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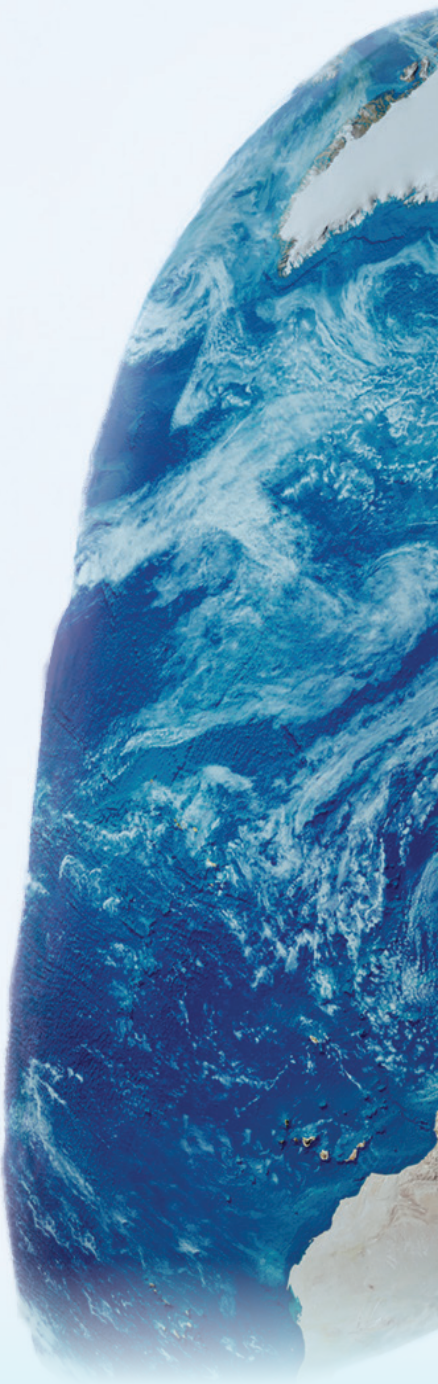
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PERTs IN ACTION: Global, Real-World Impact

How PERTs and The PERT Consortium® are driving data-supported practice in more and more settings.

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PERTs IN ACTION: Global, Real-World Impact

Advancing the science, education, and coordinated delivery of PE care worldwide.

By Michelle Lanno

Pulmonary embolism (PE) care continues to evolve at a remarkable pace, including the recent momentum coming from the publication of new multisociety guidelines and an influx of eagerly awaited randomized data. Refinements in multidisciplinary care concepts, advanced catheter-based therapies, and a new generation of clinical research are reshaping modern evaluation and treatment of patients across the spectrum of PE presentation and severity.

Great strides have been made in establishing team concepts tailorable to the unique settings in which PE care is delivered—the core principle of The PERT Consortium®, which aims to bring together all health care professionals involved in PE care from the local to the international level.

And yet, most of us would agree we have only started to realize the potential of which this field is capable.

Alongside continued technologic development and increasingly sophisticated clinical studies, our continued efforts aim to improve and expand care capabilities in high-volume and community settings alike, with enhanced communication, coordination, and guideline-supported care delivery.

To achieve these goals, The National PERT Consortium® is leading clinical research initiatives across multiple completed and ongoing co-sponsored randomized trials and registries, as well as the Pulmonary Embolism Quality Assurance Database and Pulmonary Embolism Research Collaborative (PERC™). We are also excited at the rapid growth of our network of Centers of Excellence, ensuring reliable quality care is available in more locations, as well as the establishment of PRISM Program to remove barriers and streamline opportunities, and PERT International, which is truly taking this movement worldwide.

This supplement to *Endovascular Today* highlights several of the most significant initiatives of The PERT Consortium® aimed at shaping the future of PE management.

First, we introduce the PRISM (Pulmonary Embolism, Research, Improved Care, Standardized Systems, and Measured Outcomes) Program. Launched by The PERT Consortium® in April 2026, PRISM is a global quality improvement initiative designed to advance PE care

through research, education, standardized clinical practices, and multidisciplinary collaboration. Through standardized performance metrics, real-world outcomes research, professional education, and broad stakeholder engagement, PRISM provides participating institutions with tools to benchmark performance, implement evidence-based care pathways, and continuously improve patient outcomes. By lowering barriers to participation through a waived-fee model and fostering global collaboration across academic and community hospitals alike, PRISM seeks to establish a more consistent, data-driven, and accessible standard of excellence in PE care worldwide.

Next, we have a timely overview of the 2026 American Heart Association/American College of Cardiology guideline for the management of acute PE. Penned by Guideline authors well versed in the decades of supporting research and questions yet to be answered, this article reviews key recommendations, discusses how recent clinical trials have influenced the guideline, and offers practical insights into incorporating these points into everyday clinical practice.

We also explore three foundational pillars of The PERT Consortium®: the PERC Registry, collaborative clinical research, and the growing network of PERT Centers of Excellence. Together, these initiatives provide the infrastructure needed to generate high-quality, real-world evidence; foster multicenter trials; establish quality benchmarks; and promote excellence in multidisciplinary PE care across participating institutions.

We also examine the expanding global reach of PERT International, showcasing how multidisciplinary PE programs are being established around the world through collaboration, education, research, and the exchange of best practices learned in a wide variety of settings. As more institutions adopt the PERT model, international partnerships are creating opportunities to standardize care while developing a deeper understanding regional differences in health care delivery.

Whether your institution has an established multidisciplinary PE program or is just beginning to develop one, the articles in this supplement reflect the collaborative spirit that has become synonymous with The PERT Consortium®.



Readers are also encouraged to join us at the 12th annual Pulmonary Embolism Scientific Symposium, to be held September 30 through October 3, 2026, in Boston, Massachusetts. Here, we'll dive deep into key questions regarding risk stratification, which patients benefit from intervention (and which may not); intensive care unit decision-making; precision in anticoagulation; and best practices for improving outcomes beyond the acute event, and much more. See the ad on the back cover of this supplement for more details or visit pertconsortium.org.

By bringing together expertise from across specialties and across borders, The PERT Consortium® continues

to advance the science, education, and coordinated delivery of PE care. We hope the insights shared in these pages provide practical guidance, stimulate discussion, and inspire continued innovation in the care of patients with PE. Most of all, we hope you'll join this movement if you have not already. We welcome your insights, your critiques, and your collaboration! ■

Michelle Lanno

Chief Executive Officer
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The PRISM Program: Transforming Pulmonary Embolism Care Through Excellence, Research, and Collaboration Worldwide

A comprehensive initiative to help establish a new global standard for PE care and improve access to high-quality treatment for PE patients.

