

Report on the barriers and facilitators for nurses and therapists allied to health, in developing their knowledge and skills within acute medicine, to support career progression: A Rapid Review

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Introduction: During 2022/2023 a collaborative working group met to develop a new/updated career framework for nurses in acute medicine, led by the Society for Acute Medicine (SAM) nurse council representative. The first stage of this work involved a rapid review of evidence to strengthen understanding of the issues and to develop the work. The aim is to understand the barriers and facilitators to knowledge and skills acquisition for career progression in AMUs.

Background: An integrated career and competency framework for acute medicine nurses has served to define the core areas and levels of development over ten years.¹ Acute medicine has evolved rapidly as a specialty in response to the ever-increasing volumes of emergency medical admissions.^{2,3} The NHS Long Term plan⁴ set out to strengthen patient access and outcomes to emergency care, to decrease overcrowding in ED. Despite ongoing hard work to develop SDEC, three years on from the plan⁴ innovations for care delivery and staffing are urgently needed. Hence our work is needed to align with evolving models of care delivery, current concerns regarding quality and safety issues, and ensure we have the right people with right skills.⁵

Given the pace and scale of new pathway developments and innovation in acute medicine, opportunities for skill acquisition are in abundance. Yet outside of medical careers navigating, formalizing knowledge and skills gained towards career progression remains a relatively haphazard process.⁶ To enhance career progression, nurses choose to move from AMU where they have gained essential skills regarding acutely deteriorating patients, to other specialties (such as critical care) brokering their skills.⁷ The consequence is a relatively high turnover of junior workforce, in an area where patients are most unwell, potentially increasing patient risk and safety issues.^{8,9} The call from NHS Employers is for an integrated future workforce in health and social care services.¹⁰ The Allied Health Professions Strategy acknowledged its workforce and the essential role they must have to achieve this.¹¹ This direction determines that we adopt 'systems thinking' within acute medicine to engage with new workforce plans. As yet, we do not have infrastructure in place.

We envisage, the new framework will form a self-service guide for multi-professional staff to navigate skills and development in support of their individual career journey. It will align and evidence work from other related frameworks.¹² We will propose that service leads could use the proposed framework to contribute to personal development plans, support staff resilience and wellbeing,⁹ thus proactively engage staff in their objectives and career planning. The proposition is that the multi-professional framework will form a vital link between self-assessed level of skills, competence (s), professional development aspirations, leading to career progression and ultimately improved staff retention, within the specialty.

The rapid review question and the summary of evidence are presented first (Part 1). Systematic reporting methods are reported subsequently (Part 2).

Part One: Evidence Summary ‘the bottom line’

The Review Question

The framework PEO: population, exposure and outcome was used to develop the review question, namely:

What are the barriers and facilitators for nurses and therapists allied to health in developing their knowledge and skills within acute medicine to support career progression?

Note: Due to a dearth of papers focusing on acute medicine the review question evolved through screening, to include comparison areas, namely ‘acute care.’

Summary Critical Appraisal

The evidence located in this review (n= 5 papers) suggests that the development of a career framework for nurses and therapists in acute medicine is a novel concept.^{12,13,14,15,16.} While evidence was located with a focus on nurses [skills and knowledge], there was a dearth for allied health professionals. Acute medicine was only fully described in one paper, which set the scene for workload and other specific contextual issues. Ultimately, a cumulative key outcome of interest was ‘enabling’ career progression (in acute medicine); it is perhaps unsurprising that this was not described given the complexity of interdependences, such as the acquisition of skills, knowledge, and formal registration of competencies. Instead, individual elements of knowledge and skills were conceptualised in general, through barriers and facilitators across ‘acute care settings’ (Table, 1).

Table 1: Barrier and facilitators to developing knowledge and skills in acute care

Barriers	Facilitators
Workplace Conditions	Workplace Conditions
Unbalanced workload	Gamification in e-learning
Unhelpful dynamics of teamwork	Simulation (advanced)
Inability to transfer knowledge in clinical environment	Innovative e-learning
Clinical Complexity of patients	Reflection
Volume of change of patients over shift	Ward Learning Huddles (structured)
Not recognizing own learning needs	Artful Questioning
Time to act on triggers for learning	Nurturing of staff
Disease focus not holistic focus	Empathy
Managing multidisciplinary expectations	Learning from physicians
	Mentors and guides
	Practice Educators
	Team Camaraderie
	Flexibility of learning opportunities
	Proximity of looking up queries
	Feeling of psychological safety

Three primary outcomes of interest (p7) namely, (1) career progression (2) levels/domains of clinical practice and (3) staff retention were not featured across the papers. Nevertheless, the advancement of practice (not to be confused with 'advanced practice') did feature in relation to the purpose of learning new skills, however this was not linked with career progression, or acute medicine. Patient safety and the nurse's workforce contribution featured as an outcome of learning strategies, across all papers. We were keen to understand the contribution of knowledge and skills attainment, plus competencies and self-efficacy, throughout a career, these were too generalized for an acute medicine setting.

