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Cardiology consultations in clinical practice: common indications, diagnostic challenges, and management strategies

Abstract

The global burden of cardiovascular diseases continues to rise, leading to a steadily increasing demand for cardiology consultations in both inpatient and outpatient settings. Cardiology consultations play a crucial role in resolving diagnostic uncertainties, assessing perioperative cardiac risk, and managing systemic diseases with cardiac involvement. However, in daily clinical practice, these consultations are often challenged by overlapping symptoms, variability in clinical interpretation, and suboptimal interdisciplinary communication. This review aims to summarize the most frequent indications for cardiology consultations, highlight the major diagnostic challenges, and discuss contemporary evidence-based management strategies. The most common reasons for consultation in routine practice include chest pain, arrhythmias, heart failure, hypertension, and preoperative cardiac evaluation, while post-stroke cardiac assessment also represents a significant field of referral. Cardiology consultations have been shown to facilitate early detection of cardiac complications, promote the appropriate use of diagnostic tools and therapeutic approaches, and improve overall clinical outcomes. Nevertheless, there remains a need to standardize assessment processes, strengthen communication between collaborating specialties, and establish more effective follow-up mechanisms. In conclusion, cardiology consultation represents an indispensable component of modern multidisciplinary healthcare. The development of structured evaluation models, integration of digitally assisted diagnostic tools, and enhancement of interdisciplinary collaboration hold the potential to further improve consultation efficiency, care quality, and patient outcomes.

Keywords: cardiology consultation, arrhythmia, hypertension, preoperative evaluation, stroke, multidisciplinary care

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Introduction

Cardiovascular diseases remain the leading cause of morbidity and mortality worldwide, and the frequency and complexity of cardiology consultations have increased in parallel. The rising average age, multimorbidity, and growing awareness of cardiovascular risk have further emphasized the importance of cardiology evaluation in both inpatient and outpatient settings. In recent years, the development of digital health technologies and electronic consultation (e-consult) systems has improved access to cardiology services and reduced delays in patient management.[1] Cardiology consultations are now considered a key component of multidisciplinary care, not only in the management of primary cardiac diseases but also in the assessment of cardiac involvement in systemic conditions.[2]

Cardiology consultations play a crucial role in improving diagnostic accuracy, guiding appropriate therapeutic decisions, and enhancing patient outcomes. Previous studies have demonstrated that patients referred to cardiology experience lower mortality rates and better adherence to evidence-based therapies.[3,4] In medical departments, the most common reasons for consultation include chest pain, arrhythmias, heart failure, and hypertension, whereas perioperative cardiac risk assessment and post-stroke cardiac evaluation are more frequent in surgical and neurological settings.[2] Timely and systematic cardiology consultation facilitates early recognition of complications and improves patient safety.[3]

The aim of this review is to summarize the most common indications, diagnostic challenges, and evidence-based management strategies in cardiology consultations. Additionally, the review seeks to highlight the impact of cardiology consultation on clinical outcomes in different care settings and to emphasize the importance of multidisciplinary collaboration.

This review was conducted as a narrative, non-systematic review of the literature focusing on cardiology consultations in inpatient and perioperative clinical practice. A comprehensive literature search was performed using PubMed/MEDLINE, Embase, and Scopus databases. The search covered studies published in English between January 2000 and June 2024. Key search terms included combinations of "cardiology consultation," "inpatient consultation," "perioperative cardiac evaluation," "troponin elevation," "arrhythmia," "heart failure," "stroke-heart syndrome," and "multidisciplinary care." Reference lists of relevant articles and current international guidelines were also manually screened to identify additional pertinent publications. Original research articles, systematic reviews, consensus statements, and major society guidelines relevant to clinical cardiology consultations were included. Case reports, conference abstracts, and studies with limited clinical applicability were excluded. The selection of studies was based on relevance to real-world inpatient cardiology practice rather than formal quantitative synthesis.

This review is organized into four main sections: the epidemiology and scope of cardiology consultations; common indications and diagnostic challenges; management strategies and clinical outcomes; and future perspectives for process optimization. Particular attention is given to perioperative and post-stroke cardiac evaluation, as well as the potential benefits of structured and digitally assisted consultation models. Unlike prior reviews that primarily address cardiology

consultations by disease category, this review adopts a scenario-based framework reflecting real-world inpatient consultation practice. By integrating diagnostic challenges, management principles, and communication pitfalls across common clinical contexts, it aims to provide a pragmatic reference for both consulting cardiologists and non-cardiology teams.

Epidemiology and scope of cardiology consultations

Demand for cardiology consultations has risen substantially, driven by population aging, increasing multimorbidity, and the expanding global burden of cardiovascular disease.[5] The growing prevalence of diabetes, hypertension, atrial fibrillation, and chronic kidney disease translates into more frequent cardiac evaluations across diverse clinical settings.[6] In hospitals, consultations are commonly triggered by troponin elevation, arrhythmias, or hemodynamic instability, reflecting the complexity of modern care.

Consultations are most frequently requested from internal medicine, neurology, pulmonology, and surgical wards. Preoperative cardiac assessment remains a leading indication; the latest guideline stresses reserving advanced testing or revascularization for indications independent of surgery, thereby reducing low-value care.[7] Large cohort data show that routine preoperative medical consultation does not reduce mortality and may adversely influence process measures.[8] Conversely, EMR-based standardized consultation templates have reduced cardiology referrals and echocardiography orders without harming postoperative outcomes.[9]

In neurology, post-stroke cardiac workup is pivotal for identifying cardioembolic sources; the "stroke–heart" spectrum (arrhythmia, myocardial injury, systolic dysfunction) underscores routine cardiology involvement.[10]

The European Society of Cardiology Council on Stroke position paper advocates integrated pathways linking stroke and cardiology services.[11] In oncology and nephrology/intensive care, consultation demand is high due to chemotherapy-related cardiotoxicity and sepsis-induced cardiomyopathy/AKI-associated cardiac involvement, respectively.[12]

When timely and structured, cardiology consultations improve diagnostic accuracy, therapeutic optimization, and care coordination. Telecardiology and e-consultation models have broadened access and efficiency, facilitating timely assessments in remote or resource-limited centers, particularly since the pandemic.[12] The most common clinical scenarios prompting cardiology consultation in hospitalized patients, along with their primary diagnostic focus and management goals, are summarized in Table 1.

Table 1 Common indications for cardiology consultation in hospitalized patients

Clinical scenario	Common triggers for consultation	Key diagnostic focus	Primary role of cardiology
Chest pain / Troponin elevation	Sepsis, anemia, postoperative stress, renal failure	Type 1 MI vs Type 2 MI vs myocardial injury; ECG dynamics; troponin kinetics	Etiologic classification, avoidance of unnecessary angiography
Arrhythmias	New-onset AF, bradyarrhythmia, ventricular ectopy	Hemodynamic stability, reversible triggers, QT interval	Rate/rhythm control, anticoagulation strategy, monitoring plan
Heart failure / Dyspnea	Volume overload, AKI, infection, postoperative fluid shifts	Volume status, LV/RV function, BNP/NT-proBNP	Decongestion strategy, GDMT optimization
Preoperative evaluation	Known CAD, poor functional capacity, prior PCI/MI	Perioperative MACE risk, functional capacity	Risk stratification, medication optimization
Hypertension / Hypotension	Resistant HT, shock, postoperative instability	Hemodynamic mechanism, medication effects	Targeted BP management, drug adjustment
Sepsis / Multiorgan failure	Septic shock, AKI, arrhythmias	Septic cardiomyopathy vs ischemia	Echo-guided hemodynamic support
Stroke / Neurologic disease	Cryptogenic stroke, AF suspicion	Cardioembolic source identification	Rhythm monitoring, anticoagulation
Onco-cardiology	Anthracyclines, ICIs, trastuzumab	Subclinical cardiotoxicity	Surveillance, cardioprotective therapy

