AHA 2025 Clinical and AI / ML Preview

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American Heart Association.
Scientific Sessions
November 7, 2025 | Pre-Sessions Symposia & Early Career Day
November 8-10, 2025 | New Orleans, LA

AHA 2025 – General Overview

- **Program Architecture:** Tracks are set to span interventional cardiology, heart failure, prevention, imaging, AI, and cardio-renal-metabolic health with deliberate cross-disciplinary integration
- **Session Formats:** Content is expected to highlight late-breaking clinical trials, precision-medicine sessions, RWE debates, and multi-center registries supporting evidence translation
- **Data Sources & Designs:** Evidence is likely to emphasize global randomized trials, EHR-linked cohorts, AI-enabled imaging analytics, and genetic-biomarker integration
- **Implementation Focus:** Models are expected to feature guideline adaptation, integrated care pathways, and digital-health frameworks spanning prevention to advanced therapy
- **Analytics Infrastructure:** Methods are anticipated to showcase causal inference, multimodal prediction, and bias evaluation within explainable AI architectures

AHA 2025 – Conference Themes (1/2)

- **Climate & Cardiovascular Health:** The impact of heat exposure, pollution, and environmental stressors on cardiovascular outcomes will be explored through global burden sessions
- **Regenerative & Cell Therapy:** Myocardial repair platforms and AAV-based approaches are expected to revolutionize heart-failure recovery and regenerative treatments.
- **Equity in Cardiovascular Health:** Social-determinant analytics and maternal cardiovascular health will gain prominence, addressing health disparities in treatment access
- **Implementation Science & Policy:** Focus on pragmatic trials and policy shifts for care redesign aligned with reimbursement models and improved patient outcomes
- **AI & Digital Tools in Cardiology:** AI-driven ECG, imaging, and risk prediction tools will enhance clinical precision and improve patient care outcomes

AHA 2025 – Conference Themes (2/2)

- **Heart Failure & Cardio-Renal Advances:** Data will refine HFpEF phenotypes, explore myosin inhibition durability, and investigate cardio-renal outcomes to advance HF management
- **Valvular & Stroke Interventions:** Early TAVR in asymptomatic stenosis, tricuspid repair advancements, and novel thrombolysis timing will influence care pathways for valvular and cerebrovascular diseases
- **Cardio-Metabolic Integration:** Combined GLP-1/SGLT2 evidence will deepen the understanding of obesity, diabetes, and cardiovascular health intersections
- **Precision Coronary & Lipid Care:** OCT-guided PCI, inflammation-modifying therapies, and next-gen lipid management with Obicetrapib and ANGPTL3 inhibition will reshape coronary and lipid treatment strategies.
- **Atrial Fibrillation Innovations:** Pulsed-field ablation and left atrial appendage closure will redefine rhythm-control safety and efficacy

Noteworthy Scientific Presentations at AHA 2025

Key Topics From Notable Presentations (1/10)

- **Atrial Fibrillation & Arrhythmias:** Experts will highlight advancements in AF ablation, catheter-based therapies, and the clinical management of atrial fibrillation, with a focus on enhancing procedural safety and minimizing long-term recurrence.

  - AF Ablation in Elderly Patients: Elderly patients (≥80 years) undergoing AF ablation experienced significantly higher risks of ischemic stroke, heart failure, and mortality, underscoring the need for tailored treatment approaches

  - Pulsed-Field Ablation (PFA) vs Thermal Ablation: PFA was shown to provide better 12-month arrhythmia-free survival and shorter procedure durations than traditional thermal ablation, with similar safety outcomes.

  - Academic vs Non-Academic Centers in AF Ablation: Academic centers demonstrated superior outcomes, showing lower redo ablation and acute kidney injury rates compared to non-academic centers in a large dataset

Key Topics From Notable Presentations (2/10)

- **Lipid Management & Atherosclerosis:** Sessions will explore novel lipid-lowering therapies, emerging mechanisms of action, and their potential impact on improving outcomes in cardiovascular disease.

  - Obicetrapib as a CETP Inhibitor: Obicetrapib, a potent CETP inhibitor, significantly reduced LDL-C, ApoB, and non-HDL-C, while markedly increasing HDL-C, showing promise for statin-treated patients not achieving lipid targets

  - Recaticimab in Lipid-Lowering Therapy: Recaticimab, a long-acting anti-PCSK9 monoclonal antibody, provided significant LDL-C reduction with mild transient reactions, supporting its role as an effective treatment for dyslipidemia

  - ANGPTL3 Inhibition for Dyslipidemia: ANGPTL3 monoclonal antibodies, including Evinacumab, demonstrated substantial reductions in LDL-C, triglycerides, ApoB, and non-HDL-C, with favorable safety profiles, offering a novel approach to lipid management

Key Topics From Notable Presentations (3/10)

- **Valvular & Structural Heart Disease:** Sessions will explore advances in minimally invasive procedures, device therapies, and personalized care strategies in valvular and structural heart disease, with a focus on improving patient outcomes in high-risk populations.

  - Cardiac Rehabilitation (CR) Post-SAVR: CR significantly reduces mortality and major adverse cardiovascular events (MACE) in SAVR patients, yet participation remains under 50%, highlighting the need for targeted interventions to address socioeconomic barriers

  - Ataciguat in Calcific Aortic Valve Stenosis (CAVS): Ataciguat slowed the progression of aortic valve calcification, enhancing valve compliance and myocardial function, supporting its potential in preserving cardiac function in CAVS

  - Transcatheter Aortic Valve Replacement (TAVR) and Cerebral Embolic Protection Devices (CEPD): CEPDs during TAVR did not significantly reduce stroke risk, underscoring the need for refined patient selection and further research into device efficacy

Key Topics From Notable Presentations (4/10)

- **Coronary Artery Disease & Ischemic Heart Disease:** Experts will explore novel treatment strategies, focusing on improving procedural outcomes, reducing complications, and enhancing long-term management of coronary artery disease (CAD) and ischemic heart disease.

  - Vericiguat in ACS with LVEF < 45%: Vericiguat added to guideline-directed medical therapy significantly reduced cardiovascular events, improved LVEF, and enhanced quality of life in ACS patients with left ventricular dysfunction

  - ICI Rechallenge After Major Cardiovascular Toxicity: In cancer patients who experienced major cardiovascular toxicity, rechallenging immune checkpoint inhibitors showed a modest recurrence risk but prolonged survival, suggesting individualized reinitiation is feasible

  - P2Y12 Inhibitors vs Aspirin Post-PCI: P2Y12 inhibitor monotherapy significantly reduced major adverse cardiovascular events (MACE), stroke, and repeat revascularization compared to aspirin, supporting its use as the preferred long-term post-PCI antiplatelet strategy

Key Topics From Notable Presentations (5/10)

- **Vascular & Peripheral Artery Disease:** Sessions will discuss the global burden of peripheral artery disease (PAD), focusing on advancements in diagnosis, treatment options, and strategies to address modifiable risk factors in diverse populations.

  - Smoking and PAD Burden: Smoking-related PAD mortality and disability-adjusted life years (DALYs) have declined in high-SDI countries, but progress has slowed in the U.S. and remains a critical area for intensified tobacco control and PAD screening efforts

  - Ticagrelor + Aspirin Therapy in PAD: Dual therapy with ticagrelor and aspirin showed no significant advantages over monotherapy, suggesting single-agent antiplatelet therapy remains a reasonable option pending further trials

  - Adverse Pregnancy Outcomes (APOs) and PAD Risk: A history of adverse pregnancy outcomes, including preeclampsia and low birth weight, significantly increases the risk of PAD in postmenopausal women, highlighting the need for targeted vascular screening in this group.

Key Topics From Notable Presentations (6/10)

- **Heart Failure & Cardiomyopathies:** Experts will focus on emerging treatments, patient-reported outcomes, and innovations in heart failure management, particularly in the context of cardiomyopathies and related comorbidities.

  - Aficamten in Obstructive Hypertrophic Cardiomyopathy: Aficamten sustained significant improvements in patient-reported outcomes (PROs) across domains, enhancing quality of life and correlating with reductions in oHCM severity.

  - Exercise in Hypertrophic Cardiomyopathy: Structured exercise safely improved functional capacity, reduced LV wall thickness, and enhanced cardiac remodeling without causing arrhythmias or sudden cardiac death in HCM patients

  - Mavacamten in Obstructive HCM: Mavacamten combined with standard therapy showed improvements in hospitalizations, cardiac instability, and myocardial infarction, highlighting its clinical integration potential in treating HOCM

Key Topics From Notable Presentations (7/10)

- **Hypertension & Renal/Cardiorenal Syndrome:** Sessions will explore novel antihypertensive therapies, innovative technologies, and their real-world applications for improving patient outcomes in hypertension and related renal/cardiovascular conditions.

  - Aldosterone Synthase Inhibitors (ASIs): ASIs, including lorundrostat, significantly reduced systolic and diastolic blood pressure (BP), especially in essential hypertension, with tolerable side effects, particularly for lorundrostat

  - GMRx2 Triple Combination Therapy: GMRx2, a low-dose single-pill combination, demonstrated effective, durable BP control over one year, with minimal need for add-on therapy, supporting its scalable use in diverse settings

  - Spironolactone vs. Amiloride in Resistant Hypertension: Amiloride and spironolactone exhibited similar efficacy in controlling BP and preventing major cardiovascular events over one year, making amiloride a viable alternative in patients at risk for hyperkalemia

Key Topics From Notable Presentations (8/10)

- **Metabolic, Obesity & Diabetes Cardiometabolic Studies:** Sessions will explore advancements in cardiometabolic therapies, including new mechanisms of action, their impact on cardiovascular and metabolic outcomes, and their applications in managing high-risk populations.

  - VK2735 (Dual GIP/GLP-1 Receptor Agonist) in Type 2 Diabetes (T2DM): VK2735 demonstrated significant weight loss and improvements in cardiometabolic parameters, providing potential benefits in reducing cardiovascular disease (CVD) risk for T2DM patients

  - GLP-1 Receptor Agonists (RAs) in Cardiovascular Risk Reduction: GLP-1 RAs consistently reduced major adverse cardiovascular events (MACE) across various subgroups, including those stratified by BMI and renal function, offering broad protection in high-risk populations

  - Semaglutide 2.4 mg in Non-Diabetic Obese Patients with CVD: In the SELECT trial, semaglutide 2.4 mg significantly reduced MACE and heart failure outcomes, confirming its cardiovascular benefits in non-diabetic obese patients with cardiovascular disease

Key Topics From Notable Presentations (9/10)

- **Prevention, Lifestyle & Public Health:** Sessions will focus on the impact of lifestyle interventions, nutrition-based programs, and exercise on cardiovascular health and disease prevention across diverse populations.

  - Psyllium and Lifestyle Interventions: Psyllium improved glycemic control in type 2 diabetes, while food pharmacy programs and produce prescriptions effectively reduced blood pressure and improved food security, particularly in underserved communities.

  - Medically Tailored Meals & Food Insecurity: Medically tailored meals (MTM) and food insecurity interventions showed similar effectiveness in improving cardiovascular outcomes, with MTM delivery models offering cost-efficient solutions for chronic disease management

  - Physical Activity and Public Health: Gamification increased physical activity in cancer survivors, while post-COVID exercise recovery improved cardiopulmonary function, highlighting the importance of structured physical activity in rehabilitation and disease prevention programs

Key Topics From Notable Presentations (10/10)

- **Stroke & Cerebrovascular Disease:** Sessions will explore the latest evidence on optimal treatment strategies, including anticoagulation therapy, thrombolysis, and endovascular approaches in ischemic stroke and atrial fibrillation (AF)-related cerebrovascular events.

  - Oral Anticoagulant Monotherapy vs. Dual Antiplatelet Therapy (SAPT): OAC monotherapy significantly reduced bleeding and myocardial infarction risk compared to OAC + SAPT, supporting its use in AF with stable coronary artery disease

  - Thrombolysis in Minor Ischemic Stroke: In minor ischemic stroke, thrombolysis worsened outcomes and increased bleeding risks, challenging its routine use for non-disabling stroke

  - Endovascular Therapy for Distal Medium Vessel Occlusions (DMVO): Endovascular therapy (EVT) showed no significant benefit over best medical therapy (BMT) in improving functional outcomes or reducing mortality in DMVO strokes, necessitating further targeted trials.

Focus of Key Industry Sponsored Special Events at AHA 2025 (1/7)

- **Bayer Vital GmbH:**
  - Focus Areas: Clinical Effects of Acoramidis in the ATTRibute-CM Study
  - Presentations will discuss findings from the ATTRibute-CM study comparing the effects of Acoramidis versus placebo in treating transthyretin amyloid cardiomyopathy
- **Cytokinetics Inc:**
  - Focus Areas: Working with Industry and FDA
  - Sessions will focus on collaboration between industry partners and the FDA to advance cardiovascular drug development
- **Cardiobiopharma LLC:**
  - Focus Areas: CRF2 Receptor Agonist in Heart Failure with Preserved Ejection Fraction
  - Discussions will explore the clinical effects of COR-1167, a CRF2 receptor agonist, in improving exercise capacity, cardiac function, and renal function when combined with Empagliflozin in heart failure with preserved ejection fraction

Focus of Key Industry Sponsored Special Events at AHA 2025 (2/7)

- **Novartis Pharmaceuticals:**
  - Focus Areas: Clinical Trial Design for Cardiovascular-Kidney-Metabolic (CKM) Health
  - Sessions will explore innovative clinical trial designs aimed at improving cardiovascular, kidney, and metabolic health outcomes
- **Cleerly, Inc:**
  - Focus Areas: AI for Precision Heart Care
  - Presentations will cover the use of AI for precision heart care, focusing on patient-specific treatment and outcomes
- **EVERSANA LLC:**
  - Focus Areas: CKD and CKM Syndrome: Accelerated Progression to Arrhythmias
  - Discussions will focus on real-world insights from a national cohort on the accelerated progression to arrhythmias in chronic kidney disease and cardio-kidney-metabolic syndrome

Focus of Key Industry Sponsored Special Events at AHA 2025 (3/7)

- **Regencor Inc:**
  - Focus Areas: Post-myocardial infarction fibrosis therapy
  - Sessions will focus on novel non-invasive approaches to fibrosis therapy after myocardial infarction, with an emphasis on regulatory considerations
- **VUNO Inc:**
  - Focus Areas: AI-Driven Electrocardiographic Detection and Subtyping of Hypertrophic Cardiomyopathy
  - Presentations will explore deep learning-based ECG analysis for the subtyping of hypertrophic cardiomyopathy using 12-lead ECGs
- **Aventusoft LLC:**
  - Focus Areas: Non-invasive Hemodynamics for Diabetic Care with HEMOTAG
  - Sessions will cover non-invasive hemodynamic monitoring using HEMOTAG in diabetic care, highlighting its clinical applications and potential benefits

Focus of Key Industry Sponsored Special Events at AHA 2025 (4/7)

- **Editas Medicine, Inc:**
  - Focus Areas: LDL Cholesterol Lowering through CRISPR Gene Editing
  - Presentations will focus on the transformative potential of in vivo CRISPR gene editing to lower LDL cholesterol by upregulating LDLR in animal models
- **Cardiosense Inc:**
  - Focus Areas: Point-of-care Non-invasive Classification of Elevated Intracardiac Filling Pressures
  - Presentations will cover non-invasive techniques for classifying elevated intracardiac filling pressures as part of congestion assessment in heart failure patients
- **Heartflow Inc:**
  - Focus Areas: AI-Enabled Coronary Plaque Analysis for Stable Coronary Artery Disease
  - Discussions will examine the cost-effectiveness of AI-powered coronary plaque analysis for managing stable coronary artery disease

Focus of Key Industry Sponsored Special Events at AHA 2025 (5/7)

- **iRhythm Technologies:**
  - Focus Areas: Compliance, ECG Quality, and Engagement in Continuous ECG Monitoring
  - Presentations will discuss the impact of smartphone-based ECG monitoring on compliance and ECG data quality in long-term continuous monitoring
- **Hygieia Pharmaceuticals:**
  - Focus Areas: Lipoprotein(a) Targeting with Kylo-11
  - Presentations will focus on a first-in-human phase I study on reducing Lipoprotein(a) levels using Kylo-11, a small interfering RNA (siRNA) therapy
- **Amgen Inc:**
  - Focus Areas: Real-World Effectiveness of Evolocumab in Atherosclerotic Cardiovascular Disease
- Sessions will explore Evolocumab's real-world impact on reducing MACE in ASCVD patients

Focus of Key Industry Sponsored Special Events at AHA 2025 (6/7)

- **Ultrahuman Healthcare Pvt. Ltd:**
  - Focus Areas: Sleep Temperature Patterns and Resting Heart Rate
  - Presentations will explore the real-world relationship between sleep temperature patterns and resting heart rate during regular and irregular menstrual cycles using wearables
- **Novo Nordisk Inc:**
  - Focus Areas: Cardiometabolic Risk Reduction with Semaglutide 2.4 mg
  - Discussions will focus on real-world risk reduction in cardiometabolic comorbidities and improvements in biomarkers among patients with overweight or obesity treated with Semaglutide 2.4 mg
  - Focus Areas: Systemic Inflammation and Cardiovascular Events in Atherosclerotic Cardiovascular Disease
  - Presentations will cover the link between systemic inflammation and major adverse cardiovascular events in patients with established atherosclerotic cardiovascular disease and stage 3–4 chronic kidney disease

Focus of Key Industry Sponsored Special Events at AHA 2025 (7/7)

- **Merck and Co., Inc.:**
  - Focus Areas: Healthcare Resource Use (HCRU) and Costs of Lipid Lowering Therapy (LLT)
  - Presentations will discuss differences in healthcare resource utilization and costs between patients with and without follow-up LDL-C monitoring after initiating lipid-lowering therapy
- **Regeneron Pharmaceuticals:**
  - Focus Areas: Safety and Tolerability of REGN5381 in Heart Failure
  - Sessions will cover the safety and efficacy of REGN5381, a monoclonal antibody agonist of NPR1, for heart failure with reduced ejection fraction
  - Focus Areas: Platelet-derived growth factor antagonist antibody in pulmonary arterial hypertension
  - Discussions will explore the impact of platelet-derived growth factor antagonist antibody in treating pulmonary arterial hypertension and preventing right heart dysfunction

Notable Presentations At AHA 2025

Notable Presentations at AHA 2025 (Atrial Fibrillation & Arrhythmias) (1/7)

Date	Title	Author	Summary
8 Nov 2025	Atrial Fibrillation Ablation Outcomes by Hospital Academic Status: A Nationwide Comparative Analysis using TriNetX Registry		• **Introduction:** Atrial fibrillation (AF) is the most common arrhythmia, and catheter ablation is an established therapy. Outcomes may differ by institutional expertise and resource availability. This study compared post-ablation outcomes between academic and non-academic centers. • **Methodology**: Using TriNetX (2010–2020), adults aged 35–90 undergoing AF ablation were analyzed. Exclusions included congenital and rheumatic disease or prior MI. Groups were 1:1 propensity-matched by demographics and comorbidities. Outcomes within 12 months were compared using odds ratios ($p<0.05$). • **Results:** Non-academic centers showed higher odds of redo ablation (OR 1.84; 95% CI 1.41–2.42) and acute kidney injury (OR 1.53; 95% CI 1.05–2.23). Other complications showed no significant differences. • **Conclusions:** Academic institutions demonstrated superior AF ablation outcomes, underscoring the influence of procedural expertise, care quality, and resource access on patient safety and efficacy.
8 Nov 2025	Beyond the Octogenarian Threshold: A Nationwide, Multicenter Three-Year Analysis of Post-Ablation Safety Outcomes in Elderly Atrial Fibrillation Patients		• **Introduction:** Atrial fibrillation (AF) ablation in patients ≥80 years lacks robust safety data. As life expectancy increases, understanding procedure-related risks in this population is critical for informed decision-making. • **Methodology**: Using the U.S. TriNetX dataset, adults ≥60 with new-onset AF undergoing ablation within 6 months were analyzed. Patients aged 60–79 and ≥80 were 1:1 propensity-matched. Primary endpoint: repeat ablation at 3 years; secondary endpoints included ischemic stroke, heart failure (HF), pericardial complications, VTE, hospitalizations, and death. • **Results:** Among 10,064 matched patients, elderly adults showed higher risks of ischemic stroke (HR 1.75), HF exacerbation (HR 1.75), complete heart block/sick sinus (HR 1.85), hospitalization (HR 1.39–1.48), and death (HR 1.98) • **Conclusions:** AF ablation in ≥80-year-olds carries significantly higher complication and mortality risks, warranting risk stratification and tailored procedural selection.

Notable Presentations at AHA 2025 (Atrial Fibrillation & Arrhythmias) (2/7)

Date	Title	Author	Summary
8 Nov 2025	Ablation for Atrial Fibrillation: A Comprehensive Meta-Analysis of Randomized Controlled Trials with Reconstructed Time-to-Event Data	Jiaqi Mi	• **Introduction:** Catheter ablation is an established rhythm control therapy for atrial fibrillation (AF), yet long-term recurrence data remain fragmented. This meta-analysis reconstructed Kaplan–Meier (KM) curves to provide a unified view of ablation outcomes over time. • **Methodology**: A systematic review of 210 RCTs (n=36,691) comparing ablation with medical therapy or ablation strategies was conducted. KM curves were digitized using WebPlotDigitizer v5.2 to reconstruct pooled survival estimates. Subgroup analyses examined AF type and ablation modality. • **Results:** Ninety-four RCTs were included. Twelve-month recurrence-free survival was 72.1% (ablation) vs. 64.3% (AAD) in paroxysmal AF, and 61.3% in persistent AF. Three-year survival declined to 63.3% and 59.6%, respectively. Heterogeneity reflected differences in modality and monitoring intensity. • **Conclusions:** Ablation significantly reduces AF recurrence versus medical therapy, though durability wanes over time. Pooled KM curves enhance clinical decision-making and expectation-setting for long-term rhythm management.
8 Nov 2025	Comparative Transcriptomic Analysis of Atrial Chambers in Atrial Fibrillation	abdulrahman magableh	• **Introduction:** Atrial fibrillation (AF) involves progressive atrial remodeling, yet molecular differences between the left (LAA) and right atrial appendages (RAA) remain underexplored. Identifying chamber-specific transcriptomic signatures may inform tailored therapeutic strategies. • **Methodology**: Gene expression data from three microarray datasets (GSE41177, GSE115574, GSE79768; n=85 samples) were analyzed. Differentially expressed genes (DEGs) between LAA and RAA were identified using limma, followed by Gene Ontology/KEGG enrichment and STRING-based protein–protein interaction (PPI) network construction. • **Results:** A total of 140 DEGs were detected, with 32 overlapping across datasets. Enrichment linked these genes to atrial morphogenesis, chamber specification, and BMP signaling. BMP10 and PITX2 emerged as key LAA-enriched hub genes validated across datasets. • **Conclusions:** BMP10 and PITX2 are conserved molecular markers distinguishing LAA from RAA, highlighting chamber-specific remodeling pathways that may guide targeted AF therapy development.

Notable Presentations at AHA 2025 (Atrial Fibrillation & Arrhythmias) (3/7)

Date	Title	Author	Summary
8 Nov 2025	Rate vs Rhythm Control in Elderly Patients with Atrial Fibrillation: A Real-World Comparative Effectiveness Study	Bilawal Nadeem	• **Introduction:** Atrial fibrillation (AF) is prevalent among the elderly and increases risks of mortality, thromboembolism, and bleeding. While rate and rhythm control are both standard strategies, their comparative effectiveness in real-world elderly populations remains uncertain. • **Methodology**: A retrospective cohort study using the TriNetX network analyzed patients ≥75 years with AF, stratified by rate versus rhythm control. Propensity score matching created balanced cohorts (n=570,121 each). Outcomes included all-cause mortality, ischemic stroke, and major bleeding, assessed via odds ratios, hazard ratios, and Kaplan–Meier analysis. • **Results:** Rhythm control reduced mortality (24.0% vs 26.8%; OR 0.86; HR 0.85), ischemic stroke (1.7% vs 2.2%; OR 0.77; HR 0.74), and major bleeding (2.8% vs 3.2%; OR 0.85; HR 0.82). Survival and event-free probabilities favored rhythm control ($p<0.001$). • **Conclusions:** Rhythm control significantly improves survival and reduces stroke and bleeding in elderly AF patients, supporting its broader consideration in appropriately selected populations.
9 Nov 2025	Non-Inferior Safety of Same-Day Discharge Following Percutaneous Left Atrial Appendage Closure: An Updated Meta-Analysis	Alhasan Saleh Alzubi	• **Introduction:** Same-day discharge (SDD) after left atrial appendage closure (LAAC) offers potential clinical and economic advantages but its safety relative to overnight hospitalization remains uncertain. • **Methodology**: A meta-analysis of seven observational studies (SDD = 1,590; non-SDD = 55,192) compared major complications—including death, stroke, and bleeding—plus secondary outcomes (readmission, pericardial effusion, device thrombosis, and peridevice leak). Pooled risk ratios (RRs) with 95% CIs were calculated using random-effects models. • **Results:** SDD showed no significant difference in major complications (RR 0.72; $p = 0.05$), death (RR 0.81), stroke (RR 0.39), or bleeding (RR 0.85). Readmission and device-related complications were also comparable. • **Conclusions:** SDD following LAAC is safe and non-inferior to overnight observation, supporting broader protocol adoption while emphasizing the need for randomized validation in optimized patient cohorts.

Notable Presentations at AHA 2025 (Atrial Fibrillation & Arrhythmias) (4/7)

Date	Title	Author	Summary
9 Nov 2025	Enhanced Safety and Efficacy of Watchman FLX Versus Watchman 2.5 in Percutaneous Left Atrial Appendage Occlusion: An Updated Comprehensive Meta-Analysis	Alhasan Saleh Alzubi	• **Introduction:** Left atrial appendage occlusion (LAAO) prevents stroke in non-valvular atrial fibrillation. The newer Watchman FLX device aims to improve safety and procedural success over the Watchman 2.5. • **Methodology**: A meta-analysis of seven observational studies (Watchman FLX n=28,460; Watchman 2.5 n=29,028) compared implantation success, major complications, bleeding, device embolism, peridevice leak, and procedural metrics. Random-effects models were applied using RevMan. • **Results:** Watchman FLX improved implantation success (OR 1.47; p<0.00001) and reduced major complications (RR 0.56; p<0.00001). Major bleeding, device embolism, and peridevice leak were significantly lower, with reduced contrast use and radiation exposure. Mortality, stroke, and thrombosis were comparable. • **Conclusions:** Watchman FLX provides superior safety and procedural performance versus Watchman 2.5, reinforcing its preference in modern LAAO practice.
10 Nov 2025	Pulsed-Field Ablation Achieves Superior 12-Month Arrhythmia-Free Survival, Comparable Safety, and Shorter Procedure Times Versus Thermal Ablation in Paroxysmal Atrial Fibrillation: An Updated Systematic Review and Meta-Analysis	Vikramjit Purewal	• **Introduction:** Catheter ablation is standard therapy for symptomatic paroxysmal atrial fibrillation (AF), but thermal approaches—radiofrequency or cryo-balloon—offer suboptimal durability and procedural risks. Pulsed-field ablation (PFA), a non-thermal electroporation technique, may enhance efficacy and safety • **Methodology**: A meta-analysis of five randomized trials (n=1,099; PFA=486, thermal=613) compared PFA with thermal ablation using RevMan 4.2.1. Primary outcomes were 12-month arrhythmia-free survival and major adverse events; heterogeneity was analyzed via I^2. • **Results:** PFA improved arrhythmia-free survival by 17% (RR 1.17, 95% CI 1.03–1.34) with similar safety (RR 1.43, p>0.05) and shorter mean procedure time (–24 min). Serious and acute adverse events were infrequent and comparable. • **Conclusions:** PFA demonstrates superior 12-month efficacy, equivalent safety, and shorter procedures versus thermal ablation, supporting its clinical adoption and inclusion in future AF management guidelines.

