning of ongoing training and development needs and preparing for career progression<br>-assist with understanding the value and expertise brought to the team<br>- assist with understanding factors that may cause risks for children/young people, and need to seek support from other colleagues and | |

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| | | | | | agencies to intervene early. | |
| New South Wales Department of Health (2011) Australia | Professional practice framework | Professional practice framework for child and family health nursing | Framework developed in response to need to support child and family health nurses; developed within context of regulatory and legislative environments that govern healthcare in Australia. | 11 core knowledge and skills<br>1. Specialist nursing knowledge and skills in the care of children, parents and families<br>2. Primary health care approach<br>3. Health promotion<br>4. Cultural sensitivity<br>5. Working in partnership with families<br>6. Continuity of care<br>7. Perinatal mental health and family functioning<br>8. Child–parent relationship<br>9. Ensuring the safety, welfare and well-being of children, young people and carers<br>10. Community development and partnerships<br>11. Workplace safety and risk management<br><br>Child and family health nurses require additional knowledge and skills to enable prevention and early intervention, including:<br>-child development<br>-family functioning<br>-infant mental health | | Steps in clinical practice development/ demonstration of competence:<br>▪ Initial knowledge acquisition<br>▪ Core level competency (may be commenced and completed during initial child and family health nursing education)<br>▪ Orientation to health service (core competency assessment may be completed or commenced)<br>▪ Clinical practice consultancy (to support clinical practice development)<br>▪ Clinical supervision (to promote clinical practice reflection)<br>▪ Ongoing clinical practice development (other competencies |

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| | | | | -perinatal mental health<br>-health promotion. | | assessed as practice develops) |
| Palliative Care Competence Framework Steering Group (2014) Ireland | Palliative care competence framework | Palliative care competence framework reflects a move to standardisation of undergraduate and postgraduate education in Europe and how this relates to the development of competence<br><br>Palliative care, both generalist and specialist, is provided in all care settings, including the community, nursing homes, hospitals, and specialist palliative care units. | A steering group convened by the National Clinical Programme for Palliative Care programme was convened to support, guide, and oversee the development of the Palliative Care Competence Framework. | Domains of competency:<br>▪ Principles of palliative care<br>▪ Communication<br>▪ Optimising comfort and quality of life<br>▪ Care planning and collaborative practice<br>▪ Loss, grief and bereavement<br>▪ Professional and ethical practice in the context of palliative care<br><br>Competencies are listed for each area of nursing (i.e. general, paediatric, intellectual disabilities etc. and for midwifery (which include neonatal) | | |
| Royal College of Nursing (2014a) UK | Guidance paper | Competencies - caring for teenagers and young adults with cancer in all healthcare settings. | Teenage Cancer Trust three stage Delphi process amongst nurses working with teenagers and young adult from across all levels, clinical and | Framework sets out competencies for qualified nurses; from staff nurse (Band 5) to Lead Nurse level (Band 8a)<br>and Nurse Consultant (Band 8b/c). Levels of skills acquisition identified as: competent, | | Framework can be used as practical tool to assist nurses to develop their practice, assist assessors or managers to assess competence of the workforce and provide a map for succession |

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| | | | general settings, educators and researchers | experienced/proficient and expert. Level of competence determined by nurse and their manager/assessor.<br><br><u>6 broad competencies:</u><br>Demonstrates and applies:<br>▪ teenage and young adult nursing specific knowledge and skills in order to support the complex needs of patients with cancer<br>▪ patient advocate role; working with and alongside teenage and young adult patients, promoting patient empowerment to ensure patient views are central to care, choice and decision making<br>▪ evidence-based approach to teenage and young adult cancer nursing practice/policy<br>▪ contribution to specific teenage and young adult cancer nursing knowledge and skills to the wider multidisciplinary team<br>▪ contribution to nursing leadership in teenage and young adult cancer care | | planning and role development. |

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| | | | | ▪ need for professional development of self and others within teenage and young adult cancer care | | |
| Royal College of Nursing (2014b) UK | Guidance paper | Standardise clinical care received by children and young people with congenital heart disease | Competency framework for children and young people's cardiac nursing following the NHS Knowledge and Skills Framework | Listed competencies<br>▪ 6 pre-intervention<br>▪ 12 during treatment<br><br>Also present the Knowledge and Skills Framework (KSF) for children and young people's cardiac nurses (including core dimensions for children's cardiac nursing, specific dimensions for children's cardiac nursing, knowledge and skills). | | Essential qualification for children's cardiac nurse specialist: RSCN/RN (child branch). |
| Royal College of Nursing (2017a) UK | Guidance paper | Toolkit to support nurses working outside hospital settings who care for children and young people and who may not have a children's nursing qualification (i.e., general practice nurse) | Self-assessment tool to assist registered nurses working in general practice and out of hospital settings to review existing knowledge and skills, identify training needs and further develop their practice in discussion with clinical supervisor. | Core Competencies<br>▪ Professional values and role of the nurse<br>▪ Nursing practice and clinical decision-making<br>▪ Knowledge and cognitive<br>▪ Communication, interpersonal and technology<br>▪ Leadership, management and team working<br><br>Supports the personal appraisal development review (PADR) and revalidation process and | Portfolio designed as self-assessment tool for registered nurses who cares for children/young people to provide evidence and demonstrate how they are developing/maintaining core competencies and provides an opportunity to identify whether further training | |

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| | | | | demonstrates performance against the NHS Knowledge and Skills Framework (KSF). | and development is required. | |
| Royal College of Nursing (2018) UK | Guidance paper | Competence framework for nurses involved in the care of infants, children and young people requiring palliative care | Describes range of knowledge, skills and performance levels required of nurses and supervised health care support workers/assistant practitioners working in palliative care (from level 1 supervised practitioners through to level 4 consultant nurse practitioner). | Competencies<br>▪ Communicating effectively with children/young people with palliative care needs<br>▪ Providing multidisciplinary holistic care to children and young people with palliative care needs in any care setting (hospital, hospice, home or other community setting)<br>▪ Working with primary carers and health care professionals to identify and manage symptoms<br>▪ Sustaining self and the wellbeing of others when caring and supporting children/ young people and families with their grief, loss and bereavement | This competence framework:<br>• describes roles and responsibilities at different levels to help with workforce development and specification of role and job descriptions<br>• supports career progression in the specialist field, allowing staff to demonstrate progress and plan for professional development<br>• informs provision of continuing professional development opportunities e.g., study days<br>• helps promote development of strategic leadership roles in infant's, | |

| Authors, Date, Country | Type of paper | Context/focus | Competency framework/origins | Competency: Domains/ Statements/ Themes | Strategies for continuing development | Recommendations/other specific comments, if any, reported in paper |
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| | | | | | children's and young people's palliative care | |
| Royal College of Nursing et al. (2019a) UK | Guidance paper | Safeguarding children and young people roles and competencies for healthcare staff | Safeguarding/child protection competencies are set of abilities that enable staff to effectively safeguard, protect and promote the welfare of children and young people. Combination of skills, knowledge, attitudes and values required for safe and effective practice. | ▪ 30 core competencies for all clinical staff that have contact with children and young people<br>▪ Skills and knowledge are separated per area of nursing practice<br>▪ 13 additional competencies for nurses who are the named professional for safeguarding children and young people<br>▪ Further 9 competencies for designated nurses for safeguarding children and young people | Staff should receive refresher training every three years as a minimum | Accompanying this framework document is a template for practitioners to record relevant education and training, including for example, reflective practice and case discussions enabling them to demonstrate attainment and maintenance of knowledge, skills and competencies throughout their career. |
| Royal College of Nursing (2019b) UK | Guidance paper | Competency framework for children and young people's endocrine nurse specialists | Developed by RCN children and young people's Endocrine Community to enhance clinical care that children and young people with an endocrine disorder receive. | ▪ 6 competencies during the period in which the diagnosis is not yet confirmed<br>▪ 16 competencies once the diagnosis is confirmed<br>▪ 13 competencies for endocrine testing<br>▪ 10 competencies for transition to adult services<br>▪ 6 competencies for factors influencing growth and puberty | Framework should be used for:<br>• assessing clinical competence at differing levels<br>• developing personal goals and objectives<br>• performance appraisal<br>• supporting job descriptions and pay reviews/negotiations | States that the children's endocrine nurse specialist should be a nurse with a children's nursing qualification and be registered with the Nursing and Midwifery Council (NMC), with additional paediatric endocrine theoretical and practical knowledge. |

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| | | | | ▪ 6 competencies for auxology<br>▪ 3 competencies for assessment of skeletal maturity<br>▪ 4 competencies for physiology and pathology | | |
| Royal College of Nursing (2019c) UK | Guidance paper | Competency framework for orthopaedic and trauma nursing across Northern Ireland, Scotland, England and Wales.<br><br>Competencies in document can be applied across the lifespan of patients with a musculoskeletal condition as they transition through the health care system (varied health care providers, different settings such as hospital or community, in-patient and out-patient), from child, young adult, adult and older adult. | Online data sources searched for best available, current, valid and relevant evidence. Where research evidence was not available, a consensus of expert opinion from the working party informed the recommendations. | Four competency domains:<br>▪ 4 partner/guide competencies<br>▪ 4 comfort enhancer competencies<br>▪ 5 risk manager competencies<br>▪ 1 technician competency | | |

**Table 4: Changing international trends in nursing practice and services in line with changing trends in children's health services (obj. 4)**

| Authors, Date, Country | Type of study/ paper and focus | Child Health Service changing trend/reform /redesign Context | Changing Nursing Practice or Service Trends | Related Findings/Recommendations/other specific comments, if any, reported in paper |
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| **ACADEMIC LITERATURE** | | | | |
| **CLOSER TO HOME CARE** | | | | |
| Alcock & Smith (2014)<br>UK | Cross-sectional survey of parents' views of community matrons. | Shifting services into the community with child and young person's services having a single point of access (based on Kennedy Report, 2010). | Establishment of Community Matrons (advanced practitioners) to provide episodic or long-term care that can be managed to reduce hospital admission. Evidence based care provided that is holistic and centred around child's needs.<br>Matrons act as champions and leaders bridging primary and acute services. | Care perceived as equitable by parents. Service limitations included inadequate numbers of matrons, and lack of 24 hr service.<br>Recommended to: "Expand this service to a wider geographical area by building up a team of mixed-skilled professionals, so offering a more robust service that incorporates other long-term conditions identified by government directives" (p.23). |
| Caicedo (2016)<br>USA | Descriptive quantitative survey on health status of medically complex technologically dependent children and service utilisation (including nursing services) | Growing number of children with medical complexity with increased service utilisation has resulted in increasing need for paediatric nurse practitioners (PNPs) comprehensive child health services for those children dependent on technology. | PNPs as ANPs because of their specialised training and knowledge of health and regulatory issues provide well-managed care, supportive to parents, and coordinated care across various settings and multiple disciplines. Children received an average of 73hrsnursing health services per week. | Service viewed positively by parents. Concluded that this ANP role is necessary for the health and functioning of medically complex, technology-dependent children. |
| Callery et al. (2014)<br>& Callery et al. (2013)<br>UK | Case study on costs and effects of substituting community children's nursing | Major reconfiguration of secondary services involving reduced inpatient stays and increasing CCNTs in Primary Care Trust providing care for children with acute conditions. | CCNT had a team leader, equivalent level nursing 'sisters' (band 6), a part time staff nurse (band 5) and clerical officer. Care provided in homes, out of hours care, and they rotated through | Significant reduction in number of services used e.g. GPs, Eds & OPD. Most children visited at home and telephone calls increased by almost 50% post configuration. Average overall care costs to NHS reduced by 55%. |

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| | teams (CCNTs) for inpatient care. Case study included survey, interviews, and cost analysis of services. | | ED/Observation Assessment Units. Referral caseload included 3390 over 12 months i.e. 103.4:1000 child population in trust. | |
| Carter et al. (2016) UK | Qualitative study, interviewing nurses and stakeholders about transitions from hospital to home care for children with complex health care needs. | Shift from institutional care to home care for growing number of children with complex conditions. Nurses employed by a national charity (WellChild) to support this transition implemented the WellChild Children's Nurse Programme. | The model of care involved in-reach (community nurses linking into the hospital) and out-reach (hospital based nurses reaching out to community) services. Therefore, some WellChild children's nurses were located in the hospital and others in the community. Nurses development of knowledge and skills to care for children in their homes took time to achieve. They had a supportive role in facilitating transition from discharge to home and in sustaining the child at home. They liaised with stakeholders across settings (e.g. hospital, hospice, clinics) supporting for children with special needs continuity of care, providing care packages, and acting as advocates. They developed staffed training for staff in various settings. Nurses journeyed with children and families across care settings. | Multi-agency care and acknowledgement of interdependency with other healthcare professionals was crucial to nurses' role. They were most effective in their role when clear management structures were in place and when alliances with stakeholders across care settings could be established. |

| Authors, Date, Country | Type of study/ paper and focus | Child Health Service changing trend/reform /redesign Context | Changing Nursing Practice or Service Trends | Related Findings/Recommendations/other specific comments, if any, reported in paper |
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| Dean (2016) UK | Free-lance health commentary on home visiting. | Nurse-led teams caring for children at home versus hospital being introduced across UK Trusts and in many countries to reduce hospital admissions. | Residential visiting to children's homes for short periods (3-5 days) and several times daily if needed, focusing on acute care such as IV antibiotics, monitoring. | The service offers opportunities for nurses to increase autonomy. Also noted to save in terms of bed days (198 bed days) and £100K over 3 months. |
| Duffin (2010) UK | Free-lance health commentary on nurse-led rapid assessment and follow-up service. | Shift in services from hospital to home care nursing occurring across some UK Primary Care Trusts. | Home visiting by nurses based on GP referral. Visits usually occur 2-4 hours of referral. Focus on acute illnesses, and health promotion. Nurses are experienced, some being prescribers. | Barriers to the service include GP reluctance to engage with it and lack of funding to expand the service. |
| Duffin (2015) UK | Description of a "virtual ward" service to children (0-18) in their own homes | Not explicit. Description of an outreach service to allow sick children to be cared for at home. | Nurses offer a 7am-11pm service to children (who would traditionally have been in hospital) in their own homes. Service involves antibiotic administration, monitoring children's blood pressure, and vital signs.<br>They can link to hospital consultants and call hospital for advice if needed. | Nursing service which increases patient satisfaction and reduced hospital bed occupancy. |
| Kyle et al. (2012) UK | Comparative case study on integration of Community Children's Nursing (CCN) Teams into with urgent and emergency care systems in two Primary Care Trusts. | CCN teams can manage acutely ill children at home if there is effective integration with other services in the urgent care system. This is in line with Department of Health policy that children are best cared for in their own homes. | CCN teams were involved in follow up services following discharge from hospital wards, accounting for 77% of referrals. Role of CCN teams was viewed as preventing ED admissions, facilitating early discharge, ensuring early referrals to GPS, and reduce reliance on secondary care services. | Organisational integration, geographical proximity and rotation of CCNs through acute services contributed to higher levels of referral to the CCNTs. Change in organisational culture, as well as systems, was important for successful integration and increased referral to the CCN.<br>Barriers to integration were evident including:<br>Lack of ownership over CCN teams, poor communication/relationships from |

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| | | | | consultants with CCN teams – seen as invisible.<br>Consequences were limited early discharge, duplication of effort, inequities in accessing CCN teams.<br>Shared values, vision, goals and understanding of the scope of the CNNTs by all urgent care services noted to be necessary for effective implementation of the service. |
| Mendes (2013) USA | Qualitative. Interviews with parents of children with medical complexity on their expectations of home nursing care for their child. | Increasing demand for home care nursing for children who are technology dependent. | Care needs to be holistic and needs to go beyond the child to include the family. Nurses providing home care for technology dependent children need to have the skills to manage the child's condition but equally need the ability to interact supportively with the child, parents and family including for example use of play, storytelling to child. | Parents want to be recognised as capable of dealing with their child's condition and want to be decision makers in their care. |
| Nageswaran and Golden (2017) USA | Qualitative study with primary caregivers & home health nurses on the quality of home health services for children with medial complexities. | Growing demand for paediatric home health services in the USA, particularly children with medical complexities. | Good quality services offered when nurses were knowledgeable, skilled and experienced in caring for children with medical complexities, and were competent in the use of medical technology e.g. suctioning, naso-gastirc feeding, use of ventilator. Knowledge of individual child was important for quality services. | Service provision was through agencies. Some caregivers believed that home health nurses were not competent to manage the complexity of care required for their children including use of medical technology, recognizing and resolving problems, and lack of child-specific training. The turnover of nurses was problematic in terms of care continuity.<br>Nurses described feeling unsupported by agencies in relation to the training/education |

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| | | | | and clinical care resources they needed to care for children. |
| Ng et al. (2014) UK | Pilot quantitative prospective study on developing a paediatric community home nursing for acutely ill children. | Development of community home nursing and outreach services in the UK to manage acutely ill children at home, aimed to reduce emergency hospital admissions and unscheduled demand for care. Clinical Commissioning Groups (CCGs) are responsible for designing and planning local services. | Community nursing outreach teams accept referrals from emergency departments (ED), short-stay paediatric units, inpatient wards. Service involves collaborations with pharmacy, IT and specialist services. Nurses provided home care IV antibiotic administration 7 days a week (7am to 10pm). Nurses could refer onto other professionals/services based on clear clinical criteria for referrals and clear referral pathways. Service managed overall by paediatric community matron. | Positive results from services included significantly reduced ED, non-elective, and re-admissions.<br>Patient satisfaction survey revealed that service was perceived positively by child and family. |
| Parab et al. (2013)<br>NA since a Cochrane Review | Cochrane review on specialist home-based nursing services for children with acute and chronic illnesses. | The growth in home based specialist nursing services has been prompted by the need to reduce hospital admissions and shorten length of stay in many countries. Need to identify alternative models of care for increasing survival rates of children with complex conditions. | Interventions varied to include:<br>Home-based nursing for children with acute illness involving up to 4 visits per day;<br>Home care for children with a range of chronic conditions. Service based on a minimum package on one initial assessment and one monthly contact thereafter for 6 months and then reassessment in terms of frequency needed.<br>Home visits for children newly diagnosed with diabetes offering supported management e.g. metabolic | The authors concluded that the review offered no evidence of specialist paediatric nursing services reducing hospital readmissions although length of hospital stay was reduced.<br>No adverse impact was found. Improved satisfaction among parents noted regarding this service. |

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| | | | control, insulin dosages etc. Complemented with telephone calls. Home visits for chronic haematological illnesses involved 24hour access to nursing services. | |
| Parker et al. (2011) UK | National survey on care closer to home services for children. | Delivering health care to children closer to home noted as a key driver for policy and service development internationally aimed to keep children out of hospital. Parallel to this is the growth in ambulatory care also aimed to keep children out of hospital. In the UK, community children's nursing teams is the service aimed to care for children closer to home. | Thirteen distinct types of services were identified. The most common type of service identified in the survey was generic community children's nursing/home care team focusing on a wide range of conditions (32.8%), followed by condition specific services (14.1%) and specialist nurses/nursing (12.5%). Fewer services were available for other areas e.g. hospice at home (4.8%), palliative care (2.9%), technological care (3.9%), continuing complex care (5.1%). | Noted that nurses are key to providing care closer to home but attention is needed in the areas of recruitment, retention, and training. |
| Ryan et al. (2014) UK | Mixed methods project evaluating a nurse-led sleep service over 8 weeks for children with disability in one NHS Trust in the UK. | Recognition of sleep disorders as problematic among young people with disability. Most services for sleep disorders noted to be situated within adult services. The need for this service links to Government strategy published by Department of Health in 2014 titled *Equity and Excellence: Liberating the NHS.* | Initial visit to children's home involved assessment of sleep patterns and advice relating to sleep hygiene practices e.g. bedtime routines, adaptations and changes that could be made. Six weekly follow up visits reviewed progress and revised actions were recommended as needed. A focus on sleep environment and behavioural changes were integral to the project. The 8$^{th}$ (final) visit | Parents reported improved quality of life and they valued home visits.<br>Project showed potential to reduce costs associated with high cost prescriptions and could reduce community waiting lists and clinic appointments. |

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| | | | recommended actions for going forward. | |
| Samuelson et al. (2015) Sweden | Qualitative study on community nurses' experiences of caring for sick children at home. | International consensus that sick children need to be care for as close to home as possible. Many children with chronic and complex conditions in Sweden receive home health nursing service, conducted under primary healthcare. | Being knowledgeable about children's conditions fostered confidence in nurses' role. Care was augmented by support from hospital settings. Effective care required trusting relationships with families. Scheduling to ensure continuity of care was a priority. | Some nurses experienced little support from hospital services. Sourcing information was varied; the findings little evidence of a structured approach to provision of information or support. Sense of insecurity experienced by nurses in caring for children because of a lack of experience in working with children and no training/education specific to this population. |
| Spiers et al. (2016) UK | Quasi-experimental mixed methods evaluation on the impact of introducing and expanding children's community nursing (CCN) services. | UK National Health Service policy on delivering health care in the hole and community settings with CCN services identified as core to this policy. CCN services expanded and new teams also introduced. The teams included generic CCN service, acute care teams, complex care teams, and nurse practitioner teams. | CCN teams (generic and specialist) support nursing care of children with acute, chronic and complex conditions aimed to prevent acute hospital admissions, and multiplicity of care. These teams also facilitated early discharge from hospital. Referrals could be made to CCN teams from other professionals/between teams, and self-referrals from parents could also be made. In one area ('high deprivation), a CCN team was hospital-based working closely with ED staff. Advanced nurse practitioners (ANP) teams were introduced to support CCN teams through case management, assessing, and prescribing. Both generic and specialist CCN teams provided care in | A re-design of services was needed and reconfigurations varied across study areas. Key factors that influenced the planning and implementation of new and expanded CCN services were "organisational stability, finance, medical stakeholder support, competition, integration with primary care and visibility" (p.v). Positive outcomes included families feeling supported, continuity at school for children, avoidance of hospital admission, and timely respite care. |