Abbreviations: AF, atrial fibrillation; AKI, acute kidney injury; BNP, B-type natriuretic peptide; CAD, coronary artery disease; ECG, electrocardiogram; GDMT, guideline-directed medical therapy; HF, heart failure; HT, hypertension; ICIs, immune checkpoint inhibitors; LV, left ventricle; MI, myocardial infarction; MACE, major adverse cardiac events; NT-proBNP, N-terminal pro–B-type natriuretic peptide; PCI, percutaneous coronary intervention; RV, right ventricle

Common indications for cardiology consultations

Chest pain and troponin elevation in hospitalized patients

Chest pain and elevated cardiac troponin levels are among the most frequent reasons for inpatient cardiology consultations. These situations typically occur in patients admitted for non-cardiac conditions such as infection, renal failure, oncologic therapy, anemia, or postoperative physiological stress, and often indicate non-ischemic myocardial injury rather than acute coronary occlusion.[13,14] Therefore, the assessment of troponin in hospitalized patients should not focus solely on ruling out acute coronary syndrome (ACS) but on identifying the underlying pathophysiological mechanism of myocardial injury.

According to the current diagnostic definition of myocardial infarction, a diagnosis of acute MI requires a rise and/or fall of cardiac troponin values with at least one measurement above the 99th percentile, accompanied by clinical, electrocardiography (ECG), or imaging evidence of ischemia.[13] In the absence of ischemic features,

isolated troponin elevation should be classified as myocardial injury. In hospitalized patients, troponin elevation frequently occurs in the context of sepsis, tachyarrhythmia, pulmonary embolism, hypertensive crisis, acute kidney injury, or perioperative stress.[14,15] Importantly, such elevations are associated with increased mortality even when type 1 myocardial infarction (MI) is absent.[15,16]

The primary admission diagnosis, hemodynamic stability, oxygenation, hemoglobin levels, and systemic stress factors should be carefully assessed. Particularly in elderly or postoperative patients, dyspnea, hypotension, or confusion may substitute for typical chest pain.[15,16] The ECG should be compared with baseline tracings; ischemic changes may be obscured by Left Bundle Branch Block (LBBB), paced rhythm, or left ventricular hypertrophy. The presence of dynamic ST–T changes together with rising troponin values strongly supports type 1 MI.[13,14] A single elevated troponin value is non-specific. Serial testing to identify rising or falling patterns distinguishes acute from chronic injury, whereas stable elevation usually reflects chronic myocardial disease or renal dysfunction.[14,15]

Type 1 MI results from plaque rupture or erosion, usually accompanied by ischemic ECG or imaging findings. Management should follow ACS protocols.[13] Type 2 MI arises from oxygen supply–demand imbalance (e.g., sepsis, hypoxia, anemia, tachyarrhythmia). Treatment should focus on correcting the underlying trigger, and invasive testing is often unnecessary.[15,16] Non-ischemic myocardial injury is common in myocarditis, renal failure, or chemotherapy-induced cardiotoxicity. The cardiologist's role is to guide imaging, risk assessment, and medication optimization.[14,17] Bedside transthoracic echocardiography (TTE) is critical for evaluating regional wall motion abnormalities, ventricular function, valvular pathology, and pericardial effusion. A normal echocardiogram favors non-ischemic myocardial injury. The cardiology consultation note should clearly define the etiology (Type 1 MI, Type 2 MI, or myocardial injury), prognosis, and follow-up recommendations. Structured reporting prevents diagnostic ambiguity and improves communication with primary teams.[17]

In summary, in hospitalized patients, chest pain and troponin elevation often represent a consultation syndrome reflecting systemic stress on the myocardium rather than primary acute coronary occlusion. The cardiologist's role is to interpret troponin findings in clinical context, avoid unnecessary invasive procedures, and guide evidence-based management aimed at improving short- and long-term outcomes.[13-17]

Arrhythmias

Cardiac arrhythmias remain one of the most frequent indications for cardiology consultation in hospitalized patients and are encountered across medical, surgical, and intensive care settings. These rhythm disturbances usually develop secondary to systemic illness, metabolic imbalance, or medication effects, rather than as a manifestation of primary electrical disease.[18,19] In-hospital arrhythmias increase morbidity and length of stay, yet are often reversible when underlying triggers are identified and corrected promptly.[18]

In-hospital arrhythmias represent a broad and heterogeneous spectrum of rhythm disturbances encountered across medical, surgical, and intensive care settings. Among these, new-onset atrial fibrillation (AF) is the most frequent presentation and commonly develops in the context of acute systemic stressors such as sepsis, pneumonia, hypoxia, acute heart failure, or postoperative physiological strain.[18,19] Postoperative AF, particularly following thoracic or major abdominal surgery, is typically driven by heightened sympathetic activation, inflammatory responses, and rapid intravascular volume shifts. In general medical wards, sinus tachycardia, supraventricular ectopic beats, and transient conduction abnormalities are frequently observed and are often secondary to reversible factors including hypoxia, anemia, pain, or the use of medications such as catecholamines and bronchodilators.[20] Bradyarrhythmias, manifesting as sinus pauses or varying degrees of atrioventricular block, are usually related to pharmacologic effects of beta-blockers or antiarrhythmic agents, increased vagal tone, or underlying ischemia.[21] Although less common, ventricular arrhythmias carry substantial clinical significance, particularly in critically ill patients, where severe electrolyte disturbances or exposure to QT-prolonging medications may precipitate life-threatening events.[22]

The cardiologist's primary role is to distinguish secondary, trigger-induced arrhythmias from those indicating structural or primary conduction disease. Evaluation begins with assessment of hemodynamic stability, prioritizing immediate intervention in unstable cases such as sustained VT or AF with hypotension.[18,22] A 12-lead ECG compared with previous tracings and continuous telemetry are essential for confirming rhythm type and detecting transient events. Laboratory testing should include potassium, magnesium, calcium, renal and thyroid function, and a detailed review of QT-prolonging and AV-node blocking drugs.[20] Echocardiography is indicated in patients with new left ventricular dysfunction, suspected structural disease, or ischemia, to guide therapy and prognosis.[22]

Management must be individualized according to arrhythmia type, hemodynamic status, and precipitating factors. In hemodynamically stable patients with atrial fibrillation or flutter, rate control with beta-blockers or non-dihydropyridine calcium-channel blockers is preferred once triggers are corrected. Rhythm control can be considered in symptomatic, new-onset, or postoperative AF. Anticoagulation should now be guided by the CHA_2DS_2-VA score, as female sex is no longer an independent risk factor. Thromboembolic and bleeding risks must be balanced carefully in perioperative or critically ill patients.[21,23] Ventricular arrhythmias such as non-sustained VT often resolve after correction of ischemia, hypoxia, or electrolyte imbalance, while sustained VT or torsades de pointes require discontinuation of QT-prolonging drugs and electrolyte correction. Bradyarrhythmias are usually reversible and related to drug effects or metabolic disturbances. Withdrawal of culprit agents and correction of underlying abnormalities are usually sufficient; temporary pacing is indicated for high-grade AV block or long pauses with hemodynamic compromise.[22]