By Michelle Lanno, and Lauren Baker, PhD

In April 2026, The National PERT Consortium® launched the PRISM Program, a landmark global initiative designed to advance the quality and effectiveness of pulmonary embolism (PE) care. PRISM stands for Pulmonary Embolism, Research, Improved Care, Standardized Systems, and Measured Outcomes. These principles reflect the program's comprehensive approach to advancing care through quality improvement, data-driven decision-making, education, research, and collaboration. Supported by founding partners Penumbra, Inc. and Inari Medical/Stryker, PRISM represents the culmination of several of The Consortium's most significant strategic initiatives and serves as a comprehensive framework for improving PE care worldwide.

MISSION AND FOUNDATIONAL ELEMENTS OF THE PRISM PROGRAM

The mission of the PRISM Program is to advance the quality and effectiveness of PE care by integrating research, continuous improvement, and standardized practices that optimize outcomes for every patient. Through collaboration, innovation, and measurable accountability, PRISM seeks to ensure that every patient with PE receives the highest standard of care, regardless of where they are treated.

The program brings together years of work by The National PERT Consortium® to strengthen the infrastructure of PE care across the globe. It unifies three major initiatives: (1) developing a strong pipeline to the PERT Centers of Excellence Certification Program; (2) expanding participation in the PERC™ Quality Assurance Database to strengthen real-world evidence

and outcomes research; and (3) broadening education, outreach, and adoption of the multidisciplinary PE response team (PERT) model across both tertiary academic medical centers and rural community-based health care institutions. Together, these efforts establish a sustainable pathway for health care organizations to improve quality, standardize care delivery, and contribute to the growing body of evidence that shapes the future of PE treatment.

The PRISM Program is a 3-year initiative through which The National PERT Consortium® has committed to accrediting 100 institutions worldwide. Since its launch, the program has already welcomed 31 participating sites that share a commitment to delivering the highest level of care for patients with PE. These institutions represent a growing global community dedicated to improving outcomes through shared standards, collaborative learning, and the use of real-world data.

FRAMEWORK FOR QUALITY IMPROVEMENT AND MEASURABLE OUTCOMES

At its core, PRISM is designed to create a health care environment where continuous improvement and measurable excellence are the norm. The program establishes a robust quality assurance infrastructure through standardized metrics, benchmarking tools, and performance dashboards that allow institutions to evaluate and improve their performance. Participating sites gain access to data-driven insights that support alignment with evidence-based clinical pathways and nationally recognized guidelines, helping to ensure consistency and quality across diverse health care settings.



A central component of the initiative is its focus on outcomes measurement. PRISM emphasizes the collection and analysis of meaningful patient-centered outcomes, including mortality, recurrence, recovery, functional status, and long-term health. By leveraging real-world data and outcomes, participating institutions can better understand their performance, identify opportunities for improvement, and measure the impact of changes in care delivery.

ADVANCING RESEARCH, EDUCATION, AND MULTIDISCIPLINARY COLLABORATION

Research and innovation are equally important elements of the program. Through multicenter collaboration and registry-based research, PRISM supports scientific discovery and advances the evidence base for PE care. Participating sites contribute valuable data that informs future treatment strategies, quality initiatives, and peer-reviewed publications, helping to shape the next generation of PE management.

Education remains a foundational pillar of the initiative. PRISM fosters professional development through live educational events, interactive programming, expert-led discussions, and practical resources that empower health care professionals to implement best practices and remain current with evolving standards of care. By creating opportunities for continuous learning, the program strengthens the capabilities of multidisciplinary teams responsible for managing patients with PE.

Recognizing that meaningful improvements in PE care requires engagement beyond the hospital setting, PRISM also promotes awareness, advocacy, and collaboration among a broad range of stakeholders. The initiative seeks to actively engage emergency medical services, first responders, emergency department clinicians, hospital administrators, quality leaders, international health care organizations, academic medical centers, and rural community hospitals. Through these partnerships, PRISM seeks to improve recognition, prevention, diagnosis, and treatment of PE across the entire continuum of care.

EXPANDING ACCESS TO HIGH-QUALITY PE CARE

A key feature of the program is its accessibility and “waived fee” structure enabling access for sites

that may not have previously had the financial means to support such an educational initiative. Applications for PRISM are accepted on a rolling basis, creating an open and flexible pathway for health care organizations seeking participation in the PERT Centers of Excellence Certification Program and the PERC™ Quality Assurance Database. This approach reduces barriers to entry and allows institutions at various stages of program development to engage with The Consortium’s quality improvement and accreditation initiatives.

PRISM was also designed to address the growing needs of the PE community by streamlining services and opportunities, reducing barriers to participation, and supporting sustainable expansion. By fostering greater engagement, accessibility, and collaboration, the initiative enhances organizational effectiveness while creating opportunities for institutions to advance their PE programs in a structured and measurable way.

CONCLUSION

As The National PERT Consortium® continues its mission to improve outcomes for patients with PE, the PRISM Program stands as a transformative initiative that brings together research, quality improvement, education, accreditation, and community engagement. Through a shared commitment to excellence, standardized systems, and measurable outcomes, PRISM is helping to establish a new global standard for PE care and creating a future in which every patient has access to the highest-quality treatment, wherever they receive care. ■



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The 2026 AHA/ACC Guideline for the Management of Acute Pulmonary Embolism

What's new, what changed, and what the newest trials add.

By Geoffrey D. Barnes, MD, MSc; Allison Burnett, PharmD; Jay Giri, MD, MPH;
and Soophia Naydenov, MD

Over the past 15 years, diagnostic, risk stratification, and therapeutic advances have transformed acute pulmonary embolism (PE) care. Yet, since the 2011 American Heart Association (AHA) scientific statement,¹ no comprehensive update has been issued. In 2024, the AHA and American College of Cardiology (ACC) assembled a multidisciplinary committee of leaders from various societies to develop new guidelines on PE diagnosis, risk stratification, and treatment. Meeting weekly through April 2025, they reviewed evidence and formulated recommendations. This article highlights key updates from the 2026 AHA/ACC PE guideline.^{2,3}

THE NEW CLINICAL CATEGORIES

For nearly 2 decades, clinicians in North America relied on a three-level risk stratification scheme that included “low risk,” “submassive,” and “massive” PE. In 2014, the European Society of Cardiology (ESC) proposed a four-level risk stratification scheme, which preserved the “low risk” group while renaming “massive” PE as “high risk.”⁴ This change helped differentiate the volume of thrombus seen

on imaging, often reported by radiologists, from clinical risk as determined by cardiac-specific imaging and biomarkers. The ESC scheme also incorporated established risk scores (eg, Pulmonary Embolism Severity Index [PESI]) and more specific markers of right ventricular (RV) dysfunction (biomarkers, imaging size) into “intermediate-low” and “intermediate-high” risk groups.

However, over the past decade, two key advances in acute PE diagnosis and treatment have highlighted limitations of this four-level classification scheme. First, the rapid expansion of CT imaging has greatly increased detection of asymptomatic, incidentally found acute PE (eg, on cancer staging CT). These patients are inherently different from those presenting with acute PE-related symptoms but without risk factors for PE-related deterioration. Second, therapeutic interventions beyond anticoagulation (AC) have evolved following the PEITHO trial⁵ and the introduction of several catheter-based interventional techniques. These therapies primarily target patients at high risk for hemodynamic decompensation, a subset of those previously classified as submassive or intermediate-high risk.