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| | | | children's homes and schools. Generic CCN teams ran nurse-led clinics. | |
| **ACADEMIC LITERATURE** | | | | |
| **CHILD AND MATERNAL/FAMILY HEALTH NURSING IN THE COMMUNITY** | | | | |
| Barnes et al. (2010) Australia | Case Study on the development and pilot implementation of a Community Child Health Model of Care in child health centres (The First Steps Programme). | Need to develop targeted community group support child health services in addition to existing universal individual consultation services. | Involved a shift from individual consultations to targeted and scheduled group sessions. Facilitation of social support networks by child health nurses targeting first time mothers. Service provides a structured pathway of assessment, information and support at developmentally appropriate times through group sessions (7 mothers per group). Additional individual consultations available for children with special needs. | Need to include initial individual consultation with mothers which was adopted into First Steps Programme. Group programme viewed as resource efficient in terms of nurse time per visit – a saving on nursing resource that could be diverted to children needing complex care. High level of satisfaction with the services (consumer survey). A shift in culture and practice to group education presented a challenge for nurses who were accustomed to individual consultations. The need for professional development to facilitate group education was identified. |
| Bennett et al. (2016) Australia | Qualitative case study on interprofessional team working between child health nurses and social workers during early childhood. | Shift to interprofessional team working in healthcare services. Increasing international evidence that preventative and early intervention services have long-term positive effects on children's physical and mental health as well as educational achievements. | New early parenting service offering psychosocial support involved home visits to families from child health nurses and social workers. Six visits allocated to each family with the first and last visit conducted jointly by nurse and social worker and remaining four visits conducted by nurse. | Service and working together viewed positively by each team member with recognition of the strengths that each role brought such as: knowledge of child development, parenting, determinants of health from child health nurses; and psychosocial dimensions of the family, and parent relationships and environment from social workers. Concerns and 'anxieties' experience around making it work and transitioning to a new team approach. |

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| | | | | The need for interprofessional education prior to implementing joint working was highlighted from the findings. |
| Cowley et al. (2012) UK | Research based discussion on potential for implementation Australian maternal & child model of home visiting into UK health visiting services & early years programmes in UK context | Drawing on Australian experience of universal health services and selective prevention programmes for vulnerable/at risk families. | Universal health provision requires a high level skill input and so health visitors are well positioned to have direct input. They require models of practice, programme of care, and skills to manage a largely undifferentiated caseload involving holistic assessment of child and family as well as mobilising relevant resources. A whole population approach is needed focusing on universal promotive and preventative services with greater frequency for service where need is higher. | The need for this universal service in the UK was noted. Also noted that health visitors could determine if specific aspects of care could be delivered by allied carers such as children's nursery nurses. |
| De Carvalho Furtado et al. (2017) Brazil | Qualitative study with nurses working in family health services to understand the structure of nursing care (in the under 5 age group) in family health clinics in primary health care (PHC). | The National Policy on Comprehensive Health Care for the Child (2015) decreed the need for programmes and policies on child heath in Brazil and the need to move to universal child health services. | Nurses work in family health services, many of whom have a specialisation degree in family health following undergraduate education. Prior to working in this service, all had primary care and hospital experience. Nurses take on the challenge of offering better care in PCH in order to reduce child mortality and morbidity with a particular emphasis on growth and development. This is achieved through health promotion, nurse consultation, illness prevention, treatment, rehabilitation and palliative | Nurses play a pivotal role in interdisciplinary collaboration to meet the needs of the child. The consultative role of the nurses is successful in meeting the needs of the child. Collaborative practice seen as slow to progress requiring the need to overcome professional concerns about roles towards greater clarity and mutual understandings. |

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| | | | care. They liaise across sectors including maternity hospital, secondary care, the education sector. The role involves home visiting and child health centres. | |
| Dodge et al. (2014) USA | RCT evaluating a brief universal postnatal nurse home visiting initiative in a disadvantaged community. | Public health policy (derived from "The Maternal, Infant and Early Childhood Home visiting Programme of the federal Patient Protection and Affordable Care Act of 2010" (p. 136)) dictates the provision of 1.5 billion dollars for post-natal home visiting programmes to reduce hospital encounters. | Implementation of the "Durham Connects Program" which consisted of 4-7 scripted programme. Programme involved: birthing hospital visit focusing on parenting support, then 1-3 home visits by a nurse when child aged 3-12 months, 1-2 nurse contacts with community service provider, and a staff member home telephone follow up 1 month later. Home visits involved family health and psychosocial risk assessment and brief teaching moments, and extended education in specific areas e.g. crying, lactation) | Reduced emergency care episodes and costs. Led to better family outcomes e.g. family connectedness to community resources, parenting behaviour, maternal mental health, child safety. High consumer satisfaction. Although universal, programme was also tailored to individual needs of families |
| Eronen et al. (2010) Australia | Non experimental action research exploring parents' views regarding the role of child health nurses in supporting the parents of young infants (less than 12 months). | Recognition of need for home services to support for parent following the birth of their child, which can be a stressful time. Noted that in Australia child health nursing is based on primary health care principles and is universally available to parents. | Service and role of child health nurses reformed shifting from individual consultations to group sessions, reorganising teams for better continuity, and going beyond the focus of child health to include parenting support. Child nurses providing a multifaceted service including the psychosocial care and support to families. Partnership approach with parents. | Parents (mostly mother respondents) valued and were satisfied with the support they received from child health nurses. Improvements in accessibility and availability of services identified. Areas needing further improvement were being respected as a parent, validating parenting skills, and supporting parent autonomy in making choices around infant care. Concluded that child health nurses need to promote parent empowerment. |

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| Fowler et al. (2012) Australia | Qualitative study with nurse participants who completed Family Partnership Model (FPM) training to investigate what FPM practice means in the day-to-day practice to nurses. | Partnership working with parents is increasingly being promoted and expected as an integral part of child and family health services in Australia & New Zealand. The implementation of the FPM has become widespread. Despite policy shifts, there is limited understanding of what kinds of organisational conditions are necessary, or how nurses and parents learn to engage differently with each other, to develop and effectively run programmes such as FPM. | Focusing on child and family health nurses, the Family Partnership Model (FPM) requires that nurses and parent(s) work together in partnership with each other. Promotes parent participation in active problem-solving and decision-making about the care of their children.<br>The FPM explicitly recognises practitioners' expertise and their role in challenging parents, but also recognises parents' knowledge and skills in relation to their child/ren and their parenting issues. Nurses had completed FPM training. | Changing practices involving a shift from telling/solving to a partnership approach towards enabling parents/families actively solve problems can be difficult for nurses. A shift to partnership requires a commitment to examining nursing practice and continuing professional development. |
| Holland et al. (2018) USA | Evaluation of data from previous RCT on the impact of the home visiting programme in preventing low birthweight in the second child | Neonatal mortality noted as a significant healthy metric in the USA and internationally. Consequently, prenatal and infancy home visiting programmes have emerged. However, determining whether home visiting during one pregnancy affects the birth outcomes of subsequent pregnancies has received limited attention. | As a Family-Partnership model, home visiting by nurses following first birth offers support and education to parents focusing on child health and development, improving maternal health and pregnancy outcomes, and family economic self-sufficiency. Frequency of visits vary from weekly to monthly and up to 2nd birthday of first born child, | Intervention reduced low birthweight likelihood for second children born to mothers, if first born had low birth weight. Effect not seen with pre-term births. Shows the importance of home visiting programmes for primiparous mothers because the advantages likely to extend to later children. The findings suggest that targeting mothers of low birthweight/premature children following first pregnancy may reduce subsequent low<br>birthweight and preterm delivery because of greater awareness and attention to their health and home environment during pregnancy. |

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| Wu et al. (2017) USA | Evaluation of RCT data to estimate cost-effectiveness of Nurse-Family Partnership home visiting nursing service to a hypothetical cohort of first-born children. | Implementation of the Patient Protection and Affordable Care Act (aka Obamacare). Centres for Medicare and Medicaid Services are pushing primary prevention through social, rather than medical, interventions. | Nurse-Family Partnership is a visiting nurse service for expectant mothers beginning in pregnancy and continuing through the child's second birthday. Health and social counselling offered to mothers. | Nurse- Family Partnership home visiting suggests that this programme could saves both money and lives. When the program is targeted toward a broader, lower- risk audience, it produces a gain in health at a cost of about $15,000/QALY gained. |
| Kearney & Fulbrook (2012) Australia | Qualitative study on parents' and child health nurses' experiences of open access clinics (OAC) for infants 0-18months old. | Traditionally, universal child health nursing (CHN) services have been offered to families as individual consultations with a child health nurse. These services aimed to strengthen family support, prevent illness, and manage risks.<br>Need to develop new approaches recognised, which in part was to manage available resources better. | Introduction of group based OAC appointment-free service; parents may 'drop-in' for brief consultations with the CHN to discuss maternal/child health issues, such as breastfeeding difficulties or infant growth, developmental assessments, and parenting at a time convenient to them. The OAC also incorporates appointment-free immunisation and breastfeeding clinics and a first-time early parenting group, which operate alongside it. | Parents, nurses and other health workers found OACs effective, flexible, supportive parent directed,<br>which may be in contrast to some traditional individual appointment child health surveillance methods. However, parental preferences for individualised and private consultations need to be considered also. Lengthy waiting times reduced. |
| Kemp & Harris (2012) Australia | Evaluation of RCT on nurse home visiting within a universal child and family health service system for | Maternal and early childhood home visiting is embedded with a national universal home visiting service for families at risk of poorer child development and maternal outcomes. | Programme delivered by child and family health nurses working intensively with high need families. Five goals delivered through a four-point programme structure embedded within the boarder child and family services system (including four-tier | Interventions with a broad range of vulnerable families is best achieved by embedding interventions within the universal service system. Interventions that address skills and capacities of families, and the capacity of support services to respond to |

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| | disadvantaged families in rural communities. | Acknowledges that children's access to positive early experiences needs to be tackled along the whole social gradient, with services and support being proportionally targeted to the needs and capacities of families (i.e. emphasis on vulnerable families) | system). Key areas: transitioning to parenting during pregnancy, promoting maternal health, promoting parent child interactions on developmentally appropriate ways, promoting parents aspirations for themselves and their children, and supporting the improvement of family and social relationships and networks. The programme structure involved sustained ante/postnatal home visiting, a postnatal child development programme, accessing secondary and tertiary child health services, supportive family group and community activities. | family needs are more likely to achieve sustainable outcomes. |
| Kim & Roh (2018) South Korea | Survey and secondary analysis of case reports to determine the effect of nurse-led child health service in Korean child-care centres. | Few initiatives in Korean child-care centres to promote children's health and prevent disease. Government pursuing universally free child health services. | Key areas of nurses' role at the centres were: "(i) early detection and referral of physical and emotional developmental disorders through regular child assessment of growth and development and health status; (ii) prevention and management of infectious or contagious disease; (iii) rapid response to the accidents; (iv) formation of healthy habits through basic child health education; (v) competency empowerment training targeting teachers for a healthy and safe child-care environment; and (vi) providing | Parents reported the service as useful for child health management and wished it to continue.<br>Nurses rated increasing needs of the nurse-led child health service as the most important item and the health management of teachers was ranked the lowest.<br>Noted that "nurses can play an important role as health advocates, working with teachers and parents to improve the health and safety of children at child-care centres. As children's health and safety in child-care programmes is a critical issue worldwide, the expansion of the nurse-led child health |

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| | | | information and counselling regarding health, hygiene, and safety for parents" (p. 525). | service at child-care centres can enhance the quality of early child health care" (p. 527). |
| Leirbakk et al. (2018) Norway | Formative mixed methods study on the development of a maternal and child early intervention home visiting programme for multi-ethnic population. | Recognition of migration trends and the need for targeting a growing multi-ethnic population emphasising early health promotion and risk prevention. Immigrants viewed as 'at-risk' of social inequalities in their health. Services for this population needed to be integrated into existing national universal 'Child Health Service' (CHS) programme. | Planned as an early intervention programme offering all first-time mothers additional PHN home visiting with a view to supporting them set a good foundation in caring for their first child and that their knowledge and skills would be transferable for subsequent children. Home visits by PHNs commenced during pregnancy and continued for first 2 years of life. | Lack of resources was a challenge for PHNs leaving them having to prioritise families which was morally difficult.<br>User involvement was beneficial to ensuring appropriateness of the service.<br>Concerns among PHNs about pre-natal home visits since traditionally only midwives (& family GP) were involved in this phase of pregnancy.<br>Noted that the programme will be undergoing further evaluation. |
| Lunt (2010) UK | Practice initiative report summarising the development of online service by health visitors. | Need to reach vulnerable populations in diverse communities where it is not always possible to spend a lot of time with them and when scheduled health visits become less as child grows older. Baby LifeCheck developed as part of the NHS Healthy Child Programme providing 24hr access. | Health visits are key professionals supporting early child development. The online service supported health visitors in their education and supporting roles. It offered multiple choice questions and answers format of information provision e.g. sleep routines, feeding. Health visitors introduce the NHS BabyLife check mothers during antenatal and home visits. | Viewed as round the clock service. Parent comments have been positive offering immediate access to information. Recommended that other services (e.g. creche's GP practices, mother and baby groups) consider the use of this online service to support parents in their areas. |
| McLachlan et al. (2016); Cramer et al. (2017) Australia | RCT and subsequent evaluation of the implementation of community breastfeeding | While there is a high breast-feeding initiation trend (96%) in Australia in the first weeks after birth, these figures decline throughout the first year post-partum, contrary to national strategy to achieve World | Early postpartum nurse initiative. Maternal and child health nurses provided breast feeding education and support in the home. In add, drop-in centres were available in the community – shopping malls. These | No differences in breastfeeding uptake found between intervention and usual care groups. Drop in initiative had implementation challenges (low attendance, finding space) but the work was rewarding with benefits to |

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| | drop-in centres additional to home visiting versus usual care (home visiting only). | Health Organisation recommendations for exclusive breastfeeding. The universal child and maternal health service in Australia seen as an important platform for community based breast feeding interventions. | were open in the mornings and were staffed by volunteers trained in peer counselling to support breastfeeding. Maternal and child health nurses supported the volunteers in the drop-in centres. | women and babies in the community setting. Plans afoot to extend this nursing service. |
| Psaila et al. (2015) Australia | Mixed methods study examining midwives and child and family health (CFH) nurses' perspectives on collaboration at transition in care in the provision of universal health services for children and families in Australia. | Reference to Australia's commitment to a "National Agenda for Early Childhood (Centre for Community Child Health 2009) [and] the National Framework for Universal Child and Family Health Services" (p.161) published in 2011 by the Australian Health Ministers Advisory Council. This commitment concerns a universal health platform, highlighting the importance of targeted and specialist service provision and collaboration between sectors and professionals i.e. interprofessional collaboration. Interprofessional collaboration is emphasised to address service gaps and overlap. | Good working relationships between CFH nurses and midwives can improve working relationships with families and continuity of care through smooth transition from maternity services to home. CFH nurses liaise with a broader sector of services than midwives once newborn baby is home. Collaboration between CFH nurses and midwives was mainly at the point of transition to home and mostly focused on exchange of information about the baby and family including identification of at-risk babies. Established relationships between CFH nursing services and maternity services were important to good collaborations. Text messages were typically the mode of communication between CFH nurses and midwives. | Collaborations took time to develop, usually over a long time, although developed sooner and better in smaller communities. Relationships were found to be more connected than collaborative. In order to strengthen collaborations between both professional groups, there is a need for organisational support, joint team working and training, shared professional development, shared meetings, shared informal 'coffee' meetings. |
| Rossiter et al. (2019a, b) Australia | National mixed methods study on parents and carers | Australia provides universal child health services from birth to 8 years, and are mostly provided by nurses. | Services provided by nurses include parenting support and advice, health promotion activities, and surveillance | Noted that CFH nurses work in similar ways to health visitors in the UK. CFH nurses were seen to have specialist knowledge (over |

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| | experiences of universal child and family health (CFH) services. | These services are based on *The National Framework for Universal Child and Family Health Services* published in 2013 by the Australian Health Ministers Advisory Council. | of child growth and development. Children in need of further assessment, referral and early intervention are also identified and addressed based on health or development needs. Scheduled well-child check from birth to 5 years. Parent groups complemented by drop-in clinics. Nurses providing these services have postgraduate qualifications in CFH. CFH nurses offered continuity of care regarding child's development. | other medical and nursing professionals) on child development. CFH nurses were the most preferred source of information and support for parenting advice in relation to child's physical and emotional needs. Professionals other than CFH nurses could be accessed for universal CFH services e.g. GPs or practice nurses for immunisation since CFH nurses not licenced to administer these; midwives in the immediate postpartum period. Awareness of and accessibility of services lacking for among some families. Also, the need for better collaboration between professionals was highlighted to ensure most effective use of resources. |
| Schmied et al. (2010) Australia | Discursive paper on the nature of collaboration and integrated service delivery for pregnant women, children, and families. | Universal health services provided in Australia but fragmentation across sectors exist. Heightened emphasis on developing integrated service models and collaboration to better meet the needs of women and children, consistent with international health system changes. Child and family health nurses (CFH) work with children and families. | CFHNs work in various sectors of healthcare: "primary (via home visits, centre-based consultations, telephone 'helplines', parenting groups); secondary (day stay units; sustained home-visiting programs); and tertiary (early parenting centres)" (p. 3517). CFH nurses are often the first point of contact with health services. Liaison positions help to strengthen communication and collaboration between sectors. | Care co-ordination and case management models increase the likelihood of mothers and families receiving relational continuity of care. Co-location of services can also help to provide better collaboration and integrated care including interprofessional care. Establishing trust between services/professional groups is one of the biggest challenges to collaboration and integration. |

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| **GREY LITERATURE** | | | | |
| Australian Health Ministers' Advisory Council (2011) Australia | National Framework for Universal Child and Family Health Services | The national Framework for universal child and family health services is designed to meet the needs of all Australian children.<br>All nurses and midwives work under the Australian Nursing and Midwifery Council (ANMC) national standards for regulation of nursing and midwifery.<br>Child and family health nurses (CFHN) are registered nurses with postgraduate qualifications and experience in child and family health nursing.<br>At time of publication, there was no nationally endorsed competencies for CFHNs though state-based competencies exist in NSW, Victoria and South Australia and others had adopted these competencies. | - CFHN provide services for families and children from birth to school entry and in some jurisdictions will provide services in the antenatal period and beyond school entry to the age of 12.<br>Australian Nurse-Family Partnership Program provides comprehensive, nurse-led home visiting services for Indigenous families to improve pregnancy outcomes, child health and development | Framework focusing on:<br>- promoting the availability and the role of universal child and family health services to parents, the community as well as health, education and welfare professionals;<br>- promoting consistency of service across jurisdictions;<br>- providing a contemporary evidence base for service improvement;<br>- progress towards national performance monitoring and the compilation of national population health data for the purposes of comparison across jurisdictions and subpopulations |
| NHS England (2016) UK | Policy document setting out vision for Healthy Children: transforming child health information. | Transformation needed in the way information and technology used so that new opportunities for interprofessional health and education collaboration can be supported. Noted the need to commit to the importance of every child getting the best start in life as advocated in other policy reports e.g. | Access to defective information services seen as having a strong role in supporting a co-ordinated and integrated child health service through interprofessional collaboration.<br>Midwifery, health visiting, GP practice nursing, and school nursing seen as key services delivering the Health Child Programme working in | Enhanced information technology viewed as integral to providing safe and responsive and continuous health care for children. It will allow effective data flow between healthcare professionals and across various sectors of child health services. |

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| | | maternal review of child health services in the UK; Public Health England, & NHS Outcomes Framework. | collaboration with other services e.g. primary care and secondary care services. | |
| **ACADEMIC LITERATURE** | | | | |
| **ENHANCING NURSES' ROLE IN CHILD PROTECTION** | | | | |
| Austin & Holt (2017) Ireland | Qualitative study with public health nurses (PHN), social workers, & nongovernmental children's organisation working with vulnerable families disadvantages areas. Views sought on development of specialist PHN role in the services. | Child protection: exploration of creating specialist PHN role specific to child protection for vulnerable children i.e. beyond the generalist PHN role. Specialist PHN roles do not exist in Ireland. . | Consensus that a specialist leading PHN role would be supportive of the more generalist PHNs in the area of child protection and welfare. The role should involve supervision of generalist PHNs in dealing with stress and trauma of child protection cases. | Although the need for this new role in PHN identified, uncertainty was voiced about how this role could be integrated into the services. Assistant Directors of PHN expressed concerns about a new role in relation to their position since they are very involved in child protection cases. |
| Ballard et al. (2019) USA | Case report on development and implementation of a trauma-informed model based on adverse childhood experience (ACE) | Child protection: public health nurses' increasingly exposed to families experiencing trauma and where parents have had ACE. | Traditional PHN home visits enhanced to including an ACE conversation with each family focusing on ACEs impact on brain development and future health outcomes, and behavioural choices aimed to optimise health and well-being. ACE screening included. | PHNs work as part of a broader team including social workers and community health workers. Annual training offered to new team members. Concluded families in crisis may benefit from acknowledging a history of parental trauma (ACE) and linking their health and social risk to that of their children. |

