MINH
MALAHAYATI INTERNATIONAL JOURNAL OF NURSING AND HEALTH SCIENCE
ISSN 2620-9152 (Print)
ISSN 2621-4083 (Online)
DOI: 10.33024

Nomor: 79/E/KPT/2023

ARTICLE INFORMATION
Received: July, 14, 2026
Revised: July, 23, 2026
Available online: July, 27, 2026
at : https://e-jurnal.iphorr.com/index.php/minh

Emergency nursing triage and rapid management of suspected acute coronary syndrome: A systematic review

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

Abstract

Background: Coronary heart disease (CHD) is a major cause of morbidity and mortality worldwide. Timely triage and rapid management in the emergency department (ED) are essential to improve clinical outcomes and reduce the risk of serious complications. However, uncertainty remains regarding the effectiveness and implementation of various triage strategies across different healthcare settings.
Purpose: To systematically analyze the literature on triage strategies and rapid management of patients with coronary heart disease (CHD) in the emergency department (ED).
Method: A systematic literature review (SLR) was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Literature published between 2022 and 2025 was retrieved from Scopus, ScienceDirect, Google Scholar, and DOAJ to synthesize the available scientific evidence.
Results: The review showed that triage and emergency management strategies for CHD have undergone substantial innovation, particularly through the development of advanced diagnostic tools such as high-sensitivity troponin biomarkers, clinical scoring systems including the Marburg Heart Score and EDICAS, early imaging modalities such as computed tomography coronary angiography and point-of-care ultrasound, and the integration of artificial intelligence and telecardiology. These approaches improved diagnostic accuracy and workflow efficiency. Their implementation substantially shortened resuscitation and reperfusion times, increased successful rescue rates, improved left ventricular ejection fraction, and reduced door-to-balloon time, thereby contributing to lower mortality and morbidity. Nevertheless, implementation remains constrained by disparities in care associated with sex, race, socioeconomic status, limited trained personnel, healthcare facilities, and the absence of internationally standardized protocols.
Conclusion: The findings suggest that recent advances in CHD triage and rapid management provide substantial clinical benefits by improving diagnostic accuracy, treatment efficiency, and patient outcomes. However, continued efforts are needed to address implementation challenges and healthcare disparities to achieve more equitable and effective emergency care.

Keywords: Coronary Heart Disease; Emergency Department; Rapid Management; Systematic Literature Review; Triage.

DOI: https://doi.org/10.33024/minh.v9i5.3948

INTRODUCTION

Coronary heart disease (CHD) is a major cause of morbidity and mortality worldwide. Timely and effective management of CHD in the emergency department (ED) is crucial for improving clinical outcomes. Patients with acute CHD may present with highly variable symptoms, requiring rapid and accurate assessment to minimize delays in diagnosis and treatment. Efficient triage strategies and rapid management protocols play a vital role in identifying high-risk patients and allocating resources appropriately. Delays in diagnosis or intervention may increase the risk of serious complications, including death.

The scientific literature has extensively discussed the importance of triage and rapid management in cardiovascular emergencies. Earlier studies focused on developing risk-scoring systems for patients presenting to the emergency department with chest pain (Bonis, Salerno, Bisignani, Verta, Capristo, Capristo, Sosto, Sorrentino, & Bisignani, 2022; Gray, Roobottom, Smith, Goodacre, Oatey, O'Brien, Storey, Curzen, Keating, Kardos, Felmeden, Lee, Thokala, Lewis, & Newby, 2022). Other researchers examined the effectiveness of fast-track pathways for acute myocardial infarction (Banco, Chang, Talmor, Wadhera, Mukhopadhyay, Lu, Dong, Lu, Betensky, Blecker, Safdar, & Reynolds, 2022). Evidence-based triage algorithms have shown potential to improve the identification of patients with CHD who require immediate intervention (Schnaubelt, Oppenauer, Bader, Du, Eibensteiner, Kienbacher, Baldi, Mueller, Perkmann, Haslacher, Schreiber, Niessner, Schlager, Domanovits, & Sulzgruber, 2022). Emerging technologies, including rapid biomarkers and clinical decision-support tools, have also been studied as methods for accelerating diagnosis and selecting appropriate management strategies (Deutsch, Poroksy, Westafer, Visintainer, & Mader, 2023).