Cardiology consultation ensures accurate arrhythmia classification, identification of reversible causes, and development of a structured management plan. The consultation note should clearly document arrhythmia type, likely triggers, monitoring duration, anticoagulation plan (based on CHA_2DS_2-VA score), and discharge follow-up recommendations. Structured communication between cardiology and primary teams improves adherence and reduces inappropriate long-term antiarrhythmic therapy.[18,21,23]

Arrhythmias developing during hospitalization predominantly arise from reversible systemic stressors rather than intrinsic conduction disease. Timely cardiology consultation allows early diagnosis, optimization of rate or rhythm control, and prevention of thromboembolic or hemodynamic complications, thereby improving safety and clinical outcomes.[18-23]

Heart failure and dyspnea

Heart failure (HF) and unexplained dyspnea are among the most common reasons for inpatient cardiology consultation. These scenarios frequently arise in medical wards, intensive care units,

and postoperative settings, where differentiating cardiac from non-cardiac causes of respiratory distress is clinically challenging. In such patients, cardiology input is essential to confirm the diagnosis, assess volume status, and optimize therapy based on guideline-directed management.[24,25]

Consultations for suspected or worsening HF often occur in patients admitted with sepsis, renal dysfunction, anemia, or postoperative fluid overload, in whom dyspnea may have multifactorial etiology. Distinguishing decompensated HF from pulmonary infection, acute respiratory distress syndrome (ARDS), or fluid retention due to non-cardiac causes requires a comprehensive evaluation.[24,26] The cardiologist's role extends beyond confirming the diagnosis which includes defining the hemodynamic mechanism (volume overload vs. low output), evaluating cardiac function and filling pressures, and identifying precipitating factors such as arrhythmia, ischemia, uncontrolled hypertension, or medication non-adherence.

A structured diagnostic strategy for patients with suspected heart failure or unexplained dyspnea in the inpatient setting should be systematic and integrative. Initial evaluation relies on careful clinical and hemodynamic assessment, including examination of jugular venous pressure, pulmonary crackles, peripheral edema, and monitoring of daily body weight trends, which remain fundamental for estimating volume status. Non-invasive bedside assessment with focused ultrasound or transthoracic echocardiography further assists in evaluating intravascular volume and estimating left ventricular filling pressures.[27] Laboratory biomarkers play a complementary role; measurement of B-type natriuretic peptide (BNP) or NT-proBNP supports the diagnosis of heart failure and aids in monitoring therapeutic response, although their interpretation must consider confounding factors such as renal dysfunction, advanced age, and critical illness.[24,28] Echocardiography is central to the diagnostic workup, providing essential information on left ventricular ejection fraction, diastolic function, and right ventricular performance, while also enabling identification of alternative or contributory pathologies such as pericardial effusion or significant valvular disease. In addition, ancillary investigations including assessment of troponin kinetics, renal function, electrolyte levels, and thyroid status may help to identify precipitating factors and guide individualized adjustment of diuretic and neurohormonal therapies.

In the inpatient setting, the primary goals of heart failure management are stabilization of hemodynamics, relief of congestion, and initiation or optimization of long-term, evidence-based therapy in line with current ESC and American Heart Association/American College of Cardiology/Heart Failure Society of America (AHA/ACC/HFSA) guidelines.[25,29] Volume management represents the cornerstone of acute treatment, with intravenous loop diuretics as first-line therapy; cardiology consultation is particularly important for appropriate dose titration and for the addition of thiazide-type diuretics in cases of diuretic resistance. Close daily reassessment of body weight, urine output, and renal function is essential to guide therapy and avoid complications.[25] In patients with chronic HF with reduced ejection fraction, continuation or early reintroduction of disease-modifying neurohormonal therapies including angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor–neprilysin inhibitors (ARNI), beta-adrenergic blockers, mineralocorticoid receptor antagonists (MRA), and sodium–glucose cotransporter-2 (SGLT2) inhibitors should be encouraged once euvolemia and clinical stability are achieved.[25,29] When dyspnea is determined to be predominantly non-cardiac in origin, cardiology consultation plays a key role in excluding significant structural heart disease and in preventing unnecessary diuretic escalation, which may otherwise contribute to renal dysfunction or hypotension.[26] Ongoing management should also include clear recommendations regarding the need and duration of cardiac monitoring, repeat imaging when indicated, and a structured plan for outpatient follow-up and further optimization of therapy.

Cardiology consultation enhances diagnostic precision, prevents overtreatment of non-cardiac dyspnea, and promotes evidence-based therapy initiation. Early involvement has been associated with shorter hospital stay, improved decongestion, and reduced readmission rates.[27-29] Documentation should specify etiology (HF vs. non-cardiac dyspnea), mechanism (systolic vs. diastolic dysfunction), and individualized therapy recommendations.

Dyspnea and HF in hospitalized patients require careful differentiation between cardiac and non-cardiac etiologies. The cardiology consultant's comprehensive evaluation including hemodynamic assessment, biomarker interpretation, and imaging, facilitates accurate diagnosis and optimization of evidence-based treatment, ultimately improving outcomes and resource utilization.[24-29]

Preoperative cardiac evaluation

Preoperative cardiac consultation represents one of the most frequent cardiology referrals in hospitalized patients. It aims to assess perioperative cardiovascular risk, optimize chronic cardiac conditions, and ensure safe surgical planning. The cardiologist's input is particularly valuable in elderly, multimorbid, or recently decompensated patients, where operative stress may unmask latent cardiac dysfunction.[30,31] Consultations are commonly requested for patients with known ischemic heart disease, heart failure, arrhythmias, or significant valvular abnormalities scheduled for non-cardiac surgery.[30] Surgical stress, blood loss, and fluid shifts may precipitate ischemia or decompensation; therefore, risk stratification and optimization before the procedure are crucial.

Perioperative cardiology consultation should follow a structured diagnostic and risk assessment approach aimed at accurately estimating cardiovascular risk while avoiding unnecessary delays or testing. Evaluation begins with a focused clinical history and physical examination, with particular attention to prior cardiac events, symptom burden, and functional capacity. Validated risk stratification tools, such as the Revised Cardiac Risk Index and the American College of Surgeons National Surgical Quality Improvement Program risk calculator, are useful for estimating the likelihood of perioperative major adverse cardiac events and for guiding the intensity of further evaluation.[31] Functional capacity remains a key determinant in decision-making; patients who are able to achieve more than 4 metabolic equivalents, such as climbing stairs without limitation, can generally proceed safely to surgery, whereas those with poor or unknown functional capacity may require additional assessment. Baseline electrocardiography is recommended for patients undergoing moderate- or high-risk procedures, while transthoracic echocardiography should be reserved for individuals with new or worsening dyspnea, clinical heart failure, or auscultatory findings suggestive of structural heart disease.[32] Evaluation for coronary artery disease, including non-invasive stress testing or coronary angiography, should be performed only when the results are expected to alter perioperative management, rather than as a routine measure to "clear" patients for surgery.[33]

Management decisions in the perioperative period should focus on optimization of existing cardiovascular therapy and close coordination with surgical and anesthesia teams. Beta-adrenergic blockers should be continued in patients already receiving them, whereas routine initiation immediately before surgery should be avoided unless there is a strong

clinical indication. Statin therapy should be maintained and may be initiated in patients undergoing vascular or other high-risk procedures when time allows. Management of antiplatelet and anticoagulant therapy requires individualized planning, balancing thrombotic and bleeding risks and determining the need for temporary interruption or bridging strategies in collaboration with the procedural team.[34] The timing of elective surgery is also critical in patients with recent myocardial infarction or percutaneous coronary intervention; such procedures should be deferred according to guideline-recommended intervals, typically at least 30 days after bare-metal stent implantation and 3 to 6 months after drug-eluting stent placement, to minimize perioperative ischemic risk.[35]

