

INSUFFICIENZA CARDIACA ACUTA

Fenotipizzazione e gestione dello shock cardiogeno

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Cardiogenic shock is a state of inadequate tissue perfusion caused by severe cardiac dysfunction, representing a critical emergency in cardiovascular medicine.

SHARC

A. Samuels et al. / The American Journal of Cardiology 266 (2026) 42–51

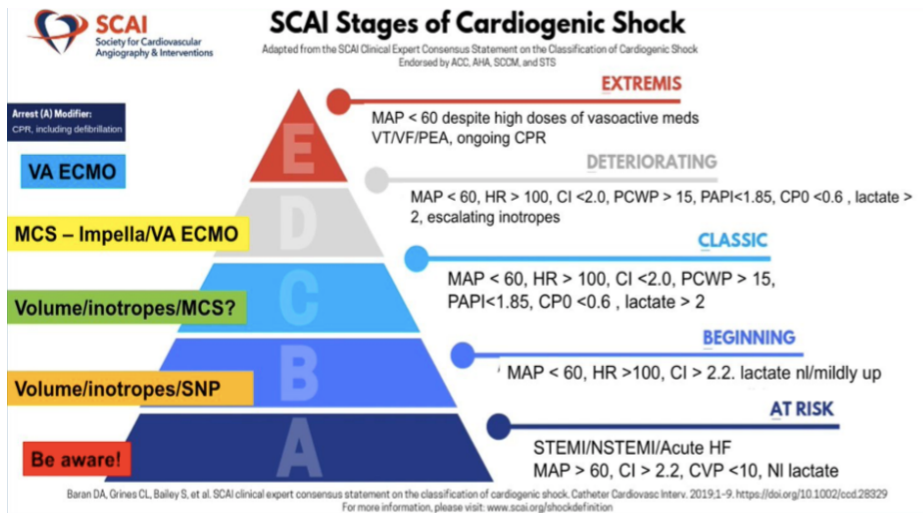
AMI-CS	• In setting of acute MI (STEMI or NSTEMI) in which acute ischemia is the primary driver of cardiogenic shock.	STEMI NSTEMI
HF-CS	• Primary ventricular (L/R) failure (<i>in absence of acute MI</i>)	De novo HF-CS Acute-on-chronic
Secondary CS	• Due to another primary non-myocardial cardiac cause: arrhythmia, pericardial or valvular disease.	Sub-classify by specific cause
Post-cardiotomy CS	• In setting of cardiac surgery	Sub-classify by surgery type

Specific Etiologies

Additional Modifiers

- LV/RV/BIV
- Post-cardiac arrest or eCPR
- Key Specific etiologies:
 - Myocarditis
 - Takotsubo
 - Amyloid
 - Peripartum
- Mixed shock syndrome

