Management of Acute Coronary Syndromes: Nurse's Role in Emergency Care

Entesar Aladham Alhjify Ealmeradi[1], Sarah Obaid N Alshammari[2], Wejdan Ali Altargi Alazmi[3], Hasnah Suwayhij Mazloh Alruwaili[4], Sarah Khalaf Eid Alenazi[5], Latifah Bauad Alhazmi[5], Khulud Rakhis Alanazi[6], Alanazi, Albndari Mohammed A[7], Maha Owaid Alanzi[8], Waiel Muashi Alenezi[9]

[1]Nursing specialist, Eradah Complex for Mental Health, Arar, Saudi Arabia
[2]Nursing specialist, Dumat Al-Jandal General Hospital, Dumat Al-Jandal, Saudi Arabia
[3]Nursing specialist, Western Turaif primary Healthcare centar, Turaif, Saudi Arabia
[4]Nursing- technician, Ministry of Health Branch, Northern Border Region, Saudi Arabia
[5]Nursing- technician, Maternity and Children's Hospital, Arar, Saudi Arabia
[6]Nursing technician, North Medical Tower, Arar, Saudi Arabia
[7]Nursing- technician, Maternity and Children's Hospital, Arar, Saudi Arabia
[8]Nursing technician, Ministry of Health Branch- Northern Border Region, Saudi Arabia
[9]Nursing technician, Eradah Complex for Mental Health- Arar, Saudi Arabia

Abstract

Acute Coronary Syndromes (ACS) encompass a range of conditions associated with sudden reduced blood flow to the heart, including unstable angina and myocardial infarction. The management of ACS in the emergency care setting is critical to improving patient outcomes. Nurses play a pivotal role in this process by conducting rapid assessments, monitoring vital signs, and recognizing early signs of deterioration. They are responsible for administering medication, such as antiplatelet agents, thrombolytics, and analgesics, as well as facilitating advanced cardiac life support (ACLS) protocols. Timely interventions by nurses can significantly reduce ischemic time and enhance early reperfusion strategies, such as percutaneous coronary interventions (PCI). In addition to providing immediate clinical care, nurses also fulfill an essential educational role. They communicate effectively with patients and their families regarding the nature of ACS, treatment options, and lifestyle modifications aimed at secondary prevention. Emotional support, reassurance, and clear communication contribute to better patient adherence to therapeutic regimens and transition to inpatient care. Furthermore, nurses participate in interdisciplinary teams to ensure comprehensive care and coordinate follow-up plans, emphasizing the importance of continued monitoring and rehabilitation after the acute phase of ACS.

Keywords: Acute Coronary Syndromes, ACS, emergency care, nursing role, vital signs, medication administration, antiplatelet agents, thrombolytics, advanced cardiac life support, patient education, interdisciplinary teams, rehabilitation.

Acute Coronary Syndromes (ACS) encompass a spectrum of conditions resulting from the sudden reduction of blood flow to the heart, manifesting predominantly as unstable angina or myocardial infarction. This state of emergency necessitates immediate medical attention and has significant implications for patient morbidity and mortality. The timely and effective management of ACS is critical, and nursing personnel play a pivotal role in ensuring optimal outcomes for patients presenting with these acute conditions. This introduction outlines the essential aspects of managing ACS, emphasizing the critical involvement of nursing professionals in emergency care settings [1].

ACS is primarily caused by the rupture of atherosclerotic plaques leading to thrombus formation and subsequent occlusion of coronary arteries. Risk factors associated with ACS include hypertension, diabetes, hyperlipidemia, smoking, and a family history of coronary artery disease (CAD). The clinical presentation may vary from mild discomfort to severe chest pain, and complications can arise rapidly, necessitating an accurate and swift assessment to guide interventions. The American Heart Association (AHA) and the European Society of Cardiology (ESC) have established guidelines delineating the protocols for the management of ACS, including pharmacologic therapies, surgical interventions, and lifestyle modifications. However, these protocols are only as effective as their implementation, which heavily relies on the coordinated efforts of the healthcare team, particularly nursing professionals in emergency departments [2].

In an emergency setting, nurses are often the first point of contact for patients experiencing symptoms indicative of ACS. Their responsibilities extend from the initial triage and assessment to the execution of evidence-based interventions crucial for stabilizing patients. This multifaceted role requires extensive clinical knowledge and the ability to make rapid decisions in high-pressure situations. Nurses must not only monitor and interpret vital signs but also assess pain levels, recognize subtle changes in patient condition, and provide emotional support during a distressing time. Furthermore, effective communication with other healthcare providers is essential, as nurses facilitate the exchange of critical information that influences care decisions and intervention timelines [3].

Research indicates that the quality of nursing care directly correlates with clinical outcomes in patients with ACS. A study demonstrated that nursing assessments that include comprehensive patient histories and thorough physical examinations lead to higher rates of appropriate emergency interventions. The use of standardized assessment tools, such as the TIMI score (Thrombolysis in Myocardial Infarction), enables nurses to stratify the risk of patients more effectively, ensuring that those who require immediate action receive prompt care. Furthermore, nurses play a vital role in the administration of medications, including antiplatelet agents, anticoagulants, and thrombolytics, which are essential in the acute management of ACS [4].

In addition to acute interventions, nurses are critical in educating patients about their condition, treatment options, and prevention strategies. Patient education during hospitalization has been linked to improved adherence to medication regimens and lifestyle modifications post-discharge. Nurses provide invaluable information on recognizing symptoms of ACS, encouraging patients to seek immediate care in future instances. They also play a significant role in addressing the psychosocial aspects of care—the emotional impacts of experiencing a life-threatening event can be profound, and nurses are uniquely positioned to offer counseling and support [4].

Despite the clear importance of nursing roles in the management of ACS, challenges persist within emergency care settings. High patient volumes, time constraints, and resource limitations can impede the delivery of comprehensive care. Moreover, disparities in

nursing education and training regarding cardiac care and interventions can lead to variations in the quality of care provided. This highlights the need for continued professional development, including simulation training and workshops focused on ACS management, to enhance nursing competencies and confidence in emergency scenarios [5].

Etiology and Pathophysiology of Acute Coronary Syndromes:

At the core of acute coronary syndromes lies the process of atherosclerosis, characterized by the formation of plaques within the coronary arteries. These plaques are composed of lipids, inflammatory cells, and smooth muscle cells, and can become unstable over time. The vulnerability of atherosclerotic plaques is a crucial aspect of ACS. Factors such as lipid composition, the presence of a necrotic core, and a thin fibrous cap dictate the likelihood of plaque rupture [6, 7].

