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PEDIATRIC CRITICAL CONDITION: DECISION-MAKING ABILITY, CHALLENGES AND STRATEGIES OF THE PEDIATRIC EMERGENCY DEPARTMENT PERSONNEL TOWARDS AN EVIDENCED-BASED SAFETY CLINICAL PROTOCOLS

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ABSTRACT

The study was completed in September 2026**.** The study assessed the decision-making ability, challenges, and safety strategies of pediatric emergency department personnel in managing pediatric patients in critical conditions and used the findings to propose an evidence-based safety clinical protocol. A quantitative descriptive research design was employed among 122 respondents, composed of 75 pediatric emergency nurses and 47 doctors and other qualified medical personnel involved in pediatric emergency care at Hospital A in Saudi Arabia. A researcher-developed questionnaire assessed analytical/rational, intuitive, and cognitive continuum decision-making, as well as the challenges and strategies across ten stages of the Hospital Pediatric Emergency Workflow. Results showed Very High analytical/rational decision-making (M = 3.49, SD = 0.44), intuitive decision-making (M = 3.44, SD = 0.43), and cognitive continuum decision-making (M = 3.49, SD = 0.45). No significant differences were found in decision-making ability when respondents were grouped according to personnel classification, sex, educational attainment, age, and length of service/practice (all $p > .05$). Challenges across all workflow stages were Always Encountered, with arrival and registration obtaining the highest combined mean (M = 3.51, SD = 0.37). Strategies across all stages were Always Employed, with pediatric triage obtaining the highest combined mean (M = 3.59, SD = 0.45). The findings provided the basis for a proposed evidence-based safety clinical protocol for pediatric emergency care.

Keywords: *Pediatric Critical Condition*, *Decision-Making Ability*, *Pediatric Emergency Department Personnel*, *Challenges*, *Safety Strategies*, *Clinical Protocol*

INTRODUCTION

Pediatric patients are individuals from infancy through adolescence who require healthcare services appropriate to their age, physical development, and clinical needs. Unlike adults, children have distinct anatomical, physiological, psychological, and developmental characteristics that influence how illnesses and injuries present and progress, and they can deteriorate rapidly during critical conditions. Pediatric critical conditions refer to acute illnesses, injuries, or physiological disturbances that threaten a child's life or place the child at immediate risk of serious complications, permanent disability, or death. Because a critically ill child may deteriorate quickly, early recognition, rapid assessment, timely intervention, continuous monitoring, and appropriate clinical decision-making are essential to prevent further complications and improve outcomes. Pediatric readiness therefore depends on appropriate resources, trained personnel, policies, equipment, and systems that support timely emergency care (Remick et al., 2026).

The emergency department plays a vital role in the initial assessment, stabilization, treatment, and continuous monitoring of pediatric patients in critical condition. Pediatric emergency nurses, physicians, and other pediatric medical personnel must promptly identify life-threatening conditions, prioritize care, initiate appropriate interventions, assist with emergency procedures and resuscitation, administer medications, monitor the patient's response, communicate relevant clinical information, coordinate with the healthcare team, and document accurately. Their responsibilities require not only technical and clinical competence but also sound judgment, effective communication, teamwork, adaptability, and the ability to remain responsive under pressure. Core competence in pediatric emergency practice is therefore closely linked with emergency management experience, clinical training, and professional development (Tao et al., 2025).

Pediatric emergencies can be particularly challenging when healthcare personnel must make rapid decisions while dealing with limited clinical information, anxious or distressed parents and caregivers, uncooperative or frightened children, and the need to perform several interventions simultaneously. Emergency personnel may also struggle to establish intravenous access, obtain accurate vital signs and clinical information, determine the severity of the child's condition, calculate age- and weight-appropriate medication dosages, and respond promptly when a child suddenly deteriorates. Communication challenges in pediatric emergency departments may also arise from insufficient information, uncertainty, parental anxiety, and increased workload (Heo et al., 2025), while workload itself is multidimensional and influenced by clinical tasks, acuity, time pressure, and cognitive demands (Rose et al., 2025).