Regardless of the difference in acuity of care settings (acute care/acute medicine) a secondary list of outcomes from the literature was formed and charted. These help to illuminate potential barriers and facilitators to workplace learning, progression, which 'may be' applicable to acute medicine. For example, acute patient emergencies are a normal part of acute medicine workload, yet these may need a change of perspective from being construed as a barrier, to a facilitator of learning. Many subtleties influence development of knowledge and skills, which impact on achieving competence and progression. For example, having the self-awareness of knowledge gaps, is essential to navigate an appropriate starting point and skills needed, to be a safe practitioner and to progress. The influence of a team (experience, approachability, and work bonds) is described as an equally important facilitator to for learning (Table 2).

Table 2: Primary and secondary outcomes charted across papers

Primary outcomes	396	475	639	1322	1524
1. Knowledge/skills attainment	Yes	No	Yes	Yes	Yes
2. Competence and self-efficacy	Yes	Yes	No	No	No
3. Patient Safety – improve patient care	Yes	Yes	Yes	Yes	Yes
4. Career progression nurses and therapists	No	No	No	No	No
5. Levels / Domains of clinical practice	No	No	No	No	No
6. Profile of Nurses (in workforce)	Yes	Yes	Yes	Yes	Yes
7. Job satisfaction	Yes	Yes	No	Yes	No
8. Emotional Labour/ Burnout	No	Yes	Yes	No	Yes
9. Training Programmes (including preceptorship)	No	No	Yes	No	Yes
10. Advancement (expansion of) of practice	No	Yes	Yes	Yes	No
11. Staff retention (through progression of skills)	No	No	No	No	No
Secondary Outcomes	396	475	639	1322	1524
12. Training Methods (e.g. – simulation)	Yes	No	No	Yes	Yes
13. Knowledge Transfer (knowledge integration theory and practice)	Yes	No	Yes	Yes	Yes
14. Workplace context conditions		Yes	Yes	Yes	Yes
15. Opportunities for workplace learning			Yes	Yes	Yes
16. Mentors/ guides/ practice developers			Yes	No	Yes
17. Self-awareness of knowledge gaps			Yes	Yes	Yes
18. Triggers for workplace learning (acute situations)			Yes	Yes	Yes
19. Team Contributions to learning (strong work bonds) Camaraderie			Yes	No	
20. Psychological safety				Yes	Yes
21. Structured learning Huddles				Yes	No
22. The patient versus disease/condition					Yes

Strengths and Limitations

Appraisal of the papers was conducted using a critical appraisal tool for disparate studies.¹⁷ No papers were excluded based on quality appraisal; scores attributed, ranged from 20 to 36 (maximum possible score 36).

While many full text articles reviewed (n=24) described novel methods of teaching, educational strategies, skills they were excluded due to inappropriate population; wrong outcomes and settings (p11, PRISMA).¹⁸ Based on the reviewer's clinical experience, a clear distinction between, 'acute care' versus 'acute medicine care' was made. For example, acute care was too generalised within an 'acute hospital' which included emergency and elective care areas. Only one paper was acute medicine specific, limiting the contribution of this review. The process of review was expedited through the engagement of a critically appraised topic group approach. This group was strengthened through clinical, academic and an information specialist. Despite the rapidity of this review (5 months), systematic methods were employed.¹⁹ This facilitated member review and iteration of terms through clarification. Joint learning was also noted to be a positive feature throughout.

Conclusion

There is a dearth of evidence regarding the barriers and facilitators to learning, development and career progression for multi-professional staff in acute medicine. The contextual issues relating to workload, fast pace and patient acuity are unique to acute medicine and distinguish this from general acute care. Our learning however, from acute care settings will inform some of the next steps implicit to the framework development. We have learnt that workplace barriers and facilitators require deeper understanding and contextualization to appreciate workplace learning opportunities for development in AMUs. Given the dearth of literature in acute medicine leading to career development, future research is required to explore how staff develop skills and what the barriers and facilitators are specifically in acute medicine units. At the point of career framework development, initial proof of concept and feasibility testing will aid its refinement and adoption.

Part 2: Methods

The formal rapid review process was established through a critically appraised topic (CAT) group to enable members of the review team to work collaboratively and to expedite this review.²⁰ The CAT approach is well-established to identify best evidence to use in practice settings. Good practice stems from a multi-professional collaboration of people involved in the process, discussion and sense checking throughout to determine a consistent review process. Clinical Evidence Based Information Services (CEBIS) expertise (AK) employed, enabled the judicious choice of databases and platforms used to conduct the rapid review, eligibility criteria carefully considered to inform decisions.

