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Emergency nurses' perceptions of the utility, adaptability and feasibility of the emergency nursing framework HIRAID™ for practice change in US: An exploratory study

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ABSTRACT

Background: Patient assessment is a core component of nursing practice and underpins safe, high-quality patient care. HIRAID,™ an evidence-informed emergency nursing framework, provides nurses with a structured approach to patient assessment and management post triage. In Australia, HIRAID™ resulted in significant improvements to nurse-led communication and reduced adverse patient events.

Objectives: First, to explore United States (US) emergency nurses' perceptions of the evidence-informed emergency nursing framework, HIRAID™; second, to determine factors that would influence the feasibility and adaptability of HIRAID™ into nursing clinical practice in EDs within the US.

Methods: A cross-sectional cohort study using a survey method with a convenience sample was conducted. A 4-hour workshop introduced the HIRAID™ framework and supporting evidence at the Emergency Nurses Association's (ENA) conference, Emergency Nursing 2022. Surveys were tested for face validity and collected information on nurse-nurse communication, self-efficacy, the practice environment and feedback on the HIRAID™ framework.

Results: The workshop was attended by 48 emergency nurses from 17 US States and four countries. Most respondents reported that all emergency nurses should use the same standardised approach in the assessment of patients. However, the greatest barriers to change were a lack of staff and support from management. The most likely interventions reported to enable change were face-to-face education, the opportunity to ask questions and support in the clinical environment.

Conclusion: HIRAID™ is an acceptable and suitable emergency nursing framework for consideration in the US. Successful uptake will depend on training methods and organizational support. HIRAID™ training should incorporate face-to-face interactive workshops.

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1. Background

Patient assessment is a core component of nursing practice and underpins clinical decision making and the delivery of safe patient care. Emergency nurses are routinely the first point of clinical contact for patients in emergency departments (EDs). Following triage, patients are typically located to a treatment area where an emergency nurse performs a comprehensive assessment and commences further investigations, interventions, and emergency care to meet the patient's clinical needs. The initial patient assessment in the ED is unique compared to other areas of clinical nursing as patients may present with a variety of complaints, non-specific signs and symptoms, complex comorbidities and often without a prior medical diagnosis or available baseline data [1]. The standard of the initial patient assessment is critical to the quality and safety of healthcare, particularly as emergency patients often have extended wait times for medical review. Currently, there is no widely used structured approach to patient assessment for emergency nurses and consequently there exists great variability in the quality and documentation of patient assessments.

To improve the quality and safety of emergency nursing care, an evidence-informed emergency nursing framework and education package was developed by clinical experts then tested in Australia to provide nurses with a structured approach to patient assessment and management post triage [2–4]. The framework consists of seven key components: **H**istory, **I**dentify **R**ed flags, **A**ssessment, **I**nterventions, **D**iagnostics, reassessment and communication (Fig. 1). For a nurse to effectively apply the HIRAID^{TM} framework in clinical practice, a thorough grounding in the theoretical basis and practical application of HIRAID^{TM}, as both a framework and a process, is essential. The HIRAID^{TM} training and learning resources – comprised of pre-reading, a respondent workbook, an eLearning module, and a facilitated interactive workshop – have been developed using three key educational principles: constructive alignment [5–7], backwards design [8], and scaffolded learning [9]. This evidence-informed education program has been purposefully designed by educational experts to provide structure to many of the things emergency nurses already do. It draws on best available evidence concerning patient assessment, risk factors for adverse outcomes, recognising and responding to clinical deterioration, and educational pedagogy to develop deep learning of core concepts and high-order thinking [7–9].

Furthermore, those responsible for training nurses in HIRAID^{TM} must themselves have completed the HIRAID^{TM} learning resources, attended a "Train the Trainer" course and use the HIRAID^{TM} Facilitator Manual that provides structure and a consistent, evidence-informed approach to educational preparation. This enables a best practice framework for nurse educators, clinical facilitators, and senior nursing staff to support nurses in the development of knowledge, skills, behaviours, and professional attributes necessary to apply the HIRAID^{TM} framework in clinical practice. Additionally, the effective implementation of HIRAID^{TM} requires the nurse to have the capability, opportunity and motivation to use HIRAID^{TM} in daily practice. Change is a necessary element of emergency nursing practice and leading change is a challenge for emergency nurse leaders, especially given the complexities and obstacles of advancing emergency care environments. This necessitates a multi-faceted, tailored hospital implementation strategy that considers local needs.

