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NOVEMBER 2026

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American College of Cardiology

VOL. 55 | NUMBER 9

INFLAMMATION AS A TREATABLE TARGET: THE RISE OF CARDIO-IMMUNOLOGY



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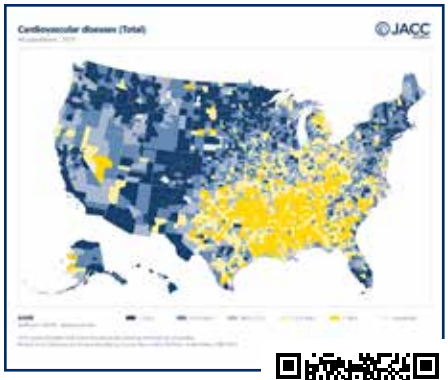


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***JACC* DATA REPORT:** MAPPING THE HIDDEN BURDEN OF CV DISEASE



A recent paper in *JACC* by Mensah, et al., reveals how cardiovascular disease mortality varies dramatically across U.S. counties, racial and ethnic groups, and specific cardiovascular conditions. While overall progress has been made, the findings uncover persistent disparities and provide critical insights to help target interventions where they are needed most.

Scan the QR code for an interactive tool to help you uncover the county-level data and better understand the disparities at play.

Scan the QR code to access and cite the full article.



REGISTER TODAY!

Mark your calendar and register today for the Valentin Fuster Cardiovascular Symposium, taking place Dec. 11 – 13 at the New York Hilton Midtown.

Join Course Director **Valentin Fuster, MD, PhD, MACC**, and top experts for discussions about the year's hottest, cutting-edge science and its practical application in your daily practice with a focus on improving patient care. **Scan the QR code** to register now.

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In the cath lab, urgency demands decisive leadership – but never intimidation. An online-exclusive *Cardiology* article examines how productive pressure differs from destructive behavior and why psychological safety is essential for clinicians and patient care. Discover principles for maintaining high standards, encouraging teams to speak up and building a culture where excellence and respect coexist. **Read the full article** in the November issue at ***ACC.org/Cardiology***.

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Unfinished Chapter: Braunwald's Legacy and Cardio-Immunology





Peter C. Block
MD, FACC

John Gordon Harold
MD, MACC

Few physicians have shaped modern cardiovascular medicine as profoundly as **Eugene Braunwald, MD, MACC**. Across six decades, his scholarship helped define how clinicians understand myocardial infarction, heart failure, valvular disease, prevention and cardiovascular therapeutics. It is fitting that, in the final months of his productive life, Braunwald turned to inflammation and cardiovascular disease. His unfinished chapter was more than a scholarly project. It reflected his ability to see where the field was heading next.

Our cover story this month examines the evolving field of cardio-immunology, defined in an ACC Scientific Statement as the study of how immune cells, molecules and inflammatory processes shape cardiovascular health and disease. Inflammation provides a unifying framework for conditions ranging from atherosclerosis and heart failure to recurrent pericarditis, treatment-related cardiotoxicity and arrhythmia. The question is no longer whether inflammation contributes to cardiovascular disease, but which pathways should be targeted, in which patients and at what stage.

Peter Libby, MD, FACC, captures the concept in six words: "We all study the same disease." He describes the challenge of finding the therapeutic "sweet spot": enough anti-inflammatory activity to protect the heart without weakening immune defenses against cancer and infection.

hsCRP has helped bring inflammation into clinical practice. Elevated hsCRP may identify residual risk not captured by LDL-C or conventional risk calculators, especially in patients with established ASCVD. Yet hsCRP is not disease specific. Infection, injury, smoking, visceral adiposity, autoimmune disease and other conditions may elevate it. Clinicians should interpret hsCRP within the broader clinical phenotype, repeat testing when acute inflammation is suspected and avoid treating an isolated laboratory value.

Clinical trials led by **Paul Ridker, MD, FACC**, and others established that inflammation is more than a risk marker. CANTOS showed that targeting IL-1β could reduce cardiovascular events without lowering LDL-C. Low-dose colchicine trials showed similar promise in selected patients with coronary disease. Neutral trials are equally instructive: methotrexate neither reduced cardiovascular events nor lowered hsCRP or IL-6, while ziltivekimab markedly suppressed IL-6 and hsCRP in ZEUS but did not reduce major cardiovascular events.

The lesson is fundamental: lowering an inflammatory biomarker does not necessarily improve outcomes. For clinicians, the message is practical: optimize established risk factors, recognize residual inflammatory risk, promote physical activity and smoking cessation, address visceral adiposity and use therapies supported by cardiovascular outcomes data.

Braunwald's legacy is not only a body of knowledge, but a way of advancing medicine that links mechanism, evidence and patient care. That is the promise of cardio-immunology: the right inflammatory target, for the right patient, at the right time. ■

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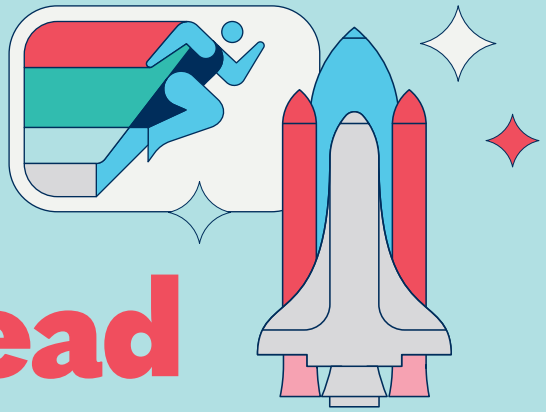
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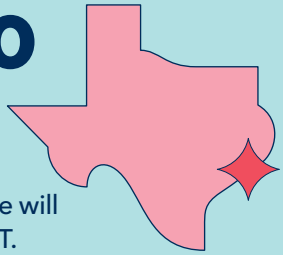
NUMBER CHECK

ACC.27-WCC: Full Speed Ahead



Apr. 10

The official start of ACC.27-WCC in Houston, TX! Opening Showcase will kick off at 8 a.m. CT.



7 The number of focused pre-conference sessions taking place from 10 a.m. to 6 p.m. CT on April 9. Plan to arrive early for deeper learning, practical insights and a more personalized educational experience centered around cardio-oncology, leadership, critical care, artificial intelligence, imaging in heart failure, reproductive health or teaching and communicating.

Scan the QR code to learn more.



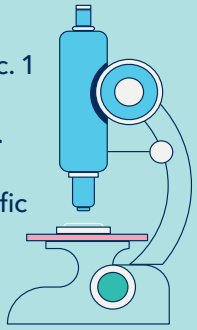
Dec. 2

The deadline for Early Bird registration. Register before this date to take advantage of the best rates.

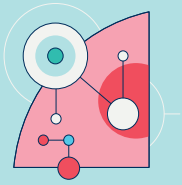
250+ The number of companies and organizations across pharmaceuticals, imaging, devices, health IT, services and more that will be part of the ACC.27-WCC Expo, connecting attendees with the products, technologies and solutions shaping the future of patient care.

1 p.m.

The deadline on Dec. 1 for Late-Breaking Clinical Trial (LBCTs). These studies are central to the scientific program and the global exchange of innovation.



200+ The number of innovative educational sessions across 11 learning pathways designed to help translate new science, guidelines and evidence into improved patient care and outcomes.



1950 The year the World Heart Federation's (WHF) first World Congress of Cardiology (WCC) was held. The ACC is excited to partner with WHF to bring ACC.27-WCC to Texas.



1980 The last time the ACC held its Annual Scientific Session in Houston, TX. The 29th Annual Scientific Session took place March 9-13, 1980.



1,300+ The number of experts and faculty involved with bringing ACC.27-WCC to life, led by Chair **Julie Damp, MD, FACC**, Vice Chair **Nicole Martin Bhave, MD, FACC**, and CV Team Lead **Kristen Bova Campbell, PharmD, BCPS, CPP, FACC.**



ACC Members Appointed to USPSTF





Ronald P. Karlsberg, MD, FACC, and **Venkatesh Locharla Murthy, MD, PhD, FACC**, were among the eight new members appointed to the U.S. Preventive Services Task Force (USPSTF), an independent panel of experts responsible for making recommendations on preventive health services like screenings, counseling and medications.

The two cardiologists were chosen for their respective experiences in preventive medicine, imaging, screening and risk assessment, and translation of evidence into care.

Karlsberg is a clinical professor of medicine at the Smidt Heart Institute at Cedars-Sinai Medical Center and at the David Geffen School of Medicine at UCLA, president and co-founder of the National Institute for Cardiovascular Research and Innovation, and managing partner of the Cardiovascular Medical Group of Southern California.

Murthy is the Melvyn Rubenfire professor of preventive cardiology in the department of internal medicine at the University of Michigan. ■



ACC Foundation Rallies Record Support to Fight Food Insecurity

The ACC Foundation's Hunger Action Month campaign raised nearly $6,000 in September to help put fresh, nutritious food on the tables of families facing food insecurity. Thanks to the generosity of ACC members and supporters, the campaign will help expand the reach of the ACC's Caring Hearts Initiative in Buffalo, NY; Camden, NJ; Philadelphia, PA; and San Jose, CA.

With nearly 48 million people in the U.S., including 14 million children, living in food-insecure households, access to nutritious food remains a challenge. Access to fresh fruit, vegetables and other nutritious food plays an important role in preventing cardiovascular disease and supporting long-term health.

The ACC's Caring Hearts Initiative works with community partners to improve cardiovascular health in underserved communities by addressing food insecurity and other barriers to heart health. Funds raised through this year's campaign will help more families access fresh produce, nutrition education and community-based resources that support healthier hearts and healthier futures.

Scan the QR code to learn more about Caring Hearts. Visit *ACC.org/Support* to learn more about ways to support the ACC Foundation. ■

ACC Names ACC.28 and ACC.29 CV Team Lead

The ACC has named **Maureen Knechtel, DMSc, PA-C**, as the Annual Scientific Session Cardiovascular (CV) Team Lead for ACC.28 and ACC.29. In her new role, she will help guide the development of educational content and programming that highlights the vital contributions of the entire cardiovascular care team and supports interprofessional collaboration across the ACC community.



Knechtel is a PA, educator, author and national speaker who brings more than two decades of experience in cardiovascular medicine and PA education to this role. She practices at Ballad Health Cardiovascular Associates Heart Institute in Kingsport, TN, and focuses on atrial fibrillation management, and serves as an associate professor with the Milligan University PA Program. She earned her Doctor of Medical Science degree from the University of Lynchburg and her Master of Physician Associate degree from Duquesne University.

In addition, she is an active member of ACC's EP Member Section, currently serves as the CV Team Lead for ACC's Cardiac Arrhythmias Work Group, and as a consultant and educator with MedAxiom.

"What drew me to this role was the opportunity to help shape programming that reflects team-based cardiovascular care. I look forward to identifying meaningful and innovative ways to incorporate the perspectives and expertise of the entire cardiovascular team throughout ACC.28 and ACC.29, while creating educational experiences that can immediately be put into practice," Knechtel says. "I hope to identify, develop and elevate ideas that encourage collaboration, influence clinical practice and ultimately improve patient outcomes." ■



Fuster Prevention Forum: Primordial Prevention in Childhood

Cardiovascular medicine should do more to prevent disease before patients ever reach a cardiologist, writes **Ramzi Ibrahim, MD**, in a *JACC: Advances* viewpoint, reflecting on his participation in the inaugural Fuster Prevention Forum earlier this year.

Citing evidence that cardiovascular risk begins in childhood, Ibrahim challenges the field to shift more training, resources and prevention efforts upstream. Ibrahim highlights the Forum's mission to equip clinicians to bring early prevention strategies back to their communities and concludes that, despite remaining evidence gaps, the potential to add decades of healthy life makes primordial prevention in early childhood a compelling priority.

Learn more about the Forum and the broader Fuster Heart Movement at *FusterHeartMovement.org*. The next application period is expected to open later this year. ■

FUSTER PREVENTION FORUM

The FUSTER HEART Movement

Vutrisiran Benefit With Concomitant Therapy; New Progression Framework

Concomitant tafamidis or heart failure (HF) therapy did not modify vutrisiran's benefit on all-cause mortality and recurrent cardiovascular events in transthyretin amyloid cardiomyopathy (ATTR-CM), according to a HELIOS-B analysis published in a *JACC* Focus Issue on Cardiac Amyloidosis.

Arielle Abovich, MD, MPH, et al., analyzed 654 patients with ATTR-CM randomized to vutrisiran or placebo. At baseline, 40% received tafamidis and 77% at least one HF medication. Investigators assessed treatment-effect modification for the primary composite endpoint.

