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## OPINION

# INOCA Is a Women's Health Crisis Hiding in Plain Sight

## Venture Capital Can Close the Diagnostic Gap

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**Cardiovascular disease remains the leading cause of death among women in the United States.** Yet within this broad category lies a deeply underrecognized and underfunded condition — Ischemia with Non-Obstructive Coronary Arteries (INOCA) — that disproportionately affects women and reveals a gaping blind spot in clinical innovation, diagnostics and venture capital attention.

**INOCA is not benign.** It is a silent epidemic associated with higher rates of heart failure, major adverse cardiovascular events (MACE) and impaired quality of life. Yet, millions of women presenting with chest pain and other signs of ischemia are dismissed, misdiagnosed or ignored — not because their symptoms aren't real, but because they don't fit the outdated mold of what heart disease "should" look like. The system isn't yet designed to recognize INOCA. Innovation hasn't caught up with the science.

As a result, **up to 70% of women** who undergo coronary angiography for angina symptoms have no obstructive coronary disease yet continue to experience debilitating chest pain and persistent cardiovascular risk even after the procedure. Often misdiagnosed with anxiety or acid reflux, these patients are sent on years-long diagnostic journeys that end in fragmented care, repeated ER visits and declining quality of life.

At the Go Red for Women Venture Fund, we believe **this is not just a medical gap — it is a venture opportunity and a moral imperative.**

### A Fragmented Diagnostic Landscape and a Blind Spot in Care

The current diagnostic gold standard — functional coronary angiography — is invasive, expensive and available only at a limited number of academic or tertiary care centers. Most patients never make it that far. Standard non-invasive tools like ECGs or stress tests often miss INOCA, and imaging techniques typically fail to capture dysfunction at the microvascular level. Essentially, there are no standardized diagnostic pathways for detecting INOCA.

This diagnostic gap is magnified by a broader issue: a failure to educate beyond the cardiology community. Most INOCA patients are first seen in the emergency room or by primary care physicians, not by cardiologists. Yet PCPs and ED physicians receive little to no training on recognizing INOCA or its endotypes (functional mechanisms). Many of these patients are sent home with a label of "non-cardiac pain."

Direct downstream consequences result: increased risk of heart failure, major adverse cardiovascular events (MACE), depression, loss of work productivity and rising health care costs. The U.S. reportedly spent over \$129 billion on coronary heart disease-related care in 2020-2021 — costs that will only grow as INOCA remains misunderstood and mismanaged.

### INOCA Is Not One Disease — And That's Why Precision Matters

INOCA has been difficult to detect because it is not a singular diagnosis — it includes diverse disease mechanisms, such as microvascular dysfunction, vasospastic angina and mixed phenotypes. Without a diagnostic tool that can non-invasively identify the specific endotype, care remains imprecise and inconsistent. Current management strategies, borrowed from obstructive CAD, are often ineffective for INOCA patients. This mismatch not only fails patients but also burdens the healthcare system.

That's why we believe there is a clear and urgent need for a non-invasive, endotype-specific diagnostic tool that can be used earlier in the care pathway — ideally at the PCP or ED level — to identify the mechanism of ischemia without sending patients down costly and invasive paths.

Such a solution would empower clinicians to stratify risk, personalize treatment and drastically reduce misdiagnosis. More importantly, it would address the unique expression of cardiovascular disease in women — where traditional diagnostics fail.

### Regulatory Momentum and Market Readiness

**There is momentum.** The Centers for Medicare & Medicaid Services (CMS) recently increased reimbursement for AI-assisted analysis of coronary CT angiograms (CCTAs) — a signal that policy is beginning to support innovation in cardiac diagnostics, particularly those that improve workflow and accessibility. This kind of reimbursement advancement opens the door for precision diagnostics that integrate AI, imaging, genomic and proteomic profiling and risk stratification — exactly the kind of platform needed to triage INOCA patients more effectively.

Furthermore, the American Heart Association has formally recognized the urgent need for action. In their 2022 publication Clinical Practice Variation in the Management of Ischemia With Non-Obstructive Coronary Arteries, the Association called for guideline development, provider education and research to address the profound gaps in INOCA management. This is not just an academic recommendation — it's a call to restructure how we think about, diagnose and treat one of the most common forms of heart disease in women.

### A Call to Investors

This is where we, as investors, come in. INOCA is not a rare disease. It is common, costly, and devastating — especially to women. As awareness grows among providers and guideline-setting organizations like the American Heart Association and European Society of Cardiology, the market for scalable, non-invasive diagnostics will expand. Regulatory bodies are increasingly receptive to patient-centered, precision-based tools. Payers are already feeling the pressure of rising repeat hospitalizations and non-specific treatment pathways.

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**The next  
billion-dollar  
cardiovascular  
market may  
lie in the  
smallest vessels.**

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The opportunity here is twofold: to back solutions that improve lives and to lead in a space that will define the next era of cardiovascular innovation.

The time is now to invest in INOCA solutions that are:

- Non-invasive
- Endotype-specific
- Scalable beyond academic/tertiary centers
- Seamlessly integrated into existing clinical workflows
- Capable of enabling personalized, data-informed care

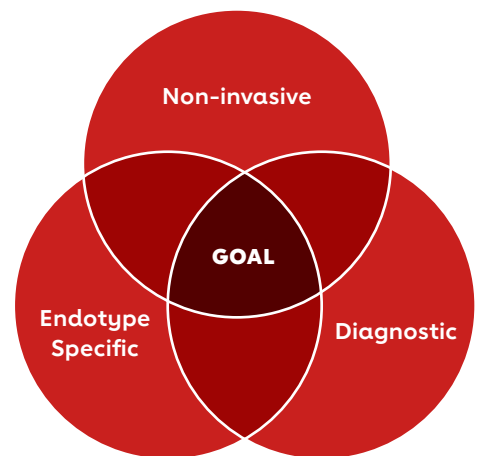
**Let's be clear: this is not a niche opportunity.**

As awareness grows, and as clinical societies and payers begin to adapt, the demand for INOCA solutions will rise.

Investors who understand the landscape today will lead tomorrow.

We urge the broader venture community — particularly those focused on health for women, diagnostics, AI and precision health — to look closely at this space. Support the founders who are challenging the status quo. Support the technologies that meet women where they are. And help shift the cardiovascular paradigm from one-size-fits-all to precision, patient-centered care. This is more than unmet need — it's unmet potential.

**Let's stop waiting for the system to catch up. Let's invest in it. Let's lead.**



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The **Go Red for Women Venture Fund** is one of the venture capital programs of American Heart Association Ventures, which leads and coordinates the Association's investment initiatives. [heart.org/ventures](https://heart.org/ventures)



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