

Preventing stroke disability in a community with high rate of poverty

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Flint, Michigan. Credit: Unsplash/CC0 Public Domain

The use of thrombolysis, medications to break up blood clots, for acute ischemic stroke reduces post-stroke disability, but it is underutilized. This particularly affects Black individuals, who experience more strokes,

often at a younger age, than white individuals. Black people also have more disability after a stroke.

In an effort to improve those outcomes, Northwestern Medicine and the University of Michigan partnered with [community members](#) and medical providers in Flint, Michigan, to reduce post-[stroke](#) disability. Flint has predominantly Black residents, many of whom live below the poverty level. The five-year program targeted hospital procedures and community education to help suspected stroke victims bypass the [emergency room](#) and, instead, head straight to a CT scanner to speed up this critical treatment and improve equity.

As a result of the investigators' efforts, thrombolysis increased from 4% in 2010 to 14% in 2020. Flint became a top-performing community in Michigan and nationwide in thrombolysis.

Investigators created the website [strokeready.com](#) so other communities can duplicate their efforts. The study will be published July 3 in *JAMA Network Open*.

Flint is a majority Black city, and more than 40% of the population lives below the poverty level. It has the highest poverty rate among U.S. cities with at least 65,000 residents.

"We believe our results are due to researchers, community members, emergency medical services and emergency departments working together to address the community needs," said lead investigator and corresponding author Dr. Lesli Skolarus. "Our approach can be duplicated in other communities to improve equity in stroke treatment."

Skolarus is a professor of neurology at Northwestern University Feinberg School of Medicine and a Northwestern Medicine neurologist. She conducted the research when she was at the University of Michigan.

'Team huddles' with the emergency crew

Thrombolysis must be administered quickly after a stroke to be effective. So, Skolarus and colleagues supported their emergency department partners to create a team that met regularly to review emergency room procedures and provide feedback through "team huddles" and workshops.

"The safety-net emergency department optimized their processes in multiple ways," Skolarus said. "They took people directly from the ambulance to the CT scanner instead of stopping in the emergency room if they suspected a stroke. They also created a team of nurses who are experts in thrombolysis who either performed or supported others to deliver thrombolysis. It was another set of expert hands."

Their approach used implementation science, a relatively new field that is the scientific study of methods and strategies that facilitate the uptake of evidence-based practice and research into regular use by practitioners and policymakers. It also includes community engagement by partnering with the people who are most impacted by the health challenge.

The nonrandomized, controlled trial of the Stroke Ready intervention took place in Flint from October 2017 to March 2020. Participants included almost 6,000 individuals from the community.

"It appears that most of the benefit from Stroke Ready was from the emergency department intervention," Skolarus said.

Educators head to the beauty and barber shops to teach about stroke

The emergency room intervention was just half the story. Skolarus also

partnered with the community to understand the specific challenges facing residents in getting to the hospital and recognizing the symptoms of stroke.

The Rev. Sarah Bailey led the community education program. A former minister at New Jerusalem Full Gospel Baptists, whose mother and pastor had strokes, Bailey surveyed church members and discovered many of them didn't know the symptoms of stroke, although so many were being affected.

"We had African-American folks who were having strokes at an earlier age," Bailey said. "Instead of having them in their 70s and 80s, they were having them in their 50s and 60s, and some as young as 40. It's due to the sedentary lifestyle here in Flint. People have high blood pressure, obesity and all the precursors of living in a depressed community. We are in a food desert, we had a [water crisis](#) going on and there were other issues in morbidities that contributed to stroke."

Trained local community educators went to churches, barber shops, beauty shops, health fairs, senior centers, neighborhood meetings, schools and water distribution sites.

"While people were in line waiting for their water, we could give them a five-minute lecture on the symptoms of stroke—or 30 minutes if the line was long," Bailey said.

A total of 5,970 individuals received the stroke preparedness workshops.

"We explained it in language everyone can understand from people they knew in the community," Bailey said.

The New Jerusalem church minister and music director, Jeffrey

LaValley, even wrote a song and recorded a video with the choir to teach people the symptoms. He had experienced two strokes, the first when he was 49.

At the time, LaValley didn't know the symptoms of stroke, nor did he know about practicing healthy habits to prevent stroke. That's changed. He has jettisoned his beloved fried pork chops from his diet and now cooks veggies in an air fryer. He also walks a mile or two around the church gym every day.

"Our message is not just about stroke, but how people need to stay abreast of their blood pressure and diet," Bailey said. "If you can get African-American men to get past their fears of doctors, you have done a major job. They have this macho bravado that does not allow them to admit to any kind of weakness."

More information: Lesli Skolarus et al, *JAMA Network Open* (2023).

Provided by Northwestern University

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