American Heart Association.

END OF NETWORK REPORT

ATRIAL FIBRILLATION

STRATEGICALLY FOCUSED RESEARCH NETWORK

For more than 100 years, the American Heart Association has been dedicated to fighting the No. 1 killer worldwide: cardiovascular disease. Research is a core part of its mission. Since 1949, the Heart Association has invested more than $6 billion to spur scientific innovations to help people live longer, healthier lives.

As science progresses, the organization's research has grown and evolved to keep pace. In 2014, the Association established the Strategically Focused Research Network (SFRN), a unique venture that brings together scientists from science disciplines from multiple institutions to study a common topic from different perspectives.

SFRN scientists collaborate across disciplines to create new approaches, ideas and knowledge. The American Heart Association Board of Directors chooses the topic of each SFRN, including the network: Atrial Fibrillation.

Atrial fibrillation is an irregular heartbeat, or arrhythmia. Also known as AFib or AF, it can lead to blood clots, stroke, heart failure and other heart-related complications. It's the most common type of irregular heart rhythm: Five million Americans are estimated to be living with AFib today, and more than 12 million people are projected to have it by 2030.

Dr. Mark Link
Oversight Advisory Committee Chairperson

AFib can double the risk of death and is linked with an estimated fivefold increased risk for stroke. Yet many people are unaware that it's a serious condition.

To address the problem, the American Heart Association, along with public and private contributors committed more than $28 million to establish the Atrial Fibrillation SFRN. This funding mechanism enabled researchers to explore complex questions about the condition and develop better ways to prevent and treat it. Generous donations from Sarah Ross Soter and her husband Bill and from Joe & Linda Chlapaty, as well as from the Patient Centered Outcomes Research Institute (PCORI) all helped to make this Network possible.

The Heart Association awarded more than $3.7 million to each of these Centers beginning in July 2018:

Boston University, to develop better ways to advance precision medicine by predicting individuals at risk for AFib.

The Sarah Ross Soter Center for AFib at the **Cleveland Clinic**, to study new strategies to prevent AFib development and progression.

Northwestern University, to investigate heart atrium muscle disease in AFib.

Vanderbilt University, to examine a novel molecular target to prevent AFib.

In addition, the American Heart Association awarded $5 million to each of two "DECIDE Centers" beginning in July 2018. DECIDE stands for Decision-making and Choices to Inform Dialogue and Empower, with both centers studying new ways for doctors and patients to work together to decide the best treatment plan.

The Joe and Linda Chlapaty DECIDE Center at **Stanford University**, to uncover a new decision-making pathway that values patient preference in AFib stroke prevention.

The Patient-Centered Outcomes Research Institute (PCORI) - American Heart Association DECIDE Center at the **University of Utah**, to study new decision-aid tools for improving patient-centered AFib care.

"The DECIDE Centers were unique, but totally in line with the American Heart Association's goals of helping patients make informed choices," said Oversight Advisory Committee Chairperson **Mark Link, M.D.**

An additional $1.5 million was provided by donors for Network-wide collaborative efforts.

All six Centers designed a two-year research postdoctoral training program for three fellows at each center, who built relationships with faculty across multiple disciplines, within their own institution and throughout the research network.

"The overarching goal of this SFRN was to further understand atrial fibrillation and to get into the nitty gritty of why it occurs, which is critical to knowing how to treat it," Link said.

The network's research could help set the record straight on a problem that's long been misread, he said.

"Even though it's the most common arrhythmia we deal with, there are still so many misconceptions about it, like AFib has to be symptomatic. A lot of patients are flabbergasted to learn they have it."

As the burden of AFib continues to rise and funding shrinks, the Heart Association's investment is more crucial than ever, said Northwestern University Center Director **Rod Passman, M.D.**

"This disease is only growing in prevalence. It's a disease of aging, and of people who have other risk factors like obesity. With this research network, the American Heart Association is committed to making important leaps in AFib science and lasting progress in how it's treated."

Atrial Fibrillation SFRN Awardees & Oversight Advisory Committee

SFRN CENTERS: ATRIAL FIBRILLATION

Boston University

Center Director: Emelia Benjamin, M.D., ScM, FAHA

By linking genetic insights to real-world clinical decisions, researchers in Boston redefined what effective prevention of AFib could look like.