The treatment effect did not significantly vary by baseline or time-updated use of tafamidis, SGLT2 inhibitors, MRAs, beta-blockers or ARBs.

The findings support consistent vutrisiran benefit across contemporary ATTR-CM pharmacotherapy and its use with disease-modifying and guideline-directed HF therapies, the authors write.

Scan the QR code to read the full focus issue in *JACC*.

Separately, a *JACC* Special Communication by **Marianna Fontana, MD, PhD**, et al., proposes a biological framework for ATTR-CM progression: precursor protein biology, amyloid burden and downstream organ response. The domains align progression with therapeutic mechanisms and biomarker development, creating a structure for disease assessment.

The authors argue monitoring should define disease biology more accurately. As therapies expand, clinicians should identify what drives progression and whether treatment adequately targets it, linking each domain to therapeutic mechanisms and biomarkers. ■

Abovich A, Fontana M, Claggett B, et al. *JACC*. 2026;88(12):1416-24.

Fontana M, Solomon S, Hawkins P, et al. *JACC*. 2026;88(12):1440-9.

IL-6 Outperforms hs-CRP For HF Risk

The inflammatory biomarker interleukin (IL)-6 identified residual risk of incident heart failure (HF) in patients with type 2 diabetes (T2D) and overweight/obesity, particularly those without CV disease, according to a Look AHEAD ancillary study in *JACC: Heart Failure*. An intensive lifestyle intervention (ILI) targeting weight loss also reduced IL-6 over one year vs. diabetes support and education.

This ancillary study measured baseline hs-CRP (n=1,902; median, 4.04 mg/L) and IL-6 (n=1,507; median, 2.07 pg/mL). The hs-CRP cohort had a mean age of 58 years and 58% were women; the IL-6 subgroup was demographically comparable.

Over a median 12 years, 5% of participants had incident HF and 19% had a composite ASCVD event. After adjustment for demographics, CV risk factors and statin use, high IL-6 was not independently associated with ASCVD but was associated with incident HF overall (HR, 1.43), particularly in participants without CV disease (n=1,323; HR, 1.92).

After full adjustment, hs-CRP was not independently associated with ASCVD or incident HF. The risk of HF was highest when both biomarkers were elevated, although IL-6 was more strongly associated with risk when results were discordant.

Investigators **Kershaw V. Patel, MD**, and colleagues write that IL-6 may be superior to hs-CRP for identifying residual inflammatory HF risk, helping identify patients who may benefit from targeted therapies and improve clinical trial efficiency. ■

Patel K, Chiu L, Garcia K, et al. JACC HF. 2026; Sept. 3: doi: 10.1016/j.jchf.2026.103296

Coronary Blood Flow May Explain Later CAD in Women

Women in the CENTURY trial had higher coronary blood flow (CBF) than men despite comparable cardiovascular risk, similar treatment response and half as many coronary events, offering a potential physiological explanation for the delayed clinical manifestation of coronary artery disease (CAD) in women, according to a post hoc analysis published in *JACC: Cardiovascular Imaging*.

The analysis included 331 women and 697 men aged ≥40 years with subclinical, suspected or established CAD from the randomized CENTURY trial, which used PET to measure CBF and coronary flow capacity.

Women had less established CAD (23% vs. 46% in men), less coronary artery calcification (62% vs. 88%) and fewer severe PET stress perfusion defects (6% vs. 10%), as well as less diffuse CFC reduction (29% vs. 47%) and fewer severely reduced CFC maps (7% vs. 17%) ($p<0.0001$ for all).

They also had fewer major adverse cardiovascular events (16% vs. 38%).

Global CBF at baseline was significantly higher at rest and during stress in women than men, yielding a women-to-men CBF ratio of 1.33 across age, BMI, risk factors and treatment.

Noting women's coronary arteries are approximately 10% smaller than men's, Gould and colleagues estimated that endothelial shear stress (ESS) may be approximately 82% higher in women. This chronic, diffuse antiatherogenic mechanism could delay clinically manifest CAD in women by up to two decades, they write.

"A sex-specific physiological-fluid dynamic anatomical configuration of the female coronary tree – smaller arteries with higher CBF, generating diffuse antiatherogenic ESS established during childhood – may be a primary mechanism contributing to lifelong reduction in CAD relative to men and to the estrogen paradox." ■

Gould K, Johnson N, Roby A. et al. *JACC: Cardiovasc Imag*. 2026:Sept. 15, 2026. Doi: https://doi.org/10.1016/j.jcmg.2026.07.017

Primer Highlights CV Risks of ADC Therapy in Breast Cancer

As antibody-drug conjugate (ADC) use expands in breast cancer, cardiovascular risk is increasingly important, particularly in curative settings. A primer in *JACC: CardioOncology* reviews mechanisms of cardiovascular injury, toxicities, risk factors, mitigation and research priorities.

Heather Moore, PharmD, et al., explain how the antibody, linker and cytotoxic payload may contribute to risk. Most metastatic HER2 antibody-based therapies are associated with cardiotoxicity, which varies by age and treatment population.

T-DXd differs from trastuzumab emtansine in drug-to-antibody ratio, payload, mechanism and linker design. Its greater systemic payload exposure may affect off-target toxicity, including cardiovascular effects. T-DXd–associated LVEF decline has varied across DESTINY-Breast studies, likely because of differences in patient populations, treatment setting and line of therapy. Newer breast cancer ADCs include sacituzumab govitecan and datopotamab deruxtecan.

"Evidence guiding cardiovascular surveillance during ADC therapy remains limited and differs between HER2-directed and non–HER2-directed ADCs," the authors write. Prospective studies, pragmatic trials and real-world evidence are needed to define surveillance, cardioprotection and cardiovascular disease prevention strategies that maximize ADC benefits while minimizing cardiovascular harm. ■

Moore H, Huppert L, Moslehi J, et al. *JACC: CardioOncology*. 2026;8(4):357-363.

DON'T MISS THESE SPECIAL ISSUES

Scan the QR code for a dedicated issue exploring the growing intersection of immunology and cardio-oncology.

Visit *JACC.org/Cardiooncology* for this month's focus issue on breast cancer.

BP Declines During Extreme Heat



Extreme heat exposure was associated with modest acute blood pressure (BP) reductions among community health center patients, with slightly larger decreases in older adults, according to a cross-sectional study published in *JAMA Network Open*. Findings could inform outpatient BP measurement and cardiovascular risk assessment.

Brenda M. McGrath, PhD, et al., analyzed 4.3 million ambulatory encounters at 2,554 OCHIN community health centers in 40 states during June through August from 2019 to 2023. Most encounters (81%) involved patients without diagnosed hypertension; mean age was 48 years, 63% were women and 28% were non-Hispanic White.

GridEX data linked extreme heat, defined by location-specific thresholds, to clinic locations. Mixed-effects models adjusted for demographic and clinical factors and assessed associations over eight days.

Same-day extreme heat was associated with lower systolic BP (−0.7 mm Hg) and diastolic BP (−0.3 mm Hg). Reductions were larger among adults aged 65 years or older than younger adults (systolic: −1.1 vs. −0.6 mm Hg; diastolic: −0.8 vs. −0.3 mm Hg).

Scan the QR code to access *JACC's* Focus Issue on Environmental Cardiology.

Hypertension modified the systolic association but not the diastolic association. BP reductions were greatest on the exposure day and the next day, diminished by day 3 and cumulatively decreased over seven days by 0.8 mm Hg systolic and 0.5 mm Hg diastolic. ■

McGrath BM, Georgescu J, Fard P, et al. *JAMA Network Open*. 2026;9(9):e2633066.

Stroke Risk Lower in AFL-Only vs. AFib-Only Patients

Patients with atrial flutter only (AFL-only) had a 40% lower risk of ischemic stroke than those with atrial fibrillation only (AFib-only), based on results from the FinACAF study published in *EHJ*.

The study cohort included 40,986 Finnish adults with new-onset AFib/AFL: 30,261 with AFib-only, 2,409 with AFL-only and 8,316 with AFib/AFL. Mean age was 72 years; about half were women. Median CHA_2DS_2-VA scores were 3 in the AFib-only and AFib/AFL groups and 2 in the AFL-only group.

Over 1.2 years, 78% started anticoagulation, including direct oral anticoagulation in 25% of the AFib-only, 31% of the AFL-only and 24% of the AFib/AFL groups. Ablation was performed in 2%, 7% and 6%, respectively.

Eight percent experienced ischemic stroke. Crude rates were highest with AFib/AFL (2.1 per 100 patient-years), followed by AFib-only (1.9) and AFL-only (1.1).

After adjustment, the ischemic stroke incidence rate ratio was lower with AFL-only (0.60) and slightly higher with AFib/AFL (1.11) vs. AFib-only. The lower AFL-only risk may reflect preserved atrial function, higher left atrial appendage emptying velocities, lower arrhythmia burden and less structural remodeling. Findings were consistent across CHA_2DS_2-VA scores and in patients without anticoagulation or catheter ablation.

Investigators found non-anticoagulated patients with AFL-only had a 0.7% annual stroke risk at a CHA_2DS_2-VA score of 1, below the treatment threshold. Annual risk reached 1.6% at a score of 2, suggesting moderate risk and benefit from anticoagulation. The findings may warrant reevaluating anticoagulation strategies, particularly for AFL-only patients with a score of 1. ■

Eyob Fesseha H, Aro AL, Teppo K, et al. *Eur Heart J*. 2026;Sept. 3: doi:10.1093/eurheartj/ehag681

PE Testing Decisions Affect Diagnostic Yield

Variation in deciding to test for pulmonary embolism (PE) across emergency department (ED) clinicians was associated with diagnostic yield, according to a retrospective study published in *JAMA Network Open*.

Alexander T. Janke, MD, MHS, MSc, et al., included nearly 4.2 million ED visits (median patient age 52 years; 56% female) and 747 clinicians (median graduation year 2013; 62% male) at 29 Michigan EDs from Jan. 1, 2023, to Nov. 30, 2025. Three decision moments were investigated: 1) to test for PE, 2) initial testing modality and 3) interpreting the negative D-dimer result. A primary outcome of the study was diagnostic yield, determined by the percentage of CT pulmonary angiography (CTPA) scans used to diagnose an acute PE.

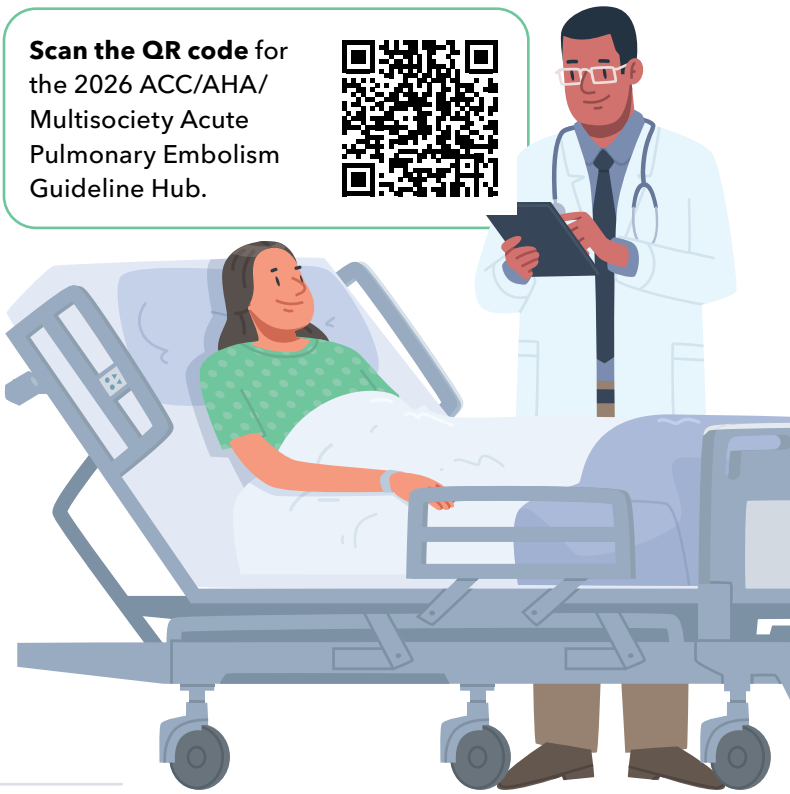
Results showed an association between diagnostic yield and both the decision to test for PE and the decision on testing modality. Comparing the lowest testing quintile of clinicians vs. the highest testing quintile of clinicians, decision to test for PE had a pooled CTPA yield of 9.6% vs. 6.4%.

