

Reperfusion therapy for ST elevation myocardial infarction in low- to middle-income countries: a clinical consensus statement of the Association for Acute CardioVascular Care (ACVC), the European Association of Percutaneous Cardiovascular Interventions (EAPCI), the European Association of Preventive Cardiology (EAPC), the ESC Working Group on Thrombosis, and the Stent – Save a Life! Initiative

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Suboptimal care for ST-elevation myocardial infarction (STEMI) in low- and middle-income countries is a significant problem. Registries from Latin America, Africa, and Asia show that <65% of patients receive reperfusion therapy, and widespread treatment delays and a lack of access to optimal therapies lead to preventable deaths and complications. While current guidelines provide a blueprint for care, their implementation in low-resource settings requires specific guidance that considers geographical, logistical, and economic realities. This clinical consensus offers a new framework for developing STEMI care systems in these countries. We propose a flexible, three-model pathway, based on the initiatives such as STEMI India and Stent – Save a Life. The models include a fibrinolysis model, a pharmaco-invasive strategy model, and a primary percutaneous coronary intervention (PCI) model. This approach emphasizes adaptability, allowing local STEMI systems to be tailored to specific circumstances. The framework also addresses specific, common challenges, such as delayed access to primary PCI, reperfusion in patients with cardiogenic shock and expected delayed PCI, fibrinolysis in patients with a high risk of bleeding, and the absence of fibrin-specific fibrinolytics, catheterization labs, or reperfusion therapies at all. The consensus also highlights the importance of continuous improvement, patient education, and adopting secondary prevention strategies. Ultimately, this framework is designed to help healthcare providers and leaders in developing countries improve their regional STEMI care systems.

Keywords

STEMI • Acute coronary syndromes • Reperfusion • Low-to middle-income countries • Developing countries • ESC documents

Introduction

Over the last two decades, access to reperfusion therapy for ST-elevation myocardial infarction (STEMI) in North America and Europe has exceeded 90%,^{1,2} with major shift towards primary percutaneous coronary intervention (pPCI) as the preferred strategy.³ This has contributed to a dramatic reduction in in-hospital STEMI mortality to under 5%.^{1,4}

In sharp contrast, STEMI care in low- to middle-income countries (LMICs)—accounting for 80% of the world's population—remains suboptimal.⁵ Registries from LMICs in Latin America, Africa, and Asia report reperfusion rates of <50–65%.^{6–12} Significant treatment delays and a lack of access to optimal therapies contribute to otherwise preventable mortality and morbidity.¹³ While the 2023 ESC Guidelines for Acute Coronary Syndromes¹⁴ provide a blueprint for care, their implementation in low-resource settings requires specific guidance that considers geographical, logistical, and economic realities. The present clinical consensus statement aims to address this gap.

Authored by a diverse group of experts from several ESC groups and associations [Association for Acute CardioVascular Care (ACVC), European Association of Percutaneous Cardiovascular Interventions (EAPCI), European Association of Preventive Cardiology (EAPC), working group on thrombosis] and allied initiatives (Stent – Save a Life! initiative), the goal of this document is to provide an overview of the challenges faced when developing STEMI systems of care in LMICs. It also offers a framework for key leaders to create, critique, and modify the reperfusion environment in their individual geography (*Figure 1*, central illustration). The document is structured in two parts. The first delineates a three-model proposed pathway to create STEMI networks, and the second offers evidence-based guidance for special scenarios frequently encountered in LMICs where access to gold-standard therapies is limited.

Part 1

Status and key challenges for timely reperfusion in low- to middle-income countries

The management of STEMI in LMICs presents significant challenges due to limited healthcare resources and infrastructure.¹³ Registries from these countries show that more than 35% of patients with STEMI do not receive reperfusion therapy, with these percentages reaching 65% in rural areas.^{5–12} *Figure 2* shows a summary of reperfusion rates reported in LMICs worldwide.

While pPCI is the preferred reperfusion therapy, most LMICs struggle to provide this treatment universally.¹³ The availability of pPCI is often restricted to urban centres with specialized facilities, leaving rural and underserved areas unattended. This disparity in access results in higher morbidity and mortality rates compared with high-income countries,¹ highlighting the urgent need for improved STEMI care in these regions. Additionally, the financial constraints faced by many LMICs exacerbate the situation, making it difficult to establish and maintain pPCI centres universally.¹⁴ In the context of limited resources, LMICs often rely on pharmaco-invasive strategy and fibrinolysis as primary reperfusion therapies.¹³ However, access to fibrinolysis and pharmaco-invasive strategy may also be limited due to a myriad of factors.

