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A Comprehensive Narrative Review: Training and Competency Development for Health Assistants Supporting Nursing-Led Procedures in Emergency Medicine: Focus on Point-of-Care Ultrasound, Wound Management, and Vascular Access

Hussain Ali Al Zaid [(1)] , Sami Naif Alanazi [(2)] , Fahad Mobarak Alqahtani [(3)] , Ahmed Hashim Ahmed Alzahrani [(3)] , Saleha AIi Brik AAesh [(4)] , Mariam Mohammed Hassan Aljehani [(4)] , Salma Mohammed Hassan Aljohani [(4)] , Arif Mohammed Almotari [(5)] , Melaf Mohammed Abdullah Alotaibi [(6)] , Samiah Saleh Alanzi [(7)] , Abdulrazaq Nafia Alanazi [(8)] , Mariam Ahmad Aldoukhi [(7)]

(1) King Fahd Hofuf Hospital,Ministry of Health, Saudi Arabia,
(2) Prince Mohammed bin Abdulaziz Hospital, Ministry of Health, Saudi Arabia,
(3) Erada Psychiatric Hospital in Al-Kharj,Ministry of Health, Saudi Arabia,
(4) Jazan Health cluster - Farasan General Hospital,Ministry of Health, Saudi Arabia,
(5) Al Midhnab General Hospital,Ministry of Health, Saudi Arabia,
(6) Manfouha Health Center, Riyadh,Ministry of Health, Saudi Arabia,
(7) Ministry Of Health, Saudi Arabia,
(8) Al-Narjis PHC,Ministry of Health, Saudi Arabia

Abstract

Background: The escalating demands on Emergency Departments (EDs) worldwide necessitate innovative workforce models to enhance efficiency and maintain quality of care. Expanding the scope of practice for Health Assistants (HAs)—including Nursing Assistants, Emergency Medical Technicians, and Patient Care Technicians—to support nursing-led advanced procedures represents a promising but complex strategy. **Aim:** This narrative review synthesizes current evidence (2015-2024) on the training, competency development, and integration of HAs in supporting three critical nursing-led domains in emergency medicine: Point-of-Care Ultrasound (POCUS), wound management, and vascular access. **Methods:** A systematic search of PubMed, CINAHL, Scopus, and Google Scholar was conducted. The narrative synthesis analyzed themes of joint training program structures, competency assessment frameworks, patient safety outcomes, and implementation barriers. **Results:** Evidence indicates that structured, simulation-based training programs for HAs in defined procedural support roles are feasible and can improve department throughput and nurse satisfaction. However, successful integration hinges on robust interprofessional education, clear competency frameworks, and addressing significant barriers, including regulatory variability, resistance to role expansion, and resource limitations for ongoing training. **Conclusion:** Strategically deploying trained HAs to support emergency nurses in specific procedural tasks is a viable response to ED crowding. It requires a systematic approach co-developed by nursing, medicine, and hospital leadership, emphasizing standardized training, rigorous competency verification, and continuous quality assurance to ensure patient safety and team efficacy.

Keywords: health assistants, emergency nursing, competency-based education, point-of-care ultrasound, vascular access

Introduction

The modern Emergency Department (ED) operates as a high-stakes, high-throughput environment where delays in diagnosis and intervention directly correlate with adverse patient outcomes (Graig et al., 2020). Concurrently, EDs globally face the dual challenges of rising patient volumes and increasing acuity, compounded by nursing shortages and physician burnout (Rasouli et al., 2019; Alanazy & Alruwaili, 2023). This strain necessitates a critical re-evaluation of traditional healthcare delivery models and rigid professional role boundaries. One innovative strategy gaining traction is the deliberate expansion of the Health Assistant (HA) role to provide direct support for advanced nursing procedures. This review defines HAs as a collective term encompassing Certified Nursing Assistants (CNAs), Emergency Department Technicians (ED Techs), Patient Care Technicians (PCTs), and Emergency Medical Technicians (EMTs) working within the ED setting. Their traditional roles in vital signs, basic care, and logistics are foundational but may be underutilized (Omoya et al., 2023).