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| | education, aimed at avoiding re-traumatization. | | | |
| Tung et al. (2019) USA | Grounded theory study on nurse family partnerships and child welfare. | Child maltreatment has become a major public health national priority. Nurse Family partnership (NFP) have developed as a home visiting programme for vulnerable mothers during pre-natal and infant/toddler childhood phase for first expected child. Nurses have a legal mandate to report maltreatment. NFP model noted to be in over 700 communities in the USA and these require effective co-ordination with child protective services (CPS). | NFP nurses valued increased collaboration with CPS and working in ways that are strengths- based and family-focused, especially with high-risk families. | Organisational collaboration noted to be critical to NFP and CPS to effectively servicing high-risk families. Alignment of mission, method, and service population also needed. |
| **GREY LITERATURE** | | | | |
| O'Dwyer et al. (2015) Ireland | Evaluating the pilot project on the role of the child protection public health nurse (CPPHN) | Concerns about communication and information sharing within working relationships in child welfare and protection services between public health nurses and social workers in Ireland. The need for interprofessional and inter-agency working in child protection noted. | Establishment of a child protection public health nurse (PHN) in a regional health service area to work on communication issues between PHNs and social workers and facilitating collective working with other professionals and voluntary organisations. | A number of recommendations made e.g. Introduce designated child protection PHNs in the community; collaborative working with social workers; interdisciplinary training; communicate the role of child protection PHN to Child and Family Agency. |
| **ACADEMIC LITERATURE** | | | | |
| **NURSING CHILDREN IN PRIMARY CARE SETTINGS** | | | | |
| Banks et al. (2019) UK | Pilot RCT comparing nurse- | Shifting a hospital based clinic to primary care clinics (PCC) seen as | Two PCCs were led by practice nurses -on from a GP surgery and one from a | Positive effects from both types of clinics on outcomes e.g BMI, QOL, satisfaction with |

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| | led primary care and consultant led secondary care clinics for obesity management. | making for services more accessible and would reduce the overburdened hospital system. Aimed to reduce urgent/hospital admissions. | community health park. Nurse training involved shadowing multidisciplinary team of specialists- dietician, exercise, & obesity nurse. Clinics focused on assessment and monitoring of weight, and education. Clinics were supported by exercise and dietetic specialist consultations. Children had 5 visits scheduled over 12 months. A second arm of the study involved consultations with medical consultants. Access to services available 24/7. | care). However, in view of rising prevalence of obesity, primary care nurse-led clinics viewed as an appropriate setting for managing obesity as a public health problem, rather than being managed in secondary care. |
| Coddington et al. (2011) USA | Nonexperimental study to examine the quality of care provided by paediatric nurse-managed clinics (NMCs) by ANPs in primary care. | Reforms to health delivery structure has led to inequities in healthcare for vulnerable groups (uninsured and underinsured). NMCs seen as a promising model to provide accessible care to the underserviced. This service was not offered within Medicaid. | Certified paediatric ANPs and one RN case manager ran NMCs focusing on health promotion, disease prevention and a focus on the family unit and community. Included immunisations; minor respiratory illnesses. The NMCs are operated through a University School of Nursing, collaborating with paediatrician in primary care focusing on and young adults up to 21 years old. | The quality of care provided in NMCs to underservices populations exceeded national benchmark standards of care (e.g. immunisations, treatment of upper respiratory conditions, and access to primary care providers. However, NMCs not recognised as primary care providers by many states in the US so cannot be involved in Medicaid managed care. |
| Fabrellas et al. (2015) Spain | Observational study assessing a primary care nurse management programme for | Increasing demand for unscheduled care seen to increase burden on health system. Primary care programmes seen as a way to offset this burden. Primary care centres therefore providing care to people with chronic illnesses/minor | Minor problems managed by nurses in primary care GP practices included: "skin injury, acute fever, cough, runny nose, acute diarrhoea, diaper rash, vomiting, stomach cramps, burns, bites, constipation, intense crying, ear foreign body, nose bleeding, | Nurse management programme for unscheduled child consultation found to be effective and feasible. Nurses able to treat many minor illnesses presented of which 65% resolved.<br>Noted that equivalent of UK or USA nurse practitioners does not exist in Spain but all |

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| | unscheduled visits of children with minor illnesses. | illnesses being developed in the health system. | regurgitation, and nasal foreign body" (p. 530). Following initial assessment, nurses applied an algorithm (e.g. signs of alarm) applicable to the presenting problem which allowed escalation to a paediatrician if required. | nurses complete 4 year university degree followed by experience in children's nursing. This programme reflects the expansion of the role of the nurse in Spain. |
| Mulcahy et al. (2012) Ireland | Retrospective analysis of the database of an out-of-hours GP co-operative, examining the role played by triage nurses in one health region. | GP co-operatives provide the majority of out of hours primary care services in Ireland. Triage nurses play a crucial role in the operation of these services. | A large volume of paediatric health problems are managed by triage nurses in out of hours settings. 17.4% of contacts to the services were managed by nurses. The most common age category of nurse-manged categories was less than 10years and a total of 24% of contacts was for children under 6 years. Most contacts (81.5%) were managed through nurse telephone triage alone and did not involve other health care professionals. Triage nurses also co-ordinated wider community based health services or facilitate emergency department/hospital referral. | Concluded that the nurse telephone triage system was a vital out of hours service in primary care. Noted that a high level of competency in managing child health problems needed for this nursing role. Further analysis of the workload would be useful in organisational planning of the service. |
| Van Cleve et al. (2013) USA | Discussion paper on integrating paediatric mental health into primary care supported by paediatric and | Calls from professional groups in USA for paediatric primary care (PPC) to be expanded to include mental health needs of children. Increasing incidence of mental health problems among children influenced this call. The need to | PNPs/FNPs noted to have expertise in development, behavioural management, screening, and supporting mental health, of children and adolescents as primary care providers. They can facilitate a population-based approach and be a | Noted that PNPs/FNPs who have expertise through postgraduate education and practice in developmental/behavioural child health and mental health are well positioned to provide care for children and adolescents in the primary care settings. Additional |

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| | family nurse practitioners (PNPs/FNPs). | integrate mental health into paediatric primary care noted. | first point of contact. Initial relationships around parenting and child health concerns could serve as the foundation for positive mental health. | education noted to be development of "competencies in primary<br>MHC may provide mental health promotion; early prevention; psychoeducation; screening and<br>clinical assessments; diagnosis of common developmental, behavioral, and mental health disorders;<br>and counselling of parents on differential diagnoses,<br>expected outcomes, and recommendations for<br>treatment options" (p. 245). |
| **ACADEMIC LITERATURE** | | | | |
| **PALLIATIVE CARE NURSING** | | | | |
| Kaye et al. (2019) USA | Survey of hospice nurses' levels of experience and comfort providing care to children in the community | Despite calls from professional bodies and hospice/palliative care organisations for dedicated services for children with life-limiting conditions in the USA, little reform has occurred. Many hospices don't offer formal paediatric programmes despite children suffering from life-limiting conditions.<br>Most children with life-limiting conditions receive care via adult hospice services and not paediatric services. | Key aspects of nurses' roles included symptom management, medication management, pain management end-of life care. Palliative care was described as including communicating with child about their aspirations and goals, end of life care wishes, and talking to families about life and death. The role involved psychosocial care of parents and siblings as well as assessing for risk factors associated with grief. Bereavement support following child's death was also part of this role. | Most nurses who provide paediatric hospice care in the community had no formal training in paediatric palliative care and their experiences were limited.<br>Concern expressed about the risk of burnout that nurses may experience in their palliative care role without support and education.<br>Need to develop core paediatric teams for community palliative care services for children recommended since adult nurses have little/no experience of working with children. |
| Lindley (2011) USA | Policy analysis of legislation to provide | Increased access to hospice/ end of life care for terminally ill children due to a change in policy which | The role of nurses in EOL care requires that nurses be knowledgeable in this area which involves complex | The policy of allowing concurrent curative and palliative care should impact positively on care of terminally ill children. However, |

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| | concurrent curative and end of life (EOL) care for terminally ill children. | allows for all children enrolled in a Medicaid or state Children's Health Insurance Place access curative and palliative care concurrently. | physical, psychological, ethical, legal and spiritual care. Knowledge and skills required include medication management in children, child developmental stages, range of childhood conditions, equipment and supplies applicable to children, as well as relevant policies and regulations. EOL care requires an advocacy role by nurses. | issues of availability, equity and quality care would need to be addressed. An increase in demand for nurses with experience of caring for children with medical complexity and skills and knowledge in children's EOL nursing will result from the change in policy. This has implications for nurse training. |
| Neilson et al. (2013) UK | Qualitative study, exploring community paediatric nurses' experiences of providing out of hours palliative care in the homes of children with cancer. | In the UK, there is a lack of national standardisation supporting out of hours palliative care to children. Concern that the rarity of childhood cancer resulting in community health care professionals having very limited experience in providing palliative care to children with cancer. | This service involves nurses having close working relationships with families in order to identify and fulfil their needs. There was a need to manage the emotive nature of palliative care and professional boundaries. Developing effective communication pathways with other professionals was important so that sharing knowledge and expertise was optimised i.e. inter-professional care including joint visiting. | The ideal service that could be offered was compromised by numerous barriers most notably the lack of a formalised structure to provide this service and reliance of voluntary approach to service provision, lack of training in palliative specialist skills, and sub-optimal interprofessional working. Recommended that nurses providing out of hours palliative care should be contracted within a formal service. |
| O'Brien & Duffy (2010) Ireland | Discussion paper on developing the role of children's nurses in community palliative care. | Publication of a national policy - *Palliative Care for Children with Life-Limiting Conditions in Ireland* by the Department of Health and Children, and Irish Hospice Foundation. This policy was developed following an assessment of palliative care services for | Palliative care for children in the community requires nursing that is active and holistic addressing the physical, emotional, social and spiritual needs of the child and family. The focus is on promoting quality of life and wellbeing. Ideally, services need to be delivered by registered | Provision of palliative care requires education of nurses (and other professionals), ease of access to hospital and community services, integrated services. Barriers to development and provision of community palliative care services include limited understanding of palliative care as an |

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| | | children in Ireland which were found to be inefficient. | paediatric nurses. Care provision can range from home respite care, intensive support during episodes of acute illness, and/or care at end of life. | evolving speciality, lack of community and home services, and lack of respite services. The need to extend the role of paediatric nurses into the community was identified, including a Hospice at Home model of care. Outreach service have potential for continuity and co-ordination of community support services. |
| Reid (2013) UK | Qualitative study on adult community nurses experiences of delivering palliative care to children and young people in rural areas. | Recognition that palliative care of children and young people requires specialist services but deficits exists leaving adult nurses working in this area in the community. | Palliative care of children and young people is a complex process for adult community nurses involving (i) emotional preparedness for the impact of impending and actual death, (ii) navigation of the 'professional' road relating to discharge plans, gaining the trust of families and getting to know them, and liaising with other services including tertiary services, specialist nurses, establishing communication pathways, (iii) being 'part' of the family while maintaining professional boundaries, and providing support to family including siblings. | As adult nurses with limited/no experience of working with children/young people, felt unprepared forth emotional labour of their work in palliative care. They also reported that care plans and pathways were unclear or did not exist. They were also challenged to adapt their communication styles to the maturing of the child.<br>Some nurses in the study did have children's nursing qualification and they seemed more confident in communicating with children. Although experienced nurses, as generalists they felt powerless and emotionally stressful to deliver palliative care to children and young people.<br>Recommendations from the study included interprofessional team work and the involvement of children's nurses as key workers in co-ordinating and supporting palliative care in the community. |

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| **GREY LITERATURE** | | | | |
| Department of Health and Children (2009) Ireland | Policy on palliative care for children with life-limiting conditions in Ireland. | Policy aims to address the issues identified in the needs assessment in order to build a responsive service for children and their families. Palliative care services for children should be accessible, equitable, flexible and appropriate and should meet the needs of any child with a life-limiting condition and their family. | More children are requiring palliative care. Palliative care for children is a developing area of care. | - Primary care services need to be developed including the provision Outreach Nursing posts<br>- Development of community children's nursing services<br>- Planning of home nursing care<br>- For example: at present there are three Community Nursing Posts that provide input to children with palliative care needs. These positions also carry responsibilities for a wide range of children with complex medical problems. These positions should complement any proposed development of palliative care nursing posts for children but not replace them. |
| **ACADEMIC LITERATURE** | | | | |
| **SCHOOL CHILD HEALTH BASED NURSING** | | | | |
| O' Brien (2011) UK. | Qualitative study with inter-professional participants (e.g. child health nurse, health visitor (HVs), teachers) describing introduction of child care and development | Policy context in UK on the need for inter-agency working and inter-professional working including schools, and social health services – '*Every Child Matters'* published by Department of Health in 2003. | Nurses/HVs and teachers working together to support parents delivering child care and development sessions to primary school children. Nurses had a health promoting role in the classroom including dissemination of community health information. | Different priorities of nurses/HVs and teachers evident e.g. parental learning versus pupil learning respectively.<br>Need for standardized pre-set professionally informed materials identified by nurses & HVs e.g. *Birth to Five* developed by Department of Health.<br>The potential for this type of inter-agency and inter-professional working to support child health needs required high level strategic co-operation. |

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| | project into the classroom. | | | |
| Daley et al. (2019) USA | Mixed methods study to identify nurse practitioners' (NPs) perspectives on essential characteristics of adolescent-friendly care in school based health centres (SBHCs). Views of NPs and adolescents included. | Reference to the WHO standards for adolescent friendly services published in 2012. These standards highlighted key characteristics of health care necessary to improve services delivered to adolescents globally. Since many adolescents do not attend well child clinics, a need for comprehensive health and mental care services provided by NPs (separate to school nurses) that are accessible, acceptable, equitable, and appropriate for adolescents was identified. | NPs can provide wide-ranging general health, health and mental health services including referrals as needed. Specific areas or preventative health care noted included reproductive health, nutrition and weight counselling, NPs in collaboration with allied health care professionals can provide adolescents-friendly wellness care e.g. confidentiality, accessibility, flexibility, availability of services when needed, comprehensive care, respectful and competent clinical staff who work together. | Results identified that adolescent preventative health care services helped adolescents remain healthy and reduce morbidity and mortality. Trusting relationships with NPs were highlighted by adolescents as essential elements of providing a service to them in SBHCs. Concluded that: "Adolescent preventive health care services are an important mechanism for assisting adolescents to remain healthy and avoid many sources of morbidity and mortality. SBHCs are an important community resource for addressing the health care needs of adolescents" (p. 16). However, they noted that all teachers do not know about this service offered by NPs. |
| Granrud et al. (2019) Norway | Qualitative study on public health nurses' (PHN) perceptions on interprofessional collaboration (IPC) related to adolescents' mental health problems in secondary schools | Increase in mental health problems among adolescents identified as a public health concern. Schools can be an area for preventive mental healthcare work, with the PHN taking a central and important role in caring for adolescents in this context whose caseloads include children and young people up to 20 years old. | IPC in schools involves different professionals sharing knowledge and resources to achieve more than any one profession could do in isolation. Each profession has its own set of rules and regulations. PHNs have postgraduate qualification in public health nursing with competencies in health promotion and prevention. | PHNs believed that they are well positioned to identify and prevent mental health problems among Adolescents within school health services, but that collaboration is important, particularly with teachers. IPC in school health services may be important to support adolescents with mental health problems, and PHNs need to be more visible and included in IPC. |

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| | | | | PHNs had a limited impact on IPC and were dependent on both the principal and the teachers for good IPC. |
| Ramos et al. (2013) USA | Survey on school nurse workforce in New Mexico State part of which analysed data on adolescent behavioural problems nurses address in secondary schools. | High levels of behavioural health needs among adolescents evideT in nationally representative data, as well as national data showing that less than 50% with mood disorders received treatment. School based services seen to be promising to addressing the rise in psychosocial problems in adolescents. | School nurses manage a range of emergency behavioural health problems among adolescents including 'child abuse/neglect', depression, bullying, violence, substance/alcohol abuse, and suicide. | Survey found that school nurses were not receiving sufficient continuing professional education to manage adolescent behavioural problems. Access to continuing education a challenge with the workload of many school nurses covering multiple school campuses. Collaboration with other service providers needed e.g. school counsellors, and behavioural health specialists. |
| Sanders et al. (2019) Canada | Participatory action research to explore the role of public health nurses (PHNs) in comprehensive school health (CSH) programmes. | Recognition of school as key setting for health promotion among children with PHNs having a key role. Study contextualised within the internationally recognised WHO framework for CSH which is implemented through partnerships between health and education sectors. | PHN seen to be well positioned to engage across sectors to contribute to Canada's vision for Health Schools as part of the United Nations Sustainable development goals relating to the broader determinants of health. Use of assessment tools help foster engagements of PHNs and open dialogue with school staff. The tools focus on health matters relating to Social and Physical Environment, Teaching & Learning, Healthy School Policy, Partnerships and Services. As a facilitator, PHN has "knowledge, interest and commitment to school health, and who value and possess | PHN engagement with CSH can be facilitated through relationships for collaborating working between health and school sectors i.e. working with school staff, administrators, students and community teams.<br>Barriers to PHN engagement included lack of time and changes in school staff to maintain continuity with schools; lack of clarity of PHN role regarding school health. Need for role of PHNs in CSH be more visible was highlighted as well as being rewarded with career paths and trajectories. Ongoing education of PHNs needed for development of collaborative leadership |

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| | | | skills in interdisciplinary collaboration" (p.353). | competencies, partnerships, and change management.<br>Resources including time and continuity for PHNs to engage in CSH needed. Advanced nursing practice for PHNs needed for the future development of CSH services. |
| Turner (2016) UK | Service evaluation project on the partnership and working practices between health visitors (HVs) and school nurses (SNs). | Recognition that early childhood development – physically, emotionally, cognitively, and socially are foundational to a child's educational attainment. Need to consider child's readiness for entry to school in terms of wider determinant and environmental factors. Therefore SNs and HVs are key professionals in the educational and health sector need to work together. | Health visitors review all school health questionnaires (e.g. continence, behaviour, eating etc). These problems can be managed by school health assistants but escalated if support of school nurses or health visitors needed. Health visitor/school nurse then provides support to parents over 6-8 weeks. Cases can then be referred back to school nurses from health visitor or to school health assistant from school nurse. | HVs and SNs working together can facilitate a child's school readiness.<br>The project was a success but challenges around collaboration and cross boundary working arose e.g. different case notes used in both sectors, separate educational forums, role confusion.<br>Recommended that clinical leadership within the NHS as being fundamental to effective service delivery changes. |
| **ACADEMIC LITERATURE** | | | | |
| **HOSPITAL BASED NURSE-LED/CO-ORDINATION SERVICES** | | | | |
| Auger et al. (2018a) USA | RCT on the effects of a one-time nurse-led telephone call post hospital discharge prevent use of urgent care services. | Prevention of readmissions to hospital following discharge of children with acute illnesses. | Post-discharge telephone support (within 48hrs) by registered children's nurses with previous experience of home care visits. Using condition specific standardized templates, the call focused on reassurance, education by reinforcing discharge instructions, and advising on warning signs requiring further medical attention. The telephone calls were made between 2 and 4 days post discharge. | No significant difference found between intervention & control groups in 30-day reutilisation of urgent health care services. However, parents who received the telephone call identified significantly more warning signs following discharge than 'control' parents. |

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| Auger et al. (2018b) USA | RCT on the effects of a single nurse home visit to children following discharge from hospital following acute illness. | Health care policies have resulted in hospitals being penalised for readmissions, which has led to an increased emphasis on providing support for patients during the transition home. | A home care nurse from the hospital met the family prior to discharge to schedule home visit and create a visit plan based on the child's diagnosis. Another home care nurse visited the home following discharge to conduct a standardised condition specific assessment of the child. Families educated on a list of 'red flags' i.e. warning signs indicating need for additional medical support through primary care or ED. If concerned, the nurse contacted the discharge staff or primary care provider. The visit typically occurred within 4 hours of discharge. | Compared to control group, the home visits resulted in an increased rate of 30-day unplanned hospital reuse rate (17.8% vs 14%). Some explanations offered were that nurses tended to refer onto ED rather than primary care services, and that parents needed better education on use of red flags. Results may have been more positive if a broader-based public health infrastructure including staff were available to provide more long-term follow up rather than a once off home visit. |
| Evangelista et al. (2012) USA | Survey evaluating waiting times and patient satisfaction in paediatric nurse practitioner (PNP) managed versus consultant managed cardiology clinics. | With increased medical advances, expanding opportunities for nurses exist to participate and lead in innovative models of patient centred care, as recommended in the Institute of Medicine's 2010 *Report on the Future of Nursing: Leading Change, Advancing Health*. Expansion of the PNP role in OPD cardiology clinics to improve access times and patient satisfaction. | PNP independent role included "assessment, diagnosis, management and treatment of CHD in PNP cardiology clinics" (p.2167).<br>PNP dependent role included: medical, surgical or interventional therapies<br>As required based on cardiac diagnosis; working within scope of practice as well as hospital and cardiovascular guidelines.<br>PNP interdependent role included: consultations with collaborating cardiologists | PNP managed cardiology clinics are effective in facilitating quality patient experience and improving patient access. Physician support and clinical practice guidelines are key support components. High levels of satisfaction among parents and older children who completed the survey.<br>To work in cardiology clinics, PNPs must have the necessary skills and knowledge to work with this patient group. Formal continuous educational and clinical training recommended e.g. diagnostic skills, imaging interpretation, critical thinking and decision-making. |

