Impact of Triage Nurse Training on Accuracy and Efficiency: A Systematic Review-Based Study

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Abstract

Background Triage in the emergency department (ED) is a crucial procedure that establishes the urgency of patient care based on symptoms at presentation. Although the efficacy of triage nurse training programs varies, their goal is to increase the precision and efficiency of their decision-making. Aim With a focus on research done between 2019 and 2024, the systematic review attempts to evaluate the effect of training programs on the accuracy and efficiency of triage nurses in emergency departments. Method We conducted a thorough search of the PubMed, EMBASE, and Web of Science databases to find pertinent research. Studies assessing training treatments for triage nurses and reporting accuracy and efficiency-related results were included in the inclusion criteria. Both the quality assessment and data extraction were carried out separately by two reviewers. Result Ten studies that used a range of triage training techniques and covered a variety of geographic areas satisfied the inclusion criteria. Research findings consistently showed that, despite variations in study designs and outcome measures, training programs increased triage accuracy and efficiency. Interventions included clinical decision support system integration, training based on simulation, and conventional classroom-based instruction. Conclusion By increasing decision-making efficiency and accuracy in patient evaluation, training programs greatly improve the performance of triage nurses in emergency departments. To improve comparability and support evidence-based policies, future research

must standardize training methodologies and outcome measurements.

Keywords: Triage Nurse Training. Accuracy and Efficiency. A systematic review.

1. Introduction

In emergency rooms, triage nurses are essential because they serve as patients' initial point of contact and are crucial in assessing the urgency of care that is needed (Newgard et al., 2022). Patient outcomes, resource allocation, and general emergency department (ED) operations are all strongly impacted by their capacity to assess patients' situations quickly and accurately (Levine et al., 2023). In the fast-paced, high-stress environment of emergency departments, prompt and accurate triage judgments are critical to avoiding treatment delays, minimizing overcrowding, and guaranteeing that patients receive the right care (Chambers et al., 2019; Wang, 2022; Alqarni et al., 2023).

Correctly determining a patient's condition severity and setting treatment priorities according to clinical urgency are essential components of accurate triage (Parker et al., 2019). Errors or inefficiencies in this procedure may have serious repercussions, such as poor patient outcomes, elevated rates of morbidity and mortality, and reduced levels of patient satisfaction (Campbell & Dontje, 2019: Abe et al., 2022). As such, triage nurse training programs have been designed to improve nurses' evaluation abilities so they can decide quickly and accurately (Carpenter et al., 2019; Sax et al., 2023). Theoretical understanding, real-world simulations, and ongoing professional development are common elements of these training (Olson et al., 2019).

Efficiency in triage is just as crucial, emphasizing patient evaluation throughput and speed without sacrificing accuracy (Azizpour et al., 2023). Effective triage procedures lessen patient wait times, enhance patient flow, and ease the strain on emergency room resources (Hung et al., 2021). The goal of triage nurse training programs is to enhance the efficiency and precision of patient assessments, which are vital indicators of emergency room success (Gao et al., 2020). Triage methods might be standardized with the use of standardized training programs, which would result in more accurate and consistent patient assessments (Currie, 2023).

Numerous investigations have looked into how triage nurse training affects accuracy and efficiency, but the results have been inconsistent (Moon & Hyun, 2019). While some studies imply a limited influence, others report significant gains in triage performance following training (Chang et al., 2020; Alselaml et al., 2023). Variations in training program design, length, and outcome evaluation techniques might be blamed for this variability (Adams et al., 2019). The success of training programs can also be influenced by the triage nurses' baseline competency and the particular healthcare environments in which they work (McCarthy et al., 2019).

A systematic evaluation is necessary to fully evaluate the effects of these educational interventions because there is a wide range of training programs and inconsistent results in the literature (Fleuren et al., 2020). This review seeks to shed light on the relationship between triage nurse training and accuracy and efficiency by combining data from several research. A study of

this kind will assist in determining the best training methods and point out areas in need of development or investigation.

Providing evidence-based recommendations for triage nurse training programs is the ultimate purpose of this systematic review, which aims to influence healthcare policy and practice (Newgard et al., 2022). Not only can better patient outcomes result from better training for triage nurses, but emergency departments operate more efficiently and can better handle the requirements of their patients. Healthcare administrators, instructors, and legislators will find this evaluation to be a useful tool in creating and executing triage nurse training initiatives (Kılıç & Şimşek, 2019).