Acute Medicine [definition]

For the context of this review the group felt it was important to distinguish ‘what is acute medicine’? Our CEBIS expert had visited the acute medicine webpage and watched some video footage – nothing had greatly clarified this. We are all however, agreed on what acute medicine IS NOT: An Emergency Department; Accident and Emergency Department; Critical Care. We refined our search terms, to differentiate and distinguish acute medicine, namely, Acute Medical Admissions; Emergency Medical Admissions (Unit) and Same Day Emergency Care (SDEC). We also discussed that while Emergency Care is a broad concept and includes Acute Medicine, this can also be distinguished by route of patient arrival: Emergency Department; General Practitioner; Outpatient Clinics and Direct Admission lists (rare).

Initial Topic Scoping

An initial search of Google Scholar (5/5/2023) with 10-year limiter, was conducted by LLD to identify the likely breadth of literature using combinations of key words:

Acute Medicine + Nurses + Allied Health Professionals + Career Framework
 Acute Medicine + Nurses + Allied Health Professionals + Professional Development
 Acute Medicine + Nurses + Allied Health Professionals + Competence
 Acute Medicine + Nurses + Allied Health Professionals + Career Progression

These searches located between 219,000 to 360,000 articles with a very broad fit to our topic of interest. The breadth of the potential search terms within the topic was also illustrated with articles located, that focus on subtopics:

The Search Strategy

The search terms and topics were discussed and developed as a group, guided by the expertise of AK and LLD.

Table 3: Search terms and topics

Nurses and therapists	Setting: Acute medicine	Knowledge, skills, and competencies development	Outcomes
Nurs* Therap* Allied health profession* Advanced n3 practitioner* Advanced n3 practice Enhanced n3 practitioner* Enhanced n3 practice ACP ANP Practice/clinical educator	Acute n3 medic* Acute n3 care AMU [Emergency] Medical admission unit* Same day emergency care SDEC NOT A&E/ED Emergency care Critical care Intensive care Hospice Palliative	Knowledge Skill* Competenc* Training Learning Professional n3 development Coach* Mentor* Tutor* Clinical n3 supervision	<ol style="list-style-type: none"> 1. Knowledge/skills attainment 2. Competence and self-efficacy 3. Patient Safety 4. Advancement / progression nurses and therapists 5. Levels and/or Domains of Practice 6. Profile of Nurses 7. Job satisfaction 8. Emotional Labour 9. Burnout 10. Staff retention 11. Training Programmes

Development of the review question:

This group was commenced on 17th April 2023 where the topic scope was addressed. Many ideas were mooted with 3 questions subsequently developed for reiteration by the group. Discussion centred around 'barriers to career progression in acute medicine' and the related 'self-efficacy' of knowledge and skills to carry out roles. We discussed that while our assumption is that a framework is implicit to staff development and would provide guiding principles, we also agreed that we are unlikely to locate such (Table, 4).

Table 4: Questions used for discussion

1. If/how does the introduction of an acute medicine career development framework influence recruitment and retention of multi-professional staff in acute medicine settings?
2. Does the introduction of an acute medicine career framework promote the development of staff knowledge and skills?
3. Does the introduction of an acute medicine career framework promote the development of knowledge and skills, aiding progression in the specialty?

Using the PEO structure several initial questions were formed through group discussion and iteration. We agreed that should the literature yield appropriate comparison with other areas, these would form our comparator. Our primary interest was retained as acute medicine.

PEO Framework Application

P= Population group: Nurses and therapists allied to health within acute medicine.

E= Exposure to: Development of knowledge, skills, and competencies.

[Comparison: Work from other areas with VERY close alignment to acute medicine].

O= Outcomes: Knowledge skill attainment and things that facilitate career progression and retention (as listed in search strategy).

Database Searching

The expertise of a CEBIS librarian (AK) guided the search using MeSH terms and live-literature search process. In line with rapid review protocols, we started by selecting 3 databases, decisions regarding how many more included, were based on the results from the first database search with limiters applied (Appendix 1).

Search Limitations:

- Limited to 5 years
- English translations only
- Exclude British Library requests.
- Enable proximity word searches with 5 words
- Supplementary searches of word lists

Screening and Selection of Papers:

The team were taught to use Rayyan Software²¹ which facilitated the multiparty organisation, collaboration for screening/eligibility/inclusion decisions to aid the selection of literature (table 5).

Table 5: Eligibility Criteria

	Inclusion	Exclusion
1	Acute Medicine +	Scope not applicable to an acute medicine setting.
2	Multi-disciplinary staff +	Efficacy relating to the mastery of learning, particularly SIM methods
3	Knowledge, skills and competency development +	Educational Course Development – my understanding is that we are not developing courses.
4	Outcomes as identified in topic scope	Overseas Literature, which we agreed to exclude for LMIC.
5	Career, Development Framework	Transition into a new nursing role, from pre-registration – where focus was none specific
6		Scope too narrow to be applicable to acute medicine (e.g., Covid training strategies)
7		Methods articles – where again we are not designing courses – so excluded.