To date, HIRAID^{TM} has been successfully piloted in simulated and real-world EDs in Australia and has shown promising results for nursing practice and patient outcomes [10]. Use of the framework improved the completeness and efficiency of patient assessment, communication, handoff and decision-making in the simulated setting [11,12]. Following implementation in real-world EDs, HIRAID^{TM} was considered usable and acceptable by nurses, as it "reflects what they do as an emergency nurse". Completeness and correctness of patient history and physical assessment documentation was also greatly improved [13,14]. For patient outcomes, the HIRAID^{TM} intervention resulted in a 50 % reduction in patient deterioration across two EDs, despite an increase in the proportion of sicker patients admitted post-intervention [15]. The same study also observed a reduction in treatment delays, failure to escalate and nursing-related causal factors. The decrease in patient deterioration is projected to save hospitals up to almost $2 million per annum [16].

Data collection measuring the effectiveness of the HIRAID^{TM} intervention is ongoing across multiple EDs in Australia. This evidence will be used to further inform and refine the model for widespread implementation in emergency care settings, across Australia and internationally. In October 2022, a workshop was delivered at the Emergency Nurses Association's (ENA) conference, Emergency Nursing 2022 (EN

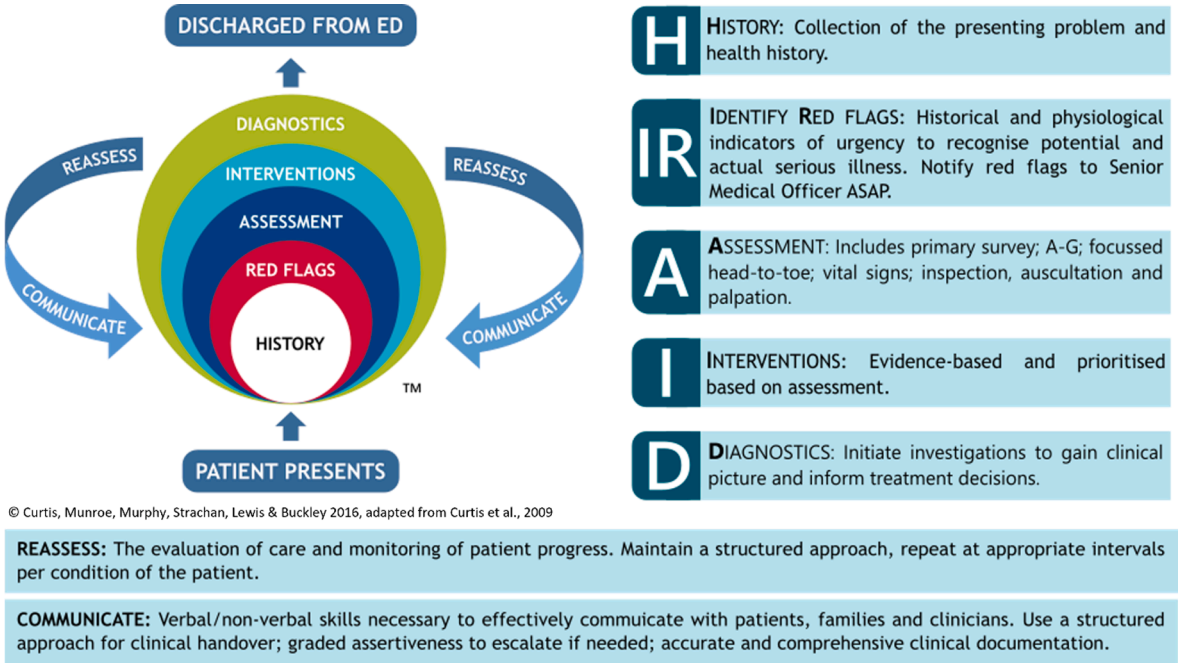

Fig. 1. HIRAID^{TM}, the evidence-informed emergency nursing assessment framework.