Although numerous triage and rapid management strategies have been proposed, uncertainty remains regarding their optimal effectiveness and practical implementation. Some studies have reported substantial reductions in door-to-balloon time following the introduction of specific protocols (Hickling, Francis, Chew, Mitra, & Hillis, 2024), whereas others have emphasized difficulties in adapting these protocols across different healthcare settings (Navas, Guzman, Hassan, Borawski, Harrison, Manandhar, Erkanli, & Limkakeng, 2022). Differences in resource availability, staff training, and emergency department workload may influence implementation outcomes (Druilhe, Creusier, Pasco, Eloi, Furet, Roupie, & Macrez, 2025). Debate also continues regarding which triage criteria provide the best sensitivity and specificity for distinguishing CHD from other conditions with similar symptoms, because inadequate criteria may result in under-triage or over-triage (Gullick, Wu, Chew, Gale, Yan, Goodman, Waters, Hyun, & Brieger, 2022). Standardization, therefore, remains a challenge in many countries.

The variation in findings and approaches across the literature indicates the need for a comprehensive review. A knowledge gap remains in the synthesis of current evidence regarding triage strategies and rapid management of patients with CHD in the emergency department. Therefore, this study conducted a systematic literature review to synthesize existing evidence, identify relevant trends, evaluate potential benefits, and explore implementation challenges. This approach also contributes to identifying areas requiring further investigation.

This study aimed to systematically analyze the literature on triage strategies and rapid management of patients with coronary heart disease (CHD) in the emergency department. The review examined recent trends in triage strategies, the benefits of implementing triage and rapid management strategies, the main challenges and barriers to their implementation, and the research gaps that may guide future development.

RESEARCH METHOD

This study employed a systematic literature review (SLR). The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency and reproducibility. The systematic review was designed to identify, evaluate, and synthesize scientific evidence concerning triage strategies and rapid management of patients with coronary heart disease in the emergency department.

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

A comprehensive literature search was conducted in four major electronic databases: Scopus, ScienceDirect, Google Scholar, and DOAJ. The search strategy used combinations of keywords and Boolean operators. The principal search strings included: "Triage strategy" AND "Coronary Heart Disease" AND "Emergency Department"; "Rapid management" AND "Coronary Heart Disease" AND "Emergency Department"; ("Triage" OR "Emergency care") AND ("Coronary Heart Disease" OR "CHD" OR "Acute Coronary Syndrome") AND ("Emergency Department" OR "ED"); and "Acute Coronary Syndrome" AND "Triage" AND "Emergency Department" AND "Management". Articles published between 2022 and 2025 were considered for analysis.

The eligibility criteria were established a priori to ensure the selection of relevant and high-quality evidence and to maintain the review's focus on triage strategies and the rapid management of patients with coronary heart disease (CHD) in the emergency department (ED). Studies were considered eligible if they met the following criteria: (1) investigated triage strategies and/or rapid management of patients with CHD in the ED; (2) were published as peer-reviewed journal articles; (3) were available in full text; (4) were published between January 2022 and December 2025; (5) were written in English or Indonesian; and (6) were unique records after duplicate removal.

Studies were excluded if they: (1) did not address triage strategies or the rapid management of patients with CHD in the ED; (2) were non-peer-reviewed publications, including books, conference proceedings, theses, dissertations, reports, editorials, commentaries, blogs, or news articles; (3) were unavailable in full text; (4) were published outside the predefined study period (2022–2025); (5) were written in languages other than English or Indonesian; or (6) were identified as duplicate records during the screening process.

The article-selection process followed the four PRISMA stages of identification, screening, eligibility, and inclusion. The initial identification stage yielded 595 articles from all databases: 252 from Scopus, 151 from ScienceDirect, 108 from Google Scholar, and 84 from DOAJ. After 159 duplicate articles were removed, 436 unique records remained. Title and abstract screening excluded 362 articles on the basis of relevance criteria, leaving 74 potentially eligible articles.