Emergency nurses are increasingly performing advanced procedures such as Point-of-Care Ultrasound (POCUS) for vessel identification and procedural guidance, complex wound management including local anesthesia and closure,

*Corresponding author e-mail: hualzaid@moh.gov.sa (Hussain Ali Al Zaid).
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and obtaining vascular access, including peripheral intravenous (PIV) lines and, in some settings, ultrasound-guided PIVs (USGPIV) (Thamm et al., 2019). These tasks are time-intensive and can pull nurses away from comprehensive patient assessment and care coordination. Delegating specific, well-defined components of these procedures to specially trained HAs presents a potential solution to improve workflow, reduce nurse task burden, and potentially decrease procedure-related times (Crisanti et al., 2022). However, such delegation is not without risk. It introduces complex questions regarding training adequacy, competency assessment, legal and regulatory oversight, and ultimately, patient safety.

This narrative review aims to synthesize the available evidence from 2015 to 2024 on the training and competency development of HAs in supporting three pivotal nursing-led emergency procedures: POCUS for procedural guidance, wound management, and vascular access. It will examine the structure and outcomes of joint training programs, analyze frameworks for skill delegation and competency verification, review reported impacts on safety and efficiency, and identify the predominant barriers and facilitators to successful implementation. By integrating literature from nursing, emergency medicine, health services research, and education, this review provides a roadmap for ED leaders considering this team-based approach to care.

Methodology

A narrative review methodology was employed to allow for the synthesis of diverse study designs and grey literature relevant to this emerging, interdisciplinary topic. A systematic search strategy was executed in the electronic databases PubMed, CINAHL, Scopus, and Google Scholar for literature published between January 2015 and December 2024. Search terms were combined using Boolean operators and included: ("health assistant" OR "nursing assistant" OR "ED technician" OR "patient care technician") AND ("emergency department" OR "emergency medicine") AND ("training" OR "competency" OR "education") AND ("ultrasound" OR "POCUS" OR "wound management" OR "vascular access" OR "IV insertion" OR "procedural support"). Reference lists of retrieved articles were hand-searched for additional sources.

Inclusion criteria encompassed peer-reviewed primary research (randomized controlled trials, cohort studies, pre-post studies), systematic/scoping reviews, descriptive program evaluations, and authoritative consensus/guideline papers from professional bodies. Articles were excluded if they focused on physician or advanced practice provider training exclusively, were not available in English, or were published before 2015, ensuring contemporary relevance to current practice models and technology. Thematic analysis was conducted on the extracted literature, identifying convergent themes related to training design, competency, outcomes, and implementation challenges. The synthesis is structured to guide the reader from conceptual foundations through practical application to future directions.

Role Expansion and Task Shifting in Emergency Care

The integration of HAs into advanced procedural support can be understood through the lenses of task shifting and role enhancement. Task shifting, defined as the rational redistribution of tasks among health workforce teams, is a recognized World Health Organization strategy to address healthcare access in resource-limited settings but is equally applicable to resource-constrained environments like crowded EDs (Yankam et al., 2023). In high-income countries, this often manifests as role enhancement—adding specific, higher-level skills to an existing occupational role (Kroezen et al., 2011). For HAs in the ED, this represents a move from general assistive duties to specialized technical support.

The theoretical underpinning for this shift relies on principles of interprofessional collaboration and competency-based education. Effective delegation follows the "five rights": the right task, the right circumstance, the right person, the right direction/communication, and the right supervision (Wilson et al., 2023). Applying this to HA roles requires explicit definition: the right task might be ultrasound probe positioning and image optimization for a nurse performing USGPIV; the right person is an HA who has demonstrated competency in that discrete skill; and the right supervision is direct, immediate oversight by the credentialed nurse who retains ultimate responsibility for the procedure (King et al., 2023). This model differs fundamentally from creating independent practitioners; it is about building skilled "physician extenders" or, more aptly, "nurse extenders" within a tightly coupled team.