2022) in Denver, Colorado, to explore emergency nurses' perceptions of the evidence-informed emergency nursing framework HIRAID™, and the adaptability and feasibility of its implementation in the US.

2. Aim

The aim of this study was two-fold: first, to explore US emergency nurses' perceptions of the evidence-informed emergency nursing framework, HIRAID™; and second, to determine the factors that influence the feasibility and adaptability of HIRAID™ into nursing clinical practice in EDs within the US.

3. Methods

A cross-sectional cohort study using a survey method of a convenience sample was conducted. Data were collected from respondents electronically immediately prior to and following the delivery of the intervention using REDCap (Research Electronic Data Capture; https://catalyst.harvard.edu/services/redcap/), a secure web-based survey tool and application for data management.

3.1. Respondents and recruitment

Respondents were recruited via the Emergency Nurses Association at EN 2022 in Denver, Colorado. Consent was implied with completion of the survey. Human research ethics approval was granted by the University of Sydney Human Research Ethics Committee (2022/657).

3.2. The workshop

A 4-hour workshop introduced the HIRAID™ framework and supporting evidence at EN 2022 on 30th September 2022. The HIRAID™ education program was outlined using high-impact learning and teaching strategies, including interactive methods to facilitate engagement in the workshop. An overview of implementation strategies, including behaviour change theory to support the application of HIRAID™ in emergency clinical practice, was detailed.

3.3. The survey tool

Two surveys – one pre-intervention and one post-intervention – were used for data collection. The surveys had different components as they had different purposes. The pre-survey was intended to determine respondent perceptions around the need for any enhancement to nurse assessment and management in their workplace, and barriers to implementing change in their workplace. The post-survey (administered immediately following the workshop) collected data on respondents' satisfaction with the HIRAID™ framework, workshop and suitability for their workplace. Survey questions were checked for content validity by the research team. Face validity was checked by two clinicians from the study site (US). The survey was then piloted by four nursing clinicians, using both desktop and mobile devices, who provided feedback on time to complete, clarity of questions, functionality, branching logic and typographical errors. Minor changes were made based on this feedback. The survey can be found in Supplementary material (Supp 1). The inclusion of each survey component was as follows:

i. **Respondent characteristics (pre and post):** Age, place of work and years of emergency nursing experience.
ii. **Satisfaction with nursing care and communication (pre):** General satisfaction with nursing handover and care in relation to nursing practice in the ED was captured to measure satisfaction with the quality of the information received from other nurses during handover. This was assessed to determine the perceived need for a tool to improve nursing practice and/or communication. Satisfaction with nursing practice was captured using eight items on an 11-point Likert scale. Satisfaction with communication was captured using five yes/no questions.
iii. **Self-efficacy (pre):** This component measured *nurse anxiety, self-efficacy, and perceptions of control* before HIRAID™ training using the Self-Efficacy in Clinical Performance Scale [20]. Self-efficacy is defined as the belief in one's capability to perform a given behaviour or course of action and acts as a coping mechanism in response to stress [17]. In the simulated environment, HIRAID™ has been shown to increase nurse self-efficacy, which is associated with optimal clinical performance [11,18,19]. Respondents were asked to indicate their level of confidence on an 11-point Likert scale where '0′ indicated no confidence and '10′ indicated complete confidence. For example, 'As of today, I am confident that I am able to identify when reassessment of the patient is indicated'.
iv. **The practice environment (pre):** The practice environment component determined barriers to future implementation of HIRAID™ by capturing organisational and other factors that influence a nurse's ability to practice nursing skilfully and deliver high quality care. This was captured using the validated Practice Environment Scale of the Nursing Work Index (PES-NWI) [21]. Higher PES-NWI scores are associated with better nurse-reported patient outcomes, including improved quality and experiences of care, and reduced medication errors [22].
v. **Behavioural diagnostics (pre and post):** The behavioural diagnostics component identified barriers and facilitators to the upscaling and successful implementation of HIRAID™ using a series of yes/no answers. This was conducted as sustained compliance with any intervention is dependent on individual and collective human behaviour. To ensure this aspect to future implementation in the clinical environment was adequately captured, the Theoretical Domains Framework (TDF) – a synthesis of behavioural change theories that applies the science of intervention implementation in healthcare [23] – was used. Respondents had opportunity to expand on their responses using free text.
vi. **Feedback on the HIRAID™ Framework (post):** This component evaluated nurses' perception of the HIRAID™ framework and workshop. Respondents were asked to rate their agreement with five statements related to HIRAID™ and had opportunity to expand on their response using free text.