Notable Presentations at AHA 2025 (Atrial Fibrillation & Arrhythmias) (5/7)

Date	Title	Author	Summary
10 Nov 2025	Bilateral Left Lateral Ridge Ablation In Patients With Paroxysmal Atrial Fibrillation (RIDGE-AF): Study Rationale and Preliminary Results	Davide Ciliberti	• **Introduction:** The left lateral atrial ridge (LLR) connects the pulmonary veins (PVs) and left atrial appendage (LAA), forming a potential focal trigger for atrial fibrillation (AF). The RIDGE-AF trial assessed whether adding bilateral LLR (BLLR) ablation to pulmonary vein isolation (PVI) improves arrhythmia control in paroxysmal AF (PAF). • **Methodology**: In this randomized superiority trial, 34 PAF patients (mean age 61.4 years; 19% male) underwent pulse-field ablation and were randomized 1:1 to PVI + BLLR (n=16) or PVI alone (n=18). The primary endpoint was 12-month arrhythmia-free survival without antiarrhythmics. • **Results:** At 6 months, arrhythmia-free rates were similar—93.7% (PVI + BLLR) vs 94.4% (PVI alone; HR 0.63; p=0.74). Procedural time, isolation success, and complications were comparable. • **Conclusions:** Preliminary data show no added rhythm-control benefit of BLLR ablation over PVI alone. Ongoing follow-up will determine long-term outcomes.
10 Nov 2025	Patient and Procedural Characteristics Associated with GERD and Chest Pain After Atrial Fibrillation Ablation with Esophageal Cooling: Results from the Multicenter EVERCOOL AF Registry.	Allyson Varley	• **Introduction:** Gastroesophageal reflux disease (GERD) and chest pain remain frequent after atrial fibrillation (AF) ablation, even with active esophageal cooling designed to mitigate thermal injury. Understanding predictors of these symptoms is essential to improve patient outcomes. • **Methodology**: In this multicenter study of 295 AF patients undergoing pulmonary vein isolation with esophageal cooling, post-ablation GERD and chest pain were assessed via standardized questionnaires (GERD-Q ≥8 indicating GERD). Associations with clinical and procedural factors were analyzed. • **Results:** GERD occurred in 14.9% and chest pain in 24.1% of patients. GERD correlated with lower anterior ablation power (50.0 ± 9.3 W vs 54.0 ± 14.0 W; p=0.020). Chest pain was linked to younger age, higher LVEF, and absence of bilateral first-pass isolation (p=0.033). • **Conclusions:** Despite esophageal protection, GERD and chest pain persist, influenced by procedural power settings and patient characteristics. Tailored ablation strategies may further reduce post-procedural symptoms.

Notable Presentations at AHA 2025 (Atrial Fibrillation & Arrhythmias) (6/7)

Date	Title	Author	Summary
10 Nov 2025	Direct Oral Anticoagulants Do Not Prevent Stroke in Atrial Fibrillation Patients with Prior Intracerebral Hemorrhage: A Meta-analysis of Randomized Controlled Trials	Nassar Mukhtar	• **Introduction:** The safety of direct oral anticoagulants (DOACs) in atrial fibrillation (AF) patients with prior intracerebral hemorrhage (ICH) remains uncertain, given the balance between preventing ischemic stroke and avoiding recurrent bleeding. • **Methodology**: A meta-analysis of three randomized controlled trials (n=623) compared DOACs (n=309) versus no anticoagulation in AF patients with prior ICH. Primary outcomes were ischemic stroke and recurrent ICH, analyzed using random-effects models (I^2 for heterogeneity). • **Results:** DOAC use showed no significant difference in ischemic stroke (RR 0.52; 95% CI 0.07–3.93), recurrent ICH (RR 1.44; 95% CI 0.27–7.70), or all-cause mortality (RR 0.85; 95% CI 0.52–1.40). Substantial heterogeneity was noted for stroke (I^2=86%) and ICH (I^2=81%). • **Conclusions:** In AF patients with previous ICH, DOACs did not significantly alter stroke, bleeding recurrence, or mortality risk versus no anticoagulation. Larger, adequately powered trials are needed to refine treatment strategies in this high-risk group.
10 Nov 2025	Same-Day Discharge Following Left Atrial Appendage Closure: Periprocedural Safety and Follow-up Outcomes	Mehima Kang	• **Introduction:** Percutaneous left atrial appendage closure (LAAC) offers stroke prevention for non-valvular atrial fibrillation (AF) patients unsuitable for oral anticoagulation. As procedural safety improves, same-day discharge (SDD) protocols are gaining traction, though real-world evidence remains limited. • **Methodology**: In a prospective registry at Vancouver General Hospital (2018–2025), outcomes of 163 patients (mean age 74.5 ± 6.4 yrs; $CHADS_2$-VASc 3.9 ± 1.5; HAS-BLED 2.9 ± 1.1) discharged the same day post-LAAC were analyzed. Patients were pre-selected based on clinical stability, frailty assessment, and home support. • **Results:** Procedures used TEE (84%) or ICE (16%). No intra-procedural complications occurred; one minor pericardial effusion required no intervention. At 1.5 ± 0.9 yrs follow-up, no clinical events occurred; one asymptomatic device-related thrombus was detected. • **Conclusions:** SDD after LAAC is safe in carefully selected patients, optimizing hospital efficiency without compromising outcomes.

Notable Presentations at AHA 2025 (Atrial Fibrillation & Arrhythmias) (7/7)

Date	Title	Author	Summary
10 Nov 2025	Left Atrial Appendage Occlusion vs Anticoagulation Following Atrial Fibrillation Ablation: A Propensity-Matched Comparative Outcomes Study	Faysal Massad	• **Introduction:** Anticoagulation remains standard after atrial fibrillation (AF) ablation, yet left atrial appendage occlusion (LAAO) may offer a mechanical alternative for stroke prevention. Real-world data comparing both strategies post-ablation remain limited. • **Methodology**: Using the TriNetX U.S. Collaborative Network (2010–2025), adults post-AF ablation treated with either LAAO (without oral anticoagulation) or long-term anticoagulation were propensity-matched (1:1; n=2,060 per cohort). Outcomes—mortality, stroke, and major bleeding—were assessed over 1, 3, and 5 years using Cox regression. • **Results:** Matched cohorts were demographically balanced (mean age 71.4 years; 36.8% female). At 5 years, LAAO was associated with lower all-cause mortality and major bleeding versus anticoagulation, while stroke incidence was similar between groups • **Conclusions:** LAAO after AF ablation appears to reduce long-term mortality and bleeding risk without increasing stroke events, supporting its role as a viable alternative for selected post-ablation patients.
10 Nov 2025	Risk of Ischemic Stroke, Major Bleeding, Cardiovascular and All-cause Mortality in Patients with Atrial Fibrillation, Comparing Anticoagulation Therapy vs Left Atrial Appendage Closure: Meta-Analysis of Randomized Controlled Trials	Sharath Kommu	• **Introduction:** Anticoagulation (AC) and left atrial appendage closure (LAAC) are established strategies for stroke prevention in atrial fibrillation (AF), though clinical trials have yielded inconsistent results regarding efficacy and mortality outcomes. • **Methodology**: A meta-analysis of four randomized controlled trials (n=3,116) compared LAAC (n=1,736) versus AC (n=1,380). Outcomes included ischemic stroke/systemic embolism, major bleeding, cardiovascular mortality, and all-cause mortality. Relative risks (RR) with 95% confidence intervals (CI) were calculated. • **Results:** Ischemic stroke/systemic embolism rates were similar (RR 1.25; 95% CI 0.85–1.83). Major bleeding was lower but not significant (RR 0.81; 95% CI 0.65–1.02). Cardiovascular mortality (RR 0.67; 95% CI 0.49–0.92) and all-cause mortality (RR 0.78; 95% CI 0.64–0.96) were significantly reduced with LAAC. • **Conclusions:** LAAC offers comparable stroke prevention to AC while significantly lowering cardiovascular and all-cause mortality, suggesting a survival benefit. Long-term studies are warranted to validate these findings in broader real-world populations.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (1/8)

Date	Title	Author	Summary
7 Nov 2025	Long-term Impact of Aficamten on Patient-Reported Outcome Measures in Obstructive Hypertrophic Cardiomyopathy: Results From FOREST-HCM	Shepard D Weiner	• **Introduction:** Aficamten, a cardiac myosin inhibitor, previously improved patient-reported outcomes (PROs) in obstructive hypertrophic cardiomyopathy (oHCM). The FOREST-HCM open-label extension evaluated its long-term impact on symptoms, quality of life (QoL), and functional status. • **Methodology**: Patients completing prior aficamten studies received open-label therapy for ≥48 weeks. PROs were assessed using KCCQ, SAQ-7, EQ-5D-5L, and PGI-C at baseline and multiple intervals. Mixed models analyzed longitudinal PRO changes; correlations with clinical measures were explored. • **Results:** Among 182 patients (mean age 60.2 years), significant improvements were sustained through 48 weeks: KCCQ-OSS +19.1, SAQ-7 +17.7, EQ-5D-5L index +0.12, VAS +13.4 (all P<0.0001). Seventy-seven percent reported being "Much/Very Much Improved." • **Conclusions:** Aficamten produced durable, clinically meaningful PRO gains across domains, particularly QoL, strongly correlating with improved oHCM severity measures.
7 Nov 2025	Hypertrophic Cardiomyopathy and Exercise: A Meta-Analysis, and Trial Sequential Analysis of Randomized Controlled Trials	Vicente Morales Ribeiro	• **Introduction:** Hypertrophic cardiomyopathy (HCM) remains a major cause of sudden cardiac death (SCD) in young individuals, with uncertainty around safe exercise limits leading to sedentary behavior. This meta-analysis assessed the safety and efficacy of structured exercise in HCM. • **Methodology**: A systematic review of four randomized controlled trials (n=290) comparing exercise interventions versus usual care was conducted using PubMed, Embase, and Cochrane databases. Primary endpoint was peak oxygen consumption (pVO_2); analyses employed random-effects modeling and trial sequential analysis for robustness. • **Results:** Exercise improved pVO_2 by +1.81 mL/kg/min (95% CI 1.01–2.61; p<0.01) and reduced LV wall thickness (–0.56 mm) and BMI (–0.65 kg/m²), with no rise in arrhythmias, syncope, or SCD. • **Conclusions:** Structured exercise safely enhances functional capacity and cardiac remodeling in mild HCM, supporting individualized exercise prescriptions.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (2/8)

Date	Title	Author	Summary
8 Nov 2025	Impact of Cardiac Myosin Inhibitors on Cardiac Morphology and Function in Hypertrophic Cardiomyopathy: A Meta-Analysis of Randomized Controlled Trials	Muhammad Maaz Hassan	• **Introduction:** Cardiac myosin inhibitors (CMIs) reduce hypercontractility in hypertrophic cardiomyopathy (HCM), offering a targeted mechanism distinct from beta-blockers or calcium channel blockers. This study compared CMIs versus placebo in improving cardiac structure, function, and patient outcomes. • **Methodology**: A PRISMA-based meta-analysis of six RCTs (n=827; 443 CMI, 384 placebo) evaluated changes in LVOT gradients, LV mass index, NYHA class, and biomarkers (NT-proBNP, cTnI). Random-effects models generated pooled estimates with $p<0.05$ as significance threshold. • **Results:** CMIs improved NYHA class (RR 2.21), reduced LVOT gradients (Valsalva −49.4 mmHg; resting −42.4 mmHg), LVMI (−21.3), NT-proBNP (−13.25 SMD), and enhanced KCCQ-CSS (+7.69). LVEF modestly decreased (−4.7%) without higher SAE/TEAE incidence. • **Conclusions:** CMIs meaningfully improve function and reverse remodeling in HCM with preserved safety, supporting their role as disease-specific therapies in both obstructive and non-obstructive forms.
8 Nov 2025	Chronic Aficamten Treatment Results in Sustained Favorable Cardiac Remodeling in Patients with Symptomatic Obstructive Hypertrophic Cardiomyopathy: Insights From the FOREST-HCM Trial	Sheila M Hegde	• **Introduction:** Aficamten, a selective cardiac myosin inhibitor, demonstrated improved LV outflow gradients and diastolic function over 24 weeks in SEQUOIA-HCM. The FOREST-HCM study assessed whether extended 48-week treatment yields further cardiac remodeling benefits. • **Methodology**: In this open-label extension (NCT04848506), 169 oHCM patients from prior aficamten trials received 5–20 mg daily, titrated to maintain LVOT gradient <30 mmHg and LVEF ≥50%. Serial echocardiograms assessed structural and functional cardiac parameters over 48 weeks. • **Results:** At week 48, sustained reductions were observed in Valsalva/resting LVOT gradients, LV wall thickness, and left atrial volume index, with improved E/e' ratios. LVEF decreased mildly (−7±8%) but remained normal. Seventy-four patients showed enhanced diastolic function measures. • **Conclusions:** Long-term aficamten therapy produced durable, favorable cardiac remodeling without compromising systolic function, supporting its sustained structural and functional benefits in oHCM.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (3/8)

Date	Title	Author	Summary
9 Nov 2025	Clinical Efficacy of Telemedicine vs Standard Outpatient Management for Heart Failure: A Systematic Review and Meta-Analysis		• **Introduction:** Telemedicine (TM), including home tele-monitoring and structured telephone support, offers potential to improve heart failure (HF) outcomes, yet results across studies have been inconsistent. • **Methodology**: A systematic review and meta-analysis of 28 studies (24 RCTs, 4 cohorts; 11,334 patients; mean age 69 years) compared TM versus standard HF care. Primary endpoints were all-cause mortality and HF readmissions, with quality of life (QoL) as secondary. Random-effects models and heterogeneity (I^2) analyses were applied. • **Results:** TM reduced mortality (RR 0.81, 95% CI 0.72–0.91) and HF readmissions (RR 0.78, 95% CI 0.69–0.88), particularly with tele-monitoring (RR 0.66). Telephone support showed a non-significant mortality trend (RR 0.88). QoL modestly improved (–3.4 points in MLHFQ). • **Conclusions:** TM—especially tele-monitoring—significantly improves survival, lowers HF-specific readmissions, and modestly enhances QoL, supporting its broader integration into HF management guidelines.
9 Nov 2025	Real-World Safety Profile of Mavacamten in Adults With Hypertrophic Cardiomyopathy: Insights From the FAERS Database	Abhay A Kapoor	• **Introduction:** Mavacamten, a cardiac myosin inhibitor for obstructive hypertrophic cardiomyopathy (HCM), has shown strong efficacy in trials; however, real-world safety data remain limited. This study evaluated post-marketing adverse events (AEs) associated with mavacamten in the FDA Adverse Event Reporting System (FAERS). • **Methodology**: A retrospective FAERS analysis identified 2,192 adult reports, categorizing events by organ system and severity. Logistic regression assessed predictors of serious AEs across cardiovascular, renal, gastrointestinal, and general domains. • **Results:** Serious AEs occurred in 37.5% of reports, mainly among women (60.3%, mean age 66.4). Cardiovascular events predominated (29.7%, 70.8% serious). Significant SAE predictors included cardiovascular (AOR 8.73), renal (1.93), gastrointestinal (1.53), and general (1.34) events; falls (AOR 5.37) and hypotension (3.52) notably increased SAE risk. Mortality occurred in 2.3%. • **Conclusions:** Mavacamten demonstrates notable cardiovascular and systemic AE risk, emphasizing vigilant monitoring for hypotension, renal dysfunction, and falls in real-world use.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (4/8)

Date	Title	Author	Summary
9 Nov 2025	Evaluating the Efficacy and Safety of Iron Supplements for the Treatment of Iron Deficiency in Patients With Heart Failure: A Network Meta-Analysis	Muhammad Sohaib Asghar	• **Introduction:** Iron deficiency (ID) affects nearly one-third of the global population and worsens symptoms and outcomes in heart failure (HF). Intravenous (IV) iron therapies such as ferric carboxymaltose (FCM) and ferric derisomaltose (FDI) have demonstrated clinical benefits. • **Methodology**: A meta-analysis of 24 RCTs (11,333 patients) was conducted using R (PROSPERO: CRD42023469246). Primary outcomes included mortality, HF hospitalization, quality of life (KCCQ, MLHFQ), LVEF, and exercise capacity. • **Results:** FCM reduced HF hospitalization or cardiovascular mortality (HR 0.74; 95% CI 0.59–0.93) and improved KCCQ (+5.21). Iron sucrose showed the highest LVEF gain (+2.92) and MLHFQ improvement (−18.00). Mortality reduction was modest for FCM (RR 0.89) and FDI (RR 0.95). • **Conclusions:** FCM provides significant clinical benefit in HF with ID, improving symptoms and hospitalization rates, supporting its use as a preferred IV iron option.
9 Nov 2025	FB-1083 demonstrates potent efficacy in preclinical models of Heart Failure with Preserved Ejection Fraction and Pulmonary Hypertension		• **Introduction:** Faun269g, a ligand-gated ion channel identified via the FaunaBio Platform, confers hypoxia–reperfusion protection in hibernating mammals. FB-1083, a potent oral Faun269g antagonist, is under evaluation for heart failure with preserved ejection fraction (HFpEF) with pulmonary hypertension (PH). • **Methodology**: Genetic analyses (UK Biobank, Million Veteran Program) assessed Faun269g–CV associations. Preclinical studies included in vitro cardiomyocyte stress assays and in vivo efficacy models—Sugen/hypoxia rats (PH) and obese ZSF1 rats (HFpEF)—treated with oral FB-1083 (10 mg/kg BID). • **Results:** Genetic variants in Faun269g correlated with HFpEF ($p=7.9\times10^{-5}$) and elevated ketone metabolism. FB-1083 inhibited Faun269g (IC_{50} 0.179 nM) with >5000-fold selectivity, preserved ATP/ADP balance, reduced ROS, lowered RVSP (~50%), and improved diastolic function and remodeling in HFpEF models ($p<0.05$). • **Conclusions:** FB-1083 demonstrated strong preclinical efficacy and safety, supporting Faun269g antagonism as a novel therapeutic strategy for HFpEF and PH.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (5/8)

Date	Title	Author	Summary
10 Nov 2025	Comparative 2 Year Outcomes of Carvedilol Versus Metoprolol Succinate initiation in Heart failure with reduced ejection fraction Patients with End-Stage Renal Disease on Dialysis: A Propensity- Matched analysis	Efeturi Maxwell Okorigba	• **Introduction:** Patients with heart failure with reduced ejection fraction (HFrEF) and end-stage renal disease (ESRD) on dialysis experience elevated mortality, yet optimal beta-blocker selection remains uncertain. Comparative evidence between carvedilol and metoprolol succinate in this group is limited. • **Methodology**: Using the TriNetX US Collaborative Network (2003–2022), adults with ESRD on dialysis and HFrEF initiating carvedilol (n=6,818) or metoprolol succinate (n=413) were analyzed post–propensity matching (n=407 per arm). Primary endpoint was all-cause mortality; secondary outcomes included MACE, hyperkalemia, hospitalization, and ventricular arrhythmia. • **Results:** Carvedilol reduced mortality (27.9% vs 38.9%; RR 0.72, p=0.001) and MACE (31.8% vs 45.3%; RR 0.70, p=0.003). Hyperkalemia was higher with carvedilol (22.4% vs 13.5%; RR 1.66, p=0.010), while hospitalization and arrhythmia rates were similar. • **Conclusions:** Carvedilol conferred superior survival and cardiovascular outcomes versus metoprolol succinate in HFrEF patients on dialysis, albeit with increased hyperkalemia risk.
10 Nov 2025	Effect of mavacamten treatment by duration of obstructive hypertrophic cardiomyopathy diagnosis: Results from the EXPLORER cohort of MAVA-Long-Term Extension study	Anjali T Owens	• **Introduction:** Mavacamten, a cardiac myosin inhibitor, has shown sustained efficacy in obstructive hypertrophic cardiomyopathy (oHCM). However, the impact of disease duration at treatment initiation on therapeutic response remains unclear. • **Methodology**: This analysis of 231 EXPLORER cohort patients in the MAVA-LTE trial (NCT03723655) assessed mavacamten's effects across four oHCM duration subgroups (0–2.5, 2.5–5, 5–10, >10 years). Echocardiographic and biomarker parameters were evaluated through week 204, with safety outcomes expressed as exposure-adjusted incidence rates. • **Results:** Shorter disease duration correlated with lower baseline LVOT gradients, NT-proBNP, and IVS thickness. By week 204, all subgroups showed improvements in LAVI, LVOT gradients, E/e', LVMI, and NT-proBNP. Serious adverse event rates were comparable across groups. • **Conclusions:** Mavacamten consistently improved cardiac structure and biomarkers irrespective of disease duration, supporting its benefit across all stages of oHCM progression.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (6/8)

Date	Title	Author	Summary
10 Nov 2025	Efficacy of Mavacamten Combined with Standard Therapy in Hypertrophic Obstructive Cardiomyopathy: A Retrospective Cohort Study	Abdul Qadeer	• **Introduction:** Hypertrophic obstructive cardiomyopathy (HOCM) is traditionally managed with beta-blockers and/or calcium channel blockers, though many patients remain symptomatic. Mavacamten, a selective myosin inhibitor, has demonstrated improved functional outcomes, but its additive real-world benefit remains under investigation. • **Methodology**: Using the TriNetX database, a 1:1 propensity-matched analysis compared HOCM patients treated with mavacamten + standard therapy (n=381) versus standard therapy alone (n=381). Outcomes over 12 months included hospitalization, cardiac instability, myocardial infarction (MI), and LVEF > 50%. • **Results:** Mavacamten reduced all-cause hospitalizations (OR 0.58; $p < 0.0001$), emergency hospitalizations (OR 0.67; $p = 0.029$), cardiac instability (OR 0.43; $p < 0.0001$), and MI (OR 0.27; $p < 0.0001$). LVEF > 50% was more frequent (OR 2.68; $p < 0.0001$). Mortality and new-onset heart failure were similar. • **Conclusions:** Mavacamten plus standard therapy improved cardiac outcomes and reduced hospitalizations in HOCM, supporting its clinical integration pending longer-term survival data.
10 Nov 2025	Finerenone and liver fibrosis assessed by fibrosis-4 (FIB-4) index in patients with heart failure and mildly reduced or preserved ejection fraction: Results from the FINEARTS-HF trial	Mingming Yang	• **Introduction:** Liver fibrosis frequently coexists with heart failure with mildly reduced or preserved ejection fraction (HFmrEF/HFpEF), reflecting shared mechanisms of congestion, inflammation, and metabolic stress. The fibrosis-4 (FIB-4) index offers a simple non-invasive marker to assess fibrosis-related risk in HF. • **Methodology**: In the phase 3 FINEARTS-HF trial (n=6001), baseline FIB-4 scores classified 5476 patients into low (<1.3), indeterminate (1.3–2.67), or high (>2.67) fibrosis risk. Associations between FIB-4 and cardiovascular (CV) outcomes were analyzed using proportional rates and Cox models, adjusting for regional and LVEF variations. • **Results:** High FIB-4 correlated with older age, atrial fibrillation, renal dysfunction, and higher NT-proBNP. Elevated FIB-4 independently predicted increased CV death and worsening HF events. Finerenone consistently reduced HF events across all FIB-4 strata (RR 0.73–0.91; Pinteraction=0.38). • **Conclusions:** FIB-4 robustly predicts adverse outcomes in HFmrEF/HFpEF, and finerenone efficacy was consistent irrespective of fibrosis severity, supporting its broad therapeutic utility.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (7/8)

Date	Title	Author	Summary
10 Nov 2025	Finerenone Versus Spironolactone in Patients With Heart Failure With Preserved Ejection Fraction: A Real-World Comparative Analysis	Abdallah Rayyan	• **Introduction:** Heart failure with preserved ejection fraction (HFpEF) has few proven therapies. While spironolactone remains standard, finerenone—a selective nonsteroidal mineralocorticoid receptor antagonist—may offer improved cardiovascular and renal safety. Real-world comparative evidence is limited. • **Methodology**: Using the TriNetX network, HFpEF patients prescribed finerenone (n=809) or spironolactone (n=179,566) were analyzed. After 1:1 propensity matching, 796 patients per group were compared for 12-month outcomes: hospitalization, mortality, acute kidney injury (AKI), and hyperkalemia. Statistical analyses used odds ratios (OR), 95% confidence intervals (CI), and Kaplan-Meier survival curves. • **Results:** Finerenone reduced hospitalization (30.0% vs 42.1%; OR 0.59; p<0.001), mortality (3.8% vs 11.9%; HR 0.36; p<0.001), AKI (22.0% vs 28.3%; OR 0.72; p=0.004), and hyperkalemia (9.4% vs 15.5%; OR 0.57; p<0.001). Survival at one year was higher with finerenone (94.7% vs 85.8%; p<0.001). • **Conclusions:** Finerenone demonstrated superior safety and efficacy versus spironolactone in HFpEF, reducing mortality and hospitalization risks, supporting its potential as a preferred therapeutic option pending confirmatory prospective data.
10 Nov 2025	Pilot randomized controlled trial of a patient-centered mHealth intervention to improve self-care adherence in patients with heart failure	Spyros Kitsiou	• **Introduction:** Self-care adherence in heart failure (HF) is often poor, despite its importance in symptom control and prognosis. Mobile health (mHealth) technologies integrating monitoring devices and behavioral support may enhance adherence, but real-world efficacy remains limited. • **Methodology**: In a 12-week, two-arm randomized pilot trial (NCT04262544), 81 Stage C HF patients received either usual care plus mHealth devices (Fitbit, Withings scale, BP monitor) or the iCardia4HF intervention combining these tools with tailored text messages and app integration (Health Storylines, Withings, Fitbit). Primary outcomes were medication and daily weighing adherence; secondary outcomes included BP monitoring and self-care scores (SCHFI v7.2). • **Results:** Compared with controls, the intervention group achieved higher adherence to medications (85% vs 75%, p=0.03), weight monitoring (72% vs 54%, p=0.007), and BP checks (67% vs 50%, p=0.02). Self-reported self-care did not differ. • **Conclusions:** The iCardia4HF program improved adherence to HF self-care behaviors, demonstrating feasibility and promising efficacy for larger, long-term trials.