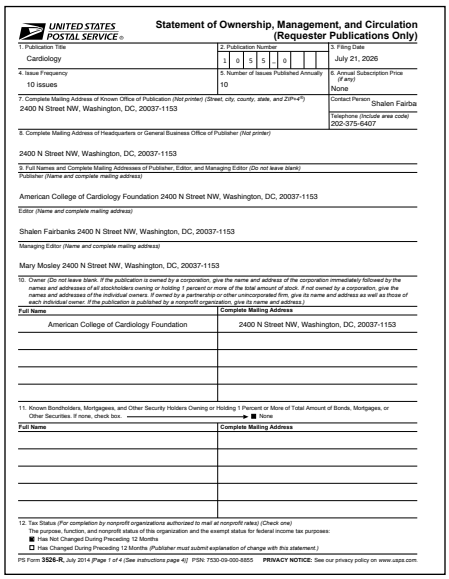
Of 13,530 acute PE cases, there were 189 potential missed opportunities to diagnose, which were in turn associated with lower testing intensity. Missed opportunities were identified by 10-day ED revisits and symptom-disease pair analysis.

"Greater propensity to test was associated with lower risk of trade-off at this most upstream decision moment," write the authors. "To reduce overtesting and mitigate the risk of consequential misdiagnosis, future clinical research and quality improvement should target the first decision moment: which individuals should be tested for PE at all." ■

Janke AT, Fung CM, Bombard MC, et al. *JAMA Netw Open*. 2026;9(9):e2635312.

Scan the QR code for the 2026 ACC/AHA/ Multisociety Acute Pulmonary Embolism Guideline Hub.





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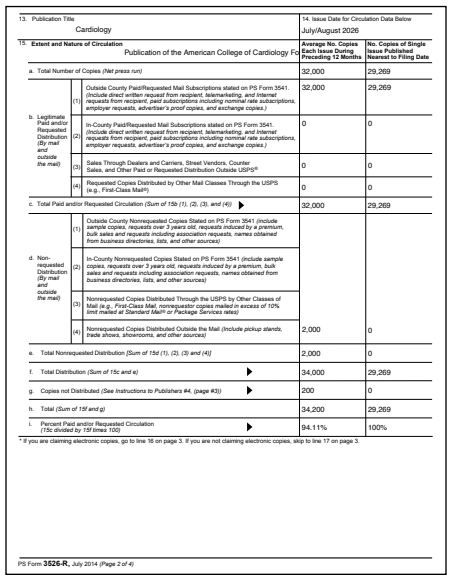
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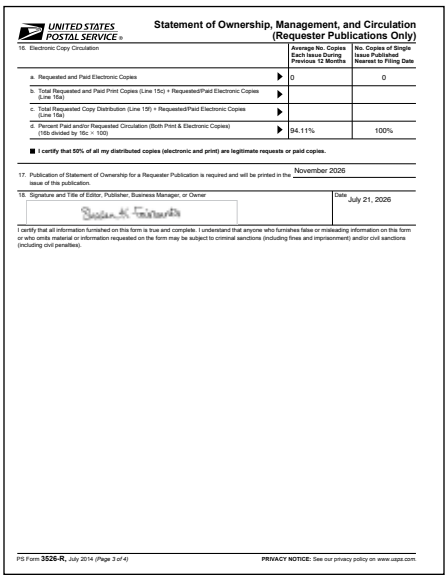
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Overall Diet Quality Key to Maintaining Heart Health

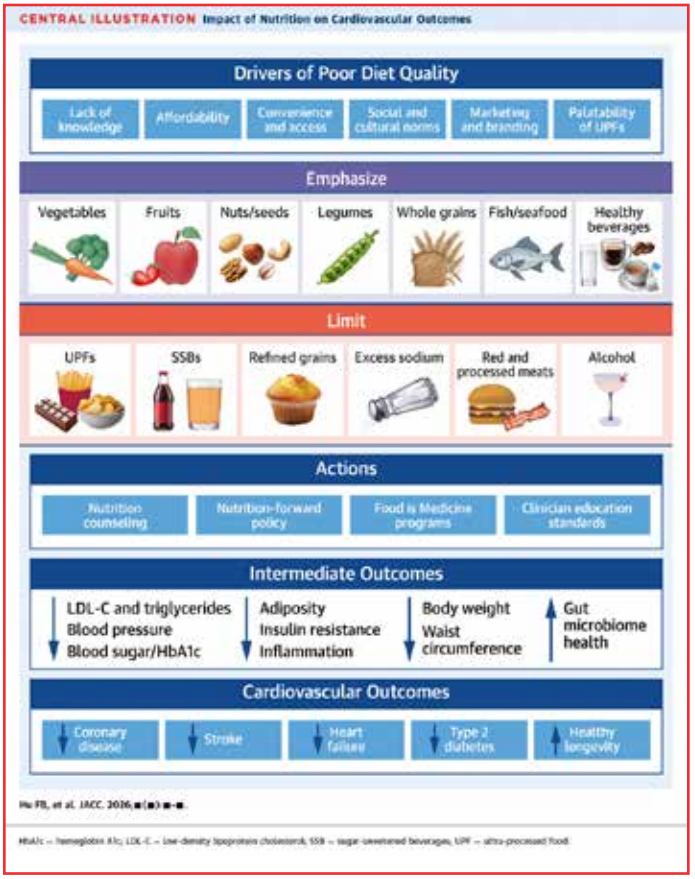
A healthy, balanced dietary pattern, rather than one focused on individual nutrients or foods, is key to maintaining heart health, according to the ACC Scientific Statement *Food and Health: Nutrition for Prevention and Management of Cardiovascular Disease*.

The Statement reviews current evidence on nutrition and cardiovascular health, including macronutrients, micronutrients, dietary patterns, ultra-processed foods and emerging nutrition-based interventions. It also offers consensus recommendations on incorporating food and health into clinician-patient discussions on preventing and managing heart disease. (Visit *CardioSmart.org/topics/healthy-living* for patient tools.)

Overall, the Statement highlights the central role of diet and nutrition in preventing and managing the cardiovascular-kidney-metabolic syndrome, which includes interconnected conditions such as cardiovascular disease, chronic kidney disease, diabetes and obesity.

"Suboptimal diet is a key risk factor for cardiovascular disease, and diet and lifestyle modification are widely considered essential for both primary and secondary prevention," said Writing Committee Chair **Frank B. Hu, MD, PhD**. "However, the concept of a 'heart-healthy' diet has evolved over time from nutrient-centric approaches to more holistic, food- and pattern-based strategies that better reflect advances in the understanding of the complex relationship between diet and cardiometabolic health."

The Statement recommends minimally processed plant-based foods and healthy fats and proteins in diets, while limiting foods high in refined starches, added sugars, sodium or unhealthy fats, as well as highly processed foods of poor nutritional quality. Similarly, it calls for prioritizing water and other unsweetened beverages and limiting sugar-sweetened beverages. Alcohol consumption should generally be limited or avoided.



Also stressed is the importance of considering food security across the four domains of availability, affordability, accessibility and utilization of nutritious foods – noting that access to healthy foods, affordability and other social drivers of health significantly affect diet quality. And it underscores how the "translation of nutrition science into clinical practice requires integration of dietary counseling, medical nutrition therapy, Food Is Medicine programs, public policy initiatives, and clinician education."

The Statement notes that GLP-1s can produce significant weight loss and cardiovascular benefits, and emphasizes that a nutrient-rich, high-quality diet remains essential during treatment. ■

> Suboptimal diet is a key risk factor for cardiovascular disease, and diet and lifestyle modification are widely considered essential for both primary and secondary prevention.
>
> Frank B. Hu, MD, PhD

Scan the QR code to read the document published in *JACC*.

Perioperative Guideline Reaffirmed By ACC/AHA Committee

After evaluating new evidence published over the past two years on perioperative cardiovascular management of patients undergoing noncardiac surgery, the ACC/AHA Joint Committee on Clinical Practice Guidelines has determined the 2024 perioperative guideline "remains valid and current."

Published in *JACC*, the reaffirmed *2026 ACC/AHA/Multisociety Guideline for Perioperative Cardiovascular Management for Noncardiac Surgery* is up-to-date and "the recommendations, supportive text, figures, tables, and references are identical to those in the 2024 publication," according to Writing Committee Chair **Annemarie Thompson, MD, MBA**, and Vice Chairs **Kirsten E. Fleischmann, MD, MPH, FACC**, and **Nathaniel R. Smilowitz, MD, MS, FACC**.

In an Editorial Comment accompanying the reaffirmed guideline, **Mary Norine Walsh, MD, MACC**, reinforces the guideline's key takeaways, including its emphasis on what should not be done.

"In assessing risk, we are encouraged to consider the procedure, the timing (urgent, time-sensitive, or elective), the patient's clinical status, the mode of anesthesia, and possible surgical modifications to the procedure that might mitigate risk," she writes. "Stress testing and other preoperative evaluations are reserved for patients with poor or unknown functional capacity."

In assessing risk, we are encouraged to consider the procedure, the timing (urgent, time-sensitive, or elective), the patient's clinical status, the mode of anesthesia, and possible surgical modifications to the procedure that might mitigate risk

Mary Norine Walsh, MD, MACC

Walsh also highlights areas with limited data, including outcomes for procedures done in ambulatory surgical centers compared with hospitals, and timing of "cardiac clearance" in determining risk for surgery. Thus, she stresses the importance of both disseminating the current guideline to surgical colleagues, as well as including patients in the critical decisions about their care.

The reaffirmed guideline was developed in collaboration with and endorsed by the American College of Surgeons, American Society of Nuclear Cardiology, Heart Rhythm Society, Society of Cardiovascular Anesthesiologists, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and the Society for Vascular Medicine. ■

Scan the QR code for the Perioperative Guideline Hub.

Scan the QR code for the *JACC* Perioperative Guideline Interactive Tool.

Engage With The Guidelines
Anytime, Anywhere!

Download ACC's Guideline Clinical App for the guidelines, risk scores and more.

Palliative Cardiology: Evolving With Modern Cardiovascular Care



Great strides were made in cardiovascular medicine in the early 2000s, with new procedures, devices and disease-directed treatments changing outcomes for patients living with serious disease. At the same time, palliative cardiology was taking shape to address another urgent need: helping patients navigate increasingly complex treatment choices while preserving dignity, comfort and quality of life.

"There was a whole climate of innovation – lifesaving endeavors," reflects **Sarah Goodlin, MD, FAAHPM, FACC**, an ACC leader, geriatrician and palliative care (PC) physician. But patients were sometimes dying poorly and "people were not able to talk about it openly." After a patient had a difficult death from an infected prosthetic valve, she recalls telling the surgeon, "I feel like we can do this better."

Thus began Goodlin's work in palliative cardiology. Building on work for The Project on Death in America, she used quality improvement methods to improve care for critically ill patients. In 2002, she convened the National Consensus on Palliative and Supportive Care in Heart Failure conference, with major groups in cardiology, PC and nursing – resulting in the 2004 consensus statement *Palliative and Supportive Care in Advanced Heart Failure*,[1] detailing research priorities for the new field.

Goodlin recalls the document was not universally well received. One reviewer commented it was an odd topic to submit to a cardiology journal. Despite early skepticism, in 2009 she published *Palliative Care in Congestive Heart Failure* in *JACC*, a foundational work for palliative cardiology today.[2]

Interprofessional Response to a Rapidly Changing Field

The parallel evolution accelerated in the 2010s, with a rapid rise in lifesaving procedures for higher-risk patients, including destination therapy left ventricular assist devices (DT-LVAD) in 2010 and TAVR in 2012. The Centers for Medicare and Medicaid Services saw the value of PC in these high-risk/high-reward procedures, mandating its inclusion in DT-LVAD teams to support patient decision-making.

ACC's Palliative Care Work Group (PCWG), part of the Geriatric Cardiology Member Section, was formed in 2016, chaired by **James N. Kirkpatrick, MD, FACC**. A research letter that highlighted the low rate of inclusion of PC in institutional protocols for TAVR and LVAD,

5 Pivotal Randomized Trials in Palliative Cardiology

1. **PAL-HF** (PC in HF).
2. **CASA** (Effect of collaborative PC vs. usual care on health status in chronic HF).
3. **SWAP-HF** (Social worker-aided PC in high-risk HF patients).
4. **Implementing HeartPal** (Design, early results of specialized PC delivery model in advanced HF populations.)
5. **ENABLE CHF-PC** (Effect of early PC telehealth intervention vs. usual care in HF).

published in *JAMA Internal Medicine*,[3] was one of the group's earliest efforts.

To establish interprofessional leadership of the PCWG, **Caroline Doherty, DNP, FACC**, and **John Mulrow, MD, FACC**, became co-chairs in 2020. Doherty's commitment to PC began during the PARTNER trial,[4] when she saw that it ensures care consistent with a patient's goals and values.