The primary obstacle to effective STEMI care in LMICs is limited availability of timely reperfusion.^{12,15} The barriers preventing timely treatment are multifactorial and can be broadly categorized into patient-, system-, and resource-level challenges.

- Patient-level delays: A significant portion of treatment delay originates from the patient. This is often driven by a lack of public awareness regarding the symptoms of a myocardial infarction, leading to a failure to recognize the urgency of the situation.¹⁶ Socioeconomic factors may also play a crucial role; fear of catastrophic healthcare expenditure can cause patients to postpone seeking care. Cultural beliefs and the initial use of traditional remedies can further prolong the time to first medical contact. Consequently, public health education campaigns focused on symptom recognition and the importance of immediate action are a fundamental prerequisite for any successful STEMI programme.¹³
- System-level delays: Even when patients seek help promptly, health systems themselves present major hurdles.^{11,12,17} Transportation infrastructure is often inadequate, with poor road conditions and long distances to the nearest capable facility.¹⁸ Emergency medical services, where they exist, may lack the equipment (e.g. 12-lead ECG) or training to diagnose STEMI in the pre-hospital setting and initiate a reperfusion protocol. Furthermore, both non-PCI and pPCI-capable hospitals frequently face the lack of in-hospital protocols and training for STEMI detection and capacity issues, including a shortage of cath-lab slots, intensive care unit beds, and trained nursing staff for post-procedure management, creating bottlenecks that delay or preclude treatment.^{19,20}
- Financial and resource constraints: The establishment and maintenance of a 24/7 pPCI service is resource intensive, requiring substantial investment in infrastructure, equipment, and highly specialized personnel. This is often financially prohibitive for health systems in LMICs.²⁰ This scarcity extends to human resources, with a shortage of interventional cardiologists, particularly in rural areas. Access to essential medicines is also a major issue. A recent review from Sub-Saharan Africa reported that due to the high cost and inconsistent availability of modern fibrin-specific agents such as tenecteplase,

REPERFUSION THERAPY FOR STEMI IN LOW-TO-MIDDLE INCOME COUNTRIES

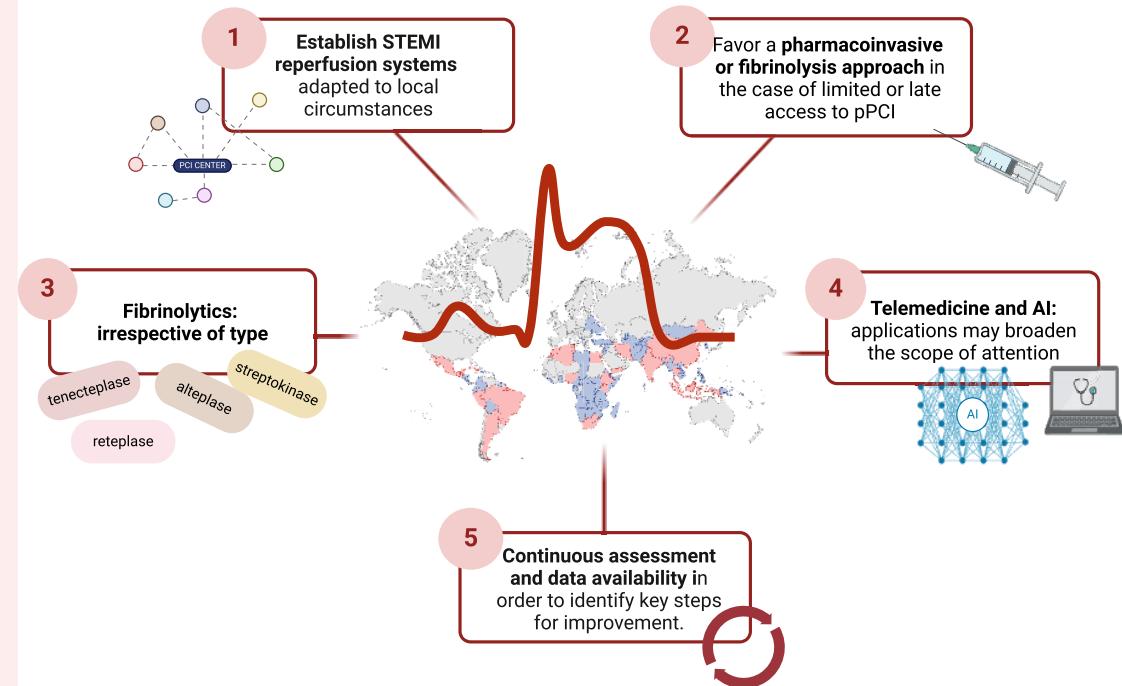


Figure 1 Reperfusion therapy for ST-elevation myocardial infarction in developing countries: central image.