Notable Presentations at AHA 2025 (Heart Failure & Cardiomyopathies) (8/8)

Date	Title	Author	Summary
10 Nov 2025	Leveraging the Role of Home Health Aides to Care for Adults with Heart Failure: Findings from a Pilot Randomized Controlled Trial	Madeline R Sterling	• **Introduction:** Home health aides (HHAs) are vital to heart failure (HF) care yet often lack adequate training and supervisory support. A novel mHealth-enabled communication and education intervention was evaluated to enhance HHA knowledge, confidence, and patient outcomes. • **Methodology**: In a 90-day randomized controlled trial (n=102 HHAs; 50 control, 52 intervention) within a New York home care agency, all received HF training; the intervention group additionally used an mHealth app enabling real-time nurse messaging. Primary outcomes were HF knowledge (DHFK, 0–15) and self-efficacy (SE, 0–100); secondary outcomes included preventable 911 calls, emergency department (ED) visits, and hospitalization. • **Results:** Training improved DHFK and SE in both arms. Preventable 911 calls decreased in the intervention group (p=0.04), and patients cared for by intervention HHAs had 56% fewer ED visits. Two-thirds used the app, with high satisfaction despite minor technical barriers. • **Conclusions:** The mHealth-supported intervention was feasible, improved care coordination, and reduced avoidable emergency calls, highlighting its potential to enhance HF home care delivery.

Notable Presentations at AHA 2025 (Coronary Artery Disease & Ischemic Heart Disease) (1/7)

Date	Title	Author	Summary
8 Nov 2025	Vericiguat in acute coronary syndrome with reduced ejection fraction: the EVE-ACSrEF randomized controlled trial	Liansheng Wang	• **Introduction:** Vericiguat, a soluble guanylate cyclase stimulator approved for chronic HFrEF, has untested benefits in acute coronary syndrome (ACS) with left ventricular systolic dysfunction (LVEF < 45%). This study evaluated its efficacy added to guideline-directed medical therapy (GDMT). • **Methodology**: In a 12-month, single-center, randomized controlled trial (N=144; NCT06321094), patients with ACS and LVEF < 45% received either vericiguat + GDMT (10 mg daily) or GDMT alone. Primary endpoint: cardiovascular death or first heart failure hospitalization. Secondary: LVEF, NT-proBNP, and Kansas City Cardiomyopathy Questionnaire (KCCQ) domains. • **Results:** Primary events occurred in 5.6% vs 20.8% (HR 0.25; 95% CI 0.08–0.75; p = 0.008). NT-proBNP decreased significantly (p = 0.004), and LVEF improved +2.7% (p = 0.03). KCCQ-QoL and TSS improved (p < 0.02). • **Conclusions:** Vericiguat + GDMT markedly reduces cardiovascular events and enhances LV function and quality of life in ACS with LVEF < 45%.
8 Nov 2025	Clinical Safety Outcomes of ICI Rechallenge following ICI-myocarditis and other Cardiotoxicities	Adnan Shaaban	• **Introduction:** Immune checkpoint inhibitors (ICIs) can cause cardiotoxicity, limiting their continued use. While rechallenge after non-cardiac toxicities is often safe, data on restarting ICIs following cardiovascular events are scarce. • **Methodology**: From a 2014–2021 cancer center cohort (n=5,173), 40 patients who resumed ICI therapy after major cardiovascular toxicity (myocarditis, heart failure, or arrhythmia) were analyzed. The primary endpoint was recurrent or new major adverse cardiac events (MACE) within 12 months post-rechallenge; secondary outcomes included left ventricular ejection fraction (LVEF) and survival. • **Results:** Rechallenged patients (mean age 69, 45% female) experienced recurrent MACE in 20.5%, highest among those with prior myocarditis (40%) and ESRD (p<0.05). LVEF remained stable (49.6%→50.4%; p=0.843). Median survival was longer post-rechallenge (459 vs. 293 days; p=0.055). • **Conclusions:** ICI rechallenge after cardiac events carries a modest recurrence risk but may prolong survival, suggesting careful, individualized reinitiation is feasible with multidisciplinary oversight.

Notable Presentations at AHA 2025 (Coronary Artery Disease & Ischemic Heart Disease) (2/7)

Date	Title	Author	Summary
8 Nov 2025	Comparative Efficacy and Safety of P2Y12 Inhibitors versus Aspirin Monotherapy Following Dual Antiplatelet Therapy in Patients undergoing Percutaneous Coronary Intervention: A Systematic Review and Meta-Analysis	Bilal Younas	• **Introduction:** Following percutaneous coronary intervention (PCI), standard care transitions from dual antiplatelet therapy (DAPT) to long-term aspirin, though P2Y12 inhibitors may provide superior vascular protection. The optimal single antiplatelet strategy post-DAPT remains debated. • **Methodology**: A PRISMA-guided meta-analysis (PubMed, Cochrane, Google Scholar; to April 2025) included seven studies (3 RCTs, 4 observational; n=29,756) comparing P2Y12 inhibitor versus aspirin monotherapy. Random-effects models generated pooled odds ratios (ORs) with 95% confidence intervals (CIs). • **Results:** P2Y12 monotherapy significantly reduced major adverse cardiovascular events (OR 0.73; p<0.0001), repeat revascularization (OR 0.83; p=0.004), and stroke (OR 0.63; p=0.0004). Mortality, myocardial infarction, major bleeding, and stent thrombosis showed no significant differences. • **Conclusions:** P2Y12 inhibitor monotherapy offers superior protection against ischemic events without added bleeding or mortality risk, supporting its consideration as a preferred long-term antiplatelet strategy after PCI.
8 Nov 2025	Comparative Efficacy of Cangrelor in Patients Undergoing PCI in the setting of Cardiogenic Shock or Cardiac Arrest: Insights from Blue Cross and Blue Shield of Michigan Cardiovascular Consortium (BMC2) Registry	Jacqueline Visina	• **Introduction:** Cangrelor, an intravenous P2Y12 inhibitor, provides rapid platelet inhibition and may be advantageous in acute myocardial infarction (AMI) with cardiogenic shock or cardiac arrest, where oral antiplatelet absorption is impaired. However, its safety in this critically ill population remains uncertain. • **Methodology**: Using the BMC2 registry (Michigan, 2018–2024), 1,850 PCI patients with AMI complicated by cardiogenic shock or cardiac arrest were analyzed after 4:1 propensity matching (370 cangrelor vs 1,480 controls). Primary outcomes included in-hospital mortality, bleeding, and transfusion. • **Results:** Cangrelor use increased major bleeding (13.5% vs 9.0%; p=0.024) and transfusion rates (26.2% vs 17.8%; p<0.001) without affecting mortality (30.0% vs 30.3%; p=0.95) or minor bleeding (8.2% vs 7.1%; p=0.53). • **Conclusions:** In AMI with cardiogenic shock or cardiac arrest, cangrelor did not improve survival but increased major bleeding and transfusion risk, underscoring the need for cautious use in high-risk PCI settings.

Notable Presentations at AHA 2025 (Coronary Artery Disease & Ischemic Heart Disease) (3/7)

Date	Title	Author	Summary
8 Nov 2025	Comparative Efficacy of Ticagrelor and Clopidogrel in Cirrhotic Patients with Stable Coronary Artery Disease Undergoing Percutaneous Coronary Intervention	Thitiphan Srikulmontri	• **Introduction:** Ticagrelor, a potent P2Y12 inhibitor, is widely used post-PCI for stable coronary artery disease (CAD). However, altered hepatic metabolism in cirrhosis may affect drug efficacy and safety, and comparative outcomes with clopidogrel remain unclear. • **Methodology**: A retrospective cohort study (TriNetX, 2015–2025) evaluated cirrhotic patients with stable CAD post-PCI. Propensity score matching balanced demographics, comorbidities, labs, and medications across ticagrelor and clopidogrel cohorts (n=1,591 each). Outcomes included myocardial infarction (MI), MACE, bleeding, stroke, and mortality over 3 years. • **Results:** Ticagrelor was linked to higher MI (HR 1.42; p<0.0001) and MACE (HR 1.22; p<0.0001) risks versus clopidogrel, with no significant differences in mortality (HR 1.05), bleeding (HR 0.93), or stroke (HR 0.85). • **Conclusions:** Among cirrhotic PCI patients, ticagrelor increased ischemic risks without added bleeding, suggesting altered pharmacodynamics and supporting individualized antiplatelet selection pending further trials.
8 Nov 2025	Direct Oral Anticoagulant Dual Therapy Halves Bleeding and Preserves Ischemic Protection After PCI: A Systematic Review and Meta-analysis of Randomized Controlled Trials	Omar Ala' Alajjuri	• **Introduction:** Managing atrial fibrillation (AF) after PCI requires balancing stent thrombosis prevention and bleeding risk. While VKA-based triple therapy lowers ischemic events, it substantially increases bleeding. DOAC-based dual therapy may offer safer outcomes, but prior trials were underpowered for ischemic endpoints. • **Methodology**: A systematic meta-analysis (PubMed, Embase, Scopus, Cochrane; to May 2025) included five RCTs (DOAC dual therapy: n=6,237; VKA triple therapy: n=4,742). Pooled risk ratios (RR) were calculated using Mantel–Haenszel models with significance at p<0.05. • **Results:** DOAC dual therapy reduced TIMI major/minor bleeding by 48% (RR 0.52; p=0.001) and ISTH major/clinically relevant bleeding by 28% (RR 0.72; p<0.0001) versus VKA triple therapy. Ischemic outcomes (CV death, MI, stroke, stent thrombosis) were comparable (RR 0.97; p=0.67). • **Conclusions:** DOAC dual therapy markedly decreases bleeding without loss of ischemic protection, supporting its use as the standard post-PCI strategy in AF, reserving triple therapy for select high-thrombotic-risk patients.

Notable Presentations at AHA 2025 (Coronary Artery Disease & Ischemic Heart Disease) (4/7)

Date	Title	Author	Summary
8 Nov 2025	Accelerated Coronary Atherosclerosis Following Relugolix Versus Leuprolide Androgen Deprivation Therapy in Men with Prostate Cancer (REVELUTION): An Open-Label Randomized Controlled Trial	Marly van Assen	• **Introduction:** Androgen deprivation therapy (ADT) in prostate cancer (PCa) increases cardiovascular (CV) morbidity, potentially through accelerated atherosclerosis. The REVELUTION trial (NCT05320406) compared coronary plaque progression between GnRH agonist leuprolide and GnRH antagonist relugolix to clarify differential CV risks. • **Methodology**: Ninety men with localized PCa received pelvic radiotherapy (RT) ± ADT (leuprolide, relugolix, or RT alone). Coronary CT angiography assessed total, calcified, non-calcified, and low-attenuation plaque volume (TPV, CPV, NCPV, LAPV) at baseline and 12 months. MACE events were monitored. • **Results:** Leuprolide markedly increased TPV (+52.0 mm^3) versus relugolix (+25.0 mm^3) and RT alone (+13.0 mm^3, p=0.02). Adjusted comparisons showed significant TPV (+79.1 mm^3, p=0.004) and NCPV (+71.9 mm^3, p=0.001) increases with leuprolide but not relugolix. MACE occurred in 9.7% (leuprolide) vs 0% (relugolix). • **Conclusions:** Leuprolide significantly accelerates coronary atherosclerosis compared with relugolix, supporting GnRH antagonists as the preferred ADT approach in PCa patients with elevated cardiovascular risk.
9 Nov 2025	Optical Coherence Tomography–Guided Versus Angiography-Guided Percutaneous Coronary Intervention in Patients with Coronary Artery Disease: A Meta-Analysis of Randomized Controlled Trials	Sherif Eltawansy	• **Introduction:** Optical coherence tomography (OCT) enables high-resolution coronary imaging during percutaneous coronary intervention (PCI), potentially improving procedural precision compared with conventional angiography guidance. However, clinical outcome data remain limited. • **Methodology**: A systematic meta-analysis of 10 RCTs (n=8,729) compared OCT- versus angiography-guided PCI. Primary outcome was all-cause mortality; secondary endpoints included MACE, cardiovascular death, MI, stent thrombosis, TVR, TLR, stroke, and bleeding. Pooled risk ratios (RRs) were calculated using random- or fixed-effects models. • **Results:** OCT-guided PCI significantly reduced MACE (RR 0.70; p=0.002), cardiovascular death (RR 0.54; p=0.005), and stent thrombosis (RR 0.61; p=0.02). No significant differences were observed for all-cause mortality (RR 0.71; p=0.05), MI, stroke, TVR, TLR, or bleeding. • **Conclusions:** OCT-guided PCI provides superior protection against cardiovascular death, stent thrombosis, and MACE compared with angiography-guided PCI, supporting broader adoption of intravascular imaging in PCI optimization.

Notable Presentations at AHA 2025 (Coronary Artery Disease & Ischemic Heart Disease) (5/7)

Date	Title	Author	Summary
9 Nov 2025	Clinical Outcomes of Optical Coherence Tomography–Guided versus Angiography-Guided PCI in Complex Coronary Lesions: A Meta-Analysis of Randomized Controlled Trials	Ahmad Abdelkhalek	• **Introduction:** Complex coronary lesions, including chronic total occlusions, severe calcification, and bifurcations, increase PCI complications and restenosis risk. While OCT-guided PCI (OGP) improves visualization and outcomes overall, its role in complex anatomy remains uncertain. • **Methodology**: A systematic meta-analysis of five RCTs (n=5,737; PROSPERO CRD42024599058) compared OGP versus angiography-guided PCI (AGP) in complex lesions. Outcomes included MACE, mortality, revascularization, stroke, and procedural time. • **Results:** OGP reduced MACE (RR 0.71; p=0.0001), all-cause mortality (RR 0.58; p=0.009), cardiovascular mortality (RR 0.43; p=0.003), TLR (RR 0.53; p=0.007), and stroke (RR 0.17; p=0.02) versus AGP. Myocardial infarction rates were similar, though OGP required longer procedural time (+16.1 min; p=0.0008). • **Conclusions:** OCT-guided PCI substantially improves survival and ischemic outcomes in complex coronary lesions, supporting its use for precise stent optimization and procedural safety.
10 Nov 2025	Interleukin-1 Blockade in Patients With ST-Segment-Elevation Myocardial Infarction: a Pooled Analysis of Randomized Clinical Trials of Anakinra and Goflikicept	Michele Golino	• **Introduction:** Interleukin-1 (IL-1) mediates post-STEMI inflammation and contributes to left ventricular dysfunction and heart failure (HF). IL-1 blockade with anakinra or goflikicept may mitigate adverse remodeling and clinical deterioration. • **Methodology**: A patient-level pooled analysis of four phase II double-blind RCTs (n=241; 152 IL-1 blockers, 89 placebo) assessed IL-1 inhibition on inflammation, LV function, and HF outcomes. The composite endpoint included new-onset HF, HF hospitalization, or death at 1 year. CRP, NT-proBNP, and LVEF were secondary outcomes. • **Results:** IL-1 blockade significantly reduced the 1-year composite event rate (7.9% vs 21.3%; HR 0.36, p=0.006) and HF/death (0.7% vs 6.7%; HR 0.10, p=0.032). CRP AUC decreased markedly (90 vs 201 mg*day/L, p<0.001). LV systolic dysfunction was less frequent (11.2% vs 22.2%; OR 0.44, p=0.046). NT-proBNP was unchanged. • **Conclusions:** IL-1 inhibition with anakinra or goflikicept significantly reduced inflammation and HF-related events post-STEMI, supporting larger phase III validation trials.

Notable Presentations at AHA 2025 (Coronary Artery Disease & Ischemic Heart Disease) (6/7)

Date	Title	Author	Summary
10 Nov 2025	Immediate versus Deferred Stenting in Acute Myocardial Infarction: A Systemic Review and Meta-Analysis of Randomized Controlled Trials	Muhammad Zahid	• **Introduction:** Optimal timing of stent placement in acute myocardial infarction (AMI) remains debated. While immediate stenting is standard, deferred strategies may reduce complications such as distal embolization or no-reflow. • **Methodology**: Following PRISMA 2020, nine RCTs (n=4,161) comparing immediate (n=2,070) versus deferred (n=2,091) stenting were analyzed. Outcomes included mortality, myocardial infarction, heart failure hospitalization, procedural complications, and angiographic results. Odds ratios (OR) with 95% CIs were calculated using fixed- and random-effects models. • **Results:** Deferred and immediate stenting showed no significant differences in all-cause mortality (OR 1.29; p=0.19), non-fatal MI (OR 1.11; p=0.59), or heart failure hospitalization (OR 1.21; p=0.47). Procedural events and LV function were similar. Immediate stenting reduced unplanned revascularization (OR 0.60; p=0.05). • **Conclusions:** Immediate and deferred stenting yield equivalent safety and efficacy in AMI, though immediate stenting may lower reintervention rates without increasing adverse events.
10 Nov 2025	Comparative efficacy of percutaneous coronary intervention guidance strategies: A network meta-analysis of 80 randomized clinical trials with reconstructed time-to-event analysis	Ahmed N. Mohamed	• **Introduction:** Selecting the optimal strategy to guide percutaneous coronary intervention (PCI) remains critical for improving outcomes. Intracoronary imaging (IVUS, OCT) and physiological guidance (FFR, iFR, QFR) may enhance precision beyond angiography (CA) alone, though comparative evidence has been mixed. • **Methodology**: A network meta-analysis of 80 RCTs (n=45,146) compared outcomes of IVUS, OCT, FFR, QFR, and iFR versus CA-guided PCI. The primary endpoint was major adverse cardiac events (MACE). Risk ratios (RRs) were estimated using random-effects models. • **Results:** Compared to CA, IVUS (RR 0.70; p<0.001), OCT (RR 0.74; p=0.01), and FFR (RR 0.82; p=0.02) reduced MACE. Both IVUS and OCT also decreased cardiovascular mortality (RR 0.57 and 0.51), stent thrombosis (RR 0.60 and 0.55), and target lesion revascularization (RR 0.62 and 0.64). • **Conclusions:** Intracoronary imaging and FFR guidance significantly improve safety and efficacy versus angiography alone, supporting their integration into routine PCI decision-making.

Notable Presentations at AHA 2025 (Coronary Artery Disease & Ischemic Heart Disease) (7/7)

Date	Title	Author	Summary
10 Nov 2025	Relationship of smoking to inflammation, coronary artery disease severity, and cardiovascular outcomes in patients with stable chest pain: Insights from the PROMISE randomized trial	Nora Kerkovits	• **Introduction:** Smoking drives systemic inflammation and is a key modifiable risk factor for coronary artery disease (CAD), yet its effect in symptomatic, low-to-intermediate-risk patients remains unclear. • **Methodology**: The PROMISE study analyzed 9,100 outpatients with stable chest pain who underwent coronary CT angiography or functional stress testing. Inflammatory biomarkers (hsCRP, IL-6, MMP-9) and noninvasive test outcomes were compared between ever-smokers and nonsmokers. Associations were evaluated via multivariable logistic and Cox regression models. • **Results:** Smokers (51.2%) exhibited higher inflammatory markers (hsCRP +9%, IL-6 +12%, MMP-9 +22%; all $p<0.01$) and event rates (3.8% vs 2.0%, $p<0.001$). Smoking independently predicted positive tests (aOR 1.24, CI 1.09–1.42) and adverse events (aHR 1.75, CI 1.35–2.26), particularly in patients without significant test abnormalities (aHR 2.05). • **Conclusions:** Smoking increases inflammation, abnormal test findings, and cardiovascular risk even in patients with negative imaging, underscoring the critical need for smoking cessation interventions.

Notable Presentations at AHA 2025 (Valvular & Structural Heart Disease) (1/5)

Date	Title	Author	Summary
7 Nov 2025	Comparative Effectiveness of Cardiac Rehabilitation After Surgical Aortic Valve Replacement – A Target Trial Emulation	Sergio RR Decker	• **Introduction:** Cardiac rehabilitation (CR) after surgical aortic valve replacement (SAVR) is guideline-recommended but underutilized, largely due to limited robust evidence. Ethical barriers preclude randomized CR trials, necessitating high-quality observational analyses. • **Methodology**: Using 100% Medicare claims (2016–2022), a target trial emulation was conducted among ≥65-year-old SAVR patients. CR participation was defined as ≥2 sessions within 90 days post-discharge. A cloning-censoring-weighting method controlled for confounders; primary outcome was all-cause death or major adverse cardiovascular events (MACE). • **Results:** Of 44,136 beneficiaries, 48.5% participated in CR. CR reduced 3-year death/MACE risk (17.5% vs 20.1%; adjusted RD –2.6 pp; 95% CI –3.5 to –1.7), with no strong residual confounding. • **Conclusions:** CR post-SAVR significantly lowers mortality/MACE, yet participation remains <50%, revealing persistent socioeconomic disparities needing targeted interventions.
7 Nov 2025	Impact of Aortic Valve Calcification on Functional Valve Area and Cardiac Structure and Function in a Phase 2 Trial of Ataciguat	Brian R Lindman	• **Introduction:** Calcific aortic valve stenosis (CAVS) involves progressive calcium buildup impairing valve compliance and cardiac function. Ataciguat (ATA), a soluble guanylate cyclase activator, previously slowed AVC progression and improved cardiac parameters, warranting further mechanistic evaluation. • **Methodology**: In a phase 2 randomized trial (NCT02481258), 23 patients with moderate CAVS received ATA 200 mg/day or placebo for 12 months. Primary endpoint was change in AVC by cardiac CT; secondary endpoints assessed AVA, cardiac output (CO), and LV function using linear mixed models. • **Results:** Reduced AVC correlated with improved AVA (slope = –0.0002) and CO (slope = –0.0007). ATA-treated patients showed better systolic function and higher CO compared with placebo. • **Conclusions:** ATA slowed AVC accumulation, enhancing valve compliance and myocardial performance. Findings support further trials exploring ATA's potential to preserve function and delay heart failure progression.

Notable Presentations at AHA 2025 (Valvular & Structural Heart Disease) (2/5)

Date	Title	Author	Summary
8 Nov 2025	Impact of Cerebral Embolic Protection Devices on Stroke Outcomes in TAVR: A Systematic Review and Meta-Analysis of Randomized and Real-World Studies	Urja Vipul Sanghvi	• **Introduction:** Stroke remains a serious complication following transcatheter aortic valve replacement (TAVR). Cerebral embolic protection devices (CEPDs) have been developed to prevent embolic stroke by capturing or deflecting debris, but their clinical efficacy remains unclear. • **Methodology**: A meta-analysis of nine RCTs (n=11,608) compared TAVR with versus without CEPD use. Outcomes—total, disabling, and non-disabling stroke—were analyzed per VARC-2 criteria using fixed-effects models to calculate pooled risk ratios (RRs) with 95% confidence intervals (CIs). • **Results:** Stroke incidence did not differ between CEPD and control groups (1.96% vs 1.88%; RR 0.97; p=0.50). Disabling stroke (0.79% vs 0.95%; RR 0.79; p=0.16) and non-disabling stroke (1.26% vs 1.26%; RR 1.06; p=0.64) were similarly unchanged, with no heterogeneity (I^2=0). The largest trial, BHF PROTECT-TAVI (n=7,635), corroborated these findings. • **Conclusions:** CEPD use during TAVR did not significantly reduce total or disabling stroke risk. Routine application is not justified; targeted use in high-risk subgroups requires further investigation.
8 Nov 2025	Hybrid Devices Rank First in Vascular Closure Outcomes After Transfemoral TAVR Access: A Bayesian Network Meta-Analysis of Randomized Controlled Trials	Rodolfo Alves Lopes	• **Introduction:** Transfemoral TAVR is standard for severe aortic stenosis, but optimal vascular closure strategy remains debated. Plug-, suture-, and hybrid-based vascular closure devices (VCDs) are used, with limited comparative data on efficacy and safety. • **Methodology**: A Bayesian network meta-analysis of randomized trials (n=1,683) compared plug, suture, and hybrid VCDs in transfemoral TAVR. Outcomes included composite vascular complications, VCD failure, bleeding, transfusion, emergency interventions, and 30-day mortality. Analyses used R ("BUGSnet") with SUCRA ranking. • **Results:** Hybrid closure significantly reduced total vascular complications (RR 0.53; 95% CrI 0.31–0.97) and VCD failure (RR 0.18; 95% CrI 0.059–0.60). Bleeding, transfusion, and mortality rates were similar across groups. SUCRA ranking favored hybrid > suture > plug-based methods. • **Conclusions:** Hybrid vascular closure demonstrated superior safety and procedural success compared with suture- or plug-only techniques, supporting its adoption as the preferred approach in transfemoral TAVR.

Notable Presentations at AHA 2025 (Valvular & Structural Heart Disease) (3/5)

Date	Title	Author	Summary
9 Nov 2025	Is Earlier Better? Comparative Outcomes of Early Valve Replacement versus Conservative Management in Asymptomatic Severe Aortic Stenosis: A Systematic Review and Meta-analysis		• **Introduction:** Aortic stenosis (AS) is the most prevalent valvular disease, with many patients developing severe but asymptomatic forms. With FDA approval of TAVI for asymptomatic severe AS (EARLY TAVR trial), evidence comparing early versus conservative strategies is increasingly relevant. • **Methodology**: A meta-analysis of five studies (four RCTs, one observational; n=5,242) compared early valve replacement to conservative management. Outcomes included mortality, cardiac-related hospitalizations, and stroke. Analyses used random-effects Mantel–Haenszel models in R 4.4.2. • **Results:** Early replacement significantly reduced all-cause mortality (RR 0.66; 95% CI 0.45–0.98), cardiac hospitalizations (RR 0.31; 95% CI 0.16–0.61), and stroke (RR 0.59; 95% CI 0.37–0.92). • **Conclusions:** Early valve intervention in asymptomatic severe AS improves survival and reduces hospitalization and stroke risk, supporting earlier management strategies in appropriately selected patients.
9 Nov 2025	Safety of Intracardiac Echocardiography Use in Transcatheter Aortic valve Replacement in comparison to Transesophageal Echocardiography: A National Inpatient Sample study	Hima sanjana Perumalla	• **Introduction:** Transesophageal echocardiography (TEE) is standard for guiding transcatheter aortic valve replacement (TAVR), but intracardiac echocardiography (ICE) offers a less invasive alternative with real-time imaging and no need for general anesthesia. Comparative outcome data remain limited. • **Methodology**: Using the 2020–2022 US National Inpatient Sample, 9,248 adult TAVR patients (TEE: 7,947; ICE: 1,301) were analyzed. Outcomes included in-hospital mortality, major complications, length of stay, and hospitalization cost, adjusted via multivariable regression. • **Results:** ICE-guided TAVR reduced mortality (0.7% vs 1.7%), cardiogenic shock (aOR 0.48), AKI (aOR 0.65), and ventricular fibrillation (aOR 0.22), with no differences in procedural complications. ICE also shortened hospital stay (–1.38 days) and lowered total cost (–$57,595; p<0.001). • **Conclusions:** ICE-guided TAVR demonstrated improved safety, shorter hospitalization, and reduced costs compared with TEE, supporting ICE as a viable imaging alternative.