3.4. Analysis

Quantitative data were compared at pre-intervention and post-intervention where indicated. Quantitative data, such as satisfaction and self-efficacy scores, were analysed using SPSS (version 27; International Business Machines Corporation, Armonk, New York, US). Descriptive statistics were used to summarise the data and as the data were not normally distributed, nonparametric methods were used to compare pre and post-test variables. Qualitative data, obtained from responses to open-ended survey questions underwent a manual content analysis based on the three phase framework by Elo and Kyngas [24]. Data were read and reread by two researchers, condensed and coded, looking for frequency, similarity and difference [24]. Categories were inductive and based on manifest content using a descriptive approach [25].

4. Results

The HIRAID™ workshop was attended by 48 emergency nurses with 44 (91.6 %) completing the survey. Respondents represented 17 states including Alaska, Arizona, Arkansas, Colorado, Georgia, Illinois, Indiana, Massachusetts, Michigan, North Carolina, New Mexico, New York, Ohio, Oregon, Texas, Utah, and Virginia. Other countries represented included Australia, the Philippines, Iceland and the United Kingdom. Of

the respondents, 11 completed pre-intervention only, 26 completed pre- and post-intervention, and 7 completed post-intervention only. Most respondents were staff or charge nurses, worked in a general ED and had a Bachelor's degree as their highest qualification related to nursing (Table 1). Two-thirds of study respondents worked teaching or community hospital EDs in an urban location, a third in a rural location (Table 2).

Respondents' satisfaction with nursing practice, such as recognition of patient deterioration, time to escalation and the way patient assessments are communicated had a median score of 6 or 7 out of 11 (Table 3). Regarding the completeness of information received during clinical handover, most respondents felt the situation was described well (89.2 %) and relevant clinical information about the patient (*e.g.*, vital signs, physical exam findings) were provided (83.8 %). However, only 59.5 % felt relevant background information and a clear explanation of what was being asked (*e.g.*, assistance to perform interventions, check and administer medication) was communicated. Respondents had a high perception of self-efficacy (Table 4). Less than half of respondents (n = 19, 43.2 %) reported using a pre-planned structure to determine the order in which tasks were performed when managing patients in the ED.

High agreement statements in the Practice Environment Scale of the Nursing Work [21] reflected perceived good working relationships between doctors and nurses, supportive nurse managers and the expectation of a high standard of nursing care. Respondents had a low level of agreement with adequate staffing levels, time to provide and discuss patient care and the ability to provide quality patient care (Table 5). Sub-analyses were not conducted due to small cell sizes.

Respondents' attitude towards nursing practice change and the implementation of HIRAID^{TM} remained statistically unchanged pre- and post-intervention (Table 6). Most respondents felt emergency nurses should use the same approach to assess patients (65.4 % pre, 88.5 % post). Respondents reported they knew what they needed to do for their patient based on their initial assessment findings (73.1 % pre, 96.2 % post). The main barriers to implementing something new, such as HIRAID^{TM} was a perception they would be unsupported by management (46.2 % pre, 57.7 % post), and there is not enough time to change the way of working (38.5 % pre/post). The interventions thought most helpful to change practice in respondents' EDs were face-to-face education, support in the clinical environment and the opportunity to ask questions. Least useful was online learning, knowing there are

Table 1
Participant nursing characteristics.

Characteristic	Participants (N = 44)
Experience (Years)	
Nursing	13 [4.5–20]
Emergency Nursing	7.5 [2–14]
Current ED	4 [1–6]
Nursing Position	
Staff Nurse	15 (34.1)
Charge Nurse	14 (31.8)
Clinical Nurse Educator	4 (9.1)
Clinical Nurse Specialist	3 (6.8)
Clinical Coordinator	2 (4.5)
Director	2 (4.5)
Manager	2 (4.5)
Trauma Coordinator	1 (2.3)
Other	1 (2.3)
Highest Nursing Qualification	
Associate's Degree	11 (25.0)
Bachelor's Degree	25 (56.8)
Master's Degree	6 (13.6)
Doctorate	1 (2.3)
Type of ED Worked	
General	39 (88.6)
Adult	3 (6.8)
Paediatric	2 (4.5)
Areas of ED Worked	
General Acute	39 (88.6)
Fast Track	28 (63.6)
Paediatrics	23 (52.3)
Triage	36 (81.8)
Trauma	27 (61.4)

Data are presented as n (%) or median [IQR]. Abbreviations: interquartile range (IQR), emergency department (ED).