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| | | | for management of complex cases, or with other disciplines within the cardiovascular programme e.g. cardiac surgery and interventional cardiology; and consultation and/or referral to other specialties where required. | |
| Mason et al. (2019) USA | Quantitative descriptive study on quality improvement project that embedded a paediatric nurse practitioner (PNP) into an ambulatory paediatric orthopaedic unit to facilitate children's discharge from hospital. | Changes in the Affordable Care Act in the USA resulted in health care reimbursement being linked to quality measures, particularly discharge planning and patient satisfaction. | Role of PNP student described. PNP student developed specific information for nursing and medical staff relating to the discharge process and educated them on the discharge process. The PNP did daily rounds and communicated with the orthopaedic team. All children identified for discharge were reviewed by PNP student who assessed readiness for discharge, offered discharge education including individualised materials. She also checked that care goals had been met, that all community resources were in place including any medical equipment required, that instructions for schools were in place, and follow up appointments were scheduled. | Embedding a PNP as discharge co-ordinator into ambulatory services improved patient satisfaction and reduction in ambulatory postdischarge call volume from parents by almost 50%. |
| Ozalp Gerçeker et al. (2016) Turkey | RCT on nurse-led telephone counselling for | Nurse-led telephone counselling service following post-operative discharge considered to be safe and | Daily telephone calls to parents by paediatric surgical nurse (& nurse researcher) following child's | Significant decrease in parental anxiety found. |

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| | children discharged post-operatively examining effects on parental anxiety. | effective in managing symptoms and reducing hospital re-admission | discharge until clinic follow-up. The calls involved assessment of symptoms, pain management, care of wound site, nutrition, sleep, elimination patterns, behavioural changes, and activity levels. Parental queries were addressed. | Noted that nurse-led telephone counselling is simple and effective way of supporting parents post discharge from hospital and could be applied to other situations such as chronic illnesses and following discharge from emergency care. |
| Paquette et al. (2013) Canada | RCT on nurse telephone follow-up on pain management, complications and use of health services following tonsillectomy. | Early discharge following surgery noted to have emerged as commonplace. | Discharge instructions provided to parents by ambulatory surgical nurse, who subsequently met them again prior to discharge to go through the instructions.<br>Follow-up call to parents on days 1,3,5, and 10 post-operatively.<br>Support, advice and information provided on any concerns raised.<br>(Note this was by a research nurse rather than nurse from hospital services). | Compared to control group, children in intervention group received more analgesics on day 1 & 3 post operatively, and had increased fluid intake. No differences in pain intensity found or use of health services.<br>Intervention found to be simple, safe and was appreciated by parents. |
| Petitgout et al. (2013) USA | Peer reviewed paper describing the development of an interprofessional hospital-based care (i.e. medical home) co-ordination programme for children with special needs. | Recognition of the challenges of providing health care for children with special needs involving multiple services across tertiary, primary, home health and school systems. These systems typically are not designed for optimum co-ordination between services for children with special needs. The need for care co-ordination linking services and resources has been advocated by professionals and | Nurses work as part of care co-ordination interprofessional team involving the systematic process of assessing, planning, implementing, evaluating, and monitoring care and service provision.<br>Families receive support, education, and the teams act as advocates in relation to their needs.<br>Care co-ordination may be offered from hospital or clinic setting where ongoing home care needs are | Programme has grown to involve 15 medical divisions in the hospital and from an initial start-up by 2 PNPs to a team of 8 (One PNP, 2 clinical nurses, 2 social workers, and secretary).<br>Positive impact of the programme included reduced length of hospital stay, reduced hospital costs, and families reported satisfaction with the service.<br>Noted that the success of the programme likely to play a key role in health service reform for this population. |

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| | | agencies working with families of children with special needs. This home based service relates to the movement towards medical homes which began in the 1960s to re-design health care in the USA. | identified followed by ongoing communication and access to resources as needed. Extended follow-up phone calls in place for at least 12 months. Follow up services include home care nursing by agencies. Triage service available involving appropriate referral to relevant services. Paediatric nurse practitioner (PNPs) have the required knowledge, skills, and education to lead the co-ordination team and manage care within medical home model in the provision of "family centred, accessible, comprehensive, co-ordinated, culturally sensitive, compassionate care focused on the well-being of children and families"(p.424). | A challenge noted however is that reimbursement continues to be restricted to physician providers in most USA states, which mitigates against accessibility. Noted that The National Association of Pediatric Nurse Practitioners has advocated health care providers working in health care services for children in paediatric health care/medical homes should have a paediatric qualification. |
| **ACADEMIC LITERATURE** | | | | |
| **NURSING WITHIN THE CONTEXT OF TELEHEALTHCARE** | | | | |
| Looman et al. (2015; 2012); Cady et al. 2015; 2014) USA | RCT and related research papers evaluating Telefamilies project on co-ordination by an paediatric paediatric advanced practice registered nurse | The concept of 'medical home' as a model of health care delivery in the USA has care co-ordination across multiple systems as its core. Growing evidence that care co-ordination improves outcomes for children with complex needs. In one medical home group, a paediatric APRN was implemented into the services as key co-ordinator of | The certified paediatric APRN locus of work was a primary care clinic affiliated to a children's hospital. The co-ordination role included managing individual care plans, connecting families with resources, facilitating information sharing between service providers (primary, speciality, schools, home care agencies, social services etc), communicating with | Compared to controls, care co-ordination improved through the expanded scope of practice of the APRN with care co-ordination episodes increased over time from year 1 to year 3. Most contacts initiated by parents. Care co-ordination with community resources also increased. Fewer gaps or delay in care seen. Use of telehealthcare expedited care pathways e.g. transition from hospital to home/ED visits/liaise with schools re specific |

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| | (APRN) for children with complex needs. | services including direct care provision, supported by telehealth. The need for telehealth technology to support co-ordination and provision of care identified in light of geographical spread and low prevalence of children with medical complexity. | families regarding test results and initiating appropriate referrals, as well as decision-making within scope of practice. APRN was also available to families during all clinic visits and for some during acute hospitalisation. Role involved maintaining collaborative relationships with primary care providers and hospital specialists through telephone/email/in person. Access to an APRN was available to families in the context of their homes via telehealth (telephone and web based videos) during business hours. An enhanced electronic record (EHR) system facilitated information sharing between clinic and hospital services. The APRN had specialised competencies in family centred care for children with special needs. | care. Reduced/more effective utilisation of health services evident. Family caregiver satisfaction levels improved with the APRN telehealth intervention, particularly, satisfaction with provider engagement. Communication improved. When compared, there was no difference in satisfaction levels between care delivered by video and that delivered by telephone. Most communications with families relied on telephone contact rather than using video calls. |
| Gund et al. (2013) Sweden | RCT on eHealth use in home health care comparing video conferencing (Skype) vs web application to improve parents' satisfaction in caring for | Steady growth of use of eHealth in health care. In Sweden, several eHealth services have been adopted. Home visits by nurses represent a large investment of resources, since one nurse can only make a few visits per day. Need to examine the potential of eHealth in neonatology (home health care programme). | Home visits by nurses offered continuity of care following discharge from hospital. This continuity was also augmented by the web applications in that parents submitted data relating to their child and nurses provided feedback, although not in all cases. Areas addressed included feeding, weight, vomiting, bowel patterns. Some parents would have preferred face to face contact. | Results indicate that use of video conferencing was greatly appreciated by the families and was felt to reduce the need of home visits. Using a web application for daily collection of data was another potentially useful alternative. Although the nurses generally adapted well to the use of ICT, motivating some of the nurses was a challenge. |

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| | premature infant at home and nurses' attitudes of these tools. | | Communication by skype enabled parents to see nurses and also shoe their baby to them. | Not all nurses are computer confident/ have much experience using e-technology. Different e-technology applications require training (different functions etc) and nurses need to feel confident using eHealth technology. |
| Ridgway et al. (2011) Australia | Survey of maternal and child health (MCH) nurses on their use of information technology in community (ICT) based universal primary health care services. | Contextualised within the international 'groundswell' of support for implementing ICT into national healthcare systems. Health service reforms emphasize linkages between sectors and greater accessibility to information sharing among professionals. This can be enhanced through Information Communication Technology (ICT) systems. ICT systems are more advanced in acute care settings that primary care settings. Baseline data from the study specific to Victoria was noted to have potential to guide the redesign of services in this state through the integration of ICT into the system. | Almost all MCH nurses had desktop or laptop computers and many also had electronic diaries. Most used ICT for email communications and some had access to E-Health records. | Little evidence of ICF supporting their role. Concerns expressed regarding data collection incompatibility of the ICT system. The need for appropriate resources, infrastructural support, and education was highlighted. Privacy issues also need to be addressed. |

**Table 5: Workforce planning and career pathways relevant to nursing children and aligned with changing trends in health service delivery (obj. 5)**

| Authors, Date, Country | Type of paper/ study | Workforce planning and/or career pathways | Context of changing trends/reforms in nursing workforce | Key points/ findings from the paper | Recommendations/other specific comments, if any, reported in paper |
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| **WORKFORCE PLANNING** | | | | | |
| **ACADEMIC LITERATURE** | | | | | |
| Agosto et al. (2017) USA | Quality improvement project | Workforce - paediatric intensive care unit (PICU) - Central Staffing Office Intensive Care Nurse Residency Program (CSO-ICU Nurse Residency) | Proposes a central staffing model as a consequence of challenges for hospitals with fluctuating census and acuity recognising flexible and variable staffing as economic potential<br><br>CSO-ICU Nurse Residency aims to prepare nurses with core critical care skills to enable mobilisation between three ICU settings | 27 new nurses hired as part of CSO-ICU Nurse Residency Program<br><br>CSO had designated nurse manager, orientation coordinator, and centrally based education nurse specialist<br><br>Nurse residents were assigned to block schedules of 8-week cycles across three ICUs by the orientation coordinator | Recommends moving from a unit- to organization-centric model of education and practice.<br>Suggests creating overall departmental ICU training programme for nurse residents to begin their paediatric careers in a variety of ICUs helps create a mobile team of ICU nurse residents (who can be assigned to ICUs based on staffing needs).<br>Proposes this can help control costs, improve morale, satisfaction, teamwork, and enhance recognition for new staff entering the profession |
| Alonazi and Omar (2013) Saudi Arabia | Retrospective cohort study | Workforce – examination of exit questionnaires of paediatric nurses who joined and left hospital<br><br>. | Identify and explore factors that influence nurse turnover and retention; estimate length of employment for paediatric nurses | 75% of nurses leave after 2 years (partly due to contractual reasons)<br><br>Pay and benefits one of main reasons for nurses leaving<br><br>Factors influencing staff retention were nationality, | Cultural context where most nurses working in the Kingdom of Saudi Arabia are from other countries<br><br>Suggests strategy should consider employing nurses within a certain age group (younger staff have a more transient attitude to employment) |

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| | | | | marital status, job title, and job satisfaction<br><br>Highest percentage of turnover - nurses with less than 4 years of experience, and dissatisfied with promotion and training opportunities | Recruitment of experienced staff could benefit high stressful areas; with introduction of a staff rotation strategy |
| Bean and Dearmun (2019)<br>UK | Editorial | Workforce – children's nursing workforce crisis | Several converging factors resulting in deficits to children's nursing workforce including high nursing student attrition rate during training and increase in numbers leaving the profession within two years of qualifying | Factors suggested to play part in nurse attrition:<br>non-inflationary pay scales<br>depletion in CPD budgets<br>abolition of student bursaries<br>insufficient protected time for staff development<br><br>States that "establishing the extent of the problem in children's nursing is challenging because there is no single repository of relevant information. However, anecdotal feedback from providers suggests that it is difficult to maintain adequate staffing levels in children's services." | NHS Improvement offering trusts assistance to address issues affecting turnover, including morale and engagement<br>In response to members concerns about sustainability of children's nursing workforce, the Association of Chief Children's Nurses (ACCN) has discussed different models of post-registration education. These discussions have prompted suggestions about how to attract and fund more nurses to acquire competencies to care for children and young people. |

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| Bennett et al. (2016) Australia | Exploratory case study | Workforce - inter-professional working | Future of inter-professional priorities for early parenting services: limited knowledge about roles of nursing and social work working together with families<br><br>New service model which employed nurses and social workers commenced in 2012 for families with children with developmental delays<br><br>Aim was to explore the roles of nurses & social workers providing psychosocial support to families | 8 staff in inter-professional team (4 social workers & 4 child health nurses)<br><br>Service model involved six home visits - first & last undertaken jointly by nurse and social worker (other 4 completed solely by nurse)<br><br>Four major themes<br>Journey experienced by:<br>- the new service<br>- team<br>- partnering practitioners<br>- individuals' professional growth | Importance of inter-professional education highlighted prior to commencement of joint working<br><br>Building evidence on inter-professional approaches to working with families can contribute knowledge to workforce development & alternative options for care with complex families<br><br>Findings highlight the importance of:<br>- clear service models<br>- communication pathways<br>- regular team meetings<br>- professional development<br>- provision of clinical supervision |
| Cefaratti et al. (2013) USA | Article/Statement paper | Workforce - retention of radiology nurses in a children's hospital | Recruitment and retention challenging in the field of radiology nursing; radiology nursing role evolving with advanced imaging and sedation procedures | Three phases (team building, skill sets, and professional development) in a 12-week New Graduate Nurse Orientation Program to develop skill set and competency of novice nurses for radiology nursing and to meet the expanded service/specialty needs (this program was designed to parallel and | Resulted in recruitment and retention of 4 paediatric radiology sedation nurses & engaged experienced clinical nurses in supporting and mentoring the novice nurses<br><br>Implementing a hospital-based radiology nursing orientation program for new graduate paediatric nurses was a success for both new graduates and experienced clinical nurses |

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| | | | | augment existing hospital-wide Nurse Intern Program) | Programme resulted in positive transition into the 1st year of practice for new graduate nurses |
| Cimiotti et al. (2012) USA | Quantitative survey | Workforce planning - resources in children's hospitals/units | Lack of knowledge about care quality and resource adequacy in hospitals caring for acutely ill infants/ children<br><br>Survey data from 3,819 paediatric nurses working in 498 acute care hospitals in four States<br>California (n = 231) Florida (n = 104)<br>New Jersey (n = 57)<br>Pennsylvania (n = 106)<br><br>Hospitals classified into (1) general adult acute care hospital with a paediatric unit (2) children's hospital within a larger adult acute care hospital<br>(3) freestanding children's hospitals | Workloads significantly lower in freestanding children's hospitals<br><br>Nurses in children's hospitals within a hospital and general hospitals more likely to report:<br>- not having enough staff and not enough registered nurses to provide quality care<br>- inadequate support services to allow time with patients<br>- not having enough time and opportunities to discuss patient care problems<br>- they had left patient surveillance undone on their last shift | Nurse staffing and resources are associated with quality of care in hospitalized infants/children<br><br>Differences may exist in nursing resources and paediatric outcomes between freestanding children's hospitals, children's hospitals within larger institutions, and paediatric units within general hospitals; nursing resources associated with higher quality care may be more readily available in a freestanding children's hospital |

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| | | | | - missed changes in patients' conditions<br>Nurses in hospitals with high staffing & resource adequacy less likely to report having left surveillance tasks undone and missed changes in patient conditions | |
| Conley et al. (2010)<br>USA | Consensus statement paper | Workforce planning - paediatric oncology nursing | Shift from in- to out-patient treatment created challenges for paediatric oncology nurses in ambulatory settings<br><br>Association of Paediatric Haematology/Oncology Nursing used evidence from adult ambulatory oncology literature and workshop with independent panel of US experts to develop global statements about paediatric oncology ambulatory practice standards | Statements related to:<br>- Staffing/scheduling /wait times<br>- Acuity<br>- Ambulatory nursing care model<br>- Information technology<br>- Chemotherapy Administration<br>- Telephone triage guidelines<br>- Patient education | Professional licensed nursing activities must equate with skill set<br><br>Staffing models need to:<br>- consider indirect care needs, patient acuity & total patient load<br>- be recalculated at least annually<br><br>Patient acuity systems should include visit duration and amount of nursing care and patient/family education required<br><br>Ambulatory nursing roles should be structured to meet patient care needs safely<br><br>Constant communication about patient acuity and staffing between clinic nurses and the individual with |

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| | | | | | clinic oversight to safely allocate available resources |
| Darvill et al. (2014)<br>UK | Qualitative study | Workforce – community children's teams (skill mix – newly qualified) | Transition is fundamental to preparing, recruiting and retaining newly qualified staff; and influencing the education preparation of nurses<br><br>To date, transition literature has focused on adult acute care<br><br>Resistance to employing newly qualified nurses in the community because they were thought to lack skills/ability to work autonomously<br><br>Aim – explore the experiences of newly qualified children's nurses who had taken up first destination posts in community children's nursing teams | Shadowing<br>- being supported, guided and protected to increase confidence<br>- unwanted/unnecessary surveillance<br>- lack of recognition of undergraduate experience: reduced value as team member<br>- limited independent practice expected before formal assessment of competence<br>The Visits<br>- move to conducting unaccompanied visits informally facilitated by preceptors; gradual move from routine to complicated care & from restricted to full independent caseload | Facilitating transition:<br>- Preceptors providing opportunities to complete job specific competencies under supervision & within thresholds of capability<br><br>Inhibiting transition:<br>- Limited opportunity to exercise choice about when to undertake various milestones<br>- Limited opportunities to observe different styles of practice<br>- Perceived unnecessary observation<br>- Disregard of undergraduate experience<br><br>Ideal transition experience needs an individualized approach which allows for different rates of progression<br><br>Development of a new professional identity as a community children's nurse dependent on the actions of the |

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| | | | | - able to exercise some choice in timing & case complexity<br>- heightened awareness of personal safety<br>- being away from institutional setting and immediate access to advice & support<br>- relinquish power<br>Emerging Identity<br>- environmental factors: wearing same uniform as the team, being afforded same status as the team, having a desk<br>- perceived lack of experience/experience being recognised (12-14 months)<br>- being part of the team | newly qualified nurse and those with whom they work |
| Delaney (2014) USA | Editorial | Workforce – Child/Adolescent | Licensure, Accreditation, Certification & Education (LACE) called for | Implementation of LACE model challenging time - to retain expertise of | Vision Child/Adolescent nurses working towards: build workforce educated for prevention focused |

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| | | Psychiatric/Mental Health Nursing | psychiatric mental health (PMH) advanced practice registered nurse (APRN) curriculum that was life span with graduates prepared to practice across populations including children/young people | Child/Adolescent Clinical Specialist; to use Child/Adolescent registered nurses to full scope of practice; & to develop a life span PMH NP graduate to address child/adolescent mental health issues | system that is family driven, resilience oriented, culturally competent, and organized to match children's intense mental health needs with appropriate mental health services |
| Delaney (2017) USA | Statement paper | Workforce – discusses shortage of nurses working in child mental health services (community) | Concern around child mental health wellbeing include translating evidence-based practices to community based settings; access (workforce shortages barrier to service provision), training (entrenched traditional norms/attitudes with diagnosis-driven solutions with scant consideration of broader risk/protective contextual factors), structural integration (lack of structure to operationalise ecological ideology with family systems, community and care closer to home interventions) and attitudinal (stigma, beliefs) issues | Asks how can child psychiatric nurses bring transformational change to improve systems of child mental health care: having people with courage, reframing the problem and bringing a sense of urgency, having strong specialty leaders and building connections with organizations that support leadership development. | - Strengthen the skills of Psychiatric Mental Health Nurse Practitioners who specialize in children<br>- Collaborate with school nurses<br>- Build shared efforts across universities for training the workforce |
| Ellington (2013) USA | Survey | Workforce - paediatric telepsychiatry and nurse practitioner | Increasing numbers of children with a mental health condition; service deficits | Overall parent satisfaction with telepsychiatry & nurse | Mental health care needs for children is rising |

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| | | | due to limited number of child and adolescent psychiatric providers<br><br>Telepsychiatry a potential avenue to improve access to mental health services<br><br>Article describes psychiatric advanced practice registered nurses providing paediatric telepsychiatry & presents results of a parental satisfaction survey | practitioner service was high | With shortage of certified providers nurses have opportunity and responsibility to explore ways to deliver greater access to specialty care; telepsychiatry is one potential solution |
| Freed et al. (2010) USA | Survey | Workforce - paediatric nurse practitioners (PNPs) | PNPs suggested as professionals to provide care to the growing population of children with chronic illnesses (in light of projected shortages of paediatric subspecialty physicians)<br><br>Limited knowledge about PNPs roles in primary or subspecialty care<br><br>Aim - to gain a better understanding of the roles, focus of practice, professional setting, and responsibilities of PNPs | Majority of PNPs work in primary care; most have no inpatient roles<br>39% spent most of time in private practice<br><br>Majority of PNPs in primary and specialty care perform most general practice roles; greater number working in primary care provide immunizations and well-child examinations | For PNPs to alleviate the current shortage of paediatric subspecialists a significant change in PNP workforce distribution or a marked increase in the number of NPs pursuing paediatric training is required to ensure there will be sufficient paediatric workforce to address demand in primary and subspecialty areas |