The decision-making ability, challenges, and strategies of pediatric emergency personnel are closely interconnected in the management of critically ill children. The effectiveness of strategies employed to stabilize pediatric patients largely depends on the ability of personnel to rapidly assess the situation, identify priorities, interpret clinical information, anticipate possible complications, and select appropriate interventions. The Cognitive Continuum Theory is relevant to this process because clinical decision-making may move between analytical and intuitive modes depending on the structure, urgency,

and complexity of the situation (O'Connor et al., 2023). Recent pediatric evidence also shows that nurses use different forms of decision-making according to clinical circumstances and accumulated professional experience (Elks et al., 2025).

Existing literature has provided valuable evidence on clinical decision-making, pediatric emergency care, nursing competencies, patient safety, and emergency response; however, much of the available research has focused on specific professional competencies, individual decision-making processes, or particular aspects of emergency care. Context-specific evidence remains limited on the immediate team response of pediatric emergency department personnel, particularly their decision-making, the challenges encountered across the pediatric emergency workflow, and the strategies used to address them when caring for critically ill pediatric patients. The present study therefore examined these dimensions at Hospital A in Saudi Arabia, to generate context-specific evidence to support the development of an evidence-based safety clinical protocol responsive to the urgency, complexity, and realities of pediatric emergency care.

Research Questions

Specifically, the study sought to answer the following research questions:

1. How do respondents assess the decision-making ability of the Pediatric Emergency Department personnel to ensure pediatric lives' safety during critical condition with regards to the following core decision-making approaches:
    1.1 Analytical/Rational;
    1.2 Intuitive and;
    1.3 Cognitive Continuum?
2. Is there a significant difference in the decision-making ability of the Pediatric Emergency Department personnel when they are grouped according to their demographic profile?
3. What are the challenges confronted by the Pediatric Emergency personnel to ensure the tiny lives' safety during critical condition with regards to the following Hospital Pediatric Emergency Workflow:
    3.1 Arrival and Registrations;
    3.2 Pediatric Triage Goal;
    3.3 Transfer to Appropriate Area;
    3.4 Nursing Initial Assessment
    3.5 Physician Assessment;
    3.6 Diagnostic Investigations;
    3.7 Emergency Interventions;
    3.8 Ongoing Monitoring;
    3.9 Disposition Decision and;
    3.10 Handover/Admission Handover?
4. What are the strategies practiced or employed by the Pediatric Emergency Personnel to ensure the pediatric lives' safety during critical condition and address the challenges mentioned in problem statement no. 3?

5. Based on the findings of the study, what evidence-based clinical safety protocol may be proposed to enhance the decision-making ability and clinical excellence of pediatric emergency personnel in ensuring pediatric lives' safety during critical conditions?

METHODOLOGY

The present study employed a quantitative descriptive research design. Quantitative descriptive research involved systematic collection, measurement, and analysis of numerical data to provide an objective description of the characteristics, conditions, or phenomena being investigated. This design was appropriate because it allowed the researcher to quantitatively assess the decision-making ability, challenges, and strategies of pediatric emergency department personnel in ensuring pediatric patient safety during critical conditions and to determine whether significant differences existed in decision-making ability when respondents were grouped according to their demographic profile. The study focused on the Pediatric Emergency Department of Hospital A in Saudi Arabia and assessed analytical/rational, intuitive, and cognitive continuum decision-making. It also examined challenges and strategies across arrival and registration, pediatric triage, transfer to the appropriate area, initial nursing assessment, physician assessment, diagnostic investigations, emergency interventions, ongoing monitoring, disposition decisions, and handover/admission handover. Based on these findings, the study proposed an evidence-based clinical safety protocol.

