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Systems that use AI to match medications with patients can reduce prescription costs, FIU study reveals

MIAMI - (Dec. 16, 2020) – As the result of rising medication costs, patients often stop following medical treatment plans and fail to get better. Without detailed information, medical practitioners can do little to help.

A recommender system, an emerging tool that uses artificial intelligence (AI) algorithms to identify a medication that matches healthcare goals with the patient’s budget, could help

solve the issue on both fronts, according to new research from Florida International University's College of Business (FIU Business).

Recommender systems are used extensively in e-commerce to give consumers suggestions for products similar to those they've bought in the past. The study found a general tendency among medical practitioners to reduce healthcare costs by prescribing lower-cost medications with similar outcomes to their patients when price information was provided by a recommender system.

"The idea is to give recommendations and price information to the providers at the time the prescription is issued so they pick what's best for their patient," said [Lina Bouayad](#), associate professor of information systems and business analytics at FIU Business and one of the researchers. "This is relevant because if the patient can't afford the medicine, they won't take it and won't get well."

Published in the December 2020 issue of *[Management Information Systems Quarterly](#)*, the research consisted of two controlled experiments and one interview-based survey. A total of 160 practicing physicians, nurse practitioners and physician assistants participated in the study.

In the experiments, medical practitioners were presented with six cases of fictional patients that included patient information and associated medication lists. As the doctors prescribed medications, the recommender system showed in real time alternative medications and their corresponding prices.

Researchers analyzed the impact of various cost-aware recommender systems on prescription-choice behavior, including how time constraints on practitioners affects the use of such cost-aware systems and the effect of practitioner experience on the evaluation and adoption of cost-aware recommendations in clinical settings.

"Physician assistants and nurse practitioners always switched to the lower-cost option. Their behavior, however, changed under high time pressure," Bouayad said. "By contrast, physicians, with more experience dealing with time pressure, were not impacted."

Bouayad conducted the research with professors Balaji Padmanabhan of the University of South Florida and Kaushal Chari of the University of Wisconsin–Milwaukee.

About FIU Business:

Florida International University's [College of Business](#) plays a pivotal role in the development of global business leaders. With more than 10,000 undergraduate and graduate students, FIU Business is widely recognized for its expertise in international business, real estate, data analytics, entrepreneurship, healthcare management, and a broad range of financial services. Its faculty ranks among the Top 100 in the U.S. in UT Dallas' survey of business research productivity. For more information about FIU Business, visit <http://business.fiu.edu>.

About FIU:

Florida International University is Miami's public research university, focused on student success. According to U.S. News and World Report, FIU has 42 top-50 rankings in the nation among public universities. FIU is a top U.S. research university (R1), with more than \$200 million in annual expenditures. FIU ranks 15th in the nation among public universities for patent production, which drives innovation, and is one of the institutions that helps make Florida the top state for higher education. The [Next Horizon](#) fundraising campaign is furthering FIU's commitment to providing students Worlds Ahead opportunities. Today, FIU has two campuses and multiple centers, and supports artistic and cultural engagement through its three museums: [Patricia & Phillip Frost Art Museum](#), the [Wolfsonian-FIU](#), and the [Jewish Museum of Florida-FIU](#). FIU is a member of [Conference USA](#), with more than 400 student-athletes participating in 18 sports. The university has awarded more than 330,000 degrees to many leaders in South Florida and beyond. For more information about FIU, visit www.fiu.edu.