streptokinase was still used in over 80% of fibrinolysis cases, despite its less favourable safety profile.¹⁸

In many primary care clinics, even basic diagnostic tools such as ECG machines may be unavailable, making early diagnosis impossible.

A proposed pathway to establish and improve STEMI systems of care

Establishing an effective STEMI system of care requires a structured approach tailored to local resources.²⁰ A successful programme depends on the involvement of key local stakeholders, including government, ambulance services, national scientific bodies, and representatives from healthcare facilities.²¹ The goal is to ensure every STEMI patient receives the best possible and most timely reperfusion therapy.

Building on the work of STEMI India and the Stent – Save a Life Initiative, we propose a flexible three-model framework.^{20–22} Each model uses a hub-and-spoke configuration. The ‘hub’ is a referral hospital, ideally one capable of performing pPCI, and the ‘spokes’ are the points of first medical contact. The choice of model depends on a region’s infrastructure, personnel, and transportation capabilities. ST-elevation myocardial infarction care systems should transition from having no reperfusion to adopting one of the three models—standalone fibrinolysis, a pharmaco-invasive approach, or a pPCI model—based on local circumstances. The three-model STEMI care system is summarized in *Figure 3* and described below.

Model 1: the thrombolysis-only model

This model is for regions with no accessible cath lab for pPCI (or when transportation to cath lab is >3–4 h away) (*Figure 3A*).

- Strategy: fibrinolysis is the primary reperfusion therapy, ideally administered in a pre-hospital setting or spoke centre to minimize treatment delay.^{23,24}
- Network: spoke centres are equipped for ECG diagnosis and thrombolysis. A regional hospital is designated as the ‘hub’ for transferring complex cases (e.g. failed thrombolysis, cardiogenic shock, or haemodynamic instability), even if it lacks PCI capability.
- Essentials: tele-ECG support from field or spoke to hub, training in cardiopulmonary resuscitation, and hub on-site intensive care capacity are critical.
- Key performance indicators: time from symptom onset to first medical contact, time from first medical contact to diagnosis, diagnosis to needle and total ischaemia time, and proportion of patients receiving fibrinolysis are critical indicators of the model effectiveness.

It is important to clarify that the cutoff of >3–4 h driving/transport distance is empirical, as this may change from scenario-to-scenario and it must be well defined within local considerations.

Model 2: the pharmaco-invasive model

This model is implemented when a pPCI-capable hub exists but timely pPCI (diagnosis-to-device time < 120 min) is not achievable for most patients (*Figure 3B*).

- Strategy: patients receive immediate fibrinolysis at the spoke hospital, followed by routine transfer to the pPCI hub for coronary angiography and intervention within 2–24 h (in case of successful reperfusion criteria) or urgently in the cases of failed fibrinolysis (for rescue PCI). This approach combines the speed of fibrinolysis with the benefits of PCI.