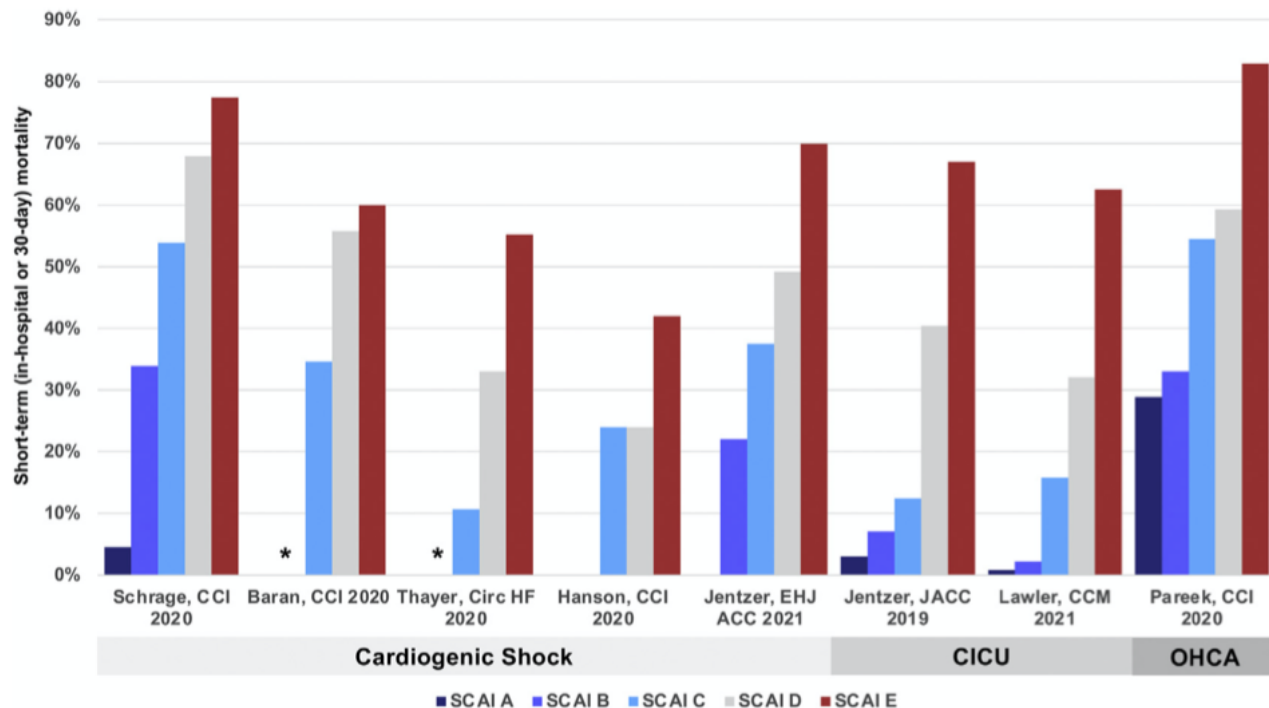
Eziologia



Gravità dello SC .
Predice la mortalità



Short-Term Mortality as a Function of SCAI SHOCK Stages in Each Study

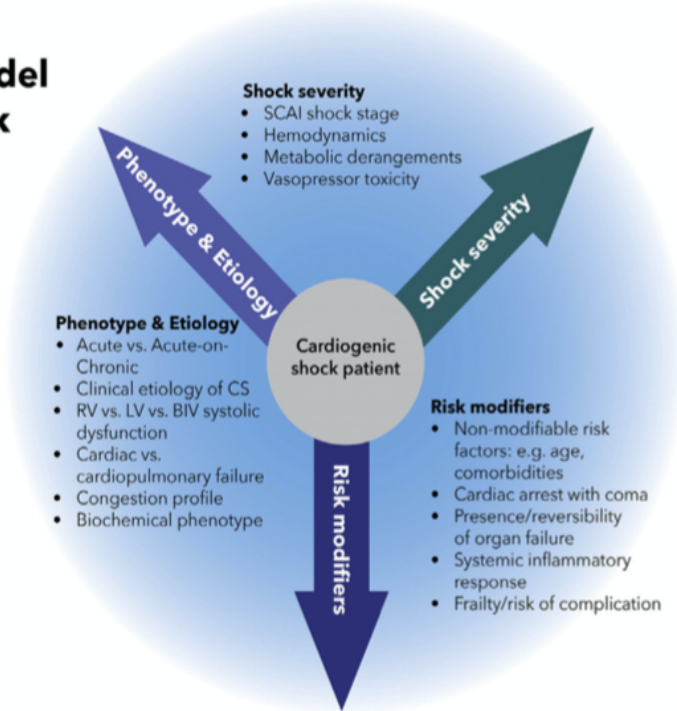


SCAI SHOCK Stage Classification Expert Consensus Update: A Review and Incorporation of Validation Studies

Proposed 3-axis model of cardiogenic shock evaluation and prognostication

The SCAI SHOCK classification was designed for patients presenting acutely, but acute and acute-on-chronic processes can differ in important ways.