1. Plaque Rupture and Thrombosis: The initiation of an acute coronary syndrome often results from the rupture of an unstable atherosclerotic plaque. When this rupture occurs, the underlying thrombogenic material is exposed to the bloodstream, leading to rapid platelet activation and aggregation. The aggregation of platelets, coupled with the activation of the coagulation cascade, forms a thrombus (blood clot). If this thrombus occludes the coronary artery, myocardial ischemia ensues, which can lead to tissue necrosis if not restored in a timely manner [7].

2. Ischemia and Infarction: The severity of the ischemia correlates with the degree of coronary artery obstruction. In unstable angina, myocardial blood flow is compromised but not completely obstructed, resulting in reversible ischemia without necrosis. Conversely, NSTEMI and STEMI indicate more severe interruptions in blood supply. NSTEMI typically involves partial occlusion of the coronary artery, resulting in myocardial cell necrosis but with less extensive damage than seen in STEMI, where there is a complete occlusion leading to significant myocardial injury [8].

3. Myocardial Response: Following ischemic injury, myocardial cells begin to undergo a series of pathological changes. Within minutes, anaerobic metabolism initiates due to decreased oxygen delivery, leading to the accumulation of lactate and subsequent metabolic acidosis. Prolonged ischemia leads to irreversible damage, characterized by cell death and the release of cardiac biomarkers such as troponin into circulation. These biomarkers are essential for diagnosing and differentiating between types of ACS [9].

Several risk factors contribute to the development of acute coronary syndromes, acting on the atherosclerotic process. These factors can be broadly categorized into modifiable and non-modifiable categories:

1. Non-modifiable Risk Factors: Age, gender, and family history play critical roles in an individual's susceptibility to ACS. As age increases, the likelihood of atherosclerotic changes in the arteries escalates. Men generally have a higher risk at a younger age, although the risk for women rises significantly post-menopause [10].

2. Modifiable Risk Factors: Lifestyle and medical conditions significantly affect the progression of atherosclerosis. Key modifiable risk factors include:

- Hyperlipidemia: Elevated levels of low-density lipoprotein (LDL) cholesterol contribute to plaque development.
- Hypertension: High blood pressure accelerates atherosclerosis and increases myocardial oxygen demand.
- Diabetes Mellitus: Diabetes alters lipid metabolism and promotes endothelial dysfunction, making individuals more susceptible to plaque formation and rupture.
- Smoking: Tobacco use causes endothelial injury, promotes a hypercoagulable state, and increases myocardial oxygen demand.
- Sedentary lifestyle and obesity: Physical inactivity and excess body weight are

associated with various metabolic disorders that exacerbate cardiovascular risk.

The natural progression of acute coronary syndromes is variable and contingent upon numerous factors, including the extent of coronary blockade, collateral circulation development, and patient-specific characteristics. An understanding of the continuum of care is essential for improving outcomes:

1. Clinical Management: Prompt diagnosis followed by timely intervention is critical in improving outcomes for patients experiencing ACS. Initial management includes the administration of aspirin and anticoagulants to mitigate thrombus formation. In cases of STEMI, revascularization strategies such as percutaneous coronary intervention (PCI) or thrombolysis are vital for restoring blood flow [11].

2. Long-term Management: After the acute episode, secondary prevention measures are imperative. These may include the aggressive management of modifiable risk factors through lifestyle modifications and pharmacotherapy, utilizing medications like statins, beta-blockers, and antiplatelet agents to prevent future cardiac events [12].

3. Rehabilitation and Lifestyle Modifications: Cardiac rehabilitation programs play a critical role in ensuring patients adapt to life after ACS. This involves structured exercise, education on heart-healthy living, and psychology counseling to address mental and emotional well-being [13].

Nursing Assessment in Emergency Care:

Nursing evaluation in emergency care focuses on systematic approaches to patient assessment and intervention that align with the principles of rapid response and prioritization. Nurses are responsible for performing preliminary evaluations, initiating life-saving measures, and coordinating with multidisciplinary teams. Moreover, nursing evaluations are essential for early identification of patients at risk, allowing for expedited treatment protocols such as medication administration, patient monitoring, and preparation for further diagnostics or interventions [14- 16].

1. Initial Assessment and Triage

The first step in nursing evaluation involves a rapid assessment of the patient's condition. The triage process, commonly used in emergency settings, evaluates the severity of a patient's symptoms and determines the priority of care based on their presenting complaints. Through a series of questions and observations regarding pain quality (location, intensity, duration), the nurse can ascertain whether the patient suffers from a potential acute coronary syndrome (ACS) [17].

2. Vital Signs Monitoring

Monitoring vital signs (blood pressure, heart rate, respiratory rate, and oxygen saturation) is another crucial component of the nursing evaluation. Changes in these parameters may reflect changes in the patient's cardiac status. For instance, hypotension could signify cardiogenic shock, while tachycardia may indicate compensatory mechanisms in response to decreased cardiac output. Continuous telemetry monitoring may also be initiated, allowing for early detection of arrhythmias or ST-segment changes indicative of myocardial ischemia [17].

3. Detailed History Taking

A comprehensive patient history is integral to the nursing evaluation process. Nurses often conduct focused interviews, inquiring about risk factors for CAD, past medical history, family history, lifestyle choices (such as smoking and diet), and concurrent medications. Understanding these factors can help delineate the cause of the acute symptoms and guide further treatment. Notably, it is essential for nurses to communicate effectively with patients, many of whom may be distressed, to gather accurate historical data [18].

4. Implementing Assessment Tools

Nurses utilize various assessment tools and scales to better evaluate the risk and severity of coronary syndromes. Tools such as the Canadian

Cardiovascular Society (CCS) angina grading scale or the TIMI (Thrombolysis In Myocardial Infarction) Risk Score help nurses determine the appropriate level of intervention and help identify those patients who may benefit from urgent care or invasive procedures [19].

Effective management of coronary syndromes in the emergency setting is a team effort. Nurses collaborate closely with physicians, respiratory therapists, and other healthcare professionals to create a comprehensive care plan. This multi-disciplinary approach facilitates rapid treatment decisions, which are critical in emergencies [19].

1. Communication

Clear and timely communication among team members is essential. Nurses play a pivotal role in relaying critical information regarding patient status changes, medication responses, and diagnostic test results, ensuring that all team members are well-informed and engaged in the care of the patient [20].

2. Administering Treatments

Once the nurse evaluates the patient, they may initiate treatment protocols approved by the emergency department, such as administering aspirin for antiplatelet therapy, nitroglycerin for chest pain, or anticoagulants based on physician orders. Knowledge of pharmacological interventions and their potential side effects is crucial, as nurses must monitor patients closely for any adverse reactions [21].

3. Post-Assessment Planning

After the initial evaluation and management, nurses also play a key role in formulating post-assessment care plans. This may involve preparing the patient for immediate diagnostic tests such as ECGs or cardiac biomarkers, educating the patient about their condition, and planning for inpatient care, cardiac rehabilitation, or follow-up care to promote recovery and prevent further episodes [22].