Full-text assessment was performed for 74 articles, of which 51 were excluded because they did not satisfy the additional eligibility criteria. A total of 23 articles were included in the final in-depth analysis.

Article quality was assessed to ensure the integrity of the scientific evidence. Each article was rated on a scale from 1 (poor) to 3 (very good) according to five criteria: topic relevance, clarity of methods, clarity of data or sample description, clarity of results, and contribution to the field. Articles with low quality scores that did not meet the predetermined minimum standard were excluded. The mean quality score of the articles included in the analysis was 2.7 out of 3, indicating generally high methodological quality.

Data were extracted systematically from the selected articles. Relevant information, including authors, publication year, country, study design, intervention or strategy evaluated, and principal findings, was collected. The data were analyzed using thematic synthesis, which involved identifying patterns, recurring themes, and relationships across studies to provide a comprehensive account of triage strategies and rapid management of patients with CHD in the emergency department.

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

RESEARCH RESULTS

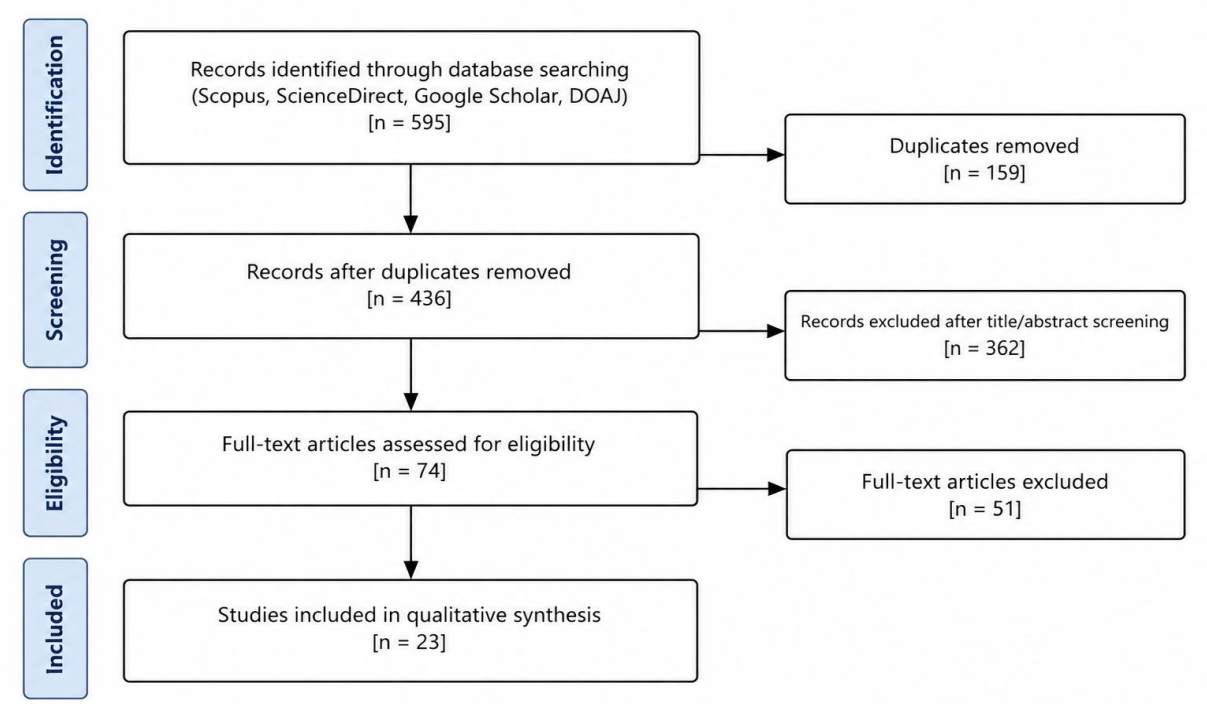


Figure 1. PRISMA flow diagram of the article selection process

The selection process began with the identification of 595 studies from the selected databases. After 159 duplicate records were removed, 436 unique articles proceeded to screening. Of these, 362 were excluded because they did not meet the inclusion criteria, leaving 74 full-text articles for eligibility assessment. A further 51 articles were excluded because they were irrelevant or did not meet the quality criteria. Consequently, 23 articles were included in the qualitative synthesis.