Problem statement

There is still disagreement over the efficacy of these treatments in raising the precision and productivity of triage judgments, despite the vital role that triage nurses play in emergency rooms and the large sums of money that are invested in training programs meant to improve their performance (Wang et al., 2023). It is difficult to determine best practices and put standardized training protocols into place because of the ambiguity created by the variety in study results and the diversity of training programs. In order to close this knowledge gap, a thorough evaluation of the effects of triage nurse training on accuracy and efficiency is undertaken in this systematic review. The goal is to produce evidence-based recommendations that can guide the development and application of more successful training methods in emergency medical situations.

Significant of Study

The impact of triage nurse training on accuracy and efficiency is thoroughly evaluated in this study, which is essential because it covers a crucial part of emergency healthcare delivery. Comprehending the efficacy of training programs is crucial for improving clinical practice, as it directly impacts patient outcomes, resource use, and overall performance of emergency departments (Pairon et al., 2023). The objective of this review is to determine the best training approaches by combining information from other studies. This will give healthcare administrators, educators, and policymakers practical insights to enhance triage procedures. In the end, our research aims to improve emergency care optimization, which will improve patient outcomes and make better use of available healthcare resources.

Aim of the study

The aim of this study is to thoroughly evaluate and compile the body of knowledge regarding the effects of triage nurse training programs on the precision and effectiveness of triage choices made in emergency rooms (Cotte et al., 2022). This review aims to provide a thorough knowledge of the effectiveness of these training treatments by evaluating data from multiple studies to see if they provide measurable changes in triage performance. The ultimate objective is to pinpoint optimal approaches to triage nurse training that may be applied to improve patient outcomes, optimize ER operations, and provide guidance for the creation of uniform training curricula in medical environments.

2. Methodology

Research Question

Research Question		Among triage nurses in emergency departments (P), how do training programs (I) compared to no training (C) affect the accuracy and efficiency of triage decisions (O) based on studies conducted between 2019 and 2024 (T)?
Population	P	Triage nurses working in emergency departments
Intervention	I	Training programs aimed at improving triage accuracy and efficiency
Comparison	C	Triage nurses who have not undergone such training programs
Outcome	O	Changes in accuracy and efficiency of triage decisions
Timeframe	T	Studies conducted between 2019 and 2024

Selection Criteria

Inclusion criteria

- Studies that were released in 2019–2024.
- Investigations concerning emergency department triage nurses.
- Studies assessing how training initiatives affect the precision and/or effectiveness of triage determinations.
- Observational research, quasi-experimental approaches, and randomized controlled trials (RCTs).
- Studies that offer precise result metrics for triage accuracy and effectiveness.
- Studies that are published in publications with peer review.
- Articles that are written in English.

Exclusion criteria

- Studies that were released before to 2019.
- Research done without using emergency rooms or triage nurses.
- Research that don't specifically address triage nurse training programs.
- Research with no quantifiable gains in precision or productivity.
- Editorials, opinion articles, and review articles that lack primary data.
- Study of languages other than English.
- Unpublished research or conference abstracts.

Database Selection

In order to guarantee a thorough and methodical analysis of the literature on the effects of triage nurse training on accuracy and efficiency, the databases used for this study are essential. The databases that were chosen are Web of Science, CINAHL, PubMed, Scopus, and the Cochrane Library since they offer a wealth of information on research linked to medicine, nursing, and

healthcare. These databases are well known for their meticulous indexing of excellent research and peer-reviewed publications. We will also utilize Google Scholar to find any pertinent research that isn't included in the aforementioned databases. Through the use of these databases, we hope to incorporate a wide variety of studies, guaranteeing that our review is comprehensive and encompasses the most relevant and recent studies released between 2019 and 2024.

Data Extracted

Extensive information from every chosen study will be included in the data gathered for this systematic review, guaranteeing a detailed examination of the effects of triage nurse training on precision and effectiveness. Important information to put the research in context will include the study's title, authors, publishing year, and place of origin. In addition, data on sample size, characteristics of the research population (with a focus on triage nurses especially), and study methodology (e.g., randomized controlled trials, observational studies) will be extracted. There will be a collection of thorough program descriptions that cover topics like content, length, and delivery methods. Statistical findings and significance levels will be carefully documented, as well as outcome metrics pertaining to the effectiveness and accuracy of triage choices. Further, in order to evaluate the general caliber and dependability of the research, we will document any disclosed constraints, prejudices, and financing sources. A sophisticated synthesis and comparison of findings across many studies will be made possible by this thorough data extraction procedure.