To facilitate the screening process the group were organized into three pairs, each with skills academic and clinical topic expertise; each pair screened approximately 550 articles. At the stage when all articles had been screened by at least one person the following decisions were made on papers:

- 121 'Maybe' to be rescreened and adjudicated by LLD having both topic and academic expertise.
[LLD agreed throughout the course of her re-screening to make notes to indicate the factors which caused indecision to reach 'maybe']
- 59 'Conflicts' to be rescreened by Tash.
[Where two of the team concur – these articles will be included in the review].
- 05 Included articles for full text review using summary and critical appraisal.

A further 20 papers were added to the review following this process. Very many of the 121 articles initially categorized at screening as 'maybe' were 'noted' as for 'deeper exploration' or 'for background' or 'could be interesting'. Without explicit notes these were excluded as likely not fall in the remit of the review. In some cases, there was a very poor abstract which rendered it virtually impossible to relate to our review. The process for review items is illustrated (Figure 1).

The Preferred Reporting Items for Systematic Review and Meta Analyses (PRISMA, 2020)

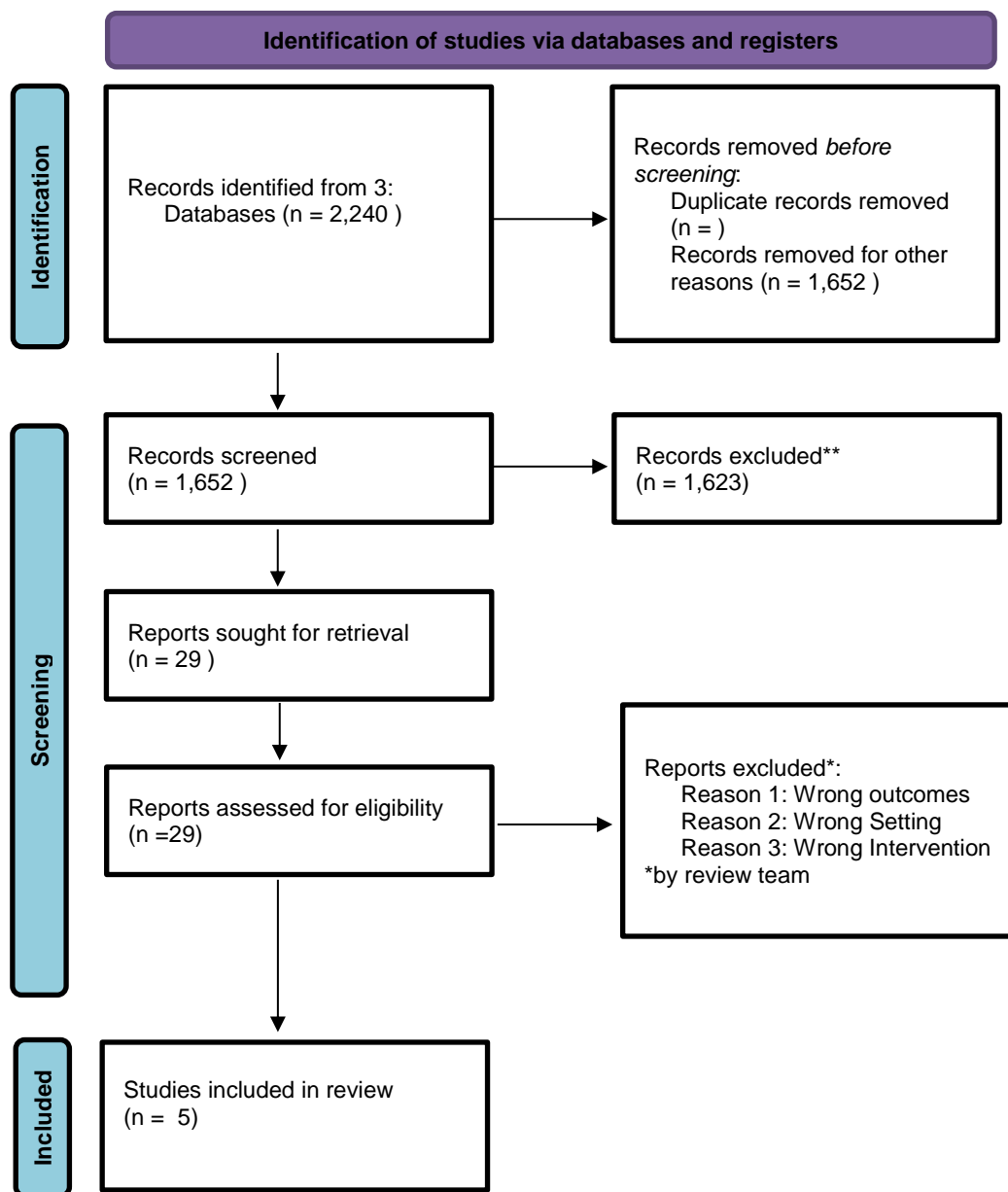


Figure 1

The papers selected for review are summarized and displayed (table 6). This is followed by critical appraisal (table 7).