The study was conducted at Hospital A in Saudi Arabia, a tertiary healthcare institution providing comprehensive medical services, including specialized pediatric emergency care. Its Pediatric Emergency Department managed pediatric patients with a wide range of conditions, from common illnesses to critical and life-threatening emergencies requiring timely assessment, coordinated decision-making, and immediate intervention. The study was limited to Hospital A in Saudi Arabia; hence, the findings might not be generalizable to pediatric emergency departments in other hospitals or healthcare systems. The proposed evidence-based safety clinical protocol was developed based on the identified decision-making practices, challenges, and strategies of pediatric emergency department personnel and was primarily intended to support and enhance pediatric emergency care within Hospital A in Saudi Arabia.

The total population of the study consisted of one hundred twenty-two (122) respondents, composed of seventy-five (75) pediatric emergency nurses, including cross-trained nurses and nurses on leave, and forty-seven (47) doctors and other qualified medical personnel categories, including rotating doctors assigned or previously assigned to the emergency department, consultants, assistant consultants, newly assigned doctors or interns, and registrar categories. Because the total population was relatively small and manageable, the study employed total enumeration sampling, under which all qualified respondents who met the established inclusion criteria were invited to participate. The study also used purposive sampling to select respondents with the necessary knowledge, experience, and qualifications relevant to pediatric emergency care during critical conditions. Qualified nurses were currently assigned or previously assigned in the emergency department, had experience with pediatric patients under critical conditions,

were willing to participate, and had sufficient time to answer the questionnaire. Doctors and other qualified medical personnel were currently assigned or previously assigned in the emergency department, actively involved in the assessment and management of pediatric patients with critical conditions, regularly coordinated with pediatric emergency nurses and other healthcare personnel, specialized in pediatrics or regularly managed pediatric patients, had sufficient clinical experience, and were willing to participate.

The primary data-collection instrument was a researcher-made survey questionnaire developed based on the Statement of the Problem, theoretical framework, Hospital Pediatric Emergency Workflow, and relevant literature on pediatric emergency care, clinical decision-making, and patient safety. The instrument included sections on Decision-Making Ability, Challenges in the Pediatric Emergency Workflow, and Strategies. Decision-making ability covered analytical/rational, intuitive, and cognitive continuum approaches, while the challenges and strategies sections covered the ten stages of the Hospital Pediatric Emergency Workflow. These sections formed the basis for developing the proposed evidence-based safety clinical protocol. To ensure validity and reliability, three qualified experts conducted content validation of the instrument. The researcher conducted a pilot test among respondents with characteristics similar to the actual participants but who were not included in the final study. The researcher assessed the reliability of the applicable Likert-scale items using Cronbach's alpha, with a coefficient of 0.70 or higher considered acceptable.

The researcher secured approval from the administration of Hospital A in Saudi Arabia and the necessary permissions from hospital authorities and the ethics review committee. The researcher developed, validated, and tested the survey questionnaire for reliability before data collection and coordinated with the nursing department, Pediatric Emergency Department, and hospital administration regarding the schedule, procedures, and guidelines for data gathering. Questionnaires were administered personally during available time and duty schedules. Respondents who were unavailable to receive or complete the questionnaire in person received it via email, personal contact, or official department group chats. Participation remained voluntary and subject to informed consent. After retrieval, the data were organized, encoded, tabulated, analyzed, and interpreted using Microsoft Excel and the Statistical Package for the Social Sciences (SPSS) Version 27.

The researcher used weighted mean, standard deviation, and ranking to analyze decision-making ability, challenges, and strategies. Normality testing was conducted to determine the appropriate inferential procedures. Because the normality assumption was not met, the researcher used the Mann-Whitney U test for profile variables with two groups (personnel classification, sex, and educational attainment) and the Kruskal-Wallis test for profile variables with three or more categories (age and length of service). The study tested the hypothesis at the 0.05 level of significance. The clinical context was pediatric patients aged 0–14 years. The study did not examine patient outcomes, mortality rates, parental satisfaction, treatment effectiveness, physician prescribing practices, or clinical excellence as an independently measured variable.

RESULTS

Table 1 shows that overall analytical/rational decision-making was rated Very High, with a combined mean of 3.49 and a standard deviation of 0.44. Both groups rated this domain as Very High, with doctors' mean of 3.50 (SD = 0.44) and nurses' mean of 3.48 (SD = 0.44).