Boston University's work with Mass General Hospital and the Broad Institute, "made real progress figuring out how to advance AFib precision medicine," said Center Director **Emelia Benjamin, M.D., ScM, FAHA**. The Center was exceptionally productive, with many papers credited to the grant.

In the basic science project, scientists expanded the understanding of the complex genetic landscape of AFib.

Working with large-scale genome-wide studies and advanced sequencing techniques, scientists identified hundreds of common and rare structural variants that impact the heart's rhythm. By focusing on diverse populations, the team enhanced the accuracy of genetic risk predictions across different ancestries – paving the way for a future where genetic testing can precisely assess individual AFib risk.

"As the cost of genotyping gets lower, more people will have it done and we'll have a more precise understanding of their risk of specific complications. That will be an important legacy of our project," Benjamin said.

Dr. Emelia Benjamin

The clinical project confirmed that AF-linked variants raise the risk of cardioembolic stroke, highlighting the heart-brain connection. Clinical researchers also asked if an electronic alert could help unmask hidden AFib in stroke patients. The answer was that busy doctors mostly clicked past it.

"That really tells us there's a lot more work to be done to figure out how to take scientific discoveries to the bedside to help clinicians," Benjamin said.

In the population project, researchers redefined how we think about AF complications. Using large-scale registries in Denmark and data from the Framingham Heart Study, the team found that the lifetime risk of developing AFib has risen to about one in three, with heart failure — not stroke — emerging as the most common complication. While lifetime risk of stroke and heart attack has slightly declined, roughly 42% of people with AFib eventually develop heart failure.

The findings highlight the broader consequences of AFib that demand attention in both research and clinical care, Benjamin said.

"In the '90s, AFib was considered a nuisance, a mere risk marker. Today, it's recognized as a common cardiovascular complication with poor outcomes – underscoring why research like this SFRN is vital for preventing AFib and its serious downstream effects."

Cleveland Clinic

Center Director: Mina Chung, M.D., FAHA

What if the key to calming an erratic heartbeat lies not in the operating room, but in our genes — or even in a petri dish where tiny heart fibers beat in sync?

In the Cleveland Clinic Center's basic science project, researchers traced how small tweaks in the human genome can raise or lower the risk of AF. Focusing on two genetic hot spots, they zoomed in on SYNE2, a massive gene that helps tether a cell's nucleus to its scaffolding.

They discovered that people with a "protective" version make more of a short protein variant that softens the nucleus — subtly reshaping how heart cells behave. The finding may explain why some hearts stay steady while others slip into AFib.

The team also tested mice to see if targeting the same cellular connections — perhaps with the FDA-approved drug colchicine — could one day prevent AFib before it starts.

In the clinical project, scientists tested whether targeting human metabolism could help prevent AFib from getting worse. They designed a two-year trial using metformin — an inexpensive, widely used diabetes drug — along with lifestyle changes like exercise and weight loss. Participants with implanted heart devices were closely monitored for AFib changes.

Despite pandemic disruptions and metformin's side effects, the study delivered valuable lessons: Even a simple handout on diet and exercise helped patients reduce AFib burden. While metformin didn't prove to be the magic bullet, the research broke new ground in tracking and testing real-world ways to slow AFib's progression, said Center Director **Mina Chung, M.D., FAHA**.

For the population project, researchers turned living heart tissue into a window on atrial fibrillation: Studying more than 240 samples from cardiac-surgery patients, they found that hearts prone to AFib show disruptions in genes and proteins that fuel their energy engines — the mitochondria.

Digging deeper, the team grew tiny beating atrial muscles from patient-derived stem cells, stretching them between flexible posts so they could contract like real heart fibers. These lab-grown tissues now pulse for months, letting scientists watch how AFib unfolds and test long-overdue drugs aimed at fixing its faulty electrical wiring.

"This AFib SFRN has been wildly successful," Chung said. "We've made a lot of strides and uncovered some exciting approaches that will set the stage for critical new drugs and therapies."

She thanked the Heart Association for "being so supportive, especially in these days of funding uncertainty. Its commitment to fostering new researchers in the next generation is more important than ever."

Dr. Mina Chung

Northwestern University

Center Director: Rod Passman, M.D., MSCE

For most people with AFib, standard treatment follows a blanket approach: lifelong medication, regardless of how their heart actually misfires.

"Right now, it's a one-size-fits-all model," said **Center Director Rod Passman, M.D., MSCE** "But we need to focus on individualized prevention."