TABLE 1. CROSSWALK OF EQUIVALENT RISK STRATA ACROSS ACUTE PE RISK STRATIFICATION SCHEMES

Approximate Risk Level	2011 AHA Scientific Statement ¹	2014 ESC Guidelines ⁴	2026 AHA/ACC Guideline ^{2,3}
Lowest risk, incidental or asymptomatic	(No distinct category)	Low risk	Category A (asymptomatic)
Low risk, symptomatic	Low risk	Low risk	Category B
Intermediate risk, variable RV involvement without hemodynamic instability	Submassive	Intermediate-low → Intermediate-high	Category C
Deteriorating/incipient failure	Submassive	Intermediate-high	Category D
Highest risk/shock	Massive	High risk	Category E

Note: Mappings are conceptual rather than one-to-one. The 2011 submassive category spans what the 2026 scheme separates into categories C, D1, and D2. The 2026 category A (asymptomatic/incidental PE) has no true counterpart in the earlier schemes.

Abbreviations: AHA, American Heart Association; ACC, American College of Cardiology; ESC, European Society of Cardiology; PE, pulmonary embolism; RV, right ventricular.



Building on the three- and four-level schemes previously recommended by the AHA and ESC, the 2026 AHA/ACC acute PE guideline writing committee proposed a new five-level risk classification (Table 1¹⁻⁴ and Figure 1). At the lower end of this scheme are categories A and B. Category A includes patients with asymptomatic, incidentally detected acute PE. Ongoing research is examining the risk of recurrence and the relative benefit of AC in this population. Category B includes patients with symptoms consistent with acute PE but with a low clinical severity score (eg, PESI ≤ 85 , simplified PESI [sPESI] = 0, Bova ≤ 4). Many of these patients do not require hospitalization and can be safely treated with oral AC alone.

In the middle of this risk scheme are patients previously categorized as submassive or intermediate risk. They are divided into two groups to better identify patients

for whom advanced intervention may be considered. Category C includes patients with symptomatic acute PE and an elevated clinical severity score (eg, PESI > 85 , sPESI ≥ 1 , Bova > 4). These patients have a higher risk of PE-related adverse events than those in category B and are typically hospitalized for close monitoring. However, current evidence suggests they rarely benefit from therapies beyond AC. By contrast, patients in category D represent those with incipient cardiopulmonary failure. This includes patients with transient hypotension (eg, syncope) as well as those with normotensive blood pressure despite presenting with shock physiology (eg, elevated lactate, acute kidney injury). Patients in category D are the primary focus of several recently completed and ongoing clinical trials exploring the relative benefits and risks of catheter-based interventions compared with AC and close hemodynamic monitoring.

Category	Defining criteria	Management emphasis
A	Confirmed PE, entirely asymptomatic; often incidental on imaging	ED evaluation may not be needed
B	Symptomatic, low severity; PESI Class I-II, Hestia score = 0	Early discharge if anticoagulation access and follow-up assured
C	Elevated severity (PESI Class III-V) ± RV dysfunction or elevated biomarkers	Initiate LMWH; hospitalize; advanced therapy uncertain, PERT-guided
D	Incipient cardiopulmonary failure D1 = transient hypotension D2 = normotensive shock	Initiate LMWH; reperfusion (systemic thrombolysis, CDT, MT) may be considered
E	Cardiopulmonary failure with persistent hypotension or arrest	Initiate LMWH; reperfusion reasonable; embolectomy / VA-ECMO if refractory

Figure 1. 2026 AHA/ACC acute PE clinical categories and initial management considerations. CDT, catheter-directed thrombolysis; ED, emergency department; LMWH, low-molecular-weight heparin; VA-ECMO, venoarterial extracorporeal membrane oxygenation. Adapted from Creager MA, Barnes GD, Giri J, et al. 2026 AHA/ACC/ACCP/ACEP/CHEST/SCAI/SHM/SIR/SVM/SVN guideline for the evaluation and management of acute pulmonary embolism in adults: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*. 2026;153:e977-e1051. doi: 10.1161/CIR.0000000000001415

Finally, category E includes patients previously deemed to have massive or high-risk acute PE, as determined by persistent hypotension and/or cardiopulmonary failure. These patients require urgent intervention and are at the highest risk of PE-related mortality.

Although the five-level categories are likely sufficient for most clinicians, PE experts and researchers will benefit from further subdividing patients based on clinical presentation and PE-related risk. For example, patients with category C acute PE can be further subcategorized by the number of imaging and biomarker abnormalities of the right ventricle. Some category C3 patients in particular are included in many randomized studies of advanced therapies that also include category D patients. Patients with category D acute PE can be further subcategorized into those with transient hypotension (category D1) and those with normotensive shock (category D2). Patients with category E acute PE can be further subcategorized into those with recurrent or persistent hypotension and cardiogenic shock (category E1) or those with refractory cardiogenic shock, often leading to cardiac arrest (category E2). The latter category has sometimes been referred to as catastrophic PE.

Finally, the 2026 AHA/ACC acute PE clinical categories also acknowledge that some patients with acute PE experience more respiratory and oxygenation limitations than RV strain. As such, patients in categories C through E can be further described with the respiratory modifier if they exhibit significant oxygenation or respiratory limitation. In cases where respiratory symptoms are discordant with their associated hemodynamic category, the writing committee intended that the patient be stratified into the “higher” of the two clinical categories.

Clinicians might feel overwhelmed by the many categories used to describe patients with acute PE. We believe that it's best for most clinicians to focus on the five main categories (A-E) to guide initial decisions (Figure 1). Subcategories and respiratory modifiers are better suited for PE response teams (PERTs) and researchers to discuss nuanced patient scenarios.

ADVANCED THERAPY AND PERT RECOMMENDATIONS

Another key advance in the 2026 AHA/ACC acute PE guideline is its comprehensive approach to recommendations on the use of systemic thrombolysis, catheter-directed thrombolysis (CDL), mechanical thrombectomy (MT), and surgical embolectomy (Table 2).¹ For the first time, a North American–based guideline document provides a class 2A recommendation for systemic thrombolysis, CDL, and MT in patients with category E acute

PE (cardiopulmonary failure). Importantly, the assessment of the writing committee was that available evidence and clinical experience no longer supported systemic thrombolysis as holding primacy in this population, with its associated recommendation at the same level as catheter-based therapies. This is a meaningful upgrade from prior North American guideline recommendations and largely mirrors those of the ESC.⁶ However, the guideline writing committee was unable to provide strong recommendations in favor of any advanced therapy elsewhere due to the lack of prospective randomized data with patient-centered outcomes (eg, mortality, hemodynamic collapse, bleeding, symptom improvement). Nonetheless, the 2026 AHA/ACC acute PE guideline provides a class 2B recommendation for the use of systemic thrombolysis, CDL, MT, and surgical embolectomy in patients with class D acute PE (incipient cardiopulmonary failure), noting that these therapies either “may be considered” or have “unclear” benefit. In patients with more advanced forms of class C acute PE (class C3), the guidelines provide a class 2B recommendation for systemic thrombolysis, CDL, and MT, noting that the benefit is “unclear.”

