

Precise and Individualized Coagulation Care with Combined Viscoelastic and Platelet Function Testing

Courtney Maxey-Jones, MD — CNY Medical Services, PLLC

Timely, actionable coagulation data through viscoelastic testing (VET) and platelet function assays can be an important driver for optimizing

hemostatic management. Both technologies are included in best practices across the perioperative timeline; VET is a class I

recommendation and platelet function testing is a class II (IIa in American guidelines and IIb in European guidelines) recommendation.^{1,2}

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AHA Scientific Statement: Perioperative Anemia and Patient Blood Management in Cardiac Surgery

Kimberly Howard-Quijano, MD, MS, FASE, FAHA (Chair); Linda Shore-Lesserson, MD, FAHA (Vice Chair); et al. — American Heart Association (Circulation, 2026)

The American Heart Association (AHA) has released a landmark Scientific Statement, Perioperative Anemia and Patient Blood Management in Cardiac Surgery, underscoring the critical role of anemia management and patient blood management (PBM) in improving outcomes for patients undergoing cardiac surgery.

Preoperative anemia affects up to half of all cardiac surgery patients and is independently associated with increased morbidity and greater

transfusion requirements. The statement emphasizes that both untreated anemia and unnecessary blood transfusions contribute to adverse outcomes, making optimization of hemoglobin and blood conservation essential components of high-quality perioperative care.

Key Recommendations. The AHA recommends routine preoperative screening for anemia in all elective cardiac surgery patients. Evaluation should include a complete blood count

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Preoperative Frailty Assessments: More Than Meets the Eye

Samuel Creden, MD; Rakesh Arora, MD, PhD — Annals of Thoracic Surgery, 2026

As cardiac surgery continues to advance, improving outcomes requires a broader understanding of patient resilience, functional reserve, and the ability to recover, not simply the ability to survive an operation. Traditional risk models, including surgical risk scores and comorbidity assessments, remain essential but do not fully capture a patient's physiologic reserve. Two patients with similar operative risk

profiles may experience very different recoveries because of differences in functional capacity, muscle strength, nutritional status, cognitive function, mobility, social support, and ability to participate in rehabilitation.

Frailty provides insight into these domains and helps identify patients who may be vulnerable to prolonged recovery, complications, and loss of independence.

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2026 AATS Expert Consensus Document: Diagnosis and Management of Heparin-Induced Thrombocytopenia in Patients Who Undergo Cardiac Surgery

Subhasis Chatterjee, MD; Natalia Ivascu Girardi, MD; Jessica Crow, PharmD, MPH; Patrick M. Wieruszewski, PharmD, MS; Michael C. Grant, MD, MSE; Adam Cukier, MD, MS; Theodore E. Warkentin, MD; Rakesh C. Arora, MD, PhD; Marc R. Moon, MD; Ibrahim Sultan, MD; Leora B. Balsam, MD; Daniel T. Engelman, MD & al— 2026 AATS Expert Consensus

Although heparin-induced thrombocytopenia (HIT) is relatively uncommon, it carries a significant risk of arterial and venous thrombosis, limb ischemia, stroke, myocardial infarction, and death if not recognized and treated

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"Effective use of VET and platelet function testing depends on consistent application, shared interpretation frameworks, and integration into multidisciplinary perioperative workflows."

VET addresses gaps in standard laboratory testing by measuring clot initiation, propagation, strength and lysis, allowing clinicians to identify potential causes of bleeding. Across cardiac surgery populations, VET-guided algorithms have been associated with reductions in blood product utilization and bleeding-related complications, as well as improved consistency in transfusion practice.³

However, VET analyzers alone cannot fully explain bleeding risk in patients exposed to antiplatelet therapy. In these cases, platelet function testing is a critical complementary component. By assessing adenosine diphosphate (ADP)- and arachidonic acid (AA)-mediated platelet responsiveness, platelet function testing helps determine the degree to which antiplatelet agents are contributing to impaired hemostasis. Platelet function testing is particularly valuable in the preoperative setting, where it can help identify clopidogrel and ticagrelor nonresponders and support more individualized decisions regarding surgical timing.⁴ In some cases, preoperative platelet function testing can also guide postoperative antiplatelet therapy to maximize long-term benefits of surgical intervention. This approach has been associated with reductions in wait times of up to 50% and

significant cost savings.⁵ The addition of preoperative platelet function testing to an established VET program has also been demonstrated to reduce exposure to red cells, exposure to FFP, re sternotomy and cost.⁶

Preoperative platelet function testing optimizes VET-guided bleeding management programs by identifying those with underlying platelet dysfunction. This provides additional clarity when bleeding occurs postoperatively, particularly when standard VET results are normal. Platelet function testing can help differentiate platelet-related dysfunction from factor or fibrinogen abnormalities, providing more precise therapy with the potential to avoid unnecessary transfusions and reduce delays in definitive management.⁷ Effective use of VET and platelet function testing depends on consistent application, shared interpretation frameworks and clinical integration into multidisciplinary perioperative workflows. When embedded within standardized protocols and interpreted alongside the clinical picture, these tools support fewer episodes of repeat bleeding, reduced transfusion variability, shorter intensive care stays and more predictable postoperative outcomes for recovery.