Northwestern researchers didn't just target the erratic electrical signals that trigger atrial fibrillation. They also studied the heart's muscle, asking how much AF and its stroke risk stem from structural problems versus the rhythm disorder alone. To tackle this, the team used everything from antioxidants to Apple Watches to 4D MRI (four-dimensional magnetic resonance imaging).

In the basic science project, scientists explored a process known as oxidative stress. In animal models, researchers found that inflamed areas of the heart were linked to the rapid, erratic rhythms that define AFib. Treating those animals with antioxidants calmed the chaotic activity, and early human studies suggest the same approach could help patients fight AF at its source.

Clinical scientists used 4D MRI to track blood flow in patients undergoing catheter ablation, a procedure that restores normal rhythm. The scans revealed that suppressing AFib significantly improved blood flow through the heart's upper chambers, lowering the risk of clots that can cause stroke.

Dr. Rod Passman

The findings open the door to personalized strategies that combine rhythm control, lifestyle adjustments and selective medication — moving beyond the standard model where "we condemn people to a lifetime of blood thinners," Passman said.

In the population study, researchers explored why people with AF are more likely to develop stroke and dementia. Advanced cardiac imaging in a large cohort showed that even people without AF can have an enlarged or poorly contracting atrium, which may lead to tiny, silent strokes. Spotting these high-risk cases early could guide preventive interventions to protect both heart and brain health.

Northwestern's SFRN also included the REACT-AF trial to test a patient-centered approach to blood thinners. Participants used a customized Apple Watch to detect AF episodes and take medicine only when needed. The strategy promises the same protection against stroke while reducing bleeding risk, lowering costs and improving quality of life, Passman said.

He praised the Heart Association and its unique SFRN model. "A collaboration like this forces you to think of ideas that will go from bench to bedside in a relatively short time. We learn a lot when we think outside our own silo."

Stanford University

Center Director: Paul Wang, M.D., FAHA

Millions of people with AFib are skipping life-saving medicine — not because the drugs don't work, but because the choice to take them seems too complicated.

At Stanford University, researchers developed new tools so people can make confident, informed choices.

"A large percentage of our population has low health literacy: If they don't understand a treatment, they're less likely to agree to it," said **Paul Wang, M.D., FAHA, Center Director at Stanford University**, one of the SFRN's two *Decision Making and Choices to Inform Dialogue and Empower* (DECIDE) AFib Centers.

"We want people to be more comfortable with the decisions they make, and hopefully have better medical care as a result."

Anticoagulants — or blood thinner drugs — have been standard for decades in protecting AFib patients from stroke. But the decision to take them can seem complex. Older drugs require constant blood tests and diet monitoring. Newer ones are easier to manage, but some patients struggle to understand the risks.

Stanford researchers tested whether a simple change in communication could reduce "decisional conflict" when it came to taking blood thinners.

In a national randomized trial across five urban and rural U.S. medical centers, patients were assigned either to the usual doctor-patient conversation or to a new, interactive "shared decision-making" program. To increase health literacy, the team built an animated video tool to guide patients through the pros and cons of anticoagulation.

The results, published in the *Journal of the American Heart Association*, showed that patients who used the tool felt significantly less conflicted and more confident about their choices than those who received standard care. The toolkit now exists in English, Spanish and a dozen captioned languages and can be downloaded for offline use. It's hosted by patient groups like StopAfib.org, where it's drawing steady traffic.

Wang's team is now adapting the same approach for other complex medical choices — starting with a new NIH-funded study on whether elderly patients should receive implantable defibrillators.

"We're hopeful that people will develop patient-centered decision tools like this one for all kinds of conditions," he said.

He called the Heart Association's work on shared decision-making "pretty ambitious. It's a great example of the organization's grand vision to improve the care and quality of people's lives."

Dr. Paul Wang

University of Utah

Center Director: Angela Fagerlin, Ph.D.

Doctors may know the science, but patients know their own lives. At the University of Utah, researchers set out to bridge that gap with new tools to help AFib patients make better decisions about taking anticoagulants to prevent stroke.

"We had some cardiologists tell us there was no need for these tools," said **Center Director Angela Fagerlin, Ph.D.** "I think clinicians take pride in their conversations with their patients — and a lot of times they do a really good job. But we know from other research that people often forget the great majority of what happens in a clinical visit: As many as 50% of at-risk patients with AFib who are given a prescription do not start therapy, and 30% to 50% of those who start therapy discontinue it within one year."