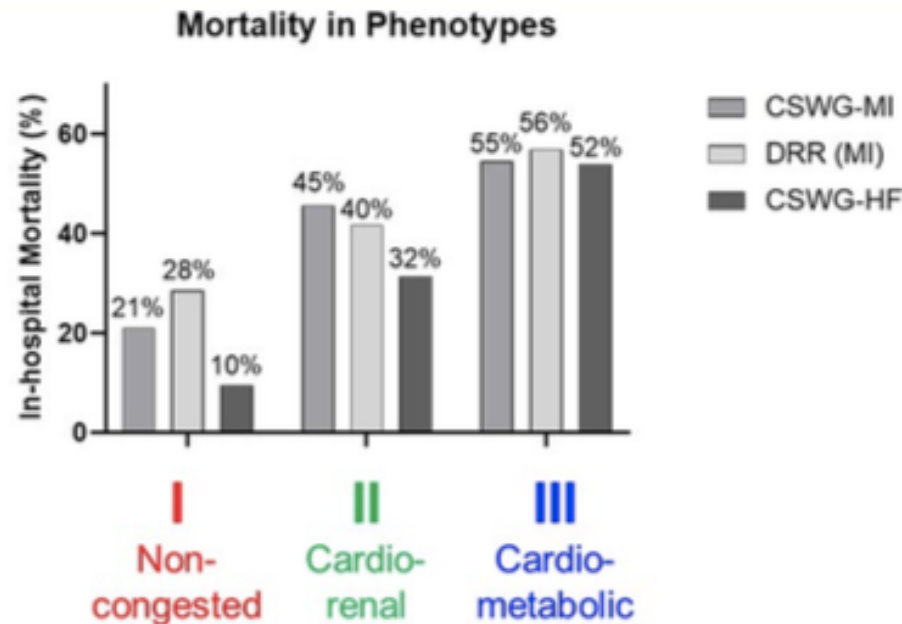
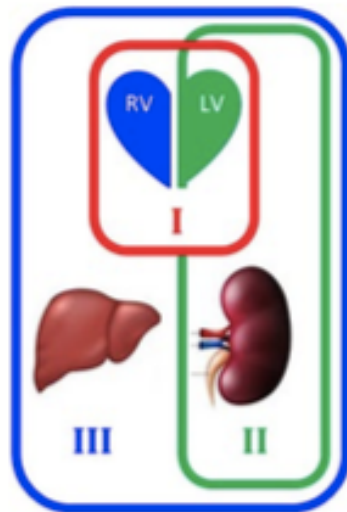
The outcome of shock is based on a number of factors, including the severity of the shock, risk modifiers such as age, comorbidities, and prior CA with evidence of anoxic encephalopathy, and certain features of the hemodynamic phenotype and clinical presentation.

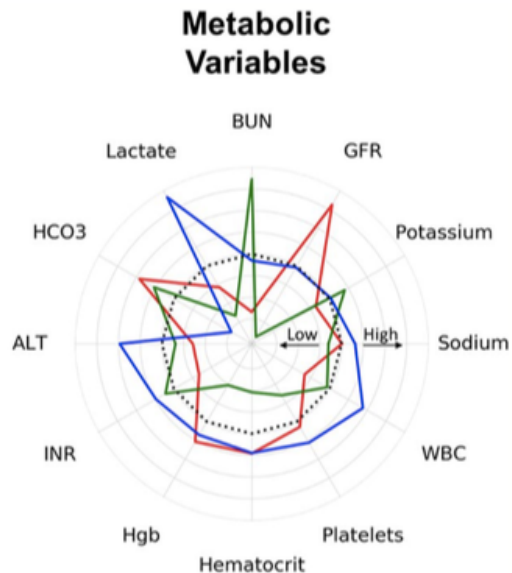
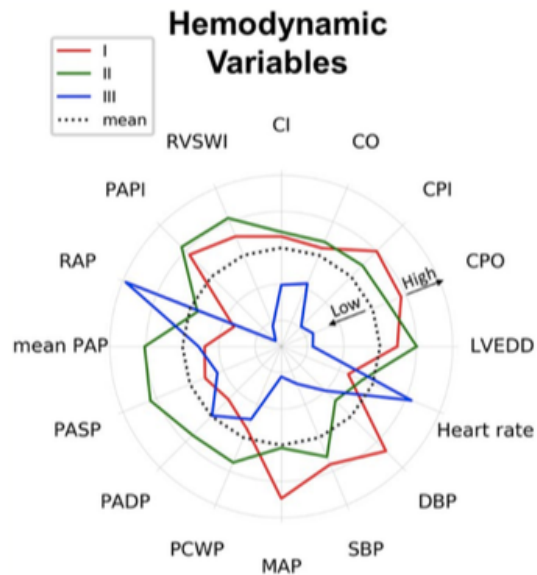


Phenotyping Cardiogenic Shock

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1959 patients with CS
-410 CSWG-MI
-480 CSWG-HF
-1069 DRR (Danish
Retroschock MI Registry)
-Machine learning
algorithms revealed 3
distinct





Sex

Male

Female

Age

Enter Age

Serum Creatinine (mg/dl)

Enter Serum Creatinine

Serum Bicarbonate (mmol/L)

Enter Serum Bicarbonate

Serum Alanine Transaminase (U/L)