Given the complexity of selecting the most appropriate treatment for individual patients, the 2026 AHA/ACC acute PE guideline provides a class 1 recommendation in favor of multidisciplinary PERT assessment for patients with category C to E acute PE. The guideline recognizes that each hospital and health system will have access to different experts and resources, so the makeup and delivery of PERT-based care will be individualized. However, the guideline strongly favors a structured approach to coordinated care for patients hospitalized with acute PE to ensure timely, evidence-based acute treatment and follow-up care.

INITIAL PHARMACOTHERAPY UPDATES

A key update in the 2026 AHA/ACC PE guideline is a class 1 recommendation favoring low-molecular-weight heparin (LMWH) over unfractionated heparin (UFH) for hospitalized patients with category C to E1 acute PE needing parenteral AC. This is based on a meta-analysis showing lower recurrent venous thromboembolism (VTE) rates with LMWH, without increased bleeding, and offers more predictable pharmacokinetics, enabling rapid AC without overshoot risk.⁷ LMWH also reduces patient and nurse burden, as no intravenous lines, pumps, or routine monitoring and adjustment are needed. The guidelines note that patients undergoing catheter-based therapies or thrombolysis may also safely use LMWH.

For patients with category A and B acute PE considering outpatient treatment, guidelines recommend a direct



TABLE 2. 2026 AHA/ACC ACUTE PE GUIDELINE RECOMMENDATIONS FOR ADVANCED THERAPIES

AHA/ACC Category	Systemic Lysis	CDL	MT	Surgery
A-C1	3-Harm (A)	3-No Benefit (C-EO)	3-No Benefit (C-EO)	3-No Benefit (C-EO)
C2	3-Harm (B-R)	2B (C-LD - unclear)	2B (C-LD - unclear)	3-No Benefit (C-EO)
C3	2B (C-LD - unclear)	2B (C-LD - unclear)	2B (C-LD - unclear)	3-No Benefit (C-EO)
D1-2	2B C-LD – may be considered	2B (B-NR – may be considered)	2B (B-NR - may be considered)	2B (C-LD – unclear)
E1	2A C-LD	2A (C-LD)	2A (B-NR)	2A (B-NR)
E2	2A C-LD	n/a	n/a	3-No Benefit (B-NR)

Adapted from Creager MA, Barnes GD, Giri J, et al. 2026 AHA/ACC/ACCP/ACEP/CHEST/SCAI/SHM/SIR/SVM/SVN guideline for the evaluation and management of acute pulmonary embolism in adults: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*. 2026;153:e977-e1051. doi: 10.1161/CIR.0000000000001415

Abbreviations: ACC, American College of Cardiology; AHA, American Heart Association; CDL, catheter-directed lysis; MT, mechanical thrombectomy; n/a, none available; PE, pulmonary embolism.

oral anticoagulant over a vitamin K antagonist in most cases, including obesity. The committee could not include COBRRA-VTE trial results comparing apixaban to rivaroxaban,⁸ as it was published after data evaluation. However, this trial suggests apixaban may be preferred due to lower bleeding rates without affecting recurrent VTE during the first 3 months. Vitamin K antagonists are still recommended for specific groups, such as those with antiphospholipid syndrome and advanced liver disease.

FOLLOW-UP AND LONGER-TERM THERAPY

While the 2026 AHA/ACC acute PE guideline primarily focuses on the diagnosis, risk stratification, and acute treatment of patients with acute PE, the guideline writing committee felt it was critical to address several important clinical decisions that occur after a patient is discharged from the hospital. These include recommendations for follow-up clinical encounters, decisions regarding the duration of AC therapy, and recommended approaches to evaluating for chronic thromboembolic pulmonary disease (CTEPD).

Given that most patients with acute PE will be newly initiated on AC therapy, the guideline provides a class 1

recommendation for a clinical follow-up touchpoint approximately 1 week after hospital discharge for all patients. This touchpoint, which could occur as a clinic visit or a phone call from a nurse, pharmacist, or advanced practice provider, is intended to assess for anticoagulant access barriers and bleeding complications and to provide additional education about acute PE and the importance of AC therapy. This visit can also address many patient-centered questions about travel, use of hormone-based therapies (ie, contraception), and exercise.

The guideline provides a class 1 recommendation for a follow-up visit within 3 months of acute PE diagnosis. This visit should screen for AC complications, determine the need for additional tests (eg, thrombophilia evaluation), and assess persistent PE symptoms. For patients with ongoing PE symptoms despite 3 months of AC, the guidelines suggest using cardiopulmonary exercise testing or combining an echocardiogram with a ventilation-perfusion scan to evaluate for CTEPD. Patients with abnormal findings on these tests should be referred to specialized centers for evaluation and management, including chronic thromboembolic pulmonary hypertension.

After 3 months of AC for acute PE, the 2026 AHA/ACC guidelines recommend continuing or stopping

therapy based on risk factors. For patients with first-time, strongly provoked PE and no reversible or persistent risk factors, stopping after 3 to 6 months is advised (class 1). Otherwise, ongoing AC is generally preferred, with a class 1 recommendation for half-dose apixaban or rivaroxaban to reduce bleeding risk.

ONGOING CLINICAL TRIALS

Despite a robust literature search for the 2026 AHA/ACC acute PE guidelines, the writing committee closed its literature review window in April 2025. Since then, several important clinical trials on acute PE management have been published. These include the HI-PEITHO trial⁹ comparing CDL to AC alone in category C3-D2 patients; the STORM-PE trial¹⁰ comparing MT to AC alone in category C3-D2 patients; the STRATIFY trial¹¹ comparing CDL, systemic thrombolysis, and AC alone in category C3-D2 patients; and the COBRRA-VTE trial¹² comparing rivaroxaban to apixaban in patients with acute PE or deep vein thrombosis. Clinicians should recognize that these trials were not considered by the 2026 AHA/ACC acute PE guideline writing committee and may therefore further influence clinical practice decision-making. We also look forward to the results of several more trials of advanced therapies in category C-E patients that are expected to conclude and report results over the coming 2 to 3 years.¹²

CONCLUSION

The 2026 AHA/ACC acute PE guidelines should be viewed as both a consolidation of research and clinical expertise and an inflection point in the care of patients with acute PE. This is the first North American guideline to update the approach to acute PE risk stratification, formally embed the multidisciplinary PERT care model, and establish patient-centered outcomes as the standard of care for acute treatment recommendations. We encourage all clinicians to adopt the new A-E clinical categories to more clearly determine acute treatment and disposition while facilitating a more granular definition of specific patient cohorts by PE experts and researchers. ■

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The Three Pillars of The PERT Consortium®: PERC™ Registry, Research Committee, and Centers of Excellence

Coordinated initiatives designed to advance the fundamental mission of improving pulmonary embolism care.

