

MOXIE significantly reduces cardiovascular events in high-risk chronic disease patients

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Researchers from the University of Calgary, the Interdisciplinary Chronic Disease Collaboration (ICDC), and social impact creative agency Emergence Creative are announcing dramatic results that

demonstrate a significant improvement in cardiovascular outcomes among patients who received access to a novel educational and support intervention called MOXIE.

The [randomized trial](#), detailed in the most recent issue of *Circulation*, a leading international journal for cardiovascular medicine, is the largest study on record for a tailored patient engagement approach, showing a statistically significant reduction in clinical outcomes like hospitalizations.

In this study, 4,761 participants who were ≥ 65 years of age and at high risk of cardiovascular [disease](#) (having one or more of [coronary artery disease](#), stroke, [chronic kidney disease](#), [heart failure](#) or two or more of current smoking, diabetes, hypertension, high cholesterol) were randomized to receive MOXIE or to receive standard care. The group that received MOXIE had a 22% lower rate of primary outcome events (incidence rate ratio [IRR] 0.78, 95%CI: 0.61-1.00, $p=0.0472$).

The primary endpoint was the composite rate of all-cause mortality, including myocardial infarction, stroke, coronary revascularization, as well as hospitalizations for cardiovascular-related ambulatory care-sensitive conditions—such as hypertension, diabetes, angina, and kidney disease. Secondary outcomes included individual components of the primary endpoint, changes to medication adherence, overall quality of life, and healthcare costs.

"This is a promising and hypothesis-generating result," says the study's lead author, Dr. David Campbell, Assistant Professor at the University of Calgary. "It suggests that this unique form of regular, high-engagement communication with patients may lead to more positive health outcomes for many at the highest risk. More research needs to be done, however, to understand the full extent of how and why it works," he adds.

The study came out of ICDC's strategic plan to optimize patient health; recognizing communication to be an important factor in managing chronic disease, the team brought in the marketing and communications expertise of Emergence Creative, a New York-based [social impact](#) creative agency, to tackle the problem from a human perspective.

Using an advertising and human-centered design approach, Emergence Creative developed a [brand identity](#) that resonated with the intended audiences and a messaging system that addressed the complex factors that influence people's daily health decisions.

"When we built MOXIE, we thought it might have an impact—but now we have a proof of concept," says Emergence Creative CEO, Dr. Raj Pannu. "We're absolutely thrilled with the outcome and believe MOXIE and other similarly designed and executed approaches can truly make a difference in health outcomes," he adds.

"This is very exciting as behavior change interventions have traditionally been very difficult to implement," says Dr. Jia Hu, CEO of 19 To Zero, a non-profit coalition focused on disease prevention and MOXIE's implementation partner. "It's the type of medical intervention for cardiovascular disease that can be efficiently and economically scaled to actually improve outcomes in patients."

"As a [family physician](#), one of my primary roles is to find approaches to treatment of chronic illness that fit with the many other priorities in a patient's life," says Noah Ivers, family physician at Women's College Hospital and Associate Professor at the University of Toronto. "A program like MOXIE could make my job easier by helping patients with self-management. We know that tools to help people cope with the multiple facets of living with complex illness over time are needed, and I think this result suggests that MOXIE has helped people in this way."

Created by Emergence Creative, MOXIE's personalized patient engagement platform was designed using advertising and human-centered design principles with SMES including an online portal, direct mail, daily patient check-ins and gamification—all aimed at changing daily behaviors that put [patients](#) with chronic diseases like diabetes, heart disease, and high blood pressure at risk of heart attacks and strokes.

Using customized content based on patient personality profiles, MOXIE is an innovative personalized health engagement tool specifically designed for the study population (ie. community-dwelling seniors at elevated risk of cardiovascular events) to improve their confidence in properly managing their health.

More information: David J.T. Campbell et al, Self-management Support Using Advertising Principles for Older Low Income Adults at High Cardiovascular Risk: a Randomized Controlled Trial, *Circulation* (2023). [DOI: 10.1161/CIRCULATIONAHA.123.064189](https://doi.org/10.1161/CIRCULATIONAHA.123.064189)

Provided by University of Calgary

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