Table 1. Characteristics of the Included Articles

Aspect	Finding
Final number of articles	23
Publication period	2022-2025
Predominant countries	Not reported, Australia, United States, and Austria
Predominant study designs	Retrospective cohort studies, cross-sectional analyses, population-based cohort studies, and prospective observational studies
Dominant themes	Innovations and trends in CHD triage diagnostics in the emergency department; improvements in efficiency and clinical outcomes; implementation challenges and disparities in care

Analysis of publication trends demonstrated sustained research interest throughout the review period. A total of ten relevant articles were published in 2022, followed by four articles in 2023 and four articles in 2024. The number of publications increased to five articles in 2025, indicating continued and growing research activity in this field.

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

Table 2. Characteristics and Principal Findings of the Included Studies

(Author, Year) (Country)	Method	Principal Finding
(Hickling et al., 2024) (Australia)	Retrospective cohort study	Patients with very low high-sensitivity troponin concentrations at emergency department presentation had a low risk of myocardial infarction and cardiovascular death at 30 and 365 days.
(Navas et al., 2022) (United States)	Cross-sectional analysis	The study generated national estimates of emergency department visits eligible for emergency department based observation unit care among patients with symptoms of acute coronary syndrome.
(Bai et al., 2025) (Not reported)	Retrospective cohort study	A fast-track nursing pathway significantly shortened resuscitation and reperfusion times and improved rescue success and left ventricular ejection fraction among patients with acute myocardial infarction undergoing emergency PCI.
(Banco et al., 2022) (United States)	Cross-sectional analysis	Women were less likely than men to be categorized as emergency cases, receive electrocardiography, or be admitted, while patients from racial minority groups waited longer for physician evaluation than White patients.
(Dawson et al., 2022) (Australia)	Population-based cohort study	Patients with lower socioeconomic status had a higher incidence of chest pain, were less likely to be admitted to certain hospitals, had more comorbidities, and had higher risks of death and readmission.
(Schnaubelt et al., 2022) (Austria)	Prospective observational study	Pathological pulse-wave velocity independently predicted clinically significant coronary artery disease characteristics, including relevant left anterior descending artery stenosis, culprit lesions, total occlusion, and increased complexity of coronary angiography or percutaneous coronary intervention (PCI).
(Deutsch et al., 2023) (United States)	Prospective cohort analysis	Triage electrocardiograms interpreted by computer as “normal” or “otherwise normal” had a 100% negative predictive value for STEMI and effectively ruled out STEMI, suspected acute coronary syndrome,, and other diagnoses requiring emergency cardiac catheterization.

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

(Author, Year) (Country)	Method	Principal Finding
(Gray et al., 2022) (United Kingdom)	Randomized controlled trial	The study recruited 1,748 participants to compare early computed tomography coronary angiography with standard care in adults with suspected acute coronary syndrome.
(Druilhe et al., 2025) (France)	Prospective multicenter observational study	A Marburg Heart Score threshold of ≤2 produced a negative predictive value of 95.6% for ruling out suspected acute coronary syndrome and efficiently guided patients with chest pain to conventional emergency department beds.
(Herlitz et al., 2023) (Sweden)	Registry-based cohort study	Patients in the lowest income group were more likely to be assessed later than recommended by triage and to remain in the emergency department for more than six hours.
(Demandt et al., 2025) (Not reported)	Model development and validation using a convolutional neural network	The ECG-AI model outperformed paramedic ECG interpretation for diagnosing NSTE-ACS, and adding ECG-AI to preHEART significantly improved diagnostic performance.
(Gullick et al., 2022) (Australia)	Qualitative process evaluation	The tool improved clinicians' physical capability through usability, although non-cardiology clinicians had difficulty with specialist terminology; paper-based forms improved physical opportunity.
(Bonis et al., 2022) (Italy)	Descriptive system design and development study	The telecardiology system provided efficient cardiology support across types, settings, and phases of cardiovascular care, improved ECG quality, and substantially reduced reporting time.
(Hoppe et al., 2024) (Not reported)	Retrospective cohort analysis	GPT-4 outperformed GPT-3.5 and emergency department resident physicians in diagnostic accuracy for internal medicine emergencies, with particularly strong performance for cardiovascular, endocrine, and gastrointestinal disorders.
(Gashi, 2022) (Kosovo)	Observational clinical study	Age, prehospital emergency care, STEMI, diabetes mellitus, left ventricular ejection fraction below 40%, and former smoking were significant predictors of mortality among patients with acute coronary syndrome.