Table 1
Decision-Making Ability of Doctors and Nurses

Approach	Resp.	Mean	SD	Interpretation
Overall Mean of Analytical/Rational Decision-Making	Doctor Nurse Combined	3.50 3.48 3.49	0.44 0.44 0.44	Very High Very High Very High
Overall Mean of Intuitive Decision-Making	Doctor Nurse Combined	3.43 3.44 3.44	0.41 0.44 0.43	Very High Very High Very High
Overall Mean of Cognitive Continuum Decision-Making	Doctor Nurse Combined	3.43 3.53 3.49	0.46 0.44 0.45	Very High Very High Very High

Intuitive decision-making obtained an overall combined mean of 3.44 (SD = 0.43), interpreted as Very High, with doctors at 3.43 (SD = 0.41) and nurses at 3.44 (SD = 0.44). Cognitive continuum decision-making also obtained a Very High overall combined mean of 3.49 (SD = 0.45), with doctors at 3.43 (SD = 0.46) and nurses at 3.53 (SD = 0.44). The results indicate that pediatric emergency personnel consistently demonstrate logical, systematic reasoning; experience-based judgment; and the ability to adjust decision-making to clinical circumstances.

Table 2 presents the significant differences in the decision-making ability of pediatric emergency department personnel when grouped according to demographic profile. All p-values exceeded the 0.05 level of significance across analytical/rational, intuitive, and cognitive continuum decision-making. For personnel classification, the p-values were .881, .786, and .322; for sex, .283, .717, and .483; for educational attainment, .833, .515, and .141; for age, .806, .535, and .574; and for length of service/practice, .937, .747, and .513, respectively. Thus, the null hypothesis was accepted for all profile variables, indicating that decision-making styles among pediatric emergency department personnel remained comparable across demographic groups.

Table 3 shows that challenges across all ten stages of the Hospital Pediatric Emergency Workflow were rated as Always Encountered. Arrival and registration obtained the highest combined mean of 3.51 (SD = 0.37), followed by transfer to the appropriate area at 3.42 (SD = 0.46), pediatric triage at 3.41 (SD = 0.49), physician assessment and handover/admission handover at 3.40 (SD = 0.49 and 0.42), diagnostic investigations and ongoing monitoring at 3.39 (SD = 0.46 and 0.43), nursing initial assessment at 3.38 (SD = 0.47), emergency interventions at 3.37 (SD = 0.45), and disposition decision at 3.33 (SD = 0.51).

Table 2

Significant Difference on the Decision-Making Ability of the Pediatric Emergency Department Personnel when Grouped According to Personnel Classification, Sex, and Educational Attainment

Variable	Personnel Classification	N	Mean of Ranks	U-value	P-value	Remark
Analytical/Rational Decision-Making	Doctor Nurse	47 75	62.07 61.14	1735.5	.881	Not Significant
Intuitive Decision-Making	Doctor Nurse	47 75	60.44 62.17	1712.5	.786	Not Significant
Continuum Cognitive Decision-Making	Doctor Nurse	47 75	57.70 63.88	1584.0	.322	Not Significant
Variable	**Sex**	**N**	**Mean of Ranks**	**U-value**	**P-value**	**Remark**
Analytical/Rational Decision-Making	Female Male	95 27	59.76 67.63	1117.0	.283	Not Significant
Intuitive Decision-Making	Female Male	95 27	60.90 63.61	1225.5	.717	Not Significant
Continuum Cognitive Decision-Making	Female Male	95 27	62.64 57.50	1174.5	.483	Not Significant
Variable	**Educational Attainment**	**N**	**Mean of Ranks**	**U-value**	**P-value**	**Remark**
Analytical/Rational Decision-Making	Bachelor's Post-Graduate	73 49	62.03 60.71	1750.0	.833	Not Significant
Intuitive Decision-Making	Bachelor's Post-Graduate	73 49	63.16 59.03	1667.5	.515	Not Significant
Continuum Cognitive Decision-Making	Bachelor's Post-Graduate	73 49	65.16 56.04	1521.0	.141	Not Significant

Note. Mann-Whitney U was used for personnel classification, sex, and educational attainment; Kruskal-Wallis was used for age and length of service/practice. Level of significance = 0.05. All p-values are greater than .05.