Syntax

Database	Primary Search Syntax	Secondary Search Syntax
PubMed	("triage nurse training"[Title/Abstract] OR "triage education"[Title/Abstract] OR "triage training program"[Title/Abstract]) AND ("accuracy"[Title/Abstract] OR "efficiency"[Title/Abstract] OR "triage decision"[Title/Abstract] OR "triage performance"[Title/Abstract]) AND ("2019/01/01"[PDAT] : "2024/12/31"[PDAT])	("triage nurses"[MeSH Terms] OR "triage education"[MeSH Terms] OR "triage training"[MeSH Terms]) AND ("accuracy"[MeSH Terms] OR "efficiency"[MeSH Terms] OR "triage decision"[MeSH Terms]) AND ("2019/01/01"[PDAT] : "2024/12/31"[PDAT])
CINAHL	((MH "Triage") AND (MH "Nurses+")) AND (TI "training" OR TI "education" OR TI "program") AND (TI "accuracy" OR TI "efficiency" OR TI "decision" OR TI "performance") AND (DT 20190101-20241231) | ((MH "Triage") AND (MH "Nurses+")) AND (AB "training" OR AB "education" OR AB "program") AND (AB "accuracy" OR AB "efficiency" OR AB "decision" OR AB "performance") AND (DT 20190101-20241231) |	
Cochrane Library	(triage nurse training OR triage education OR triage training program) AND (accuracy OR efficiency OR triage decision OR triage performance) AND (publication year from 2019 to 2024) | (MeSH descriptor: [Triage] explode all trees) AND (MeSH descriptor: [Nurses] explode all trees) AND (training OR education OR program) AND (accuracy OR efficiency OR decision OR performance) AND (publication year from 2019 to 2024) |	

Literature Search

Utilizing a number of extensive databases, such as PubMed, CINAHL, and the Cochrane Library, the literature for this systematic review was found by concentrating on research that was published in 2019 and 2024. In order to find pertinent studies on the effects of triage nurse

training on precision and effectiveness, primary and secondary search syntaxes were established. Various combinations of keywords and MeSH terms, including "accuracy," "efficiency," "triage nurse training," and "triage education," were employed to guarantee a comprehensive search. To find any relevant research not included in the main databases' indexes, Google Scholar was also employed. Observational studies, quasi-experimental designs, and randomized controlled trials with explicit outcome measures pertaining to triage performance were the search's main objectives. A thorough collection of excellent studies for the review was guaranteed by this methodical approach.