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

(Author, Year) (Country)	Method	Principal Finding
(Sun et al., 2022) (Not reported)	Retrospective cohort study	EDICAS showed excellent discrimination for predicting in-hospital cardiac arrest in the emergency department (AUROC 0.88) and outperformed other early warning scores.
(Baid et al., 2022) (India)	Prospective diagnostic-accuracy study	Point-of-care ultrasound showed good agreement with the final composite diagnosis and high sensitivity for acute pulmonary edema, pleural effusion, pneumothorax, pneumonia, and pericardial effusion.
(Herman et al., 2024) (Not reported)	AI model development and evaluation	The AI model achieved an area under the curve of 0.938 for identifying primary occlusion myocardial infarction, outperforming STEMI criteria and performing similarly to expert ECG interpreters.
(Kraus et al., 2023) (Not reported)	Modified Delphi study	Important gaps were identified in existing emergency department sepsis-risk tools, with strong consensus on the need for tests that indicate the severity of dysregulated host response and can be integrated into emergency department triage.
(Hertz et al., 2025) (Tanzania)	Prospective surveillance study	Acute coronary syndrome was common in a northern Tanzanian emergency department; 22.7% of participants were diagnosed with acute coronary syndrome, and those with Acute Coronary Syndrome were significantly more likely to die within 30 days.
(Alsharawneh et al., 2025) (Jordan)	Retrospective cohort design	The study analyzed data from 481 patients with cancer admitted through the emergency department to evaluate the timeliness and prioritization of care.
(Soltane et al., 2024) (Tunisia)	Prospective randomized controlled study	The study collected data from 400 emergency department patients and identified their demographic and clinical characteristics while evaluating the feasibility and benefits of telemedicine.
(Hoseini et al., 2023) (Not reported)	Cohort study	The WPS, REMS, and NEWS models showed fair discrimination, while RAPS performed least well; NEWS demonstrated very good calibration.

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

Recent research highlights major innovations and trends in diagnostic triage for CHD in the emergency department, including the development of new diagnostic tools and risk scores. High-sensitivity biomarkers such as troponin, clinical scores including the Marburg Heart Score and EDICAS, and advanced imaging modalities such as early computed tomography coronary angiography and point-of-care ultrasound have become prominent areas of investigation (Druilhe et al., 2025). Rapid advances in artificial intelligence and telecardiology have also contributed to improved diagnostic accuracy and more efficient triage workflows (Dawson, Andrew, Nehme, Bloom, Biswas, Cox, Anderson, Stephenson, Lefkovits, Taylor, Kaye, Smith, & Stub, 2022; Bonis et al., 2022).

The implementation of triage and rapid management strategies for patients with CHD in the emergency department provides substantial benefits, including shorter resuscitation and reperfusion times (Gullick et al., 2022; Bai, Yang, Xiao, Wang, & Xu, 2025;Bonis et al., 2022; Gray et al., 2022). These strategies also improve rescue success and left ventricular function (Banco et al., 2022). Innovative tools, including computer-interpreted triage ECGs and AI models, may effectively rule out serious CHD, guide patients more rapidly to appropriate care, improve diagnostic accuracy, and reduce reporting time (Bai et al., 2025;Bonis et al., 2022; Gray et al., 2022; Demandt, Mast, Beek, Koks, Bastiaansen, Tonino, Veer, M. van 't, Zimmermann, & Vlaar, 2025).