Education and Research in PC

The field continues to evolve through education and research in step with advances in cardiovascular treatments. The PCWG has led education sessions on communication skills and symptom management at ACC.16 and a half-day intensive at ACC.17 on putting into practice the PC insights from the PAL-HF trial.[5] Now PC is a routine part of the curricula at ACC Annual Scientific Sessions.

A free online educational course, *Palliative Care for the Cardiovascular Clinician*, developed by the PCWG has been accessed by more than 700 learners in its first 13 months.[6]

Other recent offerings include a collaboration between CardiaCast and the CV Team on a podcast series on PC as well as a webinar on how outpatient palliative cardiology supports vulnerable patients.

On the patient and caregiver side, education on PC has been developed in partnership with CardioSmart.

Research published by members of the work group includes PC in congenital heart disease; PC education; the need for ICD-related education; ethical concerns in end-of-life care for LVAD patients[7]; and a proposed model for an integrated heart failure-PC clinic.[8] The PC consensus statement from the Heart Failure Society of America was led by work group member **Sarah Chuzi, MD, FACC**.[9]

Next up is providing education on primary PC, to meet the needs of all patients with cardiovascular disease, beyond specialty PC care. To support program directors in incorporating PC in fellowship training, the PCWG identified and published core competencies in PC for general cardiology fellows.[10,11]

The Future of PC

The current interprofessional co-chairs of the work group (article authors Patton and Steiner) paint a powerful vision: "We look forward to a time when PC is seamlessly woven into the entire spectrum of cardiovascular disease care." Clinicians will feel empowered to provide primary PC because their core fellowship training will include communication skills for serious illness and other PC principles. And integrated palliative cardiology clinics will be routine. A bright future indeed! ■

References and resource links available with the online version of this article at ACC.org/Cardiology.

This article was authored by **Jill Jae Patton, MSN, CRNP, AACC, ACHPN**; **Jill Steiner, MD, MS, FACC**; **Carrie Puckett, DO, FACC**; **Christy Cantey, DNP, CCK, FACC**; **Sarah Godfrey, MD, MPH, FACC**; **Caroline Doherty, DNP, FACC**; and **Richard Josephson, MD, FACC**.

National Hospice and Palliative Care Month

In recognition of National Hospice and Palliative Care Month, *Cardiology* is highlighting the role of palliative care in the treatment of patients with cardiovascular disease through a series of articles from ACC's Palliative Care Work Group, part of the Geriatric Cardiology Member Section. This piece launches the series, with new installments publishing weekly on *ACC.org/Cardiology*.


Members of the PCWG at ACC.26

KEEP LEARNING!

Scan the QR code to access the education created by the PCWG.

5 Pivotal Clinical Guidelines/Consensus Statements in Palliative Cardiology

1. Integration of Palliative Care into Heart Failure Care: Consensus-Based Recommendations from the Heart Failure Society of America.
2. Palliative Pharmacotherapy for Cardiovascular Disease.
3. Recommendations for Advance Care Planning in Adults with Congenital Heart Disease.
4. Palliative and End-of-Life Care During Critical Cardiovascular Illness.
5. Palliative Care and Advanced Cardiovascular Disease in Adults: Not Just End-of-Life Care.

GIVING BACK, MOVING CARDIOLOGY FORWARD

For many members of the College, giving to the ACC Foundation began with something deeply personal: gratitude. Gratitude for mentors who opened doors, meetings where professional networks became enduring friendships, educational resources that strengthened clinical practice, and a sense of belonging that helped transform cardiology from an individual career path into a shared professional home.

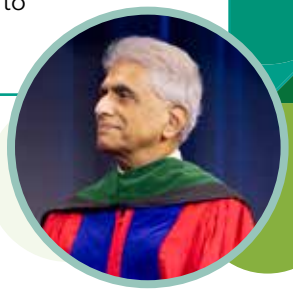
Across conversations with ACC members who support the Foundation, one message is clear: philanthropy is about far more than making a financial contribution. It is about paying forward the opportunities, relationships and values that helped shape their own careers, and ensuring that future generations of cardiovascular clinicians, educators, researchers and care team members have the support they need to succeed.



That same sense of impact is what inspired **Hani Najm, MD, FACC**, to launch the Hani Najm Global Scholar Award through the ACC Foundation. For Najm, cardiovascular disease is a global challenge, but access to education, technology, expertise and resources remains uneven. By providing early-career cardiologists residing in low- to middle-income countries, or the Middle East or North Africa, with opportunities to participate in the ACC Annual Scientific Session and complete an observership program in the U.S., the award is not just investing in individuals, it's creating a ripple effect. The award ensures recipients return to their communities better prepared to improve care, educate colleagues, build programs and mentor others.

That ripple effect is one of the most compelling arguments for giving. A single opportunity can travel far beyond the person who receives it. A trainee who attends a meeting may find a mentor. A young faculty member may go on to lead and design courses. A woman in cardiology may be inspired to seek out leadership positions in her practice, institution or the ACC itself. A cardiovascular team member may gain the tools, confidence and community to expand their role in patient care. The measure of a gift is not only the program it supports, but the patients, colleagues and communities reached through those who benefit.

For **Chittur Sivaram, MD, FACC**, giving is rooted in a lifelong commitment to education. A founding chair of what is now the ACC Program Directors and Graduate Medical Educators Member Section, Sivaram has focused his support on strengthening the pipeline of clinician educators and teaching faculty. As faculty balance patient care, productivity demands and educational responsibilities, he sees development opportunities for program directors and educators as essential to the field's future. His philanthropy reflects a belief that mentorship and teaching may not always show immediate results, but they can shape careers, institutions and patient care for years to come.





MAKE A DIFFERENCE THROUGH THE ACC FOUNDATION



For Harvey J. White, MD, FACC, the ACC has long represented community in a profession that can often feel individualistic. Through meetings, research connections and collegial relationships, the College became a place where professional identity and personal fellowship could grow together. His support for the Foundation reflects a later-career recognition of the institutions that helped shape him – and a desire to sustain the ACC for those who will follow. He sees philanthropy as personally meaningful and practically necessary, particularly for initiatives that membership dues alone cannot fully support, including educational grants and opportunities for younger physicians to attend meetings and become more involved.

Patricia Keegan, NP, DNP, FACC, describes a similar evolution from receiving support to giving back. The ACC, she says, became her professional home through relationships, education, meetings, webinars, publications and career opportunities. Her support reflects gratitude for that journey and a conviction that the College's impact extends across the entire cardiovascular team. By supporting education, patient resources, advocacy and emerging areas of care, Foundation giving can help equip clinicians across disciplines with the tools they need to lead, collaborate and improve outcomes.



Toniya Singh, MBBS, FACC, brings that message into sharp focus through her commitment to women in cardiology, mentorship, outreach and patient-centered care. Her support is grounded in the belief that the Foundation can help create communities, foster leadership and make opportunity more visible and accessible. At a time when resources may be constrained and confidence in science challenged, Singh emphasizes the importance of efforts that keep cardiovascular care rooted in evidence, compassion and connection.

Just as important, these donors broaden the meaning of philanthropy itself. Giving back is not reserved for those able to make large financial gifts, nor is it limited to people who identify as philanthropists. It can include mentorship, sponsorship, teaching, advocacy, introductions, volunteer leadership, awareness-building and donations of any size.



Pamela B. Morris, MD, FACC, chair of the ACC's Philanthropy Committee, has seen the power that both large and small gifts have on the College's progress. "Every gift matters. Whether you give $25 or $25,000, your generosity helps the ACC go beyond what member dues support and creates opportunities that can have a lasting impact on patients and the profession. Through the ACC Foundation, gifts of all sizes help us invest in innovative science, provide leadership development and mentorship to emerging leaders in the field, and fund community health education." ■

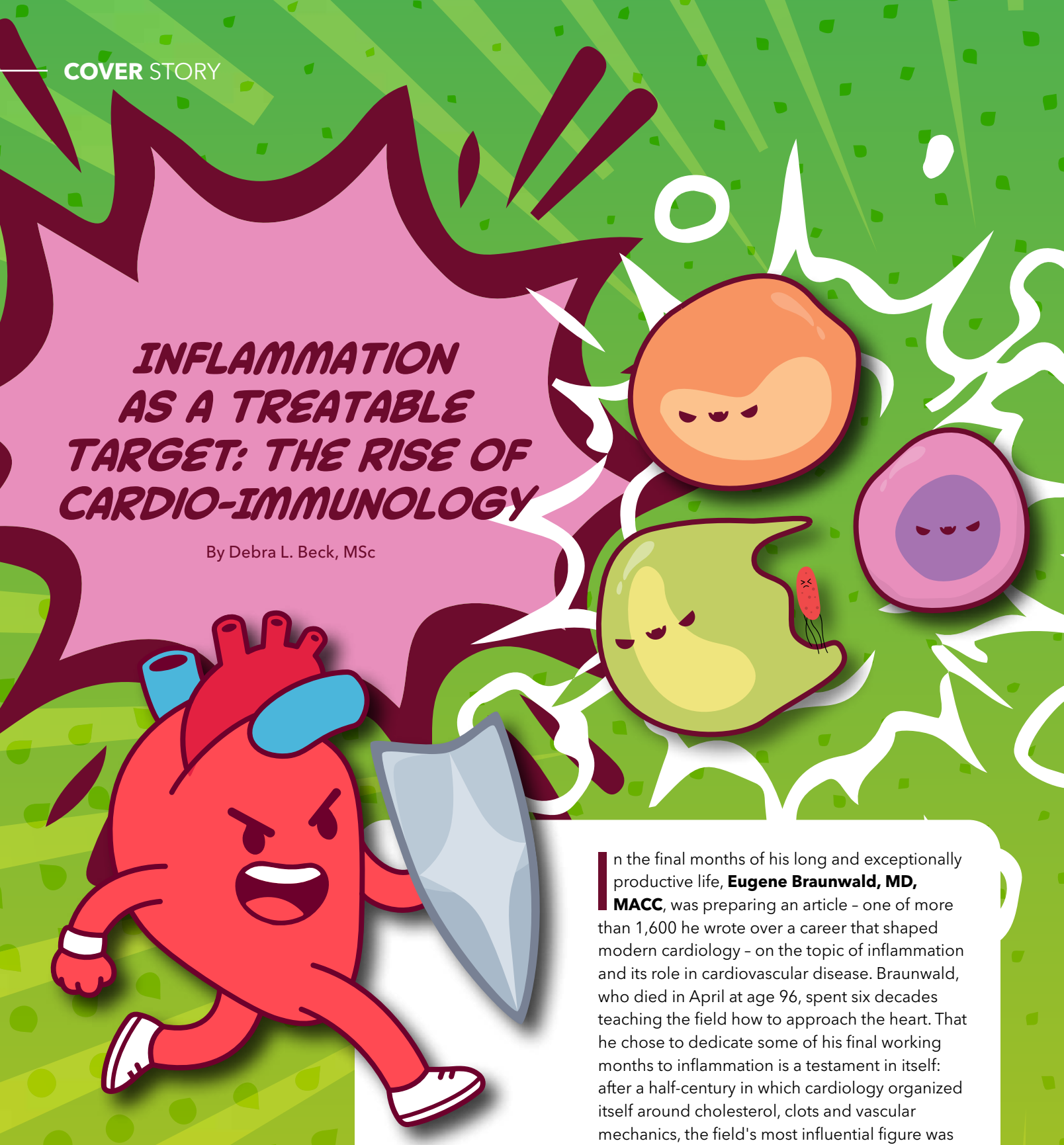
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Invest in the people and ideas driving cardiology forward.

Explore ways to give and make your impact today at ***ACC.org/Support***.

INFLAMMATION AS A TREATABLE TARGET: THE RISE OF CARDIO-IMMUNOLOGY

By Debra L. Beck, MSc



In the final months of his long and exceptionally productive life, **Eugene Braunwald, MD, MACC**, was preparing an article – one of more than 1,600 he wrote over a career that shaped modern cardiology – on the topic of inflammation and its role in cardiovascular disease. Braunwald, who died in April at age 96, spent six decades teaching the field how to approach the heart. That he chose to dedicate some of his final working months to inflammation is a testament in itself: after a half-century in which cardiology organized itself around cholesterol, clots and vascular mechanics, the field's most influential figure was focusing on inflammation. This unifying idea has been quietly maturing into its own subspecialty.

Peter Libby, MD, FACC, a close collaborator of Braunwald's who has spent his career building the case for inflammation, recently summarized it to a *New York Times* reporter in six words: "We all study the same disease."