Notable Presentations at AHA 2025 (Valvular & Structural Heart Disease) (4/5)

Date	Title	Author	Summary
9 Nov 2025	Comparative Analysis of Clinical Outcomes Following Transcatheter Aortic Valve Replacement in Patients with Wild-Type Transthyretin Amyloidosis: A Multicenter TriNetX Study	Pallavi Matai	• **Introduction:** Wild-type transthyretin amyloidosis (ATTRwt) is an underdiagnosed cause of aortic stenosis, potentially complicating outcomes after transcatheter aortic valve replacement (TAVR). Data on post-TAVR outcomes in this group are limited. • **Methodology**: Using the TriNetX U.S. network, adults with ATTRwt (ICD-10 E85.82) undergoing TAVR—excluding prior SAVR—were retrospectively analyzed. Outcomes included mortality, heart failure (HF) hospitalizations, and stroke over 5 years, with Kaplan–Meier survival estimates and 95% CIs. • **Results:** Among 126 patients, HF hospitalizations were frequent (85.7%), mortality reached 25.4%, ischemic stroke occurred in 11.1%, and hemorrhagic stroke in 7.9%. Five-year survival probability was 27.1%. • **Conclusions:** TAVR in ATTRwt amyloidosis is associated with high HF hospitalization and mortality rates, emphasizing the need for enhanced post-procedural HF management and tailored care strategies.
9 Nov 2025	Safety and Prognostic Implications of Mechanical Circulatory Support-Assisted Transcatheter Edge-to-Edge Repair: Insights from the OCEAN-Mitral Registry	Shuhei Tanaka	• **Introduction:** Mitral transcatheter edge-to-edge repair (M-TEER) offers a minimally invasive option for severe mitral regurgitation (MR), yet its role in patients requiring mechanical circulatory support (MCS) for hemodynamic instability remains uncertain. • **Methodology**: Using the OCEAN-Mitral registry, outcomes of 3,764 patients (mean age 81 years; 70.1% secondary MR) were analyzed, including 105 who underwent MCS-assisted M-TEER. Mortality was compared with a modeled MCS-only virtual control using the Seattle Heart Failure Model, and predictors of in-hospital mortality were assessed via logistic regression. • **Results:** Procedural success exceeded 95%. One-year mortality was lower with MCS-assisted M-TEER (43.2% vs 69.5%). Frailty, inflammation, and hypoalbuminemia predicted higher in-hospital mortality. • **Conclusions:** MCS-assisted M-TEER demonstrates feasibility and survival benefit in critically ill MR patients with unstable hemodynamics, supporting its use in carefully selected candidates.

Notable Presentations at AHA 2025 (Valvular & Structural Heart Disease) (5/5)

Date	Title	Author	Summary
10 Nov 2025	Treatment Patterns and Outcomes of Papillary Muscle Rupture: A Comparative Analysis of MitraClip Versus Mitral Valve Replacement Using a National Inpatient Database	Rishabh Gupta	• **Introduction:** Papillary muscle rupture (PMR) is a rare but lethal complication of acute myocardial infarction traditionally managed by urgent mitral valve replacement (MVR). In high-risk patients, transcatheter mitral repair with MitraClip offers a less invasive alternative. • **Methodology**: Using the 2021 U.S. National Inpatient Sample, patients undergoing MVR or MitraClip for PMR were identified via ICD-10 codes. Primary outcomes included in-hospital mortality, length of stay (LOS), and hospitalization cost; comorbidity burden was assessed using the Charlson Comorbidity Index (CCI). • **Results:** Among 524 PMR patients, 90.7% received MVR and 9.3% MitraClip. MitraClip patients were older (72 vs 61.9 years) with higher CCI (4.8 vs 2.7). Mortality was similar (20% vs 18.4%; p=0.90). MitraClip reduced LOS (10.4 vs 17.8 days) and cost ($328k vs $663k). • **Conclusions:** While MVR remains standard for PMR, MitraClip provides a viable, lower-cost alternative in older, high-risk patients without compromising survival.
10 Nov 2025	Early Safety Signals and Common Pitfalls of the TriClip™ System for Transcatheter Tricuspid Valve Repair: Analysis of FDA's MAUDE Database		• **Introduction:** Tricuspid regurgitation (TR) causes right ventricular failure and poor prognosis. The TriClip™ G4 transcatheter edge-to-edge repair (TEER) system, FDA-approved in April 2024, improves TR outcomes, but post-market safety data remain limited. • **Methodology**: Adverse events reported to the FDA MAUDE database (April 2024–January 2025) were reviewed. After removing duplicates and literature-only entries, 443 unique events from 407 TriClip™ procedures were analyzed for complication type, mechanism, and management. • **Results:** Single Leaflet Device Attachment (SLDA) was the most frequent complication (204/443). Contributing factors included poor imaging, leaflet tethering, and clip-clip interference. SLDA was managed with additional clips (77), no intervention (55), repeat procedures (16), or surgery (4). Other issues included device/gripper malfunction (68), chordal entanglement (41), and migration/embolization (6). • **Conclusions:** SLDA is the predominant TriClip™ complication post-approval, often leading to persistent TR. Ongoing post-market monitoring is essential to refine procedural techniques and enhance device safety.

Notable Presentations at AHA 2025 (Vascular & Peripheral Artery Disease) (1/3)

Date	Title	Author	Summary
8 Nov 2025	Mortality and Disease Burden of Smoking-Related Lower Extremity Peripheral Artery Disease: A Comparative Analysis of the U.S. and High Socio-Demographic Index Countries	Aman Goyal	• **Introduction:** Smoking accelerates peripheral artery disease (PAD) progression, heightening cardiovascular risk and disability. Despite global efforts, the burden of smoking-related PAD across nations remains underexplored. • **Methodology**: Using GBD 2021 data, U.S. and high-SDI countries were compared for smoking-related PAD mortality and disability-adjusted life years (DALYs) from 1990–2021. Trends were evaluated using annual percentage change (APC), average APC difference (AAPCD), and 95% confidence intervals (CI). • **Results:** U.S. age-standardized death rates (ASDR) declined from 0.51 to 0.37, with steep reductions (2002–2009 APC –4.66) but slower progress post-2009 (APC –0.73). High-SDI nations showed greater overall decline (AAPCD –1.25). DALY rates also fell (13.9→10.5) but decelerated after 2009 versus consistent global improvement. • **Conclusions:** While smoking-related PAD mortality and DALY rates declined, U.S. progress has slowed. Enhanced tobacco control and PAD screening initiatives are urgently needed to sustain cardiovascular health gains.
8 Nov 2025	Evidence shows comparable efficacy of dual therapy with ticagrelor and aspirin versus monotherapy in peripheral arterial disease: A systematic review and meta-analysis of 1,702 patients	Christiany Marilinn Tapia	• **Introduction:** Peripheral artery disease (PAD) elevates cardiovascular risk, with aspirin as standard therapy. Ticagrelor, a P2Y12 inhibitor, has shown promise, yet the comparative efficacy and safety of dual ticagrelor–aspirin therapy versus monotherapy remain uncertain. • **Methodology**: A PRISMA-guided meta-analysis of RCTs (PubMed, Scopus, Embase, Web of Science; through March 2025) compared ticagrelor + aspirin versus monotherapy in PAD. Outcomes included myocardial infarction (MI), mortality, limb ischemia, and hemorrhagic events. Hazard ratios (HRs) with 95% CIs were pooled via random-effects models. • **Results:** Three RCTs (n=1,702) met inclusion. No significant differences were observed for MI (HR 1.18; p=0.54), mortality (HR 0.73; p=0.12), limb ischemia (HR 0.64; p=0.08), or bleeding (HR 1.27; p=0.74). • **Conclusions:** Dual ticagrelor–aspirin therapy showed no superiority over monotherapy for PAD outcomes, supporting single-agent antiplatelet therapy as reasonable pending larger confirmatory RCTs.

Notable Presentations at AHA 2025 (Vascular & Peripheral Artery Disease) (2/3)

Date	Title	Author	Summary
9 Nov 2025	Adverse Pregnancy Outcomes Are Associated with Incident Peripheral Artery Disease, Results from the Women's Health Initiative.	Elizabeth A Jackson	• **Introduction:** Adverse pregnancy outcomes (APOs) are established risk factors for future cardiovascular disease, but their relationship with peripheral arterial disease (PAD) remains unclear. This study evaluated the association between APO history and incident PAD among postmenopausal women. • **Methodology**: Using Women's Health Initiative data (n=47,370; age 50–79), women with ≥1 pregnancy and no baseline PAD were analyzed. APOs included preterm delivery, low birth weight, gestational hypertension/preeclampsia, and gestational diabetes. Multivariable logistic models adjusted for demographic and lifestyle factors assessed PAD risk through 2010. • **Results:** APOs were reported by 28.8% of women. APO history doubled PAD risk (aOR 2.02; 95% CI 1.43–2.85). Specific APOs linked to PAD included preeclampsia (aOR 2.31), low birth weight (aOR 2.50), and preterm delivery (aOR 1.71). • **Conclusions:** APOs independently predicted incident PAD, underscoring the need for early vascular screening and preventive care in women with prior pregnancy complications.
9 Nov 2025	Burden of Peripheral Artery Disease and its attributable risk factors from 1990 to 2021: A comparative analysis of Low versus High Socio-demographic Index (SDI) Regions	Hasan Ilyas	• **Introduction:** Peripheral artery disease (PAD) contributes significantly to global cardiovascular morbidity, with its burden shaped by modifiable risk factors including smoking, hypertension, diabetes, obesity, and kidney dysfunction • **Methodology**: Using Global Burden of Disease 2021 data (1990–2021), age-standardized PAD mortality, incidence, and disability-adjusted life years (DALYs) were analyzed by sex, region, and five key risk factors. Joinpoint regression estimated average annual percent change (AAPC) with 95% CIs. • **Results:** High-SDI regions showed declining PAD mortality (AAPC males −0.96; females −0.35) and DALYs (−1.17; −0.71), while low-SDI regions exhibited increases across all measures. Smoking- and hypertension-related DALYs declined in high-SDI settings, but those linked to high glucose (+1.18) and BMI (+0.17) rose. Low-SDI regions showed sharp increases in BMI- and glucose-related DALYs (+2.91, +2.32). • **Conclusions:** PAD burden is diverging globally—improving in high-SDI but worsening in low-SDI regions. Intensified metabolic and lifestyle interventions are urgently needed.

Notable Presentations at AHA 2025 (Vascular & Peripheral Artery Disease) (3/3)

Date	Title	Author	Summary
10 Nov 2025	A Comparative Analysis of Social Demographic and Clinical Factors for Screening for Peripheral Artery Disease in Adult Patients from Primary Care Clinics	Rashon Lane	• **Introduction:** Peripheral artery disease (PAD) is a major cause of morbidity and mortality, often underdiagnosed in primary care. Early detection can prevent severe complications such as limb ischemia, ulcers, and amputation. This study assessed PAD prevalence and key predictors in a large U.S. primary care cohort. • **Methodology**: A retrospective analysis of 81,724 adults from 19 Sutter Health clinics (Jan 2022–Aug 2024) identified PAD cases using ICD-10 codes. Logistic regression assessed demographic and comorbidity predictors. • **Results:** Among 282 PAD patients, 89% were ≥60 years, 52% male, 24% Black. Major risk factors included arteriosclerosis (OR 3.4), polyneuropathy (2.7), smoking (2.6), CKD (2.4), COPD (2.4), and hypertension (2.4). Older age (OR 29.1) and male sex (OR 1.5) were significant predictors. • **Conclusions:** PAD is more prevalent in older, male, and Black patients. Targeted screening in high-risk primary care populations could improve early diagnosis and outcomes.

Notable Presentations at AHA 2025 (Hypertension & Renal/Cardiorenal Syndrome) (1/5)

Date	Title	Author	Summary
8 Nov 2025	Evaluating Aldosterone Synthase Inhibitors in Hypertension: A Meta-Analysis of Efficacy, Safety, and Subgroup Outcomes Across Novel Agents	Dhiran Sivasubramanian	• **Introduction:** Hypertension remains a major global contributor to cardiovascular morbidity and mortality. Aldosterone synthase inhibitors (ASIs) represent a novel antihypertensive class targeting aldosterone synthesis, potentially improving blood pressure (BP) control across diverse populations. • **Methodology**: A meta-analysis of nine RCTs (n=1,774) evaluated lorundrostat, osilodrostat, baxdrostat, and vicadrostat versus placebo in hypertensive adults. Pooled mean differences (MD) for systolic (SBP) and diastolic BP (DBP) were estimated using random-effects models in RevMan 5.4. • **Results:** ASIs significantly reduced SBP (MD −5.28 mmHg; p<0.00001) and DBP (MD −1.69 mmHg; p=0.0005). Lorundrostat showed the strongest effect (SBP −7.00; DBP −3.70), while baxdrostat had modest effects. BP reduction was greatest in essential hypertension (SBP −7.59) and lowest in CKD (SBP −3.46). Adverse events were comparable to placebo. • **Conclusions:** ASIs effectively and safely lower BP, particularly lorundrostat, showing promise as a targeted antihypertensive strategy warranting larger confirmatory trials.
9 Nov 2025	Long-Term Efficacy and Safety of a Novel Low-Dose Triple Single-Pill Combination for the Treatment of Hypertension		• **Introduction:** Hypertension control remains suboptimal globally, especially in low- and middle-income settings. GMRx2, a novel low-dose triple single-pill combination (telmisartan/amlodipine/indapamide), has shown superior short-term efficacy over placebo and dual therapy. • **Methodology**: In this open-label extension of a randomized trial, 50 patients from Sri Lanka and Nigeria received GMRx2 for up to 52 weeks. Dosing was titrated (¼→½→standard) to achieve home BP <130/80 mmHg, with optional add-ons (telmisartan/amlodipine SPC, spironolactone). Primary endpoint: BP control at week 52. • **Results:** Mean home BP declined from 129/79 mmHg at baseline to 120/78 mmHg at 1 year; clinic BP fell to 122/77 mmHg. Home BP control was 56%, clinic BP 88%. Only 6% required add-on therapy, and no treatment discontinuations occurred. • **Conclusions:** GMRx2 provided durable, well-tolerated blood pressure control over 1 year, supporting its use as an effective, scalable hypertension therapy.

Notable Presentations at AHA 2025 (Hypertension & Renal/Cardiorenal Syndrome) (2/5)

Date	Title	Author	Summary
9 Nov 2025	Comparable One-Year Efficacy and Safety of Spironolactone Versus Amiloride in Resistant Hypertension: A Retrospective Cohort Analysis		• **Introduction:** Spironolactone is the preferred fourth-line therapy for resistant hypertension but raises hyperkalemia concerns, prompting substitution with amiloride despite limited data. This study compared their long-term safety and efficacy in real-world practice. • **Methodology**: A retrospective TriNetX cohort (2012–2024) included hypertensive adults on triple background therapy initiating amiloride (n=420) or spironolactone (n=10,434). After propensity matching (n=414 each), outcomes through 52 weeks included BP control, acute kidney injury (AKI), major adverse cardiovascular events (MACE), and mortality. • **Results:** At 4 weeks, amiloride achieved greater BP control (SBP ≤130 mmHg: 53.6% vs 44.2%, RR 1.21; p<0.05), but differences disappeared by 52 weeks. Rates of AKI (13.0% vs 15.2%), MACE (22.5% vs 23.7%), and mortality (13.3% vs 11.1%) were comparable. • **Conclusions:** Amiloride and spironolactone achieved similar one-year efficacy and safety outcomes, supporting amiloride as a viable alternative in resistant hypertension when hyperkalemia risk limits spironolactone use.
9 Nov 2025	Safety, Pharmacokinetics, and Pharmacodynamics of SGB-3908, A siRNA Targeting AGT in Healthy and Mildly Hypertensive Subjects		• **Introduction:** SGB-3908 (IBI 3016) is a GalNAc-conjugated siRNA targeting hepatic angiotensinogen (AGT), developed via SanegeneBio's LEAD™ platform to suppress the RAAS pathway for hypertension management. • **Methodology**: In this randomized, double-blind, placebo-controlled, single-dose escalation trial, 40 healthy or mildly hypertensive adults received subcutaneous SGB-3908 (five dose cohorts, 6:2 ratio). Safety, pharmacokinetics (PK), and pharmacodynamics (PD) were assessed over six months. • **Results:** SGB-3908 was well-tolerated, with only mild reversible AEs. Plasma PK showed rapid absorption (Cmax 6–8 h) and clearance by 48 h. AGT levels declined up to 97.5% at 4 weeks and remained >90% suppressed through 3 months. Mean 24-h BP decreased dose-dependently, reaching −16.7/−14.7 mmHg at highest dose. • **Conclusions:** Single-dose SGB-3908 achieved profound, sustained AGT suppression and significant BP reduction with excellent tolerability, supporting advancement into longer-term hypertension trials.

Notable Presentations at AHA 2025 (Hypertension & Renal/Cardiorenal Syndrome) (3/5)

Date	Title	Author	Summary
9 Nov 2025	Comparative Efficacy and Safety of Renal Denervation Versus Spinal Cord Stimulation in Hypertensive Patients: A Propensity-Matched Cohort Study		• **Introduction:** Despite therapeutic advances, hypertension remains a leading global cause of cardiovascular morbidity. Renal denervation (RDV) and spinal cord stimulation (SCS) target neurohormonal regulation but have not been directly compared in real-world settings. • **Methodology**: A retrospective TriNetX cohort (2019–2024) compared adults undergoing RDV or SCS for hypertension. After 1:1 propensity matching (n=307 per group), outcomes—BP control, acute kidney injury, MACE, electrolyte imbalance, serious adverse events, and mortality—were assessed up to 26 weeks. • **Results:** SCS achieved superior BP control at 12–26 weeks (SBP ≤130 mmHg RR 0.85, p=0.044; DBP ≤80 mmHg RR 0.84, p=0.019). RDV increased risks of hypokalemia (RR 2.70, p<0.001), hyponatremia (RR 2.61, p<0.001), MACE (RR 3.50, p<0.001), and mortality (RR 2.40, p=0.013). • **Conclusions:** SCS demonstrated greater BP reduction and lower complication rates than RDV, supporting its consideration as a superior neuromodulatory therapy for resistant hypertension.
9 Nov 2025	Aldosterone Synthase Inhibitors Effectively Lower Blood Pressure but Increase Hyperkalemia Risk: A Meta-Analysis of Randomized Trials	Lokman H. Tanriverdi	• **Introduction:** Aldosterone synthase inhibitors (ASIs) represent a novel antihypertensive class acting upstream of mineralocorticoid receptor blockade, targeting aldosterone biosynthesis to improve blood pressure control. • **Methodology**: A systematic review and meta-analysis of six RCTs (n=1,382) compared ASIs versus placebo across hypertension subtypes. Primary endpoints were changes in seated systolic (SBP) and diastolic blood pressure (DBP); secondary endpoints included 24-hour ambulatory SBP, hyperkalemia, and adverse events. • **Results:** ASIs significantly reduced SBP (−6.44 mmHg; p<0.0001), DBP (−2.15 mmHg; p=0.0015), and 24-hour SBP (−6.82 mmHg; p<0.001). Hyperkalemia risk increased (RR 4.48), mainly with lorundrostat, while serious or non-serious adverse events were not significantly elevated. • **Conclusions:** ASIs achieve clinically meaningful BP reductions with acceptable tolerability. Monitoring for hyperkalemia, particularly with lorundrostat, is essential as this class advances toward combination therapy applications.

Notable Presentations at AHA 2025 (Hypertension & Renal/Cardiorenal Syndrome) (4/5)

Date	Title	Author	Summary
9 Nov 2025	Chronotherapy in Hypertension: A Meta-analysis on Comparative Effectiveness of Evening Versus Morning Dosing on Systolic Blood Pressure Control	Sunil Bogati	• **Introduction:** Blood pressure exhibits circadian variation, with early morning surges linked to adverse cardiovascular outcomes. Chronotherapy—timing antihypertensive dosing to biological rhythms—may optimize control and safety. • **Methodology**: A meta-analysis of 12 RCTs (n=2,350) compared evening versus morning dosing of ACEIs, ARBs, CCBs, and beta-blockers. Primary outcome was 24-hour systolic blood pressure (SBP) reduction; secondary outcomes included night- and morning-SBP and cardiovascular events. • **Results:** Evening dosing achieved greater 24-hour SBP reduction (−2.16 mmHg; p=0.009). Trends favored evening dosing for night- and morning-SBP, though non-significant. Select trials reported fewer cardiovascular events and edema with evening administration. • **Conclusions:** Chronotherapy with evening antihypertensive dosing modestly improves 24-hour SBP control and may reduce cardiovascular risk. Larger, population-specific studies are warranted to refine clinical recommendations.
10 Nov 2025	Efficacy of Zilebesiran in Hypertension: A Meta-analysis with Dose-Response and Angiotensinogen Correlation from KARDIA Trials		• **Introduction:** Zilebesiran, a small interfering RNA (siRNA) targeting hepatic angiotensinogen (AGT), offers durable blood pressure control through sustained renin–angiotensin system inhibition. Clarifying its dose–response and biomarker correlations remains key to optimizing therapy. • **Methodology**: A random-effects meta-analysis of six treatment arms from KARDIA-1 and KARDIA-2 trials assessed pooled systolic blood pressure (SBP) reduction, dose–response relationships, and associations between AGT suppression and SBP change using meta-regression and linear modeling. • **Results:** Zilebesiran lowered SBP by −11.8 mmHg (95% CI: −15.7 to −7.9; p<0.0001). No significant dose-response was observed (β=0.0127 mmHg/mg, p=0.23), nor correlation between AGT suppression and SBP reduction (β=−0.23, p=0.49). • **Conclusions:** Zilebesiran produces clinically meaningful BP reductions independent of dose, supporting its robust antihypertensive potential. Larger trials should validate biomarker–response dynamics and optimal dosing.

Notable Presentations at AHA 2025 (Hypertension & Renal/Cardiorenal Syndrome) (5/5)

Date	Title	Author	Summary
10 Nov 2025	Day versus Evening Hypertensive medication and risk of Cardiovascular Disease: A Meta-analysis of Randomized Controlled Trials	Vikash Jaiswal	• **Introduction:** Hypertension remains a leading global cause of cardiovascular morbidity and mortality. Chronotherapy—timing of antihypertensive dosing—has been proposed to optimize nocturnal blood pressure control, though prior trials report inconsistent outcomes. • **Methodology**: A meta-analysis of seven randomized controlled trials (n=63,333) compared cardiovascular outcomes between morning and evening antihypertensive administration. Odds ratios (ORs) with 95% confidence intervals (CIs) were pooled using a random-effects model ($p<0.05$ threshold). • **Results:** No significant differences were observed for all-cause mortality (OR 1.09), cardiovascular mortality (2.11), heart failure (1.80), myocardial infarction (1.09), stroke (1.23), or major adverse cardiovascular events (1.36). • **Conclusions:** Timing of antihypertensive dosing—morning versus evening—does not significantly influence cardiovascular outcomes, reinforcing findings from the 2025 BEDMED trial and supporting flexible, individualized dosing strategies.
10 Nov 2025	Efficacy and Safety of Nifedipine Compared to Intravenous Hydralazine for Severe Hypertension in Pregnancy: A Systematic Review and Meta-Analysis of Randomized Controlled Trials	Sameen Sohail	• **Introduction:** Severe maternal hypertension poses major risks for both mother and fetus. While nifedipine and hydralazine are established antihypertensive options, their comparative safety and efficacy in acute management remain uncertain. • **Methodology**: A meta-analysis of seven randomized controlled trials (PubMed, Cochrane, EMBASE; inception–Apr 2024) compared oral/sublingual nifedipine with intravenous hydralazine in severe hypertension (with/without preeclampsia). Random-effects modeling estimated pooled mean differences (MD) and odds ratios (OR) with 95% CIs. • **Results:** Both agents achieved similar outcomes for blood pressure control (MD = –1.08 min), cesarean delivery (OR = 0.62), neonatal birth weight, NICU admission, and 5-minute APGAR scores. Nifedipine significantly reduced medication-related adverse events (OR = 0.62; $p<0.05$). • **Conclusions:** Nifedipine and hydralazine offer equivalent efficacy for severe maternal hypertension, but nifedipine demonstrates superior tolerability, supporting its preferential use in obstetric emergencies.

Notable Presentations at AHA 2025 (Metabolic, Obesity & Diabetes Cardiometabolic Studies) (1/5)

Date	Title	Author	Summary
8 Nov 2025	VANQUISH-2: Phase 3, Randomized, Double-blind, Placebo-controlled, Trial of weekly subcutaneous administration of VK2735 in Obese or Overweight Adults with Type 2 Diabetes	Karen Modesto	• **Introduction:** Type 2 diabetes (T2DM), obesity, and cardiovascular disease (CVD) are interlinked, with CVD as the main cause of death in diabetics. VK2735, a dual GIP/GLP-1 receptor agonist, may offer metabolic and cardiovascular benefits through weight loss and improved cardiometabolic (CM) parameters. • **Methodology**: VANQUISH-2 is a 78-week, Phase 3, randomized, double-blind, placebo-controlled trial evaluating VK2735 (7.5–17.5 mg weekly) versus placebo in obese or overweight adults with T2DM (BMI ≥ 27 kg/m²). Primary endpoint: % change in body weight; secondary: ≥5–20% weight reduction, HbA1c, BP, lipids, and safety (pancreatitis, gallbladder, CV events). • **Results:** Enrollment is ongoing; results will assess efficacy, CM improvement, and safety. • **Conclusions:** VANQUISH-2 will deliver pivotal Phase 3 evidence on VK2735's weight-loss efficacy and CM benefits in T2DM, supporting its potential in CVD risk reduction.
8 Nov 2025	Disparities in Major Adverse Cardiovascular Outcomes Based on Body Mass Index and Estimated Glomerular Filtration Rate in Glucagon-like Peptide-1 Receptor Agonists Users Among Patients With and Without Diabetes Mellitus: A Meta-analysis of 9 Randomized Controlled trials.	Vikash Jaiswal	• **Introduction:** Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) reduce major adverse cardiovascular events (MACE) in type 2 diabetes mellitus (T2DM), yet outcome variability by body mass index (BMI) and renal function remains unclear across diabetic and non-diabetic populations. • **Methodology**: A systematic meta-analysis of eight phase III RCTs (PubMed, Scopus, ClinicalTrials.gov; through June 2025) including 77,190 patients (mean age 64) compared GLP-1 RA versus placebo. Subgroup analyses were stratified by BMI (>30 vs ≤30 kg/m²) and eGFR (>60 vs ≤60 mL/min/1.73 m²). Pooled odds ratios (ORs) were estimated using random-effects models. • **Results:** GLP-1 RAs significantly reduced MACE in all subgroups—BMI > 30 (OR 0.86; p<0.001), BMI ≤ 30 (OR 0.85; p<0.001), eGFR > 60 (OR 0.85; p<0.001), and eGFR ≤ 60 (OR 0.84; p=0.01). • **Conclusions:** GLP-1 RAs confer consistent cardiovascular protection irrespective of BMI or renal function, reinforcing their broad clinical utility in high-risk cardiometabolic populations.