Enter Serum Alanine Transaminase

Serum Lactate (mmol/L)

Enter Serum Lactate

Platelet Count (K/ μ L)

Enter Platelet Count

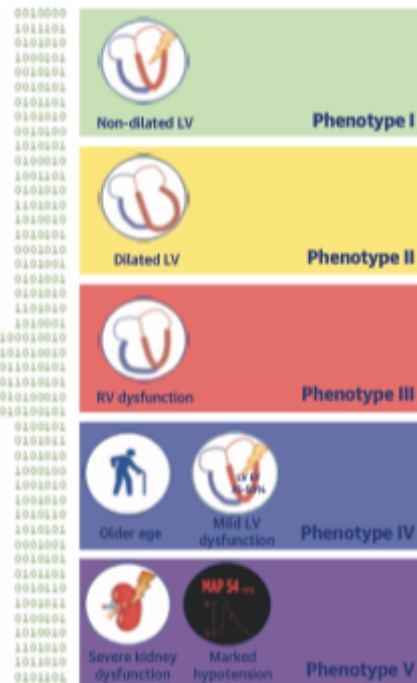
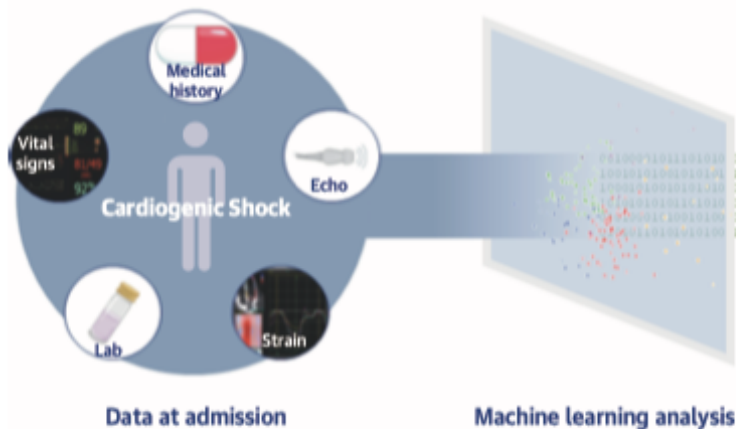
White Cell Count (K/ μ L)