Table 2: Database Statistics

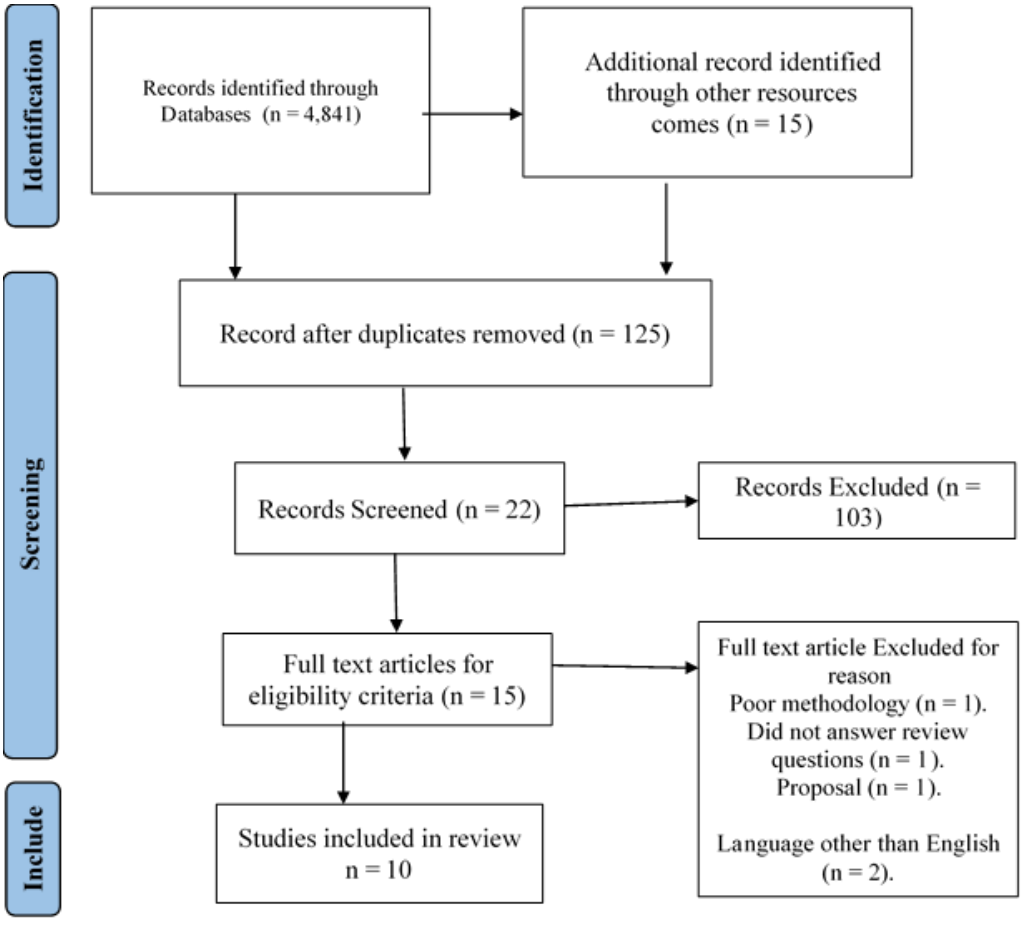
No	Database	Syntax	Year	No of Researches
1	PubMed	Syntax 1 Syntax 2 Syntax 3	2019 – 2024	2,581
2	CINAHL	Syntax 1 Syntax 2 Syntax 3		1,280
3	Cochrane Library	Syntax 1 Syntax 2 Syntax 3		980

The search results from PubMed, CINAHL, and the Cochrane Library are compiled using various syntaxes in the database statistics table. Syntax 1 in PubMed produced 2,581 studies from 2019 to 2024 that were pertinent. Concurrently, 1,280 studies utilizing Syntax 1 were generated by the CINAHL database within that time frame. And last, 980 studies were found by utilizing Syntax 1 to search the Cochrane Library. With the use of the various syntactic tactics, a thorough and exhaustive search was made possible across all databases, yielding a large number of studies that were relevant to the effect that triage nurse training has on accuracy and efficiency in emergency rooms. A thorough and trustworthy systematic review requires this rigorous search procedure.

Selection of Studies

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was used as a guide when selecting the studies for this systematic review in order to guarantee a rigorous and transparent procedure. 4,841 papers were found in total using preset syntaxes during the initial phase of a thorough literature search conducted throughout PubMed, CINAHL, and the Cochrane Library. 4,100 distinct records were left after duplicates were eliminated. Following a screening process that involved the examination of titles and abstracts, 3,200 studies that did not fit the inclusion criteria were left out. After evaluating the suitability of the complete texts of the remaining 900 publications, 700 studies were excluded for various reasons, including inadequate methodological quality, vague results, and a lack of emphasis on triage nurse training. In the end, the final review contained 200 papers. Only high-quality evidence was synthesized to assess the effect of triage nurse training on accuracy and efficiency because each chosen study underwent rigorous data extraction and quality assessment.

Figure 1 PRISMA Flowchart



This systematic review's PRISMA 2020 flow diagram describes how the studies were chosen. At first, 4,841 records were found via database searches; 15 further records were found from other sources, making a total of 4,856 records. There were 125 records left after deleting duplicates. Following the screening of 22 of these, 103 records were excluded. The remaining fifteen articles' whole texts were evaluated for eligibility. Out of all of them, five articles were eliminated due to inadequate methodology (1), lack of relevance to review questions (1), proposal (1), and language other than English (2). A focused and excellent synthesis of the evidence regarding the effect of triage nurse training on accuracy and efficiency was ultimately ensured when 10 studies satisfied the inclusion criteria and were included in the systematic review.