Notable Presentations at AHA 2025 (Metabolic, Obesity & Diabetes Cardiometabolic Studies) (2/5)

Date	Title	Author	Summary
8 Nov 2025	Efficacy and Safety of Semaglutide According to Frailty Status in the SELECT Trial	John W Ostrominski	• **Introduction:** Frailty frequently coexists with cardiovascular disease (CVD), potentially influencing therapeutic risk–benefit profiles. This post hoc analysis from the SELECT trial assessed whether frailty status modifies the cardiovascular efficacy and safety of semaglutide 2.4 mg in overweight or obese adults without diabetes. • **Methodology**: A 31-item frailty index (FI) categorized 17,604 participants as not frail (≤0.210), more frail (0.211–0.310), or most frail (≥0.311). Outcomes included major adverse cardiovascular events (MACE), heart failure, hospitalizations, mortality, body weight, and EQ-5D-VAS. Treatment-by-frailty interactions were analyzed. • **Results:** Event rates rose with higher FI, but semaglutide's benefit was consistent across categories (MACE HR 0.84, 0.70, 0.92; p_interaction=0.09). Improvements in heart failure, hospitalization, mortality, body weight, and quality of life were uniform across frailty levels. Discontinuation rates were not disproportionately higher in frailer patients. • **Conclusions:** Semaglutide provided sustained cardiovascular and quality-of-life benefits regardless of frailty, confirming its favorable safety–efficacy balance in CVD with overweight or obesity.
9 Nov 2025	Efficacy of GLP-1 Receptor Agonists VS SGLT2 Inhibitors on Cardiovascular Outcomes in Women with Type 2 Diabetes and Premature Coronary Artery Disease: A Propensity Score Matched Analysis	Abdul-Rahaman Adedolapo Ottun	• **Introduction:** Premature coronary artery disease (CAD) in women (<55 years) is increasingly recognized but underexplored. GLP-1 receptor agonists (GLP-1RAs) and SGLT2 inhibitors benefit cardiovascular outcomes in type 2 diabetes (T2DM), yet their comparative impact in women with premature CAD remains unclear. • **Methodology**: A retrospective TriNetX cohort (2003–2022) analyzed adult females <55 years with T2DM and CAD treated ≥1 year with GLP-1RA or SGLT2 inhibitors. After propensity score matching, 815 patients per group were compared for MACE, revascularization, recurrent MI, atrial fibrillation, ESRD, and hospitalization. • **Results:** No significant differences were observed in MACE (HR 0.63, p=0.24), revascularization (HR 0.50, p=0.98), recurrent MI (HR 0.60, p=0.45), AF (HR 0.48, p=0.51), or ESRD (HR 0.78, p=0.12). GLP-1RA therapy significantly reduced hospitalization risk (HR 0.65, p<0.005). • **Conclusions:** Both GLP-1RA and SGLT2 inhibitors provided comparable cardiovascular protection in women with premature CAD, though GLP-1RAs lowered hospitalization rates. Larger RCTs are warranted to confirm these findings.

Notable Presentations at AHA 2025 (Metabolic, Obesity & Diabetes Cardiometabolic Studies) (3/5)

Date	Title	Author	Summary
9 Nov 2025	Comparative Effects of Tirzepatide vs Semaglutide on 1-Year Mortality and Cardiovascular Outcomes in T2DM Patients with HFpEF	Shiva Sah	• **Introduction:** Patients with type 2 diabetes (T2DM) and heart failure with preserved ejection fraction (HFpEF) face high cardiovascular risk. GLP-1 receptor agonists (semaglutide) and dual GIP/GLP-1 agonists (tirzepatide) both improve outcomes, but head-to-head data remain scarce. • **Methodology**: Using the TriNetX network, adults with T2DM + HFpEF treated with tirzepatide or semaglutide were followed for 1 year. After 1:1 propensity matching (n = 3,757 per group), outcomes included mortality, hospitalization, heart failure exacerbation, stroke, and atrial fibrillation/flutter. • **Results:** Tirzepatide reduced all-cause mortality (OR 0.66), hospitalization (OR 0.75), HF exacerbation (OR 0.71), and stroke (OR 0.82) versus semaglutide (all $p < 0.05$). Atrial fibrillation/flutter rates were similar (OR 0.90, $p = 0.07$). • **Conclusions:** Tirzepatide provided superior one-year cardiovascular protection over semaglutide in T2DM + HFpEF, supporting further prospective validation.
10 Nov 2025	Comparative Outcomes of GLP-1 Agonists vs SGLT2 Inhibitors in Patients with Type 2 Diabetes and Heart Failure: A Propensity-Matched Multicenter Retrospective Analysis	Muhammad Ahmad Qureshi	• **Introduction:** Both SGLT2 inhibitors and GLP-1 agonists confer cardiovascular benefits in type 2 diabetes mellitus (T2DM), yet their relative efficacy in heart failure (HF) subtypes remains uncertain. This real-world study compared outcomes across systolic and diastolic HF phenotypes. • **Methodology**: Using the TriNetX database, adults with T2DM and HF initiating either drug class were analyzed post-propensity matching. Outcomes included MACE, mortality, renal composite, and HbA1c control, stratified by HF subtype. • **Results:** Among 56,194 systolic and 72,109 diastolic HF patients, GLP-1 agonists lowered rates of acute HF (RD 3.8–5.5%), MACE (RD 2.8–3.2%), and mortality (RD 1.1–1.4%), while SGLT2 inhibitors provided superior renal protection (RD 1.0%). GLP-1 agonists also achieved better HbA1c targets. • **Conclusions:** GLP-1 agonists offer greater cardiovascular protection and survival benefits, whereas SGLT2 inhibitors better preserve renal function across HF phenotypes.

Notable Presentations at AHA 2025 (Metabolic, Obesity & Diabetes Cardiometabolic Studies) (4/5)

Date	Title	Author	Summary
10 Nov 2025	Comparative Cardiometabolic Outcomes of Tirzepatide Versus Semaglutide in Patients with HFpEF and Obesity: A Real-World Multicenter Cohort Study	Siddharth Pravin Agrawal	• **Introduction:** HFpEF commonly coexists with obesity and type 2 diabetes, heightening cardiovascular risk. While semaglutide (GLP-1 RA) improves metabolic control, tirzepatide (dual GIP/GLP-1 agonist) may offer enhanced cardiometabolic benefits. Comparative real-world outcomes in HFpEF remain unclear. • **Methodology**: A retrospective TriNetX analysis identified obese adults with HFpEF treated with semaglutide or tirzepatide. Propensity-matched cohorts (1:1; n=40,047) were compared for mortality, cardiovascular events, and safety outcomes. • **Results:** Tirzepatide users showed lower all-cause mortality (2.0% vs 2.9%; OR 1.47, p<0.001), myocardial infarction (2.2% vs 2.8%), and HF exacerbation (8.3% vs 10.1%), with improved survival (HR 1.28, p<0.001). Safety profiles, including cholelithiasis and pancreatitis, were similar. • **Conclusions:** Tirzepatide demonstrated superior survival and cardiovascular outcomes versus semaglutide in obese HFpEF patients, supporting its cardioprotective potential pending prospective confirmation.
10 Nov 2025	Lower Risk of Cardiovascular Events in Patients with Heart Failure Initiated on Semaglutide 2.4 mg in the Real-world: Results from the SCORE-HF Study (Semaglutide Effects on Cardiovascular Outcomes in People with Overweight or Obesity in the Real World – Heart Failure Population)		• **Introduction:** The SELECT trial showed semaglutide 2.4 mg reduced MACE and HF outcomes in non-diabetic patients with obesity and CVD. Real-world evidence on its cardiovascular effects in HF remains limited. • **Methodology**: Using Komodo Research Data, adults ≥45 years with obesity and HF but no diabetes were propensity-matched (1:2; n=25,851) by 64 variables. Cox models estimated hazard ratios (HRs) for MACE and HF outcomes comparing semaglutide 2.4 mg users vs non-users (2021–2024). • **Results:** Semaglutide 2.4 mg reduced risk of 5-point MACE (HR 0.58), 3-point MACE (HR 0.38), and HF outcomes (HR 0.65; all p<0.001). Benefits extended to MI, stroke, HF hospitalization, all-cause, and CV mortality. • **Conclusions:** In real-world U.S. practice, semaglutide 2.4 mg significantly lowers cardiovascular and HF event risks in obese, non-diabetic HF patients, confirming and extending SELECT trial findings.

Notable Presentations at AHA 2025 (Metabolic, Obesity & Diabetes Cardiometabolic Studies) (5/5)

Date	Title	Author	Summary
10 Nov 2025	Tirzepatide Reduces the Risk of Major Adverse Cardiovascular Events: An Individual Participant Data Meta-analysis of Phase 3 Randomized Clinical Trials	Arya Aminorroaya	• **Introduction:** Tirzepatide, a dual GIP/GLP-1 receptor agonist, has demonstrated robust cardiometabolic effects in Phase 3 trials. However, pooled cardiovascular efficacy and predictors of response remain to be clarified pending formal CVOT data. • **Methodology**: This IPD meta-analysis pooled data from 11 Phase 3 RCTs comparing tirzepatide 15 mg/week versus pooled comparators (placebo, insulin, or GLP-1 RAs). Mixed-effects Cox models assessed MACE risk, adjusted via inverse probability weighting. Subgroup and response-correlate analyses identified factors influencing outcomes. • **Results:** Among 7,388 participants, tirzepatide reduced MACE by 33% (HR 0.67; 95% CI 0.51–0.87), with consistent benefit across subgroups—greatest in obese patients. Improved weight, waist circumference, diastolic BP, and fasting glucose strongly predicted lower MACE risk. • **Conclusions:** Tirzepatide 15 mg/week significantly lowers MACE incidence, with cardiometabolic improvements mediating its benefit. These findings support its personalized use for cardiovascular risk reduction.
10 Nov 2025	Glucagon-Like Peptide-1 Receptor Agonists Show Varied Impact on Venous Thromboembolism Risk: A Comprehensive Bayesian Network Meta-Analysis of Randomized Controlled Trials		• **Introduction:** GLP-1 receptor agonists (GLP-1RAs) are key in type 2 diabetes therapy, yet their potential association with venous thromboembolism (VTE) remains uncertain. This analysis compares VTE, DVT, and PE risk across GLP-1RAs. • **Methodology**: A Bayesian network meta-analysis of 39 RCTs (n = 70,499) evaluated dulaglutide, lixisenatide, exenatide, semaglutide, albiglutide, and liraglutide versus placebo/other antidiabetics. Odds ratios (ORs) and surface under cumulative ranking curve (SUCRA) values were estimated using MCMC methods. • **Results:** VTE risk was highest for liraglutide (OR 6.15) and exenatide (OR 5.75), while dulaglutide (OR 1.63) and semaglutide (OR 1.59) showed relatively lower risk. For PE, albiglutide (OR 4.10) had the highest risk; lixisenatide (OR 0.94) appeared safest. • **Conclusions:** GLP-1RAs show heterogeneous thromboembolic profiles. Liraglutide and albiglutide may pose higher VTE/PE risks, whereas dulaglutide and lixisenatide demonstrate more favorable safety signals.

Notable Presentations at AHA 2025 (Lipid Management & Atherosclerosis) (1/5)

Date	Title	Author	Summary
8 Nov 2025	Evaluating Lipid-Lowering Efficacy Of Obicetrapib: An Updated Meta-Analysis of Clinical Trials	Parth Adrejiya	• **Introduction:** Obicetrapib, a potent CETP inhibitor, lowers LDL-C and ApoB and raises HDL-C, offering potential benefit in statin-treated patients not achieving lipid targets. This meta-analysis evaluated its 10 mg dose versus placebo on lipid parameters. • **Methodology**: Six studies (n=3,003) comparing obicetrapib 10 mg + statin versus placebo + statin were analyzed using RevMan 5.4. Mean percentage differences in lipid parameters were pooled with 95% CI; p<0.005 indicated significance. • **Results:** Obicetrapib reduced LDL-C (–37.4%), ApoB (–24.4%), and non-HDL-C (–32.4%), while markedly increasing HDL-C (+156%; all p<0.00001). VLDL-C rose slightly (+4.6%; p=0.007), with no triglyceride change. • **Conclusions:** Obicetrapib 10 mg significantly improves atherogenic lipid profiles in statin-treated patients, strongly elevating HDL-C. Further outcome trials should confirm its long-term cardiovascular benefits.
8 Nov 2025	Obicetrapib in Patients with Dyslipidemia with or without Atherosclerotic Cardiovascular Disease Risk: A Meta-Analysis of Randomized Controlled Trials	Abdalhakim Shubietah	• **Introduction:** Despite guideline-directed statin therapy, up to one-third of high-risk patients fail to reach LDL-C targets, sustaining residual cardiovascular risk. Obicetrapib, a potent oral CETP inhibitor, may enhance lipid control when added to statins. • **Methodology**: A meta-analysis of six RCTs (n=3,386; to May 2025) compared Obicetrapib (1–10 mg) versus placebo in statin-treated adults with or without ASCVD. Pooled mean differences (MD) and risk ratios (RR) with 95% confidence intervals (CI) quantified lipid and safety outcomes. • **Results:** Obicetrapib significantly reduced LDL-C (MD –27.29 mg/dL; p<0.0001) and apoB (MD –14.34; p<0.0001) while increasing HDL-C (+70.96; p<0.0001). LDL-C goal attainment (<55 mg/dL: RR 6.42; p<0.0001) improved markedly. Safety outcomes, including total and serious adverse events, were comparable to placebo. • **Conclusions:** Obicetrapib produces robust LDL-C and apoB reductions with a favorable safety profile, supporting its potential as an effective adjunctive lipid-lowering therapy in high-risk, statin-treated patients.

Notable Presentations at AHA 2025 (Lipid Management & Atherosclerosis) (2/5)

Date	Title	Author	Summary
9 Nov 2025	Immunogenicity of Recaticimab Does Not Impact Its Efficacy in Patients with Dyslipidemia: A Pooled Analysis of Three Phase III and One Phase Ib/II Studies	Yanyi Sun	• **Introduction:** Recaticimab is a long-acting anti-PCSK9 monoclonal antibody engineered with a YTE mutation to extend half-life via enhanced FcRn binding. While effective in lipid lowering, its immunogenicity profile requires further clarification. • **Methodology**: A pooled analysis of 4 clinical trials (3 phase III, 1 phase Ib/II; n=1,541) evaluated anti-drug antibodies (ADAs) and neutralizing antibodies (Nabs) among recaticimab-treated dyslipidemia patients. LDL-C reduction and treatment-related adverse events (TRAEs) were analyzed by ADA/Nab status. • **Results:** ADAs developed in 14.1% and Nabs in 3.2% of 1,034 recaticimab-treated patients. LDL-C reduction was unaffected by ADA or Nab positivity. TRAEs occurred more often in ADA+ (29.5%) and Nab+ (42.4%) patients, mainly mild injection site reactions. • **Conclusions:** Immunogenicity did not diminish recaticimab efficacy. ADA/Nab positivity was linked to mild, transient reactions, supporting recaticimab's robust safety and lipid-lowering profile.
9 Nov 2025	ANGPTL3 Targeting Monoclonal Antibodies Lead to Robust Reductions in LDL-C, Triglycerides, ApoB, and Non-HDL-C in Dyslipidemic Patients: A Meta-Analysis of 5 Randomized Controlled Trials	Simranpreet Singh Daid	• **Introduction:** Angiopoietin-like protein 3 (ANGPTL3) inhibition offers a novel lipid-lowering mechanism distinct from statins. Evinacumab and the investigational SHR-1918 monoclonal antibodies (mAbs) target ANGPTL3 to reduce atherogenic lipids in dyslipidemia. • **Methodology**: A meta-analysis of five randomized trials (n=603) compared ANGPTL3 mAbs with placebo. Outcomes included LDL-C, triglycerides, ApoB, non-HDL-C, and treatment-related adverse events, analyzed using RevMan 5.4. • **Results:** ANGPTL3 mAbs produced substantial lipid reductions: LDL-C (SMD = –2.73; $p<0.001$), triglycerides (SMD = –3.54; $p<0.001$), ApoB (SMD = –1.98; $p<0.001$), and non-HDL-C (SMD = –2.89; $p<0.001$). Both evinacumab and SHR-1918 showed consistent efficacy, with no increase in adverse events (RR = 1.05; $p = 0.63$). • **Conclusions:** ANGPTL3 blockade markedly improves lipid profiles with favorable safety, supporting its therapeutic potential in dyslipidemia pending long-term outcome validation.

Notable Presentations at AHA 2025 (Lipid Management & Atherosclerosis) (3/5)

Date	Title	Author	Summary
9 Nov 2025	Bempedoic Acid Lowers LDL-C and Reduces Risk of Major Cardiovascular Events in Hypercholesterolemia: Meta-Analysis of 13 Randomized Controlled Trials	Simranpreet Singh Daid	• **Introduction:** Bempedoic acid (BA), an ATP-citrate-lyase inhibitor, provides a non-statin pathway for LDL-C reduction in hypercholesterolemia and may confer cardiovascular benefit without increasing mortality risk. • **Methodology**: A meta-analysis of 13 randomized trials (n=22,345) compared BA versus placebo, assessing effects on LDL-C, non-HDL-C, hsCRP, major adverse cardiovascular events (MACE), CV mortality, and hyperuricemia using RevMan 5.4. • **Results:** BA lowered LDL-C by 24.3%, non-HDL-C by 19.8%, and hsCRP by 26.7%, yielding a 19% MACE reduction (RR 0.81; p<0.05). CV mortality remained unchanged, while hyperuricemia risk nearly doubled (RR 1.93). • **Conclusions:** BA improves lipid and inflammatory profiles with reduced MACE and acceptable safety, supporting its use as an adjunct for statin-intolerant or high-risk patients requiring further LDL-C control.
9 Nov 2025	Updated Meta-Analysis of Randomized Controlled Trials Evaluating the Safety and Efficacy of Inclisiran in Hyperlipidemia	Muhammad Waseem Tahir	• **Introduction:** Inclisiran, an siRNA targeting hepatic PCSK9 synthesis, offers durable LDL-C reduction. Updated evidence from long-term studies allows reassessment of its lipid-lowering efficacy and safety in hyperlipidemic patients. • **Methodology**: Eleven randomized trials (n=5,601) comparing inclisiran vs placebo were analyzed under PRISMA guidelines. Outcomes included lipid parameters, cardiovascular events, and safety profiles using random-effects meta-analysis. • **Results:** Inclisiran reduced LDL-C by 48.99%, PCSK9 by 78.52%, total cholesterol by 31.21%, apo-B by 40.09%, and non-HDL-C by 35.22%. No significant differences were observed in all-cause or cardiovascular mortality. Injection-site reactions were higher (RR 6.45; p<0.001), though serious adverse events were not. • **Conclusions:** Inclisiran delivers robust, sustained lipid lowering with a favorable safety profile. Long-term trials are warranted to clarify cardiovascular outcome benefits.

Notable Presentations at AHA 2025 (Lipid Management & Atherosclerosis) (4/5)

Date	Title	Author	Summary
9 Nov 2025	Novel Strategies to FIND People Living with Genetic Dyslipidemias: Results from The Family Heart Foundation Flag, Identify, Network, and Deliver™ Familial Hypercholesterolemia (FIND FH) Collaborative Learning Network	Shoshana H. Bardach	• **Introduction:** Familial hypercholesterolemia (FH) remains underdiagnosed despite its major role in premature atherosclerotic cardiovascular disease. The Family Heart Foundation's FIND FH Collaborative Learning Network (CLN) aimed to enhance FH detection using machine learning and quality improvement methods. • **Methodology**: Five health systems deployed a validated ML model to flag potential FH cases, followed by chart reviews, patient outreach, and iterative improvement cycles. Outcomes included outreach numbers, appointments, and confirmed FH diagnoses. • **Results:** Of 4,476 individuals flagged, 847 were contacted and 209 evaluated, yielding 175 new FH diagnoses (83.7%). Implementation strategies varied but included clinician education and EHR alerts. • **Conclusions:** The FIND FH CLN significantly improved FH identification through ML-driven, system-wide quality initiatives, offering a scalable framework for diagnosing under-recognized genetic conditions.
10 Nov 2025	Primary Results of the VICTORION-NOVEL (LDL-C maNagement PrOgram in Atherosclerotic Cardiovascular Disease (ASCVD) patients with Elevated LDL-C) Lipid Optimization Multicenter Implementation Trial		• **Introduction:** Despite guideline recommendations, most ASCVD patients fail to reach LDL-C targets with statins alone. Clinician gamification may enhance lipid management performance through engagement and peer benchmarking. • **Methodology**: The VICTORION-NOVEL trial enrolled 1,097 ASCVD patients (364 intervention, 733 control) managed by 66 clinicians across six U.S. sites. The intervention combined live dashboards, peer calls, and educational materials. The composite endpoint included LDL-C <70 mg/dL, ≥20% reduction, or LLT intensification at one year. • **Results:** At one year, more intervention patients achieved LDL-C <70 mg/dL (23% vs. 16%; p<0.01). A delayed benefit appeared post–second peer call (HR 1.34, 95% CI 1.07–1.68). Other endpoints were similar between groups. • **Conclusions:** Gamified clinician engagement modestly improved LDL-C goal attainment, suggesting potential for sustained behavior change with longer implementation.

Notable Presentations at AHA 2025 (Lipid Management & Atherosclerosis) (5/5)

Date	Title	Author	Summary
10 Nov 2025	Efficacy of Bempedoic Acid Versus Placebo for Additional Lipid Lowering in Patients Receiving Background Statin Therapy: A Meta-Analysis of Randomized Controlled Trials	Ankur Singla	• **Introduction:** Bempedoic acid, an ATP-citrate lyase inhibitor, provides additional LDL-C reduction in ASCVD and HeFH patients inadequately controlled or intolerant to statins. Current ACC/AHA guidelines endorse its use as a nonstatin adjunct therapy. • **Methodology**: A systematic review and meta-analysis of three RCTs (n=3,034) compared bempedoic acid plus maximally tolerated statins versus placebo across PubMed, Cochrane, and clinicaltrials.gov databases. Outcomes included changes in non–HDL-C, total cholesterol, and apolipoprotein B over 12 weeks. • **Results:** Bempedoic acid achieved significant reductions in non–HDL-C (–15.50 mg/dL), total cholesterol (–14.64 mg/dL), and apolipoprotein B (–13.51 mg/dL; all $p < 0.0001$). Results were consistent across studies with low heterogeneity. • **Conclusions:** Bempedoic acid significantly improves lipid profiles in ASCVD and HeFH patients on statins. Larger RCTs, including ES-BempedACS, will clarify its long-term role in guideline-directed lipid therapy.
10 Nov 2025	YOSEMITE Rationale and Design: Randomized, Double-Blind, Placebo-Controlled Study to Evaluate Zodasiran Efficacy and Safety in Adolescents and Adults with Homozygous Familial Hypercholesterolemia	Gerald F Watts	• **Introduction:** Homozygous familial hypercholesterolemia (HoFH) is a rare genetic disorder causing markedly elevated LDL-C and early coronary artery disease. Zodasiran, an siRNA targeting hepatic ANGPTL3, has shown durable LDL-C reductions up to 300 mg Q3M with good tolerability. • **Methodology**: The phase 3 YOSEMITE trial randomizes 60 patients (>12 yrs) with genetically or clinically confirmed HoFH 2:1 to zodasiran 200 mg or placebo every three months for one year, followed by an open-label extension. The primary endpoint is percent LDL-C change; secondary endpoints include changes in ApoB, non-HDL-C, TGs, ANGPTL3, and Lp(a). • **Results:** Enrollment is stratified by apheresis use; data will assess lipid reduction magnitude and safety. • **Conclusions:** YOSEMITE will clarify zodasiran's efficacy and long-term safety as a quarterly siRNA therapy for HoFH.

Notable Presentations at AHA 2025 (Stroke & Cerebrovascular Disease) (1/5)

Date	Title	Author	Summary
8 Nov 2025	Efficacy and Safety of Oral Anticoagulant Monotherapy vs. Dual Therapy in Atrial Fibrillation with Stable Coronary Artery Disease: A Systematic Review and Meta-Analysis	Muhammad Sabri	• **Introduction:** In atrial fibrillation (AF) with stable coronary artery disease (CAD), guidelines favor oral anticoagulant (OAC) monotherapy over OAC plus single antiplatelet therapy (SAPT), but evidence remains limited. This meta-analysis compared the efficacy and safety of these regimens. • **Methodology**: Twenty-three studies (3 RCTs, 20 observational; n=51,396; mean age 72.5 years, follow-up 4.8 years) comparing OAC monotherapy vs. OAC + SAPT were analyzed across major cardiovascular and bleeding endpoints using pooled odds ratios. • **Results:** OAC monotherapy significantly reduced overall bleeding (OR 0.57, p=0.0005) and major bleeding (OR 0.64, p<0.00001) without increasing mortality or stroke. MI risk decreased (OR 0.86, p=0.004), especially with edoxaban (OR 0.67). Apixaban showed the lowest bleeding risk (OR 0.35). • **Conclusions:** OAC monotherapy reduces bleeding and MI risk versus combination therapy without compromising efficacy, supporting its preferential use in AF with stable CAD.
8 Nov 2025	Thrombolysis for Minor Non-Disabling Ischemic Stroke: A Meta-analysis of Randomized Controlled Trials	SINA RASHEDI	• **Introduction:** The role of intravenous thrombolysis in minor, non-disabling ischemic stroke (NIHSS ≤ 5) remains uncertain, as potential benefits may not outweigh bleeding risks. This meta-analysis evaluated thrombolysis versus antithrombotic therapy in such patients. • **Methodology**: Five RCTs (n = 3,391; mean age 65.8 years) comparing alteplase, tenecteplase, or prourokinase with standard therapy were analyzed. Primary endpoint: excellent 90-day functional recovery (mRS 0–1). Secondary: functional independence (mRS 0–2), mortality, and symptomatic intracranial hemorrhage (sICH). Random-effects models generated pooled ORs. • **Results:** Thrombolysis reduced functional recovery (83.0% vs 85.3%; OR 0.83) and independence (90.3% vs 92.8%; OR 0.71), while increasing mortality (2.5% vs 1.0%; OR 2.36) and sICH (1.3% vs 0.2%; OR 4.97). • **Conclusions:** In minor non-disabling stroke, thrombolysis worsens outcomes and elevates bleeding and mortality risks, supporting guideline restraint on its routine use.