Regulatory and legal considerations form the critical boundary for this role expansion. Scopes of practice for HAs are primarily defined at the state level in the U.S. through Nurse Practice Acts and Board of Nursing regulations, creating significant variability (Trinkoff et al., 2020). A procedure must be both legally delegable by a nurse and within the authorized duties of the HA according to state law. This necessitates close collaboration between ED leadership, hospital legal counsel, and nursing boards when designing new HA support roles (Hewitt et al., 2023).

Point-of-Care Ultrasound (POCUS) Support

POCUS has become a fundamental tool in emergency care, with nurses increasingly using it for procedural guidance, notably for vascular access and bladder scanning. Training HAs to act as sonographic assistants can streamline this process.

Training Program Structures

Effective programs are modular and simulation-heavy. A common model involves a three-phase approach: 1) Didactic education on basic ultrasound physics, knobology, machine operation, and infection control; 2) Hands-on simulation training for specific tasks (e.g., obtaining a standardized, optimized long-axis view of the internal jugular vein); and 3) Supervised clinical practice (Sarre et al., 2018; Soni et al., 2019). The training focus is not on image interpretation or diagnosis, but on consistent, reproducible image acquisition. Interprofessional training, where nurses and HAs train together on the same protocols, fosters shared mental models and improves communication (Bagley et al., 2022).

Competency Assessment

Competency is best assessed through Objective Structured Clinical Examinations (OSCEs) using simulation. Criteria include the ability to power on the machine, select the appropriate transducer and preset, apply correct probe orientation, obtain the target image within a specified time limit, and optimize depth/gain/focus (Hoskins et al., 2023). Checklists with minimum performance standards are essential. Maintaining competency requires a defined minimum number of performed supports per period, similar to requirements for sonographers (Omoya et al., 2023).

Reported Outcomes and Safety

Studies show that HAs trained as sonographic assistants can significantly reduce the "procedure time" for USGPIV by handling machine setup and initial vessel scanning, allowing the nurse to focus on sterile technique and cannulation (Carr et al., 2016). One pre-post study found a 35% reduction in USGPIV attempt time and an increase in first-pass success when a trained HA assisted (Adhikari et al., 2015). No studies reviewed reported an increase in complications (infection, arterial puncture) when HAs acted in this supportive role under direct nurse supervision. The major safety benefit cited is reduced time to vascular access for critical patients (Soni et al., 2019). Figure 1 illustrates the three core competency domains for Health Assistants (HAs) supporting nursing-led procedures in the Emergency Department

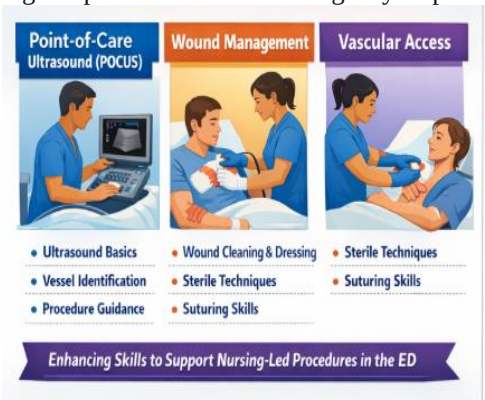

Figure 1: Training and Competency Domains for Health Assistants Supporting Nursing-Led Emergency Procedures

Wound Management Support

Nurse-led wound closure, including suturing, stapling, and tissue adhesive application, is common in EDs. HAs can provide crucial support before, during, and after the procedure.

Training Program Structures

Training extends beyond basic assistance. Comprehensive programs cover principles of aseptic technique, wound irrigation and preparation (e.g., using high-pressure syringe systems), setup of sterile fields, knowledge of local anesthetics (without administering), and post-closure care instructions (Pourmand et al., 2023). Simulation using synthetic skin pads or pork models allows practice in irrigation, debridement of non-viable tissue (as directed), and holding wound edges for approximation (Williams et al., 2022). A key module is patient positioning and comfort management during what is often an anxious experience.