The cardiology consultation provides a structured risk assessment and bridges communication among surgery, anesthesia, and medicine teams. A concise report specifying cardiovascular risk level, medication plan, and monitoring recommendations ensures safe perioperative management and minimizes unnecessary surgical delays.[31,33] Preoperative cardiology consultation in hospitalized patients focuses on individualized risk assessment, optimization of chronic cardiac conditions, and clear multidisciplinary communication. When applied judiciously, it enhances perioperative safety while preventing both under- and over-testing.[30-35]

Hypertension and hypotension consults

Blood pressure abnormalities are a frequent reason for inpatient cardiology consultation. Both uncontrolled hypertension and persistent hypotension can significantly influence clinical outcomes, particularly in patients with cardiovascular comorbidities or postoperative instability. In hospitalized settings, the cardiologist's role is to provide rapid hemodynamic assessment, optimize antihypertensive or vasoactive therapy, and identify reversible causes.[36,37]

Hypertension-related consultations commonly occur in medical and surgical wards for patients with poorly controlled or resistant hypertension despite multiple agents. Acute hypertensive crises are occasionally observed postoperatively or during withdrawal of chronic therapy, and require careful evaluation to distinguish between pain-, anxiety-, or volume-mediated blood pressure elevations and true hypertensive emergencies.[36] Conversely, hypotension often arises in postoperative, septic, or heart failure patients. Cardiologists are frequently consulted to differentiate between vasodilatory, hypovolemic, and cardiogenic mechanisms, as management strategies differ markedly.[37,38]

Evaluation should start with a comprehensive review of recent medications, fluid balance, and hemodynamic data. Echocardiography is invaluable to assess left ventricular systolic function, pericardial effusion, and volume status.[38] Electrolyte and renal profiles help identify drug-induced causes such as ACE inhibitor overuse or excessive diuresis. Continuous monitoring is recommended in patients with severe blood pressure fluctuations or ongoing vasoactive support.

Management of blood pressure abnormalities in hospitalized patients should be guided by the underlying hemodynamic mechanism and the overall clinical context. In cases of acute but asymptomatic hypertension, gradual blood pressure reduction with oral, non-parenteral agents—most commonly calcium channel blockers or angiotensin-converting enzyme inhibitors—is usually sufficient and avoids the risks associated with rapid lowering. In contrast, hypertensive emergencies with evidence of acute target-organ damage require intravenous therapy, using titratable agents such as nicardipine or labetalol, with careful and controlled dose adjustments to prevent cerebral, coronary, or renal hypoperfusion.[39]

Management of hypotension centers on prompt identification and correction of the precipitating cause. Volume resuscitation is appropriate in patients with hypovolemia, whereas those with cardiogenic or distributive shock who do not respond adequately to fluids may require inotropic support or vasopressor therapy, most commonly with norepinephrine, under close hemodynamic monitoring.[38,40] Cardiology consultation is particularly valuable in refining these decisions, as it often involves reassessment of ongoing cardiovascular medications, including temporary reduction or discontinuation of negative inotropic agents, optimization of beta-adrenergic blocker dosing, and adjustment of diuretic therapy. Such tailored medication modifications aim to stabilize blood pressure while preserving cardiac output and avoiding further hemodynamic compromise.

Inpatient blood pressure abnormalities often reflect complex interactions between disease states, medications, and procedures. The cardiologist contributes by performing targeted hemodynamic evaluation, recommending appropriate pharmacologic adjustments, and coordinating care with primary and intensive care teams. Structured cardiology input ensures timely recognition of critical hypotension and avoids unnecessary overtreatment of transient hypertension.[36-40]

Hypertension and hypotension are common consultation scenarios in hospitalized patients. The cardiologist's systematic assessment, combining bedside hemodynamic evaluation, echocardiography, and pharmacologic expertise, plays a pivotal role in improving safety and therapeutic precision.[36-40] Cardiac involvement in systemic or neurologic diseases is a frequent reason for inpatient cardiology consultation. Such consultations are crucial to identify potentially reversible cardiac dysfunction and to optimize multidisciplinary management. The cardiologist's contribution includes diagnostic clarification, hemodynamic assessment, and therapeutic adjustment tailored to the primary condition.[41,42]

Sepsis and multiorgan failure

Sepsis and multiorgan failure represent common and clinically challenging indications for inpatient cardiology consultation, as cardiovascular dysfunction frequently accompanies severe systemic inflammation. Sepsis-induced cardiomyopathy is a well-recognized, typically reversible condition characterized by transient left ventricular systolic dysfunction, reduced ejection fraction, ventricular dilatation, and impaired myocardial contractility in the absence of obstructive coronary artery disease.[41] Transthoracic echocardiography plays a central role in this setting, enabling differentiation between septic cardiomyopathy, acute ischemic injury, stress-related myocardial dysfunction, and volume overload, each of which carries distinct management implications. Early cardiology involvement is particularly important for guiding fluid resuscitation strategies, balancing the need for adequate preload against the risk of pulmonary congestion, and for supporting vasopressor or inotropic selection in patients with persistent hypotension.

Arrhythmias, especially new-onset AF, are frequently observed during sepsis and are associated with increased morbidity and mortality. Cardiology consultation helps clarify whether rhythm disturbances are secondary to reversible metabolic and inflammatory stressors or reflect underlying structural heart disease, thereby informing decisions regarding rate control, rhythm management, and anticoagulation in the context of bleeding risk. Renal dysfunction commonly coexists in septic patients and further complicates cardiovascular management through electrolyte imbalance, altered drug clearance, and challenges in volume assessment. In this

complex setting, cardiology input is essential to distinguish uremic pericarditis or volume-related heart failure from true myocardial ischemia, to interpret biomarker elevations appropriately, and to tailor treatment intensity to the patient's dynamic hemodynamic status. Through comprehensive imaging, hemodynamic assessment, and close collaboration with critical care teams, cardiology consultation contributes to more precise diagnosis and individualized management in patients with sepsis and multiorgan failure.[42]

Onco-cardiology

Onco-cardiology has emerged as a critical interface between cardiovascular medicine and oncology, particularly in the inpatient setting, where cancer patients are frequently exposed to therapies with potential cardiotoxic effects. Cardiology consultation is commonly requested to evaluate and manage chemotherapy-related cardiac complications, as several widely used anticancer agents including anthracyclines, human epidermal growth factor receptor 2 targeted therapies such as trastuzumab, and immune checkpoint inhibitors, are associated with left ventricular systolic dysfunction, heart failure, arrhythmias, and immune-mediated myocarditis.[43,44] Early involvement of cardiology is essential for risk stratification and timely detection of subclinical myocardial injury. This is typically achieved through baseline and serial transthoracic echocardiography, increasingly supplemented by myocardial strain analysis, as well as systematic biomarker surveillance using cardiac troponin and NT-proBNP.