Notable Presentations at AHA 2025 (Stroke & Cerebrovascular Disease) (2/5)

Date	Title	Author	Summary
8 Nov 2025	Early Versus Late Direct Oral Anticoagulant Initiation After Acute Ischemic Stroke With Atrial Fibrillation: A Bayesian Meta-Analysis of Randomized Controlled Trials	Flavia Queiroga	• **Introduction:** The optimal timing for direct oral anticoagulant (DOAC) initiation after acute ischemic stroke in atrial fibrillation (AF) remains debated due to concerns over balancing ischemic recurrence and bleeding risk. • **Methodology**: A Bayesian meta-analysis of four RCTs (n=6,749; mean age 76.8 years; 45.4% female) compared early (mean 4 days post-stroke) versus late DOAC initiation. Primary outcomes included ischemic (recurrent stroke/systemic embolism) and hemorrhagic (intracranial or major extracranial bleeding) events. Odds ratios (ORs) with 95% credible intervals (CrIs) were estimated using Bayesian random-effects models. • **Results:** Early DOAC use reduced ischemic events (median OR 0.73; 95% CrI 0.49–1.09) with 95.3% probability of any benefit and no excess bleeding risk (hemorrhagic OR 0.81; 95% CrI 0.40–1.68). • **Conclusions:** Early DOAC initiation post-stroke in AF patients likely lowers ischemic recurrence without increasing hemorrhagic complications, supporting earlier anticoagulation strategies in selected patients.
8 Nov 2025	Efficacy and Safety of Endovascular Therapy for Distal Medium Vessel Occlusion Stroke: A Systematic Review and Meta-Analysis of Comparative Studies	Raja Jadhwani	• **Introduction:** Distal medium vessel occlusions (DMVO) account for up to 40% of ischemic strokes. While best medical therapy (BMT) remains standard, the potential role of endovascular therapy (EVT) in improving outcomes remains uncertain due to bleeding risks. • **Methodology**: A PROSPERO-registered meta-analysis (CRD420251069717) included six studies (n=1,688) comparing EVT + BMT versus BMT alone. Outcomes were 90-day modified Rankin Scale (mRS), intracranial hemorrhage (ICH), and mortality. Pooled relative risks (RRs) were calculated via Mantel–Haenszel methods. • **Results:** EVT + BMT showed non-significant trends toward better functional outcomes (mRS 0–1 RR 0.91; p=0.09; mRS 0–2 RR 0.92; p=0.06) but higher ICH risk (RR 1.62; p=0.01) and doubled asymptomatic ICH (RR 2.02; p<0.00001). Mortality differences were not significant (RR 1.22; p=0.10). • **Conclusions:** EVT + BMT may modestly enhance recovery in DMVO stroke but increases hemorrhagic risk, emphasizing the need for refined selection criteria and confirmatory RCT validation.

Notable Presentations at AHA 2025 (Stroke & Cerebrovascular Disease) (3/5)

Date	Title	Author	Summary
8 Nov 2025	Efficacy and Safety of Very Low Achieved LDL-Cholesterol in Patients with Prior Ischemic Stroke	Victorien Monguillon	• **Introduction:** Patients with prior ischemic stroke face elevated risks of recurrent stroke and major adverse cardiovascular events (MACE). The benefit–risk profile of achieving very low LDL-C levels in this population remains uncertain. • **Methodology**: This post hoc analysis of FOURIER and its open-label extension evaluated 5,291 patients with prior ischemic stroke (median 3.3 years pre-enrollment; follow-up up to 8.6 years). Modified Poisson regression assessed relationships between achieved LDL-C and composite endpoints (CV death, MI, stroke, unstable angina, or revascularization), adjusted for clinical covariates. • **Results:** Median achieved LDL-C was 31.5 mg/dL with evolocumab. Lower LDL-C correlated with reduced MACE incidence (Ptrend <0.001). Patients achieving LDL-C <40 mg/dL had the lowest rates of recurrent ischemic stroke, with no increase in hemorrhagic stroke risk. • **Conclusions:** Achieving very low LDL-C (<40 mg/dL) in ischemic stroke survivors significantly reduces MACE without elevating hemorrhagic risk, supporting more aggressive LDL-C targets in secondary prevention.
9 Nov 2025	Efficacy And Safety Of Intravenous Thrombolytics For Acute Ischemic Stroke Beyond 4.5 Hours: A Systematic Review And Meta-Analysis.	Daniela Alejandra Yanez Mata	• **Introduction:** Thrombolytic therapy is standard for acute ischemic stroke (AIS) within 4.5 hours, yet benefits beyond this window remain uncertain. Emerging evidence suggests potential efficacy in late-presenting and wake-up strokes using imaging-based selection. • **Methodology**: A PRISMA-guided meta-analysis of 18 studies (n=8,504) compared intravenous thrombolysis (IVT) versus no thrombolysis in AIS beyond 4.5 hours or in wake-up strokes. Outcomes included 90-day modified Rankin Scale (mRS 0–1, 3–6), symptomatic intracranial hemorrhage (sICH), and mortality. • **Results:** IVT improved functional recovery (mRS 0–1: RR 1.20; p=0.002) and reduced disability (mRS 3–6: RR 0.86; p=0.003), with consistent benefit in 4.5–24h and wake-up subgroups. However, sICH risk tripled (RR 3.15; p<0.00001), while mortality remained unchanged. • **Conclusions:** IVT beyond 4.5 hours enhances functional outcomes but increases hemorrhagic risk. Extended-window thrombolysis may be justified in carefully selected AIS patients using advanced imaging criteria.

Notable Presentations at AHA 2025 (Stroke & Cerebrovascular Disease) (4/5)

Date	Title	Author	Summary
10 Nov 2025	Early DOAC (≤ 6 Days) After AF-Stroke Lowers Recurrent Ischemia Without Raising Symptomatic ICH: A Systematic Review and Meta-analysis of Randomized Controlled Trials	Aishwarya Prasad	• **Introduction:** The optimal timing for initiating direct oral anticoagulants (DOACs) after atrial fibrillation–related ischemic stroke remains controversial due to bleeding concerns. This pooled analysis assessed early (≤48 h/≤6 d) versus delayed DOAC initiation across major randomized trials • **Methodology**: Data from ELAN, TIMING, and OPTIMAS (n=6,442) were meta-analyzed using Mantel-Haenszel random/fixed-effects models. Primary outcomes included symptomatic intracranial hemorrhage (ICH), recurrent ischemic stroke, and composite vascular events. • **Results:** Early DOAC initiation showed comparable ICH rates (0.4 % vs 0.4 %; RR 0.93) and numerically fewer recurrent strokes (2.4 % vs 2.9 %; RR 0.80) and composite vascular events (8.1 % vs 8.8 %; RR 0.86). No excess bleeding risk was observed. • **Conclusions:** Early DOAC use after ischemic stroke appears safe and may modestly reduce recurrent embolic events, challenging delayed-start paradigms and supporting earlier anticoagulation in eligible patients.
10 Nov 2025	Endovascular Treatment Versus Best Medical Therapy for Acute Ischemic Stroke Due to Medium or Distal Vessel Occlusions: A Meta-Analysis of Randomized Controlled Trials	OGECHUKWU SAMUEL OBI	• **Introduction:** The benefit of endovascular treatment (EVT) for acute ischemic stroke caused by medium or distal vessel occlusions remains uncertain, with limited randomized data to guide its use compared with best medical therapy (BMT). • **Methodology**: A systematic review and meta-analysis of five RCTs (n=1,539; 783 EVT, 756 BMT) evaluated outcomes including all-cause mortality, functional independence (mRS 0–2), excellent recovery (mRS 0–1), and symptomatic intracranial hemorrhage (sICH). Random-effects models generated pooled risk ratios (RR) with 95% confidence intervals (CI). • **Results:** EVT showed no mortality reduction versus BMT (RR 1.11; 95% CI 0.82–1.51) and no significant benefit in mRS 0–1 (RR 1.02) or mRS 0–2 (RR 1.03). sICH risk was similar (RR 1.30; 95% CI 0.13–12.89) with high heterogeneity. • **Conclusions:** EVT provided no clear advantage over BMT for medium or distal occlusions. Larger, targeted trials are required to define its role in this population.

Notable Presentations at AHA 2025 (Stroke & Cerebrovascular Disease) (5/5)

Date	Title	Author	Summary
10 Nov 2025	Safety and Efficacy of Intravenous Tenecteplase Prior to Mechanical Thrombectomy in Acute Ischemic Stroke: A Systematic Review and Meta-Analysis	Syed Fazal Rizvi	• **Introduction:** Tenecteplase (TNK), a genetically engineered variant of alteplase, offers single-bolus administration with greater fibrin specificity and longer half-life, making it an attractive option before mechanical thrombectomy in large vessel occlusion (LVO) stroke. However, its balance between efficacy and hemorrhagic risk remains uncertain. • **Methodology**: A meta-analysis of five clinical trials (n=1,389) evaluated TNK administered before thrombectomy. Outcomes included reperfusion rates (pre/post-thrombectomy), functional recovery (mRS 0–1, 0–2 at 90 days), intracranial hemorrhage (ICH ≤48h), and mortality. Pooled estimates were calculated using a random-effects model. • **Results:** Pre-thrombectomy reperfusion occurred in 14%, post-thrombectomy in 85%. Excellent recovery (mRS 0–1) reached 37%, functional independence (mRS 0–2) 51%, and mortality 11%. ICH occurred in 37%. • **Conclusions:** TNK before thrombectomy improves reperfusion and outcomes but carries notable hemorrhagic risk, warranting cautious patient selection and further randomized evaluation.
10 Nov 2025	Aspirin Shows Comparable Efficacy to Other Antithrombotic Strategies in Preventing Recurrent Stroke in Patients with Aortic Arch Atheroma: A Systematic Review	GABRIEL LINS DE OLIVEIRA	• **Introduction:** Aortic arch atheroma ≥4 mm is a recognized embolic source linked to recurrent stroke, yet optimal antithrombotic therapy remains undefined. Current guidelines note insufficient evidence favoring anticoagulation or dual therapy over aspirin in this population. • **Methodology**: A systematic review of PubMed, EMBASE, and Scopus through April 2025 identified RCTs and observational studies comparing aspirin, DAPT, rivaroxaban, warfarin, or ticagrelor in patients with stroke/TIA and aortic arch plaques ≥ 4 mm. Pooled risk ratios (RR) were calculated for recurrent stroke prevention. • **Results:** Four studies (n = 4,399) met inclusion criteria. No treatment showed superiority to aspirin: warfarin (RR 1.07), ticagrelor (0.90), rivaroxaban (1.19), or warfarin vs antiplatelets (1.03). • **Conclusions:** No alternative regimen outperformed aspirin for recurrent stroke prevention in patients with aortic arch atheroma. Aspirin monotherapy remains the most evidence-supported strategy pending further trials.

Notable Presentations at AHA 2025 (Prevention, Lifestyle & Public Health) (1/5)

Date	Title	Author	Summary
8 Nov 2025	Viscous Soluble Fiber Supplement Improves Glycemic Control but not Novel Cardiometabolic Markers in Type 2 Diabetes; A Randomized Control Trial	Rachel Neff	• **Introduction:** Diabetes affects over 529 million people globally, with cardiovascular disease as the major cause of death. Psyllium, a viscous soluble fiber, may improve glycemic control versus non-viscous fibers like wheat dextrin, though effects on lipid markers and GLP-1 interaction remain unclear. • **Methodology**: In a 12-week randomized trial (n=98; psyllium = 50, dextrin = 48) at Mayo Clinic, adults with type 2 diabetes (HbA1c 6.5–10%) received psyllium or dextrin. Primary endpoints: HbA1c and fasting glucose; secondary: lipids, ceramides, hsCRP, BMI. Analyses were intention-to-treat and adherence-based (≥85% dose). • **Results:** Psyllium reduced HbA1c (−0.38, p=0.002) and fasting glucose (−14.5 mg/dL, p=0.013), with stronger effects in GLP-1 users (−0.45 vs −0.23). Dextrin showed no benefits. No lipid or ceramide changes observed. • **Conclusions:** Psyllium safely improves glycemic control in type 2 diabetes, particularly when combined with GLP-1 therapy, supporting its use as a low-cost adjunct.
8 Nov 2025	Effectiveness of a Food Pharmacy Program on reducing systolic and diastolic blood pressure in a safety net clinic network	Andrea Pedroza-Tobias	• **Introduction:** Hypertension drives 45% of cardiometabolic deaths, disproportionately affecting Black and African American populations. Food pharmacy (FP) programs integrate nutrition into clinical care to address dietary disparities, but real-world evidence remains limited. • **Methodology**: Between 2017–2020, seven San Francisco Health Network clinics implemented FPs offering groceries, cooking education, BP checks, and resource referrals. Among 540 participants with pre/post data, the Callaway–Sant'Anna difference-in-differences model estimated FP effects versus non-participants. • **Results:** FP participation reduced systolic BP by −3.6 mmHg (95% CI −5.4, −1.9); greater effects were seen with ≥12 attendances (−6.2 mmHg) and poorly controlled baseline BP (−15.8/−6.4 mmHg systolic/diastolic). Benefits were consistent across racial groups. • **Conclusions:** Clinic-based food pharmacies significantly improved BP control, highlighting their potential to reduce diet-related hypertension disparities through accessible, nutrition-centered healthcare integration.

Notable Presentations at AHA 2025 (Prevention, Lifestyle & Public Health) (2/5)

Date	Title	Author	Summary
8 Nov 2025	Natto Red Yeast Rice Dietary Supplement Regulates Lipids Profiles: a Multicenter, Double-Placebo, Double-Blinded, Randomized Controlled Trial	Dongfeng Gu	• **Introduction:** Natto Red Yeast Rice (NRYR), a dietary supplement, may improve lipid regulation, but its efficacy—particularly with statins—remains uncertain. This study assessed NRYR's effect on LDL-C and overall lipid profiles, alone or combined with simvastatin. • **Methodology**: In a multicenter, double-blind, placebo-controlled RCT (n=1,110, six centers, China), participants with LDL-C 3.4–5.0 mmol/L were randomized to NRYR, simvastatin, combination, or placebo for 3 months. Primary outcome: LDL-C change; secondary: other lipid parameters and safety. • **Results:** LDL-C decreased versus placebo by −13.2% (NRYR), −17.1% (simvastatin), and −21.2% (combination; all p<0.001). Combination therapy achieved an additional −5.05% LDL-C reduction at 1 month (p=0.009). HDL-C and ApoA1 rose across intervention groups; adverse events were comparable. • **Conclusions:** NRYR significantly improves lipid profiles, with combination therapy yielding additive LDL-C reductions, supporting its adjunctive potential in moderate cardiovascular risk management.
8 Nov 2025	The Effect of Produce Prescription Dose Upon Benefit Redemption, Food Security, and Produce Consumption: a Randomized Trial	Ryan M Kane	• **Introduction:** Produce prescription programs (PRx) aim to enhance diet quality and food security, yet the optimal benefit amount remains unclear. This study evaluated how varying PRx doses affect redemption rates, food security, and fruit/vegetable (FV) intake. • **Methodology**: In a 6-month randomized trial (n=242), participants received monthly PRx benefits of $40, $80, or $110, redeemable at grocery stores. Outcomes were assessed at 3 and 6 months using targeted minimum loss estimation. • **Results:** Benefit redemption rose with PRx dose—$410 (69%) for $110 vs $140 (58%) for $40 (p<0.001). The $110 group showed lower food insecurity (47% vs 74%, p<0.01) and higher FV intake (2.9 vs 2.6 cups/day, p=0.04). • **Conclusions:** Higher PRx doses substantially improve redemption, dietary intake, and food security, underscoring dose optimization as key for scalable nutrition interventions.

Notable Presentations at AHA 2025 (Prevention, Lifestyle & Public Health) (3/5)

Date	Title	Author	Summary
9 Nov 2025	Designing Medically Tailored Meal Interventions: The Food as Medicine For Families (FAME-F) Randomized Clinical Trial	Seth A Berkowitz	• **Introduction:** Medically tailored meals (MTM) can improve nutrition and health outcomes, yet optimal delivery strategies remain unclear. This study evaluated whether feeding entire households versus individuals and using dedicated drivers versus commercial shippers affects dietary and psychosocial outcomes. • **Methodology**: A 2×2 factorial randomized trial (n=93) compared "feed the family" vs. "feed the individual" and "dedicated driver" vs. "commercial shipper" delivery over 12 weeks. Primary outcomes were daily fruit and vegetable (FV) intake and loneliness scores, analyzed by intention-to-treat. • **Results:** Participants averaged 57.6 years; 75% had hypertension and 67% diabetes. No significant differences were found in FV intake (1.52 vs. 1.58 cups; p=0.92) or loneliness (7.1 vs. 6.8; p=0.71) across groups. • **Conclusions:** MTM effectiveness was comparable across strategies. "Feed the individual" and "commercial shipper" models may offer cost-efficient implementation without compromising outcomes.
9 Nov 2025	Food Insecurity and Hypertension Among U.S. Women by Age Group: Results from the 2010-2023 National Health Interview Surveys	Marian Botchway	• **Introduction:** Food insecurity is linked to hypertension, with women disproportionately affected. However, little is known about how this relationship differs across life stages. This study explored age-related differences in the food insecurity–hypertension association among U.S. women. • **Methodology**: Cross-sectional data from 354,032 women (2010–2023 National Health Interview Surveys) were analyzed using survey-weighted multinomial logistic regression. Women were stratified as younger (18–44 years) or older (≥45 years). Models adjusted for sociodemographic and economic variables. • **Results:** Food insecurity affected 10.3% of women and was more prevalent in younger women. Overall, food insecurity increased hypertension odds (OR 1.31; 95% CI 1.26–1.36), with a stronger effect in younger women (interaction OR 1.34; 95% CI 1.25–1.45). • **Conclusions:** Younger food-insecure women face greater hypertension risk, underscoring the need for age-sensitive food security and cardiovascular prevention initiatives.

Notable Presentations at AHA 2025 (Prevention, Lifestyle & Public Health) (4/5)

Date	Title	Author	Summary
9 Nov 2025	Urban-Rural Differences in Life's Essential 8: Results from the REasons for Geographic And Racial Differences in Stroke (REGARDS) Study	Pranav Bhargava	• **Introduction:** Rural adults in the U.S. experience higher cardiovascular mortality and shorter life expectancy than urban counterparts. Evaluating differences in Life's Essential 8 (LE8) metrics may guide strategies to improve rural cardiovascular health (CVH). • **Methodology**: Using REGARDS cohort data (n=8,162; 2013–2016), LE8 metrics were analyzed across seven Rural-Urban Commuting Area (RUCA) classes via adjusted general linear modeling. Covariates included demographics, income, and education. • **Results:** LE8 scores rose with urbanicity, with isolated and small rural residents having the lowest CVH. Adjustments for socioeconomic factors modestly attenuated differences. Improved diet, blood pressure, and glucose control primarily drove urban advantages, while lipid, sleep, and smoking metrics were similar. • **Conclusions:** Urban residence correlates with better overall CVH, emphasizing the need for targeted interventions to address modifiable risk factors in rural populations.
10 Nov 2025	Behaviorally-Designed Gamification Increases Physical Activity Among Breast and Prostate Cancer Survivors: The ALLSTAR Randomized Clinical Trial	Alexander C Fanaroff	• **Introduction:** Breast and prostate cancer survivors face elevated cardiovascular (CV) risk from cardiotoxic therapies and lifestyle factors, with Black and Hispanic survivors disproportionately affected. Increasing physical activity may reduce CV risk, yet adherence remains suboptimal. • **Methodology**: In this pragmatic RCT, 150 survivors (64% Black, 35% Hispanic) were randomized to gamification (n=74) or control (n=76). Participants used wearable devices to track steps and set 1,500–3,000 step/day increase goals. The gamification arm used a 24-week behavioral economics–based game with a 12-week follow-up. • **Results:** Mean step count rose by +1,757 in the gamification group vs +983 in controls (Δ+770; 95% CI 217–1323; p=0.006), sustained at follow-up (+596; p=0.06). Weekly moderate–vigorous activity increased by +16 minutes (p=0.01). • **Conclusions:** A remotely delivered gamification program significantly improved physical activity in high-risk Black and Hispanic cancer survivors, offering a scalable strategy for CV risk reduction.

Notable Presentations at AHA 2025 (Prevention, Lifestyle & Public Health) (5/5)

Date	Title	Author	Summary
10 Nov 2025	Effect of Medical-Grade Mask Use on Exercise Physiology in Healthy Adults: A Randomized Crossover Study	Ju-Hee Lee	• **Introduction:** Respirator masks such as KF80 and KF94 are widely used across East Asia, yet their cardiopulmonary effects during exercise remain unclear. Understanding physiological impacts is vital for balancing respiratory protection with exercise performance and safety. • **Methodology**: In a randomized crossover trial, 40 healthy adults underwent cardiopulmonary exercise testing (CPET) under three conditions—no mask, KF80, and KF94—with ≥48-hour intervals. VO_2max, METs, heart rate, ventilation, oxygen saturation, and blood pressure were analyzed using repeated-measures ANOVA. • **Results:** KF94 significantly reduced VO_2max (29.9 vs 35.6 ml/kg/min, $p<0.001$), METs, maximal HR, and minute ventilation. SpO_2 fell to 91.8% under KF94, with 23% experiencing <80% desaturation. Ventilatory parameters declined progressively with mask filtration. • **Conclusions:** KF94 respirators significantly impair aerobic capacity and ventilatory efficiency during exercise, causing transient desaturation without hemodynamic instability—highlighting physiological trade-offs relevant to post-pandemic public health and occupational guidelines
10 Nov 2025	Impact of Exercise on Post-COVID-19 Recovery: A Comparative Study Using Modified 6-Minute Walk Test and Harvard Step Test	Balakrishnan Kamaraj	• **Introduction:** Post-COVID-19 survivors often experience prolonged cardiorespiratory impairment. Regular physical activity may facilitate physiological recovery, but comparative functional data remain limited. • **Methodology**: A cross-sectional study of 91 COVID-19 survivors (aged 20–68) assessed recovery via 6-minute walk tests and Harvard Step Tests at 1–3 months post-discharge. Participants were classified as exercising (n=28) or sedentary (n=35). Primary endpoints included SpO_2, ΔSpO_2, distance walked, and cardiopulmonary efficiency index. • **Results:** Exercising individuals had higher baseline SpO_2 (96.18% vs 95.51%; $p<0.001$) and superior CP efficiency (69.4 vs 64.3; $p<0.001$). Although sedentary participants showed greater absolute walking improvement ($p=0.004$), exercisers maintained higher overall performance. • **Conclusions:** Regular exercise accelerates cardiorespiratory recovery post-COVID-19. The 6MWT and HST are practical tools for rehabilitation monitoring, supporting structured physical activity in post-COVID care programs.

Key Industry Sponsored Special Event Information

AHA 2025 Key Industry Sponsored Special Event (1/8)

Date	Sponsor	Title
7 Nov 2025	Regencor	Post-myocardial infarction fibrosis therapy: novel non-invasive approaches through the regulatory landscape
8 Nov 2025	VUNO	AI-Driven Electrocardiographic Detection and Subtyping of Hypertrophic Cardiomyopathy: A Deep Learning Approach Using 12-Lead ECGs
8 Nov 2025	Aventusoft	Non-invasive Hemodynamics for diabetic care with HEMOTAG
8 Nov 2025	Merck	Healthcare resource use (HCRU) and costs differ between those with and without follow-up LDL-C monitoring after newly initiating lipid lowering therapy (LLT)
8 Nov 2025	Regeneron	Safety and Tolerability of REGN5381, a Monoclonal Antibody Agonist of NPR1 in Patients With Heart Failure With Reduced Ejection Fraction
8 Nov 2025	Editas	A transformative LDL cholesterol–lowering in vivo CRISPR gene editing medicine that functionally upregulates LDLR in mice and non-human primates

AHA 2025 Key Industry Sponsored Special Event (2/8)

Date	Sponsor	Title
8 Nov 2025	Cardiosense	Point-of-care Non-invasive Classification of Elevated Intracardiac Filling Pressures for Congestion Assessment
8 Nov 2025	Heartflow	Cost-Effectiveness of AI-Enabled Coronary Plaque Analysis for Management of Stable Coronary Artery Disease
8 Nov 2025	Ultrahuman	Association of Sleep Temperature Patterns with Resting Heart Rate in Regular and Irregular Menstrual Cycles using Wearables: a real-world cross-sectional study
8 Nov 2025	Novo Nordisk	Real-World Risk Reduction of Cardiometabolic Comorbidities and Improvement of Biomarkers among Patients with Overweight or Obesity Treated with Semaglutide 2.4 mg
8 Nov 2025	Novartis	Clinical Trial Design for Cardiovascular-Kidney-Metabolic (CKM) Health
8 Nov 2025	Cleerly	Presenter

AHA 2025 Key Industry Sponsored Special Event (3/8)

Date	Sponsor	Title
8 Nov 2025	EVERSANA	CKD and CKM Syndrome: Accelerated Progression to Arrhythmias in a National Cohort
8 Nov 2025	Bayer Vital	Clinical Effects of Acoramidis Versus Placebo in the ATTRibute-CM Study: Observations from the Intention-to-Treat Population
8 Nov 2025	Cardiobiopharma	First in class CRF2 receptor agonist COR-1167, reduces decompensation, improves exercise capacity, cardiac and renal function on top of Empagliflozin in the ZSF-1 rat model of worsening heart failure with preserved ejection fraction
8 Nov 2025	Novo Nordisk	Systemic Inflammation Is Associated with Major Adverse Cardiovascular Events in Patients with Established Atherosclerotic Cardiovascular Disease and Stage 3-4 Chronic Kidney Disease
8 Nov 2025	CPR Therapeutics	Relationship between Duty Cycle and Indicators of Hemodynamics in Circumferential Thoracoabdominal Cardiopulmonary Resuscitation
8 Nov 2025	Courage To Save CPR Training	Racial Disparities in Bystander CPR: Is Training the Missing Link?