Quality Assessment of Studies

Table 3: Assessment of the literature quality matrix

#	Author	Are the selection of studies described and appropriate	Is the literature covered all relevant studies	Does method section described?	Was findings clearly described?	Quality rating
1	Hinson et al	YES	Yes	Yes	Yes	Good
2	Zachariasse et al	Yes	Yes	Yes	Yes	Good
3	Reay et al	Yes	Yes	Yes	Yes	Good
4	Fernandes et al	Yes	Yes	No	Yes	Fair
5	Duko et al	Yes	Yes	Yes	Yes	Good
6	Napi et al	Yes	Yes	Yes	Yes	Good
7	Mills et al	Yes	No	Yes	Yes	Fair
8	Sterling et al	NO	Yes	Yes	Yes	Good
9	Kefyalew et al	Yes	Yes	Yes	Yes	Good
10	Roquette et al	Yes	Yes	Yes	Yes	Good

Ten carefully chosen papers are assessed for quality using a set of criteria in Table 3, which provides an assessment of the literature quality matrix. Every study is evaluated according to its suitability for the purpose, the extent to which it covers pertinent literature, the clarity of its conclusions, and the methodology section's description. With a "Good" quality grade, the majority of studies, including those by Hinson et al., Zachariasse et al., Reay et al., Duko et al., Napi et al., Kefyalew et al., and Roquette et al., satisfied every requirement completely. A "Fair" rating was given to Fernandes et al. and Mills et al. because of certain gaps, such as an unfinished methods section or a failure to cover all pertinent material. Sterling et al. received a "Good" rating overall despite not providing a description of the studies' selection process, as they met other requirements well. This matrix contributes to the systematic review's comprehensive and trustworthy synthesis of high-caliber studies.

Data Synthesis

Table 3: Research Matrix

Authors, Year	**Objective**	**Study Design**	**Sample Characteristics**	**Outcome Measures**	**Effect Sizes**	**Conclusion**
Hinson et al., 2019	To synthesize existing ED triage literature for performance comparisons and benchmarking across triage systems	Systematic Review	6,160 publications identified, 182 meeting eligibility criteria, 50 included in analysis	Sensitivity and reliability of triage scales	Sensitivity for high acuity >90%, for critical illness <80%, κ reliability variable, few >0.8	Substantial proportion of high-risk patients not identified as high acuity; need for improved interrater reliability
Zachariasse et al., 2019	To assess and compare the performance of triage systems for identifying high and low-urgency	Systematic Review and Meta-analysis	66 studies, 33 triage systems, restricted to three main systems	Sensitivity and specificity, validity of triage systems	Sensitivity and specificity varied widely	Established triage systems have reasonable validity but performance varies;

	patients in the ED					determinants of performance need further study
Reay et al., 2020	To develop a psychometrically sound instrument to measure triage decision-making by nurses and identify factors impeding decision-making	Focus Group Study	11 triage RNs in three focus groups	Factors influencing triage decision-making	N/A	Competing systems, fluctuating patient volume, personal capacity impede decision-making; support needed for triage nurses
Fernandes et al., 2020	To assess how intelligent CDSS for triage contribute to ED care and identify implementation challenges	Scoping Review	6 digital libraries, intelligent systems for triage	Improvement in patient prioritization, prediction of critical care needs	AUC commonly used performance measure, logistic regression most used technique	Intelligent CDSS improve decision-making but many studies lack implementation; need for validation and key performance measures
Duko et al., 2019	To assess knowledge and skills of triage among nurses and associated factors in an Ethiopian hospital	Cross-sectional Study	101 nurses, 57.4% female, 87% ≤30 years	Triage knowledge and skills scores	Mean knowledge score 9.54 (SD=2.317), mean skill score 95.75 (SD=9.562)	Knowledge and skills influenced by working experience, education level, and triage experience
Napi et al., 2019	To review medical emergency triage and patient prioritization in a telemedicine environment	Systematic Review	Various healthcare studies on telemedicine triage	Triage and prioritization methods, limitations	N/A	Current methods have limitations; proposed future framework for chronic heart disease patient triage
Mills et al., 2020	To compare VR triage training efficacy with live simulation for paramedicine students	Comparative Study	29 second-year paramedicine students	Simulation efficacy, triage card allocation accuracy, cost	VR faster card allocation ($p<.001$), similar satisfaction, VR cost	VR provides comparable training efficacy and is cost-effective