In a randomized study, Utah researchers found that using decision aid tools — either patient-facing or clinician-patient "encounter" aids — led to better outcomes for people with AFib, compared with usual care. Patients who used both tools experienced the greatest benefits, including higher-quality shared decision-making, greater knowledge and less decisional conflict.

Even when used separately, the tools improved communication and understanding, with the encounter aid showing the strongest overall impact.

The study, published in *The British Medical Journal (BMJ)*, included a wide variety of patients. "Is it a patient who looks at the risks and benefits before deciding? Are they a maximizer who wants all treatments possible? Or a minimizer who doesn't like to be on medications? Are they worried most about bleeding risks? Or about stroke?"

No matter what type of patient, the tools helped, Fagerlin said.

Utah scientists worked with Stanford, the other Network DECIDE Center.. "We both had the same goal: To increase shared decision making," she said. "We also collaborated on measures so at the end of the trials we could pool our data and compare the different tools on the same outcomes."

Fagerlin envisions a future where these tools are widely used, helping millions of patients feel more confident – and more likely to follow through with their prescriptions. "The clinician is the expert on the disease, and the patient is the expert on what matters most to them. That's what shared decision making is."

Dr. Angela Fagerlin

Dr. Dan Roden

Vanderbilt University Medical Center

Center Director: Dan Roden, M.D., FAHA

Atrial fibrillation isn't just a quirk of the heart's wiring. It's also chemistry in motion, since inflammation and damaged fats can damage heart tissue, nudging the heartbeat off course.

Scientists at Vanderbilt University delved deep into the chemistry with the goal of stopping AFib before it starts.

They looked closely at molecules called isolevuglandins (isoLGs), which form during inflammation and attach quickly to proteins, disrupting normal function and possibly contributing to AFib. The team developed a "scavenger compound," 2-HOBA, which "sops up" the molecules, potentially preventing tissue damage that can trigger arrhythmias, said **Center Director Dan Roden, M.D., FAHA.**

Working with mice in the basic project, Vanderbilt scientists found that 2-HOBA could neutralize harmful fats that trigger atrial fibrillation. Across multiple models, the compound consistently blocked arrhythmias, offering a promising glimpse of a new way to prevent AFib at its source.

In a first-of-its-kind study, clinical researchers at Vanderbilt gave AFib patients 2-HOBA to calm post-ablation inflammation. The trial was halted when the drug failed to help, but the surprising results are reshaping how scientists think about AFib and inflammation in humans.

In the population project, scientists analyzed 25,000 patients with AFib and used machine learning to identify patterns. They uncovered three distinct AFib subgroups, from those with few risk factors to patients whose disease is tied to conditions like coronary artery disease and kidney disease. The study confirmed that genetic risk plays a major role in otherwise healthy patients, paving the way for more personalized treatments.

In one of its most impactful SFRN projects, Vanderbilt teamed up with the NIH TOPMed program on a study sequencing the genomes of more than 1,200 patients with early-onset atrial fibrillation. It discovered that about 10% carried rare genetic variants tied to cardiomyopathies, or heart muscle disorders that may drive the arrhythmia. The findings are already fueling Vanderbilt's new precision medicine clinic.

"Our research really advanced the idea that the earlier you find patients who are at high risk, the earlier you can treat them and slow progression of the disease," Roden said.

"Being part of the Heart Association's network gave us access to key resources and partnerships that will help us advance precision medicine."

Boston University Center Director **Emelia Benjamin, M.D., ScM, FAHA**, said fellows benefitted immensely from partnering with scientists from other centers.

"To really solve the complex health challenges that face us, it's increasingly important to have collaborations that span institutions," she said. "This fellowship model represents an innovative educational strategy."

As AFib prevalence continues to rise worldwide, the need for fresh minds tackling its mysteries has never been greater, said Northwestern University Center Director **Rod Passman, M.D.**

"The fact that we could train people who will then launch their careers and put their energies into heart disease and arrhythmias greatly benefits us all," he said. "Not only does it get people interested who might otherwise put their talents into other fields, but it will train the next generation of clinician scientists to make sure that research in these areas continue."