AHA 2025 Key Industry Sponsored Special Event (4/8)

Date	Sponsor	Title
9 Nov 2025	Healthy Start	Equity in nutrition and lactation care for families of healthy and critically-ill infants
9 Nov 2025	Regeneron	Platelet-derived growth factor antagonist antibody attenuates pulmonary arterial hypertension and prevents right heart dysfunction in the Sugen-Hypoxia rat model
9 Nov 2025	MICHAEL E MERHIGE MD	Noninvasive Measurement of Coronary Collateral Flow Capacity in Patients with Chronic Total Occlusion: External Counterpulsattion Reduces the Need for High Risk Percutaneous Coronary Intervention
9 Nov 2025	Anumana	Leveraging Large Language Models to Extract Parity from the Electronic Health Record and Reveal Hidden Cardiovascular Risk Factors: A Retrospective Study of Takotsubo Cardiomyopathy
9 Nov 2025	Regeneron	A First-In-Human Phase 1 Study of the Safety, Tolerability, and Pharmacodynamics of REGN7544, a Novel Natriuretic Peptide Receptor 1–Blocking Monoclonal Antibody
9 Nov 2025	EVERSANA	Onset of Arrhythmias in the CKM Continuum: Real-World Insights from a National Cohort

AHA 2025 Key Industry Sponsored Special Event (5/8)

Date	Sponsor	Title
9 Nov 2025	Amgen	Real-World Effectiveness of Evolocumab in Reducing Major Adverse Cardiovascular Events in Patients With Atherosclerotic Cardiovascular Disease
9 Nov 2025	CPR Therapeutics	Zoll: Funding Opportunities
9 Nov 2025	CPR Therapeutics	A Porcine Model of Cardiac Arrest Without Pre-Arrest Fluid Loading, Sternal Molding, or Epinephrine
9 Nov 2025	Regeneron	Impact of REGN5381, a Monoclonal Antibody Agonist to Natriuretic Peptide Receptor 1, on Pulmonary Capillary Wedge Pressure in Patients With Heart Failure With Preserved Ejection Fraction
9 Nov 2025	Medical AI	Pilot study on AI-enhanced smartwatch ECG for detecting left ventricular systolic dysfunction in real-world settings
9 Nov 2025	EVERSANA	Arrhythmias as Early Predictors of CKD: Real-World Evidence from a National Cardio-Kidney-Metabolic Cohort

AHA 2025 Key Industry Sponsored Special Event (6/8)

Date	Sponsor	Title
9 Nov 2025	Amgen	Use of a Principled Framework to Compare Cardiovascular Outcomes from the FOURIER Trial to a FOURIER like-External Control Arm Using Real-World Data
9 Nov 2025	LIB Therapeutics	Long-term Efficacy and Safety of Lerodalcibep in the Open-label 72-week Extension Study of Subjects Previously on Inclisiran or Lerodalcibep in the LIBerate-VI Trial
9 Nov 2025	Heartseed	Repairing the heart with cardiac spheroids - Japan Experience
9 Nov 2025	Cleerly	AI for Precision Heart Care
10 Nov 2025	Pheiron	Genetic Evidence Suggests Combined Inhibition of Lipoprotein(a) and PCSK9 to Lower Atherosclerotic Cardiovascular Disease Risk.
10 Nov 2025	Advocate Health	Cardiac Arrest Master Class 3

AHA 2025 Key Industry Sponsored Special Event (7/8)

Date	Sponsor	Title
10 Nov 2025	Cytokinetics	Working with Industry and FDA
10 Nov 2025	iRhythm Technologies	Compliance, ECG quality, and engagement with a smartphone app in patients with in-clinic compared with home-based, self-applied long-term continuous ECG patch monitors
10 Nov 2025	Novo Nordisk	Comparing Cardiovascular Outcomes in New Users of Oral Semaglutide Versus Other Noninsulin Glucose-Lowering Therapies
10 Nov 2025	Reach Neuro	Reach Neuro: Developed an implantable device that uses spinal cord stimulation to help stroke survivors regain arm and hand movement—even years after a stroke
10 Nov 2025	Vizient	Cardiac Complications During Delivery in Hypertensive Disorders of Pregnancy: A Multicenter Outcomes Study, 2022-2025
10 Nov 2025	LUCIER	Clinical Level of Endothelin-1 Causes ROCK2-Mediated Constriction of Porcine Coronary Arterioles Independent of Protein Kinase C Signaling

AHA 2025 Key Industry Sponsored Special Event (8/8)

Date	Sponsor	Title
10 Nov 2025	Get Talky	Integrating Conversational Artificial Intelligence into Research Workflows
10 Nov 2025	CVPath Institute	Lipid-Related Polygenic Risk Score and Its Association with Plaque Rupture versus Erosion: Insights into the Role of Lipids in the Pathogenesis of Unstable Plaque Morphologies
10 Nov 2025	Amgen	Healthcare Resource Utilization and Costs Before and After Evolocumab Initiation Among Patients With Atherosclerotic Cardiovascular Disease: A Real-World Administrative Claims Analysis
10 Nov 2025	Amgen	Virtual Decentralized Study of Patient Nausea Experience on Anti-Obesity Medication (COSMOS-DIGITAL)
10 Nov 2025	Hygieia	Dose-Dependent and Sustained Reduction in Lipoprotein(a) levels after single-dose of Kylo-11, a LPA-targeted Small Interfering RNA, in Healthy Volunteers: A First-in-Human Phase I Study
10 Nov 2025	OrphaCare	The State-of-the-Art for Balloon Pulmonary Angioplasty

Noteworthy AI / ML presentations at AHA 2025

Themes from key AI / ML presentations at AHA 2025 (1/2)

- **AHA 2025 will highlight how AI and machine learning are transforming cardiovascular care through advanced ECG interpretation, real-time clinical guidance systems, and predictive modeling, driving greater precision in diagnostics, treatment decisions, and risk stratification to improve patient outcomes**
- Check out the key AI / ML themes at AHA 2025 below:
- **AI-Enhanced ECG for Structural Heart Disease (SHD) Detection:**
  - AI integrated with wearable ECGs, validated in 266,054 clinical ECGs, demonstrated high sensitivity (86%) and specificity (87%) for SHD screening, showing AI's potential for community-wide detection
- **AI for Diastolic Dysfunction in Cardiomyopathies:**
  - An AI-enabled ECG model predicted diastolic dysfunction with high sensitivity (94%) in hypertrophic and amyloid cardiomyopathies, offering a scalable tool for early diagnosis
- **AI in Hypertrophic Cardiomyopathy (HCM) Screening:**
  - The VIZ-HCM AI algorithm identified undiagnosed HCM cases from EKGs, reducing diagnostic timelines and improving risk stratification for sudden cardiac death (SCD)
- **AI-Based AF Ablation Guidance:**
  - The coMAP AI system predicted successful ablation outcomes in atrial fibrillation (AF) patients, outperforming conventional methods (82.4% vs. 48.2%), enhancing precision in AF treatment

Themes from key AI / ML presentations at AHA 2025 (1/2)

- **Real-Time AI Guidance for AF Ablation:**
  - coPilot AI system guided electrophysiology catheters to AF termination sites with 85.7% accuracy, significantly reducing ablation time and improving clinical outcomes
- **AI-Enhanced AF Screening:**
  - The VITAL-AF trial demonstrated that AI models combined with clinical risk factors improve AF screening efficiency, yielding greater AF diagnoses in high-risk individuals
- **AI-ECG for AI-Based Heart Failure (HF) Risk Prediction:**
  - The AI-ECG algorithm predicted LVEF decline in high-risk patients, showing a significant reduction in heart failure (HF) risk with ACEi/ARB therapy
- **AI-Driven Coronary Artery Tortuosity Index (CArTI):**
  - The CArTI AI model identified patients at higher risk for major adverse cardiovascular events (MACE), showing promise for non-invasive cardiovascular risk assessment.
- **AI-Enhanced Myosteatosis Screening for Cardiovascular Risk:**
  - AI-based myosteatosis detection from cardiac CT scans identified individuals at high risk for COPD and cardiovascular diseases, aiding in early interventions
- **AI-Powered Coronary Artery Disease (CAD) Prediction:**
  - AI models optimized with the Particle Swarm Optimization (PSO) algorithm outperformed traditional risk scores, improving CAD prediction accuracy in large cohorts, particularly for personalized prevention strategies

Noteworthy AI/ML presentations At AHA 2025

Notable AI/ML Presentations at AHA 2025 (1/20)

Date	Title	Author	Summary
07 Nov 2025	Fully Automated Detection of Structural Heart Disease from Apple Watch ECGs Using a Noise-Adapted AI Algorithm: The WATCH-SHD Study	Arya Aminorroaya	• **Introduction:** AI integrated with wearable ECGs could detect structural heart diseases (SHD), but real-world ECGs are often noisy, complicating SHD detection. • **Methodology**: Developed and validated a noise-resilient AI-ECG model using 266,054 clinical ECGs, augmented with Gaussian noise. Validation occurred across multiple hospitals and a population cohort. Prospective WATCH-SHD study assessed the model's performance using 30s ECGs from an Apple Watch • **Results:** The AI model achieved an AUROC of 0.92 in clinical ECGs and 0.88 in Apple Watch ECGs. Sensitivity was 86%, specificity 87%, with excellent negative predictive value (99%) • **Conclusions:** The AI model, integrated with wearable devices, offers promising SHD screening potential, enabling community-wide detection.
07 Nov 2025	Artificial Intelligence-Enabled Electrocardiogram for the Detection of Elevated Filling Pressure in Hypertrophic Cardiomyopathy and Cardiac Amyloidosis	Robin Van Lerberghe	• **Introduction:** Diastolic dysfunction is common in heart failure with preserved ejection fraction, especially in hypertrophic and amyloid cardiomyopathies. Traditional echocardiographic grading faces challenges due to varied remodeling, creating a need for better diagnostic tools. • **Methodology**: The study used Mayo Clinic's AI-enabled ECG model to predict diastolic dysfunction in hypertrophic and amyloid cardiomyopathy patients, with echocardiographic grading of diastolic function within 14 days of ECG. • **Results:** The AI model showed 65-75% accuracy in predicting diastolic dysfunction, with sensitivities of 94% and 97% for obstructive HCM and cardiac amyloidosis, respectively. • **Conclusions:** The AI-enabled ECG is moderately accurate, highly sensitive, and a scalable tool for detecting diastolic dysfunction, especially in obstructive HCM and cardiac amyloidosis, with potential for widespread use.

Notable AI/ML Presentations at AHA 2025 (2/20)

Date	Title	Author	Summary
07 Nov 2025	Digital Patient Navigator Facilitates And Scales Patient Engagement with the Hypertrophic Cardiomyopathy Association	-	• **Introduction:** The Hypertrophic Cardiomyopathy Association (HCMA) partnered with Nest Genomics to create a digital patient navigator (DPN) to improve care, resource awareness, and registry data collection for hypertrophic cardiomyopathy (HCM) patients. • **Methodology**: HCMA invited members to participate in a DPN pilot via email/text, where they could engage with educational resources, update medical and genetic histories, and contribute to the HCMA registry. • **Results:** Of 3,682 invited members, 29% engaged with the DPN. Key engagement included updating medical history (26%) and genetic testing history (12%). • **Conclusions:** The DPN enhances patient engagement and empowerment in managing HCM. Further enhancements and research on engagement and satisfaction are necessary for broader success.
07 Nov 2025	Improving Early Detection of Hypertrophic Cardiomyopathy Using Viz-HCM: A Quality Improvement Initiative Leveraging Artificial Intelligence-Assisted EKG HCM Screening	Omar M Abdelfattah	• **Introduction:** Hypertrophic cardiomyopathy (HCM) is underdiagnosed despite its prevalence. Traditional diagnostic methods are time-consuming and often miss subtle signs, highlighting the need for scalable screening solutions. • **Methodology**: The VIZ-HCM AI algorithm was applied retrospectively to EKGs in 2024 at UTMB to identify undiagnosed HCM cases. Sensitivity and specificity were assessed, and a prospective screening initiative was launched. • **Results:** The algorithm identified 48 new HCM cases, reducing the diagnostic timeline from years to 37 days. Time to sudden cardiac death (SCD) risk stratification also improved. • **Conclusions:** VIZ-HCM improved HCM detection and diagnosis speed. Efforts are ongoing to expand this initiative across UTMB to enhance long-term patient outcomes.

Notable AI/ML Presentations at AHA 2025 (3/20)

Date	Title	Author	Summary
08 Nov 2025	Artificial Intelligence-Based Optical Mapping Identifies Active Pulmonary Veins and Outcomes from Atrial Fibrillation Ablation	Samuel Ruiperez-Campillo	• **Introduction:** Atrial fibrillation (AF) ablation success is limited by difficulties in identifying patient-specific targets. Traditional electrogram (EGM) mapping has mixed results, and optical mapping, though effective, is not feasible in patients due to dye toxicity. • **Methodology**: The coMAP AI system was trained on over 20 million EGMs from 236 AF patients to predict activation timings using a recurrent neural network paired with a random forest classifier. The system aimed to detect AF waves near pulmonary veins (PVs) and predict ablation outcomes. • **Results:** In a hold-out cohort, coMAP's AI-based wave tracking outperformed conventional methods (82.4% vs 48.2%, $p<0.01$). Consistent wave directions from PVs were associated with successful ablation outcomes at 1 year. • **Conclusions:** AI-based reconstruction of AF activation from clinical catheters effectively identifies PV-dependent AF. Prospective studies are needed to validate its clinical utility in guiding AF ablation.
08 Nov 2025	Artificial-Intelligence Based Smart Catheter Guidance for Atrial Fibrillation Ablation: Large Registry Validation	-	• **Introduction:** Pulmonary vein (PV) isolation for atrial fibrillation (AF) ablation often fails, especially in patients requiring mapping of the entire atrium. This process is time-consuming and lacks real-time adaptability. • **Methodology**: coPilot, an AI-based system, was developed to guide electrophysiology catheters in real-time to AF termination sites. Trained on ~20 million electrograms from 236 patients, the system uses a recurrent neural network (RNN) to estimate AF activation times and direct catheters to targeted sites for ablation. • **Results:** In a validation cohort, coPilot correctly identified AF termination sites in 85.7% of cases compared to 13.1% with controls. The system reduced ablation time to ~5 minutes, a significant reduction from traditional mapping, which takes 10–15 minutes. • **Conclusions:** coPilot's AI-driven catheter guidance improves AF ablation success and significantly reduces procedure time, suggesting it could enhance clinical outcomes and operational efficiency in AF treatments.

Notable AI/ML Presentations at AHA 2025 (4/20)

Date	Title	Author	Summary
08 Nov 2025	Electrocardiogram-Based Artificial Intelligence to Improve the Efficiency of Atrial Fibrillation Screening: A VITAL-AF Trial Analysis	Natasha Vedage	• **Introduction:** Atrial fibrillation (AF) screening can detect AF earlier, facilitating preventive measures like anticoagulation. Current age-based screening has limited effectiveness. This study evaluates whether incorporating AI-based AF risk models can improve screening efficiency. • **Methodology**: VITAL-AF, a cluster-randomized trial, involved 16,937 participants aged 65+ with available clinical and ECG data. AF risk was estimated using three models: CHARGE-AF, ECG-AI, and CH-AI (combined ECG-AI and CHARGE-AF). Screening impact was measured across deciles of AF risk. • **Results:** The CH-AI model had the highest AUROC (0.781) and AP (0.131). Screening in the top decile of CH-AI risk showed a significant AF diagnosis increase (3.7% difference), with similar trends for other models. • **Conclusions:** AF screening based on AI and clinical risk models yields greater benefits for high-risk individuals. Future trials should evaluate whether risk-informed screening improves clinical outcomes.
08 Nov 2025	Machine Learning Models to Predict High Atrial Fibrillation Burden Post-Catheter Ablation in Patients with Persistent AF: Insights from the DECAAF II Trial	ghassan bidaoui	• **Introduction:** High AF burden is linked to increased stroke and heart failure risks. While catheter ablation reduces AF burden, some patients still experience high post-ablation burden. This study aims to predict high AF burden using machine learning in patients with persistent AF. • **Methodology**: 685 patients from the DECAAF II trial with persistent AF were analyzed. Four machine-learning models (Elastic Net, Decision Tree, Random Forest, XGBoost) were trained on 200 pre-ablation variables to predict AF recurrence and AF burden ≥10%. • **Results:** XGBoost outperformed other models, achieving AUCs of 0.64 and 0.66 for AF recurrence and burden ≥10%, respectively. SHAP analysis identified key predictors, including left atrial volume index, age, and AF episode frequency. • **Conclusions:** GBoost, with SHAP explainability, effectively predicts AF recurrence and high post-ablation burden, offering a granular approach to patient-specific management.

Notable AI/ML Presentations at AHA 2025 (5/20)

Date	Title	Author	Summary
08 Nov 2025	Multimodal Artificial Intelligence Improves the Yield of Nuclear Cardiac Amyloid Testing in Suspected Transthyretin Amyloid Cardiomyopathy: a Report from the TRACE-AI Network	Evangelos K Oikonomou	• **Introduction:** This study hypothesizes that a multimodal AI approach combining electrocardiographic (AI-ECG) and echocardiographic (AI-Echo) screening will improve precision in ATTR-CM detection. • **Methodology**: A retrospective analysis of 1,165 patients referred for nuclear cardiac amyloid testing was conducted. AI models for AI-ECG, AI-Echo, and a multimodal strategy were evaluated for diagnostic performance in detecting ATTR-CM. • **Results:** The multimodal strategy improved specificity (0.93-0.94) and positive predictive value (0.36-0.66), reducing false positives by 51.1-78.3% compared to unimodal models (AI-ECG or AI-Echo). • **Conclusions:** Multimodal AI screening reduces false positives significantly and is a promising strategy for ATTR-CM screening in clinical practice
08 Nov 2025	AI-driven Measurement of Myosteatosis in Coronary Artery Calcium Scans Predicts Atrial Fibrillation and Heart Failure. An AI-CVD Study within the Multi-Ethnic Study of Atherosclerosis (MESA)	Morteza Naghavi	• **Introduction:** This study evaluates the predictive value of AI-measured myosteatosis in thoracic skeletal muscle for future atrial fibrillation (AF), heart failure (HF), and total CVD. • **Methodology**: Data from the Multi-Ethnic Study of Atherosclerosis (MESA) involving 5,489 asymptomatic participants were used. Myosteatosis was defined as the lowest quartile of thoracic muscle mean attenuation, and hazard ratios (HRs) were calculated using regression models adjusted for CVD risk factors. • **Results:** Myosteatosis was strongly associated with worse outcomes: HRs for AF, HF, and total CVD were significantly higher for both sexes, with stronger associations for heart failure. Full adjustment confirmed these associations, particularly for HF and AF. • **Conclusions:** Myosteatosis identified through CAC scans is an independent predictor of AF, HF, and total CVD. The detection of myosteatosis using AI in CAC scans could improve clinical outcomes and warrants further investigation.

Notable AI/ML Presentations at AHA 2025 (6/20)

Date	Title	Author	Summary
08 Nov 2025	AI-Measured Thoracic Ascending Aortic Calcification in CAC Scans Predicts Cardiovascular Events: An AI-CVD study in the FHS Offspring Cohort	Morteza Naghavi	• **Introduction:** Thoracic aortic calcification (TAC) is an underutilized marker of atherosclerotic burden, and AI-enabled TAC quantification could improve risk prediction when combined with traditional risk scores. • **Methodology**: Baseline CAC scans from 1,002 participants in the Framingham Heart Study Offspring cohort were analyzed using AI to quantify TAC. Participants were categorized by TAC scores, and Cox proportional hazards models assessed the association between TAC categories and incident CVD. • **Results:** Over 17 years, 296 CVD events occurred. In fully adjusted models, higher TAC scores were associated with increased CVD risk: HRs for 100-299, 300-999, and ≥1000 TAC categories were 2.05, 2.29, and 2.85, respectively, compared to no TAC. Lower categories (1–99) were not significant. • **Conclusions:** AI-measured TAC from CAC scans independently predicted future CVD events, highlighting the potential of AI-enabled TAC quantification as an adjunct to traditional coronary artery calcium scoring for enhanced long-term risk stratification.
08 Nov 2025	AI-Predicted Osteoporosis from Preprocedural CT Scans Predicts Mortality After TAVR: A Multicenter Study	Saleena Gul Arif	• **Introduction:** Osteoporosis and sarcopenia contribute to frailty in older adults undergoing transcatheter aortic valve replacement (TAVR). Standard risk scores do not include musculoskeletal parameters, despite their association with poor outcomes. • **Methodology**: An AI-based radiomics model, trained on CT and dual-energy X-ray absorptiometry (DXA) scans, predicted osteoporosis in 906 TAVR patients using pre-procedural CT scans. Osteoporosis was defined as a T-score ≤ −2.5. The model's association with mortality was analyzed via Cox regression. • **Results:** The AI model showed strong agreement with DXA (R2 = 0.87, correlation = 0.93) and identified 3% of patients as osteoporotic. AI-predicted osteoporosis was linked to increased mortality (HR 2.27; p=0.009). Higher skeletal muscle density was associated with lower mortality (HR 0.987 per 1 HU increase; p=0.041). • **Conclusions:** AI-based BMD estimation from routine CT scans accurately identifies osteoporosis and predicts mortality risk, suggesting its potential for improving frailty screening and risk stratification in TAVR patients.

Notable AI/ML Presentations at AHA 2025 (7/20)

Date	Title	Author	Summary
08 Nov 2025	AI-enabled Plaque Phenotype Analysis of Coronary Computed Tomography Angiography Findings in Patients with Nonacute Chest Pain using FFRCT: Results from the PRECISE Trial	Jonathon Leipsic	• **Introduction:** This study examines the extent and diffuseness of coronary plaque burden using novel CCTA-derived metrics from the PRECISE randomized trial. • **Methodology**: Stable symptomatic patients with suspected CAD and ≥50% stenosis underwent CCTA. The extent of CAD was assessed using FFRCT and AI-enabled plaque analysis. Patients were stratified based on FFRCT metrics into groups with focal or diffuse disease. Symptoms were assessed with the Seattle Angina Questionnaire (SAQ). • **Results:** Patients with focal or mixed (focal and diffuse) CAD had higher plaque volumes, particularly noncalcified plaque, compared to those with no hemodynamic disease or diffuse disease. No clinical characteristics or angina severity differences were observed between groups. • **Conclusions:** CCTA allows refined categorization of CAD plaque burden, identifying higher plaque volumes in patients with focal or mixed disease. These findings warrant further investigation into their prognostic and therapeutic implications.
08 Nov 2025	AI-Based Cardiac Chamber Volumetry from CAC CT Enhances Heart Failure Prediction Beyond PREVENT-HF	Jaret Barr	• **Introduction:** Coronary artery calcium (CAC) CT scans are valuable for assessing atherosclerosis, but their potential for cardiac chamber volumetry in heart failure (HF) risk prediction is underexplored. • **Methodology**: This retrospective cohort study involved asymptomatic patients (45-75 years) without known cardiac disease. AI-derived cardiac chamber volumes from CAC CT scans were used alongside the AHA's PREVENT-HF risk calculator to predict HF risk. Time-dependent AUCs and Cox regression evaluated predictive performance. • **Results:** Higher volumes of the left atrium (LA), left ventricle (LV), right atrium (RA), and LV myocardium were associated with increased HF risk. LA volume was the most predictive. AI-based chamber volumes outperformed PREVENT-HF alone and improved prediction when combined. • **Conclusions:** AI-derived chamber volumes from CAC CT enhance HF risk prediction, with LA volume as a strong independent predictor. Integrating this with the PREVENT-HF calculator significantly improves predictive accuracy.

Notable AI/ML Presentations at AHA 2025 (8/20)

Date	Title	Author	Summary
08 Nov 2025	System-level Barriers and Facilitators to EHR Interventions in the Implementation and Interaction of Clinician And Patient-facing Tools Aiming to Optimize Medications for Heart Failure with reduced ejection fraction (IICAPTAIN-HF) Trial	Bryan Wallace	• **Introduction:** GDMT for HFrEF significantly improves patient outcomes but is often underused due to clinical inertia. The EPIC-HF and PROMPT-HF trials tested patient activation and EHR alerts to enhance GDMT use, yet widespread implementation remains limited. • **Methodology**: The IICAPTAIN trial conducted qualitative interviews with site PIs and IT leads across five U.S. sites, exploring barriers and facilitators to implementing automated GDMT interventions using the PRISM framework. Thematic analysis was applied to the interview data. • **Results:** Key facilitators included previous experience with decision support tools, dedicated IT staff, and perceived sustainability. Barriers included clinician burden from alerts, limited IT resources, and administrative hurdles. • **Conclusions:** Successful GDMT interventions require low clinician burden, administrative support, and sufficient IT resources for implementation. Strong relationships with IT and administrative staff are crucial for adoption and sustainability.
08 Nov 2025	Prospective Validation of opportunistic screening for Chagas disease using Artificial Intelligence-enabled ECG: the SaMi-Trop Project	Antonio Luiz Pinho Ribeiro	• **Introduction:** Chagas disease (ChD) remains underdiagnosed and undertreated, with less than 10% of infected individuals diagnosed and less than 1% treated. AI-ECG has the potential to improve detection but needs real-world validation for large-scale adoption in endemic regions. • **Methodology**: The study used the AI-ECG model integrated into tele-ECG systems across two endemic regions in Brazil, Montes Claros and Divinópolis, as part of the SaMi-Trop Project. The AI model operated alongside routine ECGs, prompting serological testing for potential ChD cases. • **Results:** Over 75,779 ECGs were performed, resulting in 5,851 positive AI alerts. Of these, 37% underwent serology, and 927 tested positive for ChD, yielding a diagnostic odds ratio of 5.7. The AI-ECG demonstrated high specificity (92%) but lower sensitivity (34%), with an AUC of 0.76. • **Conclusions:** The AI-ECG model shows promise as a screening tool for ChD in primary care settings. However, its widespread implementation in Brazil requires overcoming logistical and operational challenges to ensure effective patient management.

Notable AI/ML Presentations at AHA 2025 (9/20)

Date	Title	Author	Summary
08 Nov 2025	AI-CVD vs. PREVENT for Predicting Incident Heart Failure: The Multi-Ethnic Study of Atherosclerosis (MESA)	Morteza Naghavi	• **Introduction:** The AI-CVD initiative aims to enhance cardiovascular disease prediction by utilizing advanced features from coronary artery calcium (CAC) scans, which offer additional insights beyond traditional risk factors and the Agatston CAC score. • **Methodology**: The AI-CVD platform was applied to 4,554 CAC scans from the Multi-Ethnic Study of Atherosclerosis (MESA). The platform used deep learning models to extract features such as cardiac chamber volumes, muscle density, fat volumes, and other biomarkers, which were integrated with clinical data to develop a risk score for heart failure (HF). • **Results:** After 17.7 years of follow-up, 265 cases of HF were diagnosed. AI-CVD's risk score (AUC: 0.84) significantly outperformed the PREVENT HF score (AUC: 0.77) in predicting 10-year HF risk, with key predictors including age, GFR, hypertension, and various anatomical features from CAC scans. • **Conclusions:** The AI-CVD risk score, integrating AI-derived biomarkers from CAC scans and clinical data, provides a significantly better prediction of HF risk over 10 years compared to the PREVENT HF score, supporting its potential for more accurate and early heart failure risk stratification.
08 Nov 2025	Retrospective Analysis of the Accuracy and Clinical Utility of Predictive Artificial Intelligence in Cardiovascular Event Risk Assessment : PACE Study	Rakhshanda khan	• **Introduction:** This study compares deep learning (DL) models for LDL-C prediction in patients with prior cardiovascular events. • **Methodology**: The study analyzed data from 8,315 patients with cardiovascular events. Deep learning models including CNN, RNN, LSTM, and Transformer-based architectures were tested, compared to traditional backpropagation neural networks (BPNN) and LDL-C estimation formulas. Model performance was assessed using RMSE and MAPE. • **Results:** The Transformer-based DL model outperformed others with an RMSE of 10.58 mg/dL and MAPE of 7.35%, significantly surpassing BPNN, RNN, LSTM, and traditional LDL-C formulas. PDPs indicated meaningful relationships between LDL-C and predictors like HDL-C, BMI, and thyroid hormones. • **Conclusions:** The Transformer-based DL model offers superior accuracy and interpretability in predicting LDL-C, making it a promising tool for personalized CVD risk assessment and management. Incorporating such models into clinical practice could enhance patient outcomes and resource utilization.