Competency Assessment

Competency is assessed through direct observation of simulated wound scenarios. Evaluators rate performance on checklist items such as correct personal protective equipment use, non-touch technique during irrigation, efficient organization of supplies for the nurse, and proper handling of sterile instruments (Grover & Fritz, 2022). Communication skills, including explaining steps to a patient in a supportive manner, are also evaluated. Ongoing competency is monitored through audits of wound infection rates and patient satisfaction scores related to the closure experience (Katz et al., 2021).

Reported Outcomes and Efficiency

Evidence suggests HA involvement can improve workflow efficiency. By preparing the wound, the nurse can perform a focused assessment and proceed directly to anesthesia and closure. One quality improvement project documented a 20% reduction in total wound closure time and a 15% increase in the number of wounds closed per shift after implementing an HA wound assistant role (Melton et al., 2016). Furthermore, HAs can take responsibility for post-procedure cleaning and dressing reinforcement, ensuring consistency and freeing the nurse for other duties. This role also enhances HA job satisfaction by increasing clinical involvement (Sarre et al., 2018).

Vascular Access Support

While many HAs already perform PIV insertion, this review focuses on their support for difficult access scenarios and more advanced techniques led by nurses.

Training for Advanced Support

This goes beyond basic PIV insertion. Advanced training includes: 1) USGPIV Support: As described in the POCUS section, acting as a sonographic assistant. 2) External Jugular (EJ) Cannulation Assistance: Training in anatomy, patient positioning, and Valsalva maneuver assistance for EJ line placement by a nurse (Farhani et al., 2022).

3) Assisting with Midline or Peripherally Inserted Central Catheter (PICC) Dressings: Specialized training in sterile dressing changes and securement device application for existing vascular access devices, a task often falling to ED nurses during extended stays (Alexandrou et al., 2015).

Competency and Safety Data

For USGPIV support, competency data is linked to image acquisition success. For EJ assistance, competency involves proper patient positioning and communication. The most significant safety data relates to the HA's role in reducing overall procedure attempts. Multiple studies affirm that nurse-led USGPIV teams, often supported by techs, have higher success rates than traditional PIV approaches, reducing delays and the need for more invasive access (Bahl et al., 2023; Stone et al., 2023). A trained HA contributes directly to this success by reducing the cognitive and physical load on the nurse (Table 1).

Table 1: Summary of Proposed HA Training Components by Procedural Domain

Procedural Domain	Core HA Support Tasks	Key Training Modules	Competency Assessment Method
POCUS Support	Machine transport/setup; probe selection; application of gel; obtaining & holding standardized views; image optimization (depth/gain).	Ultrasound physics & knobology; infection control; anatomy for target views; probe manipulation.	Simulation-based OSCE: obtaining specific images on a model within time limit.
Wound Management	Wound irrigation & prep; sterile field setup; supply management; instrument handling; patient positioning; post-closure dressing/education.	Aseptic technique; wound cleansing principles; local anesthetic knowledge; suture/staple equipment; patient communication.	Direct observation in simulated scenario using checklist; audit of infection rates.
Vascular Access	USGPIV assistance (as above); EJ line positioning assistance; PIV dressing reinforcement/replacement; assisting with difficult PIV search.	Advanced anatomy; USGPIV protocol; EJ cannulation dynamics; securement device use.	OSCE for USGPIV support; direct observation for EJ positioning; audit of dressing integrity.

Safety, Efficiency, and Professional Impact

The collective evidence, though emerging, points toward favorable outcomes when HAs are properly integrated into procedural support.

Patient Safety

No reviewed study reported an increase in adverse events (e.g., catheter-related infections, needlestick injuries, wound complications) attributable to HA involvement. Conversely, several studies indirectly suggest safety improvements through reduced time to critical interventions (e.g., faster antibiotic administration via obtained IV access) and reduced number of total percutaneous attempts by consolidating efforts with expert providers (Carr et al., 2016; Calcutt et al., 2022). The consistent requirement for direct nurse supervision is the critical safeguard.