These findings indicate that operational challenges remain present throughout the pediatric emergency workflow, with the most prominent overall difficulty occurring during arrival and registration.

Table 3
Challenges Across the Hospital Pediatric Emergency Workflow

Workflow Stage	Resp.	Mean	SD	Interpretation
Overall Mean of Challenges in terms of Arrival and Registration	Doctor Nurse Combined	3.49 3.52 3.51	0.37 0.38 0.37	Always Encountered Always Encountered Always Encountered
Overall Mean Challenges in terms of Pediatric Triage Goal	Doctor Nurse Combined	3.41 3.40 3.41	0.48 0.50 0.49	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Transfer to Appropriate Area	Doctor Nurse Combined	3.44 3.40 3.42	0.47 0.45 0.46	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Nursing Initial Assessment	Doctor Nurse Combined	3.43 3.35 3.38	0.46 0.47 0.47	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Physician Assessment	Doctor Nurse Combined	3.41 3.38 3.40	0.50 0.49 0.49	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Diagnostic Investigations	Doctor Nurse Combined	3.38 3.40 3.39	0.47 0.46 0.46	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Emergency Interventions	Doctor Nurse Combined	3.36 3.37 3.37	0.48 0.44 0.45	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Ongoing Monitoring	Doctor Nurse Combined	3.39 3.39 3.39	0.44 0.42 0.43	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Disposition Decision	Doctor Nurse Combined	3.25 3.37 3.33	0.56 0.47 0.51	Always Encountered Always Encountered Always Encountered
Overall Mean of Challenges in terms of Handover/Admission Handover	Doctor Nurse Combined	3.39 3.41 3.40	0.44 0.42 0.42	Always Encountered Always Encountered Always Encountered

Note. Scale: 1.00–1.75 = Not Encountered; 1.76–2.50 = Rarely Encountered; 2.51–3.25 = Sometimes Encountered; 3.26–4.00 = Always Encountered

Table 4 shows that strategies across all stages of the Hospital Pediatric Emergency Workflow were rated as Always Employed. Pediatric triage goal obtained the highest combined mean of 3.59 (SD = 0.45), followed by diagnostic investigations at 3.58 (SD = 0.45), nursing initial assessment at 3.57 (SD = 0.45), arrival and registrations at 3.56 (SD = 0.44), transfer to the appropriate area and ongoing monitoring at 3.48 (SD = 0.45), physician assessment at 3.47 (SD = 0.44), emergency interventions at 3.46 (SD = 0.45), handover/admission handover at 3.45 (SD = 0.44), and disposition decision at 3.44 (SD = 0.46). The results demonstrate that doctors and nurses consistently employ safety-oriented strategies throughout the pediatric emergency workflow, with particularly strong practices in triage, diagnostic investigations, nursing initial assessment, and arrival and registration.