STATUS OF REPERFUSION IN SELECTED LOW-TO-MIDDLE INCOME COUNTRIES

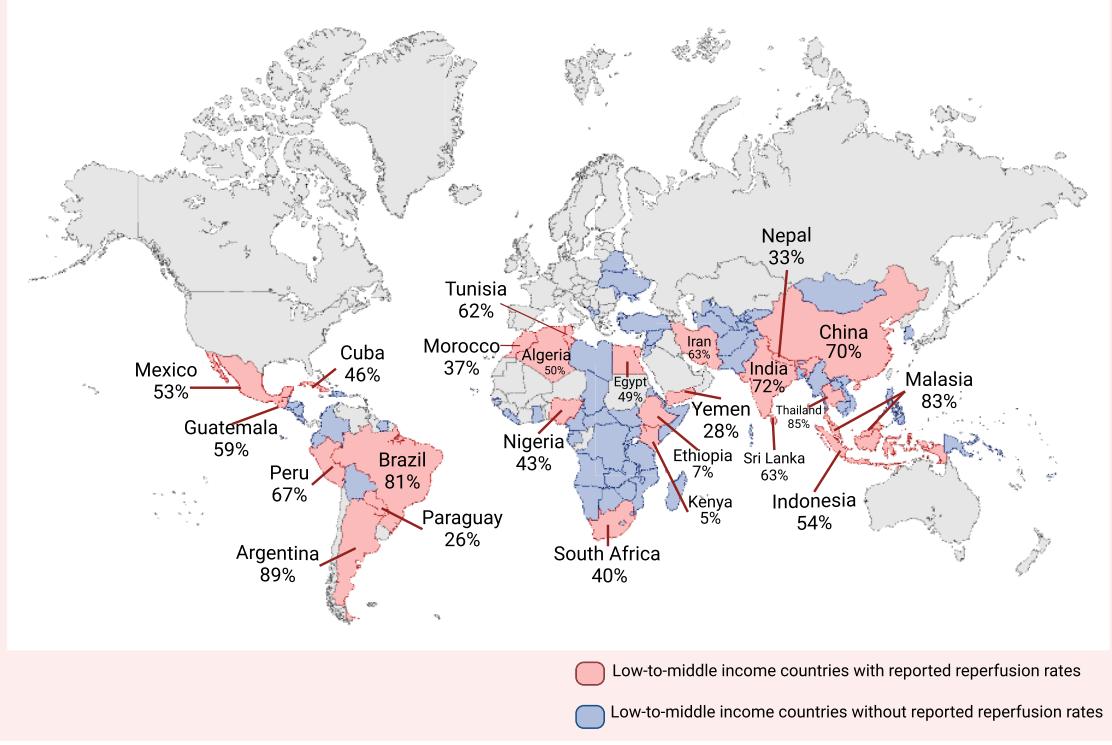


Figure 2 Status of reperfusion for ST-elevation myocardial infarction in selected low- to middle-income countries. Highlighted are the low- to middle-income countries. Those without line/number are countries that have not reported their reperfusion rate for STEMI in the last 10 years (references and detail are found in [Supplementary material online, Appendix Table S1](#)).

- Network: fibrinolysis-capable spoke hospitals are formally linked with a pPCI hub. Availability for immediate rescue PCI in cases of failed fibrinolysis is highly relevant.
- Essentials: tele-ECG support, ambulance availability for either routine or immediate patient transfer, and continuous quality assessment with bilateral spoke–hub communication is key for maintaining a successful pharmaco-invasive network.
- Key performance indicators: in addition to those mentioned above—time from fibrinolysis to catheterization (in both routine and emergent cases). Proportion of patients finally referred receiving coronary angiography. Proportion of successful vs. failed fibrinolysis.

- Key performance indicators: time from symptom onset to first medical contact, time from first medical contact to diagnosis, diagnosis to guidewire crossing, and total ischaemia time, as well as proportion of patients receiving timely (<120 min from diagnosis to guidewire crossing) or late (>120 min) pPCI.

All models should register and report the potential candidates for reperfusion, the causes contributing to the lack of reperfusion (i.e. late presentation, system-related delay, and comorbidities), and 30-day and 1-year endpoints such as mortality, recurrent MI, and post-MI heart failure.

Model 3: the primary percutaneous coronary intervention model

This is the gold-standard model for regions where a pPCI-capable centre is readily accessible (e.g. < 120 min transfer time from diagnosis ([Figure 3C](#))).

- Strategy: all STEMI patients diagnosed at spoke centres or by EMS are transferred directly to the pPCI hub, ideally bypassing the emergency department to minimize delay.
- Network: extremely well-coordinated ambulance services, ideally with a centralized coordination office that grants immediate patient access to pPCI hub, regardless of social security/economic factors.
- Essentials: if the anticipated delay from diagnosis to pPCI exceeds 120 min (e.g. due to traffic or off-hours availability), the system should be flexible enough to switch immediately to a pharmaco-invasive model (Model 2). Continuous quality assessment is essential.