Enter White Cell Count

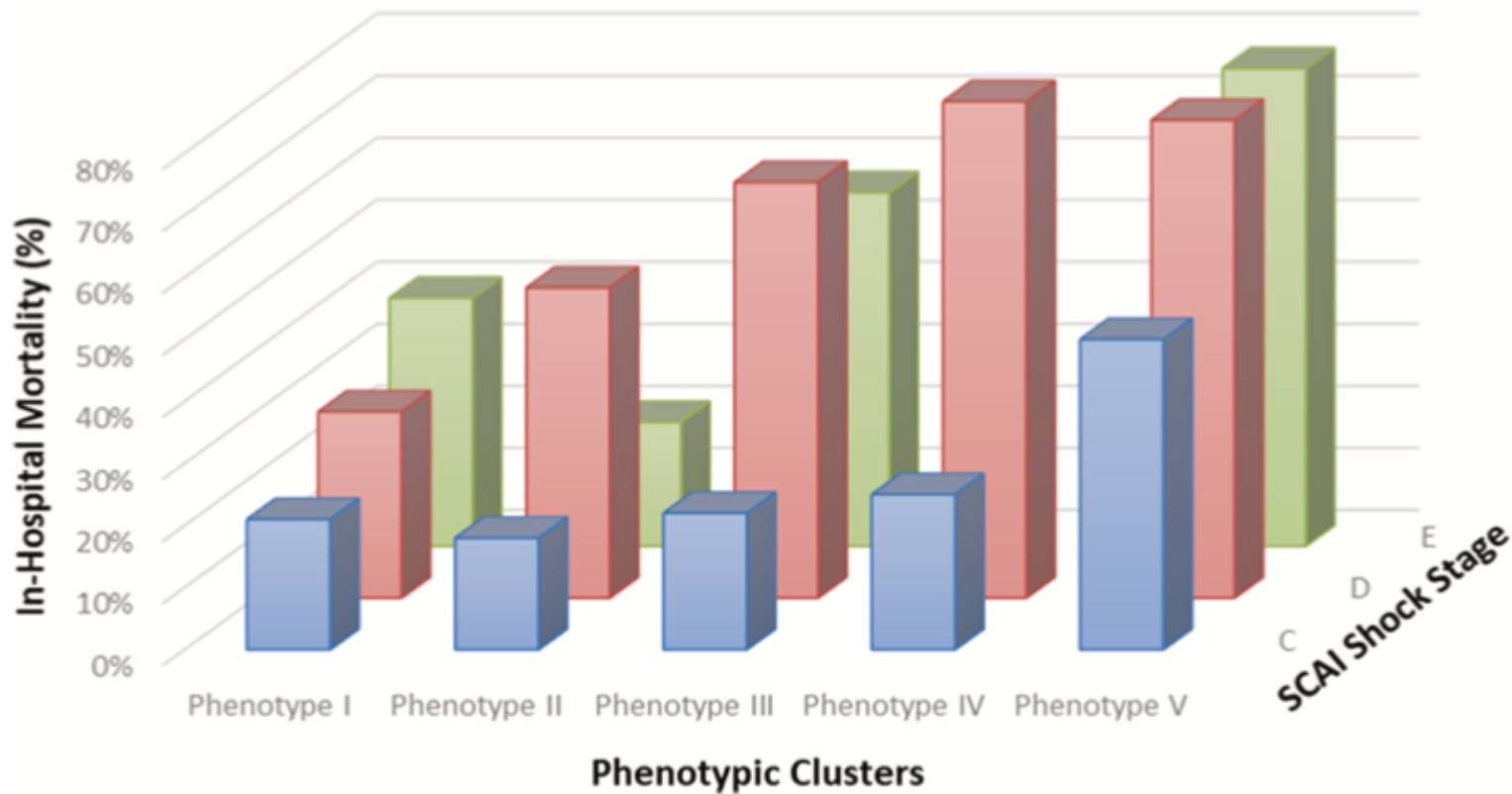


Identifying Cardiogenic Shock Sub-Phenotypes with Machine Learning: A Multicenter Study Combining Clinical and Echocardiographic Data

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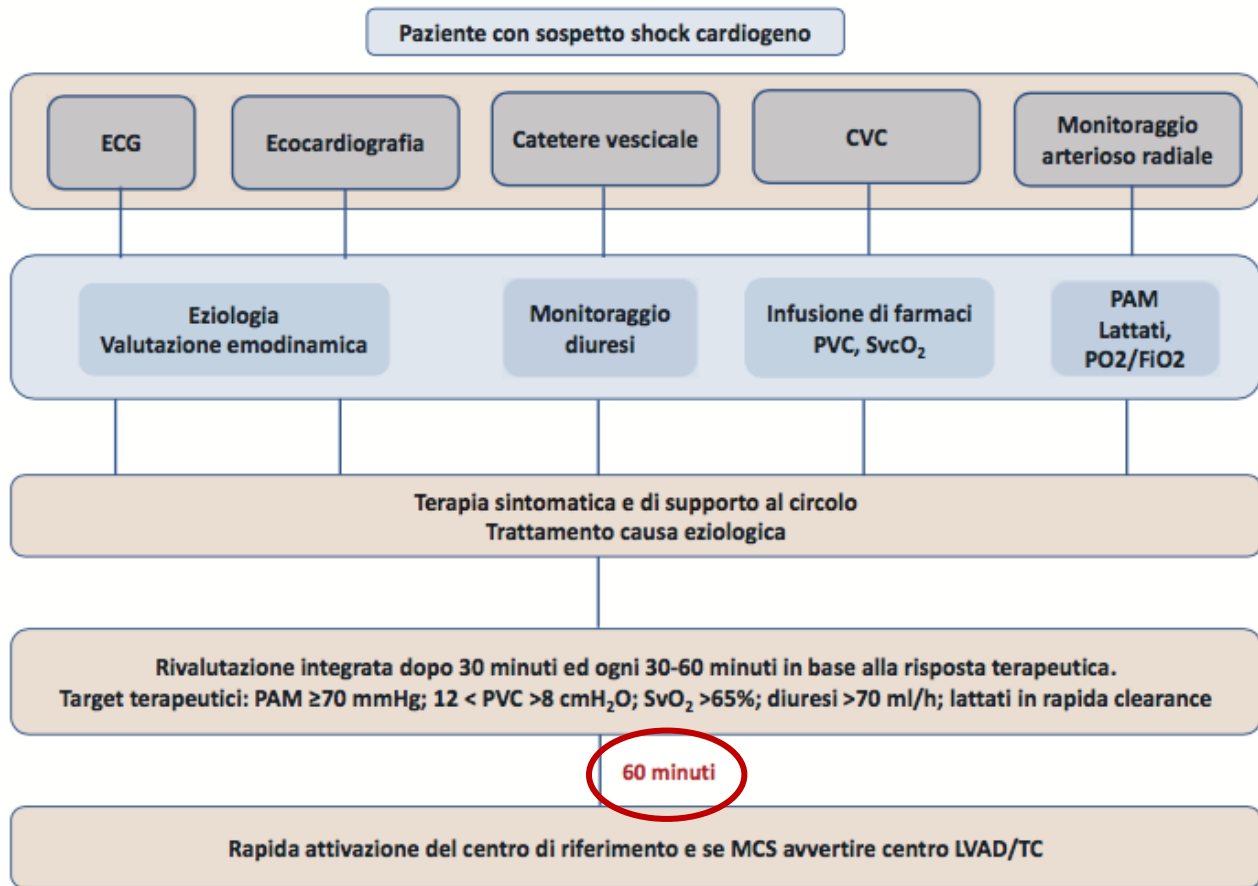