When cardiotoxicity is identified or anticipated, cardiology consultation guides the initiation of cardioprotective strategies, most commonly with ACE inhibitors or beta-adrenergic blockers, which have been shown to mitigate or prevent progression to overt heart failure. Importantly, close collaboration between oncology and cardiology teams, within the framework of dedicated cardio-oncology care, allows individualized balancing of oncologic efficacy and cardiovascular safety. Such integrated management not only reduces the risk of irreversible cardiac damage but also enables continuation or timely resumption of potentially life-saving cancer therapies in patients who would otherwise be considered high risk from a cardiovascular standpoint.[44]

Neurologic disease and stroke

Neurologic disease, particularly acute ischemic stroke, is frequently accompanied by clinically relevant cardiac abnormalities, making cardiology consultation an integral component of inpatient stroke management. Cardioembolic mechanisms account for a substantial proportion of ischemic strokes, with AF, left atrial or left atrial appendage thrombus, and patent foramen ovale among the most commonly identified cardiac sources of embolism.[45] In this context, cardiology consultation is primarily directed toward systematic identification of potential embolic substrates through cardiac imaging, using transthoracic or transesophageal echocardiography as appropriate, as well as guiding the extent and duration of continuous rhythm monitoring to detect paroxysmal AF.

Beyond diagnostic evaluation, cardiology input is essential for timely initiation and optimization of anticoagulation therapy when indicated, taking into account hemorrhagic risk, stroke severity, and concomitant conditions. Long-term secondary prevention strategies also rely heavily on cardiovascular management, including optimization of blood pressure control, lipid-lowering therapy, and rhythm management to reduce the risk of recurrent cerebrovascular events. In patients with neurologic or other systemic diseases, cardiac involvement often exerts a decisive influence on overall prognosis. A comprehensive cardiology consultation, integrating imaging findings, biomarker interpretation, and detailed rhythm assessment, enhances diagnostic precision and facilitates coordinated, multidisciplinary care. Such an approach helps avoid unnecessary diagnostic procedures while ensuring early recognition and treatment of potentially life-threatening cardiac complications.[41-45]

Diagnostic challenges in cardiology consultations

Cardiology consultation in hospitalized patients presents unique diagnostic complexities that stem from overlapping symptoms, limited diagnostic tools, and communication barriers between multidisciplinary teams. The accurate identification of cardiac pathology in these patients directly impacts management strategies, length of stay, and clinical outcomes. However, distinguishing primary cardiac events from secondary or systemic processes remains a major challenge for consulting cardiologists in the inpatient setting.[46,47] Common diagnostic pitfalls encountered during inpatient cardiology consultations and corresponding practical, cardiology-guided solutions are outlined in Table 2.

Table 2 Diagnostic challenges in inpatient cardiology consultations and practical solutions

Diagnostic challenge	Common pitfall	Clinical consequence	Cardiology-guided solution
Troponin elevation	Overdiagnosis of ACS	Unnecessary angiography	Serial troponin + clinical context
Dyspnea	Assuming HF etiology	Inappropriate diuresis	Echo + lung ultrasound integration
ECG abnormalities	Artifact or baseline misinterpretation	Overtreatment or missed arrhythmia	Comparison with prior ECGs
AF in acute illness	Immediate long-term anticoagulation	Bleeding risk	CHA_2DS_2-VA-guided, context-aware decision
Preoperative testing	Routine stress testing	Surgical delay	Test only if management will change
Sepsis-related LV dysfunction	Mislabeling as ischemic cardiomyopathy	Inappropriate invasive testing	Echo-based functional assessment
Stroke evaluation	Short rhythm monitoring	Missed paroxysmal AF	Extended monitoring strategy
Communication gaps	Unclear consult recommendations	Poor adherence	Structured consult documentation

Abbreviations: ACS, acute coronary syndrome; AF, atrial fibrillation; BP, blood pressure; ECG, electrocardiogram; HF, heart failure; LV, left ventricle; MI, myocardial infarction; QT, corrected QT interval

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Overlapping clinical presentations

One of the most persistent challenges in hospital cardiology consultations is the non-specificity of presenting symptoms. Dyspnea, perhaps the most common referral reason, often reflects multifactorial mechanisms rather than isolated heart failure. Distinguishing cardiogenic pulmonary edema from non-cardiac etiologies such as pneumonia, pulmonary embolism, or sepsis-induced lung injury requires an integrated assessment involving physical examination, natriuretic peptide testing, and echocardiography.[46] Similarly, chest pain frequently mimics ACS but may instead be caused by musculoskeletal pain, gastrointestinal reflux, pulmonary embolism, or even anxiety, particularly in elderly or diabetic patients with atypical ischemic symptoms.[47] Electrocardiographic findings add further ambiguity. Non-specific ST-T wave changes or minor troponin elevations are often encountered in systemic illnesses like sepsis, renal failure, or electrolyte imbalance. In such cases, over-diagnosis of ACS may lead to unnecessary invasive procedures, whereas under-recognition of cardiac ischemia can delay life-saving treatment. The consultant must therefore synthesize clinical, laboratory, and imaging data rather than relying on any single diagnostic marker.[46-48]

Diagnostic tool limitations

Even when appropriate diagnostic tools are available, interpretation within the inpatient context is often challenging. Troponin elevation remains a key example: while an essential biomarker for myocardial infarction, it may also rise in non-ischemic states such as renal dysfunction, sepsis, myocarditis, or stroke. Differentiating type 2 MI (oxygen supply-demand mismatch) from acute myocardial injury requires serial testing and correlation with clinical context.[47,48]

Echocardiography, the cornerstone of bedside cardiac assessment, can also yield ambiguous findings in hospitalized patients. Fluid shifts, positive-pressure ventilation, or mechanical support devices may distort chamber geometry and mimic structural heart disease. Moreover, in critically ill patients, tachycardia or poor acoustic windows may limit image quality, complicating interpretation of left ventricular function or diastolic parameters.[48]

Telemetry and rhythm monitoring, while invaluable for detecting arrhythmias, can be prone to misinterpretation. Artifacts or premature beats are frequently mistaken for true arrhythmias, leading to unnecessary pharmacologic intervention. Conversely, clinically significant episodes of AF or ventricular tachycardia may be transient and easily missed without continuous oversight. These challenges highlight the need for cardiologist-directed interpretation rather than automated telemetry alerts.[49]

Stroke and preoperative evaluation specific challenges

Cardiology consultations for neurologic or perioperative evaluations introduce a distinct set of diagnostic difficulties. In stroke patients, differentiating cardioembolic from non-cardiac etiologies remains essential for secondary prevention but is often hindered by limited diagnostic windows and confounding comorbidities. The identification of paroxysmal AF, left atrial thrombus, or patent foramen ovale requires prolonged cardiac monitoring and targeted echocardiographic studies (TTE/TEE). However, these evaluations are not always feasible during acute neurological instability.[49]

In the preoperative setting, cardiology consultation must balance the risk of surgical delay against the need for complete cardiac optimization. Over-testing can postpone life-saving operations, while under-evaluation risks perioperative myocardial injury. Current guidelines recommend using probabilistic rather than categorical risk communication, incorporating validated indices such as the Revised Cardiac Risk Index (RCRI) and individualized risk modeling.[30] Despite these frameworks, uncertainty often persists in elderly or multi-morbid patients where functional capacity and frailty are difficult to quantify objectively.

Systemic and communication barriers

Beyond diagnostic complexity, systemic barriers frequently impede effective cardiology consultation. Delayed or incomplete referrals remain a recurring problem, often because non-cardiology teams underestimate the urgency of hemodynamic assessment or fail to provide complete clinical data.[48,49] This delay may result in missed opportunities for early diagnosis of acute heart failure, arrhythmia, or myocardial injury.