Implementation nevertheless faces several challenges, particularly disparities in care related to sex, race, and socioeconomic status. Women and people from racial minority groups may receive slower or less intensive evaluation, while patients with low income or socioeconomic status may experience delayed physician assessment and longer emergency department waiting times, potentially worsening clinical outcomes (Dawson et al., 2022; Herlitz, Ohm, Häbel, Ekelund, Hofmann, & Svensson, 2023). Non-cardiology clinicians may also struggle with specialist terminology, indicating the need for more accessible tools and targeted training.

The identified research gaps emphasize the need for more comprehensive and integrated triage tools for critical emergency department conditions, including CHD. Further research is also needed to address disparities in care and ensure that triage strategies are implemented equitably and effectively across patient groups irrespective of sex, race, or socioeconomic status. Improving training for non-cardiology clinicians and developing more user-friendly tools are additional priorities for future research.

DISCUSSION

The development of triage and rapid management strategies for patients with CHD in the emergency department demonstrates a clear trend toward innovation. Recent studies describe increasingly advanced diagnostic tools and risk scores, including high-sensitivity troponin biomarkers, the Marburg Heart Score, EDICAS, early computed tomography coronary angiography, and point-of-care ultrasound (Sun, Chang, Lu, Lin, Wang, Fang, Huang, Chen, & Tsai, 2022). Artificial intelligence and telecardiology have also improved diagnostic accuracy and triage efficiency (Bonis., 2022). These developments are driven by the urgent need for rapid and accurate CHD identification in crowded emergency department environments in order to reduce morbidity and mortality. The continuing publication of studies during the review period indicates sustained interest in optimizing emergency CHD care.

Triage and rapid management strategies provide substantial benefits for patients with CHD. Resuscitation and reperfusion times can be shortened, resulting in higher rescue rates and improved left ventricular ejection fraction (Bai et al., 2025). Computer-interpreted triage ECGs and AI models may effectively exclude serious CHD, facilitate faster referral to appropriate management, improve diagnostic accuracy, and reduce reporting time (Druilhe et al., 2025; Gray et al., 2022). These gains benefit both patient outcomes and the efficient use of ED resources.

Important implementation challenges remain. Significant disparities in care have been documented according to sex, race, and socioeconomic status. Women and racial minority patients may receive slower or less intensive assessment, whereas patients with lower income or socioeconomic status may experience delayed physician evaluation and longer emergency department stays (Deutsch et al., 2023; Herlitz et al., 2023). Such inequalities may

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

worsen clinical outcomes and reflect systemic bias in healthcare delivery. The convergence of these findings indicates the need for systematic action to ensure equitable access to high-quality care.

Another challenge concerns specialist terminology, which may be difficult for non-cardiology clinicians to interpret (Gullick et al., 2022). This knowledge gap supports the development of more accessible triage tools and more effective training. Although new technologies are promising, their optimal use requires adequate infrastructure and continuous professional development (Bonis et al., 2022). Implementation barriers therefore require multidimensional solutions involving policy, organizational resources, and individual capacity building.

The research gaps identified in this review indicate the need for comprehensive and integrated triage tools for critical emergency department conditions, including CHD. Further studies should address disparities in care and ensure that triage strategies can be implemented fairly and effectively across all patient groups (Gullick et al., 2022). Optimizing training for non-cardiology clinicians and developing user-friendly tools are also important priorities (Hoppe, Auer, Strüven, Massberg, & Stremmel, 2024). These efforts may improve both the quality and equity of emergency CHD care.

CONCLUSION

The included studies suggest that selected biomarkers, risk-stratification tools, imaging approaches, digital technologies, and rapid-care pathways may improve diagnostic and workflow outcomes in patients with suspected a. However, heterogeneity in populations, interventions, and study designs, together with variation in methodological quality, limits firm conclusions regarding mortality, morbidity, and comparative effectiveness.

REFERENCES

Alsharawneh, A., Elshatarat, R. A., Alsulami, G. S., Alrabab'a, M. H., Al-Za'areer, M. S., Alhumaidi, B. N., Almagharbeh, W. T., niarat, T. F. Al, Al-Sayaghi, K. M., & Saleh, Z. T. (2025). Triage decisions and health outcomes among oncology patients: a comparative study of medical and surgical cancer cases in emergency departments. *BMC Emergency Medicine*, *25*(1), 69.