Initial Management and Interventions:

Upon arrival at the emergency department (ED), a systematic approach is essential for effective management. The initial assessment comprises a rapid evaluation of the patient's airway, breathing, and circulation (ABCs), paired with a focused medical history and physical examination. Utilizing the "CAB" sequence allows clinicians to prioritize life-threatening conditions [23, 24].

1. History and Physical Examination: Clinicians must promptly gather information regarding the duration and nature of symptoms, risk factors (such as smoking, hypertension, diabetes, and family history), and previous cardiac history. The physical examination should include vital signs, auscultation for heart sounds, and examination of the extremities for signs of poor perfusion [25].

2. Initial Vital Signs: Vital parameters such as heart rate, blood pressure, oxygen saturation, and respiratory rate provide important clinical data for immediate assessment. Tachycardia, hypotension, or desaturation can reflect significant hemodynamic instability, necessitating urgent intervention [25].

Diagnostic Measures

Following the initial assessment, rapid diagnostic testing is crucial for confirming the diagnosis of coronary syndrome and determining the further course of action. The following diagnostic measures are often implemented:

1. Electrocardiogram (ECG): An ECG is performed within 10 minutes of patient presentation. The presence of ST-segment elevation may indicate STEMI, warranting immediate transfer to a catheterization lab for reperfusion therapy. Conversely, NSTEMI or unstable angina may present with ST-segment depression or T-wave inversions [26].

2. Cardiac Biomarkers: Blood tests for cardiac troponins, heart-type fatty acid-binding protein (hFABP), and myoglobin help assess myocardial injury. Elevated troponin levels are pivotal in confirming myocardial infarction. Biomarkers should be obtained at presentation and repeated after several hours to rule out acute myocardial injury [27].

3. Chest X-ray: While not directly indicative of coronary syndromes, a chest X-ray

can exclude other potential causes of chest pain, such as pneumonia, pneumothorax, or congestive heart failure [28].

Therapeutic Interventions

After diagnosis, the primary goal is to restore coronary blood flow and alleviate ischemia. The therapeutic interventions fall under two categories: pharmacological and non-pharmacological [29].

1. Pharmacological Interventions:

o Aspirin: Administering aspirin (chewed to ensure rapid absorption) is essential, as it decreases platelet aggregation and helps prevent thrombosis.

o Antiplatelet Agents: Other antiplatelet medications such as clopidogrel or ticagrelor may be added, particularly in the context of NSTEMI or STEMI.

o Anticoagulants: Agents like unfractionated heparin or low molecular weight heparin (LMWH) are often administered to reduce thrombus formation.

o Nitrates: Sublingual nitroglycerin can be given to relieve chest pain and improve coronary blood flow, though caution is necessary in patients with hypotension.

o Beta Blockers: Initiating beta-blocker therapy reduces myocardial oxygen demand and stabilizes heart rhythm. However, use should be balanced, especially if signs of heart failure or severe bradycardia are present.

o Statins: High-intensity statin therapy may be initiated early, as it has been shown to reduce the risk of further cardiovascular events.

2. Non-Pharmacological Interventions:

o Oxygen Therapy: Administering supplemental oxygen is indicated for patients with hypoxemia or respiratory distress.

o Reperfusion Therapy: For patients diagnosed with STEMI, primary percutaneous coronary intervention (PCI) is the preferred method of reperfusion therapy. Thrombolytic therapy may be an alternative when PCI is not available within the recommended time frame.

o Coronary Angiography: Following stabilization, patients exhibiting ongoing ischemia or high-risk features may require coronary angiography for definitive diagnosis and treatment.

Pharmacological Management of ACS:

Acute Coronary Syndromes (ACS) represent a spectrum of conditions associated with sudden reduced blood flow to the heart muscle, which can lead to acute myocardial infarction (AMI) or unstable angina. The management of ACS has evolved significantly over the years, with a robust pharmacological approach that aims to relieve ischemic symptoms, prevent further thrombus formation, and improve overall cardiovascular outcomes. The complexity and urgency associated with ACS necessitate a thorough understanding of various therapeutic agents and their mechanisms of action, dosing strategies, and implications for patient safety [30].

Overview of Acute Coronary Syndromes

ACS is typically classified into three main categories:

1. Unstable Angina: Characterized by chest pain at rest or with minimal exertion that is prolonged and may not respond to nitroglycerin.

2. Non-ST Elevation Myocardial Infarction (NSTEMI): This condition presents similarly to unstable angina but is associated with elevated levels of cardiac biomarkers indicating myocardial injury.

3. ST-Elevation Myocardial Infarction (STEMI): A more severe form of ACS, STEMI is characterized by specific ST-segment elevation on the ECG and requires urgent reperfusion treatment.

Overall, ACS portends significant morbidity and mortality, making prompt and effective therapy essential for patient survival and recovery [31].

Pharmacological Agents in ACS Management

The management of ACS is multifaceted, involving the use of several classes of pharmacologic agents. The primary categories include antiplatelet agents, anticoagulants,

thrombolytics, beta-blockers, ACE inhibitors, statins, and other adjunctive therapies [32].

Antiplatelet Agents

Antiplatelet therapy is critical in the acute management of ACS to prevent further thrombus formation. The two main classes of antiplatelet agents used are:

1. Aspirin: This long-established medication irreversibly inhibits cyclooxygenase-1 (COX-1), reducing thromboxane A2 production and platelet aggregation. It is generally initiated as soon as ACS is suspected, and continuous therapy is recommended indefinitely [32].
2. P2Y12 Inhibitors: These agents further inhibit platelet aggregation via the adenosine diphosphate receptor pathway. Options include clopidogrel, ticagrelor, and prasugrel. Ticagrelor is often preferred in acute settings due to its rapid onset and reversibility [33].

The combination of aspirin and a P2Y12 inhibitor is fundamental in both NSTEMI and STEMI management, often referred to as dual antiplatelet therapy (DAPT) [34].

Anticoagulants

Anticoagulants play a crucial role in the treatment of ACS by inhibiting the coagulation cascade and preventing the formation of new clots. The main classes used include:

1. Unfractionated Heparin (UFH): Commonly administered in the hospital, UFH provides rapid anticoagulation and is routinely used in both NSTEMI and STEMI patients undergoing invasive management [34].
2. Low Molecular Weight Heparins (LMWH): Agents like enoxaparin are often preferred due to their ease of use and predictable pharmacokinetics [34].
3. Fondaparinux: An indirect factor Xa inhibitor that may be used in certain cases, particularly when patients have a high bleeding risk [35].