Limitations of the abovementioned pathway

The models described above face significant limitations in LMICs due to widespread systemic and resource challenges. The effectiveness of the fibrinolysis-only model is often hampered by inadequate pre-hospital emergency medical services and unequipped ambulances, which leads to crucial delays in drug administration. Ideally, this should occur pre-hospital. Furthermore, essential components such as tele-ECG support and intensive care capacity are frequently scarce or unevenly distributed.¹³

In addition to the fibrinolysis-only model's limitations, the pharmaco-invasive model also relies on timely transfer to a pPCI hub. It struggles with poor road infrastructure, limited ambulance availability for both routine and urgent transfers, and a severe shortage of

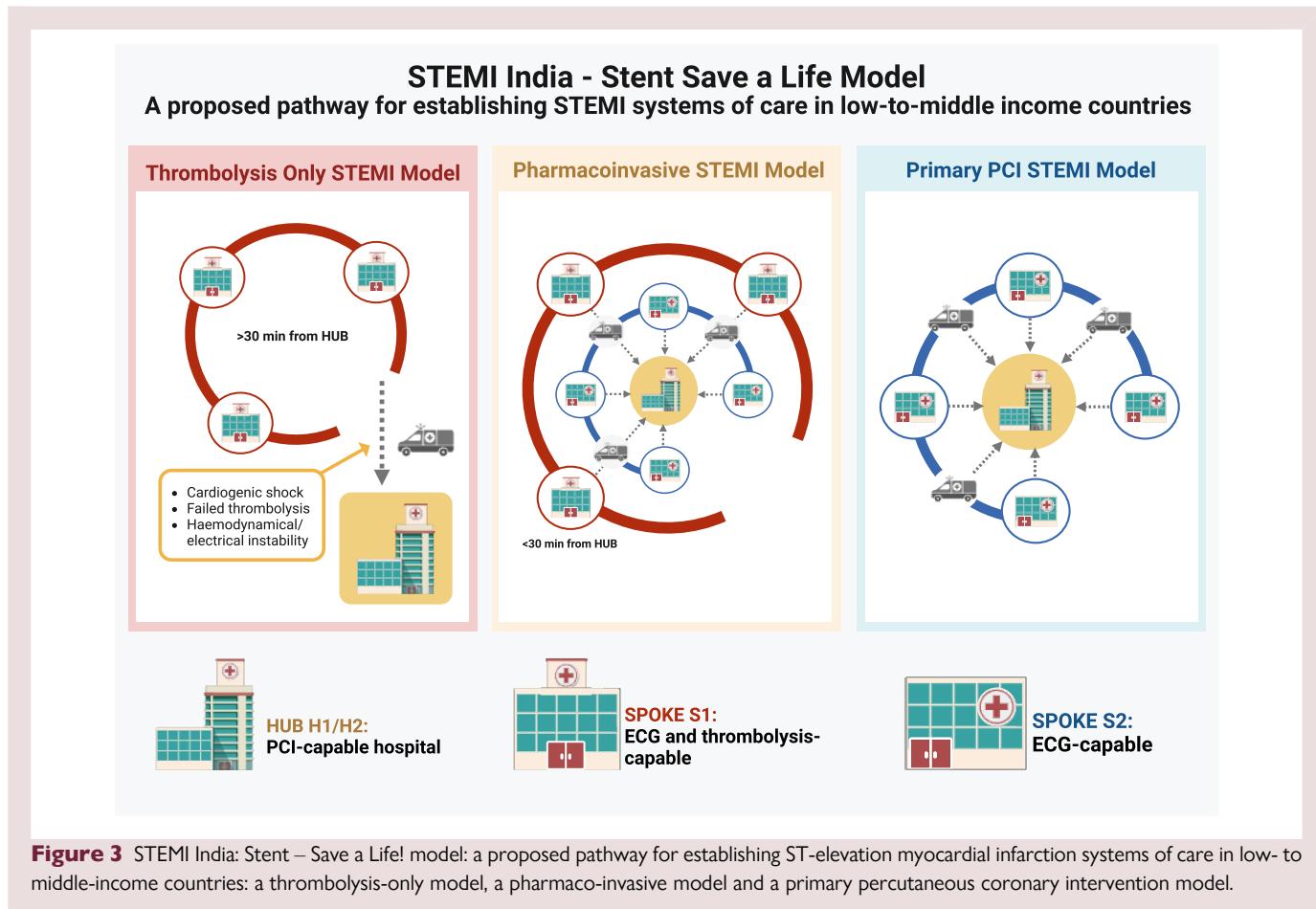


Figure 3 STEMI India: Stent – Save a Life! model: a proposed pathway for establishing ST-elevation myocardial infarction systems of care in low- to middle-income countries: a thrombolysis-only model, a pharmaco-invasive model and a primary percutaneous coronary intervention model.