Table 2
Characteristics of participant EDs.

Characteristic	Participants (N = 44)
Type of Hospital	
Teaching *(non-university affiliated)*	27 (61.4)
Urban Community	27 (61.4)
Urban Public or Private	24 (54.5)
Critical Access	15 (34.1)
Academic Medical Centre *(university affiliated)*	8 (18.2)
Free Standing	5 (11.4)
Annual Visits to ED	
1–5,000	1 (2.3)
10,001–20,000	4 (9.1)
20,001–30,000	6 (13.6)
30,001–40,000	3 (6.8)
40,001–50,000	2 (4.5)
50, 001–75,000	13 (29.5)
75,001–100,000	5 (11.4)
>100,000	3 (6.8)
Don't Know	4 (9.1)
Location	
Urban	23 (52.3)
Suburban	8 (18.2)
Rural	13 (29.5)
Funding Type	
Non-Government *(not-for-profit)*	27 (61.4)
Federal Government, Military or Veteran Affairs	7 (15.9)
State or Local Government	6 (13.6)
Investor-Owned *(for-profit)*	4 (9.1)

Data are presented as n (%). Abbreviations: emergency department (ED).

Table 3
Participant's satisfaction with nursing practice in their ED.

	Median [IQR] (n = 36)
Relevance of historical information collected and reported by nurses when conducting clinical handovers	6 [5–7.5]
Completeness of physical assessment performed and reported by nurses when conducting clinical handovers	6 [5–7.5]
Nurse recognition of patients who are at risk or showing signs of clinical deterioration/serious injury	7 [6,7]
Time taken to escalate patients identified at risk or showing signs of clinical deterioration/serious injury	7 [6–8]
Appropriateness of nurse-initiated treatments prior to medical officer review	7 [6–8]
Appropriateness of nurse-initiated investigations prior to medical officer review	7 [5–8]
Relevance of information received from ED nursing colleagues during clinical handovers	6 [5–7]
Completeness of information received from ED nursing colleagues during clinical handovers	6 [5–7]

Abbreviations: interquartile range (IQR).
Participants assessed their level of satisfaction on an 11-point Likert scale from 0 to 10.

Table 4
Participant's perceived self-efficacy.

	Median [IQR] (N = 36)
Take a good patient history on patient arrival to the ED	9 [9–11]
Recognise historical cues indicative of potential or actual risk of deterioration (red flags)	9 [8–10.75]
Perform a comprehensive physical assessment	9 [8–10.75]
Perform physical assessments in order of urgency	10 [9–11]
Recognise physiological cues (red flags) indicative of potential or actual risk of deterioration	9.5 [8–11]
Respond to historical and physiological cues indicative of deterioration	9 [8–11]
Identify a patient in need of escalation of care	10 [9–11]
Identify and perform appropriate nursing interventions *(e.g. analgesia, oxygen therapy)*	10 [9–11]
Identify and perform appropriate nursing investigations *(e.g. urinalysis, ECG)*	10 [9–11]
Identify when reassessment of the patient is indicated	10 [9–11]
Communicate concerns about the patient to a senior medical officer when the patient demonstrates potential or actual signs of serious illness or injury	10 [9.25–11]
Communicate using SBAR mnemonic	10 [9–11]
Perform concise, complete and accurate nursing handovers	10 [9–11]
Perform complete and accurate documentation of assessment and care	10 [8–11]

Participants were asked to consider their level of confidence in their nursing practice on an 11-point Likert scale from 0 to 10. Abbreviations: emergency department (ED), electrocardiogram (ECG), situation-background-assessment-recommendation (SBAR).

consequences for not changing, a policy and posters (Table 6).