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IN SUMMARY

"For cardiac surgery programs, establishing standardized anemia screening and treatment protocols within preoperative optimization clinics represents an important opportunity to enhance quality, improve patient outcomes, and support comprehensive patient blood management initiatives."

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and iron studies, with additional evaluation for vitamin B12 or folate deficiency, renal disease, or inflammatory conditions when appropriate. Identifying the underlying cause of anemia allows clinicians to implement targeted therapies before surgery.

Iron deficiency is recognized as the most common treatable cause of perioperative anemia. For patients with elective procedures, intravenous iron is generally preferred over oral supplementation because it replenishes iron stores more rapidly and is more effective when surgery is planned within a few weeks.

Patient Blood Management: A Team-Based Strategy. The statement reinforces PBM as a multidisciplinary approach centered on three core principles: optimizing red blood cell mass through early diagnosis and treatment of anemia; minimizing perioperative blood loss using evidence-based surgical, anesthetic, and perfusion techniques; and supporting physiologic tolerance of anemia while avoiding unnecessary transfusion through restrictive, patient-centered transfusion strategies.

Recommended blood conservation practices include antifibrinolytic therapy, cell salvage, minimizing cardiopulmonary bypass hemodilution, and the use of point-of-care coagulation testing to guide targeted treatment of bleeding.

Alignment with Enhanced Recovery After Cardiac Surgery. The AHA highlights that anemia management and PBM should be fully integrated into Enhanced Recovery After Cardiac Surgery (ERAS® Cardiac) pathways. Successful implementation requires collaboration among surgeons, anesthesiologists, perfusionists, intensivists, cardiologists, transfusion medicine specialists, nursing, and preoperative clinic teams.

Why It Matters. This Scientific Statement reinforces that perioperative anemia is a modifiable risk factor, not simply a laboratory finding, and that proactive management can reduce transfusion exposure, decrease postoperative complications, shorten hospital length of stay, and improve recovery.

IN SUMMARY

"Frailty assessment is becoming an essential component of modern cardiac surgery programs. Its greatest value may not be predicting poor outcomes, but identifying patients who can benefit from targeted preoperative optimization."

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A key message of the article is that frailty should not be considered synonymous with advanced age. Older adults may maintain excellent physiologic reserve, while younger patients with chronic illness may be profoundly frail.

Frailty represents a multidimensional syndrome involving reduced physiologic reserve, increased vulnerability to stress, and impaired ability to recover after major physiologic challenges. For cardiac surgery patients, the stress of cardiopulmonary bypass, anesthesia, inflammation, and postoperative rehabilitation can reveal limitations not captured by routine preoperative evaluation.

The authors emphasize that frailty assessment should not rely on one isolated measurement. Multiple tools exist, including the Clinical Frailty Scale, Fried Frailty Phenotype, gait speed testing, Timed Up and Go testing, grip strength assessment, sarcopenia evaluation, and comprehensive geriatric assessment. Each provides different information, and the optimal approach may involve combining objective performance measures with clinical judgment.

A major implication for cardiac surgery programs is the transition from frailty assessment as a risk label to frailty assessment as an intervention opportunity. Identifying frailty before surgery creates an opportunity to implement targeted optimization strategies, including **prehabilitation** (exercise training, strength and endurance conditioning, respiratory muscle training), **nutritional optimization** (protein supplementation, treatment of malnutrition, correction of nutritional deficiencies), **functional optimization** (mobility training, fall prevention strategies, physical therapy referral), and **patient-centered planning** (shared decision-making, recovery goal setting, discharge planning).

The future of cardiac surgery risk assessment will likely move toward a more comprehensive model incorporating frailty metrics, biological markers of aging, artificial intelligence-based prediction models, functional outcome measures, and patient-reported recovery outcomes. The goal is not simply to predict who is at risk, but to identify what can be changed before surgery to improve recovery.

2026 AATS Expert Consensus Document: Diagnosis and Management of Heparin-Induced Thrombocytopenia in Patients Who Undergo Cardiac Surgery

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promptly. Cardiac surgery patients present unique diagnostic challenges because postoperative thrombocytopenia is common following cardiopulmonary bypass, making it difficult to distinguish expected platelet count changes from true immune-mediated HIT.

Key Recommendations. The consensus document emphasizes a systematic approach to diagnosis using clinical probability assessment in combination with laboratory testing. Clinicians are encouraged to evaluate the timing and magnitude of platelet count decline, assess for new thrombotic events, and consider alternative causes of thrombocytopenia before ordering confirmatory HIT testing.