Indeed, inflammation participates in a broad swath of chronic and acute diseases, and the field now built around its role in the heart has been dubbed cardio-immunology. In a recent ACC Scientific Statement, Mensah, et al., define cardio-immunology as the study of how immune cells, molecules and inflammatory processes shape cardiovascular health and disease.[1] The statement doesn't hedge: the evidence, it concludes, "is no longer exploratory but is compelling and clinically actionable. The time for taking action has now arrived."

The Inflammatory Hypothesis of CVD – Updated

The concept of an immune component in cardiovascular events is not new. As far back as 1997, the Physician's Health Study demonstrated that elevated C-reactive protein (CRP) levels predicted ASCVD events in apparently healthy individuals, independent of cholesterol. Subsequently, statins were found to lower both high-sensitivity CRP (hsCRP) and LDL-C. A post-hoc analysis of AFCAPS/TexCAPS, a 1990s lovastatin trial, found the drug's benefit extended beyond patients with dyslipidemia. While patients with elevated LDL-C experienced a 47% reduction in cardiovascular events over five years, those with LDL-C levels considered normal at the time, but elevated hsCRP, saw a nearly identical 42% reduction.[2]

This hypothesis was directly tested in the 2008 JUPITER trial, which randomized more than 17,000 people with LDL-C not then considered abnormal but with hsCRP above the median for the population to rosuvastatin or placebo.[3]

"None of the individuals enrolled in JUPITER would have qualified for statin therapy by any then prevailing guideline," says **Paul M. Ridker, MD, MPH, FACC**. "We had a 44% reduction in major adverse cardiovascular events (MACE) and a 63% reduction in myocardial infarction (MI). We cut the rates of bypass surgery and coronary revascularization in half and saw a 20% reduction in all-cause mortality."

Nine years later, CANTOS investigated canakinumab, a monoclonal antibody that blocks interleukin (IL)-1β, in over 10,000 patients with a history of MI and elevated hsCRP.[4] The trial demonstrated a reduction in cardiovascular events without affecting LDL-C levels, offering the first robust evidence that dampening inflammation alone could prevent MI and stroke.

However, CANTOS also highlighted a critical challenge that has since defined the field: patients on canakinumab experienced a small but statistically significant increase in infections, including some fatalities, over the trial's 3.7-year follow-up.

Libby refers to this challenge as finding the "sweet spot" – achieving sufficient anti-inflammatory effect to protect the heart without disarming the immune system's defenses against infection and cancer. "Because we can't tell *a priori* which one is going to maximize that risk/benefit balance, we need a fleet of studies that attack inflammation in different ways," he notes.

The underlying biology follows a cascade: a molecular sensor called the NLRP3 inflammasome, which detects danger signals such as cholesterol crystals in artery walls, activates IL-β. This, in turn, induces IL-6, which then triggers the liver to produce CRP and other clotting-related proteins, including fibrinogen. Each step in this cascade is now a potential drug target, with new therapies continuously emerging.

The most recent test of that fleet-of-studies approach is the phase 3 ZEUS trial of ziltivekimab, an antibody that blocks IL-6 one step downstream of CANTOS's target. Top-line results released in late July showed that subcutaneous ziltivekimab (vs. placebo) did not reduce the risk of a primary MACE endpoint (hazard ratio [HR], 0.99), despite markedly reducing free IL-6 and hsCRP as intended.

Scan the QR code to download the ACC Scientific Statement on Inflammation and Cardiovascular Disease.

Continued on the next page

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ZEUS enrolled 6,376 participants with established atherosclerosis, chronic kidney disease and elevated hsCRP. Full results will be presented at the AHA Scientific Sessions this month reports Ridker, who served as the principal investigator for JUPITER, CANTOS and ZEUS. Two companion trials (HERMES and ATHENA) testing the same drug in heart failure were stopped in early September. The Phase III ARTEMIS trial is testing ziltivekimab as an acute treatment post-acute coronary syndrome, with a data readout expected in the first half of 2027.

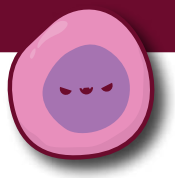
What to Do With a CRP Number

Ridker has spent almost three decades establishing hsCRP as the metric clinicians should use to identify inflammation and is pleased the recent ACC Scientific Statement endorses broad screening. "Physicians won't treat what they don't measure," he says. "Imagine a world in which we tell physicians to lower blood pressure or lower cholesterol, but we don't actually measure either of them."

The numbers are specific: an hsCRP level <1 mg/L signals lower relative cardiovascular risk, 1-3 mg/L indicates average risk and >3 mg/L signifies higher risk. Levels above 10 mg/L usually suggest an acute infection or injury is confounding the results, and the test should be repeated.

Critics note this "muddying" effect – hsCRP's lack of specificity – complicates its clinical use. Applied correctly, though, the biomarker has outperformed LDL-C as a predictor of risk, as shown in the Women's Health Study.[5] "In that trial, hsCRP predicted future events over 30 years, better than LDL and better than Lp(a)," Ridker says. A more recent UK Biobank analysis of close to 500,000 people found "the exact same thing."[6]

The lesson: it isn't inflammation in the abstract that must be treated, but a specific, measurable biological pathway.



Ridker and colleagues have coined a clinical category for patients who appear low-risk by conventional scoring despite having real vascular risk: "SMuRF-less but inflamed".[7] These are patients with none of the standard modifiable risk factors (SMuRFs) that inform major risk calculators, but with elevated hsCRP. Roughly 8,000 JUPITER participants fit that description; rosuvastatin still cut their event rate by about one-third (HR, 0.62; p=0.003), with consistent benefits on MI, stroke and arterial revascularization.[8]

Perhaps the most striking evidence-practice gap, in Ridker's view, involves a drug already approved for the job: low-dose colchicine, the first anti-inflammatory therapy the U.S. Food and Drug Administration (FDA) has cleared to reduce cardiovascular events, based on two trials (COLCOT and LoDoCo2) each showing roughly a 25% relative risk reduction. Yet it remains rarely prescribed.

"We have an FDA-approved drug that's effectively not used at all," Ridker says, attributing the gap partly to the fact that it is an old, cheap generic with no one marketing it.

To be clear, not everything that lowers "inflammation" will lower cardiovascular risk. Methotrexate, a mainstay for rheumatoid arthritis, showed no cardiovascular benefit in a large trial, in part because it never lowered hsCRP or IL-6. The lesson: it isn't inflammation in the abstract that must be treated, but a specific, measurable biological pathway.

When asked if he sees a role for any of the many unproven supplements and "nostrums" marketed online, Libby picked just two: "If everyone had a reasonable diet and engaged in physical activity, there'd be a lot less inflammation. Visceral fat is a hotbed of inflammation."

Beyond Weight Loss

Libby's own answer points to the most direct lever for reducing that visceral-fat-driven inflammation: losing weight. The newest class of drugs built to produce weight loss at scale, though, appears to be doing something more specific than that.

The SELECT trial, a cardiovascular outcomes study of semaglutide in individuals with obesity and established heart disease but without diabetes, demonstrated a nearly 38% reduction in hsCRP relative to placebo. Notably, baseline hsCRP predicted MACE risk irrespective of the treatment arm. Following findings from subsequent trials, the FDA expanded tirzepatide's indication in

late August to include the reduction of MACE in adults with diabetes at elevated cardiovascular risk.

The precise mechanisms by which these drugs reduce MACE remain unclear, although incretin mimetics consistently lower inflammatory markers, including hsCRP. Experimental data suggest direct actions on vascular and immune biology, independent of weight loss. Proposed effects include reduced NF-κB signaling, lower TNF-α and IL-1β, decreased endothelial VCAM-1 expression and reduced macrophage activity within plaques.[9,10]

A particularly compelling study, published in July by Kassab and colleagues, found that liraglutide reduced atheroma progression, macrophage content, CRP and inflammatory cathepsin activity in nonobese, normoglycemic rabbits with atherosclerosis. The researchers also showed in UK Biobank data, that GLP-1 use in humans was linked to lower inflammatory markers and



THE CELLS BEHIND THE NUMBER

Every hsCRP reading is a distant echo of something happening at the cellular level, and few people have spent more time mapping that signal than **Matthias Nahrendorf, MD, PhD**. His best-known finding was that the spleen holds a reservoir of undifferentiated monocytes – distinct from those in circulation – that mobilize within a day or two of an MI, supplying a substantial share of the leukocytes found in the infarct.[1] But Nahrendorf, who is editor-in-chief of *JACC: Basic to Translational Science*, now argues that finding, however striking, understates a different organ. "I actually think that the bone marrow is the more important organ to think about because, in the end, that's where most of the leukocytes are being made," he says.

His group later showed why that matters clinically: after MI, sympathetic nervous system signaling liberates hematopoietic stem and progenitor cells from the bone marrow niche, driving sustained monocyte overproduction that fuels the infarct and accelerates atherosclerosis at distant plaques.[2] It's a mechanism increasingly cited to help explain why a first heart attack raises the risk of a second one.

The deeper subtlety, he says, is that the immune cells residing in a healthy heart are not the problem. Using elegant fate-mapping experiments, his group showed that resident cardiac macrophages self-renew locally and turn over independently of circulating monocytes at steady state, supporting normal metabolism and clearing debris. Injury recruits a second, bone-marrow-derived population with a more destructive phenotype into the same tissue.[3] "It's the same leukocyte that we call macrophages," he says, "but they're quite different cells. It is this distinction that he believes could eventually lead to targeted therapies that spare resident, protective leukocytes.

A newer line of his work has clinical stakes cardiologists don't typically associate with immunology: cardiac macrophages physically couple to cardiomyocytes and help conduct the electrical impulse through the distal AV node. Ablating them in mice produces progressive AV block.[4] Nahrendorf's group has extended that finding toward arrhythmia more broadly, arguing that the same inflammatory leukocyte influx that follows an MI coincides with bouts of ventricular tachycardia.[5] Given how blunt current anti-arrhythmic drugs are, he argues targeting immune cells rather than ion channels is a plausible, underexplored alternative. ■

Continued from previous page

fewer adverse cardiovascular events, independent of BMI or HbA1c.[11]

"The strong internal consistency between in vivo, ex vivo, in vitro and human data strengthens the notion that GLP1-RAs exert direct anti-inflammatory actions within the plaque microenvironment," wrote **Georgios Georgiopoulos, MD**, and colleagues in an accompanying editorial.[12]

Says Ridker, "To definitively say that GLP1-RAs do or don't work through anti-inflammatory mechanisms is a stretch at this point." That said, "adipose tissue is a factory for cytokines, so it's not surprising that hsCRP falls when weight comes off." His bottom line: "The reason to take them is because you have fewer MIs, better kidney function, fewer strokes."

One Disease, Many Clinics

The reach of this idea now extends well past atherosclerosis. Recurrent pericarditis now has an IL-1 blocker that, in one trial, cut relapse rates from roughly 74% to under 7%. Heart failure, too, is understood to involve its own chronic immune activation, which predicts hospitalization and death independent of ejection fraction.

Bonnie Ky, MD, MSCE, FACC, editor-in-chief of *JACC: CardioOncology*, reports that approximately 1% of patients with cancer treated with immune checkpoint inhibitors develop myocarditis. She notes immune activation as a hidden driver even in older, ostensibly nonimmune cardiotoxic treatments like anthracycline chemotherapy and radiation.

One of the oldest offenders is the chemotherapeutic doxorubicin: cardiotoxicity long blamed on direct damage to the heart now appears to involve alterations in both innate and adaptive immunity. A number of trials in cardio-oncology have tested whether statins during anthracycline chemotherapy might help attenuate cardiac dysfunction. Two of three major trials on the topic were negative. Her own biomarker substudy of one of these studies found statins did attenuate the relevant stress markers, but "it just wasn't strong enough," she says.

The relationship cuts both ways, providing more evidence of shared pathways: cancer treatments can raise cardiovascular risk, but cardiovascular disease itself appears to raise cancer risk. This is partly why yet another intriguing GLP-1 finding has caught her attention: early data suggesting incretin mimetics may lower cancer incidence independent of weight loss.[13] She calls the prospect of a single therapy that quiets damaging inflammation in both cancer and cardiovascular disease "potentially the Holy Grail."

The State of the Field

A validated mechanism, a usable biomarker, one approved drug, one landmark failure and a widening map of conditions – all tracing back to the same overactive immune signaling. That's the state of cardio-immunology today.