THE FELLOWS: A CLOSER LOOK

The Fellowship Program

The fellowship program was an integral part of the AFib SFRN. It's also an important step toward the future, as the Heart Association provided funding to Centers to train and mentor postdoctoral fellows, innovating a new generation of investigators. Fellows were assigned to specific teams at each SFRN center.

They forged relationships with scientists and mentors inside and outside of their centers as they conducted research on new ways to treat and prevent AFib. The fellows also advanced their careers by networking and presenting research at Heart Association conferences and meetings.

"The fellows were solely devoted to these projects and got a tremendous amount of work done. Of most of the papers written, the fellow is the first author," said Oversight Advisory Committee Chairperson **Mark Link, M.D.** "The program gives them a great boost for their academic careers."

Here are the stories of six of the fellows:

Lu-Chen Weng, Ph.D.

Boston University

After months of training and discovery, one meeting made **Lu-Chen Weng, Ph.D.**, realize what it's like for someone actually living with the disease she studies.

While hearing a patient advocate describe their near-fatal battle with heart disease, Weng experienced an "Aha!" moment.

"Cardiovascular disease is not just 1s or 0s in my dataset. It's a real problem that affects people," Weng recalled thinking. "Her talk still reminds me why I want to study this field."

Inspired by that encounter, Weng immersed herself in research that could directly improve patient outcomes. Working in Boston University's population project, she set out to tackle a pressing question: can genetic information help doctors better identify patients at risk of cardioembolic stroke (CE), a serious complication of AFib?

Her study, published in *Stroke*, used polygenic risk scores to estimate a patient's genetic risk for AFib and tested whether adding these scores could improve the distinction between CE stroke and other types of ischemic stroke.

Dr. Lu-Chen Weng

The results showed that combining genetic data with traditional clinical risk factors strengthened the ability to identify both AFib patients and those most at risk for CE stroke. The findings could help doctors target treatments more effectively, bringing precision medicine one step closer to the patients who need it most, she said.

Weng credits her mentors, including **Emelia Benjamin, M.D. FAHA** and **Steven Lubitz, M.D., MPH, FAHA**, for helping her stay on track and sharpen her skills at project coordination, teamwork and presenting findings.

"The program may feel intense, but it's very helpful for young researchers," she said. The fellowship also taught her to prepare grant proposals, which she sees as essential for the next stage of her career.

Moving forward, Weng wants to be an independent researcher studying population-level insights to improve proactive health management.

"In the big data era, I hope to develop better tools that combine this data to predict future health risks and help people stay healthy," she said. "I'm thankful for all the support Heart Association has given me and other researchers."

Sojin Youn Wass, M.D.

Cleveland Clinic

Sojin Youn Wass, M.D., spent her fellowship tracking the genetic sparks that throw hearts out of rhythm, offering clues for smarter prevention and treatment of AFib.

In her basic science work, she explored human heart tissue to see how AFib-related genes like MYOZ1 and SYNPO2L shape heart muscle behavior under stress, revealing why certain hearts are more vulnerable to atrial fibrillation.

On the clinical front, she helped launch and run the TRIM-AF trial, testing whether an approved diabetes drug, metformin, paired with targeted lifestyle changes, could calm erratic heart rhythms in patients with implantable cardiac devices.

Her lab findings point to genetic factors that make some hearts prone to AFib, while the trial's results could pave the way for practical, accessible strategies to treat the condition. Her work appeared in several publications, including *Heart Rhythm* and *International Journal of Molecular Sciences*.

For doctors, Wass hopes her work will "help shift AFib treatment toward earlier, more personalized prevention — using gene insights and metabolic therapies." For patients, success could mean access to "a safe, affordable medication (metformin) and practical lifestyle changes to lower AFib burden."

Dr. Sojin Youn Wass

Looking ahead, this combined approach aims to "make AFib care more proactive, targeting the root causes rather than just the symptoms," she said.

Wass thanked her three mentors, **Mina Chung, M.D., FAHA**, in clinic, **Jonathan Smith, Ph.D, FAHA**, in basic science, and **John Barnard, Ph.D.**, in quantitative research.

"Working with them allowed me to see how seemingly separate departments come together to drive discoveries," she said. "I came to appreciate the immense rigor, time and energy that go into every discovery, from the smallest insight to the largest breakthrough — something I had previously taken for granted."

Moving forward, she wants to deepen her expertise and transform how AFib and ventricular tachycardia are treated. "My hope is to build a career that bridges basic science and clinical practice, addressing the root causes of disease and improving outcomes for patients."