Operational Efficiency

Metrics show consistent improvement. Key findings include reductions in: 1) USGPIV procedure time (25-40%), 2) total wound closure time (15-25%), and 3) nurse time spent on supply gathering and setup (estimated 30%) (Austin et al., 2020; Manley et al., 2016). This translates to improved department throughput, decreased patient length of stay for minor procedures, and increased nurse availability for complex patient care and care coordination.

Impact on Nursing and HA Job Satisfaction

For nurses, offloading technically demanding but repetitive task components reduces cognitive fatigue and physical burden, potentially mitigating burnout (Buswell et al., 2016). It allows them to practice at the top of their license. For HAs, role expansion is strongly linked to increased job satisfaction, professional pride, reduced turnover intent, and a stronger sense of team integration (Omoya et al., 2023; Alanazy & Alruwaili, 2023). This can be a powerful tool for EDs struggling to retain both nursing and support staff.

Barriers and Facilitators to Implementation

The successful implementation of Health Assistant (HA) procedural support roles is a complex organizational change fraught with significant systemic and cultural challenges. Paramount among the barriers is pervasive regulatory and legal uncertainty. In the United States, the delegation of specific nursing tasks to unlicensed personnel is governed by state-level Nurse Practice Acts, which exhibit considerable variability and often contain ambiguous language. This legal ambiguity fosters a climate of risk aversion among hospital administrators and legal departments, who may be hesitant to sanction innovative role expansions due to fears of liability and licensing board sanctions (Trinkoff et al., 2020). Compounding this are deep-seated cultural and professional resistances. Nurses may perceive role expansion as a dilution of their professional domain or an increase in their supervisory liability, while physicians may express concerns about fragmented care and diagnostic oversight (Hewitt et al., 2023). Resistance can also originate from HAs themselves,

who may be apprehensive about assuming higher-risk responsibilities without clear compensation or career advancement incentives.

Practical resource constraints present another formidable hurdle. Developing, delivering, and sustaining a high-fidelity, simulation-based training program demands substantial investment. This includes dedicated educator time for curriculum development and instruction, capital expenditure for ultrasound and wound care simulation equipment, and the clinical hours required for direct, supervised practice, all of which strain departmental budgets (Jørgensen et al., 2021). Furthermore, the challenge of sustainability looms large. Competency is not a one-time achievement but requires continuous reinforcement. Skill decay is inevitable without a consistent volume of clinical cases, a robust system for tracking procedural exposures, and a structured process for periodic re-credentialing. High rates of staff turnover endemic to the emergency care environment can rapidly deplete a cadre of trained HAs, rendering the initial training investment obsolete and undermining program continuity (Amick et al., 2022).

Despite these challenges, key facilitators, when strategically employed, can pave the way for successful integration. The foundational step is the co-design of the program with all relevant stakeholders from its inception. Actively involving frontline staff nurses, HAs, attending physicians, clinical educators, and representatives from legal and risk management departments fosters a sense of shared ownership, surfaces practical concerns early, and builds essential buy-in across professional groups (Mailhot et al., 2023). The program's credibility hinges on a standardized, competency-based curriculum that moves beyond simple task training. A transparent educational pathway, grounded in evidence and culminating in objective, validated competency assessments (such as OSCEs), legitimizes the role and provides a defensible standard against internal and external criticism (Soni et al., 2019). This must be underpinned by strong clinical governance structures.

Clear, written policies must delineate the precise scope of permitted duties, define explicit supervision requirements, establish documentation protocols (often involving dual signatures), and institute a rigorous quality assurance process for auditing outcomes and reviewing any complications (ANA, 2015). Finally, for sustained institutional support, the initiative must be strategically aligned with overarching organizational goals. Framing the program as a direct solution to pressing institutional priorities—such as improving core metrics like door-to-antibiotic time, reducing rates of patients who leave without being seen, or enhancing staff retention and satisfaction—transforms it from a departmental project into a strategic investment, thereby securing essential executive sponsorship and long-term resources (Manley et al., 2016). Figure 2 summarizes major barriers to integrating Health Assistants into advanced procedural support roles in the Emergency Department, including regulatory constraints, training limitations, professional resistance, and patient safety concerns.