By Amir Darki, MD, MSc; Charles Burch, MD; Sanjum S. Sethi, MD, MPH; David M. Dudzinski, MD, JD; Steven R. Horbal, PhD, MPH; Carla Kohoyda Inglis; and Greg Todisco

Advancing pulmonary embolism (PE) care requires an infrastructure that extends beyond individual hospitals. Through its Pulmonary Embolism Research Cooperative (PERC™) Registry, Research Committee, and Centers of Excellence (CoE) program, The National PERT Consortium® has created a collaborative framework that supports multicenter research, establishes standards for quality care, and promotes standardized, multidisciplinary PE care. These three pillars are helping establish the evidence base needed to improve outcomes for patients with PE.

PERC REGISTRY: INFRASTRUCTURE TO SUPPORT UNMET RESEARCH NEEDS

The PERC Registry serves as the foundation of The National PERT Consortium®, functioning as the central repository for data entered by Consortium members. The registry originated in 2015 with the creation of the PERC Quality Assurance Database alongside

The Consortium. This legacy database contains data from over 12,000 patients.

As the registry expanded and the amount of research generated from these data increased, the need for standardized data collection and a formal governance structure became apparent. To address these needs, PERC was established in partnership with the United States FDA. In April 2022, more than 100 international experts in PE convened in Washington, DC, including physician leaders, representatives from the FDA, patient advocates, and industry stakeholders, to develop a collaborative framework for advancing PE research through standardized data collection and high-quality evidence generation.

During this meeting, a comprehensive set of standardized data elements was developed.¹ These data points provided the foundation for the PERC Registry. The registry is housed within a REDCap database maintained at the University of Michigan's Clinical Outcomes

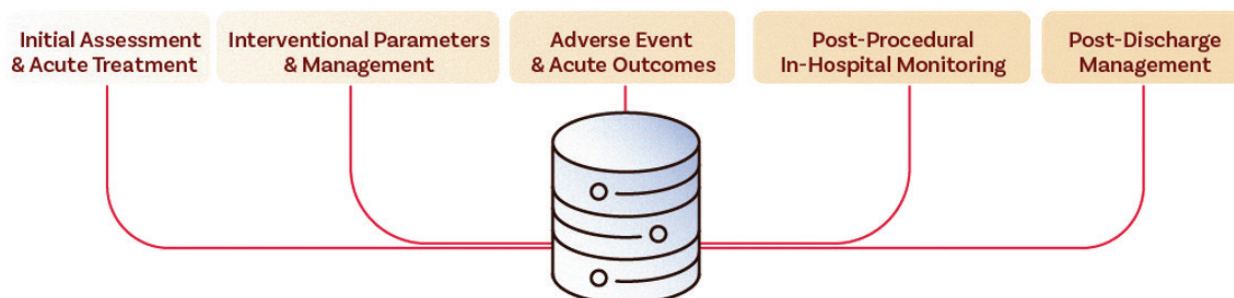


Figure 1. All aspects of PE clinical care are incorporated into the registry.

Reported Risk Assessment After PERT Meeting

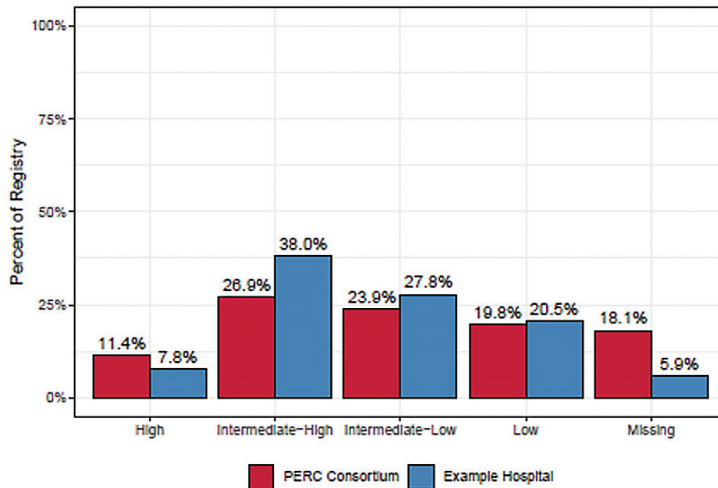


Figure 2. Dashboard risk assessment after PERT activation.

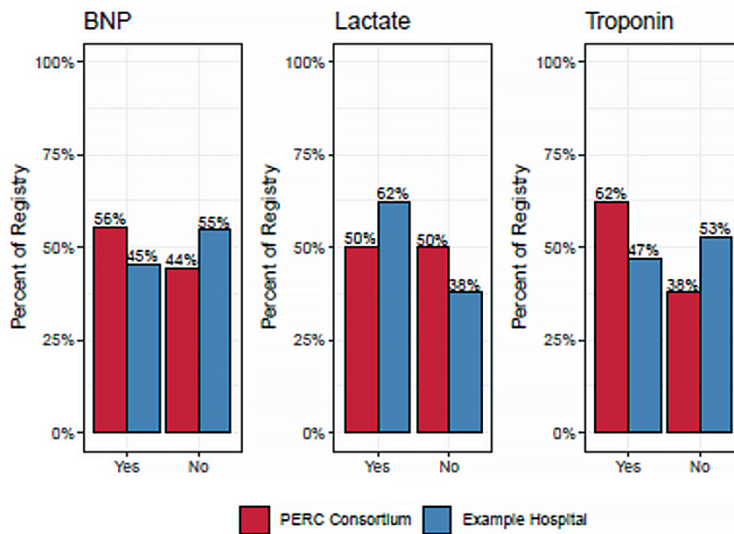


Figure 3. Dashboard lab results. BNP, brain natriuretic peptide.

Research & Reporting division, which provides data hosting, management, and statistical support. Since its launch in 2024, more than 70 sites have enrolled in the registry, contributing over 6,000 patient records, making it the largest PE-specific database in the world. The PERC Registry serves as a comprehensive repository of high-quality data to facilitate multicenter collaborative research improving our understanding of PE research and advancing evidence-based patient care.

Data are captured through all phases of PE care (Figure 1). This includes an initial assessment, interventional parameters and management, procedural as well as nonprocedural outcomes in hospital monitoring, and postdischarge management. Cases are entered into the database if the patient is aged ≥ 18 years, there is a PE response team (PERT) activation, and the patient is diagnosed with PE. Sites are encouraged to input follow-up data for each case for up to a year and report consecutive cases whenever possible.

The registry contains demographic, clinical, laboratory, treatment, and outcome data from participating institutions, enabling investigators to address important knowledge gaps that are difficult to examine through single-center experiences or randomized clinical trials alone. In addition to supporting research initiatives, the registry serves as a quality improvement platform for participating institutions.