Dr. Maurice Pradella

Maurice Pradella, M.D.

Northwestern University

Maurice Pradella, M.D., delved into a deceptively simple question: could the motion of blood itself reveal early warning signs of heart and brain disease?

"It's suspected that blood flow changes in the heart are linked to stroke and other diseases of the heart and vascular system," explained Pradella, a fellow at Northwestern University. "We investigated whether we could find links — both in patients with atrial fibrillation, as well as in participants of a larger observational study."

Using advanced 4D MRI, he and his colleagues examined how blood moved through the heart and vessels in real time. In the end, they found links between the blood-flow measurements and silent strokes as well as other cardiovascular risk factors.

Scans like this could give doctors a clearer picture of how blood moves through the heart in AFib patients, he said, helping to identify which patients are most at risk for dangerous clots. In turn, that could guide more personalized decisions about whether and how aggressively to prescribe blood thinners. The findings are likely to inspire further research in the field, he said.

Pradella's work on cardiac MRI and atrial blood flow earned publication in several of the field's top journals, including *Journal of Magnetic Resonance Imaging, European Radiology and Radiology: Cardiothoracic Imaging*.

He thanked his mentors at Northwestern for creating "the best environment to thrive. **Dr. Michael Markl** and **Dr. Philip Greenland** are both experts in their field, with incredible work ethic, exceptional leadership skills and personal wisdom."

Now a deputy head of cardiothoracic imaging at University Hospital Basel in Switzerland, he continues to explore new frontiers in cardiac MRI and hopes to mentor younger researchers.

Looking back, he said the Heart Association's SFRN fellowship was a pivotal point in his career. "It was a great chance for me. I recommend the fellowship to everyone."

Dr. Tina Baykaner

Tina Baykaner, M.D., MPH
Stanford University

Trying to make the invisible visible, **Tina Baykaner, M.D. MPH** wanted to help patients understand the intricacies of AFib with a user-friendly digital aid.

In her search for the simplest tool possible, she first had to untangle layers of feedback, design hurdles and patient input.

Eventually, she and colleagues created a multilingual digital aid that puts patients in the driver's seat of their AFib care. Through short animations and simple graphics, it breaks down stroke risk and anticoagulation in clear, easy terms.

"For patients, this means more personalized, informed decisions that align with their values and may improve adherence," she said. "For clinicians, the toolkit streamlines discussions, improves communication and increases satisfaction." Her findings were published in *Journal of the American Heart Association*.

For Baykaner, the fellowship honed a wide range of skills. "It sharpened my ability to design clinical trials, analyze complex datasets, and translate findings into patient-centered language," she said. "And it gave me leadership experience in multidisciplinary teams."

She praised several SFRN mentors: At Stanford, **Paul Wang, M.D., FAHA**, "provided invaluable guidance, not only in scientific and clinical aspects of the study, but also in the broader skills required to lead collaborative, multi-center research." With help from Boston University's **Emelia Benjamin, M.D., FAHA**, Baykaner went on to secure both an NIH K23 early career development grant and an NIH R01 grant to fuel her independent research program.

Now an assistant professor of medicine at Stanford, Baykaner looks ahead to "integrating AI-driven tools and precision medicine approaches into everyday arrhythmia care," making treatment smarter, safer, and more personal.

"I am deeply grateful to the Heart Association for fostering an environment where young investigators can thrive," she said. "The SFRN fellowship has been career-shaping and has given me the foundation to pursue innovative, patient-centered research that I hope will improve outcomes for years to come."

Aubrey Jones, PharmD, MSCI
University of Utah

For **Aubrey Jones, PharmD, MSCI** the Heart Association's fellowship was a crash course in collaboration and navigating a sea of viewpoints.

"Running a randomized control trial is not an easy task, nor is working with a lot of clinicians and researchers who have strong and diverse opinions about all aspects of the project," she said.

"I learned a lot about how to bring everything together into a cohesive project."

Her research asked if doctors and patients can truly make treatment decisions together. Testing two innovative guides — one for patients and one for clinicians — she found that when both sides had the right support, discussions improved, knowledge deepened and decisions became clearer.

Jones praised Utah Center Director **Angie Fagerlin, Ph.D.** for her guidance. "She was really incredible. I'm a much better researcher and academic because of her influence and mentoring."