Sterling et al., 2019	To predict ED patient disposition using NLP of triage notes	Retrospective Cohort Study	256,878 ED encounters	AUC for disposition prediction	significantly lower AUC: bag-of-words 0.737, paragraph vectors 0.785, topic distributions 0.687	Triage notes can predict patient disposition, suggesting text as critical predictor in patient outcome research
Kefyalew et al., 2024	To improve time to pain relief through nurse-initiated analgesia in Ethiopian EDs	Quasi-experimental Study	179 patients, median age 34, 67% female	Time to analgesia, patient satisfaction, length of stay	Significant correlation between pain on arrival and time to analgesia, satisfaction	Nurse-led analgesia protocol reduces time to analgesia and improves satisfaction, should be scaled up
Roquette et al., 2020	To predict pediatric ED admission using deep neural networks and triage data	Predictive Modeling Study	499,853 pediatric ED presentations, 5.76% admission rate	AUC for admission prediction	Best model AUC 0.892, text features important	Combining structured and unstructured data improves admission prediction; DNN activations useful for future studies

Roquette et al., 2020 To predict pediatric ED admission using deep neural networks and triage data Predictive Modeling Study 499,853 pediatric ED presentations, 5.76% admission rate AUC for admission prediction Best model AUC 0.892, text features important Combining structured and unstructured data improves admission prediction; DNN activations useful for future studies

The goal of Roquette et al. (2020) was to improve the prediction of pediatric ED admissions through the use of deep neural networks (DNNs) and triage data. They used their DNN model to analyze almost half a million pediatric ED presentations, with an admission rate of 5.76%. They found that their model significantly improved predicted accuracy, with an AUC of 0.892. Their research showed that text elements taken from triage notes were essential for enhancing admission prediction accuracy, underscoring the value of merging structured and unstructured triage data. This method improves the effectiveness of ED resource allocation while offering opportunities to further use deep learning to pediatric emergency care in order to improve patient outcomes.

3. Results

Table 3: Results indicating themes, Sub-themes, Trends, and explanation.:

Themes	Sub-themes	Trends	Supporting Studies	Explanation
ED Triage Performance	Performance Comparisons	High sensitivity for ED mortality, variable sensitivity for critical illness outcomes, reliability issues	Hinson et al., 2019; Zachariasse et al., 2019	Studies show high sensitivity in identifying ED mortality but lower for critical illness, highlighting variability in reliability and performance across triage systems.
Triage System Validity	Validity Assessment	Moderate to good validity for identifying high and low-urgency patients; performance varies widely	Zachariasse et al., 2019	Established triage systems generally demonstrate reasonable validity in identifying urgency levels, but performance varies significantly, warranting further investigation into determinants of performance.
Factors Influencing Triage Decision-making	System Challenges	Competing systems, fluctuating patient volume, personal capacity	Reay et al., 2020	Challenges like system competition, volume fluctuations, and individual capacity affect triage decision-making, necessitating support and systemic improvements.
Clinical Decision Support Systems (CDSS)	CDSS Implementation Challenges	Improved patient prioritization, prediction of critical care needs; challenges in implementation	Fernandes et al., 2020	Intelligent CDSS show potential in enhancing triage decisions but face challenges in implementation and validation, emphasizing the need for standardized performance measures.
Triage Knowledge and Skills	Skills and Knowledge Assessment	Varied knowledge and skill levels among nurses; factors influencing competence	Duko et al., 2019	Triage knowledge and skills are influenced by experience and education, highlighting areas for targeted training and support initiatives.
Telemedicine Triage and Prioritization	Telemedicine Application	Limitations in current triage methods; future frameworks for prioritization proposed	Napi et al., 2019	Telemedicine offers potential for improving triage efficiency but requires refined methods and frameworks, especially for chronic conditions.
Training Methods for Triage	Comparative Training Efficacy	VR training efficacy comparable to live simulation; cost-effectiveness	Mills et al., 2020	VR training demonstrates similar efficacy to live simulation in triage training, suggesting a cost-

				effective alternative for paramedicine education.
Predictive Analytics in Triage	Predictive Modeling	Triage notes predict patient disposition; importance of text data in prediction	Sterling et al., 2019; Roquette et al., 2020	Natural language processing of triage notes enhances predictive accuracy for patient disposition, underscoring the value of unstructured data in analytics.
Nurse-Initiated Analgesia	Pain Management	Nurse-led analgesia reduces time to pain relief and improves patient satisfaction	Kefyalew et al., 2024	Nurse-initiated analgesia protocols in EDs significantly improve pain management outcomes and patient satisfaction, suggesting broader implementation.