Thrombolytics

In the case of STEMI, therapeutic thrombolysis is a time-sensitive intervention aimed at restoring blood flow to the occluded coronary artery. Agents such as alteplase, reteplase, and tenecteplase are commonly used. The administration of these agents is most effective when given within the first few hours of symptom onset, significantly improving reperfusion and patient outcomes [36].

Beta-Blockers

Beta-blockers have been shown to reduce myocardial oxygen demand by decreasing heart rate and contractility, thereby relieving ischemic symptoms. They are indicated in the immediate management of ACS, particularly in patients with elevated heart rates or those who may have hypertension. Long-term use is also recommended for all patients following an acute event, barring contraindications [37].

ACE inhibitors are integral in the long-term management of patients with ACS, especially those with left ventricular dysfunction, heart failure, or diabetes. These agents help prevent adverse remodeling of the heart post-infarction, reduce blood pressure, and mitigate the risk of subsequent cardiovascular events [38].

Statins are cholesterol-lowering agents that play a dual role in ACS management. Beyond their lipid-lowering effects, these agents exhibit pleiotropic benefits, including anti-inflammatory properties and stabilization of atheromatous plaques. Initiation of high-intensity statin therapy is recommended shortly after the diagnosis of ACS, alongside lifestyle modifications [39].

In addition to the above therapies, the ACS management may also involve other supportive treatments, such as nitroglycerin for chest pain relief and morphine for severe pain management. Additionally, lumbar sympathectomy and reperfusion therapy may be required across specific patient populations [40].

Patient Education and Communication:

Education about coronary syndromes is essential for several reasons. First, understanding their condition can significantly reduce anxiety and fear associated with symptoms and potential treatments. Patients often face uncertainty following a diagnosis. Providing clear and

comprehensive information about the nature of their illness, possible symptoms, treatment options, and lifestyle changes promotes a sense of control over their health. This understanding can transform the patient experience from one of vulnerability to empowerment, as patients become active participants in their health care [40].

Second, education encompasses the recognition of warning signs and symptoms. Many patients may misinterpret symptoms of coronary syndromes, such as chest pain, shortness of breath, or profuse sweating, as mere discomfort or indigestion. Educating patients to recognize these critical signs equips them to seek immediate medical attention when necessary, potentially reducing the risk of severe outcomes such as heart failure or cardiac arrest [41].

Strategies for Effective Communication

1. Use of Clear Language: Health care professionals must utilize clear, jargon-free language when explaining medical concepts to patients. Medical terminology can be daunting and may lead to confusion. Instead, using simple terms and analogies relevant to everyday experiences can facilitate understanding [42].

2. Tailored Communication: Each patient presents a unique background, and an individualized approach to communication is necessary. This includes considering the patient's literacy level, cultural background, age, and emotional state. For instance, younger patients may respond well to digital health resources, while older patients might prefer face-to-face consultations or printed materials [42].

3. Encouraging Questions: Creating an environment that encourages patients to ask questions invites dialogue and enables healthcare providers to address specific concerns. Active listening, allowing time for questions, demonstrating empathy, and providing thorough answers can enhance the patient-provider relationship [43].

4. Utilization of Visual Aids: Visual tools such as diagrams, charts, and brochures can enhance understanding. For example, illustrating how a coronary artery becomes blocked, leading to a heart attack, can provide a visual representation of a complex process, making it easier for patients to grasp [44].

5. Involving Family Members: Including family or support persons in educational sessions can increase retention of information. Family members can provide emotional and logistical support to the patient after release. Studies indicate that patients who involve family in discussions around health care decisions often exhibit better adherence to treatment recommendations [45].

6. Regular Follow-ups: Effective communication does not culminate at discharge from the hospital. Follow-up sessions provide opportunities to reinforce education, address any further questions, and evaluate understanding and adherence to the prescribed management plan. It also helps in assessing emotional well-being and the potential need for additional resources, such as counseling [46].

For patients diagnosed with coronary syndromes, lifestyle modifications are as critical as pharmacological interventions. Educating patients on heart-healthy behaviors can create sustainable long-term changes that mitigate the recurrence of coronary syndromes. Key areas of focus include:

- Diet: Nutritional education should highlight the importance of consuming a balanced diet low in saturated fats, trans fats, sodium, and cholesterol. Instead, encourage a diet rich in fruits, vegetables, whole grains, and lean proteins. Explaining the benefits of the Mediterranean diet or the DASH diet in protecting heart health can offer tangible strategies for patients [46].
- Physical Activity: Patients should be encouraged to engage in regular physical activity tailored to their health status. Strengthening communication about the types of exercises suitable for each individual, considering safety measures and potential limitations, is essential for promoting adherence to an active lifestyle [47].

- Smoking Cessation: Smoking is a significant risk factor for coronary syndromes. Providing support and resources for smoking cessation can play a pivotal role in patient education. Encouraging participation in cessation programs, be it counseling or pharmacotherapy, can substantially increase success rates [48].
- Stress Management: Coronary patients often encounter psychological challenges such as anxiety or depression. Providing resources and education on stress management techniques, mindfulness, and relaxation exercises is imperative. Additionally, promoting support groups can create spaces for shared experiences and coping strategies [49].

Coronary syndromes, encompassing a range of manifestations from stable angina to acute coronary syndrome (ACS), represent a leading cause of morbidity and mortality worldwide. The management of these conditions, particularly in emergency scenarios, necessitates a collaborative approach among various healthcare professionals. Multidisciplinary teams (MDTs) bring together diverse expertise, streamline communication, and enhance patient outcomes, emphasizing the importance of teamwork in emergency care for coronary syndromes [50].

Coronary syndromes result from the dysfunction of the coronary arteries, typically due to atherosclerosis, which leads to reduced blood flow to the heart muscle. Acute coronary syndrome encompasses unstable angina and myocardial infarction (heart attack), both of which require immediate medical intervention. Timely and effective treatment is paramount, as the delay can significantly increase the risk of death or long-term disability. Given the complexity and urgency associated with coronary syndromes, the role of MDTs in emergency care becomes increasingly significant [50].

MDTs in emergency care typically consist of a diverse array of healthcare professionals including, but not limited to, emergency physicians, cardiologists, nurses, pharmacists, radiologists, and respiratory therapists. Each member of the team contributes unique skills and perspectives, which are crucial for diagnosing and managing coronary syndromes effectively [51].