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| Freed et al. (2012) USA | Research study – mail survey | Workforce – modifications to resident duty hours | Modifications to resident duty hours can have significant impact on institutions compensatory workforce needs to ensure appropriate patient care and attention to patient safety concerns.<br><br>Survey to chief executive officers and chief operating officers of 114 freestanding children's hospitals or children's hospitals within a larger hospital to understand what adjustments hospitals made/will make in staffing as result of residency duty hour changes. | Non-resident workforce needs of children's hospitals are increasing, with many hospitals plan to hire additional paediatric nurse practitioners (PNPs) and neonatal nurse practitioners (NNPs) to address changes in paediatric residency training; however, these intentions raise the question as to whether the supply of PNPs and NNPs is poised to meet this increasing demand. | "A lack of increase in the pipeline of new PNPs and NNPs and increased competition for their services will likely lead to significant competition among employers in both inpatient and outpatient settings." (p. 704) |
| Freed et al. (2014) USA | Survey | Workforce – paediatric nurse practitioners (PNPs) | The demand for hiring PNPs is high yet the number of newly educated PNPs remains relatively flat<br><br>Limited knowledge exists about when students or practicing nurses decide to pursue PNP education | 35% decided to pursue education as an advanced practice nurse (with a paediatric focus) while in practice as a registered nurse & 37% decided before pursuing RN education<br><br>Most important factors in becoming an advanced | Efforts to increase PNPs need to be directed to students during RN education & to create opportunities for current RNs to follow advanced practice nurse education focused on children |

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| | | | Also PNPs likely to be provided with various practice setting and patient population employment options on completion of their education; choices made by PNPs at graduation unknown | practice nurse with a paediatric focus were interest in working with children, greater autonomy & the provision of comprehensive care, lifestyle and family and financial considerations | |
| Freed et al. (2015) USA | Survey | Workforce - paediatric nurse practitioners (PNPs) | Yearly number of new PNPs graduates not increasing<br>To determine whether lack of increase in PNPs was related to limited capacity of education programmes or limited interest in PNP education by student applicants | Approx. 10% of PNP programmes in the US were closed, on hold, or did not have new graduates in the past 3 years<br>Even with some closures, over 25% of programmes did not fill all available positions (for the 2012 entering class)<br>Also almost half of programmes usually had unfilled slots in the last 3 years<br><br>One third of programmes had difficulty hiring and/or retaining PNP faculty over the last 5 years | Underutilized capacity to educate PNPs is an obstacle to meeting current and future demands for PNPs<br><br>"Greater efforts to promote PNP education will be required to increase the production pipeline and utilize the capacity in educational programs" (p 316)<br><br>Need to focus on filling available placements & on increasing class size to increase PNP workforce<br><br>High-quality faculty essential for academic integrity of PNP educational programmes |

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| Friedman et al. (2013) USA | Retrospective descriptive evaluative study | Workforce - retention and costs of employing new graduate RNs before and after initiation of specialized year-long paediatric critical care, emergency department, and haematology/oncology orientation programmes | New graduate RN retention in first year of employment challenging (range from as low as 25% to high of 64%); this has cost implications with nursing budgets being spent on temporary nursing staffing | Improved retention of 84% to 94%; significant retention at 9 months<br><br>Annual financial savings reduced as a consequence of decreased turnover in specialised orientation group (net cost savings of $597,778) | "Specialized pediatric orientation programs that support new graduate RNs have documented increased retention and decreased turnover. Further, health care finances are impacted positively by specialized orientation programs." (p. 169) |
| Gigli et al. (2019) USA | Scoping review | Workforce – paediatric nurse practitioners (PNPs) roles in care of children | More than 270,000 nurse practitioners licensed in the US; approximately 5% certified to practice in paediatrics; majority of these (85%) certified to practice in a primary care setting with only 10% certified to practice in an acute care setting. Additional 5% hold dual certification in primary and acute care. | "PNPs are a vital part of the workforce that cares for children. Their specialized education and clinical training make them a unique part of interdisciplinary teams." (p. 353) | "Attention should be focused on updating and expanding knowledge of the state of the PNP workforce to identify areas in practice and policy where interventions will support maximizing the contributions of these providers to high-quality, accessible, and affordable pediatric health care." (p. 353) |
| Glasper (2017) UK | Editorial | Workforce – optimal staffing ratio children's nurses | Children's hospitals and children's wards finding it increasingly difficult to maintain optimum staffing ratios of children's nurses for delivery of safe care<br><br>UK standard: minimum of two registered children's | Problem in UK: adult nurses (unlike former registered general nurse) do not have skills or competencies to provide safe and effective care for any other client group outside their own field of practice | Preparing nursing support workers to deliver safe and effective care to sick children – "nursing associates": follow a 2-year foundation degree and be sponsored by a range of hospitals (with curriculum configured to allow some students specialise in the care of children and young people) |

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| | | | nurses at all times in all inpatient and day care areas & minimum of 70:30 percent registered to unregistered nursing staff<br><br>Problem: insufficient registered or trained children nurses' to consistently meet these standards | No tangible rules exist to prohibit a nurse annotated on the UK nursing register as an adult nurse from delivering care to children; however, it is acknowledged that nurses must always be aware of their professional limits, abilities and role boundaries etc.<br><br>RCN directives for staffing of sick children's units: unregistered healthcare staff must have completed a training course specific to the setting & in the care of infants, children, and young people; including having undergone competence assessment before carrying out care and delegated tasks | |
| Grant et al. (2011) UK | Discussion | Workforce – providing emergency care to children | Challenges exist in developing a workforce fit to provide care to children/young people in need of emergency or urgent care | Gold standard is for children to be cared for by registered children's nurses with appropriate ED experience and competence | Emergency department leaders must invest in development of a workforce fit to nurse children/young people<br><br>Competency frameworks appear a safe & effective way to enhance core |

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| | | | within a general hospital emergency setting<br><br>In 2007, RCPCH introduced clinical competencies to enable nurses to deliver care to children in emergency settings<br><br>Identifies the specific need for education, training and skills in caring for children in an emergency setting<br><br>Identifies the need for a lead nurse for paediatrics in all emergency departments; realistic expectation<br><br>Recommended that registered children's nurse should be on all shifts; this may pose significant issues surrounding 24-hr registered children's nurse cover | Lead nurse for children in emergency care setting holds key role to assist adult nurses achieve competencies required to care for children<br><br>Outlines a competency tool for emergency paediatric nursing as pragmatic, safe and sustainable approach to help with skill mix shortfall<br><br>Core competencies required to nurse children requiring emergency care drawing on work of Grant & Knight in 2008<br>1. Physiological and psychological development<br>2. Taking and interpreting vital signs<br>3. Pain management<br>4. Medicines management<br>5. Management of the sick child<br>6. Management of the injured child<br>7. Mental health 8. Safeguarding children and young people | skills and knowledge for adult nurses to enable them to care for children/ young people<br><br>"It is imperative that we work together to agree and adopt a national competency framework to support adult nurses to care safely and effectively for children in the ED" (p. 211) |

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| Healy-Ogden et al. (2012) Canada | Pilot project | Workforce – 80/20 model to address staff shortages and improve recruitment and retention | Pilot study to improve retention and recruitment in smaller communities to address staff shortages using an innovative model 80/20 staffing – allows staff 20% time away from direct care to pursue professional development activities such as education, mentoring and work-related activities to enhance patient-centred care, allow time for engagement in research | Specific outcomes included:<br><br>Pre-op teaching brochure for paediatric patients/families<br><br>Staff retention with 7/14 participants indicating they would remain at the institution<br><br>Increased quality of care from knowledge and skills gained<br><br>Inter-sectoral collaborative partnerships developed between academia and practice<br><br>Raised profile of the hospital; staff felt valued<br><br>Nurses learning experiences positively affected personal growth, work environment and relationships with staff | 80/20 format not sustainable<br><br>Exploring opportunities to maintain momentum generated by 80/20 within existing resources<br><br>Opportunities to use wok that stemmed from the project e.g. pre-operative brochure<br><br>Participants valued professional development (PD) time – would welcome formal paid PD time built into regular workloads |

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| | | | | Job satisfaction & staff engagement improved despite staff shortages<br><br>Challenges – resources, staffing, and challenges for participating nurses | |
| Hickey (2010) USA | Quantitative/statistical analysis of retrospective data | Workforce - examines the relationship of nurse staffing, skill mix, and Magnet recognition to institutional volume and mortality for congenital heart surgery at children's hospitals<br><br>Compared Magnet and non-Magnet hospitals = skill mix and effect on volume and mortality | Responds to the debate around the size and composition of nursing staff needed in American hospitals (private and public) and the quality and cost of care | Significant relationship between ICU nursing worked hours and institutional volume<br><br>Nursing skill mix lower in Magnet hospitals<br><br>Higher nursing worked hours was significantly associated with higher volume. Hospital volume was significantly associated with risk-adjusted mortality | "Patients undergoing congenital heart surgery in institutions with higher cardiac surgical volume had a reduced likelihood of death controlling for baseline patient demographic and clinical risk variables. Nursing skill mix was significantly lower in the hospitals with Magnet recognition. No relationships were found between nursing worked hours or skill mix and mortality." (p. 232) |
| Horner (2016) UK | Briefing | Workforce - community care paediatrics | Gaps in community workforce putting pressure on parents | Families are left to shoulder the responsibility for complex care because of lack of trained clinicians<br><br>Also, disparities in care packages with no clear national guidance on what any one child should receive; often families have | WellChild charity called for a review of workforce and training as a consequence of parents taking responsibility for complex nursing care |

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| | | | | to fight to get community services to understand what they have to do at home | |
| Hu et al. (2017) China | Qualitative paper | Workforce issues | Background of serious nurse shortage and an increasing birth rate<br><br>Reference to workforce issues - insufficient professional competence and inadequate training in paediatric nursing/stress/lower pay | Identifies stressors in newly graduate nurses working children's hospital in China<br><br>Workforce issues<br>- inadequate supportive system<br>- uncertainty of career development<br>- graduates were uncertain about their career path and some had lost confidence in their own professional development. | Implies that managers should develop supportive interpersonal systems for nurses<br><br>Reduce the impact of the hierarchical culture in Chinese hospitals<br><br>Stressors of newly graduated nurses' development should be offered to the newly educated nurses, in order to prevent turnover.<br><br>Nursing managers should play a positive role as advocates for the nurses to improve working environment<br><br>Increase social status at institutional level as well as at government level |
| Jakubik et al. (2011) USA | Descriptive correlational study (Magnet hospital in the USA) | Workforce – relationships between mentoring quality, quantity, type, length of employment, and mentoring benefits<br><br>Implications for the Magnet Journey | The results of a nurse mentoring study aligned with the Magnet model components outlined by the American Nurses Credentialing Center (ANCC) (Magnet Recognition Program) | Nurse mentoring, conceptually and experientially, demonstrates the Magnet model components and provides implications for the Magnet Journey for paediatric nurses. | Implications include the relationship between high-quality mentoring relationships and retention in a single organization. High-quality nurse mentoring relationships may have a role in nurses' longevity in an organization<br>Nurse mentoring demonstrates a magnetic work environment |

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| | | | Magnet model serves as a guide to promote professional nursing and achieve outstanding quality outcomes. | Uses a Nursing Professional Practice Model as the driving force of all aspects of nursing practice, describing how nurses practice, collaborate, communicate, and develop professionally<br><br>Based on this body of research, mentoring efforts in paediatric hospitals should incorporate measurement of nurses' perception of mentoring quality.<br><br>Using mentoring quality as a guide will help to foster mentoring efforts that promote the mutual benefits of mentoring | Transformational leaders create a workplace culture, in alignment with nursing and organizational strategic and quality plans, to empower nurses to succeed in advancing nursing science<br><br>Transformational Leadership also benefits for the novice nurse research, including professional growth and development, organizational benefits through the development of new nurse researchers while promoting the development of new knowledge in nursing science and adding to the existing nursing knowledge. (p. 161) |
| Kendall-Raynor (2015) UK | Briefing | Workforce – community children's nursing services | Lack of nurses means parents are being relied on as the skilled workforce.<br>Lack of community children's nursing provision<br>Few existing services offer the 24/7 service critical for end of life care | Parents launch #notanurse_but campaign<br>Supported by WellChild (national charity aiming to move seriously ill children out of hospital and to be cared for at home) | National approach to training to ensure everybody in contact with the child is trained to the same level i.e. community nurses, ward staff or family members.<br><br>WellChild plans to employ a nurse educator to develop a family training programme |

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|---|---|---|---|---|---|
| | | | WellChild funds 26 nurses (band 7) who co-ordinate hospital to home transition and provide nursing care at home | Parents calling for recognition and support for families providing care at home for children with serious illnesses/complex health care needs. | |
| Keogh (2013) UK | Briefing report | Workforce – staffing levels | Suggested essential staffing levels for safe children's care updated by RCN | RCN recommends:<br><br>"Minimum ratio 70:30 registered to unregistered nursing staff<br><br>Minimum of 2 registered children's nurses in inpatient and day care at all times<br><br>Supernumerary supervisor in each clinical area for effective management, training and supervision of staff<br><br>70% of nurses given additional specific training (neonatal intensive care)<br><br>Access to advice from a senior children's nurse" (p. 7) | Workforce plans across all care services to be reviewed on an annual basis or more frequently, where problems have been identified.<br><br>Staffing numbers and skill mix to reflect the new guidance, if not a full risk assessment to be carried out. |

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|---|---|---|---|---|---|
| Kim et al. (2018) Korea | Research study - secondary analysis of data | Workforce – staffing levels | Explored the association between paediatric nursing sensitive outcomes and nurse staffing levels | Nurse staffing levels had a clear relationship with the occurrence of lower respiratory tract infection and GIT infection.<br><br>Five paediatric nursing sensitive outcomes (pneumonia, sepsis, arrest / shock / respiratory failure, wound infection and postoperative cardiopulmonary complication) showed weak relationships with nurse staffing levels. | Demonstrated evidence for the relationships of nurse staffing levels and patient outcomes<br><br>For quality paediatric nursing care, nurse staffing improvement is required. The study results could be useful evidence for appropriateness of nursing staffing in paediatric facilities |
| Liang et al. (2019) Taiwan | Research study – qualitative interviews | Workforce – robot use in paediatric settings and impact on staff employment | To describe nurses' views on the potential use of robots in the paediatric unit; two questions:<br>How do paediatric nurses describe the roles of robotics in clinical practice?<br>What impacts do paediatric nurses associate with the use of robotic care in the paediatric unit? | Three themes identified the benefits and drawbacks with paediatric nursing roles regarding the potential use of robotics in a paediatric unit<br><br>(1) care impact - advantages: reducing healthcare providers' workload and adequately meeting needs of children and their families | Strategic implementation would offer advantages but also there is the need to address any inherent weaknesses of the technology e.g., robots' inability to provide genuine human touch, demonstrate human emotions associated with paediatric care, and display cultural sensitivity.<br><br>With specific reference to workforce, Liang et al. (p. 63) state that “it seems inevitable that the increased use of robotics and AI will affect job descriptions and employment opportunities in nursing, as some |

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|---|---|---|---|---|---|
| | | | | (2) care impact - shortcomings: deficiency of individualised care and reduced employment opportunities for nursing staff<br><br>(3) attitude impact: lifelong learning and integrating culture and technology to meet paediatric care needs. | tasks will be replaced or heavily modified; it is also possible that advances in technology will expand opportunities for nurses by augmenting their abilities and roles."<br><br>- improving nurses' knowledge and awareness of robotics is essential<br>- it is desirable to consider the integration of nursing practice and the advanced functions of robots to ensure reliable robotics for safe paediatric nursing care usage e.g., ethics and privacy in data security etc. |
| Mahon (2018) Canada | Research - ethnographic study | Workforce - paediatric haematology/oncology units (PHOUs) | PHOUs are highly paced, stressful environments and can be difficult areas to work so these units can present issues when it comes to both recruiting and retaining health care professionals (HCPs) including nurses.<br><br>This study explored the environment of PHOU using the qualitative research approach of critical ethnography | Participants identified that their ability to develop long-term relationships with children and families as a significant source of satisfaction.<br><br>Belonging to the oncology team was seen as extraordinarily important to all the participants.<br><br>The majority of the participants also felt that working in this ever-evolving dynamic medical | "The lack of autonomy retained by HCPs pertaining to administrative involvement in decisions surrounding everyday workings of PHOU caused staff significant distress and could lead to attrition in this area." (p. 425) |

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| | | | | field afforded them with ongoing learning opportunities. | |
| Martyn et al. (2013) USA | Descriptive/discussion paper | Workforce – Paediatric Nurse Practitioner (PNP) roles | Number of PNP static and will not meet the expected needs over coming years<br><br>Purpose of article to discuss (a) critical role PNPs play in meeting the health care needs of children; (b) the PNP workforce within the context of the current nursing workforce; (c) implications of current trends in paediatric nursing education; and (d) recommendations for nursing education and policy to strengthen the PNP workforce and to meet unique health care needs of children. | Expanding the PNP workforce to meet child health care needs is influenced by current trends in paediatric nursing education at the undergraduate and graduate levels.<br><br>To increase the number of PNPs in health care, changes need to be made to increase enrolment in and access to PNP programs | Paediatric nursing education programs need to address issues related to access to paediatric nursing education, appropriate clinical experiences, efficiencies in length of time to degree, and funding.<br><br>Recommendations to strengthen PNP workforce:<br><br>Changes primarily in graduate education, policy, and research focused on understanding how to increase the PNP workforce.<br><br>Paediatric nursing education programs need to address issues related to access to paediatric nursing education, appropriate clinical experiences, efficiencies in length of time to degree, and funding.<br>There is a need to promote institutional support for developing and continuing PNP programs that focus on a variety of settings, including those in rural and low-income areas. |

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|---|---|---|---|---|---|
| | | | | | Funding for graduate nursing education is important for furthering the education of the nursing workforce<br>Research focused on PNP workforce and education is essential for child health care provider workforce planning and policy.<br>(p. 403) |
| Messmer et al. (2011) USA | Research: descriptive correlational study | Workforce - examined intent to stay and the relationship between work satisfaction and burnout in a sample of new registered nurse graduates hired at a freestanding children's hospital. | Organizational infrastructure and a developmental transitional model for new graduate nurses. Were put in place 2006 | Of a target group of 75 new graduate nurses, 33 (44%) completed.<br><br>Most participants indicated that they intended to stay on the job: 88% reported that they were satisfied with their current position, and 97% were satisfied with being a nurse.<br><br>The higher the perceived work satisfaction, the lower the burnout rate.<br><br>Before the implementation of a support group program for new graduates in 2006, the turnover rate was 7.6%; in 2009, the turnover rate was 5.7% | Findings showed most new graduates intended to stay on the job and were satisfied with their current position and with being a paediatric nurse. Also, the higher the perceived work satisfaction, the lower the burnout.<br><br>Turnover rate decreased steadily from 2006 to 2009 with implementation of the nursing support programme.<br>Although implementation of the support group programme for new graduate nurses may not be entirely responsible for the decreased rates of turnover and vacancy, it may be a significant factor.<br>Findings support the allocation of resources to provide support to new nurses with the intent to improve retention and prevent burnout. |

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| Nageswaran and Golden (2017) USA | Research study- qualitative | Workforce – home healthcare (HH) nursing services<br><br>(1) identify factors associated with lack of stable home healthcare nursing services for children with medical complexity<br><br>(2) describe implications of unstable home healthcare nursing for children, caregivers, nurses, and home healthcare agencies. | Demand for HH services likely to increase in the future<br><br>Large proportion of nurse workforce serving in hospitals rather than in HH likely to result in HH nurse shortage in the coming years | Lack of stability in home healthcare nursing common.<br><br>These include:<br>(1) not finding nurses to cover shifts<br>(2) nurse turnover<br>(3) nurses calling out frequently<br>(4) nurses being fired by caregivers.<br><br>Reasons for lack of stability of HH nursing services were multifactorial: nurse-level, child-level, caregiver-level, residence-level, agency-level, and system-level factors.<br><br>Lack of stable HH nursing affected the well-being of children with medical complexity, and contributed to substantial caregiver burden. | Long-term solutions to maintain stability of HH nursing services are necessary.<br><br>Urgent need to identify ways to expand the nursing workforce<br><br>Use of alternative models of delivering paediatric HH services need to be considered. |
| Pergert et al. (2016) Sweden | Mixed methods study | Workforce – paediatric oncology | Set against a lack of paediatric nurse specialists in Sweden a national educational programme in | Retention levels were better (93%) | “Continuing education results in advancements in positions and increased responsibilities which lead to improved job satisfaction and |