Mortality



gestione dello shock cardiogeno

- Precocità diagnosi di SC
- Eziologia
- Gravità : stadio SCAI
- Fenotipizzazione
- Dinamicità dello SC
- Dinamicità del trattamento



Gestione dello shock cardiogeno: SETTING



Tier	Center Type	Patient Severity	Team Composition	Capabilities	Role in Shock Care
Tier 1	Comprehensive Centers (Tertiary/Quaternary)	SCAI D/E	HF cardiologists, interventional cardiologists, cardiac surgeons, intensivists, critical care nurses	Full range of advanced MCS, ECMO, transplant, durable VADs	Referral hub, manages most complex cases, leads research & quality improvement
Tier 2	Intermediate Centers (Level 2-3 CICUs)	SCAI C/D	Cardiologists, intensivists, with access to cardiac surgeons and HF specialists as needed	Temporary MCS (IABP, pVADs), stabilization, decision-making for transfers	Early intervention, stabilization, escalates care to Tier 1 if needed
Tier 3	Smaller community hospitals or centers	SCAI B/C	Emergency physicians, cardiologists, intensivists, hospitalists, acute care nurses	Vasopressor support, non-invasive monitoring, telemedicine support	Rapid identification, basic stabilization, expedites transfers to higher tiers



Standardized protocols – Quality Metrics and Initiatives – Expansion to Regional Care Models – National Research Initiatives

Lo shock cardiogeno è una malattia rara che necessita di una rete dedicata

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Massimo Iacoviello^{7****}, Giancarlo Casolo^{8***}, Andrea Di Lenarda^{9*****}, Michele Massimo Gulizia^{10***}

Shock cardiogeno malattia rara ma **tempo-dipendente**



2018-2025
TEAM BASED APPROACH

Figura 2. Catena di attivazione della rete per lo shock cardiogeno.