Another limitation is the lack of standardized documentation templates. Consultation notes vary widely in structure and content, leading to ambiguity in management plans and difficulty in follow-up continuity. Adopting uniform reporting formats, such as structured risk communication and clearly defined next steps, has been shown to enhance collaboration between cardiology, surgery, and internal medicine teams.[49]

Discrepancies also arise between cardiologist recommendations and their implementation by the primary team. Differences in therapeutic priorities, workflow pressures, or miscommunication regarding medication adjustments can undermine optimal care delivery. Integrating multidisciplinary ward rounds and electronic consult tracking systems has been proposed to bridge these gaps, improving adherence to cardiology recommendations and patient outcomes.[50]

Cardiology consultation in hospitalized patients is often hindered by overlapping symptoms, diagnostic ambiguities, and fragmented communication. The consultant's ability to synthesize disparate data (clinical, biochemical, and imaging) is fundamental to avoid both over- and under-diagnosis. Establishing standardized consultation frameworks, enhancing interdisciplinary communication, and implementing evidence-based diagnostic pathways can markedly improve efficiency and clinical outcomes. Future research should focus on quantifying the impact of early, structured cardiology consultation on mortality, diagnostic accuracy, and cost-effectiveness.[46-50]

Management strategies guided by cardiology consultations

Pharmacologic management

Cardiology consultations play a pivotal role in guiding pharmacologic strategies for patients admitted for non-cardiac conditions. In ACS, evidence-based principles such as early dual antiplatelet therapy, β-blocker initiation, and statin therapy are frequently adapted to the context of concurrent systemic illness or surgical risk. In non-cardiac admissions, such as sepsis or major surgery, consulting cardiologists must carefully balance ischemic risk with bleeding potential, often modifying antiplatelet or anticoagulant regimens according to perioperative needs and anesthesia timing.[50]

For hospitalized heart failure patients, medication titration remains a central focus. Cardiology input ensures optimization of guideline-directed medical therapy, including the initiation or up-titration of ACE inhibitors/ARNIs, β-blockers, and SGLT2 inhibitors, tailored to hemodynamic status and renal function.[29] In patients with acute decompensation, loop diuretic strategies, vasodilator choice, and

decongestion monitoring are guided by echocardiographic and laboratory parameters interpreted by cardiologists.

Similarly, antithrombotic management is nuanced in perioperative and post-stroke settings. Decisions regarding the timing of anticoagulation resumption, bridging strategies, and left atrial appendage evaluation in atrial fibrillation are informed by consultation-based risk stratification.[51,53] These decisions align with updated AHA/ACC and ESC recommendations emphasizing individualized assessment of thromboembolic versus hemorrhagic risks.[53]

Procedural and imaging interventions

Cardiology consultations frequently determine the need for further diagnostic or interventional procedures. Indications for coronary angiography in non-cardiac admissions typically arise from troponin elevation of uncertain etiology, perioperative myocardial infarction, or new-onset heart failure.[52] Timely angiography, when warranted, enables targeted revascularization and may significantly alter the patient's trajectory, especially in surgical or critically ill populations.

Cardiac magnetic resonance imaging (CMR) is another high-yield diagnostic modality often recommended following cardiology evaluation. Its superior tissue characterization provides clarity in cases of myocarditis, infiltrative disease, or post-stroke cardiomyopathy. Echocardiography, however, remains the cornerstone of cardiology-guided imaging. Structural and functional assessment of ventricular function, valvular pathology, and pulmonary pressures frequently directs management modifications during hospitalization.[54]

In selected patients, device therapy recommendations, such as pacemaker or ICD implantation, emerge from cardiology consultations, particularly when conduction disturbances or arrhythmia-related syncope complicate the primary disease course. Multidisciplinary discussions ensure appropriate timing and indication, especially in those requiring imminent non-cardiac procedures.

Preoperative and post-stroke care coordination

Collaborative decision-making between cardiology, anesthesiology, and surgical teams is crucial for risk mitigation in complex patients. Cardiology consultations facilitate preoperative optimization through medication adjustment (e.g., withholding renin–angiotensin–aldosterone system inhibitors or managing perioperative anticoagulation) and evaluation of fluid balance and hemodynamic stability.[54] This joint planning reduces the incidence of perioperative myocardial injury and hemodynamic complications.

After a cerebrovascular event, cardiology input is equally essential. Comprehensive post-stroke cardiac evaluation comprising rhythm monitoring, echocardiography, and sometimes transesophageal echocardiography, identifies occult AF, patent foramen ovale, or ventricular thrombus.[53] These findings guide long-term antithrombotic strategies and secondary prevention.

Finally, continuity of care represents a major goal of cardiology consultation. Transition from inpatient consultation to structured outpatient follow-up ensures consistent titration of medications, reassessment of left ventricular recovery, and reinforcement of lifestyle and risk factor control. In this integrated model, cardiology consultations not only address acute issues but also establish long-term cardiovascular care pathways that improve overall survival and functional outcomes.

Outcomes and impact of cardiology consultations

Cardiology consultations exert a measurable influence on inpatient outcomes, particularly among surgical and neurological patients. Multiple studies show that early cardiology involvement reduces perioperative myocardial injury and in-hospital mortality.[55,56] Incorporating cardiologic expertise during non-cardiac admissions allows early identification of heart failure, arrhythmia, or ischemia, leading to optimized hemodynamics and reduced adverse events. The potential impact of cardiology consultation on diagnostic accuracy, management decisions, and patient-centered outcomes across different clinical domains is summarized in Table 3.

Table 3 Impact of cardiology consultation on clinical management and outcomes

Domain	Consultation-driven intervention	Documented benefit
Diagnostic accuracy	Differentiation of MI types	Reduced unnecessary invasive procedures
Heart failure care	Early GDMT initiation	Lower readmission rates
Arrhythmia management	Trigger-based treatment	Reduced length of stay
Perioperative care	Risk-guided optimization	Reduced perioperative myocardial injury
Stroke care	Detection of cardioembolic sources	Improved secondary prevention
Sepsis management	Echo-guided fluid/vasopressor use	Improved hemodynamic stability
Onco-cardiology	Early cardioprotection	Continuation of cancer therapy
Care coordination	Structured recommendations	Better interdisciplinary adherence

Abbreviations: AF, atrial fibrillation; GDMT, guideline-directed medical therapy; HF, heart failure; LV, left ventricle; MI, myocardial infarction; PCI, percutaneous coronary intervention

Available evidence suggests that the clinical impact of cardiology consultations is not uniform across all hospitalized patients but varies according to the underlying clinical scenario and timing of referral. Observational studies indicate that the most consistent benefits are observed in high-risk populations, particularly those with acute heart failure, perioperative cardiovascular risk, and ischemic stroke, whereas routine consultation in low-risk settings may have limited effect on hard outcomes.[55,56] Accordingly, the value of cardiology consultation appears to be maximized when it is targeted, timely, and focused on clinically actionable decisions rather than broad screening.

In patients hospitalized with acute ischemic stroke, cardiology consultation has been associated with improved identification of cardioembolic sources and more appropriate implementation of secondary prevention strategies. Structured cardiac evaluation, including echocardiography and prolonged rhythm monitoring guided

by cardiology input, increases the detection of AF, cardiac thrombi, and other embolic substrates that directly influence long-term antithrombotic management.[45,57] Studies addressing the stroke–heart syndrome further suggest that early cardiology involvement may contribute to reduced recurrent ischemic events through optimization of rhythm control, blood pressure management, and anticoagulation strategies, although randomized outcome data remain limited.[10,58]

In the perioperative setting, the benefit of cardiology consultation appears to be context dependent. Large cohort analyses demonstrate that routine, non-targeted preoperative consultation does not consistently reduce perioperative mortality and may increase testing and delays in care.[8,59] In contrast, focused cardiology involvement in patients with known cardiovascular disease, poor functional capacity, or recent decompensation has been associated with improved perioperative risk stratification, more appropriate medication management, and reduced incidence of perioperative myocardial injury.[30,55,56] These findings underscore that perioperative cardiology consultation is most effective when guided by validated risk indices and aligned with guideline-based indications rather than applied indiscriminately.

