

Researchers expand cyberspace to fight chronic condition in breast cancer survivors

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Lymphedema is a chronic condition that causes swelling of the limbs and affects physical, mental and social health. It commonly occurs in breast cancer survivors and is the second-most dreaded effect of treatment, after cancer recurrence. Every day, researchers throughout the world learn more about the condition and how it can be treated. Now, University of Missouri researchers are developing a place in cyberspace where relevant and timely information can be easily stored, searched, and reviewed from anywhere with the goal of improving health care through the availability of up-to-date, evidence-based research.

"We want to bring researchers, medical professionals and care providers together to improve patients' health," said Chi-Ren Shyu, principal investigator for the project and director of the MU Informatics Institute. "Merging all of the data into one virtual space and discovering clinically significant knowledge from the haystacks of data will make cutting-edge research and treatments available to patients sooner."

Currently, people looking for information about lymphedema treatment have to visit dozens of medical websites or consult a best practices document, which has not been updated since 2006. The new system will enable immediate access to data, best practices, literature and research from around the world as it is posted online, all in a single, searchable online database.

"The cyber-infrastructure, once complete, can be applied to other diseases and [chronic conditions](#), such as diabetes or cardiovascular

disease," Shyu said. "Potential users include researchers, medical professionals, social workers, patients and their families."

Shyu and his informatics team from the College of Engineering are working with Jane Armer, professor in the MU Sinclair School of Nursing and director of the American Lymphedema Framework Project, housed at MU's Ellis Fischel Cancer Center. Their research is funded by a three-year grant awarded by the National Library of Medicine Applied Informatics Program.

In three years, Shyu and Armer plan to complete a system that automatically will pull research findings and new information from scientific journals and association websites through an automated data mining procedure. Shyu has an agreement with selected health care facilities from throughout the country to provide real-time, anonymous patient data so practitioners can understand how patients in different areas of the country are affected by lymphedema and its treatments.

"The development of an informatics depository for a data set holding key information for all patients with lymphedema of any cause offers enormous potential for answering research questions that are difficult to study with small data sets with varying criteria for lymphedema," said Armer. "This cyber-database will help us unlock the door to more immediate access to the latest information on evidence-based treatment and risk-reduction."

Provided by University of Missouri-Columbia

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