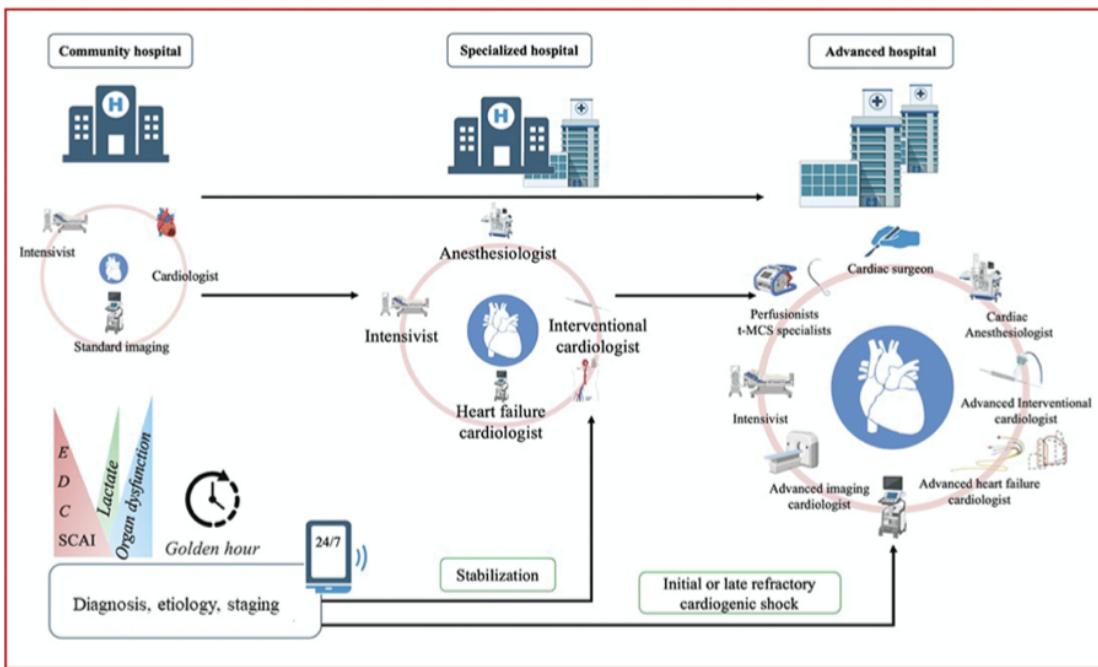
NETWORK

SHOCK
CENTER

SHOCK
TEAM



Organization for cardiogenic shock care.



CS management is structured across three levels:

- Community centers ensure initial stabilization and early transfer.
- Specialized centers manage non-refractory or short-duration shocks (< 24 h) with a multidisciplinary team.
- Advanced centers treat refractory or prolonged shocks and candidates for advanced therapies (temporary MCS, VA-ECMO, LVAD, heart transplantation).

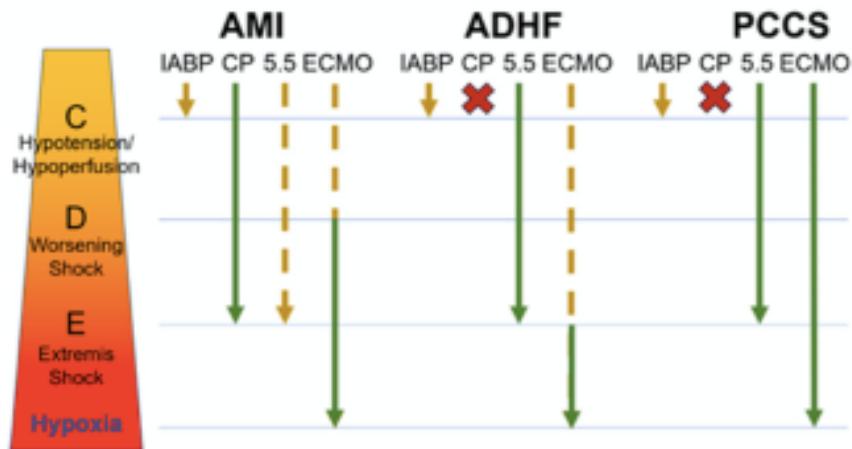


CONSENSUS STATEMENT

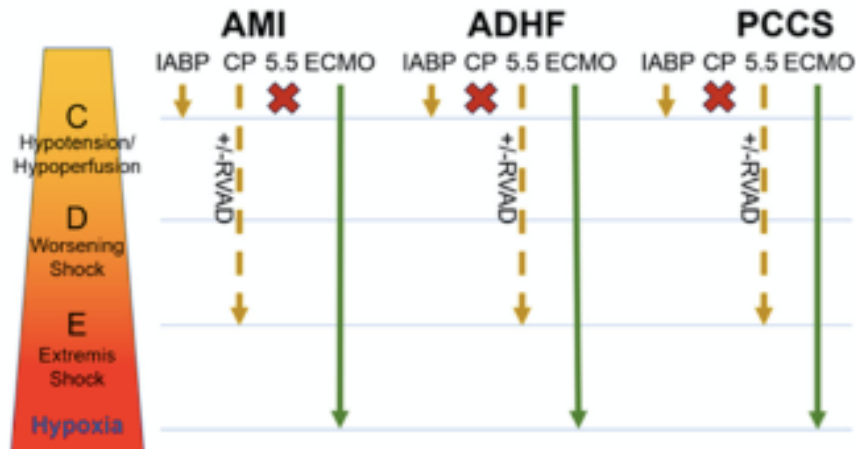
Escalation and De-escalation of Temporary Mechanical Circulatory Support: Joint Consensus Report of the PeriOperative Quality Initiative and the Enhanced Recovery After Surgery Cardiac Society