Consultation-based medication adjustments including optimization of antithrombotics, avoiding contraindicated agents, and refining diuretic or vasodilator therapy, improve therapeutic appropriateness and reduce readmissions.[55,59] These interventions shorten hospital stays and improve care quality metrics.

However, barriers remain. High consult volumes in tertiary centers can limit time per patient, and fragmented communication between teams may cause underutilization of recommendations.[60] Additionally, post-discharge continuity is often weak, underscoring the need for structured feedback and coordinated outpatient follow-up to preserve consultation benefits.

Future directions and optimization

Future improvement in cardiology consultation models will rely heavily on digital transformation and structured workflow design. Artificial intelligence (AI)-based ECG and echocardiography algorithms now allow automated triage and detection of subclinical cardiac dysfunction, enhancing consultation efficiency and prioritization.[60]

Developing standardized consultation templates with defined sections for findings, risk stratification, and recommendations can improve interdepartmental communication and enable consistent data recording.[59] These structured formats also facilitate audit and quality improvement.

Interdisciplinary training represents another key frontier. Educational initiatives that bring together cardiologists, surgeons, and neurologists enhance awareness of cardiovascular comorbidities and perioperative optimization principles.[56]

Telecardiology and remote consultation systems are increasingly vital, especially in community hospitals without in-house cardiologists. Secure platforms for real-time image sharing and e-consults have been shown to maintain diagnostic accuracy while reducing unnecessary transfers.[60]

Finally, robust prospective research is required to define the long-term effects of cardiology consultations on survival, cost-effectiveness, and quality-of-life outcomes. Establishing large-scale databases can help refine indications and develop predictive tools for targeted cardiology referral.

Conclusion

Cardiology consultations are indispensable for multidisciplinary hospital care. They contribute to reduced perioperative complications, improved diagnostic precision, and better outcomes in complex medical and surgical patients. The effectiveness of these consultations depends on timely referral, accurate communication, and adherence to evidence-based recommendations. Structured templates, digital health systems, and AI-enabled interpretation can bridge existing gaps and standardize care delivery. The future of cardiology consultation should emphasize an integrative model combining clinical expertise, data analytics, and telemedicine. By aligning technology with clinical judgment, hospitals can ensure that cardiology input translates into measurable, long-term patient benefit.

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All of the authors contributed planning, conduct, and reporting of the work. All authors had full access to all data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

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References

1. Oseran AS, Wasfy JH. Early experiences with cardiology electronic consults: A systematic review. *Am Heart J*. 2019;215:139–146.
2. Byrne J. Consultation and clinical assessment of the heart and cardiovascular system. *Br J Nurs*. 2021;30(18):1066–1072.
3. Marques AC, Calderaro D, Yu PC, et al. Impact of cardiology referral: clinical outcomes and factors associated with physicians' adherence to recommendations. Clinics (Sao Paulo). 2014;69(10):666–671.
4. Ehrmann Feldman D, Xiao Y, Bernatsky S, et al. Consultation with cardiologists for persons with new–onset chronic heart failure: a population–based study. *Can J Cardiol*. 2009;25(12):690–694.
5. Mensah GA, Fuster V, Murray CJL, et al. Global burden of cardiovascular diseases and risks collaborators. global burden of cardiovascular diseases and risks, 1990–2022. *J Am Coll Cardiol*. 2023;82(25):2350–2473.
6. Writing Committee Members, Thompson A, Fleischmann KE, et al. 2024 AHA/ACC/ACS/ASNC/HRS/SCA/SCCT/SCMR/SVM Guideline for perioperative cardiovascular management for noncardiac surgery: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *J Am Coll Cardiol*. 2024;84(19):1869–1969.
7. Beckerleg W, Kobewka D, Wijeysundera DN, et al. Association of preoperative medical consultation with reduction in adverse postoperative outcomes and use of processes of care among residents of ontario, Canada. *JAMA Intern Med*. 2023;183(5):470–478.
8. Goh KH, Yeow AYK, Wang L, et al. The benefits of integrating electronic medical record systems between primary and specialist care institutions: mixed methods cohort study. *J Med Internet Res.* 2025;27:e49363.
9. Wang L, Ma L, Ren C, et al. Stroke–heart syndrome: current progress and future outlook. *J Neurol.* 2024;271(8):4813–4825.
10. Lip GYH, Lane DA, Lenarczyk R, et al. Integrated care for optimizing the management of stroke and associated heart disease: a position paper of the European Society of Cardiology Council on Stroke. Eur Heart J. 2022;43(26):2442–2460.

11. Tolu–Akinnawo O, Ezekwueme F, Awoyemi T. Telemedicine in cardiology: enhancing access to care and improving patient outcomes. Cureus. 2024;16(6):e62852.

12. L'Heureux M, Sternberg M, Brath L, et al. Sepsis–induced cardiomyopathy: a comprehensive review. *Curr Cardiol Rep*. 2020;22(5):35.

13. Fudim M, Ambrosy AP, Sun JL, et al. High–sensitivity troponin I in hospitalized and ambulatory patients with heart failure with preserved ejection fraction: insights from the Heart Failure Clinical Research Network. *J Am Heart Assoc*. 2018;7(24):e010364.

14. Korff S, Katus HA, Giannitsis E. Differential diagnosis of elevated troponins. *Heart*. 2006;92(7):987–993.

15. Greene SJ, Butler J, Fonarow GC, et al. Pre–discharge and early post–discharge troponin elevation among patients hospitalized for heart failure with reduced ejection fraction: findings from the ASTRONAUT trial. *Eur J Heart Fail.* 2018;20(2):281–291.

16. McCarthy C, Li S, Wang TY, et al. Implementation of high–sensitivity cardiac troponin assays in the United States. *J Am Coll Cardiol.* 2023;81(3):207–219.

17. Kousa O, Essa A, Saleh M, et al. The impact of cardiology consultation on medical intensive care unit patients with elevated troponin levels. *Am J Med Sci.* 2021;361(3):303–309.

18. Chyou JY, Barkoudah E, Dukes JW, et al. Atrial fibrillation occurring during acute hospitalization: a scientific statement from the American Heart Association. *Circulation*. 2023;147(15):e676–e698.

19. Zakynthinos GE, Tsolaki V, Xanthopoulos A, et al. Prevalence, risk factors, and mortality of new–onset atrial fibrillation in mechanically ventilated critically ill patients. *J Clin Med.* 2024;13(22):6750.

20. El–Sherif N, Turitto G. Electrolyte disorders and arrhythmogenesis. *Cardiol J.* 2011;18(3):233–245.

21. Van Gelder IC, Rienstra M, Bunting KV, et al. 2024 ESC guidelines for the management of atrial fibrillation developed in collaboration with the European Association for Cardio–Thoracic Surgery (EACTS). *Eur Heart J.* 2024;45(36):3314–3414.

22. Al–Khatib SM, Stevenson WG, Ackerman MJ, et al. 2017 AHA/ACC/HRS guideline for management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. *Circulation*. 2018;138(13):e272–e391.

23. Joglar JA, Chung MK, Armbruster AL, et al. 2023 ACC/AHA/ACCP/HRS guideline for the diagnosis and management of atrial fibrillation. *Circulation*. 2024;149(1):e1–e156.