1. Emergency Physicians: Often the first point of contact, emergency physicians are essential for the initial assessment, stabilization, and treatment initiation of patients presenting with symptoms of coronary syndromes. Their ability to make rapid decisions based on clinical protocols is vital during acute presentations [51].
2. Cardiologists: Following initial care, cardiologists are pivotal in confirming diagnoses through advanced imaging and performing procedures such as cardiac catheterization or angioplasty, thereby restoring blood flow and limiting heart damage [52].
3. Nursing Staff: Nurses provide continuous monitoring of the patient's vital signs, administer medications, and serve as the primary communicators between the patient and the rest of the medical team. Their training in patient care and ability to respond promptly to changes in a patient's condition cannot be overstated [52].
4. Pharmacists: Managing the pharmacotherapy of coronary syndromes is complex, requiring thorough knowledge of drug interactions, side effects, and contraindications. Pharmacists play a critical role in ensuring that patients receive the correct medications at the appropriate dosages, particularly in an emergency setting where rapid decision-making is essential [52].
5. Radiologists: Advanced imaging, such as echocardiograms or CT scans, may be necessary for accurate assessment of the heart and coronary arteries. Radiologists facilitate the use of these technologies, offering interpretations that are crucial for treatment planning [53].
6. Respiratory Therapists: In cases where cardiac events impact respiratory function, respiratory therapists provide specialized support for airway management and

oxygenation. Their expertise is essential in stabilizing patients and supporting respiratory health [54].

The collaborative effort in MDTs shortens the time to diagnosis and treatment, consequently minimizing complications and improving clinical outcomes. Effective communication is a cornerstone of this collaboration. Proficient handoffs between professionals and clear, concise updates on patient status ensure that critical information is conveyed quickly and accurately [55].

In emergency situations, where time is of the essence, members of the MDT must function in a coordinated manner. For instance, while the emergency physician is evaluating a patient, the nursing staff may simultaneously prepare necessary medications and the cardiologist may review the patient's history for rapid decision-making. This type of synergy can significantly reduce the door-to-balloon time in cases requiring angioplasty, which is associated with better survival rates [56].

Despite the clear benefits of multidisciplinary collaboration, challenges remain. Differences in professional cultures, communication styles, and hierarchy within the medical field can impede effective teamwork. Miscommunication, lack of clarity in roles, and the fast-paced nature of emergency care can lead to errors or delays in treatment [57].

To mitigate these challenges, healthcare organizations can adopt several strategies:

1. Structured Communication Protocols: Implementing standardized communication methods, such as SBAR (Situation, Background, Assessment, Recommendation), can help streamline interactions among team members, ensuring that everyone has access to the same vital information [57].

2. Regular Training and Drills: Conducting simulations and training exercises that involve all team members can foster a culture of collaboration and improve group dynamics, enhancing performance during actual emergencies [57].

3. Leadership and Role Clarification: Defining clear roles within the MDT helps eliminate confusion and establishes accountability. Designating a team leader, typically the emergency physician, can ensure decisions are made promptly and effectively during high-stress situations [57].

4. Investing in Technology: Utilizing electronic health records (EHR) and communication platforms can facilitate real-time sharing of patient information and treatment plans, bridging gaps that may arise from time constraints [57].

5. Encouraging a Supportive Environment: Promoting a culture that values input from all team members, regardless of rank, can enhance engagement and improve outcomes. Encouraging open dialogue fosters a collaborative environment where professionals feel respected and empowered to voice concerns or suggestions [57].

Quality Improvement and Evidence-Based Practices:

Coronary syndromes, which include unstable angina and myocardial infarction (commonly known as heart attacks), represent a leading cause of morbidity and mortality worldwide. The complexity of coronary syndromes necessitates a concerted approach to enhance patient outcomes through quality improvement (QI) initiatives and the implementation of evidence-based practices (EBP) [58].

Coronary syndromes arise from an imbalance between myocardial oxygen supply and demand, primarily resulting from atherosclerosis and subsequent plaque rupture. The clinical presentation can range from stable angina to acute coronary events requiring immediate intervention. Current guidelines emphasize prompt recognition and treatment of these syndromes to minimize the risk of adverse outcomes such as cardiac arrest, heart failure, or even death [58].

Quality improvement refers to systematic efforts to enhance healthcare services, focusing on patient outcomes and the delivery of care.

Key components of quality improvement include identifying areas needing enhancement, measuring current performance, implementing interventions, and continuously monitoring progress. The Plan-Do-Study-Act (PDSA) cycle is a commonly utilized framework in quality improvement projects. By engaging in QI initiatives, healthcare institutions can reduce variability in patient care, promote effective treatment protocols, and ultimately enhance the overall quality of care provided to individuals with coronary syndromes [58].

Evidence-based practice involves the integration of the best available research evidence with clinical expertise and patient values to make clinical decisions. The importance of EBP in managing coronary syndromes cannot be overstated. Healthcare professionals must rely on well-conducted studies, clinical guidelines, and meta-analyses to inform their practices. This reliance on evidence helps ensure that patients receive the most effective interventions tailored to their condition [58].

The intersection of quality improvement and evidence-based practice in the management of coronary syndromes leads to optimized patient outcomes. By utilizing evidence to inform quality improvement initiatives, healthcare providers can implement standardized protocols for the diagnosis and treatment of coronary syndromes. For example, adhering to established guidelines for the assessment of risk factors, utilization of antithrombotic therapy, and early revascularization strategies has been shown to improve survival rates and functional outcomes in patients with acute coronary syndromes [59].

Implementing Evidence-Based Guidelines

Several guidelines provide a framework for the management of coronary syndromes, including those established by the American College of Cardiology (ACC) and the American Heart Association (AHA). These guidelines advocate for:

1. Risk Stratification: Accurate and timely assessment of risk factors, including age, gender, existing comorbidities, and lifestyle factors, forms the basis of effective treatment strategies [59].

2. Appropriate Use of Medications: Evidence supports the use of antiplatelet agents, such as aspirin and clopidogrel, and anticoagulants to reduce thrombotic events. Moreover, the early initiation of beta-blockers and statins can significantly reduce morbidity post-event [59].

3. Timely Revascularization: In cases of ST-segment elevation myocardial infarction (STEMI), immediate percutaneous coronary intervention (PCI) or thrombolytic therapy is critical to restoring blood flow and minimizing myocardial damage [60].

4. Lifestyle Modifications: Evidence underscores the importance of promoting dietary changes, physical activity, and smoking cessation as integral components of secondary prevention [60].

5. Patient Education and Involvement: Engaging patients in their care not only enhances adherence to treatment protocols but also fosters a sense of autonomy over health outcomes. Shared decision-making is vital, aligning treatment plans with patient values and preferences [60].

To sustain effective quality improvement efforts, healthcare organizations need to establish mechanisms for monitoring and evaluating clinical outcomes. Utilizing performance metrics, such as adherence rates to evidence-based guidelines and patient satisfaction scores, can provide insights into the effectiveness of interventions. Additionally, regular audits of clinical performance and patient outcomes can identify areas requiring further improvement. These methods allow for continuous refinement of practices based on real-world data and patient feedback [61].