Table 6: Summary display of selected papers

RAYYAN	Author Country Year	Paper Title	Article Type	Summary of Article	Key points
396	Dahlke S Hunter KF Amoudu O Canada 2020	Innovation in Education with Acute Nurses	A review article of 5 studies	This work refers to e-learning as a mode of education delivery. The undertook a review, final 5 articles, where Gamification is proposed as a useful addition to e-learning for nurses. Games, rewards, real world scenarios and Interaction in E-learning. It could be useful to understand the facilitators of learning - but remembering relatability - this work reviewed was not acute medicine environment.	Facilitators to learning: Flexibility of learning opportunities Gamification helps real word learning and motivation to complete learning. Skills application could be improved through Gamification.
475	Sim MA Lee SH Phan PH Lateef A; Singapore 2020	Quality improvement at an acute medical unit in an Asian Academic Center: A mixed methods study of nursing work dynamics.	32 doctors 54 nurses Survey	Describes the AMU environment and dynamics of how nurses work and what the challenges are to working in an AMU. I could immediately relate to this work. It does acknowledge that the next case study needs to address how to prepare nurses to work in this environment. But it does not relate to clinical skills or education, the link is not made.	Describes specific contextual challenges. AMU nursing requires a combination of specialist internal medicine and emergency medicine skills Training should familiarize nurse workforce with managing patient expectations and multidisciplinary teamwork

RAYYAN	Author Country Year	Paper Title	Article Type	Summary of Article	Key points
639	Jantzen D	Refining nursing practice through workplace learning: A grounded theory	Mixed Method. Participant Observation on 2 acute care units	This article explores how nurses learn in a constantly changing health care environment. It looks at high “functioning” nurses and explores the core elements required. It explores a lot around the need for a foundation knowledge and how education both on the ward and in formal settings can help this. This links well-educated nurses improving patient experience. States about the promotion of education in the workplace	Describes acute care but states the observations were on an acute care unit Useful to support the notion of developing foundation knowledge post academic studies. Formulates an argument around the importance of demonstrated clinical competence and taught knowledge.
1322	Robertson-Malt S, Gaddi F, Hamilton A UAE 2020	Learning Huddles- an innovative teaching method	Improvement Article	This paper focusses on a teaching method that could be widely adopted as part of our work given the busy nature of the unit. It gives a structured approach to facilitating 15-minute max learning huddles that would be led by the practice educator that would be targeted at shared learning from events for example.	Tool to help focus short educational sessions. Appropriate to acute medicine where ‘board rounds’ resemble huddles.
1524	Sterner A, Hagiwara MA, Ramstrand N, Palmer L Sweden 2019	Factors developing nursing students and novice nurses' ability to provide care in acute situations	Phenomenographic study	This paper looks at the factors and barriers to enabling both student nurses and newly qualified nurses from being able to manage an acutely unwell or deteriorating patient due to a perceived lack of exposure to the situations in their training such as not having a higher acuity placement. Arguably the system in the UK is set up to ensure a degree of placements in a higher acuity environment.	Include due to advocacy on enhanced simulation training in higher acuity patients such as those seen on AMU.

Table 7: Appraising Disparate Evidence Tool - Maximum Score 36

Domains of Appraisal Paper 396	4	3	2	1	Comments	Total (36)
Abstract	good	fair	poor	very poor	not clear that this is a review article, e.g. not primary research	
Introduction and Aims	good	fair	poor	very poor	Not clear early enough in the work that 'gamification' is real interest	
Method and Data	good	fair	poor	very poor	Integrative review - makes assumptions of readers knowing process	
Sampling	good	fair	poor	very poor	I couldn't repeat this review - no protocol etc	
Data Analysis	good	fair	poor	very poor	No PRISMA - so a lot of the flow of literature is unclear	
Ethics and Bias	good	fair	poor	very poor	Ethics is N/A - purposeful retrieval - again poor clarity over methods	
Results	good	fair	poor	very poor	Very limited findings - one paper of five	
Transferability	good	fair	poor	very poor	Acute care needs definition especially for AMU and our work	
Implications and Usefulness	good	fair	poor	very poor	Adds the dimension for us to consider with our work.	
		12	10			22
Domains of Appraisal Paper 475	4	3	2	1	Comments	Total score
Abstract	good	fair	poor	very poor	Mixed methods (observations, FG and survey)	
Introduction and Aims	good	fair	poor	very poor	Very clear - work based challenges	
Method and Data	good	fair	poor	very poor	Very clear explanation of techniques appropriate to samples of data	
Sampling	good	fair	poor	very poor	Great sampling techniques	
Data Analysis	good	fair	poor	very poor	Good efforts to reduce bias and analyse data, axial coding well explained and use of SPSS	
Ethics and Bias	good	fair	poor	very poor	Ethics was sought and study reviewed, bias reduced by independent and multiple researchers	
Results	good	fair	poor	very poor	Superb in relation to topic, great display of themes	