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|---|---|---|---|---|---|
| | | | paediatric oncology nursing was established<br><br>This study sought to evaluate this programme | 31% moved into management/consultant nurse role<br><br>Increased confidence and security in their work<br><br>New networks and resources were developed and used in their practice | reduced turnover of nurses. When nurses are equipped through education, this has a positive effect on their confidence and authority and consequently on the care for children and adolescents with cancer and their families" (p. 72) |
| Sasso et al. (2018)<br>Italy | Statement paper | Workforce - staffing | Extension of RN4cast@it-ped to look at staffing levels in paediatric services | Differences in settings and study populations makes it difficult to propose a common evidence based standard to guide the planning of the allocation of human and material resources in paediatrics.<br><br>A specific study is required "to correlate the characteristics of: (1) health professionals (i.e., job satisfaction, work environment, burnout, experience, education, and staffing levels); (2) the various patients that present to the paediatric services (i.e., heterogeneous diseases and complexities, | "Ensuring optimal levels of staffing, both in terms of numbers and education, constitutes a new challenge, internationally, for health organizations"<br>(p. 1224) |

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| | | | | age, and diverse needs); and (3) patient-centred outcomes" (p. 1223). | |
| Schell et al. (2015) USA | Quantitative research | Workforce - PNPs | Forecasts of PNP supply and demand to evaluate the PNP shortage over the next quarter century under the best-case scenario | The current system will be incapable of satisfying the growing demand for PNPs<br><br>The following are required: increases in PNP specialization rates, increases in PNP certification examination passing rates, and increases in the potential annual growth rate of enrolment sizes for PNP master's programs | "By improving the PNP education and workforce system, this forecasted shortage can be reduced to 5 years. Given the important role of PNPs in the primary and subspecialty care of pediatric patients, a reduction in the shortage of PNPs can improve access to pediatric care for the growing pediatric population with complex and chronic diseases." (p. 305) |
| Smith et al. (2016) USA | Research-national survey | Workforce planning - paediatric nurse residency programs (NRP) and nurse retention | Significant national initiative to provide residency programs for new registered nurses to facilitate transition to practice. Hospitals that provide care to children face a unique challenge ensuring that nurses new to paediatric units have the expertise to care for the needs of their population.<br>National survey of characteristics of paediatric nurse residency programs, | Hospitals typically have an orientation program, but not all have a residency program<br><br>NRPs were generally internally developed and a year in length<br><br>Most common content included critical thinking, stress management, small group support, professional role transition, paediatric | In the ongoing development of NRPs in children's hospitals, issues such as appropriate content, optimal length, standardization across settings, impact on nurse retention, safe practice and patient outcomes all need to be addressed. |

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| | | | including structure, content, outcomes, benefits and challenges | resuscitation, and evidence based practice<br><br>Measurement of outcomes of NRPs focused on participants' satisfaction, followed by turnover rates<br><br>Challenges included obtaining organisational financial support, developing content relevant across units, providing time away from clinical units, and maintaining preceptors.<br><br>Benefits were development of professional role confidence and peer support networks, increased safe nursing practices, and a decrease in nursing turnover (i.e., percent turnover ranged from 0% to 16% with more than half (59.2%) reporting a turnover rate of 5% or less). | |
| Sporing et al. (2012) USA | Discussion of a pilot programme | Workforce – diversity initiative | Few interventions in the nursing literature are targeted toward increasing racial and ethnic minority. | Of 20 employees who started the NCLP, only 1 withdrew. | NCLP showed promise as a method to address racial and ethnic disparities in nursing. |

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|---|---|---|---|---|---|
| | | | Addressing the need to expand racial and ethnic diversity among nursing profession in the organisation Children's Hospital Boston (CHB) created the nursing career lattice program (NCLP).<br><br>Goal of program was to prepare workers of racial and ethnic diversity for entry and advancement in nursing at CHB. | At the end of the 2-year pilot program, 35% (n = 7) of employees were enrolled in nursing school.<br>Employees were enrolled in both RN and licensed practical nursing programs; 15% (n = 3) had completed nursing school; 30% (n = 6) were in process of completing their prerequisite courses; 15% (n = 3) had completed all prerequisite courses and submitted their nursing school applications; and 5% (n = 1) dropped out of the program. | Opportunities for improvement of the NCLP after the pilot:<br>- stronger partnerships with local nursing schools<br>- more information on the NCLP for hospital staff<br>- assistance for prepayment of college tuition<br>- additional nursing mentors<br><br>The program is a mechanism for promotion from inside the organisation, thereby investing resources in current employees. |
| Staggs and Dunton (2012) USA | Observational cross -sectional study | Workforce – nursing turnover | To explore associations between nursing unit turnover rates and several hospital- and unit-level variables, including staffing level and skill mix | Lowest turnover in nursing units in government and Magnet designated hospitals.<br>Nursing turnover lowest on neonatal units and highest on adult units.<br>Paediatric units had lower turnover than adult units.<br>Units with higher skill mix associated with lower nurse turnover. | Hospital and unit characteristic variables have significant associations with nursing turnover and, pediatric units seem to have a work environment and culture that keep turnover comparatively low (p. 1143) |

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| | | | | Total nurse staffing level did not have a significant effect on turnover. | |
| Van Allen (2016) & Van Allen (2012) USA | Statement paper | Workforce - Society of Pediatrics position on safe staffing numbers | Increased nurse staffing associated with improved patient/family experience with care and a reduced incidence of adverse outcome | "SPN believes that all children and their families should receive safe, high quality, culturally sensitive, patient family-centered care in an environment that supports the development of the child and promotes excellence in nursing care" (Van Allen, 2016; p. 114) | 1:4 ratio<br><br>Staffing is a complex issue composed of multiple variables. No single published ratio for nurse-staffing is automatically applicable in all settings where children receive care. (Van Allen, 2016; p. 114) |
| Voepel-Lewis et al. (2013) USA | Research - retrospective case control study | Workforce - surveillance, staffing, and serious adverse events in children | Suggested nurse staffing levels are system factors that may contribute to serious adverse events and deterioration in hospitalized patients.<br><br>Examined the relationship between surveillance, staffing, and serious adverse events in children on general care postoperative units. | Nurse staffing levels moderated the relationship between patient risk factors and surveillance in a paediatric postoperative setting; demonstrating this association is dependent on staffing levels.<br><br>Relationship between staffing and adverse outcomes was dependent on surveillance, where no relationship occurred during lower surveillance. | The relationship between patient risk and surveillance was significant at lowest staffing levels, and suppressed at the highest levels, suggesting that nurses prioritised surveillance for sicker children during low staffing, but increased surveillance overall during higher staffing. |

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| **GREY LITERATURE** | | | | | |
| Clark et al. (2013) USA | Presentation - quality improvement project | Workforce - float pool of nurses | Float nurse's orientation to the Paediatric Intensive Care Unit requires extensive collaboration among units and a detailed plan to train these nurses to be competent and confident in a shorter period of time than unit-based nurses | - Selection of preceptors from both units who could consistently orient float nurses<br>- Development of a readiness assessment tool<br>- Creation of didactic classroom content prior to clinical experience<br>- Development of a competency tool for evaluating orientation completion<br>- Consideration of the number of PICU nurses in orientation<br>- Increased manager and educator presence on the unit during a float nurses' orientation<br>- Clinical time with a PICU respiratory therapist | |
| Dickson (2015) UK | Briefing paper | Workforce - palliative care in mental health, general practice and community nursing | Major concern in children's palliative care that there are insufficient doctors and nurses to provide care to a growing number of increasingly complex children and young people. | - Workforce shortages are difficult to rectify quickly because of the time it takes to train staff<br>- Independent sector has become a significant provider of community nursing services (charities, | - Retention strategies are improved by developing nurse leadership, providing more flexible shift options, aligning patient mix and staffing, providing mentorship and professional development, implementing performance-related rewards, offering flexible retirement |

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| | | | | social enterprises and private sector providers).<br>- Some providers are already working together across local health systems collectively setting prices for agency staff and procuring a single preferred provider. | options and developing staff engagement activities<br>- Workforce models that include retraining or creating new roles have more success |
| Hall and Brady (undated) USA | Presentation - Development programme | Workforce – Transition fellowship | Nursing skill mix (experience) within the hospital setting and its effect on patient safety, morbidity, and mortality<br><br>PICU with ≥20% of RNs with ≤2 years' experience have higher odds of patient mortality for cardiac surgery patients<br>Units with ≥25% of RNs with ≤2 years' experience had an even higher odds of patient mortality | Transition RN Fellowship program can help to balance staffing skill mix; and assist with recruiting experienced nurses (difficulty attracting staff due to high acuity, specialised practice etc.).<br><br>Open to experienced nurses with at least 1-year experience in a different area of specialty.<br>6-month program and 12-16week immersion. | Not stated how effective at retaining staff, reducing stress or burn out, effect on patient safety etc.<br><br>Improvements to the programme (following focus group with steering committee) included:<br>-Enhanced preceptor training<br>-Revised and shortened curriculum/schedule<br>-Reduced number of mentor/debrief meetings<br>-Adjusted recruitment strategy |
| Hoffman and von Sadovszky (undated) USA | Presentation - descriptive Study | Workforce - floating | Examine nurses' perceptions of what resources are needed during floating in a tertiary paediatric facility | - Issues with floating: depends on type of unit, inconsistency across units. insufficient training or needed orientation to adequately give patient | Suggestions on resources for floating: being assigned a resource or buddy when floated, having written or electronic information about the unit that could be read before and carried during time on unit, being given information about the unit |

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| | | | | care, and staff not friendly or helpful on float units.<br>- Best way to obtain information about unit nurses were floating in: being assigned a resource or buddy on the float unit, have a mini-orientation to float units, and electronic updates about float units. | routine, having a mini-orientation/training on other units and access to or check-in from a charge nurse. |
| Joint Faculty of Intensive Care Medicine of Ireland (2018) Ireland | Standards for paediatric critical care services | Workforce – nurse staffing numbers | Standards serve as a benchmark against which paediatric critical care services should measure themselves. | - High dependency care requiring nurse to patient ratio 0.5:1 (in regional HDU this could be influenced by number of factors, including patient diagnosis and complexity, severity of illness, nursing skill-mix and seniority)<br>- Critical care requiring nurse to patient ratio of 1:1.<br>- Critically ill child requiring the most intensive therapeutic interventions requiring nurse to patient ratio of 2:1<br>- Nursing qualifications and levels for each level of critical care are listed | Minimum of one nurse on every shift, who is directly involved with caring for the critically ill child, who has successfully completed a validated/accredited education and training programme in critical care and has paediatric experience.<br>All staff should have up to date Paediatric Basic Life Support (BLS) training. Minimum of one nurse on every shift who is directly involved with caring for the critically ill child, who must have completed a recognised paediatric resuscitation course (e.g., PLS, APLS) or have completed an in-house education and training programme covering similar learning outcomes. |

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| National Clinical Programme for Paediatrics and Neonatology (2015) Ireland | Model of Care – chapter 9: health services for children in Ireland, a guide to workforce planning | Workforce – children's nursing | Health services for children in Ireland undergoing considerable change, with the planned new national model of care, development of new children's hospital etc. These changes require a modern and efficient paediatric workforce to meet the health care needs of children and their families.<br><br>Informed by workforce survey carried out in March 2015 by the National Clinical Programme for Paediatrics and Neonatology. | - Supply and demand: a detailed supply and demand modelling exercise should be undertaken which is aligned to the National Model of Care for Paediatrics and Neonatology in conjunction with the academic universities.<br>- Retention of children's nurses: retention of children's nurses post qualification and career opportunities for existing staff must be explored<br>- Undergraduate training programmes for children's nursing: must evolve in line with changing health service needs to ensure nurses can care for children in all care settings; particularly with the need to provide increased nursing in the community | |
| National Quality Board (2018) UK | Improvement resource | Workforce – staffing inpatient wards acute hospital setting | England's first improvement resource for the safe, sustainable and productive staffing of children and young people's care in | Factors to consider in determining staffing requirements for children and young people's inpatient settings: | Factors important in attracting new staff and retaining existing staff are:<br>- personal circumstances, aspirations, preferences and career stage<br>- clinical specialty/workload |

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| | | | inpatient wards in acute hospital settings. | -adopt systematic approach using evidence-based decision support tool, triangulated with professional judgement and comparison with peers<br>-undertake strategic staffing review annually or more often if changes to services are planned<br>-staffing decisions should consider impact of role of parents and carers<br>-factor in the requirement that all children/young people should have access to a registered children's nurse 24 hours a day (important in NHS acute trusts and district general hospitals)<br>-take staffing decisions in the context of the wider registered multi-professional team<br>-safe staffing requirements and workforce productivity integral to operational planning<br>-organisations should have plans to address local | - ward and/or organisational culture<br>- leadership/team dynamics<br>- proactively supporting all staff in their development<br>- flexible working arrangements/shift patterns<br>- quality of clinical learning environment<br>- preceptorship programmes/ongoing education and training opportunities<br>- geographical location – for example, ease of travel and cost of living<br><br>- Failure to consider uplift in staffing calculations can lead to reliance on temporary and agency staff, reduced compliance with statutory and mandated training, staff burnout, and recruitment and retention difficulties<br><br>- Many overseas recruits have extensive experience of working with children and young people but do not have a qualification that enables the Nursing and Midwifery Council (NMC) to register them to do so; they are therefore registered to work with adults. Education and service providers should continue to work with Health Education England and |

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| | | | | recruitment and retention priorities, and review them regularly<br>-hospitals should offer flexible employment and deploy staff efficiently to limit use of temporary staff (and pay particular attention to the younger age profile of registered children's nurses and create working conditions that enhance job satisfaction for all generations)<br>-organisations should have a local dashboard to assure stakeholders about safe and sustainable staffing<br>-organisations should have an appropriate escalation process in case staffing is not achieving desired outcomes<br>-all organisations should have a process to determine additional staffing uplift (also known as headroom or time-out i.e., judgement about additional staff to cover time spent out of the clinical area) requirements | NMC to seek opportunities for their formal recognition. |

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| | | | | -all organisations should investigate staffing-related incidents and their effect on staff and patients, taking action and giving feedback<br>-feedback from children, young people, families and carers, including complaints, should be an early warning to identify service quality concerns and variation (p. 8) | |
| Royal College of Paediatrics and Child Health (2012) UK | Standards - developed by the Intercollegiate Committee for Standards for Children and Young People in Emergency Care Settings | Workforce – emergency care | Measurable and auditable standards designed to improve experience and outcomes of children/young people in their journey through urgent and emergency care system. | 1. Nurses working in emergency care settings in which children are seen require minimum knowledge, skills and competence in both emergency nursing skills and in the care of children and young people<br>2. Acute healthcare providers facilitate additional training in paediatric skills for nursing staff in the emergency department, and have a long-term strategy for recruitment and retention of registered children's nurses | |

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| | | | | 3. All emergency departments receiving children have a lead RN[Children] nurse and a lead nurse responsible for safeguarding children<br>4. Sufficient RN[Children] nurses are employed to provide one per shift in emergency departments receiving children<br>5. In emergency care settings where nurses work autonomously to see and treat patients (usually called ENPs) these nurses undergo an assessment of competencies in anatomical, physiological and psychological differences of children<br>6. Emergency doctors and nurses are familiar with local guidelines and know when and how to access more senior or specialist advice promptly for children<br>7. Emergency department nursing staff should be | |

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| | | | | PILS/PLS or equivalent trained<br>8. All emergency departments nominate a lead consultant and a lead nurse responsible for safeguarding (p. 5) | |
| Royal College of Nursing (2013) UK | Standards - staffing levels for children and young people's services | Workforce – staffing levels and workforce planning standards | Minimal standards for all providers of services for babies, children and young people.<br><br>Individual children's nurses, managers and health care providers must take responsibility to ensure safe staffing<br>levels and skill-mix.<br><br>Workforce plans reviewed on annual basis and more frequently in response to service pressures such as increased clinical acuity and seasonal activity.<br><br>Senior nurses advised to audit against the standards and highlight deficiencies/variation to | Outlines core standards for providing health care for children and young people:<br>-Shift supervisor in each clinical area supernumerary to ensure effective management, training and supervision of staff.<br>-Nurse specialists and advanced practitioners not included in bedside establishment, except periodically where required to maintain skills, to teach and share expertise with ward and department-based staff.<br>-At least one nurse per shift in each clinical area (ward/department) will be trained in APLS/PLS depending on service need. | Chapter 15 presents standards for workforce planning<br><br>*Sphere of influence*<br>Standard 1: appoint a senior registered children's nurse to influence the commissioning and management of children's services in each health care organisation i.e., health board or trust.<br>Standard 2: senior children's nurse will be a key member of the team in decision-making, business planning and determining development of new services, and have a voice in allocation of financial resources.<br>Standard 3: each hospital or health care organisation's executive board will have a nominated director (either executive or nonexecutive) whose role and responsibility is to ensure that services for children are given due consideration at this level. Also, there should be an executive lead for |

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| | | | senior management teams/organisation's board.<br><br>Full risk assessment undertaken and escalated to senior management or executive team where staffing and skill-mix deficiencies continue/ deemed unacceptable against the standards. | -Minimum of 70:30% registered to unregistered staff.<br>-25% increase to minimum establishment required to cover annual leave, sickness and study leave.<br>-Minimum of two registered children's nurses at all times in all inpatient and day care areas.<br>-Nurses working with children trained in children's nursing with additional training for specialist services or roles.<br>-70% of nurses have specific training required for the speciality, for example, children's intensive care, children's oncology, children's neurosurgery.<br>-Support roles used to ensure registered nurses are used effectively<br>-Unregistered staff must complete training specific to the setting, and in the care of infants, | safeguarding children across the organisation.<br><br>*Development of a nationally (and internationally) accepted staffing and skill mix formula*<br>Standard 1: development of a nationally (and internationally) accepted, objective and rational formula for staffing and skill mix, to determine specialty-specific nurse-to-patient ratios that underpin the delivery of safe and effective high quality care in all areas where neonates, children and young people are cared for is highly recommended.<br><br>*Workforce planning, capacity, skills*<br>Standard 1: requirement for robust workforce planning across children's services<br><br>*Workforce planning and education*<br>Standard 1: senior nurse from the operational side of service will be involved with the development of programmes of education in order to meet the requirements of the workforce plan. |

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| | | | | children/young people have undergone competence assessment before performing care/ delegated tasks.<br>-Number of students on a shift not exceed that agreed with the university for individual clinical areas.<br>-Patient dependency scoring used to provide an evidence base for daily adjustments in staffing levels.<br>-Quality indicators monitored to provide evidence base for adjustments in staffing levels<br>-Where services are provided to children there should be access to a senior children's nurse for advice at all times throughout the 24-hour period. All post holders of matron positions in children's services must hold a registered children's nursing qualification.<br>-All staff working with babies, children/young | *Patient acuity and workload measures*<br>Standard 1: there will be a validated and reliable, relevant patient dependency and acuity tool in use that is flexible and developed for children and young people. |

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| | | | | people must comply with the safeguarding children be able to access a named or designated safeguarding professional for advice at all times 24-hours a day.<br>-Children, young people and young adults must receive age-appropriate care from an appropriately skilled workforce in dedicated environments that meet their specific needs<br><br>Goes onto outline overall standards for various children's services e.g., neonatal; intensive care; general and specialist wards/departments; ambulatory and emergency care; operating theatres/recovery; community children's nursing, health visiting and school nursing etc. | |
| Royal College of | Guidance document | Workforce - children's nursing posts outside of | Several documents over the years have emphasised the need for registered children's | Guide to key issues to consider before implementing a framework | |

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| Nurses (2017b) UK | | designated children's settings | nurses to be employed in areas where children are seen or admitted e.g., a registered children's nurse is available 24 hours a day to advise on the nursing of children in other departments, such as, intensive care unit, emergency department, outpatients etc. | to support children's nurses and team members that work in posts outside of a designated children's setting.<br>Need to have:<br><br>- Effective structures<br>Develop communication links<br>Build and maintain effective working relationships<br>Child and parent/carer involvement<br>Minimise risks<br><br>- Professional support and guidance<br>Establish clinical supervision sessions<br>Advice and support in developments and practice<br><br>- Continuing professional development and revalidation<br>Lifelong learning<br>Engaging in activities<br><br>- Recruitment and retention | |

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| | | | | Career structures<br>Pay and reward | |
| Royal College of Nursing (2017c) UK | Policy report | Workforce – school nurses and health visitors | The community and public health nursing workforce has experienced upheaval over preceding 10 years in England, specifically, in funding, commissioning and provision with cuts in posts and decommissioning services threatening universal access to a children's public health service from birth to 19 years.<br><br>School nurses and health visitors are at the forefront of providing care to children and young people; acting as knowledge brokers, working at the interface between families and core health, social care and education services to support vulnerable children and young people. | Significant drop in health visitors and school nurses<br><br>Complex picture of workforce changes resulting from the re-commissioning of services by local authorities to a range of providers, and skill mix changes.<br><br>As services move to providers outside of the NHS, more difficult to track workforce developments, because of gaps in the data which hampers effective planning.<br><br>Reductions in public health funding fell most heavily on those aimed at improving children and young people's health<br><br>Variations across England as to whether families have access to the mandated | RCN committed to strengthening preventative services for children<br>• engage with members to develop vision for the future of community and public health services<br>• work with Public Health England to do further work on indicators for measuring outcomes from the Healthy Child Programme<br>• work with Health Education England to understand the reasons for and improve uptake of Specialist Community Public Health Nursing<br>• advise and supporting regulator, Nursing and Midwifery Council, to ensure public health is encompassed in the review of pre-registration nurse education standards<br>• work with Health Education England, Public Health England, the Institute of Health Visiting towards a more structured career pathway for public health nursing<br>• continue to monitor and assess the |