Notable AI/ML Presentations at AHA 2025 (10/20)

Date	Title	Author	Summary
09 Nov 2025	AI-enabled ECG for Structural Heart Disease Diagnosis Improves Triage of Echocardiography Referral in a Low-Resource Setting: The PROVAR+ Study	Aline F. Pedroso	• **Introduction:** Echocardiography is limited by resource constraints, making broader use of point-of-care ultrasound (POCUS) for structural heart disease (SHD) screening challenging. AI-based ECG analysis could enhance SHD detection and optimize POCUS use, particularly in resource-limited settings. • **Methodology**: The PROVAR+ study in Divinopolis, Brazil, enrolled 6,488 patients who underwent clinical ECGs. Traditional ECG interpretation was compared to an AI-ECG model in detecting SHD, with SHD defined by major abnormalities including low LVEF, severe valve disease, or LV hypertrophy. Sensitivity, specificity, and reclassification performance were assessed. • **Results:** AI-ECG outperformed traditional ECG interpretation (AUROC 0.73 vs. 0.52) in detecting SHD, with higher positive predictive value (0.29 vs. 0.18) and negative predictive value (0.93 vs. 0.86). AI-ECG significantly improved SHD risk classification (NRI 0.35), and decision curve analysis demonstrated AI-ECG's net benefit. • **Conclusions:** AI-ECG enhances POCUS screening for SHD, reducing false positives and improving classification accuracy, with substantial clinical utility over traditional ECG interpretation. This approach could improve large-scale SHD screening in resource-constrained settings.
09 Nov 2025	A Novel Classification of Heart Failure Derived from the Nationwide JROADHF Cohort Using Unsupervised Machine Learning	Atsushi Kyodo	• **Introduction:** Heart failure (HF) care is traditionally based on left-ventricular ejection fraction (LVEF), but outcomes remain suboptimal, suggesting the LVEF-based classification is insufficient for precision therapy. • **Methodology**: The study analyzed 13,238 patients from the JROAD-HF registry using unsupervised machine learning (ML) with 46 clinical, laboratory, and echocardiographic variables. A latent-class model identified distinct HF phenogroups, and the model's prognostic performance was tested against LVEF categories. • **Results:** Three HF phenogroups were identified: Advanced Low-Output HF, Early Afterload-Mismatch HF, and Elderly HFpEF-like HF. These groups showed significantly different mortality outcomes, with ML phenogroups outperforming LVEF categories in prognostic discrimination ($p < 0.001$). • **Conclusions:** ML-based phenomapping using routine hospital data identified distinct HF phenogroups, offering superior prognostic value compared to LVEF-based classification, and could enable more personalized HF management.

Notable AI/ML Presentations at AHA 2025 (11/20)

Date	Title	Author	Summary
09 Nov 2025	Leveraging Noise-adapted Deep Learning Algorithm to Detect Structural Heart Disease from 1-lead ECGs Acquired with KardiaMobile 6L Device: The ACCESS-SHD Study	Arya Aminorroaya	• **Introduction:** Portable 1-lead ECG devices, coupled with AI tools, offer potential for scalable screening of structural heart disease (SHD) in community settings. The ADAPT-HEART AI algorithm, designed to detect SHD, was previously developed and evaluated for use with portable devices like the KardiaMobile 6L. • **Methodology**: The ACCESS-SHD study enrolled 600 participants who recorded a 30-second 1-lead ECG using the KardiaMobile 6L device. ADAPT-HEART analyzed these ECGs to predict SHD risk, defined as a composite of LVEF <40%, severe valvular disease, or severe LVH. The model's performance was assessed using AUROC. • **Results:** Of 600 participants, 597 (99.5%) recorded a successful ECG. ADAPT-HEART achieved an AUROC of 0.913 for SHD detection, with a sensitivity of 85.7% and specificity of 88.4%. The model's positive predictive value (PPV) was 29.0%, enhancing the yield of TTE in identifying SHD by more than 5-fold. • **Conclusions:** ADAPT-HEART, applied to portable 1-lead ECGs from the KardiaMobile 6L device, accurately detects SHD. This approach supports large-scale SHD screening in community settings, leveraging the portability and efficiency of AI-driven technology
09 Nov 2025	Phenotype Based Machine Learning Approach for Enhancing Long Term Cardiovascular Disease Mortality Risk Stratification in Obstructive Sleep Apnea: A Longitudinal Cohort Study	Dang Nguyen	• **Introduction:** Obstructive sleep apnea (OSA) increases cardiovascular disease (CVD) mortality. Current risk stratification relies on the Apnea-Hypopnea Index (AHI), which overlooks multimorbidity and therapeutic response variability. • **Methodology**: Using data from the Wisconsin Sleep Cohort, unsupervised machine learning identified OSA-CVD phenotypes. A two-stage workflow with clustering and feature selection was applied, followed by five-fold cross-validation for reproducibility. Temporal evolution was modeled with Markov chains. • **Results:** Four reproducible OSA-CVD phenotypes were identified (accuracy 0.82, adjusted Rand 0.96). These phenotypes varied by AHI, comorbidities, and metabolic health. Severe OSA had the highest CVD prevalence, and mild OSA subgroups showed metabolic differences. Markov modeling revealed stable phenotypes, with transitions in severe OSA. • **Conclusions:** The unsupervised framework identified distinct OSA-CVD phenotypes with varying trajectories. Incorporating these phenotypes could improve personalized care and proactive CVD surveillance in OSA patients.

Notable AI/ML Presentations at AHA 2025 (12/20)

Date	Title	Author	Summary
10 Nov 2025	Electrocardiographically Subtle Inferior Myocardial Infarction: The Importance of Troponin, Clinical Context, and Artificial Intelligence	Bhanuteja Pujari	• **Introduction:** A 43-year-old male with hypertension, obesity, and a history of smoking presented with chest pain, nausea, and dyspnea. Initial ECG was non-diagnostic, and troponin I was elevated. Over 13 hours, ECG revealed hyperacute T waves, and troponin continued to rise, indicating acute myocardial infarction. • **Methodology**: Despite the non-diagnostic ECG, the patient underwent coronary angiography revealing acute thrombotic occlusion of the proximal right coronary artery. Percutaneous coronary intervention was performed. • **Results:** A repeat ECG post-intervention showed reperfusion changes. The Queen of Hearts AI ECG model retrospectively identified patterns of inferoposterior occlusion not initially recognized, emphasizing the role of AI in detecting subtle ECG changes. • **Conclusions:** This case illustrates the diagnostic difficulty of OMI without STEMI. Delayed recognition and intervention highlight the importance of using advanced tools like AI for early identification, especially when troponin levels are significantly elevated.
10 Nov 2025	Validation of a Non-invasive Machine Learning Algorithm to Assess Elevated Pulmonary Capillary Wedge Pressure at Point-of-Care	Charles Bridges	• **Introduction:** Pulmonary capillary wedge pressure (PCWP) is key to diagnosing and managing heart failure with preserved ejection fraction (HFpEF) and pulmonary hypertension (PH), but it requires invasive right heart catheterization (RHC). Transthoracic echocardiography (TTE) has limited sensitivity, highlighting the need for a non-invasive test to estimate PCWP. • **Methodology**: The algorithm, developed to estimate PCWP, uses a device that collects voltage gradients and photoplethysmographic signals. A CatBoost model processes 243 features to produce a score classified as test-positive or test-negative. The test's performance was validated in a cohort with RHC-confirmed elevated PCWP. • **Results:** The algorithm achieved a sensitivity of 82.4% and specificity of 83.0%, with an AUC of 0.91. These results surpassed the pre-defined performance goals (sensitivity: $p=0.0005$; specificity: $p<0.0001$), with consistent results across demographic subgroups. • **Conclusions:** The algorithm exceeded the sensitivity and specificity thresholds, demonstrating robust performance in estimating elevated PCWP. This non-invasive test has clinical utility in diagnosing conditions like HFpEF and PH, potentially improving patient management.

Notable AI/ML Presentations at AHA 2025 (13/20)

Date	Title	Author	Summary
10 Nov 2025	Plasma Metabolomics and Machine Learning Identify Causal Metabolic Contributors to Incident Heart Failure in 38,628 MGB Biobank Participants	Leo F Buckley	• **Introduction:** The increasing prevalence of cardiometabolic risk factors necessitates a deeper understanding of metabolic pathways contributing to cardiac dysfunction and heart failure (HF). Identifying causal metabolic factors can uncover novel biomarkers and therapeutic targets. • **Methodology**: Using metabolomics data from the MGB Biobank, we analyzed plasma levels of 43 metabolites in participants without a history of HF. Incident HF was ascertained using a machine learning and natural language processing algorithm, and multivariable Cox regression was used to examine the association between metabolites and HF risk. • **Results:** In a cohort of 38,628 individuals, higher plasma levels of glutamine and phenylalanine were associated with increased HF risk, while phospholipids, cholines, and docosahexaenoic acid were linked to reduced risk. Mendelian randomization confirmed causal relationships for polyunsaturated fatty acids and omega-3 fatty acids with incident HF. • **Conclusions:** Dysregulated fatty acid metabolism, especially docosahexaenoic and linoleic acids, is causally associated with a higher risk of incident HF, offering potential targets for therapeutic intervention.
10 Nov 2025	Protective Effect of Renin–Angiotensin–Aldosterone System Inhibitors Guided by Artificial Intelligence–Enabled Electrocardiograms on Incident Left Ventricular Dysfunction: A Multicenter Cohort Study	Wei-Ting Liu	• **Introduction:** AI-enabled electrocardiogram (AI-ECG) models can detect left ventricular dysfunction (LVD) and predict future LVD in patients with normal LV function. However, its prognostic value for guiding heart failure therapies, like ACE inhibitors (ACEi) or angiotensin II receptor blockers (ARBs), has not been fully explored. • **Methodology**: This retrospective study analyzed adults with baseline LVEF ≥ 50% who underwent ECGs across 10 hospitals. Patients were stratified using an AI-ECG algorithm into high- and low-risk LVD groups. The primary outcome was incident LVEF ≤ 40%. Propensity score matching and Cox proportional hazards models assessed treatment effects. • **Results:** This retrospective study analyzed adults with baseline LVEF ≥ 50% who underwent ECGs across 10 hospitals. Patients were stratified using an AI-ECG algorithm into high- and low-risk LVD groups. The primary outcome was incident LVEF ≤ 40%. Propensity score matching and Cox proportional hazards models assessed treatment effects. • **Conclusions:** AI-ECG can identify individuals at high risk for LVEF decline, and ACEi/ARB therapy was beneficial for these patients. Further research is needed to confirm the causal relationship between AI-ECG risk stratification and heart failure therapy.

Notable AI/ML Presentations at AHA 2025 (14/20)

Date	Title	Author	Summary
10 Nov 2025	AI-informed Coronary Artery Tortuosity Index (CArTI) from Cardiac CT Angiography Predicts 5-Year Cardiovascular Risk	Mendel Lebowitz	• **Introduction:** This study introduces the Coronary Artery Tortuosity Index (CArTI), a model that quantifies coronary structural complexity using cardiac CT angiography (CCTA) to predict major adverse cardiovascular events (MACE). • **Methodology**: We analyzed CCTAs from 992 patients with MACE outcomes. Coronary arteries were segmented using 3D U-Net, and 227 features quantifying vessel structure were extracted. A Cox proportional hazards model, using the top 8 predictive features, assessed 5-year MACE risk. • **Results:** In the test set, CArTI stratified 5-year MACE risk with a C-index of 0.648. Kaplan-Meier analysis revealed separation between high- and low-risk groups, with high-risk patients having an HR of 2.69 (95% CI: 1.07–6.78, $p<0.05$). Key predictors included curvature and tortuosity. • **Conclusions:** CArTI successfully predicts MACE risk by assessing coronary artery complexity, demonstrating the potential of AI tools for non-invasive cardiovascular risk assessment. Further validation is needed to confirm these findings.
10 Nov 2025	Comparative Study of Coronary Artery Disease (CAD) Prediction: Conventional QRISK3 vs. Enhanced Machine Learning Models Combined with Particle Swarm Optimization (PSO) Algorithm	Wigaviola Socha Purnamaasri Harmadha	• **Introduction:** This study explores combining machine learning (ML) models with the Particle Swarm Optimization (PSO) algorithm for feature selection to predict CAD, aiming to outperform QRISK3. • **Methodology**: Data from 348,015 UK Biobank participants aged 24-84, with no prior CAD diagnosis, were analyzed. The performance of QRISK3 and several ML models (Logistic Regression, Decision Tree, Random Forest, Naïve Bayes, Gradient Boosting) was evaluated using ROC analysis, with the PSO algorithm enhancing classification accuracy. • **Results:** Out of the 348,015 participants, 23,136 developed CAD within 10 years. QRISK3's AUC was 0.6113, while the PSO-enhanced Gradient Boosting model achieved an AUC of 0.7258, demonstrating improved performance. • **Conclusions:** Machine learning models optimized with PSO outperform QRISK3 in predicting CAD, enabling more personalized prevention strategies and better identification of high-risk patients.

Notable AI/ML Presentations at AHA 2025 (15/20)

Date	Title	Author	Summary
10 Nov 2025	Artificial Intelligence ECG Model To Reduce False-Positive STEMI Alerts in the Emergency Department	Adam Davis	• **Introduction:** This study aimed to evaluate the predictive performance of an AI deep learning ECG algorithm, the Queen of Hearts (QoH) model, in identifying OMI among ED-triggered STEMI alerts (SAs), with a focus on common STEMI mimics like left ventricular hypertrophy (LVH) and left bundle branch block (LBBB). • **Methodology**: ED-triggered SAs at a large tertiary center between January 1 and October 31, 2024 were retrospectively analyzed . Pre-alert ECGs were analyzed by the QoH AI model and classified as OMI or non-OMI. True OMI was confirmed by angiography or elevated biomarkers. QoH's performance was compared to standard cardiologist-determined catheterization lab activation (CLA). • **Results:** Among 192 SAs, 29 were true OMIs, yielding an 85% false-positive rate. The QoH model identified 42 OMI cases, correctly detecting 25/29 OMIs (Sn 86%, Sp 89%). QoH also identified OMI in 100% of LVH cases (Sn 100%, Sp 95%) and showed high specificity in LBBB (Sp 92%). • **Conclusions:** The QoH AI model reduces false-positive STEMI alerts and demonstrated diagnostic performance comparable to cardiologist-determined CLA.
10 Nov 2025	A Contemporary Machine Learning-Based Risk Stratification for Mortality and Hospitalization in Heart Failure with Preserved Ejection Fraction Using Multimodal Real-World Data	Marat Fudim	• **Introduction:** This study aimed to predict overall mortality and heart failure (HF) hospitalization in a real-world HFpEF population using machine learning (ML) models. • **Methodology**: The CONFIDENT study was a multi-cohort, observational study across three centers. HFpEF patients, defined by HFA-PEFF criteria with ≥2 years of follow-up, were included. Machine learning models were developed to predict all-cause mortality and HF hospitalization using 82 baseline variables from electronic health records, lab tests, echocardiography, and electrocardiography. Performance was compared with conventional risk scores in an external validation cohort. • **Results:** The study included 1,208 patients with a mean age of 72±12. The ML model for all-cause mortality showed good discrimination (C-index 0.67–0.72), outperforming the PREDICT-HFpEF and MAGGIC risk scores. Similar findings were observed for HF hospitalization prediction. • **Conclusions:** The CONFIDENT ML-based prognostic models effectively predict all-cause mortality and HF hospitalization in HFpEF patients. These models can support personalized care and trial recruitment, offering a reliable alternative to conventional risk scores.

Notable AI/ML Presentations at AHA 2025 (16/20)

Date	Title	Author	Summary
10 Nov 2025	Comparable Improvement of a Sensor-Controlled Digital Game Intervention and a Sensor-Based Control on Self-Care and Outcomes in Older Adults with Heart Failure: A Randomized Controlled Trial	Namuun Clifford	• **Introduction:** This study evaluated a sensor-controlled digital game (SCDG), Heart Health Mountain, aimed at improving HF self-care compared to a control group using only sensor devices. • **Methodology**: This decentralized 6-month RCT randomized 200 adults with NYHA Class I-III HF to either the intervention or control group. Outcomes were assessed at baseline, 6, 12, and 24 weeks using online surveys. Analyses included mixed-effects models to evaluate group, time, and interaction effects. • **Results:** Of 146 participants, significant improvements were observed in self-care confidence, behaviors, functional status, and quality of life, though no group-by-time interactions were found. HF-related hospitalizations were lower in the intervention group at 6 weeks but showed smaller differences later. No change in HF knowledge was noted. • **Conclusions:** The SCDG did not result in significant differences compared to the control group, but both groups showed improvements in HF outcomes. This suggests that digital tools can aid in HF self-management and future interventions should be more personalized.
10 Nov 2025	Machine Learning–Driven Optimization of EEG Channel Selection for Cognitive State Monitoring	Dang Nguyen	• **Introduction:** The study hypothesizes that combining Elastic Net–regularized Common Spatial Patterns (EN-CSP) with Automated Machine Learning (AutoML) can identify minimal yet highly informative EEG channel configurations without sacrificing classification accuracy. • **Methodology**: EEG recordings from two cohorts (MAS and SAM) were processed to derive spectral and time-domain features. EN-CSP was used to rank electrode importance, followed by MRMR and BCE to select the most informative channels. AutoML selected the optimal classifier and assessed performance using accuracy and F1 score. • **Results:** EN-CSP reduced electrode usage by 50% without performance loss. In the MAS cohort, 8 channels achieved 91.4% accuracy and F1 of 0.889. In SAM, 4 channels yielded 81.3% accuracy and F1 of 0.752. AutoML's rankings correlated well with EN-CSP (Spearman $\rho = 0.78$, $p < 0.01$). • **Conclusions:** The proposed machine learning framework identifies compact, informative channel sets that maintain predictive accuracy while reducing electrode count, enabling lightweight EEG platforms for continuous attention and stress monitoring.

Notable AI/ML Presentations at AHA 2025 (17/20)

Date	Title	Author	Summary
10 Nov 2025	Artificial Intelligence (AI) Models Effectively Detect Cancer Therapy-Related Cardiac Dysfunction (CTRCD): a Diagnostic Test Accuracy (DTA) Meta-Analysis	Oluwafolajimi Adesanya	• **Introduction:** This study aimed to evaluate the pooled diagnostic performance of AI models for CTRCD detection in cancer patients. We hypothesized that AI models would outperform traditional clinical methods in detecting CTRCD. • **Methodology**: A systematic review and meta-analysis of studies investigating AI for CTRCD detection were performed. Studies with complete AI model data or AUC statistics were included. The pooled performance was assessed using random-effects models and summarized via AUC and sROC. • **Results:** Eleven studies with 6,090 patients were included. AI models showed pooled sensitivity of 77.1%, specificity of 86.9%, diagnostic odds ratio of 19.1, and an AUC of 0.87. AI outperformed clinical comparators with a standardized mean difference of 0.22 (p = 0.00). • **Conclusions:** AI models outperformed clinical standards for detecting CTRCD in cancer patients. Further studies are needed to explore AI's utility across different cancer types and cardiotoxicity detection.
10 Nov 2025	Artificial Intelligence Analysis of Free-Text Discharge Summaries Facilitates Automated Risk Stratification for Cardiac Surgery Readmissions	Daniel Alexander Alber	• **Introduction:** AI models outperformed clinical standards for detecting CTRCD in cancer patients. Further studies are needed to explore AI's utility across different cancer types and cardiotoxicity detection. • **Methodology**: The model was fine-tuned using discharge summaries from 8,275 patients (2014-2024). Temporal validation was done with a pseudo-prospective cohort of 3,031 patients. Performance degradation and recalibration were assessed. The model's ability to differentiate inpatient readmissions from observation stays and correlate risk scores with readmission LOS was evaluated. • **Results:** The model achieved an AUC of 0.71, with 78.5% sensitivity and 50.1% specificity. Temporal degradation (AUC 0.78 to 0.67) was mitigated via recalibration. Predicted risk scores correlated with LOS ($p<0.001$) and distinguished between inpatient and observation stays (AUC 0.69). High-risk quintiles had a 1.9-fold longer LOS compared to the lowest (7.1 vs. 3.7 days, $p<0.001$). • **Conclusions:** The AI model using clinical notes predicted 30-day readmissions and captured risk profiles. Recalibration methods helped address performance degradation, enabling automated pre-discharge screening for high-risk readmissions.

Notable AI/ML Presentations at AHA 2025 (18/20)

Date	Title	Author	Summary
10 Nov 2025	Efficacy Prediction Score of Hypertension Digital Therapeutics: The Behavioral Modification Index (B-INDEX) Study	Kazuomi Kario	• **Introduction:** This study aimed to identify predictors of the home blood pressure (BP) lowering effect of DTx using daily data collected during a 6-month treatment period. • **Methodology**: The B-INDEX study is a multicenter trial that included 6-month DTx followed by 6 months without DTx in hypertensive patients. Daily home BP measurements (morning/evening), body composition, physical activity, and sleep data were monitored using digital devices. This analysis focused on the 6-month DTx treatment period. • **Results:** The study included 198 hypertensive patients (mean age 54.9±10.6, 57.1% male). Significant BP reduction was observed in the first 4 weeks (morning BP: -6.2/-2.6 mmHg). Mixed model analysis revealed that baseline home BP, older age, self-efficacy, reduced salt intake, and mild weight loss predicted 6-month BP reduction. The efficacy prediction score showed a 10.2 mmHg difference in systolic BP reduction between higher and lower score groups at week 24. • **Conclusions:** Older age, salt reduction, and initial weight loss were key predictors of effective BP reduction with DTx, independent of baseline BP. The first 4 weeks were crucial for treatment efficacy.
10 Nov 2025	A phenomapping-informed machine learning tool estimates individualized cardiometabolic effects from Tirzepatide and generalizes to a new population.	Phyllis Thangaraj	• **Introduction:** This study aimed to create a machine learning tool using data from a Phase 3 Tirzepatide RCT to predict individualized treatment effects (ITE) on WL and metabolic syndrome (MS) components. • **Methodology**: In SURPASS-1, we calculated Gower's distance similarity based on baseline characteristics and used linear mixed models to estimate ITE on WL and MS components. XGBoost and Boruta SHAP were employed to predict ITE, which was validated in the SURMOUNT-2 RCT. • **Results:** In SURPASS-1 (n=357), WL was significantly higher in the Tirzepatide group (median WL: -8.2% vs. -1.3%, p<.001). The ITE tool showed significant interaction effects for WL, BMI, waist circumference, DBP, HDL, and fasting glucose. Validation in SURMOUNT-2 (n=936) confirmed the model's predictive ability, with high responders achieving 15.7% WL (p<.001) and faster time to WL >15% compared to low responders (HR 2.1, p<.001). Significant correlations were found between predicted ITE and MS components (p<.001). • **Conclusions:** A machine learning tool can predict individualized WL and cardiometabolic effects of Tirzepatide, offering a personalized approach for treatment in diverse patient populations.

Notable AI/ML Presentations at AHA 2025 (19/20)

Date	Title	Author	Summary
10 Nov 2025	Artificial Intelligence in Non-Invasive Fetal ECG: A Systematic Review of Extraction and Analysis Techniques	NOUR ALSHUJAIEH	• **Introduction:** Abdominal fetal electrocardiography (fECG) faces challenges in separating fetal signals from maternal ECG and noise. Machine learning (ML), especially deep learning, can enhance signal extraction and detect fetal arrhythmias and congenital heart disease (CHD), improving diagnosis and early intervention. • **Methodology**: A systematic review of studies from PubMed, Scopus, Web of Science, and Cochrane (2015–2025) was performed, focusing on AI-based fECG processing for prenatal evaluation. • **Results:** Sixty-two studies were reviewed with sample sizes from 5 to 757. Preprocessing methods included bandpass filtering and resampling. Performance varied, with CNN-BiLSTM models achieving perfect results. Deep learning models outperformed simpler approaches, with CNN models achieving 98.56% accuracy in arrhythmia detection and 94% in CHD detection. • **Conclusions:** AI-based models improve fECG quality and diagnostic accuracy, but further clinical validation is needed for routine use in prenatal care.
10 Nov 2025	Artificial Intelligence-Derived Myosteatosis on Coronary Artery Calcium CT Scans Predicts Incident COPD: An AI-CVD Study within the Multi-Ethnic Study of Atherosclerosis (MESA)	Morteza Naghavi	• **Introduction:** Myosteatosis, the fat infiltration of skeletal muscle, is linked to metabolic dysfunction and cardiovascular risk, but its connection to lung health and COPD remains unclear. The AI-CVD initiative aims to enhance cardiovascular predictions by incorporating myosteatosis data from cardiac CT scans. • **Methodology**: This retrospective cohort analysis used baseline data from the Multi-Ethnic Study of Atherosclerosis (MESA), assessing myosteatosis using AI-CVD on CT scans. COPD incidence was defined by ICD codes, and proportional hazards models were adjusted for age, sex, smoking, BMI, and other confounders. • **Results:** Among 283 incident COPD cases, those in the lowest myosteatosis quartile had significantly higher cumulative incidence. In adjusted models, the hazard ratio comparing the lowest to highest quartile was 1.32, indicating a significant association with increased COPD risk. • **Conclusions:** AI-based quantification of myosteatosis on cardiac CT independently predicts future COPD risk. This opportunistic assessment can help identify individuals at high risk, enabling early interventions before disease onset.

Notable AI/ML Presentations at AHA 2025 (20/20)

Date	Title	Author	Summary
10 Nov 2025	Artificial Intelligence-based screening for Hypertrophic Cardiomyopathy from Single-lead Electrocardiograms: A Multinational Development and Validation Study	Philip Merio Croon	• **Introduction:** A noise-adapted AI-ECG model to detect HCM from noisy single-lead ECGs was developed and validated. • **Methodology**: The model was trained on 160,396 12-lead ECGs from 85,967 individuals in the Yale New Haven Health System (YNHHS) and augmented with noise for robustness. Internal validation used 38,426 ECGs from 59 HCM cases. External validation was conducted using MIMIC-IV (995 subjects, 66 HCM cases) and UK Biobank (57,963 subjects, 53 HCM cases). Stratified analyses assessed model fairness. • **Results:** The model achieved an AUROC of 0.95 (95% CI 0.93-0.97) in internal validation, with sensitivity and specificity of 0.90. In external validation, AUROC was 0.92 (MIMIC-IV) and 0.88 (UK Biobank). Performance was consistent across demographic subgroups but lower in patients with left bundle branch block or atrial fibrillation. • **Conclusions:** The AI-ECG model effectively detects HCM from noisy single-lead ECGs, offering a scalable approach for HCM screening using portable devices.
10 Nov 2025	Forecasting Mortality Associated with Obstructive Sleep Apnea and Sudden Cardiac Death Among Older Adults in the U.S. (1999–2035) Using Machine Learning Models.	-	• **Introduction:** Obstructive sleep apnea (OSA) is linked to sudden cardiac death (SCD), but national mortality patterns and future risk projections remain unclear. • **Methodology**: U.S. death data (1999–2023) from CDC WONDER, with ICD-10 codes G47.3 (OSA) and I46 (cardiac arrest), were analyzed. Age-adjusted mortality rates (AAMRs) were standardized to the 2000 U.S. census. Temporal trends were assessed with Joinpoint regression, and future trends were forecasted using a stacked long short-term memory (LSTM) model, validated against ARIMA. • **Results:** From 1999–2023, 53,105 deaths were linked to both OSA and cardiac arrest. The AAMR rose sixfold (0.29 to 1.77 per 100,000, AAPC: 7.21%). All adult age groups saw increases, especially those 85+ (AAPC: 11.60%) and 75–84 (AAPC: 8.71%). Mortality peaked in males at 2.49 per 100,000 in 2021, then declined. White Americans had the highest burden (AAPC: 8.00%). Non-metropolitan areas had higher rates than metropolitan areas. The LSTM model projects an AAMR of 2.74 by 2033 (AAPC ≈ 4.3%). • **Conclusions:** OSA-related SCD mortality has increased significantly, especially in men, Black Americans, and rural areas. Machine learning forecasts continued escalation, emphasizing the need for earlier OSA detection and treatment.

Strategic Insights and Strategy Development is our focus