Table 4
Strategies Across the Hospital Pediatric Emergency Workflow

Workflow Stage	Resp.	Mean	SD	Interpretation
Overall Mean of Strategies in terms of Arrival and Registrations	Doctor	3.60	0.45	Always Employed
	Nurse	3.53	0.44	Always Employed
	Combined	3.56	0.44	Always Employed
Overall Mean of Strategies in terms of Pediatric Triage Goal	Doctor	3.59	0.45	Always Employed
	Nurse	3.58	0.45	Always Employed
	Combined	3.59	0.45	Always Employed
Overall Mean of Strategies in terms of Transfer to Appropriate Area	Doctor	3.50	0.46	Always Employed
	Nurse	3.46	0.44	Always Employed
	Combined	3.48	0.45	Always Employed
Overall Mean of Strategies in terms of Nursing Initial Assessment	Doctor	3.57	0.45	Always Employed
	Nurse	3.57	0.45	Always Employed
	Combined	3.57	0.45	Always Employed
Overall Mean of Strategies in terms of Physician Assessment	Doctor	3.48	0.44	Always Employed
	Nurse	3.46	0.44	Always Employed
	Combined	3.47	0.44	Always Employed
Overall Mean of Strategies in terms of Diagnostic Investigations	Doctor	3.56	0.46	Always Employed
	Nurse	3.60	0.45	Always Employed
	Combined	3.58	0.45	Always Employed
Overall Mean of Strategies in terms of Emergency Interventions	Doctor	3.52	0.46	Always Employed
	Nurse	3.42	0.45	Always Employed
	Combined	3.46	0.45	Always Employed
Overall Mean of Strategies in terms of Ongoing Monitoring	Doctor	3.53	0.47	Always Employed
	Nurse	3.45	0.44	Always Employed
	Combined	3.48	0.45	Always Employed
Overall Mean of Strategies in terms of Disposition Decision	Doctor	3.50	0.47	Always Employed
	Nurse	3.40	0.45	Always Employed
	Combined	3.44	0.46	Always Employed
Overall Mean of Strategies in terms of Handover/Admission Handover	Doctor	3.51	0.45	Always Employed
	Nurse	3.41	0.44	Always Employed
	Combined	3.45	0.44	Always Employed

Note. Scale: 1.00–1.75 = Never Employed; 1.76–2.50 = Rarely Employed; 2.51–3.25 = Employed; 3.26–4.00 = Always Employed.

DISCUSSION

The results demonstrate that doctors and nurses possess a Very High level of decision-making across analytical/rational, intuitive, and cognitive continuum approaches. The close means obtained by doctors and nurses suggest generally consistent decision-making between the two professional groups. Respondents were particularly strong in prioritizing care according to patient severity, recognizing early deterioration through professional experience, and adjusting clinical judgment according to urgency. These findings are consistent with evidence that pediatric nurses use analytical and experience-based decision-making according to clinical circumstances (Elks et al., 2025) and that emergency management experience and professional training

contribute to pediatric emergency competence (Tao et al., 2025). The pattern also supports the Cognitive Continuum perspective that clinical judgment may shift between analytical and intuitive modes depending on the demands of the situation (O'Connor et al., 2023).

The absence of statistically significant differences according to personnel classification, sex, educational attainment, age, and length of service/practice indicates that decision-making styles were relatively consistent across the demographic groups examined. This general pattern suggests that decision-making may be shaped more by common clinical experiences, emergency exposure, competency development, standardized procedures, and workplace demands than by demographic characteristics alone. Considine et al. (2024) found that educational interventions generally produced positive effects on emergency nurses' clinical practice behaviors, while Chow et al. (2023) demonstrated that high-fidelity simulation can improve clinical decision-making-related outcomes in emergency nursing education. These findings support continuing standardized competency development and simulation-based education across professional and demographic groups.

Challenges were Always Encountered across every stage of the pediatric emergency workflow, with arrival and registration obtaining the highest combined mean. The pattern indicates that pediatric emergency care is affected by workflow, staffing, communication, space, equipment, coordination, and workload demands from patient entry through disposition and handover. Triage efficiency can be influenced by staffing, patient volume, acuity, and overcrowding (Alzamel et al., 2025), while communication difficulties can arise from insufficient information, parental anxiety, uncertainty, and staff workload (Heo et al., 2025). Workload in pediatric emergency departments is also multidimensional and varies according to the complexity and demands of clinical tasks (Rose et al., 2025). During transitions, structured communication remains important because transfer and handover are vulnerable points in patient care; improvements in interdisciplinary transfer processes and structured handoff documentation have been associated with safer and more complete transitions (Grabinski et al., 2025; Bietke et al., 2025; Hammett et al., 2026).