PCI-capable facilities and trained interventional cardiologists, who are often concentrated in urban centres. This also affects the ability to perform immediate rescue PCI for failed fibrinolysis cases.²⁰

Finally, the pPCI model is largely unfeasible in many LMIC settings due to the prohibitive costs of the procedure for patients who lack comprehensive health insurance, the scarcity of cath labs, and systemic delays in patient presentation and transfer that often exceed the critical 120-min window. Across all models, a general lack of standardized protocols, continuous quality assessment, and public awareness regarding STEMI symptoms further compound the challenges, resulting in suboptimal patient outcomes despite the theoretical benefits of these strategies.²¹ Nonetheless, these pragmatic models should serve as a fast-track pathway to establish or improve a STEMI system of care with tremendous benefits for patient outcomes.^{20–22}

Additional considerations

Use of telemedicine in ST-elevation myocardial infarction systems of care

Telemedicine, especially the on-field acquisition of ECGs and their transmission to a central hub, plays a crucial role in diagnosing and managing STEMI in LMICs. It offers a scalable solution for rapid diagnosis and optimizing treatment.²⁵ Observational studies from Latin America suggest that incorporating telemedicine into STEMI care systems may be associated with reduced door-to-balloon time, increased reperfusion rates, and decreased mortality.^{9,26} However,

implementing telemedicine may not be feasible in very low-resource areas.

Patient awareness and prompt symptom recognition

Given that patient-level delay is a primary driver of poor outcomes, targeted and sustained public education campaigns are essential.²¹ These efforts must go beyond evaluation of symptoms and must install immediate call to action, emphasizing the critical need to contact local emergency medical services (e.g. calling 911) rather than self-transport to a hospital. In the context of LMICs, effective campaigns must be culturally sensitive and utilize multiple channels, including television, radio, social media, and community health workers, to reach diverse urban and rural populations. Simple, memorable messaging that overcomes common misconceptions, cultural barriers, or fatalistic attitudes is of paramount importance.¹⁶ Investing in public awareness is a highly cost-effective public health intervention that serves as a pillar for any STEMI system of care, ensuring that advancements in hospital-based treatment can be fully leveraged by a population empowered to act swiftly.

Part 2

Reperfusion therapy in special scenarios

Clinicians in LMICs (and also in developed economies, due to heterogeneity of care) often face scenarios where standard guideline

recommendations are difficult to apply. The following section summarizes evidence to guide decision-making in these situations.

Scenario 1: delayed access to primary percutaneous coronary intervention

Randomized controlled trials^{27–29} have compared a pharmaco-invasive strategy with a transfer for pPCI when patients face expected delays in pPCI. These studies consistently show similar major adverse cardiovascular outcomes and an overall low risk for bleeding in patients receiving pharmaco-invasive treatment.

Delayed pPCI (more than 120 min from the first medical contact) negatively affects outcomes when compared with timely pPCI or a pharmaco-invasive strategy. A recent study from Norway³⁰ aimed to evaluate whether delayed pPCI, late pPCI, or a pharmaco-invasive strategy offered better outcomes for STEMI patients who could not receive timely pPCI. After propensity score matching, the study found that mortality was higher in both the delayed (HR 1.3) and late pPCI groups (HR 1.6) compared with the pharmaco-invasive strategy group. Studies with similar results from Australia²³ and Latin America²⁴ suggest that a pharmaco-invasive approach, even with the need for rescue PCI in a significant proportion of cases, offers similar outcomes to pPCI and improved outcomes compared with late pPCI.

Therefore, timely pPCI, defined as a diagnosis-to-guide-wire-passing time of <120 min, must be the objective. However, since <20% of patients requiring inter-hospital transfer receive timely pPCI in developed countries,² a low threshold for using a pharmaco-invasive strategy is appropriate.

- Key message: when timely pPCI (<120 min) is not feasible, a pharmaco-invasive strategy is strongly preferred over delayed pPCI.

Scenario 2: delayed access to primary percutaneous coronary intervention in cardiogenic shock

Cardiogenic shock complicates up to 10% of STEMI cases and exponentially increases mortality. The 2023 European Society of Cardiology Guidelines for the management of ACS¹⁴ recommend prioritizing pPCI for patients suffering from cardiogenic shock.

However, a retrospective study from Canada³¹ of 426 patients with acute myocardial infarction complicated by cardiogenic shock showed that those who received a pharmaco-invasive strategy had a shorter symptom-onset-to-reperfusion time. This group also had a significantly lower rate of adverse events, including mortality, renal failure requiring dialysis, cardiac arrest, or the need for mechanical circulatory support (35.2% vs. 57.0%).