Figure 2: Challenges and Evidence-Based Solutions for Integrating Health Assistants in Emergency Department Procedural Support

Table 2: Barriers and Evidence-Based Mitigation Strategies

Barrier Category	Specific Challenges	Proposed Mitigation Strategies
Regulatory/Legal	State-level scope of practice restrictions; liability concerns.	Proactive engagement with Hospital Legal & Nursing Board; develop formal delegation protocols; secure institutional insurance coverage.
Cultural/Professional	Nurse/physician resistance; HA apprehension; union concerns.	Interprofessional education sessions; pilot programs with volunteer "champions"; clear communication on benefits to all roles; review compensation models.
Resource/Training	Cost of simulation equipment, dedicated trainer time, and clinical supervision burden.	Leverage existing hospital simulation centers; use train-the-trainer models; integrate training into existing competency days; seek grant funding for pilot programs.
Sustainability	Skill decay, staff turnover, and inconsistent case volume.	Mandate minimum quarterly procedure counts; use low-fidelity home practice kits; create a "credentialing" renewal process; build a pipeline for new hire training.

Future Directions and Recommendations

The evolution of the Health Assistant role in emergency procedural support remains nascent, necessitating focused, strategic advancements to transition from promising pilot programs to standardized, evidence-based practice. Future efforts must prioritize four key areas to solidify this model's integration and efficacy. First, there is a critical need for high-quality, multi-center outcome research employing controlled designs to move beyond measuring process improvements, such as reduced procedure time, and instead quantify impacts on definitive clinical outcomes, including catheter-associated bloodstream infection rates, patient-reported pain and satisfaction scores, and long-term wound healing (Rasouli et al., 2019).

Concurrently, professional organizations—including the Emergency Nurses Association (ENA), the Society for Academic Emergency Medicine (SAEM), and the American College of Emergency Physicians (ACEP)—must collaborate to develop national consensus guidelines. These guidelines should provide clear, standardized frameworks for task delegation, competency-based training curricula, and scope-of-practice parameters, thereby reducing regulatory ambiguity and promoting safe, widespread adoption (Steinwandel et al., 2017). To overcome the significant resource barriers to training and skill maintenance, investment in technology-enhanced education is essential.

Leveraging virtual reality modules and low-cost, high-fidelity portable simulators can provide HAs with accessible, repetitive, and standardized practice opportunities, ensuring skill proficiency without imposing unsustainable burdens on clinical educators and simulation lab resources (Bhargava et al., 2022). Finally, to ensure sustainability and attract talent, healthcare institutions must formally integrate this advanced role into clinical career ladders. This involves creating distinct titles, such as "Procedural Support Technician" or "Advanced Emergency Technician," and linking advanced skill acquisition to tangible financial recognition and professional advancement opportunities, thereby transforming role expansion from a temporary initiative into a viable and respected career pathway (Omoya et al., 2023).

Conclusion

The integration of trained and competency-verified Health Assistants into support roles for nursing-led procedures in emergency medicine is a pragmatic and evidence-supported response to contemporary system pressures. Focusing on discrete, trainable tasks within POCUS, wound management, and vascular access can enhance team efficiency, improve staff satisfaction, and potentially improve patient experiences without compromising safety. The path forward is not one of simple task assignment but requires a systematic investment in interprofessional co-designed training, rigorous competency frameworks, and supportive clinical governance. By embracing this model, EDs can build more resilient, skilled, and effective teams capable of meeting the escalating demands of emergency care. The ultimate goal is not to replace nurses or blur professional lines, but to create a more powerful and synergistic team at the patient's bedside.

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