4.1. Qualitative results

All respondents provided further comment to the question 'I know what I need to do for my patient based on my initial assessment findings'. Responses explaining their level of confidence were grouped into five categories. Just over half (52 %) felt they needed more knowledge and patient information to be confident to act upon their assessment (n = 10) or relied on nurse protocols to guide their actions (n = 13). Another 41 % (n = 18) reported they could anticipate patient needs based on their assessment and/or clinical experience (Supplementary material).

> *"I feel adequate but not confident in moving forward with initial assessment and interventions" (Respondent 35)*

In response to the question 'Do you believe nurses should be responsible for commencing treatment on patients presenting to the ED?', four categories were generated from 48 discernible responses. Five respondents were unsure and nine indicated they depended on protocols or the clinical situation. More than two-thirds of respondents (n = 34, 77 %) made an affirmative comment and felt competent experienced nurses should initiate treatment to improve and expedite patient care.

> *"To get the patient through the ED more quickly, we need nurses to begin treatment based on a set of protocols" (Respondent 13)*

Only nine comments were received to the question 'What would prevent you from using a new way of assessing your patients after triage?'. Most comments related to having a lack of time, motivation and resources to change (Supplementary material).

> *"Lack of time to train everyone and having an effective date of implementation without management buy-in" (Respondent 1)*

Overall, the HIRAID^{TM} workshop was well-received. Respondents felt the learning outcomes were clearly presented (Median[IQR] 9 [8–10]), they were engaged (9 [7–9]), were clear on how to apply HIRAID^{TM} in clinical practice (8 [7–10]) but only reasonably confident in their ability to deliver HIRAID^{TM} training (7 [6–8]). Free text comments were overwhelmingly positive. Respondents felt the workshop provided *"Evidence to improve and change practice"* (n = 4) and was *"organised and engaging"* (n = 5).

> *"I think this was really great. I am actually a new ER nurse surrounded by other new nurses and saw there was a need to implement something of the caliber to improve patient care and handoff. This is excellent and I plan to bring it to my management team. It's awesome what you are doing!" (Respondent 24)*
> *"The course was great and gave me concrete ways to improve my practice as a nurse" (Respondent 29).*

Some respondents indicated they needed more information and resources to implement HIRAID^{TM} (n = 3).

> *"Great information and I can definitely see how this will improve patient outcomes. But I need more information on how to implement. Possibly*

Table 5
Practice Environment Scale of the Nursing Work Index (PES-NWI).

	Agree n (%)	Disagree n (%)
Adequate support services allow me to spend time with my patients	15 (41.7)	21 (58.3)
Doctors and nurses have good working relationships	100 (100.0)	0 (0)
ED managers are supportive of the nurses	29 (80.6)	7 (19.4)
Active staff development or education programs for nurse	19 (52.8)	17 (47.2)
Career development opportunity	23 (63.9)	13 (36.1)
Opportunity for frontline nurses to participate in policy decisions	16 (44.4)	20 (55.6)
Supervisors use mistakes as learning opportunities, not criticism	25 (69.4)	11 (30.6)
Enough time and opportunity to discuss patient care problems with other nurses	19 (52.8)	17 (47.2)
Enough registered nurses to provide quality patient care	13 (36.1)	23 (63.9)
A nurse manager who is a good manager and leader	27 (75.0)	9 (25.0)
A Hospital Chief Nursing Officer who is highly visible and accessible to staff	19 (52.8)	17 (47.2)
Enough staff to get the work done	13 (36.1)	23 (63.9)
Praise and recognition for a job well done	22 (61.1)	14 (38.9)
High standards of nursing care are expected by hospital administration	32 (88.9)	4 (11.1)
A Hospital Chief Nursing Officer equal in power and authority to other top-level hospital executives	26 (72.2)	10 (27.8)
A lot of teamwork between nurses and doctors	34 (94.4)	2 (5.6)
Opportunities for advancement	27 (75.0)	9 (25.0)
A clear philosophy of nursing that pervades the patient care environment	28 (77.8)	8 (22.2)
Working with nurses who are clinically competent	28 (77.8)	8 (22.2)
A nurse manager who backs up the nursing staff in decision making, even if the conflict is with a doctor	26 (72.2)	10 (27.8)
Administration listens and responds to employee concerns	20 (55.6)	16 (44.4)
An active quality assurance program	22 (61.1)	14 (38.9)
Frontline nurses are involved in the internal governance of the hospital *(e.g. practice and policy committees)*	17 (47.2)	19 (52.8)
Collaboration (joint practice) between nurses and doctors	30 (83.3)	6 (16.7)
Orientation program for newly hired registered nurses	27 (75.0)	9 (25.0)
Nursing care is based on nursing, rather than medical model	25 (69.4)	11 (30.6)
Frontline nurses have opportunity to serve on hospital and nursing committees	26 (72.2)	10 (27.8)
Nursing administrators consult with staff on daily problems and procedures	13 (36.1)	23 (63.9)