While the potential benefits of quality improvement and evidence-based practices are substantial, several challenges hinder their implementation in the management of coronary syndromes. These include resistance to change

among healthcare providers, limited resources, variability in clinical practice among providers, and gaps in the dissemination of research findings. Moreover, ensuring that all healthcare professionals have access to ongoing education and training in the latest evidence-based practices poses a challenge, particularly in resource-limited settings [62].

Conclusion:

In conclusion, the management of Acute Coronary Syndromes (ACS) necessitates a collaborative and dynamic approach, with nurses occupying a central and multifaceted role in emergency care settings. Their responsibilities extend far beyond initial assessments and interventions; they serve as critical advocates for patients, providing essential education, emotional support, and effective communication. Through their expertise in recognizing the signs of ACS, administering appropriate medications, and participating in emergency protocols, nurses significantly contribute to improving patient outcomes and minimizing the risk of complications.

As the landscape of healthcare continues to evolve, it is vital to recognize and enhance the role of nurses in the management of ACS. Ongoing education and training, along with an emphasis on evidence-based practices, will empower nurses to implement the latest advances in cardiac care effectively. By fostering a culture of teamwork and interdisciplinary collaboration, healthcare institutions can optimize the management of ACS and ensure that patients receive timely, holistic care that addresses both their immediate medical needs and long-term health goals. Through these efforts, the nursing profession will continue to play a crucial role in delivering high-quality care to individuals experiencing acute cardiovascular events, ultimately leading to better health outcomes within the community.

WORKS CITED

Ahn KT, Seong SW, Choi UL, Jin SA, Kim JH, Lee JH, Choi SW, Jeong MH, Chae SC, Kim YJ, Kim CJ, Kim HS, Cho MC, Gwon HC, Jeong JO, Seong IW., Korea Acute Myocardial Infarction Registry - National Institute of Health (KAMIR-NIH) Investigators. Comparison of 1-year clinical outcomes between prasugrel and ticagrelor versus clopidogrel in type 2 diabetes patients with acute myocardial infarction underwent successful percutaneous coronary intervention. Medicine (Baltimore). 2019 Mar;98(11):e14833.

Klein MD, Williams AK, Lee CR, Stouffer GA. Clinical Utility of CYP2C19 Genotyping to Guide Antiplatelet Therapy in Patients With an Acute Coronary Syndrome or Undergoing Percutaneous Coronary Intervention. Arterioscler Thromb Vasc Biol. 2019 Apr;39(4):647-652.

Alomari M, Bratton H, Musmar A, Al Momani LA, Young M. Ticagrelor-induced Diarrhea in a Patient with Acute Coronary Syndrome Requiring Percutaneous Coronary Artery Intervention. Cureus. 2019 Jan 12;11(1):e3874.

Voudris KV, Kavinsky CJ. Advances in Management of Stable Coronary Artery Disease: the Role of Revascularization? Curr Treat Options Cardiovasc Med. 2019 Mar 11;21(3):15.

Zègre-Hemsey JK, Asafu-Adjei J, Fernandez A, Brice J. Characteristics of Prehospital Electrocardiogram Use in North Carolina Using a Novel Linkage of Emergency Medical Services and Emergency Department Data. Prehosp Emerg Care. 2019 Nov-Dec;23(6):772-779.

Gilutz H, Shindel S, Shoham-Vardi I. Adherence to NSTEMI Guidelines in the Emergency Department: Regression to Reality. Crit Pathw Cardiol. 2019 Mar;18(1):40-46.

Campanile A, Castellani C, Santucci A, Annunziata R, Tutarini C, Reccia MR, Del Pinto M, Verdecchia P, Cavallini C. Predictors of in-hospital and long-term mortality in unselected patients admitted to a modern coronary care unit. J Cardiovasc Med (Hagerstown). 2019 May;20(5):327-334.

Chen WWC, Law KK, Li SK, Chan WCK, Cheong A, Fong PC, Hung YT, Lai SWK, Leung GTC, Wong EML, Wong RWK, Yan CT, Yan VWT, Au Yeong TCK. Extended dual antiplatelet therapy for Asian patients with acute coronary syndrome: expert recommendations. Intern Med J. 2019 Mar;49 Suppl 1:5-8.