Transferability	good	fair	poor	very poor	AMU Specific - works for our purposes of understanding AMU issues	
Implications and Usefulness	good	fair	poor	very poor	Useful to understand issues (barriers to learning)	
	36					36
Domains of Appraisal Paper 639	4	3	2	1	Comments	Total
Abstract	good	fair	poor	very poor	Structured and clear purpose, Key points add clarity	
Introduction and Aims	good	fair	poor	very poor	Clear research question, experienced nurses and learning	
Methods and Data	good	fair	poor	very poor	Uses EQUATOR guideline, Grounded theory, Interviews and observations	
Sampling	good	fair	poor	very poor	Purposeful sampling, peer nominations, research coordinator, but potential for influencing	
Data Analysis	good	fair	poor	very poor	Grounded theory methods are thoroughly applied throughout with theoretical sampling	
Ethics and Bias	good	fair	poor	very poor	Ethics Obtained. potential bias - student / sole author	
Results	good	fair	poor	very poor	Excellent diagrams - understand how results were achieved	
Transferability	good	fair	poor	very poor	Sampling means that population of participants were across several areas of practice	
Implications and Usefulness	good	fair	poor	very poor	Mentoring, using highly experienced nurses, strategies for nurse support, qualities of a good functioning team	
	24	9				33
Domains of Appraisal Paper 1322	4	3	2	1	Comments	
Abstract	good	fair	poor	very poor	Not really clear about methods	
Introduction and Aims	good	fair	poor	very poor	Quality improvement and development of learning huddles (not team huddles)	
Method and Data	good	fair	poor	very poor	QI is good for this - well demonstrated, but no data?	

Sampling	good	fair	poor	very poor	Examples not samples - so not applicable to this work	
Data Analysis	good	fair	poor	very poor	None - would have been better with some testing - feasibility testing.	
Ethics and Bias	good	fair	poor	very poor	No ethics sought - no results. Could be 100% bias - we don't know	
Results	good	fair	poor	very poor	it does not provide results using the method - it is a background paper	
transferability	good	fair	poor	very poor	Perfectly transferrable using QI methodology	
Implications and Usefulness	good	fair	poor	very poor	I like the inquiry versus interrogation distinction - important one, could be useful - needs testing	
	4	9	4	3		20
Domains of Review Paper 1524	4	3	2	1	Comments	
Abstract	good	fair	poor	very poor	Very clear sample, methods, results.	
Introduction and Aims	good	fair	poor	very poor	Factors in nurse training and first year after that prepare for providing acute care	
Method and Data	good	fair	poor	very poor	Appropriate data collection methods	
Sampling	good	fair	poor	very poor	Sampling across 5 hospitals of 17 nurses	
Data Analysis	good	fair	poor	very poor	very clear protocol for this	
Ethics and Bias	good	fair	poor	very poor	Consent and Approach is described to leave freedom to participate or not, Ethics is dubious	
Results	good	fair	poor	very poor	integrating theory into practice and sub groups clearly displayed	
transferability	good	fair	poor	very poor	Using theory lens and clear ways of interpreting data from interview	
Implications and Usefulness	good	fair	poor	very poor	It excluded ED nurses! But still has useful points - such as promoting progression with skills	
	20	12				32

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Appendix 1: Database Search Strategies