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| | | | | universal health visiting service<br><br>Increasing workloads for health visitors with 72% concerned about providing inadequate safeguarding and child protection support.<br><br>School nurses overstretched (e.g. working across 13 or more schools).<br><br>Drop in the numbers of nurses undertaking the Specialist Community Public Health Nursing qualification, to undertake public health nursing roles like health visiting and school nursing in England. | impact of any changes to service provision, engage with local authorities and providers locally and highlight where this improves or threatens the quality of services.<br><br>Call on local authorities to:<br>• ensure implementation of mandated universal children's service across England and ensure every child under five is guaranteed meaningful access to a health visitor and every child over five has access to a school nurse as part of delivering the healthy child programme.<br><br>Call on Government to:<br>• allocate sufficient funding for local authorities to carry out statutory duties in relation to children's public health services<br>• reinstate health visitor workforce dataset for school nursing to support effective workforce planning and service delivery<br>• ensure delivery of commitment to develop a minimum dataset for the whole public health workforce |

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| | | | | | • review impact of public health funding cuts on the delivery of the healthy child programme and make achieving outcomes from this programme a key part of the Government's social justice agenda.<br><br>Call on Health Education England and employers to:<br>• ensure health visitors and school nurses undertake placements as part of their training with public health teams to reinforce multi-disciplinary working and integrated services<br>• work with the RCN and other stakeholders to review and address reasons for low uptake of the Specialist Community Public Health Nursing qualification and develop an action plan to address this to ensure sufficient health visitors and school nurses trained and recruited<br>• ensure access to training to further develop skills and confidence in supporting children with additional physical and mental health needs. |

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| White (2019) UK | Proposed legislation - letter | Workforce – staffing levels | Nurse Staffing Levels (Wales) Act 2016: most likely area where the law will be extended later is paediatrics inpatients setting | Interim staffing principles:<br>- establish detailed baseline picture of existing nursing workforce in paediatric inpatient wards;<br>- identify resource gap between current position and full compliance with those principles;<br>- close the gap over time with gradually increasing compliance to lessen the impact to the system when the Act is implemented to paediatrics inpatient areas. | Interim Paediatrics Inpatients Nurse Staffing Principles:<br>1. Professional nursing judgement used in determining paediatric ward establishments.<br>2. All health boards have paediatric escalation protocols in place where decreased staffing numbers identified.<br>3. For inpatient wards ratio of RSCN/RCN to patients should not fall below 1:4.<br>4. Minimum of 2 RSCN /RCN rostered at all times, one of whom will have experience and skills to act as team leader (not include the ward sister/charge nurse/manager)<br>5. Ward sister/charge nurse/ward manager is supernumerary.<br>6. Skill mix for each ward a minimum of 70:30<br>7. At least one nurse per shift in each clinical area (ward/department) trained in APLS/PLS<br>8. Ward sister/charge nurses/managers have access to administration support.<br>9. 26.9% uplift used in calculating headroom within a roster. |

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| **CAREER PATHWAYS** | | | | | |
| **ACADEMIC LITERATURE** | | | | | |
| Aitkenhead and Lee (2019) UK | Prospective single centre study (nurse-led urgent care centre (UCC) in central London) | Career pathways – expanding scope of practice of nurse practitioners (NPs) (general registered) to paediatric population | NPs integral part of urgent/emergency care workforce; however due to increasing demands and urgent/emergency care NPs scope of practice is evolving to include paediatric patients; yet limited research available on assessing NPs ability to correctly interpret isolated paediatric limb injury radiographs<br><br>Aim was to identify clinical and diagnostic accuracy of NPs (general registered) in interpreting isolated paediatric limb radiographs (as compared to consultant radiologists) | 13 NPs (adult registered) with various backgrounds & qualifications took part<br><br>All UCC clinical presentations over a 3 months reviewed<br><br>296 paediatric (2-15 years) isolated limb injury radiographs<br><br>NP radiograph interpretations (definite fracture, possible fracture or no fracture) compared to final radiologist report<br><br>Findings validated NPs clinical and diagnostic skills in interpreting isolated paediatric limb radiographs<br>- No formal x-ray interpretation training<br>Little prior paediatric experience | Recommendations for future practice:<br>"development and accessibility of accredited training courses for NPs aimed specifically in the treatment of common paediatric emergency presentations, such as, minor illness, injuries and interpretation of paediatric radiographs" (p 42)<br><br>Suggests that the ideal would be specially trained NPs with paediatric skills, however acknowledges that these do not replace paediatric NPs or children's nurses. Highlights that the gold standard of care for children is qualified children's nurses or paediatric NPs. |

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| Aruda et al. (2015)<br>USA | Statement paper | Career pathways - review of change in role of paediatric primary care nurse practitioners (PPCNP) | National paediatric nurse practitioner (PNP) job analysis surveys reflecting changes in knowledge and skills required for advanced practice<br><br>Data sources: National role delineation studies (RDS) conducted by American Nurses Credentialing Center (ANCC) in 2003, 2008, and 2011 - mechanism for tracking practice changes | Current PNP role evolved to meet workforce demands of providing primary care to paediatrics with increasing complex social & healthcare needs<br><br>Change reflective of expanding role and increased autonomy of PPCNPs<br><br>Shift from "assessment" to "performance" activities<br><br>Top activities reported by recent PNP graduates:<br>1. Prescribing medications<br>2. Recognising and reporting child abuse<br>Management of childhood immunizations | Role analysis important as NPs advance in practice to full extent of their education and training<br><br>Increased clinical job responsibilities of PPCNPs<br><br>States analysis of changes in work activities offers knowledge for educator curriculum planning and practicing clinicians to remain current, and for policy makers to support full practice authority for NPs<br><br>Supports importance of three "P" foundational courses (i.e. patho, pharm, physical assessment) |
| Borrow et al. (2011)<br>Australia | Descriptive qualitative study | Career pathways - community based child-health nursing (articulating scope of work) | Broadening & changing child health nurse role to deliver traditional services alongside evolving services as a consequence of the social determinants of health & health service approaches; | 51 child health nurses from 3 centres maintained a work diary for 2 weeks, followed by focus group interview sessions | Highlights critical and multifaceted role child health nurses play in community setting<br><br>Recommendations for child health nurse roles to optimally function: |

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| | | | including changing consumer expectations<br><br>Clarity of the child health nurse's current role (definition and speciality parameters) is required; including decision-making processes that child health nurses undergo in fulfilling increasing and complex roles<br><br>Aims: to map scope of nursing practice in community child health setting & to identify the decision-making framework underpinning this nursing specialty | Community-based child health nurses currently undertake a more complex and expanded child health service role for an increasingly diverse client population; while also maintaining traditional practices<br><br>Challenges: excessive workloads and lack of human and non-human resources<br><br>Increasing requirements for child health nurses to engage in community development & capacity building; requiring multidisciplinary partnership for which sound brokerage and facilitation skills are needed to enable community inclusion and inter-agency collaboration | - Increase allocation of physical resources to community-based child health nursing<br>- Increase allocation of resources to assist community based child health nurses to support culturally and linguistically diverse families<br>- Map child health nurses' workloads<br>- Develop community health client dependency ratings that reflect social health determinants; to enable health service refinement of staffing allocations based on acuity<br>- Greater staff development opportunities to mirror increased workload complexity<br>- Managerial support for formal clinical (reflective) supervision<br>Additional clerical assistance with non-nursing duties |
| Brown et al. (2012) USA | Quantitative survey | Career pathways - PICU-NP (nurse practitioners) | Variability in PICU-NP job structure, management and scope of practice noted | 3-part survey | NPs play integral role in educational, research, and quality improvement activities of PICU |

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| | | | Aim was to identify current scope of practice and professional facets of PICU NPs | a) hospital demographics,<br>b) 5 medical director questions<br>c) 73 PICU-NP questions<br><br>Q*ualifications, supervision & scope of care*<br>State licensure or certification required<br><br>Few required onsite intensivist supervision<br><br>Orientation by another NP or intensivist, for 3-6 months with formal competencies<br><br>Various roles and procedures (homogeneous responses): writing independent orders and participating in committees, research, education & performance improvement; few given scheduled time for these activities<br><br>*Professional satisfaction* | Lack of a standardized national credentialing mechanism restricts professional mobility<br><br>Supports the Advanced Practice Registered Nurse Consensus Document to standardize licensure, accreditation, credentialing and education guidelines to allow NP professional mobility |

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| | | | | High degree of professional satisfaction but not a direct relationship with autonomy<br><br>Common stressors:<br>- clinical acuity/volume<br>- communication issues<br>- clinical self-doubt<br>- time management<br>- practice variation<br><br>*Medical director responses*<br>Main reason for employing NPs: lack of resident coverage & additional operational support<br><br>Current NP role described as a patient care partner<br><br>Operational advantages: in resident supervision, continuity of care & performance of procedures<br><br>Plans to increase NP personnel & provider role in education, research & performance improvement | |

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| Evans et al. (2019) USA | Professional ladder development & satisfaction survey | Career pathway – development and implementation of a nurse practitioner professional ladder (NPPL) at a large freestanding urban paediatric hospital | NPPL created to recognize advanced practice registered nurses & differentiate clinical expertise levels, role development, leadership, & professional contributions into a three-tiered approach (NP I, NP II, NP III)<br><br>NPPL intertwined Benner's novice to expert theory with transformational leadership elements; promoted from NP I a novice; to NP II a proficient practitioner; to NP III an expert | NPPL helped create an empowering environment for continued nurse practitioner professional growth<br><br>Feedback<br>- meet manager early to review status for promotion<br>- create a user-friendly electronic application<br>- provide mentorship to applicants<br>- change requirement regarding job-specific experience<br>allow doctoral education count towards professional development | Recognising ongoing professional contributions towards improving patient outcomes, clinical leadership & developing new knowledge - NPs feel a sense of organisational engagement resulting in increased job satisfaction & retention of expert NPs<br><br>Vital for success – offering mentorship opportunities for professional growth & development which in turn leads to career advancement |
| Fry (2011) Australia | Literature review | Career pathways<br><br>Impact of nurse practitioners in critical care (includes the children's setting) | Comprehensive review undertaken to examine the impact of Critical Care Nurse Practitioner models, roles, activities and outcomes (including paediatric critical care) | Nurse Practitioners activities involved direct patient, assessment, diagnosis, monitoring, management and procedural activities. Role expansion has included post intensive care discharge follow-up, intensive care patient retrieval and | For Paediatric and Neonatal Critical Care Nurse Practitioners, the evidence was weaker when compared with the Adult Critical Care Nurse Practitioner.<br><br>There was positive trends in Paediatric and Neonatal Critical Care Nurse Practitioners models of care. Given the evidence there is scope for |

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| | | | | transfers, and follow-up outpatient care. | further development of the Critical Care Nurse Practitioner role within Australia. |
| Howard and Barnes (2012) UK | Conceptual paper | Career pathway - competency modelling | Compares current thinking in UK to the latest competency models from USA. Uses authors' own adaptation of Benner's novice-to-expert framework to derive a framework from the current approaches. Authors demonstrate how the resulting framework can be deployed to target development of new ANPs to address workforce development and governance issues over ensuring the right skill mix for safe autonomous practice. Argues for registration of advanced practitioners as a distinct professional group to address medico-legal concerns over increased autonomy. | Too few ANP's in particular in paediatrics.<br><br>Need for bespoke for ANP's to assure that existing role holders have the correct level of competency for safe autonomous practice. | Competency modelling for ANPs in UK is in its infancy, but lack of a safe and competent workforce is a barrier to innovation for commissioners of services.<br><br>Competency modelling can be used to govern the increased autonomy of advanced practitioners in nursing, and to assist in workforce development. |
| Hyde (2017) UK | Descriptive case example | Career pathway – ANP service for out-of-hours neonatal and paediatric care in a district general hospital setting | Service redesign was non-resident medical staff on call with neonatal and paediatric nurse practitioners (i.e. practitioners work out-of-hours shifts while supported | ANPs help provide continuity of care, support learning, inspire continued professional development and lead on healthcare agendas | "Implications for practice<br>» Recognise service need<br>» Appraise options with all stakeholders including the public<br>» Governance measures should include access to robust educational |

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| | | | by a non-resident consultant paediatrician living within a 20-minute recall time to the hospital) | Service redesign can be:<br>- a complicated process<br>- takes time (more than ten years to establish a team)<br>- investment of time, finances & commitment of all involved<br><br>Redesign has ensured patients and families receive care as near to home as possible and resulted in career progression possibilities | preparation, assessment of clinical competence and regular supervision.<br>» Plan for evaluation<br>» Acknowledge career development of advanced practice" (p. 41)<br><br>Future of ANP service depends on overcoming factors not exclusive to local context including: ageing workforce, difficulties in recruiting and retaining suitably qualified staff and economic pressures; while demonstrating that the shift from traditional models of care can result in positive outcomes |
| Lecher 2016 (USA) | Briefing paper/qualitative research | Career pathways focusing on men working as children's nurses | Study to investigate and identify facilitators for, and barriers to recruitment, and solicit recommendations to improve recruitment of men in paediatric nursing at a US children's hospital | Three explicit categories generated;<br><br>facilitators for, barriers to, and recommendations aimed at recruiting more men in paediatric Nursing. | Recruitment and advertising, young men and male youth, role model provision as children's nursing Showcase what have to offer (in children's nursing); market locally and recruit nationally |
| Martins et al. (2016) UK | Research-qualitative | Career pathway - specialist nurse key worker role in oncology | To describe the development and implementation of the specialist nurse key worker role across 18 children's cancer centres in the United Kingdom, and draw out | Four models of care were identified and described, roles were organised along a continuum of in reach and outreach with either the presence or absence of | "The key worker role is instrumental in enabling families and patients to access and navigate services"<br>"Contextual constrains did however influence the way the role was developed and implemented: |

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| | | | significant factors for success to inform future development of the role across a range of specialities | home visits and direct delivery of clinical care.<br><br>Key workers' perspectives of the advantages of the role included: coordination of care (being the main point of contact for families/professionals), experience and expertise (communication/information) and the relationship with families.<br><br>The main challenges identified were: time, caseload size, geographical area covered, staffing numbers and resources available in the hospital and community | addressing these issues will ensure equitable, seamless, and safe quality care for all children and young people and contribute to an improvement of families experience." (p. 77) |
| Okuhara et al. (2011) USA | Article/statement paper | Career pathways - acute care (AC) PNPs | Focuses on the history and emerging role of the AC PNP role in cardiothoracic surgery at the Children's Hospital Los Angeles | | "The recruitment of more AC PNPs will be required to meet the demands of a growing subspecialty surgical service line. Recruitment into pediatric subspecialty services can often be challenging because of the need for specialized knowledge and skill" |

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| | | | | | "With future changes in the health care system, the utilization of the AC PNP may be a vital option for providing comprehensive care" (p. 141) |
| Parker et al. (2012) UK | Research study - national survey | Career pathway – care closer to home (CCTH) services | Main model of care closer to home for children is children's community nursing or home care teams. Previous research has proposed a relatively static typology of services, determined by where they are based, whether they are generic or specialist and whether they provide short- or longer-term input. This typology needs further elaboration as services develop. | Three-model typology identified:<br><br>1. Hospital-based, condition-specific services (36%)<br><br>2. Children's community nurses and other community services (45%)<br><br>3. Other (mainly therapy-based) services (19%)<br><br>Models differed in staffing, costs, functions, type of care and geographical coverage.<br><br>Only a third of nurses in teams were paediatric-trained. | The authors state that "potential complexity of caseloads for CCTH services is high, which makes the relatively low proportion of nurses (other than those in managerial or consultant roles) who were recorded as being paediatric trained surprising. Similarly, while many nurses were working in the community, not all of them were trained for this type of work." (p. 2043)<br><br>Both these issues may be reflective of uneven availability of children's nursing or community training and limited opportunities for additional training once nurses are in post.<br><br>Some community services reported problems in recruiting suitable staff and this might hamper further development of CCTH if training, recruitment and retention issues are not addressed. Workforce issues in paediatric nursing as it expands its work into community settings is an |

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| | | | | | issue that other health service systems, as well as the UK, are facing.<br>Nurses are key to the delivery of care closer to home but recruitment, retention and paediatric training issues need attention. |
| Tume (2010) UK | Statement paper | Career pathways- ANP roles in paediatric critical care | As a potential solution to the workforce changes is to remodel the workforce beyond that of the traditional 'physician only' model of paediatric service delivery and to establish more advanced nurse practitioner (ANP) roles in paediatric intensive care settings | ANP's role should be complementary to (and not in competition with) other existing medical and nursing roles in the ICU. | The future paediatric ICU workforce needs to move beyond the traditional 'physician only' model of paediatric service delivery to a more flexible team responsive to patient/family needs and ICU service deficits within a financially constrained NHS.<br><br>These posts cannot be seen as a 'cheap fix' as ANP educational preparation (at master's level) is expensive (Hall and Wilkinson, 2005) (p.166) |
| Webb et al. (2017) USA | Research- quantitative paper | Career pathways – career mapping | A quality improvement initiative that put in place professional career mapping at a large children's hospital in the USA | Results included re-energized nurse leaders and reinforced the use of career mapping for assisting clinical nurses in their professional development and providing a pipeline of prospective nurse leaders for succession planning. | "The outcome for the organization was the creation of a well-designed structure and evidence-based process to enhance and facilitate professional development, career advancement, and succession planning through a model that enhances the relationships of the participants with the leaders and educators serving as the coaches and mentors." (p. 31) |

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| **GREY LITERATURE** | | | | | |
| National Clinical Programme for Paediatrics and Neonatology (2015) Ireland | Model of Care – chapter 9: health services for children in Ireland, a guide to workforce planning | Career pathway – children's nursing | Health services for children in Ireland undergoing considerable change, with the planned new national model of care, development of new children's hospital etc. These changes require a modern and efficient paediatric workforce to meet the health care needs of children and their families.<br><br>Informed by workforce survey carried out in March 2015 by the National Clinical Programme for Paediatrics and Neonatology. | Recommendations<br>- Skill mix and competencies: all children's nurses must be practically supported to undertake continuous professional development relevant to their role and clinical area.<br>- Career pathways: nursing career pathways, including development of specialist nurses and advanced nurse practitioners should be examined. Innovative nursing roles should be explored and developed to support new ways of working, particularly for community nursing, in line with the national model of care for paediatrics. | |
| Royal College of Nurses (2014c) UK | Guidance document | Career pathway - specialist and advanced children's nursing practice | Highlights that children's nurses at specialist, advanced and consultant level can make a significant contribution to redesign, development and delivery of services to children/young people; and states that | Children's nurses at specialist, advanced and consultant level across range of health care settings make a significant contribution to health and wellbeing of | Indicates that development of innovative nursing roles, at advanced level of practice, requires planned approach to the commissioning and development of services, and of the workforce that is able to deliver them. |

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| | | | commissioners and employers need to ensure that career frameworks for children's nurses include specialist, advanced and nurse consultant roles so that services continue to develop and meet the needs of children/ young people and their families. | children/young people and their families and to their experience of health care services.<br><br>Definitions & educational level:<br>**Specialist nurse**: "assesses patients, plans and implements care, provides specialist advice and maintains associated records. They carry out specialist nursing assessments and interventions related to their specific area of practice or patient group" (p.15). (Educational level Degree/Module in specialist practice)<br><br>**Advanced nurse practitioner**: "highly experienced and knowledgeable nurse, educated to master's level and able to use clinical judgement and autonomous decision making in relation to the assessment, | States that nursing roles should be based on demonstrable patient and service user need.<br><br>Robust, flexible and accessible educational programmes and development of comprehensive career frameworks is needed to enable nurses at all levels to aspire to these roles.<br><br>Robust governance (incorporating accountability, competence frameworks and agreed educational preparation) is required to support development and implementation of advanced practice nursing roles.<br><br>Educational preparation of specialist and advanced practitioners is critical in ensuring that their clinical practice is safe, evidence based and effective.<br><br>Also, highlights that attention needs to be paid to national guidance concerning:<br>-specialty specific career/competency frameworks<br>-clinical academic training pathway<br>-clinical academic research roles |

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| | | | | diagnosis, management and evaluation of care. Advanced children's nurse practitioner roles may encompass aspects of education, research and management but they are firmly grounded in direct care provision or clinical work with patients and families" (p.15) (Educational level Master's)<br><br>**Consultant nurse**: "provides expert clinical care as an autonomous practitioner. They lead on research in their area of practice and provide education and training to the whole of the multidisciplinary team. A consultant nurse has highly developed expert knowledge, underpinned by theory and experience and is able to develop specialised programmes of care, initiate care packages | |

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| | | | | and provide expert advice concerning<br>care needs. Consultant nurses will lead on policy implementation and service changes within their own service and may advise on service development or policy beyond their own area. They will provide strategic leadership at the local,<br>regional, national and international levels" (p.16) (educational level PhD) | |
| NHS Education for Scotland (2012) Scotland | Career development framework | Career planning - career development framework for community children's nurse | Variety of integrated community children's nursing team models developed across Scotland e.g. community based in reach and<br>hospital outreach models, ambulatory care and tertiary or secondary care based on nurse specialists working across community and secondary care settings. Community children's nurses requires a multiagency approach, integration and | Central Pillars<br>1. Clinical Practice<br>2. Facilitation of Learning<br>3. Leadership<br>4. Evidence, Research and Development<br>Describes leadership of all aspects of care within a biopsychosocial model including complex emotional and physical conditions, within a health and community context. Requires advanced level communication skills and clinical competence | Workforce planners and developers can use the framework in decisions around capacity building within the community children's nursing workforce. It can also be used by individuals within community children's nursing teams to focus educational and career development needs.<br><br>Early intervention<br>and prevention, reducing poverty, social inclusion and<br>identifying and reducing health inequalities are key challenges; community children's nurses hold a |