Braunwald didn't finish his review article, but the field he helped build (as he did all of cardiology's subspecialties), and the clinicians and researchers he trained, are still writing it. Perhaps the field is best summarized from a clinical perspective by a succinct paragraph in the newest (13th) edition of his textbook, *Braunwald's Heart Disease*, not incidentally in a chapter co-authored by his collaborators and former trainees, Libby and Ridker:

Diet, exercise, smoking cessation, statins, ezetimibe, bempedoic acid, canakinumab, colchicine, GLP-1r agonists, and SGLT2 inhibitors all reduce hsCRP. Whether these relationships are causal or casual requires ongoing experimentation. From a primary prevention perspective, as each of these interventions is proven to lower risk, it provides a congruent conceptual basis for introducing inflammation detection and inflammation inhibition into daily practice.[14] ■

References available with the online version of this article at ACC.org/Cardiology.



> If everyone had a reasonable diet and engaged in physical activity, there'd be a lot less inflammation. Visceral fat is a hotbed of inflammation.
>
> Peter Libby, MD, FACC

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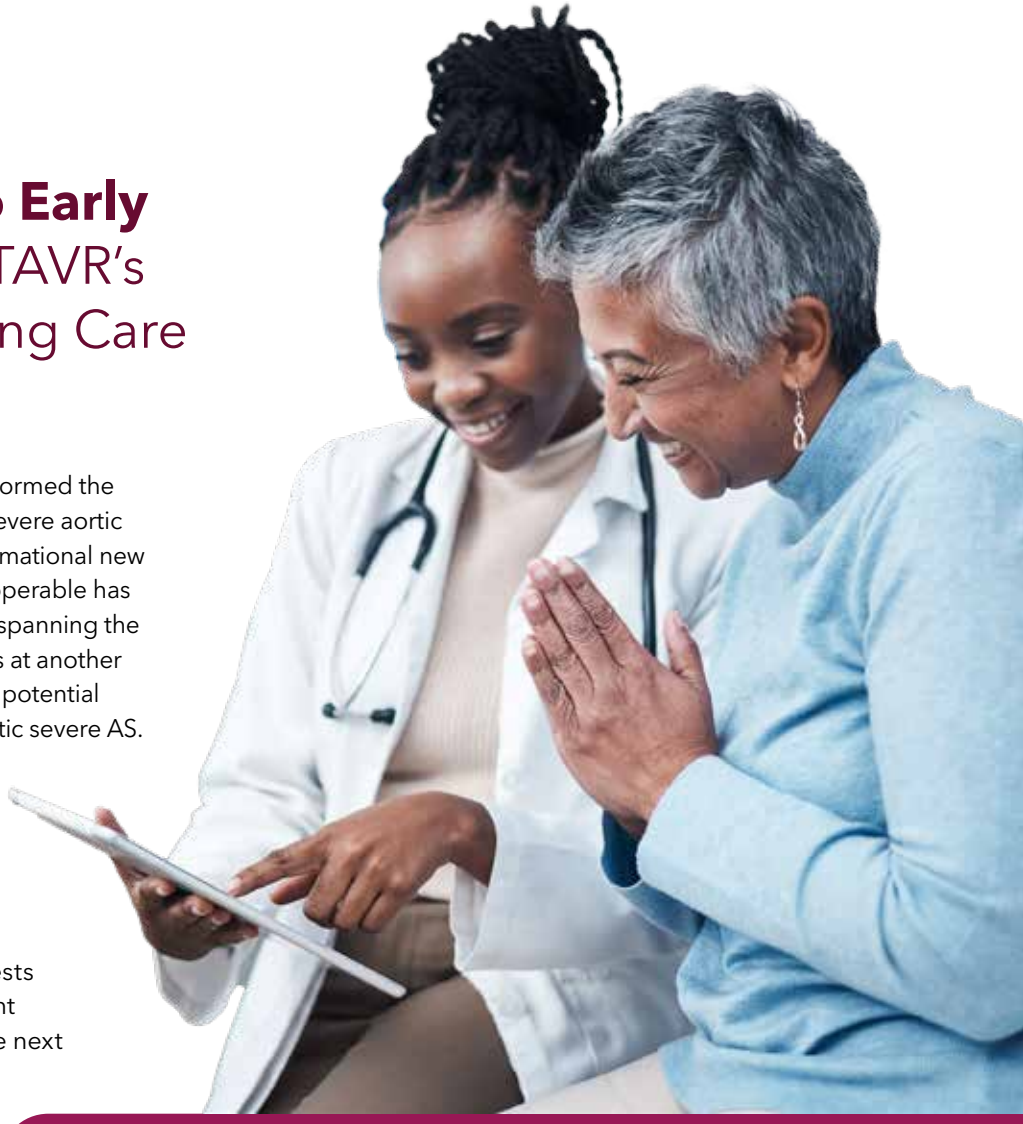
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From Last Resort to Early Intervention: How TAVR's Evolution Is Reshaping Care For Aortic Stenosis



For more than a decade, TAVR has transformed the treatment landscape for patients with severe aortic stenosis (AS). What started as a transformational new option for patients previously considered inoperable has evolved into a mainstream treatment option spanning the surgical-risk spectrum. Today, the field stands at another inflection point: the emergence of TAVR as a potential option for selected patients with asymptomatic severe AS.

Yet even as evidence and technology advance, an important challenge remains. Patients cannot benefit from modern therapies if they are not identified, evaluated and referred in a timely manner. A CardioSurve survey of ACC members who currently treat patients with AS suggests that closing gaps in diagnosis, management and referral may be just as important as the next procedural innovation.

The Expanding Reach of TAVR

TAVR first emerged on the scene in 2011, when the U.S. Food and Drug Administration (FDA) approved the therapy for patients with severe symptomatic AS who were not candidates for open-heart surgery. At the time, TAVR represented a lifeline for patients with no reasonable surgical alternative.

Subsequent FDA approvals continued to expand patient access. Between 2012 and 2016, TAVR was approved first for high-risk surgical patients and then those at intermediate-risk, reflecting growing confidence in procedural safety and effectiveness. In 2019, FDA approval was extended to appropriately selected patients at low surgical risk, establishing TAVR as a viable

BUILDING THE EVIDENCE BASE FOR THE NEXT ERA OF TAVR

As TAVR continues to expand into new patient populations and clinical applications, robust real-world evidence remains essential to advancing patient care. Recent updates in the final NCD for TAVR released by CMS in September reflect the continued importance of rigorous data collection, evidence development and quality improvement in shaping the future of structural heart disease care.

The ACC and The Society of Thoracic Surgeons (STS) are actively engaging CMS to have the STS/ACC TVT Registry recognized as an approved study vehicle for asymptomatic AS patients, helping ensure the registry remains a comprehensive data resource for quality improvement, benchmarking, evidence generation, analytics and reporting.

In the meantime, for practical steps that clinicians can proceed with now, see the online version of this article at ***ACC.org/Cardiology***.

Scan the QR code to read more about the NCD. ■

treatment option across virtually the full spectrum of patients with symptomatic severe AS.

In parallel, the FDA approved valve-in-valve indications for selected patients with failed surgical bioprosthetic valves, creating less invasive treatment pathways for patients facing repeat valve interventions.

Today, TAVR has become an integral component of contemporary valve management, with decision-making increasingly focused on age, anatomy, procedural risk, valve durability, coronary access and lifetime valve strategy. TAVR also solidified the role of the Heart Team approach to optimize patient selection and outcomes.

Why Patients Are Still Being Missed

Despite these advances, severe AS often remains underrecognized until later stages of disease. Symptoms like fatigue, exertional dyspnea, dizziness or declining exercise tolerance can be subtle and attributed to aging or other comorbid conditions. In addition, murmur findings may be variable and functional decline often occurs gradually. Even after an echocardiogram identifies concerning findings, referrals may not always occur promptly.

Results from the CardioSurve survey underscore these challenges. While the vast majority of cardiologists (81%) recognized the value of earlier disease detection in improving patient outcomes, nearly half identified unclear symptoms or symptoms attributed to other causes as a major obstacle to diagnosis.

Risk assessment is another area of uncertainty, with 61% of survey respondents indicating significant uncertainty regarding which patients with moderate AS are at highest risk. More than 40% cited the need for additional testing to confirm disease severity.

THE ASYMPTOMATIC AS DEBATE MOVES TO THE FOREFRONT

Historically, asymptomatic severe AS has been managed through careful surveillance until symptoms developed or other guideline-directed triggers emerged.

That paradigm shifted significantly with the FDA's 2025 approval of the Edwards SAPIEN 3 platform for asymptomatic severe AS, marking the first U.S. approval of TAVR for patients without symptoms.

The approval was largely informed by the EARLY TAVR trial, which randomized 901 patients with asymptomatic severe AS to either early transfemoral TAVR or clinical surveillance. Over a median follow-up of 3.8 years, early intervention reduced the composite endpoint of death, stroke or unplanned cardiovascular hospitalization compared with surveillance. Much of that benefit was driven by reductions in unplanned cardiovascular hospitalizations.

For some clinicians, the trial provides evidence that waiting for symptom development may expose patients to avoidable risk. For others, important questions remain regarding optimal patient selection, lifetime valve management and durability considerations.

The CardioSurve survey captured this tension.

One respondent noted that, "Aortic stenosis remains underdiagnosed and undertreated, particularly among asymptomatic patients and those with multiple comorbidities. Future efforts should focus on improving longitudinal surveillance, standardized echocardiography reporting, risk stratification for earlier intervention, and automated guideline-based referral pathways integrated into the electronic medical record."

Others urged caution. One cardiologist wrote, "I feel that the bar to TAVR is too low and many patients are being referred too early for low risk 'severe AS' and being offered the wrong procedure."

These differing perspectives reflect a broader reality across cardiovascular medicine. The question is increasingly no longer whether asymptomatic severe AS should ever be treated, but rather which patients are most likely to benefit and when. ■

Additionally, 54% of cardiologists felt the absence of objective guidance regarding intervention timing in asymptomatic severe AS creates management challenges.

Building Better Referral Pathways

These findings underscore a growing reality in valve care: identifying severe disease is no longer the only challenge. As the timing of intervention becomes increasingly complex, a consistent theme from the CardioSurve survey is the need to improve how patients move through the care continuum, from diagnosis and surveillance to referral and treatment.

More than half of cardiologists reported at least one challenge when making referrals for severe AS, with discordant or incomplete echocardiographic findings (36%) and competing comorbidities (34%) cited most frequently.

Continued on the next page

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One respondent observed that "ambiguity and lack of clarity in reporting, as well as inter-reporter variability, are major concerns and may lead to delayed decisions, especially for asymptomatic patients."

Nearly three-fourths of those surveyed felt that standardized prescriptive echocardiography reporting could help reduce ambiguity and improve downstream care.

Other enhancements, including integrated EHR notifications directed specifically to the ordering clinician and automated referral pathways may also be ways to potentially improve accountability and/or further streamline care, particularly in community practices where competing clinical priorities can delay follow-up.

Among those using or planning to use automated recommendations, the leading benefits included earlier identification of patients who might benefit from intervention (68%) and improved physician workflow efficiency (56%). For example, 30% of survey respondents expressed support for embedded clinical recommendations within finalized echo reports.

However, significant challenges to broad adoption remain, with alert fatigue the most dominant concern, followed closely by EHR integration and overly broad referral recommendations. For example, 30% of survey respondents expressed support for embedded clinical recommendations within finalized echo reports.

These findings suggest that clinicians want support, but not noise. They want smarter alerts: recommendations that are timely, targeted, actionable and directly connected to evidence-based care pathways.

Looking Ahead

The evolution of TAVR in just over a decade has been remarkable. Now, the field is poised for the next chapter involving asymptomatic disease. FDA approval has expanded the conversation. The new Centers for Medicare and Medicaid Services (CMS) National Coverage Determination (NCD) has clarified current coverage realities. And clinicians are actively debating how best to balance earlier intervention against durability concerns and lifetime valve management strategies.

What appears less controversial is the need to identify severe AS earlier and create more reliable referral pathways. The CardioSurve findings suggest broad consensus that better surveillance, clearer echo reporting, improved workflow tools and stronger Heart Team coordination can enhance patient care.

As one survey respondent summarized, "Better coordination among cardiologists, primary care clinicians and multidisciplinary Heart Valve Teams, together with patient education and shared decision-making tools, has the potential to improve timely intervention and clinical outcomes."

As TAVR continues to evolve, that may ultimately prove to be the next major frontier in aortic stenosis care: not simply advancing the procedure itself – but ensuring that every appropriate patient reaches treatment at the right time. ■

Learn more with bonus content at ACC.org/Cardiology.

RESOURCES

Scan the QR code to read the April 2022 issue of *Cardiology* celebrating the 20th anniversary of TAVR.

