

- [Home](#)
- [SF STAT!](#)
- [Current Articles](#)
- [CURRENT ISSUE](#)
- [Online Newspapers](#)
- [WEEKLY NEWSLETTERS](#)
- [Media Kit](#)
- [Calendar](#)
- [Business Directory](#)
- [Video Interviews](#)
- [Contact](#)

Select Page

# NIH Awards Researchers \$3.14 Million Grant to Design Novel Model Aimed at Reducing Healthcare Disparities

**Team to use “digital twin” technology to develop strategies to improve health outcomes**

February 21, 2023 – Supported by a new \$3.14 million grant from the National Institutes of Health to Cleveland Clinic, researchers are using an emerging technology known as “digital twins” to better understand healthcare disparities based on where someone lives. Researchers from [Cleveland](#)

[Clinic](#) and [MetroHealth](#) aim to use this information to develop strategies designed to reduce these disparities in health outcomes.

The research team, led by [Jarrod Dalton, Ph.D.](#), of Cleveland Clinic, and [Adam Perzynski, Ph.D.](#), of MetroHealth, will use digital twins – sophisticated data models built from electronic health records – to analyze health trends from a combined research registry of more than 250,000 patients from the health systems.

This technology aids in accurately representing complex economic, environmental and social factors that can lead to disparities between neighboring communities.

“Where a person lives or works can shape their health outcomes – including life expectancy and risk of developing diseases like cancer or diabetes. Americans from socioeconomically disadvantaged communities are more likely to have heart attacks and stroke, and are expected to live 10 fewer years than wealthier Americans,” said Dr. Dalton, director of Cleveland Clinic’s Center for Populations Health Research. “Our goal is to design an approach to help health systems, governments and organizations collaborate and strategize ways to address clear disparities.”

The grant builds upon previous research published by Drs. Dalton and Perzynski in the [Annals of Internal Medicine](#) that the neighborhood where people reside may be linked with risk of cardiovascular events. They analyzed patient data and found people from socioeconomically disadvantaged neighborhoods had major cardiovascular events at more than twice the rates predicted by traditional risk assessment tools.

In the new grant, the team will initially build the infrastructure for “Digital Twin Neighborhoods,” synthesizing de-identified health information from electronic health records which will include some information on social

determinants of health, or aspects of a patient's life that might influence health education and outcomes as they age.

These virtual neighborhoods, digital replicas of real communities, including biological, social and geographic information, expand access to data and algorithms for understanding place-based health and social inequalities.

They will then evaluate the effectiveness of this approach through initial projects using the tool: assessing regional mental health initiatives on a neighborhood level; evaluating the potential impacts of introducing new services on heart disease burden in communities; and evaluating how frequent and/or economically-driven relocations of residence affect health outcomes.

"This project aims to chart a new course for understanding place-based population health strategies and improving health outcomes," said Dr. Perzynski of MetroHealth's Population Health Research Institute (PHRI). "Evaluating technology like digital twins in the research space can make it easier for organizations to take a data-backed approach to public health interventions. Instead of building these models from scratch, other health systems and organizations can adapt the framework for their own needs."

"Neighborhood health disparities in Cleveland are severe, among the most severe in the country," said Dr. Dalton. "This is the biggest problem in population health of our time."

Additional collaborators on the research project include Drs. Elizabeth Pfoh and Glen Taksler from the Center for Value-Based Care Research at Cleveland Clinic, and Drs. Kristen Berg, Douglas Gunzler and Yasir Tarabichi from MetroHealth's PHRI.

"We're committed to supporting lifelong health for our patients and the communities where they reside," says Serpil Erzurum, M.D., Cleveland Clinic's Chief Research and Academic

Officer. “To help us begin to address and treat the root causes of disease, we need to understand what has led us to this point. Using innovative approaches like digital twin communities is the future of population research, and it will reveal how we can better address health disparities to make positive changes in our communities.”

## About Cleveland Clinic

[Cleveland Clinic](#) is a nonprofit multispecialty academic medical center that integrates clinical and hospital care with research and education. Located in Cleveland, Ohio, it was founded in 1921 by four renowned physicians with a vision of providing outstanding patient care based upon the principles of cooperation, compassion and innovation. Cleveland Clinic has pioneered many [medical breakthroughs](#), including coronary artery bypass surgery and the first face transplant in the United States. *U.S. News & World Report* consistently names Cleveland Clinic as one of the nation’s best hospitals in its annual “America’s Best Hospitals” survey. Among Cleveland Clinic’s 72,500 employees worldwide are more than 5,050 salaried physicians and researchers, and 17,800 registered nurses and advanced practice providers, representing 140 medical specialties and subspecialties. Cleveland Clinic is a 6,500-bed health system that includes a 173-acre main campus near downtown Cleveland, 22 hospitals, more than 220 outpatient facilities, including locations in northeast Ohio; southeast Florida; Las Vegas, Nevada; Toronto, Canada; Abu Dhabi, UAE; and London, England. In 2021, there were 10.2 million total outpatient visits, 304,000 hospital admissions and observations, and 259,000 surgical cases throughout Cleveland Clinic’s health system. Patients came for treatment from every state and 185 countries. Visit us at [clevelandclinic.org](https://clevelandclinic.org). Follow us at [twitter.com/ClevelandClinic](https://twitter.com/ClevelandClinic). News and resources available

at [newsroom.clevelandclinic.org](http://newsroom.clevelandclinic.org).

South Florida Hospital News and Healthcare Report's number one goal is top quality healthcare journalism written and edited for the region's most successful, powerful healthcare business executives and professionals.



Phone : [561-368-6950](tel:561-368-6950)

Fax : [561-368-6978](tel:561-368-6978)

- [Home](#)
- [About](#)
- [CURRENT ISSUE](#)
- [Media Kit](#)
- [Video News](#)
- [Datebook](#)
- [Calendar](#)
- [Business Directory](#)
- [Webinars](#)
- [Contact](#)

Copyright © 2021 Florida Hospital News and Healthcare Report.  
Site Designed By