Participants were asked to consider their agreeance with the above statements that describe the nursing practice environment. Strongly agree and strongly disagree have been grouped with agree and disagree, respectively. N = 36. Abbreviations: emergency department (ED).

Table 6
Respondent's attitude to nursing practice change and implementation of HIRAID™.

	Pre (n = 26)	Post(n = 26)	P[#]
Do you believe all emergency nurses should use the same standardised approach in the assessment of patients?			.18[e]
Yes	17 (65.4)	23 (88.5)	
No	5 (19.2)	2 (7.7)	
Unsure	4 (15.4)	1 (3.8)	
If not, why?			
There is no benefit to a standardised process	0 (0.0)	0 (0.0)	N/A
A single method won't suit all situations in the ED	4 (15.4)	2 (7.7)	.67[e]
Current practice is adequate	0 (0.0)	0 (0.0)	N/A
We work differently, single method doesn't suit all	5 (19.2)	1 (3.8)	.19[e]
Other	0 (0.0)	0 (0.0)	N/A
I know what to do for my patient based on my initial assessment findings *			.23[e]
Yes	19 (73.1)	25 (96.2)	
No	1 (3.8)	1 (3.8)	
Unsure	6 (23.1)	0 (0.0)	
Do you believe nurses should be responsible for commencing treatment on patients presenting to the ED? **			.48[e]
Yes	19 (73.1)	22 (84.6)	
No	2 (7.7)	2 (7.7)	
Unsure	5 (19.2)	2 (7.7)	
What would prevent you from using a new way of assessment? ***			
Not interested in learning something new	0 (0.0)	3 (11.5)	.24[e]
Not enough time to change the way of working	10 (38.5)	10 (38.5)	1.00
Too hard to remember anything new	0 (0.0)	1 (3.8)	1.00[e]
It will not change the way I care for my patient	1 (3.8)	2 (7.7)	1.00[e]
Unsupported by management	12 (46.2)	15 (57.7)	0.58
Nothing will change	5 (19.2)	4 (15.4)	1.00[e]
The way we do things is fine no need to change	1 (3.8)	3 (11.5)	.61[e]
All the above	0 (0.0)	3 (11.5)	.24[e]
What do you need to change practice in your ED, what things do you think help ensure it is implemented?			
Face to face education	24 (92.3)	23 (88.5)	1.00[e]
Support in the clinical environment to adjust	21 (80.8)	24 (92.3)	.42[e]
Visual prompts to remind me posters	18 (69.2)	11 (42.3)	0.051
Opportunity to ask questions	22 (84.6)	22 (84.6)	1.00[e]
Personal feedback	17 (65.4)	19 (73.1)	0.55
A policy	12 (46.2)	11 (42.3)	0.78
Knowing consequences if we don't change	6 (23.1)	5 (19.2)	0.73
Knowing that the change is being monitored	15 (57.7)	11 (42.3)	0.27
Knowing it will make a positive difference to my patients	23 (88.5)	18 (69.1)	0.09
Online learning	7 (26.9)	6 (23.1)	0.75
Opportunity to be part of the process of change	20 (76.9)	15 (7.7)	0.14

[#] Chi-square.
[e] Fisher's exact test. Abbreviations: history, identify red flags, assessment, interventions, diagnostics (HIRAID), emergency department (ED).

provide the faculty implementation guide. I would love to take this back to my home" (Respondent 24)

5. Discussion

This paper examined emergency nurses' perceptions of the evidence-informed emergency nursing framework HIRAID™, and the adaptability and feasibility of its implementation in the US after completion of a train-the-trainer workshop.