1. Medline

Ovid MEDLINE(R) <1946 to May Week 5 2023>

1	nurse*.ti,ab,kw,kf.	287930	
2	therap*.ti,ab,kw,kf.	3102814	
3	allied health profession*.ti,ab,kw,kf.	2695	
4	(advanced adj3 practice).ti,ab,kw,kf.	7870	
5	(advanced adj3 practitioner*).ti,ab,kw,kf.	1171	
6	(enhanced adj3 practice).ti,ab,kw,kf.	571	
7	(enhanced adj3 practitioner*).ti,ab,kw,kf.	87	
8	ACP.ti,ab,kw,kf.	9464	
9	ANP.ti,ab,kw,kf.	9428	
10	((practice or clinical) adj3 educator*).ti,ab,kw,kf.	1668	
11	exp *Nurses/	75199	
12	exp *Allied Health Personnel/	36431	
13	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12		3451433
14	(acute adj3 (medic* or care)).ti,ab,kw,kf.	41031	
15	AMU.ti,ab,kw,kf.	914	
16	medical admission unit*.ti,ab,kw,kf.	51	
17	same day emergency care.ti,ab,kw,kf.	12	
18	SDEC.ti,ab,kw,kf.	63	
19	14 or 15 or 16 or 17 or 18	41931	
20	knowledge.ti,ab,kw,kf.	733695	
21	skill*.ti,ab,kw,kf.	213410	
22	competenc*.ti,ab,kw,kf.	93271	
23	training.ti,ab,kw,kf.	447774	
24	learning.ti,ab,kw,kf.	358849	
25	(professional adj3 development).ti,ab,kw,kf.	12770	
26	coach*.ti,ab,kw,kf.	16344	
27	mentor*.ti,ab,kw,kf.	18230	
28	tutor*.ti,ab,kw,kf.	10703	
29	(clinical adj3 supervision).ti,ab,kw,kf.	2141	
30	exp *Staff Development/ or exp *Clinical Competence/		55346
31	20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30		1607904
32	emergency care.ti,ab,kw,kf.	10695	
33	critical care.ti,ab,kw,kf.	35511	
34	intensive care.ti,ab,kw,kf.	162717	
35	ICU.ti,ab,kw,kf.	67392	
36	ITU.ti,ab,kw,kf.	848	
37	hospice*.ti,ab,kw,kf.	13820	
38	palliative.ti,ab,kw,kf.	68494	
39	exp *Critical Care/	38237	
40	exp *Hospices/	4331	
41	exp *Palliative Care/ or exp *"Hospice and Palliative Care Nursing"/ or		
	exp *Palliative Medicine/	36918	

42 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 314803
 43 19 not 42 35121
 44 13 and 31 and 43 2435
 45 limit 44 to (english language and humans and last 5 years) 857

2. EMBASE

[Embase <1974 to 2023 June 13>](#)

1 nurse*.ti,ab,kw,kf. 389553
 2 therap*.ti,ab,kw,kf. 5076272
 3 allied health profession*.ti,ab,kw,kf. 4858
 4 (advanced adj3 practice).ti,ab,kw,kf. 12218
 5 (advanced adj3 practitioner*).ti,ab,kw,kf. 2425
 6 (enhanced adj3 practice).ti,ab,kw,kf. 903
 7 (enhanced adj3 practitioner*).ti,ab,kw,kf. 132
 8 ACP.ti,ab,kw,kf. 14710
 9 ANP.ti,ab,kw,kf. 12898
 10 ((practice or clinical) adj3 educator*).ti,ab,kw,kf. 2502
 11 exp *Nurses/ 86058
 12 exp *Allied Health Personnel/ 255922
 13 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 5604579
 14 (acute adj3 (medic* or care)).ti,ab,kw,kf. 71265
 15 AMU.ti,ab,kw,kf. 1783
 16 medical admission unit*.ti,ab,kw,kf. 113
 17 same day emergency care.ti,ab,kw,kf. 33
 18 SDEC.ti,ab,kw,kf. 111
 19 14 or 15 or 16 or 17 or 18 72939
 20 knowledge.ti,ab,kw,kf. 1155567
 21 skill*.ti,ab,kw,kf. 341443
 22 competenc*.ti,ab,kw,kf. 140256
 23 training.ti,ab,kw,kf. 734490
 24 learning.ti,ab,kw,kf. 611680
 25 (professional adj3 development).ti,ab,kw,kf. 19586
 26 coach*.ti,ab,kw,kf. 26941
 27 mentor*.ti,ab,kw,kf. 29716
 28 tutor*.ti,ab,kw,kf. 16705
 29 (clinical adj3 supervision).ti,ab,kw,kf. 3232
 30 exp *Staff Development/ or exp *Clinical Competence/ 71125
 31 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30
 2572481
 32 emergency care.ti,ab,kw,kf. 17317
 33 critical care.ti,ab,kw,kf. 73637
 34 intensive care.ti,ab,kw,kf. 290405
 35 ICU.ti,ab,kw,kf. 168641
 36 ITU.ti,ab,kw,kf. 3166
 37 hospice*.ti,ab,kw,kf. 28002
 38 palliative.ti,ab,kw,kf. 132483

39 exp *Critical Care/ 286158
 40 exp *Hospices/ 7425
 41 exp *Palliative Care/ or exp *"Hospice and Palliative Care Nursing"/ or
 exp *Palliative Medicine/ 51243
 42 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 784935
 43 19 not 42 59540
 44 13 and 31 and 43 4364
 45 limit 44 to (human and english language and "remove medline
 records" and article and last 5 years) 97