While no randomized controlled trial has evaluated the role of a pharmaco-invasive strategy in acute myocardial infarction complicated by cardiogenic shock, evidence suggests that a short time to reperfusion is associated with improved outcomes, even in these patients.

- Key message: in patients with acute myocardial infarction cardiogenic shock, when timely pPCI (<120 min) is not feasible, a pharmaco-invasive strategy may be a reasonable alternative to delayed pPCI.

Scenario 3: delayed or no access to primary percutaneous coronary intervention in patients with high risk of bleeding

A major concern with using fibrinolysis is the increased risk of bleeding. However, recent studies have aimed to improve this by using reduced dosing regimens. The STREAM-2 trial²⁸ randomized elderly patients (over 60 years old) to either a pharmaco-invasive strategy with a half-dose of tenecteplase (0.25 mg/kg body weight) followed by coronary angiography or immediate pPCI. The composite clinical endpoint of death, shock, heart failure, or reinfarction at 30 days was similar between the groups, and the incidence of major non-intracranial bleeding

was low in both (<1.5%). This study suggests that a pharmaco-invasive strategy with half-dose tenecteplase is a reasonable alternative when pPCI is not feasible.

Similarly, the EARLY-MYO trial²⁹ randomized patients to either pPCI or a pharmaco-invasive strategy using half-dose alteplase. The pharmaco-invasive strategy was found to be superior to pPCI for achieving complete epicardial and myocardial reperfusion, with no significant differences in infarct size, left ventricular ejection fraction, or major bleeding events.

- Key message: when fibrinolysis is indicated but the patient is at high risk for bleeding (e.g. elderly), a pharmaco-invasive strategy using a reduced dose of a fibrinolytic (half-dose tenecteplase or alteplase) may be a reasonable option to reduce bleeding risk without compromising efficacy.

Scenario 4: no access to fibrin-specific agents

The 2023 European Society of Cardiology Guidelines for the management of ACS¹⁴ state that weight-adjusted i.v. tenecteplase is the most extensively studied agent for a pharmaco-invasive strategy. However, access to tenecteplase, alteplase, or other fibrin-specific agents may be limited in certain regions due to availability or cost.

Recent data from a small randomized clinical trial³² and real-world studies³³ suggest that using streptokinase within a pharmaco-invasive framework appears to be safe and effective. These studies show comparable bleeding rates and similar all-cause mortality at 1 year (8.5% vs. 8.1%) and 2 years (9.8% vs. 8.8%) between the streptokinase-based pharmaco-invasive group and the pPCI group.

- Key message: when fibrin-specific agents such as tenecteplase are unavailable due to cost or access, streptokinase remains a viable alternative for both isolated fibrinolysis and a pharmaco-invasive strategy.

Scenario 5: delayed access scheduled percutaneous coronary intervention after fibrinolysis

The 2023 European Society of Cardiology Guidelines for the management of ACS¹⁴ recommend that patients who receive systemic fibrinolysis and show successful ST-segment resolution should undergo angiography and PCI of the infarct-related artery 2–24 h after the fibrinolytic is administered.³⁴ However, it is uncertain whether this 24-h window can be extended when access to PCI is limited.

In a recent real-world study of 3287 STEMI patients,³⁵ the median time from successful fibrinolysis to scheduled pharmaco-invasive catheterization was 23.4 h, with nearly 50% receiving a scheduled approach more than 24 h after fibrinolysis. While the study did not directly compare early (<24 h) vs. late (more than 24 h) treatment, the authors did show that the pharmaco-invasive strategy led to superior ST-segment resolution and improved clinical outcomes.

- Key message: after successful fibrinolysis, patients should undergo scheduled angiography within 2–24 h. In resource-limited settings with logistical challenges, this timeframe may be extended. The goal should be to perform angiography as early as is feasible.

Scenario 6: no access to percutaneous coronary intervention

Despite the central role that catheterization laboratories play in diagnosing and treating cardiovascular conditions, many regions have a critical shortage or even a complete absence of them.³⁶ These areas fall remarkably below the minimum standard of 1.6–2 cardiac catheterization labs per 1 000 000 inhabitants. An inevitable consequence of this shortage is that patients will not receive PCI during a myocardial infarction.