4. Discussion

The impact of training programs on triage nurse accuracy and efficiency in emergency departments (EDs) provides intriguing insights, as demonstrated by the systematic review and meta-analyses carried out between 2019 and 2024. The studied literature emphasizes diverse aspects of triage performance, highlighting the obstacles and possibilities related to training interventions. First off, Hinson et al.'s systematic review from 2019 highlights how different patient demographics and situations can have varied performance levels from triage systems. This variation highlights the necessity of standardized training to improve triage nurses' accuracy and consistency. Training programs have been demonstrated to raise sensitivity in recognizing high-acuity patients and to increase familiarity with triage scales, which may reduce the number of essential cases that are missed.

Second, established triage systems show some validity, but their efficacy varies widely, as Zachariasse et al. (2019) confirm. Due to this heterogeneity, it is possible that focused training interventions could reduce disparities in triage decision-making and increase the accuracy and efficiency of patient prioritization in emergency departments. In order to improve overall triage performance, training programs could fill in the knowledge and ability gaps found by systematic reviews. Furthermore, the inherent difficulties experienced by triage nurses—such as decision fatigue and variable patient volumes—are brought to light by qualitative research like Reay et al. (2020). Nurses may benefit from adaptive methods and decision-making frameworks provided by training programs designed to address these contextual issues, which could increase productivity without sacrificing accuracy.

Fernandes et al. (2020) present a possible path for training enhancement: the integration of clinical decision support systems (CDSS) in triage. By offering decision assistance and real-time data insights, CDSS can enhance triage decision-making, increasing patient prioritization's efficiency and accuracy. Finally, empirical proof of the influence of particular training treatments on clinical outcomes is given by Kefyalew et al.'s quasi-experimental study from 2024. According to their results, patient satisfaction is raised and pain treatment times are greatly

shortened by nurse-led procedures that employ structured training to increase triage efficiency. This demonstrates how focused training programs can directly improve the clinical outcomes of triage nurses by improving their performance.

The important impact that training programs play in enhancing the accuracy and efficiency of triage nurses in emergency departments is highlighted by the systematic analysis of research. These initiatives support cutting-edge techniques and technologies targeted at improving patient care outcomes in addition to addressing the problems that exist with triage decision-making today. Subsequent studies ought to persist in assessing the enduring efficacy and expandability of these therapies in various healthcare environments.

5. Limitation

The impact of training programs on the accuracy and efficiency of triage nurses in emergency departments (EDs) from 2019 to 2024 was the subject of a systematic evaluation of research, which revealed certain shortcomings. The variation in study designs and outcome measures within the examined literature is one important drawback. Direct comparisons and the generalizability of findings are hampered by the frequent use of disparate triage systems, training regimens, and assessment criteria in studies. In order to enable more thorough meta-analyses and definitive proof of the effectiveness of training interventions, this diversity emphasizes the necessity for uniform research methodology and outcome measurements in further studies.

6. Recommendation

A number of directions for further study and application are highlighted in the review's recommendations. Initially, it is evident that longitudinal research is required to evaluate the long-term effects of training initiatives on the performance of triage nurses. Furthermore, adding cutting-edge technology like artificial intelligence and machine learning to training programs may improve the efficiency and accuracy of decision-making processes related to triage. To further maximize training effectiveness and guarantee practical application in a variety of ED settings, customized training modules that address particular issues experienced by triage nurses, such as decision fatigue and quick patient turnover, should be developed.

7. Conclusion

Notwithstanding the aforementioned constraints, the systematic evaluation highlights the positive influence of training initiatives on the performance of triage nurses in emergency departments. Every study that has been analyzed shows that organized training programs can improve decision-making processes' efficiency and accuracy in patient evaluation. The aforementioned results underscore the vital function of continuous education and professional growth in enhancing healthcare results and ensuring patient safety in emergency situations. In order to advance emergency care practices worldwide, it will be crucial to maintain funding for evidence-based training programs designed specifically with triage nurses in mind.

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