3. CINAHL

[22](https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=cul&query=((TI+nurse*+OR+AB+nurse*+OR+SU+nurse*))+OR+(TI+therap*+OR+AB+therap*+OR+SU+therap*))+OR+(TI+allied+health+profession*+OR+AB+allied+health+profession*+OR+SU+allied+health+profession*))+OR+(TI+advanced+N3+practice+OR+AB+advanced+N3+practice+OR+SU+advanced+N3+practice))+OR+(TI+advanced+N3+practitioner*+OR+AB+advanced+N3+practitioner*+OR+SU+advanced+N3+practitioner*))+OR+(TI+enhanced+N3+practice+OR+AB+enhanced+N3+practice+OR+SU+enhanced+N3+practice))+OR+(TI+enhanced+N3+practitioner*+OR+AB+enhanced+N3+practitioner*+OR+SU+enhanced+N3+practitioner*))+OR+(TI+ACP+OR+AB+ACP+OR+SU+ACP))+OR+(TI+ANP+OR+AB+ANP+OR+SU+ANP))+OR+(TI+(practice+OR+clinical)+N3+educator*+OR+AB+(practice+OR+clinical)+N3+educator*+OR+SU+(practice+OR+clinical)+N3+educator*))+OR+((MM+%26quot%3bNurses%2b%26quot%3b))+OR+((MM+%26quot%3bAllied+Health+Personnel%2b%26quot%3b)))+AND+((TI+knowledge+OR+AB+knowledge+OR+SU+knowledge)+OR+(TI+skill*+OR+AB+skill*+OR+SU+skill*))+OR+(TI+competenc*+OR+AB+competenc*+OR+SU+competenc*))+OR+(TI+training+OR+AB+training+OR+SU+training))+OR+(TI+learning+OR+AB+learning+OR+SU+learning))+OR+(TI+(professional+N3+development)+OR+AB+(professional+N3+development)+OR+SU+(professional+N3+development)))+OR+(TI+coach*+OR+AB+coach*+OR+SU+coach*))+OR+(TI+mentor*+OR+AB+mentor*+OR+SU+mentor*))+OR+(TI+tutor*+OR+AB+tutor*+OR+SU+tutor*))+OR+(TI+(clinical+N3+supervision)+OR+AB+(clinical+N3+supervision)+OR+SU+(clinical+N3+supervision)))+OR+((MM+%26quot%3bProfessional+Development%2b%26quot%3b))+OR+((MM+%26quot%3bCareer+Planning+and+Development%26quot%3b)))+AND+(((TI+(acute+N3+(medic*+OR+care))+OR+AB+(acute+N3+(medic*+OR+care))+OR+SU+(acute+N3+(medic*+OR+care)))))+OR+(TI+AMU+OR+AB+AMU+OR+SU+AMU))+OR+(TI+medical+admission+unit*+OR+AB+medical+admission+unit*+OR+SU+medical+admission+unit*))+OR+(TI+same+day+emergency+care+OR+AB+same+day+emergency+care+OR+SU+same+day+emergency+care))+OR+(TI+SDEC+OR+AB+SDEC+OR+SU+SDEC))+NOT+((TI+emergency+care+OR+AB+emergency+care+OR+SU+emergency+care))+OR+(TI+critical+care+OR+AB+critical+care+OR+SU+critical+care))+OR+(TI+intensive+care+OR+AB+intensive+care+OR+SU+intensive+care))+OR+(TI+ICU+OR+AB+ICU+OR+SU+ICU))+OR+(TI+ITU+OR+AB+ITU+OR+SU+ITU))+OR+(TI+hospice*+OR+AB+hospice*+OR+SU+hospice*))+OR+(TI+palliative+OR+AB+palliative+OR+SU+palliative))+OR+((MM+%26quot%3bCritical+Care%2b%26quot%3b))+OR+((MM+%26quot%3bCritical+Care+Nurses%2b%26quot%3b))+OR+((MM+%26quot%3bIntensive+Care+Units%2b%26quot%3b))+OR+((MM+%26quot%3bHospices%26quot%3b))+OR+((MM+%26quot%3bHospice+Nurses%26quot%3b))+OR+(MH+%26quot%3bHospice+Nursing%26qu</p>
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ot%3b)+OR+(MM+%26quot%3bHospice+Care%26quot%3b))+OR+((MM+%26quot%3bPalliative+Care+Nursing%26quot%3b)+OR+(MM+%26quot%3bPalliative+Care+Nurses%26quot%3b)+OR+(MM+%26quot%3bPalliative+Medicine%26quot%3b)+OR+(MM+%26quot%3bPalliative+Care%26quot%3b))))&cli0=DT1&clv0=201801-202312&type=1&searchMode=Standard&custid=ns124893