She also said the Heart Association's Research Leadership Academy had "a lasting impact, especially sessions on improving informed consent and recruiting a diverse population. I've learned to be more thoughtful about using the concept of race — whether it truly fits the question or is it standing in for genetics, socioeconomic status, or social determinants of health?"

She credits the fellowship for propelling her career forward and helping her land her current job as assistant research professor in pharmacy at the University of Utah. Jones said she wants to keep improving patient education and communication, "not just in my clinical area of anticoagulation, but in other areas." And she's eager to guide others, paying forward the support she received during the SFRN.

"Like my mentors have helped me to grow, I hope to mentor trainees and teach students so they can have successful careers."

Dr. Aubrey Jones

Dr. Giovanni Davogustto

Giovanni Davogustto, M.D., MSCI
Vanderbilt University Medical Center

Every researcher starts out chasing answers. But for Vanderbilt fellow **Giovanni Davogustto M.D., MSCI**, his time studying atrial fibrillation has been about embracing the questions.

"We don't know why some people get AFib while others do not," he said. "We also don't know why some people with AFib have symptoms and some don't. And we don't know why medicine or other treatments work in some people but not everyone," he said.

His research set out to map the patterns hidden inside the chaos of AFib.

Armed with Vanderbilt's vast electronic health records and a machine-learning technique called "co-clustering," Davagustto and his colleagues grouped patients by the mix of health problems they had when first diagnosed.

Two distinct types of AFib emerged: one in people burdened with other illnesses — such as heart or kidney disease — who faced worse outcomes, and another in generally healthier patients whose AFib seemed driven more by genetics.

The discovery could help physicians personalize care, identifying which patients might benefit from treating inflammation and which are better served by genetic or rhythm-based therapies.

He thanked **Dan Roden, M.D., FAHA** and **Quinn S. Wells, M.D., PharmD, MSCI** for their mentorship and for teaching him how to collaborate with "an amazing team of researchers from different backgrounds, skillsets and perspectives."

The fellowship "was critical in launching my career," said Davogustto, who is now an assistant professor focusing on arrhythmia at Vanderbilt University Medical Center.

He praised the Heart Association's SFRN format for promoting one-on-one interactions and meetings across centers. He also said the basic/population/clinical project set-up "makes it much easier to see how an idea can be applicable to possible therapies."

In the future, he plans to keep combining research with personalized clinical care, using insights from both DNA and real-world patient data.

"I'm extremely grateful to the Heart Association for supporting the careers of trainees so we can learn how to ask relevant questions that will help our patients' live longer and healthier lives."

COLLABORATIONS

Teamwork played a key role in the AFib SFRN. By design, the network operated as a strong partnership, with scientists of different disciplines working together inside and outside the centers to share best methods, models and approaches for studying AFib.

"There was a tremendous amount of collaboration between the different centers, with everyone talking regularly about how they could help each other," said Oversight Advisory Committee Chairperson **Mark Link, M.D.**, who highlighted a multi-center project using Apple Watches to track AFib.

That Apple Watch project included Northwestern University, where Center Director **Rod Passman, M.D.** said he was glad to team up with researchers at Boston, Vanderbilt and Cleveland Clinic during the SFRN.

"It's so great to interact with thought leaders in the field and to plant these ideas that will keep growing," Passman said. "When you bring together centers who all have unique approaches to this really complicated disease, you get a synergy that doesn't normally occur. It's amazing to see."

Stanford University Center Director **Paul Wang, M.D., FAHA**, agreed. He said collaborating with the University of Utah on patient-focused decision-making led to "a fascinating interplay. When you collaborate with different kinds of people, it gives you new insights and allows you to do new things."

Boston University Center Director **Emelia Benjamin, M.D., FAHA** said another productive partnership during the AFib SFRN was the SURE program, a Heart Association initiative for supporting undergraduate research experiences for students pursuing careers in science, technology, engineering, math, and medicine (STEMM).

"To really solve complex health challenges, it's important to have collaborations and training programs that extend beyond the borders of a single institution," she said. "The Heart Association understands how seminal that really is."

CONCLUSION

Affecting an estimated 5 million Americans, atrial fibrillation is a leading cause of stroke and hospitalization, and its prevalence is climbing as the population ages. Even with years of progress, AFib remains one of medicine's most stubborn challenges.