When HIT is suspected, the document recommends immediate discontinuation of all heparin products while diagnostic evaluation is underway. Alternative anticoagulants should be initiated in patients with an intermediate or high probability of HIT, particularly when thrombosis is present or the risk of thrombosis is high.

Management in Cardiac Surgery. Because unfractionated heparin remains the standard anticoagulant for cardiopulmonary bypass, management strategies vary depending on the timing and clinical status of HIT. The consensus outlines recommendations for patients with suspected versus confirmed HIT; elective versus urgent or emergent cardiac surgery; acute, subacute, and remote HIT; selection of non-heparin anticoagulants when appropriate; and safe re-exposure to heparin in carefully selected patients after antibody resolution.

The document also discusses perioperative anticoagulation options, laboratory monitoring, and multidisciplinary planning involving cardiac surgeons, anesthesiologists, perfusionists, hematologists, pharmacists, and critical care teams.

Importance of Early Recognition. The expert panel highlights that both delayed diagnosis and unnecessary treatment can expose patients to harm. Overdiagnosis may lead to the use of alternative anticoagulants with increased bleeding risk, while failure to recognize true HIT can result in life-threatening thrombotic complications. Careful clinical assessment combined with appropriate laboratory confirmation is therefore essential.

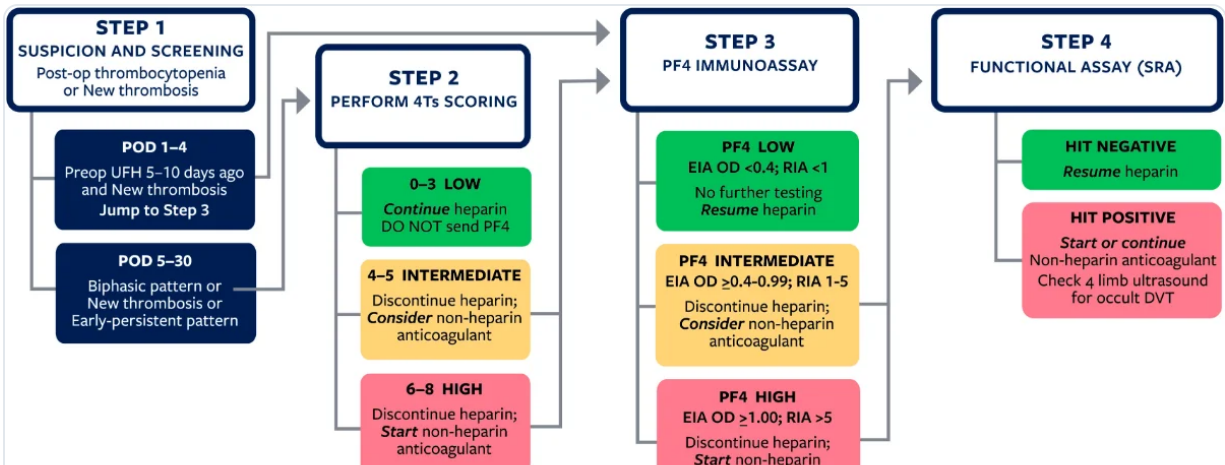
Implications for Cardiac Surgery Programs. The consensus supports development of standardized institutional protocols for HIT evaluation and management, including platelet monitoring, diagnostic algorithms, anticoagulation pathways, and multidisciplinary communication. Incorporating these recommendations into perioperative workflows can improve patient safety, reduce diagnostic uncertainty, and ensure timely treatment of this potentially catastrophic complication.

Take-Home Message. The 2026 AATS Expert Consensus reinforces that successful management of HIT requires early recognition, thoughtful interpretation of postoperative thrombocytopenia, evidence-based diagnostic testing, and coordinated multidisciplinary care. Standardized protocols can help cardiac surgery teams distinguish expected postoperative platelet changes from true HIT while optimizing anticoagulation strategies and reducing thrombotic and bleeding complications.

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Figure — Suggested diagnostic and management algorithm for heparin-induced thrombocytopenia (HIT) in cardiac surgery patients.



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November 13–14, 2026
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➤ **EACTS/STS/LACES 7th Latin America Cardiovascular Surgery Conference**

December 3–5, 2026
Santiago, Chile

RECENT PUBLICATIONS:

Perioperative Anemia and Patient Blood Management in Cardiac Surgery: A Scientific Statement From the American Heart Association. Howard-Quijano K, Shore-Lesserson L, Osho A, et al. *Circulation*. 2026 Jun 22. doi:10.1161/CIR.0000000000001446.

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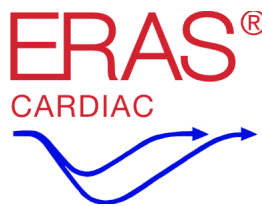
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