Bookmark *ACC.org/Guidelines* for ACC's library of clinical guidance, including guidelines, expert consensus documents, concise clinical guidance, training statements and more. Watch for an updated guideline on valvular heart disease early next year.

Scan the QR code to access CardioSmart patient resources on aortic stenosis, including decision guides and infographics.

Explore ACC's live coverage from TCT 2026 in San Diego at *ACC.org/TCT2026* and explore *JACC* Journals simultaneous publications at *JACC.org*.

IMMUNIZATION AND HEART HEALTH

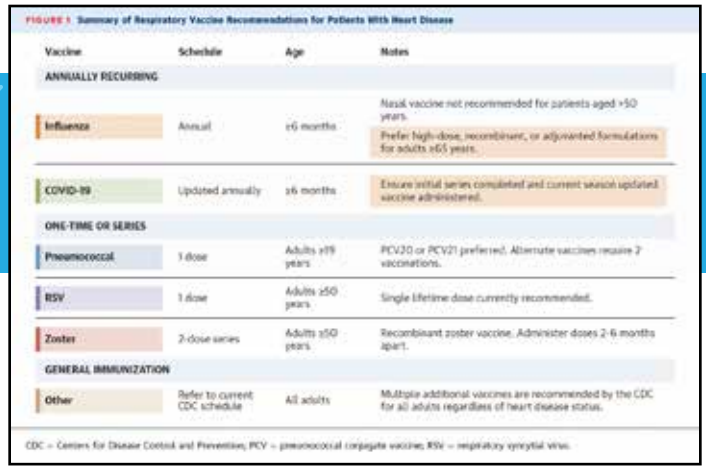


FIGURE 1 Summary of Respiratory Vaccine Recommendations for Patients With Heart Disease

Vaccine	Schedule	Age	Notes
ANNUALLY RECURRING			
Influenza	Annual	≥6 months	Nasal vaccine not recommended for patients aged >50 years. Prefer high-dose, recombinant, or adjuvanted formulations for adults ≥65 years.
COVID-19	Updated annually	≥6 months	Ensure initial series completed and current season updated vaccine administered.
ONE-TIME OR SERIES			
Pneumococcal	1 dose	Adults ≥19 years	PCV20 or PCV21 preferred. Alternate vaccines require 2 vaccinations.
RSV	1 dose	Adults ≥50 years	Single lifetime dose currently recommended.
Zoster	2-dose series	Adults ≥50 years	Recombinant zoster vaccine. Administer doses 2-6 months apart.
GENERAL IMMUNIZATION			
Other	Refer to current CDC schedule	All adults	Multiple additional vaccines are recommended by the CDC for all adults regardless of heart disease status.

CDC = Centers for Disease Control and Prevention; PCV = pneumococcal conjugate vaccine; RSV = respiratory syncytial virus.

People with cardiovascular disease face a higher risk of severe complications from infections such as influenza, RSV, pneumococcal, COVID and shingles (herpes zoster). Robust evidence from clinical trials and real-world studies shows that vaccination helps reduce these risks.

Health care professionals have a shared responsibility to protect cardiovascular health through evidence-based prevention. Together, we can help reduce the burden of infection-related cardiovascular complications and protect every heart. ■

Scan the QR code to read ACC's Concise Clinical Guidance on Adult Immunization as Part of Cardiovascular Care.

CLINICIAN TOOLS

Quick Reference Guide

A quick-reference guide outlining recommended vaccines for patients with cardiovascular disease, based on the *ACC's 2026 Concise Clinical Guidance: Adult Immunization as Part of Cardiovascular Care*.



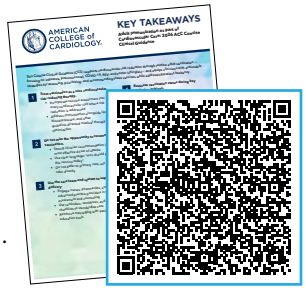


NCD Academy

Explore educational resources and courses designed to help clinicians and community health workers address noncommunicable disease risk factors, including vaccine-preventable diseases.

Key Takeaways

Highlights from ACC's Concise Clinical Guidance with practical recommendations for influenza, pneumococcal, COVID, RSV and shingles (herpes zoster) vaccination.



PATIENT TOOLS

Protect Your Heart With the Vaccines You Need

Support cardiovascular prevention with recommended vaccinations. Explore patient-friendly vaccine and heart health resources on CardioSmart Healthy Living hub.





Stay on Top of Your Vaccines

A patient-friendly worksheet to track vaccinations and identify recommended vaccines. Find more tools and resources at *CardioSmart.org*.

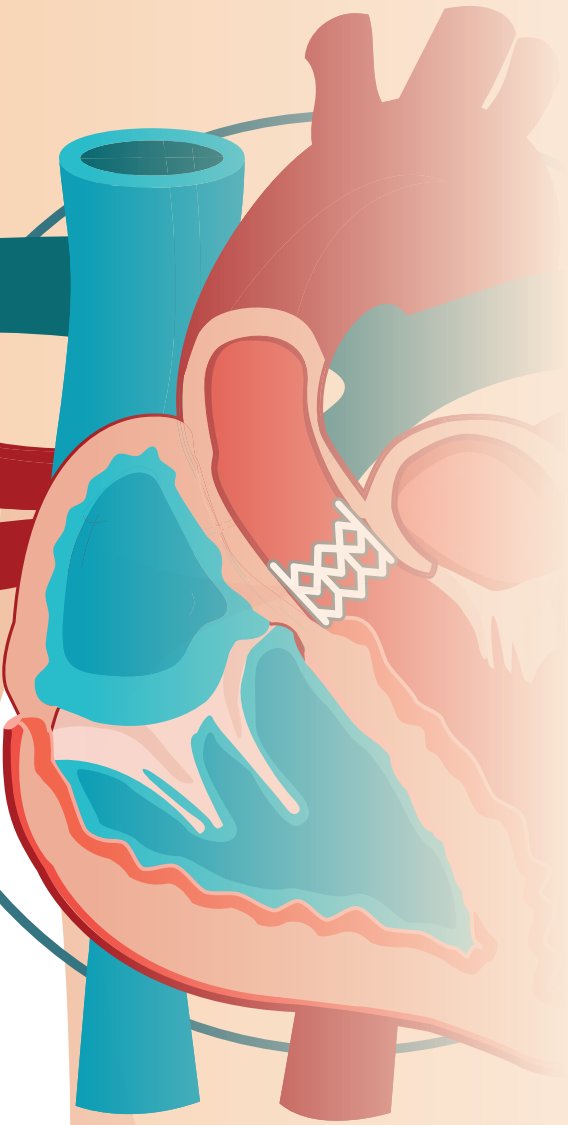
Flu Shots and Your Heart

Encourage annual flu vaccinationfor patients with cardiovascular disease, who are at higher risk.



A New Way Around a TAVR Complication: The First Human VECTOR Procedure

By Debra L Beck, MSc



Coronary artery obstruction is one of the deadliest complications in TAVR. Interventionalists have developed workarounds – BASILICA (slicing the leaflet before it can obstruct), UNICORN (radiofrequency undermining), CATHEDRAL (electrosurgical debulking) and "snorkel" stenting. But each of these options depend on being able to reach and manipulate the offending leaflet. In a patient with heavily calcified, immobile leaflets and no safe pathway through them to the coronary ostia, none of those creatively-named options work.

That was the situation facing a 67-year-old man with a severely stenotic aortic valve replacement, an ejection fraction of 20%, end-stage kidney disease on dialysis and severe peripheral artery disease (with a recent leg amputation). He was anatomically ineligible for any existing coronary-protection technique and at prohibitive risk for redo valve surgery. His left main coronary artery sat just 1.7 mm from where a new valve would land, deemed extreme risk for left main coronary artery (LMCA) obstruction.

Rather than protect the coronary artery in place, an Emory University and National Institutes of Health (NIH) team consisting of **Vasilis C. Babaliaros, MD**; **Christopher Bruce, MD**; **Adam B. Greenbaum, MD, FACC**; and **Robert J. Lederman, MD, FACC**, did something different: they built the artery a new route into the heart, entirely percutaneously.

The technique is called VECTOR (Ventriculo-Coronary transcatheter Outward Navigation and Re-entry), and this recently reported case is its first use in a human.[1]

How it Works

Think of VECTOR as a percutaneous LMCA-ascending aorta-coronary ostial bypass covered-stent graft.

1. **Establishing a rail.** A guidewire is threaded from the coronary circulation, through a small septal perforator branch, and captured in the right ventricle, a maneuver borrowed from chronic total occlusion (CTO) technique.

2. **Exiting the coronary artery, deliberately.** Using that guidewire rail for support, a second retrograde wire is steered out of the LMCA and into the pericardial space. This defines the graft's distal connection point. A stent placed at the exit site facilitates the wire exit.

3. **Exiting the aorta, deliberately.** A separate wire, guided by an electrosurgical ("cutting" electrical current) technique, is used to make a controlled perforation through the aortic wall into the pericardium, which becomes the graft's proximal connection point, positioned safely above where the new aortic valve prosthesis will sit.

4. **Connecting the two.** The two wires are joined inside the pericardial space, creating a single rail running from the aorta to the coronary artery and bypassing the ostium danger zone entirely.

5. **Building the graft.** Covered stents are threaded over this rail to form the new vessel and anchored at each end with additional stents. Circulation is now assured when the original coronary ostium is covered by the incoming valve.

Only after confirming the new route was open did the team proceed with TAVR. As anticipated, the valve did push the old leaflet over the native left main and occlude it, but perfusion continued uninterrupted through the new bypass. The patient was weaned off heart-lung support in the operating room and remained well at six-month follow-up.

The patient passed away seven months post procedure from noncardiac related issues. Until the time of his death, the graft was widely patent with stable left ventricular function.

"We find ourselves being sent patients that other people just can't help. I call them our 'no-option' patients," Greenbaum says. "At one point, Dr. Babaliaros and I were looking at a CT scan and thought that the coronary is just not that far away from the aorta. If only we could move it up and out of the way, we could use this new approach. That's what led us to wonder whether, with the toolset we'd already built for other procedures, it might be feasible to relocate the coronary ostia fully percutaneously."

The procedure took nearly nine hours and was performed with elective veno-arterial ECMO as a safety net.

Durability of the covered-stent conduit is unknown, though the authors note that other extra-anatomic covered-stent conduits tend to resist restenosis over time. Whether VECTOR can be performed reliably, faster and without circulatory support are open questions before it moves beyond compassionate, last-resort use.

Since the first case, Greenbaum and Babaliaros' team has performed VECTOR in a second patient, this time creating bypasses for both the right and left coronary arteries. The feasibility in a second patient supports the concept, rather than just a one-off success.

The reaction to the case has surprised Greenbaum. "This one got way more attention than a case report normally does. I think it's because of the implications outside of TAVR – could this have some role in coronary bypass more broadly, for patients with conventional atherosclerosis who've failed CTO attempts or already have multiple stents? The answer is maybe."

He's quick to temper the enthusiasm, though. "You have to remember, it's hard to beat the traditional LIMA to LAD, which is the magic of coronary bypass surgery," Greenbaum says. "To get cardiologists and cardiac surgeons to agree this could replace the traditional approach is a very large ask."

Still, he notes, the covered stents used in VECTOR carry brisk flow and, lacking a vessel wall of their own, may resist the restenosis that limits other conduits. "I hate to use the word crazy, but a far-reaching idea like this isn't something the field should dismiss right away," he says. "Could I imagine that generations from now, bypass could be done percutaneously? Sure."

For now, VECTOR adds a genuinely new option to the TAVR coronary-obstruction toolkit, offering, well, a bypass around the issue. ■

> At one point, Dr. Babaliaros and I were looking at a CT scan and thought that the coronary is just not that far away from the aorta. If only we could move it up and out of the way, we could use this new approach.
>
> Adam B. Greenbaum, MD, FACC

> I think [the attention to the case is] because of the implications outside of TAVR – could this have some role in coronary bypass more broadly, for patients with conventional atherosclerosis who've failed CTO attempts or already have multiple stents? The answer is maybe.
>
> Adam B. Greenbaum, MD, FACC

ACC QUALITY SUMMIT:
Bold Insights, Shared Solutions



Bringing together more than 900 clinicians, administrators and quality leaders across the cardiovascular care team, **ACC Quality Summit 2026** offered a collaborative forum to share insights, gain practical knowledge and drive meaningful improvements in patient care.

ACC Quality Summit Chair **Ellie A. Huff, MSN, RN, FACC**, set the tone for the meeting by encouraging attendees to be bold – ask the tough questions, sit next to someone new and learn from one another.