ESCALATION

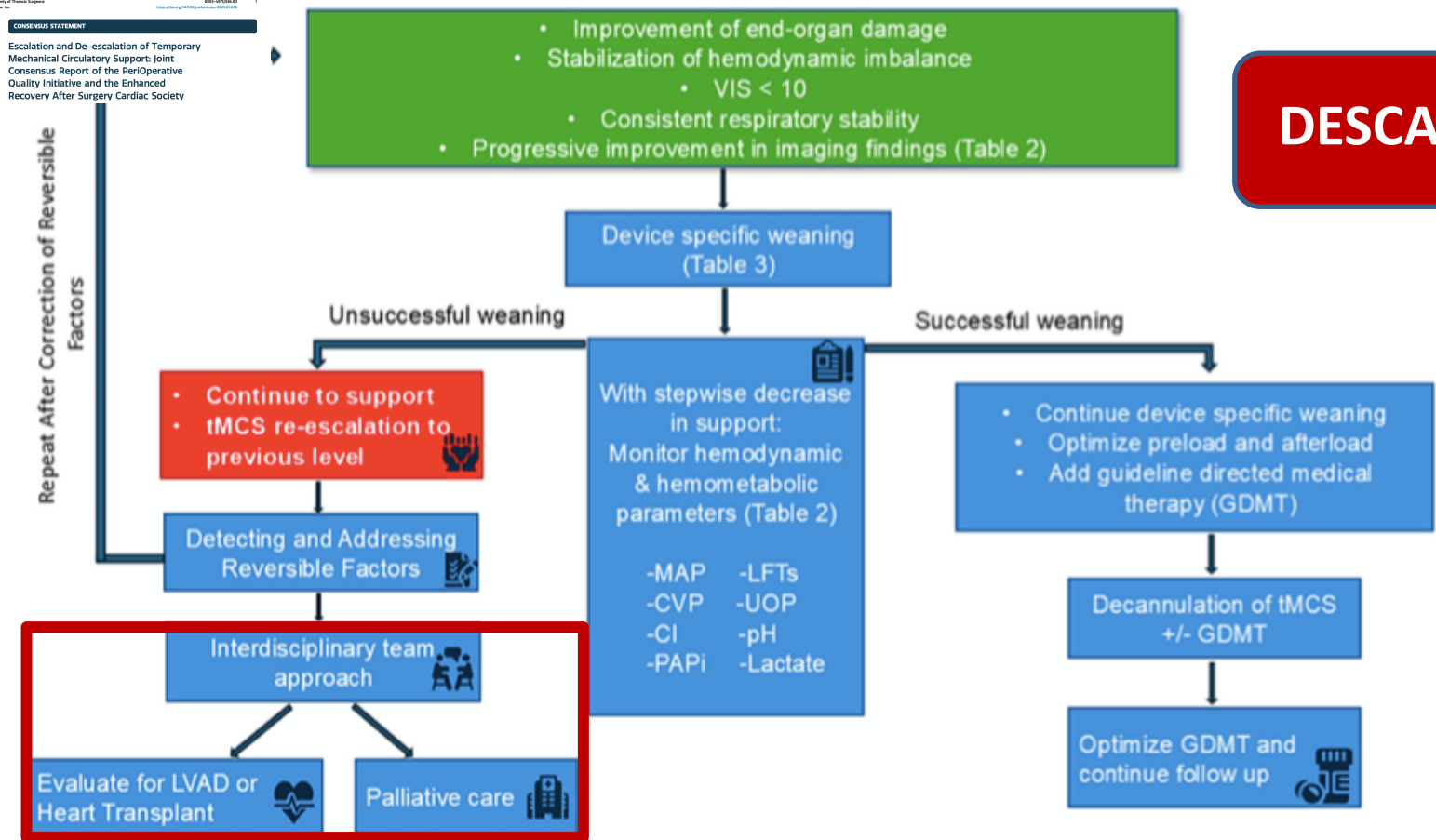
Predominant Left Ventricular Failure



Predominant BiVentricular Failure



Repeat After Correction of Reversible
Factors



DESCALATION



CONCISE CLINICAL GUIDANCE

2025 Concise Clinical Guidance: An ACC Expert Consensus Statement on the Evaluation and Management of Cardiogenic Shock

FIGURE 12 Golden Hour of Acute Shock