Research from the AFib SFRN is opening the door to approaches that could finally change the outlook for patients, said Oversight Advisory Committee Chairperson **Mark Link M.D.**

"Each of the SFRN centers played to their strength to give us a fuller understanding of why AFib occurs and how to treat it. We'll be better able to predict who's going to get AFib and then potentially prevent it," he said.

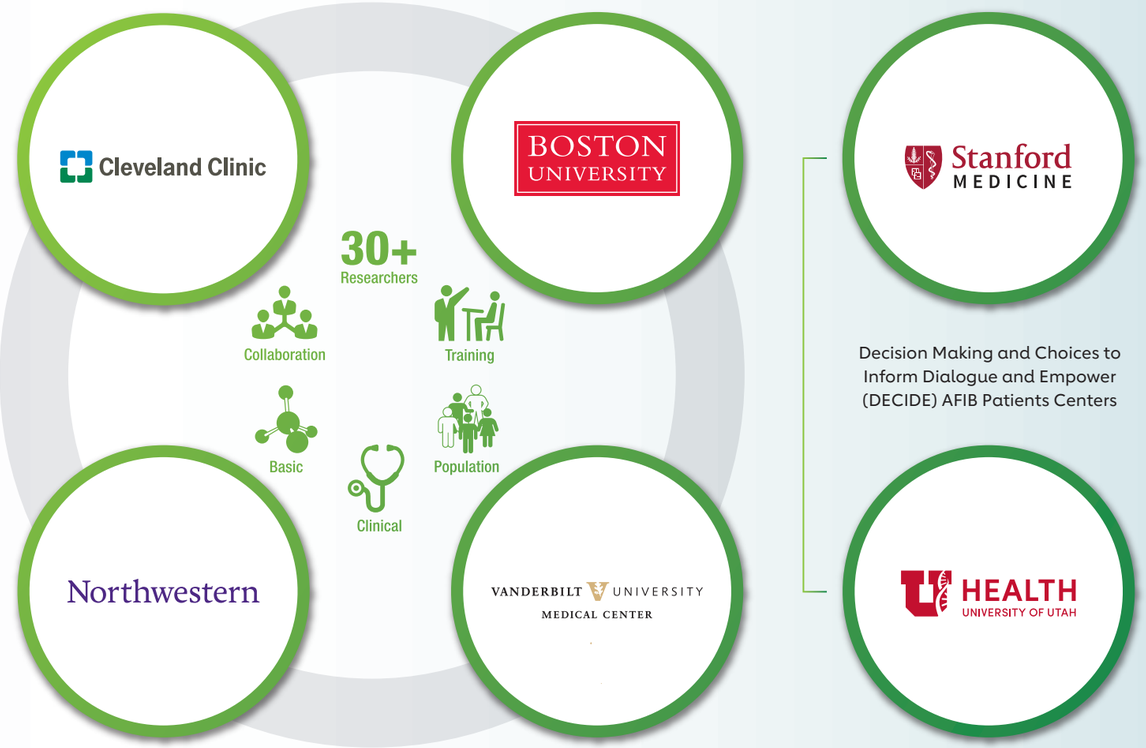
"AFib is the most common arrhythmia we deal with and it affects a growing number of people. The Heart Association was very forward-thinking in choosing it. It's an important project, and I think we'll see a lot of exciting things come out of this."

Since the first SFRN launched in 2014, the Heart Association has created 17 strategically focused research networks.

Other networks have focused on Prevention, Hypertension, Disparities in CVD & Stroke, Go Red For Women, Heart Failure, Obesity, Children's Health, Vascular Disease, Arrhythmias and Sudden Cardiac Death, Cardiometabolic Health & Type 2 Diabetes, Health Technologies & Innovation, Cardio-Oncology, Science of Diversity in Clinical Trials, Biological Impact of Chronic Psychosocial Stress, Role of Inflammation in Cardiovascular Health, and Cardiovascular Kidney Metabolic Syndrome: Heterogeneity in Women.

Sarah Ross Soter's $5M gift funded the Cleveland Clinic Center and collaborative grants.

Joe and Linda Chlapaty contributed $5M to Stanford's DECIDE Center and an additional $500K to strengthen collaboration across all six Centers.



The Patient-Centered Outcomes Research Institute (PCORI) invested $2.75M to support the DECIDE Center at the University of Utah.

American Heart Association

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