Bai, C. Y., Yang, Y., Xiao, H. Y., Wang, J., & Xu, K. Y. (2025). Effect of a fast-track nursing pathway for emergency percutaneous coronary intervention on clinical outcomes in patients with acute myocardial infarction. *Frontiers in Cardiovascular Medicine*, 12, 1679887.

Baid, H., Vempalli, N., Kumar, S., Arora, P., Walia, R., Chauhan, U., Shukla, K. K., Verma, A., Chawang, H., & Agarwal, D. (2022). Point of care ultrasound as initial diagnostic tool in acute dyspnea patients in the emergency department of a tertiary care center: diagnostic accuracy study. *International Journal of Emergency Medicine,* 15(1), 27.

Banco, D., Chang, J., Talmor, N., Wadhera, P., Mukhopadhyay, A., Lu, X., Dong, S., Lu, Y., Betensky, R. A., Blecker, S., Safdar, B., & Reynolds, H. R. (2022). Sex and race differences in the evaluation and treatment of young adults presenting to the emergency department with chest pain. *Journal of the American Heart Association,* 11(10), e024199.

Bonis, S. De, Salerno, N., Bisignani, A., Verta, A., Capristo, C., Capristo, A., Sosto, G., Sorrentino, S., & Bisignani, G. (2022) . The telecardiology revolution: from emergency management to daily clinical practice. *Journal of Clinical Medicine*, 11(7), 1920.

Dawson, L. P., Andrew, E., Nehme, Z., Bloom, J., Biswas, S., Cox, S., Anderson, D., Stephenson, M., Lefkovits, J., Taylor, A. J., Kaye, D., Smith, K., & Stub, D. (2022). Association of socioeconomic status with outcomes and care quality in patients presenting with undifferentiated chest pain in the setting of universal health care coverage. *Journal of the American Heart Association*, 11(7), e024923.

Demandt, J., Mast, T. P., Beek, K. A. J. van, Koks, A., Bastiaansen, M., Tonino, P. A. L., Veer, M. van 't, Zimmermann, F. M., & Vlaar, P. (2025).

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

Towards prehospital risk stratification using deep learning for ECG interpretation in suspected acute coronary syndrome. *BMJ Health & Care Informatics*, 32(1), e101292.

Deutsch, A., Poroksy, K., Westafer, L., Visintainer, P., & Mader, T. (2023). Validity of computer-interpreted "normal" and "otherwise normal" ECG in emergency department triage patients. *Western Journal of Emergency Medicine,* 25(1), 3.

Druilhe, L., Creusier, L., Pasco, J., Eloi, J., Furet, V., Roupie, E., & Macrez, R. (2025). Evaluating the efficacy of the Marburg heart score to triage patients presenting with chest pain in an emergency department: a prospective, multicenter, observational study. *Emergency medicine international*, 2025(1), 6085679.

Gashi, M., Bajraktari, G., L Gashi, S., R Ahmeti, H., & Degoricija, V. (2022). Korelacije u bolničkoj smrtnosti bolesnika s akutnim koronarnim sindromom na Kosovu. *Acta clinica Croatica*, 61(1.), 19-28.

Gray, A., Roobottom, C., Smith, J., Goodacre, S., Oatey, K., O'Brien, R., Storey, R. F., Curzen, N., Keating, L., Kardos, A., Felmeden, D., Lee, R. J., Thokala, P., Lewis, S., & Newby, D. E. (2022). Early computed tomography coronary angiography in adults presenting with suspected acute coronary syndrome: the RAPID-CTCA RCT. *Health Technology Assessment*, 26(37).

Gullick, J., Wu, J., Chew, D. P., Gale, C. P., Yan, A. T., Goodman, S. G., Waters, D., Hyun, K., & Brieger, D. (2022). Objective risk assessment vs standard care for acute coronary syndromes—The Australian GRACE Risk tool Implementation Study (AGRIS): a process evaluation. *BMC Health Services Research*, 22(1), 380.

Herlitz, S., Ohm, J., Häbel, H., Ekelund, U., Hofmann, R., & Svensson, P. (2023). Socioeconomic status is associated with process times in the emergency department for patients with chest pain. *JACEP Open,* 4(4), e13005.