24. Gheorghiade M, Vaduganathan M, Fonarow GC, et al. Rehospitalization for heart failure: problems and perspectives. *J Am Coll Cardiol.* 2013;61(4):391–403.

25. McDonagh TA, Metra M, Adamo M, et al. 2023 focused update of the 2021 ESC guidelines for the diagnosis and treatment of acute and chronic heart failure. *Eur Heart J.* 2023;44(37):3627–3639.

26. Shafi M. Differentiating cardiac and pulmonary causes of dyspnea: is point–of–care ultrasound the ultimate tool? *Indian J Crit Care Med.* 2022;26(1):7–8.

27. Khan A, Khan D, Shadi M, et al. Utilization of ultrasound to assess volume status in heart failure. *J Clin Med Res.* 2020;12(4):230–232.

28. Vergani M, Cannistraci R, Perseghin G, et al. The role of natriuretic peptides in the management of heart failure with a focus on the patient with diabetes. *J Clin Med*. 2024;13(20):6225.

29. Heidenreich PA, Bozkurt B, Aguilar D, et al. 2022 AHA/ACC/HFSA guideline for the management of heart failure. *J Am Coll Cardiol.* 2022;79(17):e263–e421.

30. Fleisher LA, Fleischmann KE, Auerbach AD, et al. 2014 ACC/AHA guideline on perioperative cardiovascular evaluation and management of patients undergoing noncardiac surgery. J Am Coll Cardiol. 2014;64(22):e77–e137.

31. Lee TH, Marcantonio ER, Mangione CM, et al. Derivation and prospective validation of a simple index for prediction of cardiac risk of major noncardiac surgery. *Circulation*. 1999;100(10):1043–1049.

32. Marsman M, van Waes JAR, Grobben RB, et al. Added value of subjective assessed functional capacity before non–cardiac surgery in predicting postoperative myocardial injury. *Eur J Prev Cardiol*. 2021;28(3):262–269.

33. Wijeysundera DN, Pearse RM, Shulman MA, et al. Assessment of functional capacity before major non–cardiac surgery: an international, prospective cohort study. *Lancet.* 2018;391(10140):2631–2640.

34. Douketis JD, Spyropoulos AC, Murad MH, et al. Perioperative management of antithrombotic therapy: an American College of Chest Physicians clinical practice guideline. *Chest.* 2022;162(5):e207–e243.

35. van Kuijk JP, Flu WJ, Schouten O, et al. Timing of noncardiac surgery after coronary artery stenting with bare metal or drug–eluting stents. *Am J Cardiol.* 2009;104(9):1229–1235.

36. Carey RM, Calhoun DA, Bakris GL, et al. Resistant hypertension: detection, evaluation, and management: a scientific statement from the American Heart Association. *Hypertension*. 2018;72(5):e53–e90.

37. Whelton PK, Carey RM, Aronow WS, et al. 2017 ACC/AHA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. J Am Coll Cardiol. 2018;71(19):e127–e248.

38. Cecconi M, De Backer D, Antonelli M, et al. Consensus on circulatory shock and hemodynamic monitoring. *Intensive Care Med*. 2014;40(12):1795–1815.

39. Chaudhry F, Small E, Korzeniewski SJ, et al. Emergency department blood pressure treatment and outcomes in adults presenting with severe hypertension. *West J Emerg Med*. 2024;25(5):680–689.

40. See KC. Management of circulatory shock and hypotension. *Singapore Med J.* 2022;63(5):239–244.

41. Kakihana Y, Ito T, Nakahara M, et al. Sepsis–induced myocardial dysfunction: pathophysiology and management. *J Intensive Care*. 2016;4:22.

42. Lima MR, Silva D. Septic cardiomyopathy: a narrative review. *Rev Port Cardiol*. 2023;42(5):471–481.

43. Campia U, Moslehi JJ, Amiri–Kordestani L, et al. Cardio–oncology: vascular and metabolic perspectives: a scientific statement from the American Heart Association. *Circulation*. 2019;139(13):e579–e602.

44. Birch S, Otton J. Cardio–oncology and radiation oncology: how collaboration between cardiologists and oncologists can be realised in radiation oncology. *J Med Imaging Radiat Oncol.* 2024;68(8):962–973.

45. Ntaios G, Baumgartner H, Doehner W, et al. Embolic strokes of undetermined source: a clinical consensus statement of the ESC Council on Stroke, the European Association of Cardiovascular Imaging and the European Heart Rhythm Association of the ESC. *Eur Heart J.* 2024;45(19):1701–1715.

46. Dalton A, Shahul S. Cardiac dysfunction in critical illness. *Curr Opin Anaesthesiol.* 2018;31(2):158–164.

47. Sandoval Y, Jaffe AS. Type 2 myocardial infarction: JACC review topic of the week. *J Am Coll Cardiol.* 2019;73(14):1846–1860.

48. McLean AS, Huang SJ. Cardiac biomarkers in the intensive care unit. *Ann Intensive Care.* 2012;2:8.

49. Stevens JP, Landon B. Opportunities to improve the quality of inpatient consultation: one hospital's investigation but an age old struggle. *Isr J Health Policy Res.* 2022;11(1):7.

50. Byrne RA, Rossello X, Coughlan JJ, et al. 2023 ESC guidelines for the management of acute coronary syndromes. *Eur Heart J.* 2023;44(38):3720–3826.

51. Hindricks G, Potpara T, Dagres N, et al. 2020 ESC guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio–Thoracic Surgery (EACTS). *Eur Heart J.* 2021;42(5):373–498.

52. Smilowitz NR, Redel–Traub G, Hausvater A, et al. Myocardial injury after noncardiac surgery: a systematic review and meta–analysis. *Cardiol Rev.* 2019;27(6):267–273.

53. Kleindorfer DO, Towfighi A, Chaturvedi S, et al. 2021 guideline for the prevention of stroke in patients with stroke and transient ischemic attack: a guideline from the American Heart Association/American Stroke Association. *Stroke.* 2021;52(7):e364–e467.

54. Aresti NA, Malik AA, Ihsan KM, et al. Perioperative management of cardiac disease. *J Perioper Pract.* 2014;24(1–2):9–14.

55. Groot MW, Spronk A, Hoeks SE, et al. The preoperative cardiology consultation: indications and risk modification. *Neth Heart J.* 2017;25(11):629–633.

56. Şimşek F, Erten E. Preoperative advanced cardiology evaluation in adult non–cardiac surgery: a retrospective cohort study. *J Surg Med.* 2023;7(2):165–169.

57. Kauw F, Velthuis BK, Takx RAP, et al. Detection of cardioembolic sources with nongated cardiac computed tomography angiography in acute stroke: results from the ENCLOSE study. *Stroke.* 2023;54(3):821–830.

58. Buckley BJR, Harrison SL, Hill A, et al. Stroke–heart syndrome: incidence and clinical outcomes of cardiac complications following stroke. *Stroke.* 2022;53(5):1759–1763.

59. Vijay D, Prabhu SCG, Shankar A. Appropriateness of preoperative cardiology consultations in non–cardiac surgery: a retrospective observational study in a medical college setup. *Int J Acad Med Pharm.* 2023;5(3):437–440.

60. Mazon–Ramos P, Cinza–Sanjurjo S, Garcia–Vega D, et al. The impact of inter–clinician electronic consultation in patients diagnosed with atrial fibrillation in primary care. *Eur J Clin Invest.* 2023;53(3):e13904.