Pop C, Matei C, Petris A. Anticoagulation in Acute Coronary Syndrome: Review of Major Therapeutic Advances. Am J Ther. 2019 Mar/Apr;26(2):e184-e197.
Duarte GS, Nunes-Ferreira A, Rodrigues FB, Pinto FJ, Ferreira JJ, Costa J, Caldeira D. Morphine in acute coronary syndrome: systematic review and meta-analysis. BMJ Open. 2019 Mar 15;9(3):e025232.
Luciano LSC, Silva RLD, Londero Filho OM, Waldrich L, Panata L, Trombetta AP, Preve JC, Fattah T, Giuliano LC, Thiago LEKS. Analysis of the Appropriate Use Criteria for Coronary Angiography in Two Cardiology Services of Southern Brazil. Arq Bras Cardiol. 2019 May;112(5):526-531.
Kerneis M, Nafee T, Yee MK, Kazmi HA, Datta S, Zeitouni M, Afzal MK, Jafarizade M, Walia SS, Qamar I, Pitliya A, Kalayci A, Al Khalfan F, Gibson CM. Most Promising Therapies in Interventional Cardiology. Curr Cardiol Rep. 2019 Mar 13;21(4):26.
Xia K, Wang LF, Yang XC, Jiang HY, Zhang LJ, Yao DK, Hu DY, Ding RJ. Comparing the effects of depression, anxiety, and comorbidity on quality-of-life, adverse outcomes, and medical expenditure in Chinese patients with acute coronary syndrome. Chin Med J (Engl). 2019 May 05;132(9):1045-1052.
Bracey A, Meyers HP. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Apr 7, 2023. Posterior Myocardial Ischemia.
Abdur Rehman K, Wazni OM, Barakat AF, Saliba WI, Shah S, Tarakji KG, Rickard J, Bassiouny M, Baranowski B, Tchou PJ, Bhargava M, Dresing TJ, Callahan TD, Cantillon DJ, Chung M, Kanj M, Irefin S, Lindsay B, Hussein AA. Life-Threatening Complications of Atrial Fibrillation Ablation: 16-Year Experience in a Large Prospective Tertiary Care Cohort. JACC Clin Electrophysiol. 2019 Mar;5(3):284-291.
Ahn KT, Seong SW, Choi UL, Jin SA, Kim JH, Lee JH, Choi SW, Jeong MH, Chae SC, Kim YJ, Kim CJ, Kim HS, Cho MC, Gwon HC, Jeong JO, Seong IW., Korea Acute Myocardial Infarction Registry - National Institute of Health (KAMIR-NIH) Investigators. Comparison of 1-year clinical outcomes between prasugrel and ticagrelor versus clopidogrel in type 2 diabetes patients with acute myocardial infarction underwent successful percutaneous coronary intervention. Medicine (Baltimore). 2019 Mar;98(11):e14833.
Klein MD, Williams AK, Lee CR, Stouffer GA. Clinical Utility of CYP2C19 Genotyping to Guide Antiplatelet Therapy in Patients With an Acute Coronary Syndrome or Undergoing Percutaneous Coronary Intervention. Arterioscler Thromb Vasc Biol. 2019 Apr;39(4):647-652.
Alomari M, Bratton H, Musmar A, Al Momani LA, Young M. Ticagrelor-induced Diarrhea in a Patient with Acute Coronary Syndrome Requiring Percutaneous Coronary Artery Intervention. Cureus. 2019 Jan 12;11(1):e3874.
Voudris KV, Kavinsky CJ. Advances in Management of Stable Coronary Artery Disease: the Role of Revascularization? Curr Treat Options Cardiovasc Med. 2019 Mar 11;21(3):15.
Zègre-Hemsey JK, Asafu-Adjei J, Fernandez A, Brice J. Characteristics of Prehospital Electrocardiogram Use in North Carolina Using a Novel Linkage of Emergency Medical Services and Emergency Department Data. Prehosp Emerg Care. 2019 Nov-Dec;23(6):772-779.
Gilutz H, Shindel S, Shoham-Vardi I. Adherence to NSTEMI Guidelines in the Emergency Department: Regression to Reality. Crit Pathw Cardiol. 2019 Mar;18(1):40-46.
Campanile A, Castellani C, Santucci A, Annunziata R, Tutarini C, Reccia MR, Del Pinto M, Verdecchia P, Cavallini C. Predictors of in-hospital and long-term mortality in unselected patients admitted to a modern coronary care unit. J Cardiovasc Med (Hagerstown). 2019 May;20(5):327-334.
Chen WWC, Law KK, Li SK, Chan WCK, Cheong A, Fong PC, Hung YT, Lai SWK, Leung GTC, Wong EML, Wong RWK, Yan CT, Yan VWT, Au Yeong TCK. Extended dual antiplatelet therapy for Asian patients with acute coronary syndrome: expert recommendations. Intern Med J. 2019 Mar;49 Suppl 1:5-8.
Pop C, Matei C, Petris A. Anticoagulation in Acute Coronary Syndrome: Review of Major Therapeutic Advances. Am J Ther. 2019 Mar/Apr;26(2):e184-e197.
Duarte GS, Nunes-Ferreira A, Rodrigues FB, Pinto FJ, Ferreira JJ, Costa J, Caldeira D. Morphine in acute coronary syndrome: systematic review and meta-analysis. BMJ Open. 2019 Mar 15;9(3):e025232.
Luciano LSC, Silva RLD, Londero Filho OM, Waldrich L, Panata L, Trombetta AP, Preve JC, Fattah T, Giuliano LC, Thiago LEKS. Analysis of the Appropriate Use Criteria for Coronary Angiography in Two Cardiology Services of Southern Brazil. Arq Bras Cardiol. 2019 May;112(5):526-531.
Kerneis M, Nafee T, Yee MK, Kazmi HA, Datta S, Zeitouni M, Afzal MK, Jafarizade M, Walia SS, Qamar I, Pitliya A, Kalayci A, Al Khalfan F, Gibson CM. Most Promising Therapies in Interventional Cardiology. Curr Cardiol Rep. 2019 Mar 13;21(4):26.

Xia K, Wang LF, Yang XC, Jiang HY, Zhang LJ, Yao DK, Hu DY, Ding RJ. Comparing the effects of depression, anxiety, and comorbidity on quality-of-life, adverse outcomes, and medical expenditure in Chinese patients with acute coronary syndrome. Chin Med J (Engl). 2019 May 05;132(9):1045-1052.

Bracey A, Meyers HP. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Apr 7, 2023. Posterior Myocardial Ischemia.

Abdur Rehman K, Wazni OM, Barakat AF, Saliba WI, Shah S, Tarakji KG, Rickard J, Bassiouny M, Baranowski B, Tchou PJ, Bhargava M, Dresing TJ, Callahan TD, Cantillon DJ, Chung M, Kanj M, Irefin S, Lindsay B, Hussein AA. Life-Threatening Complications of Atrial Fibrillation Ablation: 16-Year Experience in a Large Prospective Tertiary Care Cohort. JACC Clin Electrophysiol. 2019 Mar;5(3):284-291.

Robinson CL, Jouni H, Kruisselbrink TM, Austin EE, Christensen KD, Green RC, et al. Disclosing genetic risk for coronary heart disease: effects on perceived personal control and genetic counseling satisfaction. Clin Genet. 2016;2(89):251–7. doi: 10.1111/cge.12577.

Levy AE, Huang C, Huang A, Michael Ho. Recent approaches to improve medication adherence in patients with coronary heart disease: Progress towards a learning healthcare system. Curr Atheroscler Rep. 2018;(20):1–9. doi: 10.1007/s11883-018-0707-0.

Li R, Chen Y, Ritchie MD, Moore JH. Electronic health records and polygenic risk scores for predicting disease risk. Nat Rev Genet. 2020;8(21):493–502. doi: 10.1038/s41576-020-0224-1.

Snaterse M, Jorstad HT, Minneboo M, Lachman S, Boekholdt SM, Ter Riet, et al. Smoking cessation after nurse-coordinated referral to a comprehensive lifestyle programme in patients with coronary artery disease: a substudy of the RESPONSE-2 trial. Eur J Cardiovasc Nurs. 2019;2(18):113–21. doi: 10.1177/1474515118795722.

Ozsaker E, Korkmaz FD. Nursing Diagnosis Determined by Nursing Students for Patients after Cardiac Surgery. Int J Caring Sci. 2020;3(13):2123.

Pardo Y, Garin O, Oriol C, Zamora V, Ribera A, Ferrer M. Patient-centered care in Coronary Heart Disease: what do you want to measure A systematic review of reviews on patient-reported outcome measures. Qual Life Res. 2023;5(32):1405–25. doi: 10.1007/s11136-022-03260-6.

Anderson L, Brown JP, Clark AM, Dalal H, Rossau HKK, Bridges C, et al. Patient education in the management of coronary heart disease. Cochrane Database Syst Rev. 2017;6(2017):CD008895. doi: 10.1002/14651858.CD008895.pub3.

Davoudi N, Afsharzadeh P, Mohammadalizadeh S, Haghdoost AA. A comparison of patients' and nurses' assessments of pain intensity in patients with coronary artery disease. Int J Nurs Pract. 2008;5(14):347–56. doi: 10.1111/j.1440-172X.2008.00712.x.