Herman, R., Meyers, H. P., Smith, S. W., Bertolone, D. T., Leone, A., Bermpeis, K., Viscusi, M. M., Belmonte, M., Demolder, A., Boža, V., Vavrik, B., Krešňáková, V., Iring, A., Martonak, M., Bahyl, J., Kisova, T., Schelfaut, D., Vanderheyden, M., Perl, L., & Aslanger, E. (2024). International evaluation of an artificial intelligence–powered electrocardiogram model detecting acute coronary occlusion myocardial infarction. European Heart *Journal-Digital Health*, 5(2), 123-133.

Hertz, J. T., Sakita, F., Htike, W. Y. M., Kajiru, K. G., Mmbaga, B. T., Tarimo, T. G., Kweka, G. L., Mlangi, J. J., Maro, A. V, Coaxum, L., Galson, S. W., Limkakeng, A. T., & Bloomfield, G. S. (2025). Acute coronary syndrome prevalence and outcomes in a Tanzanian emergency department: Results from a prospective surveillance study. *African Journal of Emergency Medicine*, 15(1), 518-525.

Hickling, S., Francis, C. J., Chew, D. P., Mitra, B., & Hillis, G. S. (2024). Single high-sensitivity troponin-I for ruling out acute coronary syndrome: a detection limit approach. *European Heart Journal Open*, 4(6), oeae094.

Hoppe, J. M., Auer, M. K., Strüven, A., Massberg, S., & Stremmel, C. (2024). ChatGPT with GPT-4 outperforms emergency department physicians in diagnostic accuracy: retrospective analysis. *Journal of medical Internet research*, 26, e56110.

Hoseini, B., Rahmatinejad, Z., Reihani, H., Abu–Hanna, A., Pourmand, A., Tabatabaei, S. M., Rahmatinejad, F., & Eslami, S. (2023). Comparison of six scoring systems for predicting in-hospital mortality among patients with SARS-COV2 presenting to the emergency department. Indian journal of critical care medicine: peer-reviewed, official publication of Indian Society of Critical Care Medicine, 27(6), 416.

Kraus, C. K., Nguyen, H. B., Jacobsen, R. C., Ledeboer, N. A., May, L., O'Neal, H. R., Puskarich, M. A., Rice, T. W., Self, W. H., &

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948

Rothman, R. E. (2023). Rapid identification of sepsis in the emergency department. *JACEP Open*, 4(3), e12984.

Navas, A., Guzman, B., Hassan, A., Borawski, J., Harrison, D., Manandhar, P., Erkanli, A., & Limkakeng, A. T. (2022). Untapped potential for emergency department observation unit use: a National Hospital Ambulatory Medical Care Survey (NHAMCS) study. *Western Journal of Emergency Medicine*, 23(2), 134.

Schnaubelt, S., Oppenauer, J., Bader, M., Du, N., Eibensteiner, F., Kienbacher, C. L., Baldi, E., Mueller, M., Perkmann, T., Haslacher, H., Schreiber, W., Niessner, A., Schlager, O., Domanovits, H., & Sulzgruber, P. (2022). Arterial stiffness in acute coronary syndrome as a potential triage tool: a prospective observational study. *Minerva Medica*, 114(1), 1-14.

Soltane, H. Ben, Lazrak, I., Chelly, S., Khrouf, M., Younes, S., Haddaji, O., Mahjoub, M., & Mezgar, Z. (2024). Place of telemedicine in the organization of emergency care: feasibility and benefits. *BMC Emergency Medicine,* 24(1), 160.

Sun, J., Chang, C., Lu, T., Lin, J. C.-C., Wang, C., Fang, C., Huang, C., Chen, W., & Tsai, C. (2022). External validation of a triage tool for predicting cardiac arrest in the emergency department. *Scientific Reports*, 12(1), 8779.

Kafi Pangki Suwito*, Abil Rudi

Program Studi Ilmu Keperawatan, STIKes Kapuas Raya, Sintang
Corresponding author: *E-mail: kafi.pangki@gmail.com

DOI: https://doi.org/10.33024/minh.v9i5.3948