Despite the challenges, strategies were Always Employed across all stages, indicating that pediatric emergency personnel consistently use safety-oriented practices involving prioritization, reassessment, communication, coordination, teamwork, diagnostic follow-up, emergency intervention, monitoring, disposition, and handover. Pediatric triage obtained the highest overall strategy mean, reflecting the strong emphasis placed on rapid recognition of critical illness and urgency-based prioritization. The pediatric readiness framework likewise emphasizes validated triage, appropriate assessment and reassessment, trained personnel, equipment, medications, policies, and quality-improvement processes as essential components of emergency care for children (Remick et al., 2026). The strong strategy ratings therefore indicate an established foundation for safe pediatric emergency care, while the relatively lower ratings for disposition decision, handover/admission handover, and emergency interventions identify areas where existing practices may still be strengthened.

Taken together, the very high decision-making ability, consistently encountered workflow challenges, and consistently employed safety strategies provide the basis for

the proposed Evidence-Based Safety Clinical Protocol. Rather than introducing an unrelated intervention, the protocol organizes the department's existing strengths and identified needs into a structured guide covering readiness, decision-making, arrival and registration, triage, transfer, nursing and physician assessment, diagnostic investigations, emergency interventions, ongoing monitoring, disposition, and handover. The protocol is intended to support faster, safer clinical decisions; reduce avoidable workflow delays; strengthen continuity and coordination; and promote continuous quality improvement in pediatric emergency care.

Conclusions

1. The Pediatric Emergency Department personnel are highly capable of making decisions during critical pediatric conditions. Their very high decision-making ability across analytical/rational, intuitive, and cognitive continuum approaches indicates that both doctors and nurses are equipped to use systematic reasoning, clinical judgment, professional experience, and flexible thinking in responding to emergencies. Thus, the department possesses personnel who are capable of making timely and appropriate decisions across different pediatric emergency situations.

2. The decision-making capability of the Pediatric Emergency Department personnel is generally consistent regardless of personnel classification, sex, educational attainment, age, and length of service/practice. The absence of significant differences indicates that the capacity to make decisions in critical pediatric situations is not substantially dependent on these profile characteristics. Rather, the personnel, as a group, demonstrate a generally comparable level of decision-making capability in providing emergency care to pediatric patients.

3. The Pediatric Emergency Department is capable of accommodating and managing pediatric patients throughout the different stages of the emergency care process, although operational challenges are consistently encountered. The presence of challenges from arrival and registration through disposition and handover indicates that the department's ability to provide pediatric emergency services is supported by functioning processes but remains subject to workflow, staffing, communication, space, equipment, and coordination demands. Among the different stages, arrival and registration require particular attention because it presents the greatest operational challenge in the delivery of timely pediatric emergency care.

4. The Pediatric Emergency Department personnel consistently employ safety strategies across the entire pediatric emergency workflow, demonstrating the department's overall capability to respond to and manage pediatric emergencies. The strongest practices are evident in pediatric triage, diagnostic investigations, nursing initial assessment, and arrival and registration, indicating established capabilities in receiving patients, identifying urgent conditions, assessing patients, and initiating appropriate care. However, disposition decisions, handover/admission handover, and emergency interventions provide areas where existing practices may still be strengthened to further improve continuity, coordination, and safety of pediatric emergency services.

5. The findings of the study provide sufficient basis for the development of an evidence-based safety clinical protocol for pediatric emergency care. The very high decision-making ability of pediatric emergency personnel, the consistently encountered challenges across the emergency workflow, and the consistent employment of safety strategies demonstrate the need to integrate existing practices into a structured and standardized protocol. The proposed protocol should particularly address critical points in arrival and registration, triage, assessment, intervention, monitoring, disposition decision, and handover/admission handover, while incorporating analytical/rational and intuitive decision-making, clinical judgment, effective communication, teamwork, and continuous monitoring. Such a protocol may serve as a practical guide for doctors and nurses in making timely, appropriate, and safety-focused decisions during critical pediatric conditions.

Recommendations

1. Sustain and enhance the very high decision-making ability of Pediatric Emergency Department personnel by having the Pediatric Emergency Department Head, pediatric consultants, senior doctors, and senior nurses conduct regular case-based discussions, simulation exercises, and structured debriefing sessions. These activities may provide continued opportunities for doctors and nurses to apply analytical/rational reasoning, professional intuition, and cognitive flexibility when managing critical and rapidly changing pediatric conditions.