A quarterly dashboard is generated to provide an idea of where each site sits within the aggregate of The Consortium. Variables included in the dashboard include risk stratification assessment (Figure 2), including guideline-based risk categorization; clinical presentation features, including right ventricular dysfunction and cardiac biomarker elevation (Figure 3); outcomes such as major bleeding and death; and longitudinal follow-up variables such as hospital readmission.

Through quarterly benchmarking reports, member centers receive performance data compared with

aggregate Consortium outcomes, allowing for the assessment of best practices and identification of opportunities for improvement (Figure 2).

Evidence produced through the PERC Registry, as it is applied to data collection, promises to provide crucial knowledge that will ultimately produce a robust evidence base that will lead to standardization and harmonization of PE management and improved outcomes.



RESEARCH COMMITTEE: ADVANCING COLLABORATIVE RESEARCH IN PE

The PERT Consortium® Research Committee serves as the scientific engine of The Consortium, promoting multicenter collaboration to improve the understanding, diagnosis, treatment, and outcomes of patients with acute PE. Since the establishment of the first PERT program in 2012,² multidisciplinary PE care has expanded rapidly across the United States and internationally, creating unique opportunities for collaborative research into one of the most common and potentially life-threatening cardiovascular conditions.

The committee's mission is to promote high-quality clinical research that advances evidence-based care for patients with venous thromboembolism, particularly acute PE. It brings together physicians, trainees, statisticians, and research coordinators from multiple disciplines interested in PE. This multidisciplinary structure mirrors the collaborative clinical model defining modern PERT programs.

The Research Committee oversees the full continuum of scholarly activity. Through a structured investigator-initiated proposal process, researchers are encouraged to submit proposals that use registry data to answer clinically meaningful questions. Submitted projects undergo committee review to ensure methodological rigor, feasibility, clinical impact, and originality. This process promotes transparency, collaboration, and efficient use of registry resources while providing opportunities for investigators at all career stages to participate in fully funded scholarly activity.

Over the past several years, the Research Committee has generated a substantial body of scientific work examining diverse aspects of PE care. Published studies include sex-based differences in PE presentation and outcomes,³ management and outcomes of patient with high-risk PE,⁴ trends and practice patterns of catheter-based therapies in The PERT Consortium® Registry,⁵ and real-world practice of interhospital transfer in PE.⁶ Additionally, The PERT Consortium® has cosponsored and collaborated on several landmark randomized clinical trials, including HI-PEITHO and STORM-PE.^{7,8}

An additional strength of the Research Committee is its commitment to mentorship and education. Medical students, residents, fellows, and early career faculty are actively integrated into research projects and leadership opportunities. Through structured mentorship within the PERT Trainee Council, early career investigators gain experience in study design, data analysis, scientific writing, and presentation of research findings at national

meetings. This educational mission helps cultivate the next generation of clinician-investigators.

The PERT Research Committee represents a successful model of multicenter, multidisciplinary research. By leveraging collaborative networks through PERT CoE, a robust registry infrastructure through the PERC database, and a strong commitment to scientific innovation and mentorship, the committee continues to generate meaningful evidence that improves the care of patients with PE worldwide.

CENTERS OF EXCELLENCE: ADVANCING THE STANDARD OF PE CARE

PE is a leading cause of cardiovascular mortality worldwide, requiring rapid diagnosis, coordinated multidisciplinary care, and timely access to advanced therapies.^{9,10} To improve outcomes and establish national standards for PE management, The PERT Consortium® launched the PE CoE program. It is a comprehensive accreditation process designed to recognize institutions that provide exceptional, evidence-based care for patients with acute PE.

The National PERT Consortium® was founded to promote multidisciplinary collaboration and excellence in the treatment of PE. As noted previously, through the development of PERTs, hospitals bring together various specialists from pulmonary and critical care, cardiology, vascular medicine, interventional radiology, emergency medicine, cardiac surgery, cardiac imaging, hematology, vascular surgery, cardiothoracic surgery, and other specialties to rapidly evaluate and manage complex cases. The CoE program advances this collaborative approach by recognizing institutions that meet established standards for multidisciplinary, evidence-based PE care.

The PE CoE program recognizes hospitals at two levels: regional and comprehensive. Regional CoE demonstrate excellence in PE diagnosis, risk stratification, treatment, and follow-up care. Comprehensive centers provide a higher level of PE care, including advanced catheter interventions, surgical embolectomy, and mechanical circulatory support, as well as participate in research and educational programs.

To become an accredited CoE, sites go through a rigorous evaluation of their PERT program's performance and organization by a dedicated team of PERT Consortium® experts, who conduct a half-day site review and present findings to the CoE committee. This process evaluates the structure of the hospital's PERT, the use of standardized diagnostic and treatment algorithms, availability of advanced therapies,

interhospital transfer protocols, longitudinal patient care, outcomes measurement, quality improvement initiatives, and participation in research and ongoing education. Accredited centers must demonstrate an ability to provide 24-hour care to manage PE patients and maintain systems that ensure rapid multidisciplinary consultation with evidence-based decision making.

A distinguishing feature of the CoE program is its emphasis on the entire continuum of care. Beyond acute treatment, CoEs are expected to provide structured follow-up for PE patients, monitor long-term outcomes, and evaluate patients for chronic thromboembolic pulmonary hypertension and other post-PE complications. This focus is particularly important since post-PE syndrome affects up to 40% to 60% of survivors and can manifest as persistent dyspnea, exercise intolerance, and impaired functional status despite appropriate treatment.¹¹ The PE CoE program also promotes national benchmarking and continuous quality improvement. Participating institutions collect and analyze outcomes data, allowing hospitals to compare performance, identify best practices, and advance the science of PE management. Through collaboration among accredited centers, the program fosters innovation and supports clinical research aimed at improving patient outcomes.

There are tremendous benefits to the sites for pursuing CoE accreditation. The application and review itself leads to refinement of internal processes and most sites suggest an overall improvement in their program. The hospital system receives recognition for their hard work and can use it as a strong marketing tool to promote the benefits of their program to potential patients. Research opportunities expand as the institution becomes aligned with other like-minded institutions which can foster tremendous multidisciplinary collaboration.

As the treatment of PE is rapidly evolving, the importance of establishing protocols for the evaluation and management of these patients is crucial. Establishing the CoE program creates a fundamental standard by which programs can be evaluated and benchmarked. CoE sites then have the important opportunity and obligation to determine best practices and improve the overall care for PE patients.

