



SHOW Celebrates Fifth Anniversary

Five years ago, the UW School of Medicine and Public Health set out on a monumental task—to set up a program to better understand factors that affect the health of adults in the state of Wisconsin. The Survey of the Health of Wisconsin, under the direction of Dr. F. Javier Nieto and with support from the Wisconsin Partnership Program endowment, started to travel the state to meet with residents. No other state in the nation had surveyed health in such depth.



Since that time, teams have visited over 8,200 households in 230 communities in Wisconsin. Over 3,200 state residents have answered nearly 1,000 questions about their health and shared their time to help identify priority health needs in the state and support important new research. SHOW has also studied the neighborhoods where participants live, including access to nutritious food and opportunities for good exercise.

SHOW has quickly become a foundation to explore the factors that affect the health of Wisconsin. Researchers continue to tap the program to gather data on many research topics, and have used the data to explore correlates of good sleep habits and adequate levels of vitamin D, dental health, lung function, fish consumption, and smoking habits. In addition, the project has built one of the nation's first public health biorepositories—holding over 100,000 samples of blood, DNA and urine for future health research.

SHOW has worked with community partners around the state and helped multiple groups conduct important research. In partnership with the Wisconsin Department of Health Services, SHOW has gathered data on oral health and screened fishermen for toxic exposures. SHOW joined the Transform Wisconsin project to address obesity, physical activity and tobacco control and partnered with multiple county health departments to take health measurements and survey nutrition environments. The study has also provided a way for university researchers to collect new health information and to partner with neighborhood community groups, such as Lindsay Heights in Milwaukee. SHOW worked with Lindsay Heights to measure the health of members of the community and provide measures that will help in planning to improve wellbeing.

SHOW researchers are looking forward to many more years of groundbreaking research. The school's Vice Dean Paul DeLuca predicts, "No one can anticipate the magnitude of the long-term benefits that the Survey of the Health of Wisconsin will have."

Research to Probe Home Health Care with Virtual Reality

SHOW is joining a team of researchers from the University of Wisconsin to probe into how people manage health conditions at home. The team will include experts from the UW's Department of Population Health Sciences, the Wisconsin Institute for Discovery, the School of Nursing, the School of Human Ecology and the College of Engineering. The research is made possible with a \$2.5 million grant from the Agency for Healthcare Research & Quality. The UW team plans to visit people living with diabetes and to take 360-degree detailed images of the home environment. These images will help researchers understand the barriers and factors that help diabetics manage their health condition.

"We've been looking at broader environments, but not inside the home before," Javier Nieto, SHOW's director shares. "The home is where so much of our health care takes place in our lives. We are breaking new ground, trying to find how aspects of our homes can help and hinder the ways we take care of ourselves."

The project will visit residents throughout Wisconsin to take pictures of the home environment. These images will be translated into 3-D images at the Wisconsin Institute for Discovery's virtual reality CAVE environment.

After recreating images in virtual reality, researchers will compare houses, looking for trends in objects and set-ups that may enhance or inhibit a person's ability to perform specific health treatment tasks. (For confidentiality, research will eliminate characteristic that could identify the individual household.) Experts will digitize objects and furniture into 3-D representations that can be rearranged to create variations of the same room. Then, researchers will conduct studies with a new group of participants in order to measure which features may affect ability to provide home health care.

The breadth of experts on this team, from nursing, computer sciences, public health and engineering, will allow researchers to examine the complexity of health care in ways not traditionally available on most research campuses.

"Not only are we going to learn something from it, but we're also going to create a resource that will help inform design into the future," Gail Casper, associate scientist and registered nurse in the School of Nursing says. "There hasn't been a specialized inventory like this to help public health nurses and families know what to pay attention to."

Food Availability in Neighborhoods and Obesity

Researchers at the UW and Germany's Helmholtz Association have been using SHOW data to learn more about possible causes and solutions for the growing obesity epidemic. Researchers set out to learn if there was a connection between obesity and the type of food outlets available in neighborhoods and communities across the state and to see if there having access to fresh foods at supermarkets and other outlets makes a difference in health.

The team of investigators working on this research created maps to identify places to shop for and buy food in the state, including supermarkets, convenience stores, and different types of restaurants including fast food restaurants. They then looked at the health of SHOW participants to see if access to food based on where one lives in relationship to different types of food stores or restaurants may be impacting health outcomes such as obesity.

The study found that statewide over 39% of residents in SHOW are obese. They also have on average more access to fast food and convenience stores than they have to food outlets that sell more fresh foods, like fruits and vegetables and this is especially true in lower income neighborhoods. The research also shows that if a person eats one fast food meal a week, the likelihood that they will be obese increases by about 9%. People who eat fast food more than once a week are 31% more likely to be obese. While this study is a good start at looking at neighborhoods and health, more studies need to be completed to fully understand how the community environments where people live and shop influence trends of obesity in Wisconsin and to help create plans to address this growing health problem.



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Shift Work, Diabetes and Insomnia

In our fast and modern world, there is an increasing demand for a 24-hour society. More people now are "shift-workers" and work at times of day that are out of rhythm with our natural cycles—working in the night and sleeping in the day. Researchers from the UW School of Medicine and Public Health have recently used SHOW's data to explore how working at night and sleeping in the day impacts the health of Wisconsin shift-workers. In particular, they studied how shift work and sleep problems may be associated with overweight status and diabetes.

The study showed that, in Wisconsin, shift workers were more overweight than traditional-schedule workers: 81% of shift workers were overweight as compared to 71% of workers with more traditional schedules. And 24% of shift workers also reported insomnia as compared to traditional-schedule workers who reported 15%. Scientists are finding that people who are overweight and have sleep problems are more likely to become type 2 diabetics.



Conclusions from the study find that addressing insufficient sleep, especially among shift-workers, may help to reduce metabolic disorders related to diabetes. More research is needed to better understand how disturbing regular sleep patterns can impact health and SHOW can begin to provide some of these important answers.