In such cases, using fibrinolysis is a viable and evidence-based option.³⁷ These agents have demonstrated significant reductions in mortality in well-conducted trials from before the pPCI era.^{38,39} Fibrinolysis,

when used as part of a pharmaco-invasive strategy, reduces reinfarction rates and improves outcomes similarly to pPCI.³¹ The use of fibrinolysis alone will still provide major benefits for patients with STEMI. Ideally, fibrinolysis should be administered as early as possible and, if feasible, in a pre-hospital setting.^{40,41}

- Key message: in scenarios where no PCI capability exists, neither primary, rescue, nor scheduled-fibrinolysis alone remains a well-validated, life-saving intervention that significantly reduces mortality compared with no reperfusion therapy.

Scenario 7: no access to reperfusion therapies (primary percutaneous coronary intervention or fibrinolysis)

In regions where there is no access to reperfusion therapy—neither pPCI nor fibrinolysis—the available evidence suggests that all other forms of STEMI care should still be offered. This includes antithrombotic therapy, hospital admission, continuous monitoring, and screening for complications.¹⁴ Non-reperfused STEMI has a high rate of morbidity and mortality, which makes hospital admission and close monitoring essential. At the public health level, every effort should be made to avoid this scenario and implement a more optimal STEMI care system.

- Key message: in the extreme scenario where no reperfusion therapy exists, hospital admission, antithrombotic therapy, screening for MI-related complications, and the prevention of post-MI heart failure and secondary prevention strategies are warranted.

Future challenges

A call for continuous improvement

Despite significant resource constraints, certain less-resourced regions have indeed demonstrated remarkable progress in STEMI care, ‘punching above their weight’ through innovative political and medical system adaptations.^{20–22} For instance, some areas have leveraged strong political will to prioritize STEMI care, leading to dedicated budget allocations for treatment options (such as fibrinolytics and stents) and for the establishment of centralized STEMI registries for continuous quality improvement and data-driven policy refinement. Strategies, such as pre-hospital ECG transmission directly to a cardiologist’s mobile device and empowerment of general physicians or nurses in remote spoke centres to initiate fibrinolysis with tele-cardiology support, exemplify how human resource limitations can be addressed. These examples underscore that success in STEMI care in LMICs critically relies on an integrated approach encompassing political commitment, innovative utilization of existing resources, and a relentless focus on reducing system delays through adaptable and context-specific strategies.^{13,20–22,35}

The need for local data to establish ST-elevation myocardial infarction systems of care

Although several countries have reported their quality metrics and STEMI outcomes in properly conducted registries,^{5–12} a major issue that remains to be solved is the under-report of data from most LMICs. At the time of this report, the authors could not find recent (<10 years) registries in at least 67% of the OECD updated⁴² LMIC list (see *Supplementary material online, Appendix Table S1*). This underscores the need for updated and frequent quality evaluations and monitoring of local STEMI systems of care, accounting for total ischaemic time and its components (first medical contact, system delay, diagnosis to guidewire crossing time, etc.). These metrics should be assessed both in and outside of ‘office hours’, as flexible strategies should be established to guarantee the optimal reperfusion treatment on a true 24/7 and 365-day basis.²¹

Emphasis in secondary prevention

While reperfusion treatment for STEMI has dramatically improved morbidity and mortality, further secondary prevention strategies are

of outmost importance after coronary reperfusion.¹⁴ These include lipid-lowering therapy, dual antiplatelet agents, treatment of other risk factors such as diabetes or hypertension, prevention and/or treatment of post-MI heart failure, and importantly, cardiac rehabilitation.⁴³ However, access to such treatments may also be extremely limited in LMICs.⁴⁴ Implementing strategies such as telemedicine^{45,46} may serve as an example in how to deliver secondary prevention strategies that are associated with improved functional capacity, risk factor control, and quality of life in patients living in LMICs.

Conclusions

The present clinical consensus statement presents guidance for those healthcare providers caring for STEMI patients in less-than-optimal conditions, to improve outcomes of STEMI in low- to middle-income countries. This paper also identifies a three-model-based framework to advance and establish effective STEMI systems of care in developing countries. A special emphasis is made to develop local registries that showcase the circumstances of under-represented regions, as delimiting the nature and magnitude of the problem may contribute to provide individualized solutions. Beyond the use of what is currently present, healthcare providers are strongly advised to urgently take future steps to improve their systems of regional care.

Supplementary material

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Data availability

No data were generated or analysed for or in support of this paper.

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