PUTTING IT ALL TOGETHER

The three pillars of The PERT Consortium® work synergistically to advance the fundamental mission of improving the care of patients with PE worldwide. The PERT Consortium® CoE program recognizes institutions committed to delivering high-quality, multidisciplinary PE care and encourages these sites to contribute to the PERC Registry, which provides the infrastructure for standardized data collection. Quarterly reports give participating sites visibility into their registry data alongside aggregate consortium trends, creating opportunities for shared learning across peer institutions and identifying opportunities for quality improvement and to assess the impact of changes in clinical practice over time. The data generated through the PERC Registry also serve as the foundation for collaborative investigations led by the Research Committee, addressing critical knowledge gaps. Collectively, the PERC Registry, Research Committee, and CoE program create a continuous cycle of quality improvement, research, and implementation that will shape the future of multidisciplinary PE care. We encourage all institutions caring for patients with acute PE to participate in these initiatives. ■

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PERT International: Connecting a Global Community to Advance Pulmonary Embolism Care

Exploring how PERT International is expanding multidisciplinary pulmonary embolism care through global collaboration, education, research, quality improvement, and shared best practices.

By Bushra Mina, MD, FCCM, FCCP, FACP, FNIV; Sameh Sayfo, MD, MBA, FSCAI, FACC; and Rachel P. Rosovsky, MD, MPH

Pulmonary embolism (PE) remains one of the world's leading causes of cardiovascular mortality, yet its diagnosis and management continue to challenge health care systems around the globe. Patients often present with a wide spectrum of symptoms—from mild shortness of breath to life-threatening cardiovascular collapse—requiring rapid assessment and coordinated treatment decisions. Acute PE represents a highly heterogeneous disease process requiring individualized treatment decisions based on hemodynamic status, right ventricular dysfunction, bleeding risk, clot burden, and patient-specific comorbidities. Consequently, timely multidisciplinary evaluation has emerged as an important strategy for optimizing patient selection and therapeutic decision-making.

The multidisciplinary PE response team (PERT) model has become an adopted framework for coordinating care for PE patients, bringing together specialists from multiple disciplines to make timely, evidence-based decisions. Published data support the clinical value of this approach—PERT implementation has been associated with shorter time to anticoagulation initiation, reduced hospital length of stay including intensive care unit stay, increased use of advanced therapies without a corresponding increase in bleeding complications, and in some reports a sustained reduction in mortality. Reflecting this evidence, the 2026 American Heart Association/American College of Cardiology (AHA/ACC) guideline for the evaluation and management of acute PE in adults—the first de novo joint clinical practice guideline dedicated exclusively to acute PE from the AHA and ACC, published simultaneously in *Circulation* and *Journal of the American College of Cardiology*—provides a class 1 recommendation for the use of multidisciplinary PERTs to improve in-hospital care delivery.^{1,2}

With the steady growth and expansion of the PERT model across North America and its promising growth across other regions, the opportunities for greater international collaboration have become increasingly apparent. Clinical expertise, research, education, and quality improvement efforts all benefit when institutions can share experiences beyond geographic boundaries. Recognizing this opportunity, The National PERT Consortium® established PERT International, an initiative designed to unite health care professionals and systems worldwide around a common goal: improving outcomes for all patients with PE through collaboration, research, education, and innovation.

THE PERT INTERNATIONAL INITIATIVE

Recognizing the growing adoption of the PERT model beyond North America and the opportunity for greater international collaboration, The PERT Consortium® established PERT International, a global initiative dedicated to advancing the care of patients with PE by bringing together hospitals, health care professionals, and multidisciplinary teams from around the world. The mission of PERT International is to foster international collaboration, promote evidence-based education, and accelerate innovation to improve outcomes for patients with PE across diverse health care systems.

Beyond serving as a collaborative network, PERT International provides a framework for hospitals seeking to develop or strengthen multidisciplinary PERTs. Through educational resources, mentorship, best practice guidelines, protocol algorithm development, and access to an international community of experts, the initiative supports institutions in overcoming clinical, organizational, and resource-related barriers that may limit the implementation of comprehensive PE programs.



To facilitate knowledge and experience exchange, the initiative leverages international conferences, webinars, multidisciplinary case discussions, educational curricula, alongside quality improvement initiatives tailored to regional needs.

Recognizing that health care systems vary significantly across countries, PERT International embraces flexible implementation strategies that respect local resources, infrastructure, and practice patterns while maintaining the core principles of timely diagnosis, multidisciplinary decision-making, coordinated care, equitable access to advanced therapies, quality improvement via data gathering, and longitudinal patient follow-up.

EXTENDING THE PERT MODEL TO GLOBAL PRACTICE

A core strength of the PERT model lies in its adaptability. Although the principles of multidisciplinary PE management are universal, successful implementation depends on the clinical infrastructure, specialist expertise, referral pathways, resources, and treatment capabilities available at each institution. PERT programs are therefore designed to meet local needs while maintaining a shared commitment to timely evaluation, multidisciplinary decision-making, evidence-based treatment, and coordinated patient care.

PERT International facilitates the exchange of implementation strategies, clinical expertise, best operational practices, and educational resources, while fostering discussions of complex cases and programmatic challenges. By learning from the experiences of diverse health care systems, participating centers can refine patient triage, optimize treatment pathways, strengthen multidisciplinary collaboration, and improve care coordination.

As the network continues to grow, the collective experience of participating centers provides valuable insights into effective models of care, helping to identify best practices and reduce variability in management across diverse clinical settings.

EDUCATION AS THE FOUNDATION FOR BETTER PE CARE

Advances in PE management continue to evolve rapidly on a global scale. Driven by new clinical evidence, emerging technologies, updated treatment guidelines, and expanding research into risk stratification and intervention, optimal care strategies often vary by region. Through webinars, educational programming, scientific meetings, and professional networking opportunities, PERT International facilitates access to educational resources that support

both experienced clinicians and institutions developing new multidisciplinary PE programs.

The PERT Consortium®'s Annual Pulmonary Embolism Scientific Symposium serves as a cornerstone of these educational efforts. Bringing together physicians, researchers, nurses, advanced practice providers, program coordinators, administrators, and industry leaders under one roof, the meeting offers opportunities to discuss new research findings, review new guidelines recommendation, evaluate clinical cases, explore innovative therapies, and strengthen professional relationships across specialties.

These educational initiatives help ensure that clinicians remain informed about evolving best practices while encouraging collaboration between institutions that may otherwise have limited opportunities to interact.

PERT International members are encouraged to participate in the PERT Consortium® Education Committee, where they can contribute to educational programs, share expertise, and collaborate with an international network of PE specialists. Participation provides opportunities for professional development, leadership, and the exchange of best practices to advance multidisciplinary PE care worldwide.

ADVANCING RESEARCH THROUGH GLOBAL COLLABORATION

Scientific progress depends on data, collaboration, and diverse patient populations. Participating institutions have the opportunity to contribute to and utilize the PERT Registry, a comprehensive real-world clinical database that supports quality improvement, observational research, and multicenter scientific collaboration. By pooling data from diverse health care systems, participating centers can benchmark clinical outcomes and performance metrics, identify opportunities for quality improvement, evaluate real-world practice patterns, and contribute to research that advances the understanding and management of PE.