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| | | | joint working across education, social care, other agencies and the third sector.<br><br>Getting it Right for Every Child is overarching approach to improving outcomes for all children and young people. | underpinned by sound education and research base delivered through strong and visible leadership.<br><br>NHS Knowledge and Skills Framework for level 5 practitioner up to and including level 8 consultant practitioner.<br>Level 5: practitioner level community children's nursing educated to diploma level with work based education preparation relevant to community children's nursing<br>Level 6: senior practitioner educated to degree level with specialist community children's qualification<br>Level 7: advanced practitioner working towards MSc level award and with specialist community children's qualification<br>Level 8: consultant practitioner with MSc level degree and working towards doctorate. | crucial role in contributing to this agenda and to improving outcomes for children and young people. |

**Table 6: Objective 6: Education preparation for student children's nurses to become registered children's nurse (obj. 6)**

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| **ACADEMIC LITERATURE** | | | | |
| **SIMULATED LEARNING** | | | | |
| Eade & Winter (2017) UK | Cohort study identifying impact of simulated practice on exploring young people's mental health issues in pre-registration child nursing education | *Curricular context*: Child student nurses need better understanding on children's mental health, but placements are difficult to arrange. Simulation allows students to reflect and practice safely prior to their clinical practice. *Healthcare context:* Increase in mental health problems among children and young people in the UK noted. The need for early recognition emphasised in current policy. Also, mental health noted to be everyone's business including all fields of nursing. | Simulated practice over 3 days introduced into curriculum. This practice focuses on: (i) developing therapeutic working relationships with young people, role plays on working with young people with suicidal thoughts, self-harming and hearing voices; (ii) meeting hygiene needs through collaborative planning and with dignity; (iii) de-escalating aggression and breakaway techniques. | Evaluated positively by students e.g. learning about care pathways, communicating with young people in difficult circumstances, practicing in a safe environment. Further areas of learning recommended by students included having a teenager involved, therapeutic restraint, focus on younger children, and having a CAMHS placement for all students. Future plans for the curriculum noted to be: CAMHS placement for all students, development of electronic interactive games involving interaction with young people as avatars; problem solving e-simulation, and including service users and parents in simulated learning. |
| Davies et al. (2012) UK | Cohort study evaluating a simulation activity with a complex scenario in UG children's nursing | *Curricular context:* As a result of growing focus on clinical skills following a skills focused curricula being implemented, consisting of 'essential skills clusters', there has been an increase use of simulation exercise. Simulation exercises is suggested as one approach | A scenario based on a typical shift, offering a complex ward experience was implemented within the final module of Yr 3 undergraduates. Prior to the simulation an outline of the plan was shared with students. Some students were briefed on their roles and a handover was given for their patients on the ward; students | Most students reported simulation as beneficial, facilitating of transfer of knowledge into practice. Concerns related to when they would be qualified nurses and unsupervised, and accountable as well as the challenge of working with parents and delivering distressing news to them. Other concerns related to leading and managing as staff nurses including their ability to prioritise and organise patient care. Some students did not find |

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| | | that can enable nurses to practice more effectively. *Healthcare context:* Patient safety agenda has influenced growth of simulated practice education. | were allocated time to read the scenarios. Following the simulation exercise, students were offered a de-brief and encouraged to reflect on their care and experience. | role playing useful and the use of equipment to simulate real practice was a challenge for them. |
| Felton et al. (2013) UK | Qualitative study evaluating a simulation activity for pre-registration child and mental health branch nursing students | *Curricular context*: A simulation programme was developed to bring children's and mental health student nurses together to learn from each other's clinical experience, to promote collaborative working and gain insight into each other's roles.<br><br>*Healthcare context:* Department of Health strategy to promote the mental health and wellbeing of children and young people with knowledgeable and skilled healthcare professionals. | Scenario based exercises to support students care for young people with emotional distress. Students actively involved creating scenarios, facilitated by the lecturers. Members of the youth theatre group role played as emotionally distressed youths for realism and for students to develop their relationship building and communication skills. De-briefing and reflection was facilitated at the end of the exercise. | Students valued the practical approach, the opportunity to learn from one another while also offering suggestions on how this simulation exercise could be improved, including different types of scenarios and environmental factors. |

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| Valler-Jones (2014) UK | Descriptive study on the impact of peer-led simulations in child branch students | *Curriculum context:* Peer-led simulations can be an extremely innovative and valuable educational tool as they allow students to take the lead as opposed to the usual passive role. This allows students to safely practice their clinical skills while also promoting personal growth. *Healthcare context:* Peer-led simulations can also be used in the clinical setting for training and upskilling purposes among post registration nurses. It can also promote teamwork and encourage management and leadership skills. | Second year nursing students were given the opportunity to develop and facilitate a clinical scenario involving the care of an acutely unwell child. The scenario was aligned to module learning outcomes. Students had to effectively demonstrate their competency in caring for a deteriorating child requiring cardiovascular and respiratory resuscitation. Each scenario was followed by a debrief facilitated by the students. Debriefing allowed the students to evaluate their performance and receive feedback from their peers. Students were then assessed using an OSCE on completion of the module. | Peer-led simulations proved successful as there was a 100% pass rate when the student's competency was assessed at the end of module OSCE. Students reported that the experience allowed them to gain a better understanding of effectively conducting the simulations and considering the possible clinical sequelae. This proved more beneficial to the students in comparison to facilitator-led simulations. The students also enjoyed the opportunity to communicate and support each other as a team as well as improving their decision making skills. Debriefing also allowed students to reflect on their learning and receive constructive feedback from their peers. |
| Wyllie & Batley (2019) UK | Qualitative study evaluating the use of simulation in safeguarding children teaching for student children's nurses. | *Curricular context*: Nurse education needs to equip students for challenging and emotive aspects of their work. Educating students on the assessment of people at risk of harm is a requirement of the NMC. *Healthcare context:* Safeguarding children noted as | Simulation on safeguarding children was introduced to the 2nd year curriculum at University of Huddersfield in collaboration with the local services designated nurse safeguarding children. 6 students took part. Simulated learning included observation (e.g. physical & behavioural cues), interpretation (e.g. determining significance, | Evaluated positively by students e.g. felt learning could be translated into practice settings, increased confidence in safeguarding matters, emotional expression, enhanced skills, and teamwork. development. Deficits related to the lack of 'injured' mannequins since no commercially available models exist (photographs used instead). |

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| | | a national priority and children's nurses have a key role within the health services in this regard from primary care through to tertiary care. | making judgements and decision-making), documentation (e.g. good practice guidelines), and communications (e.g. sharing information across multiple professionals). | |
| **CLINICAL PLACEMENT LEARNING** | | | | |
| Abbott (2011) UK | Peer reviewed description of rotation placements in paediatric intensive care units. | *Curriculum context:* Limited placement capacity for students and increased pressure on qualified staff to support students.<br>*Healthcare context:* Reference to the *National Service framework for Children, Young People and Maternity Services* requiring that hospitals admitting children must be able to provide high dependency care. | Birmingham city University partnership with regional hospital to take 5 students at a time over one-week placement, integrated into care of critically ill child module. Students and staff are supported by lecturer practitioner. Core areas of learning included care planning, use of equipment and monitoring, awareness of application of technology, and performing suctioning skills safely. | Access to this placement increased from 5 to 40% of student cohort (29/71) per annum.<br>Evaluated positively by students e.g. feeling supported by mentors, alleviated fears of nursing in this environment, learning about high dependency care.<br>The placement created interest in students in pursuing this speciality. |
| Carey et al. (2018) UK | Qualitative study on peer-assisted learning (PAL) in clinical settings among undergraduate children's nursing students. | *Curricular context*: PAL has mostly been within simulated clinical learning environments with little evidence of PAL in clinical settings. Noted that the UK Council of Deans of Health have suggested that students need to learn through each other beyond the mentorship model with registered nurses. | PAL implemented in 2 teaching hospitals involving 1st, 2nd, and 3rd year students. The process of PAL initiated within the university simulated environment focusing on clinical skills learning. Peers were 'matched equals' i.e. students within the same undergraduate programme rather than year of | PALS stimulated students' engagement in their clinical learning experiences, and enhanced collaborative support within the working environment. Informal peer interactions were valued learning opportunities for students. PALS enabled active and positive relationships between students towards developing clinical practice and delivering care. PALS fostered a culture of networking and development of working |

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| | | PALS identified as a method for this.<br>*Healthcare context:* Not reported. | programme (University of Plymouth). | structure/orientation into clinical setting e.g. learning from senior students.<br>Concluded that PALS is a model of learning that needs further consideration in children's nurse education curriculum. |
| Cust (2018) UK | Descriptive qualitative study exploring the impact of peer-mentoring in UG children's nursing students | *Curricular context*: Peer mentoring of 1st year students by 3rd year students with a dual purpose of helping the 1st years into clinical placement and the 3rd years transition to becoming qualified nurses. Peer mentoring and learning seen as a supportive strategy for transitions, facilitating personal growth, collaboration, and taking responsibility.<br>*Healthcare context:* Not reported. | Peer mentoring programme ran over one academic year.<br>Support sought out by 1st year students from senior students when needed -ad hoc or more formally. Focus was on sharing experiences and offering guidance. Mentors and mentees not working together on same placements. Minimal input from academic staff. (Staffordshire University) | Mentoring viewed positively by:<br>(a) 1st year students e.g. safety in asking questions, non-judgemental approach, alleviating fears of making mistakes/not knowing; motivated to stay in nursing.<br>(b) 3rd year students e.g. confidence, empowering, good grounding for qualifying as a nurse, acknowledging their level of experience. |
| Perrin and Scott (2016) UK | Discussion paper reporting values and benefits of involving health visitors for pre-registration child branch student nurses' community placements | *Curricular context*: The involvement of health visitors in community placements to provide students with unique learning opportunities that are well supported using one-to-one mentorship. Need to address predominately acute medical placements with more of a focus on community placements. | Mentoring of students by health visitors on community placements. Health visitors can expose students to a broad range of community learning e.g. community services, public health issues, multi-agency working, interprofessional learning. Other learning opportunities include developing knowledge and skills relevant to nursing in community contexts e.g. child development, | Reported on evidence that community placements with the health visitor provide a positive learning environment, supported by a nurturing one-to-one relationship with a skilled practitioner. Ensuring that pre-registration nurses are familiar with these skills will allow for the current climate of transitioning from acute care into the community. There is a need for ongoing exploration of community nursing placements for students in light of the changing trend towards community/primary care health services. |

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| | | *Healthcare context:* Increasing emphasis on upskilling primary care workforce including a move for nurses from acute care in the community. Primary care workforce noted as a focus of several NHS/Department of Health reports including preparation of future nursing graduates e.g. *Raising the Bar: the Shape of Caring Review;* and the *The Future of Primary Care: Creating Teams For Tomorrow* both published in 2o15. | health promotion and education, close to home care of children with acute and chronic conditions, family centred care, management and leadership. | |
| Cummins et al. (2010) Ireland | Descriptive evaluation of community field visit placements in undergraduate integrated children's and general nursing programme | *Curricular context*: Need to explore innovating ways of facilitating learning in community contexts in light of placement capacity challenges and predominance of existing placements in hospital settings. *Healthcare context:* Rapidly changing healthcare systems with reduction in hospital lengths of stay and strategies towards primary care and community nursing. | Field visits (FVs) as short experiential placements, introduced to provide students meaningful learning experiences in the community. In Year 2, FV placements alongside theory modules focused on the well child. Theory included 'therapeutic interpersonal relationships with children and young people', 'growth and development' and 'nursing children and their families in the community'. FVs included pharmacy, children's library, mothercare, toy store, book store, | Evaluated positively by students e.g. easy to organise and access, learning about support and leisure resources in the community for children and families, linking learning between theory modules and field visits.<br>Authors noted that these field visits would be continued in the curriculum to support learning on community resources. The potential of field visits to address placement capacity in the community for nursing students was highlighted. |

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| | | | mother and toddler groups. Guidelines were given to the students in terms of access, learning objectives, and development of learning portfolio which was assessed as part of clinical placement module. (University College Cork) | |
| **SERVICE USER INVOLVEMENT** | | | | |
| Barnley (2017) UK | Evaluation of service user involvement in a pre-registration child nursing programme at University of Surrey. | *Curricular context*: The UK nursing & midwifery regulatory body requires service user involvement in pre-registration nurse education. *Healthcare context:* The importance of children's voices being heard is increasingly being recognised in healthcare. | Teaching and practice forum introduced involving children as service users and with nurse specialists and mothers also present. Nurse specialists provided overview of child's condition e.g. diabetes. Child service-users were encouraged to share their experience with students and address questions from students supported by their mothers e.g. diabetes care. This focus was introduced to final year of curriculum at University of Surrey. | Positive evaluations gleaned from nursing students (final year) with the experience facilitating them to be empathetic, more confident and empowered in their interactions with children. The experience increased self-awareness about their practices, and provided deeper insights into children's thoughts and feelings than previously held. |
| Ward and Benbow (2016) UK | Evaluating report on child service-users' feedback on the care they received from nursing students across adult, child and | *Curricular context*: NMC has recommended involvement of service users and carers in nursing education. Service users are widely accepted as experts of their experiences and their value for educational | In launching a new BSc Nursing programme, Cardiff University implemented a mechanism for obtaining children's feedback on services received from nursing students. Students' clinical practice portfolios included user/carer | Feedback reflected 6 fundamental values which were "care, compassion, competence, communication, courage and commitment" and these values underpinned "the delivery of excellent care" (p.752). Authors concluded that service user feedback is a useful strategy for assessing student performance. |

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| | mental health nursing branches. | process has been increasingly recognised.<br>*Healthcare context:* Not reported. | feedback sheets. Students and their mentors explained the nature of this assessment to children and carers. | |
| **THE USE OF THE ARTS IN CURRICULUM** | | | | |
| Clancy & Jack (2016) UK | Cohort study in children's nursing branch on exploring the use of poetry to deal with challenging situations in neonatal ICU practice | *Curricular context*: Need to consider liberal education including poetry to help students develop self-awareness, self-understanding and empathy. Liberal education also known to facilitate development of personal, professional and academic growth.<br>*Healthcare context:* Neonatal nursing is a highly technical area which can be stressful for nurses to work in. | Poetry introduced into critical care module for 3rd year students, focusing on neonatal nursing (University of Birmingham). Students chose one of three poems presented to them and having read the poem reflected on their thoughts and feelings. | Evaluated positively by students. For example, a poem on death and bereavement helped students learn about family-centredness and compassion for their practice. Other benefits included 'deeper thinking' and creatively, developing empathy, emotional care and relational aspects of caregiving. |
| Clarke et al. (2019) UK | Peer reviewed descriptive study exploring the potential value of museum field visit for children's nursing students | *Curricular context*: The arts including museum visits enhance learning experiences through the use of visual thinking strategies. Museum visits can facilitate development of critical and creative knowledge linked to experience. No evidence of the value of such learning for children's nursing students. | Museum field visits introduced into 1st year of child branch programme at Kingston and St Georges University. Students visited The Museum of Childhood in London. Topics for investigation at the museum included play, early years, family centred learning, identities, clothing and dressing. Each student group allocated a topic and a workbook with learning outcomes. | Evaluated positively by students with reference to 'deeper learning' through memorable impact of visual learning, working and learning together as a team on a topic including the preparation of presentation, and confidence building around presentations. Active participation in learning was appreciated by students. |

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| | | *Healthcare context:* Growth of technology in healthcare has led to increased emphasis on technology enhanced learning (TEL) but consideration for other approaches to education are needed i.e. the use of arts. With reference to safeguarding children in healthcare, the need to develop creativity and critical thinking in graduates was noted. | A classroom presentation followed the visit for students to demonstrate their learning. | |
| Petty and Treves (2017) UK | Peer reviewed descriptive study on developing and evaluating a digital storytelling resource to support children's nursing students in neonatal care | *Curriculum context:* The use of storytelling as a learning strategy can be valuable to students in specialised or unfamiliar placement settings because of apprehension or uncertainty among students in these settings. Story telling seen as a way of exploring emotional aspects of caring. The narratives from students can also help to inform future teaching in both the academic and clinical settings. Gleaning stories from students viewed as introducing an element of co-production into the curriculum. | Nursing students were interviewed following placement on a neonatal ward focusing on their experiences and knowledge gained while in this speciality. Completed recordings were then shared with their fellow students as a means of learning about this speciality. These narratives also served as an orientation tool for students preparing for an allocation in this placement area. Following the video, students were then given a self-assessment questionnaire as a method of reflection. | Nursing students reported positive feedback following the evaluation of digital storytelling resource. The resource was perceived as useful and of benefit when preparing nursing students for a practice placement area. As well as practical knowledge, the resource also provided students with an insight into the emotions experienced during placements. Students reported that having access to a resource that can be utilised before their placement helped to reduce anxiety and made them feel more prepared for specialist and unfamiliar areas. |

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| | | *Healthcare context:* Neonatal nursing is within a highly technical health-care environment which can be stressful to work in. | | |
| **NATIONAL/MAJOR PROGRAMME REFORMS IN CHILDREN'S NURSING EDUCATION** | | | | |
| Coetzee (2014) South Africa | Peer reviewed report/discussion from a national colloquium of nursing schools educators on re-envisioning paediatric nurse training. | *Curricular context*: Current paediatric nurse training programmes in South Africa are not meeting the needs to impact under-5 mortality rate. Redesigning and strengthening of the current training is necessary, aligned with current child health priorities in South Africa.<br>*Healthcare context:* Department of Health policy noted in terms of promoting maternal and child health, a priority being to reduce mortality rates of children under 5 years old. Primary health care reform aimed to address this with reference to redesigning community based and school health services. | Increasing the numbers of Universities accredited to educate for entry to children's nursing. Consideration needs to be given to what nurses need to know theoretically and clinically. Clarification on the role of paediatric nurses in the health system is needed. Primary health care is a priority but with clinical expertise e.g. recognising deteriorating child. | Need to align training of children's nursing students with national child health priorities which has implications for curriculum redesign such as community placements and greater exposure to families. Noted that clarification of the role of the 'paediatric nurse' is needed parallel to curriculum redesign. Dual educator and clinician roles recommended to bridge the theory-practice gap. |
| Hunt (2016) UK | Discussion paper on the balance between generic and specialist | *Curricular context*: Need to overhaul nurse education and | A proposal made by UK Committee was a 2+1+1 education system, which is 2 years of generic | Concerns raised about future existence of 4 branches of nursing in the UK and implications of this for children's nursing. Concerns included |

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| | nursing programme in relation to Health Education England's response to Shape of Caring report Raising the Bar. | training in response to the Mod Staffordshire scandal. *Healthcare context:* Raising the Bar was concerned with developing a flexible and generic nursing workforce. | preparation, a specialist year and 1 year of post-registration preceptorship. | lack of interest In pursuing entry to nursing courses is option of branches removed, leads to reduced workforce in child health which could contribute to poorer child health outcomes, |
| Stretton and Richards (2010) UK | Discussion paper reporting on the first development of a pre-registration child health/ neonatal programme | *Curricular context*: Inadequate educational preparation of nursing students to take up neonatal nursing on qualifying from undergraduate programmes. Developing a neonatal route within existing child health programmes viewed as a strategy to address this and could increase interest in this speciality. *Healthcare context:* Need to address staffing problems in neonatal nursing. | Neonatal route introduced to child health nursing programme at University of Worcester in collaboration with Women's hospital. First year students offered the option of taking this route. Additional neonatal knowledge and skills introduced to programme. Neonatal placements included 8 weeks in Yr 2 and 12 weeks in Yr 3. | Evaluation based on the views of one graduate reported. Positive evaluation included good learning support and preparation for transitioning into this environment on graduating. However, a negative aspect of the course was that this route was confused as equivalent to the post-registration programme for experienced nurses, resulting in expectation of the graduate being too high from colleagues in the neonatal unit. |
| Dean (2017) UK | Discussion paper on NMC education reform moving towards a more generic nurse education system | *Curricular context*: Proposal from The Nursing and Midwifery Council (NMC) to reform nursing education towards a more generic system based on outcome-based standards so that student nurses gain holistic knowledge of people across the lifespan. | The outcome-based standards (divided in to seven sections) are not presented but the paper suggests that they include lengthy list of nursing procedures and communication and relationship management skills. The four specialities of nursing are currently legally protected and so the NMC standards retain the four | There are for and against arguments to the move towards generic nursing. Supporters argue that a generic approach would give nurses a better understanding of holistic care. Those opposed feel it would dilute/diminish their unique focus. In addition, this paper includes a negative experience of a generic approach from an Australian perspective where this practice is implemented. This includes that following the generic education nurses can go straight in to |

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| | | *Healthcare context:* Need to develop a more flexible workforce in light of ageing population and also shift in healthcare reform from hospital setting to community care. | fields and within these, facilitates nurses to gain a broad knowledge of patient care ensuring they can work flexibly despite their specialist field. | working in a specialist area. This is due to the postgrad not being a prerequisite, therefore having a negative effect on the quality of nurses working in specialist areas. |