Utami WNS, Nurhamsyah D, Nur'aeni A. Nursing Intervention in Overcoming Decreased Cardiac Output in Patients with a Medical Diagnosis of Inappropriate Sinus Tachycardia (IST) in the CICU Room "Case Study". Padjadjaran Acute Care Nurs J. 2022;3(3):25–31.

Jensen MT, Treskes RW, Caiani EG, Casado-Arroyo R, Cowie MR, Dilaveris P, et al. ESC working group on e-cardiology position paper: use of commercially available wearable technology for heart rate and activity tracking in primary and secondary cardiovascular prevention—in collaboration with the European Heart Rhythm Association, European Association of Preventive Cardiology, Association of Cardiovascular Nursing and Allied Professionals, Patient Forum, and the Digital Health Committee. Eur Heart J-Digit Health. 2021;1(2):49–59. doi: 10.1093/ehjdh/ztab011.

Powers BJ, Danus S, Grubber JM, Olsen MK, Oddone EZ, Bosworth HB. The effectiveness of personalized coronary heart disease and stroke risk communication. Am Heart J. 2011;4(161):673–80. doi: 10.1016/j.ahj.2010.12.021.

White-Williams C, Shirey M, Eagleson R, Clarkson S, Bittner V. An interprofessional collaborative practice can reduce heart failure hospital readmissions and costs in an underserved population. J Card Fail. 2021;11(27):1185–94. doi: 10.1016/j.cardfail.2021.04.011.

Levy AE, Huang C, Huang A, Michael Ho. Recent approaches to improve medication adherence in patients with coronary heart disease: Progress towards a learning healthcare system. Curr Atheroscler Rep. 2018;(20):1–9.

Moorhead S, Swanson E, Johnson M. St Louis: Elsevier Health Sciences; 2023.

Snaterse M, Jorstad HT, Minneboo M, Lachman S, Boekholdt SM, Ter Riet, et al. Smoking cessation after nurse-coordinated referral to a comprehensive lifestyle programme in patients with coronary artery disease: a substudy of the RESPONSE-2 trial. Eur J Cardiovasc Nurs. 2019;2(18):113–21.

Ni Z, Dardas L, Wu B, Shaw R. Cardioprotective medication adherence among patients with coronary heart disease in China: a systematic review. Heart Asia.
Robinson CL, Jouni H, Kruisselbrink TM, Austin EE, Christensen KD, Green RC, et al. Disclosing genetic risk for coronary heart disease: effects on perceived personal control and genetic counseling satisfaction. Clin Genet. 2016;2(89):251–7. doi: 10.1111/cge.12577.
Levy AE, Huang C, Huang A, Michael Ho. Recent approaches to improve medication adherence in patients with coronary heart disease: Progress towards a learning healthcare system. Curr Atheroscler Rep. 2018;(20):1–9. doi: 10.1007/s11883-018-0707-0.
Li R, Chen Y, Ritchie MD, Moore JH. Electronic health records and polygenic risk scores for predicting disease risk. Nat Rev Genet. 2020;8(21):493–502. doi: 10.1038/s41576-020-0224-1.
Snaterse M, Jorstad HT, Minneboo M, Lachman S, Boekholdt SM, Ter Riet, et al. Smoking cessation after nurse-coordinated referral to a comprehensive lifestyle programme in patients with coronary artery disease: a substudy of the RESPONSE-2 trial. Eur J Cardiovasc Nurs. 2019;2(18):113–21. doi: 10.1177/1474515118795722.
Ozsaker E, Korkmaz FD. Nursing Diagnosis Determined by Nursing Students for Patients after Cardiac Surgery. Int J Caring Sci. 2020;3(13):2123.
Pardo Y, Garin O, Oriol C, Zamora V, Ribera A, Ferrer M. Patient-centered care in Coronary Heart Disease: what do you want to measure A systematic review of reviews on patient-reported outcome measures. Qual Life Res. 2023;5(32):1405–25. doi: 10.1007/s11136-022-03260-6.
Anderson L, Brown JP, Clark AM, Dalal H, Rossau HKK, Bridges C, et al. Patient education in the management of coronary heart disease. Cochrane Database Syst Rev. 2017;6(2017):CD008895. doi: 10.1002/14651858.CD008895.pub3.
Davoudi N, Afsharzadeh P, Mohammadalizadeh S, Haghdoost AA. A comparison of patients' and nurses' assessments of pain intensity in patients with coronary artery disease. Int J Nurs Pract. 2008;5(14):347–56. doi: 10.1111/j.1440-172X.2008.00712.x.
Utami WNS, Nurhamsyah D, Nur'aeni A. Nursing Intervention in Overcoming Decreased Cardiac Output in Patients with a Medical Diagnosis of Inappropriate Sinus Tachycardia (IST) in the CICU Room "Case Study". Padjadjaran Acute Care Nurs J. 2022;3(3):25–31.
Jensen MT, Treskes RW, Caiani EG, Casado-Arroyo R, Cowie MR, Dilaveris P, et al. ESC working group on e-cardiology position paper: use of commercially available wearable technology for heart rate and activity tracking in primary and secondary cardiovascular prevention—in collaboration with the European Heart Rhythm Association, European Association of Preventive Cardiology, Association of Cardiovascular Nursing and Allied Professionals, Patient Forum, and the Digital Health Committee. Eur Heart J-Digit Health. 2021;1(2):49–59. doi: 10.1093/ehjdh/ztab011.
Powers BJ, Danus S, Grubber JM, Olsen MK, Oddone EZ, Bosworth HB. The effectiveness of personalized coronary heart disease and stroke risk communication. Am Heart J. 2011;4(161):673–80. doi: 10.1016/j.ahj.2010.12.021.
White-Williams C, Shirey M, Eagleson R, Clarkson S, Bittner V. An interprofessional collaborative practice can reduce heart failure hospital readmissions and costs in an underserved population. J Card Fail. 2021;11(27):1185–94. doi: 10.1016/j.cardfail.2021.04.011.
Levy AE, Huang C, Huang A, Michael Ho. Recent approaches to improve medication adherence in patients with coronary heart disease: Progress towards a learning healthcare system. Curr Atheroscler Rep. 2018;(20):1–9.
Moorhead S, Swanson E, Johnson M. St Louis: Elsevier Health Sciences; 2023.
Snaterse M, Jorstad HT, Minneboo M, Lachman S, Boekholdt SM, Ter Riet, et al. Smoking cessation after nurse-coordinated referral to a comprehensive lifestyle programme in patients with coronary artery disease: a substudy of the RESPONSE-2 trial. Eur J Cardiovasc Nurs. 2019;2(18):113–21.
Ni Z, Dardas L, Wu B, Shaw R. Cardioprotective medication adherence among patients with coronary heart disease in China: a systematic review. Heart Asia.