International participation meaningfully expands the diversity of clinical experiences available for study. Differences in patient demographics, health care delivery models, and approaches to treatment across participating countries create an opportunity to better understand how clinical and systems-level factors influence presentation, management, and outcomes of PE-related questions that cannot be addressed by single-center or single-country studies alone. The inclusion of diverse international populations also creates a platform for collaborative translational research, enabling investigators to explore geographic and population-based differences in disease susceptibility, treatment response, and long-term outcomes.

BUILDING RECOGNITION THROUGH INTERNATIONAL AFFILIATION

Participation in PERT International extends beyond networking opportunities to support recognition for organizations committed to advancing PE care. Institutions become part of a global community dedicated to multidisciplinary excellence, and members can participate on Consortium committees, contribute to educational initiatives, collaborate on publications, and engage in leadership activities that help shape the future direction of PE care.

As programs mature, PERT International provides guidance and mentorship toward achieving designation as a PERT Center of Excellence—recognizing institutions that demonstrate excellence in multidisciplinary collaboration, standardized clinical pathways, timely access to advanced therapies, continuous quality improvement, education, research, and patient-centered care.

As the international network continues to expand, institutional affiliation provides a platform for sustained collaboration among clinicians and investigators working to advance evidence-based PE management and improve patient outcomes across diverse practice environments.

A GROWING INTERNATIONAL NETWORK

PERT International has expanded to include health care organizations across multiple continents, reflecting growing global interest in multidisciplinary approaches to PE management. Participating institutions represent diverse health care systems and practice environments, including centers in Asia (United Arab Emirates, Saudi Arabia, Singapore), Europe (Greece, Spain, Ukraine), South America (Argentina), Australia, and the Dominican Republic. This geographic diversity provides a unique opportunity to evaluate PE management across a broad range of patient populations, referral patterns, resource settings, and treatment paradigms. It also enhances our understanding of how cultural, social, and ethical factors influence clinical decision-making, patient preferences, and health care delivery in different regions of the world. Furthermore, the inclusion of diverse populations creates a valuable platform for collaborative translational and genetic research, enabling investigators to explore geographic and population-based differences in disease susceptibility, genetic risk factors, treatment response, and long-term outcomes. Together, these international collaborations broaden the scientific understanding of PE while promoting more equitable, culturally informed, and patient-centered care. The active participation of international hospital representatives on PERT Consortium committees—such as the Education and Clinical Trials Committees—has been immensely valuable, significantly enriching our understanding of regional health care needs worldwide.

Beyond expanding the reach of the PERT model, the growing international network strengthens opportunities for collaborative education, multicenter research, and quality improvement initiatives. Participation from institutions with varying levels of experience and different models of care facilitates the exchange of clinical expertise, implementation strategies, and operational best practices while fostering multidisciplinary partnerships that extend beyond individual health care systems.

FUTURE DIRECTIONS FOR PERT INTERNATIONAL AND GLOBAL PE CARE

The growth of PERT International reflects a global recognition that coordinated, multidisciplinary PE care improves outcomes—and the work ahead is as important as what has already been accomplished. Several priority areas will shape the future direction of PERT International:

- **Expanding the global network.** PERT International will continue to grow its membership across the world, with particular focus on expanding into areas where PE care infrastructure is developing. Broader geographic representation strengthens the scientific value of the international registry, increases the diversity of populations studied, and advances the mission of delivering high-quality PE care across all health care settings.
- **Generating international registry evidence and trial participation.** The PERT Registry represents one of the most valuable tools available for understanding real-world PE management across diverse health care systems. Continuing to expand registry participation internationally will enable multicenter observational studies, comparative effectiveness research, and quality improvement initiatives that reflect the full spectrum of global PE care. The field of PE is simultaneously experiencing an unprecedented era of clinical trial activity, with recent and ongoing international trials investigating novel pharmacologic agents, catheter-based interventional strategies, and emerging approaches to risk stratification fundamentally reshaping how PE is managed. Many of these trials are in partnership with The PERT Consortium®, and the results of this research are already influencing clinical practice globally. PERT International serves as a natural vehicle through which this evolving evidence can be rapidly disseminated, implemented into clinical practice, and evaluated in real-world settings across diverse health care systems—translating trial findings into improved patient care at an international scale. Membership in PERT International also



opens meaningful opportunities for participating centers and investigators to engage directly in the most important and scientifically advanced clinical research in PE, providing access to trial networks, experienced investigators, and collaborative research infrastructure that individual institutions or national programs may not otherwise have access to, regardless of their size or geographic location.

- **Reducing global disparities in PE care.** Significant disparities exist in PE diagnosis, access to advanced therapies, and clinical outcomes across geographic regions and health care systems. PERT International is positioned to characterize these disparities through registry data, identify their drivers, and support quality improvement and implementation initiatives aimed at delivering more equitable PE care worldwide, including guidance on adapting PERT models for institutions with limited access to advanced interventional therapies.
- **Advancing post-PE care globally.** The long-term consequences of PE—including chronic thromboembolic pulmonary hypertension, post-PE syndrome, functional impairment, and recurrence risk—represent a growing clinical and research priority. PERT International's network is well positioned to support the development of structured longitudinal follow-up programs across participating centers, generate international real-world data on post-PE outcomes, and promote adoption of standardized follow-up protocols that reflect the 2026 AHA/ACC guideline recommendations for longitudinal PE care.
- **Strengthening education and mentorship internationally.** As new centers join PERT International from diverse health care environments, the need for tailored educational resources and mentorship programs grows accordingly. Future priorities include continuing to develop region-specific educational curricula, expanding access to case-based learning platforms and international webinars, and creating structured mentorship pathways that connect developing PERT programs with established Centers of Excellence, accelerating the growth of high-quality PE care in institutions at every stage of program development.

By integrating collaborative research, implementation science, education, and multidisciplinary clinical expertise, PERT International is helping establish a global framework for advancing evidence-based PE care and improving outcomes for patients worldwide. ■

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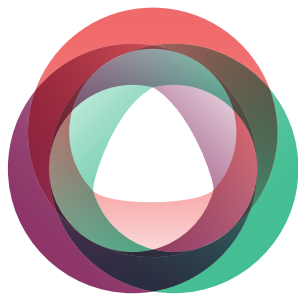
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1. Writing Committee Members; Creager MA, Barnes GD, Giri J, et al. 2026 AHA/ACC/ACCP/ACEP/CHEST/SCAI/SHM/SIR/SVM/SVN guideline for the evaluation and management of acute pulmonary embolism in adults: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation.* 2026;153:e977-e1051. doi: 10.1161/CIR.0000000000001415



PRISM

by The PERT Consortium®

Celebrating the Launch of The PRISM Program

The PERT Consortium proudly celebrates the launch of **The PRISM Program** and welcomes its inaugural cohort of participating sites from around the world.

As the Consortium's largest initiative since its founding in 2015, PRISM represents a new era of global collaboration to advance excellence in pulmonary embolism care.

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