Feedback from workshop respondents was overwhelmingly positive about the need for a standardized patient assessment approach and usability of HIRAID™ for the US context. The workshop respondents were a very experienced and confident cohort of emergency nurses working across rural and metropolitan regions. This group suggested the quality of emergency nursing assessment, recognition and escalation of deterioration, and completeness of clinical handovers required significant improvement. These are all foundational components of safe emergency nursing practice and targeted as part of HIRAID™ training workshop.

5.1. Implementation

Implementation of HIRAID™ or any new model of care requires planning and strategy to address the complexity of healthcare systems, clinician behaviour change [26] and micropolitics [27], alongside strong organizational support. Pre-implementation work should include a diagnostics phase. Additionally, engagement with key stakeholders should include medical staff as recipients of nurse communication [13,14] and the strong and positive relationships reported via the Practice Environment Scale of the Nursing Work Index [21] in this study. Any implementation should also include a robust evaluation plan to enable monitoring of uptake, modifications required and impact on patient and health service outcomes.

5.2. Training

Findings from this study suggest a lack of confidence in the ability to deliver training by some respondents. Alongside a global nursing shortage, is a shortage of experienced nurse educators [28,29]. Per the World Health Organization, a competent nurse educator should have the knowledge, skills and attitudes to adopt new approaches in planning, organizing, implementing and evaluating nurse education programs [30]. Nurses are being progressed to higher level positions faster than ever before and lack of mentoring results in a difficult transition into the nurse educator role [31,32]. Quality education relies largely on well-trained and competent faculty members. The approach to the HIRAID™ education workshop was deliberately designed to optimise educational outcomes but also effect practice change. The HIRAID™ learning resources have been deliberately sequenced to ensure scaffolded learning [33] and move participants through asynchronous to synchronous learning, increasing levels of complexity and feedback thus facilitating transition from lower to higher order thinking [9]. We propose the development of a face-to-face HIRAID™ Instructor course that incorporates key teaching and facilitation techniques and skills to support wider implementation.

5.3. ENA residency program

Recognizing the need for a standardized patient assessment approach post triage, the ENA, has incorporated HIRAID™ into the structure and presentation flow of content within their Emergency Nurse Residency Program (ENRP)™. The inclusion of HIRAID™ provides new graduate and emergency nurses with a structured and systematic approach to patient assessment, and we proposed enhancement to the ENRP with a foundational HIRAID™ module. Hospitals who have implemented ENRP, anecdotally report HIRAID™ builds on existing assessment frameworks by integrating patient history, indicators of urgency, assessment and monitoring, reassessment, and communication, which links all the elements that are fundamental in delivery of safe, quality nursing care to patients in the ED.

There were limitations to this study. The sample size was small, and results cannot necessarily be extrapolated across the diverse ED contexts in the USA. Further research is needed to promote future successful implementation of the HIRAID™ assessment framework into emergency

nursing practice in the US. This should comprise facilitators and barriers to behaviour change, including examining the education needs in US versus Australia, and crucially, the impact on patient and health service outcomes, to determine the appropriateness for upscaling HIRAID™ across the US, and its incorporation into health service policy.

6. Conclusion

HIRAID™ is an acceptable and suitable emergency nursing framework for consideration in the US. Successful implementation, uptake, and sustainability will be dependent on training methods and organizational support. Pre-implementation work should include a diagnostics phase and HIRAID™ training should incorporate face-to-face interactive workshops.

CRediT authorship contribution statement

Kate Curtis: Conceptualization, Methodology, Data curation, Writing – review & editing. **Margaret Fry:** Conceptualization, Writing – review & editing. **Ramon Z. Shaban:** Conceptualization, Methodology, Writing – review & editing. **Lisa Wolf:** Conceptualization, Methodology, Writing – review & editing. **Altair Delao:** Writing – review & editing. **Monica Escalante Kolbuk:** Writing – review & editing. **Belinda Kennedy:** Data curation, Writing – review & editing. **Julie Considine:** Conceptualization, Methodology, Data curation, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ienj.2023.101377.

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