"The best ideas don't belong to any one organization," she says. "Every health system is navigating similar challenges, and all of us face headwinds when leading meaningful transformation. The Summit provides a unique opportunity to learn from colleagues across the country who are willing to openly share what has worked, what hasn't, and why." ■

NCDR Oversight Committee Chair **Federic S. Resnic, MD, MSc, FACC**, calls for engagement in the ACC through membership and committee involvement.



EXPLORING AI'S ROLE IN THE FUTURE OF CV CARE



This year's Summit opened with the Ralph G. Brindis Keynote delivered by **John Rumsfeld, MD, PhD, MACC**, a global leader in health technology and artificial intelligence (AI) and a deeply respected figure within the ACC community. He shared his thoughts on AI and quality care ahead of his 2026 address.

What are some of the most meaningful ways generative AI is already affecting clinicians and patients today?

Hundreds of millions of consumers are asking questions of large language models (LLMs) each week, and it's estimated that over 80% of U.S. physicians are now routinely using LLMs. Over the last decade, AI in health care grew slowly and largely 'in the background.' Now, clinicians actively use it as a source of clinical knowledge, and ambient AI (or so-called AI scribes) are becoming ubiquitous. AI is increasingly being deployed to reduce administrative burden, though there's still a lot of room to improve.

How can clinicians embrace AI while ensuring quality, safety and accountability remain paramount?

Medical professionals need to understand what AI can do … and equally what the limitations are, especially where risk is highest such as diagnosis and treatment. Consumer and medical use of AI related to health is growing faster than robust evaluations of its safety and effectiveness. There is a real role for the medical profession to lead on AI evaluations, as well as need for rapid evolution in things like regulatory accountability – you can see the U.S. Food and Drug Administration trying to move fast in this direction, recently approving the first patient-facing LLM.

What do you see as the biggest opportunity for AI to improve outcomes over the next decade?

AI should help us address physician shortages and other gaps in medical care delivery; improve efficiency such as reducing unnecessary variation in care and administrative burdens for both clinicians and patients; promote health and prevention at scale; and, perhaps paradoxically, optimize the humanity of medicine by augmenting clinicians, improving efficiency, and filling gaps in front-line care. This will require all of us to lead how AI is implemented in health care. It will happen, so we should guide how it happens. ■

Scan the QR code to read more in the ACC Quality Summit 2026 Digital Newspaper.

ABSTRACT WINNERS PRESENT ON AUC DISCREPANCIES, SEX DIFFERENCES IN LAAO OUTCOMES, SDOH SCREENING

With a record-breaking number of abstract submissions, the quality improvement projects presented at the Summit reflect an ongoing commitment to improve cardiovascular care through innovation, collaboration and quality.



1ST PLACE WINNER: Sarah Clines, MBA, from Baylor Scott & White The Heart Hospital in Plano, TX, sought to determine whether discrepancies in appropriate use criteria (AUC) categorization for PCI procedures were due to patient selection or data validation gaps within the ACC's CathPCI Registry abstraction process. By implementing a structured, multidisciplinary review of AUC-designated cases, Clines found a 58% reduction in "rarely appropriate" cases, 14% average increase in appropriate classifications, 57% average reduction in "may be appropriate" cases and 25% increase in inter-rater agreement rates.



2ND PLACE WINNER: Abhinav Singh, MD, et al., from HCA Bayonet Point in Hudson, FL, investigated sex differences in device-related complication risk at one year post left atrial appendage occlusion (LAAO). Including 2,817 patients (1,351 women; 1,466 men) across eight hospitals captured by ACC's LAAO Registry, they found women exhibited a 70% higher risk for the complication compared with men (hazard ratio 1.70 [95% CI,1.05-3.03]; p=0.007).



3RD PLACE WINNER: Misty L. Theriot, BSN, RN, CPHQ, FACC, and **J. Gregory Lugo, MD**, from Lake Charles Memorial Hospital in Lake Charles, LA, worked to build a pathway to promote more equitable access to TAVR care at their site. By adding an Epic social drivers of health (SDOH) screening to their existing structural heart checklist and having the valve clinic coordinator screen every referral, Theriot and Lugo saw measurable improvements in care coordination, including a decrease from 31% to 3% missed or rescheduled visits, time from referral to treatment down to 20 days, and 0% 30-day readmission in 2025. Resources activated for those at moderate or high SDOH risk included gas cards, financial grants, food resources, ride-share trips, dental support and housing support. ■

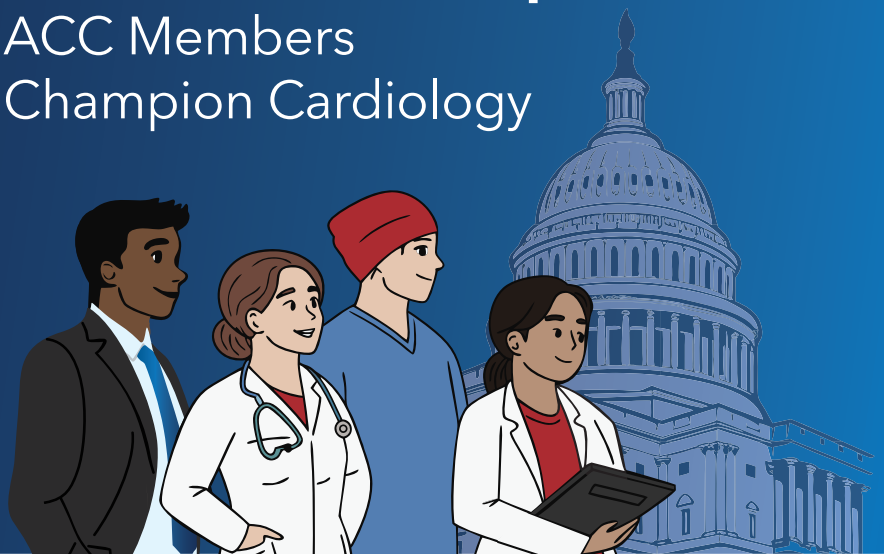


CONGRATULATIONS to **Melissa Todice, APRN, FNP-BC, CCK**, this year's Distinguished Excellence in Health Care Quality Award recipient.



A special issue of *JACC: Case Reports* features nearly 50 abstracts presented at the meeting, showcasing real-world challenges and practical solutions in patient care. **Scan the QR code** to view the issue.

From the Clinic to Capitol Hill: ACC Members Champion Cardiology









The cardiovascular community showed up in force on Capitol Hill this fall. More than 500 clinicians gathered in Washington, DC, from Oct. 4 to 6 for **ACC Legislative Conference 2026**, advocating for policies designed to strengthen care and support the profession.

In addition to participating in nearly 300 congressional meetings, attendees learned about pressing health policy issues like Medicare payment, gained insights into how the ACC and its partner societies work together to move the needle, and applied strategies for crafting a compelling ask through stories and data.

This year's talking points centered on four of ACC's advocacy priorities – establish sustainable Medicare payment practices, foster care transformation and optimization, champion access to care for all, and bolster the clinician workforce now and for the future. Key bills included:

- *Provider Reimbursement Stability Act* (H.R. 8163/S. 5180)
- *Strengthening Medicare for Patients and Providers Act* (H.R. 6160)
- *Improving Seniors' Timely Access to Care Act* (H.R. 3514/S. 1816)
- *Women's Heart Health Expansion Act* (H.R. 7417/S. 3944)
- *Resident Education Deferred Interest (REDI) Act* (H.R. 2028/S. 942)
- *Nursing is a Professional Degree Act* (H.R. 8691/S. 4568)

Scan the QR code to learn more about these bills and explore additional highlights from the conference. ■



More than 500 cardiovascular clinicians came to advocate on Capitol Hill – a post-COVID record!



ACC's Women in Cardiology Member Section held a leadership workshop ahead of the conference, exploring strategies for navigating career growth and creating a meaningful impact.

AMPLIFY OUR IMPACT

Keep our Legislative Conference momentum going by sending messages to your lawmakers through ACC Action Alerts. **Scan the QR code to get involved.**

ON THE ROX

with **Roxana Mehran, MD, FACC**

ON THE ROX: INSIDE ACC'S ADVOCACY EFFORTS

A recent episode of *On the Rox* dives into advocacy's critical role in protecting patient access and advancing cardiovascular care. Visit *ACC.org/ACCPresident* to access the series and watch the latest episode.



Advocacy staff from partner cardiovascular societies joined ACC Health Affairs Committee Chair **J. Jeffrey Marshall, MD, FACC**, for a discussion about collaboration.



ACC President **Roxana Mehran, MD, FACC**, and Board of Governors (BOG) **Chair Renuka Jain, MD, FACC**, present at the BOG meeting.



Mehran pictured with other members of ACC's New York Chapter – ready to advocate for their patients on the Hill!



SAVE THE DATE

Join ACC Advocacy Oct. 24 to 26, 2027, for next year's conference. Together, we can ensure the voice of cardiology continues to be heard!

SCIENCE WATCH: What's Moving CV Medicine Forward?



Science emerging from major cardiovascular meetings, including ACC.26, ESC Congress 2026, TCT 2026 and AHA 2026, offers a glimpse of where cardiovascular medicine is headed, revealing a field marked by both rapid innovation and thoughtful reassessment. Late-breaking trials to date have showcased the potential for AI-enabled screening to detect disease earlier, explored an expanding role for multimodality imaging, and showcased new clinical evidence that raise questions about assumptions around therapies ranging from post-MI beta-blockers to Lp(a) lowering.

The common thread: a push toward greater precision, identifying which patients need treatment, which tests can provide the most meaningful information and where additional intervention truly improves outcomes. *Cardiology* asked this year's Distinguished Scientist award winners – **Joseph C. Wu, MD, PhD, FACC**, **Allan L. Klein, MD, FACC**, and **Partho P. Sengupta, MD, FACC**, for their thoughts on what to look for heading into the remainder of the year.

Wu: Targeting inflammation and rethinking how therapies are developed

Wu is watching the ARTEMIS study evaluating the IL-6 inhibitor ziltivekimab in patients following acute MI, with the results potentially adding to the evolving understanding of inflammation as a therapeutic target in cardiovascular disease. The work also aligns with his own research into a "clinical trial in a dish" approach, which combines human organoids, genomics, CRISPR editing and AI to test new drugs and biologics on a patient's biological twin. The goal is to generate digital twin datasets that can provide insight into drug efficacy before therapies advance to clinical trials.

Klein: AI, imaging and more precise pericarditis care

For Klein, AI's growing role in cardiovascular imaging will be an important area to watch, particularly its potential to strengthen risk prediction and inform care. His group is developing machine-learning risk scores to predict clinical remission in recurrent pericarditis, complementing advances in multimodality imaging for diagnosis. At the same time, ongoing therapeutic research, including studies of IL-1 blockers and oral NLRP3 inflammasome inhibitors, could further clarify the role of targeting inflammation in pericarditis.

Sengupta: Moving AI from prediction to action

Sengupta sees the next evolution of cardiovascular AI going beyond simply identifying patients at risk. His group's work explores whether echocardiography waveforms can be generated synthetically from ECG data, potentially making AI-derived signals more explainable to clinicians. That reflects a broader shift in his research from building algorithms to investigating how AI could reshape cardiovascular care: detecting disease earlier, identifying new mechanistic pathways, translating AI signals into interpretable physiological phenotypes, and ultimately connecting patients with the appropriate imaging, specialist or intervention. ■

Drs. Wu, Klein and Sengupta were recognized at ACC.26 as Distinguished Scientists in the basic, clinical and translational domains. We're grateful for their work that continues to transform cardiovascular practice and improve heart health. Read the full article at ACC.org/Cardiology.

ACC.27 TOGETHER WITH WCC
APRIL 10 - 12, 2027 | HOUSTON, TX

WHAT WILL CHANGE PRACTICE NEXT?

The studies generating discussion today began with investigators asking questions capable of changing cardiovascular care. ACC.27-WCC Late-Breaking Clinical Trial (LBCT) submissions are now open, providing a forum for the next generation of important clinical research to be presented, discussed and debated by the cardiovascular community. Investigators can further elevate their research by considering simultaneous publication in *JACC* Journals, connecting presentation of the science with its publication and broader dissemination.

Scan the QR code and submit your LBCT research by Dec. 1 at 1 p.m. ET.

Visit the **Author Center** on ***JACC.org*** for more details on simultaneous publication submissions.

VALENTIN FUSTER CARDIOVASCULAR SYMPOSIUM

DEC. 11 – 13, 2026 | NEW YORK CITY



Join Course Director **Valentin Fuster, MD, PhD, MACC**, alongside internationally renowned faculty, for a one-of-a-kind educational experience.

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Register now to secure your spot!
ACC.org/FusterCVSymposium

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