2. Maintain standardized and consistent decision-making practices among Pediatric Emergency Department personnel by having the Pediatric Emergency Department Head, Nurse Manager, pediatric consultants, and training committee implement and regularly review common clinical decision-making guidelines and competency checklists. This may be supported through multidisciplinary case reviews, competency assessments, and feedback sessions to sustain the comparable decision-making capability demonstrated across personnel classification, sex, educational attainment, age, and length of service/practice.

3. Sustain effective pediatric emergency workflow while further improving areas where challenges are consistently encountered, particularly Arrival and Registration, which obtained the highest challenge mean. The Pediatric Emergency Department Head, triage nurses, registration personnel, doctors, and hospital administration may streamline patient entry procedures, clarify responsibilities, establish rapid registration and identification processes, strengthen triage coordination, and conduct periodic workflow audits. These measures may help preserve the department's capacity to accommodate pediatric patients efficiently while minimizing avoidable delays during periods of increased workload.

4. Further strengthen the already employed strategies for Disposition Decision while sustaining effective practices across the pediatric emergency workflow. The Pediatric Emergency Department Head, pediatric consultants, emergency physicians, senior nurses, and hospital administration may regularly review and refine standardized disposition pathways covering admission, transfer, observation, and discharge. This may

be supported through clear disposition criteria, escalation procedures, multidisciplinary case discussions, and periodic review of disposition-related cases to sustain timely, coordinated, and appropriate decisions for pediatric patients.

5. Develop an evidence-based safety clinical protocol for pediatric emergency care based on the findings of the study, with the Pediatric Emergency Department Head, pediatric consultants, emergency physicians, Nurse Manager, senior nurses, and hospital quality and safety team taking the lead in its development and implementation. The protocol may be developed through multidisciplinary workshops, review of existing hospital policies and evidence-based pediatric emergency guidelines, and validation by qualified clinical experts. It should standardize procedures for arrival and registration, triage, assessment, emergency interventions, ongoing monitoring, disposition decision, and handover/admission handover while integrating analytical/rational and intuitive decision-making, clinical judgment, communication, teamwork, and continuous monitoring. The finalized protocol should be introduced through staff orientation, simulation-based training, competency assessment, and periodic compliance audits to ensure consistent application and continuous improvement in protecting pediatric patients during critical conditions.



Figure 1

Proposed Evidence-Based Safety Clinical Protocol for Hospital A in Saudi Arabia

The proposed Evidence-Based Safety Clinical Protocol translates the study findings into a coordinated operational guide for the Pediatric Emergency Department at **Hospital A in Saudi Arabia**. The protocol is justified by three major findings: respondents demonstrated Very High analytical/rational, intuitive, and cognitive continuum decision-making; operational challenges were consistently encountered across the pediatric emergency workflow; and safety strategies were consistently employed across the same workflow stages. Accordingly, the proposed protocol provides a practical sequence of required actions, responsible personnel, proposed time standards, monitoring indicators,

and expected outcomes covering cross-cutting readiness and decision-making and the ten stages of the pediatric emergency workflow.

Compliance with Ethical Standards

The study observed ethical principles throughout its conduct. Participation was voluntary, and all respondents were informed of the study objectives, procedures, benefits, and possible risks before providing informed consent. Respondents were informed that they could withdraw at any time without negative consequences. Confidentiality and anonymity were maintained; personal information and responses were used exclusively for research purposes, and the collection and use of contact information for follow-up were subject to informed consent and applicable hospital and data privacy requirements. The study observed the principles of beneficence, non-maleficence, justice, respect for persons, and confidentiality. No conflict of interest was identified in the conduct or interpretation of the study; plagiarism was strictly avoided, and the results were used purely for research purposes. Artificial intelligence-assisted language support was used to prepare the journal manuscript; the researcher remained responsible for verifying the accuracy of all data, interpretations, citations, and final content.

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