Media Contacts:
Cynthia Corzo
305-348-1664
ccorzo@fiu.edu
BizNews.fiu.edu
@FIUBusiness

Deterrence-based audit policies can help reduce excess costs in healthcare, Florida International University research finds

MIAMI (May 28, 2019) – Skyrocketing spending and excess costs in the healthcare industry can be reduced by deterrence-driven algorithms, according to just-published research from Florida International University's College of Business (FIU Business).

Deterrence-driven algorithms are innovative auditing methods that focus on increasing overall deterrence of waste and abuse in the long run. These are based on the concept of "sentinel effect" by which, once a set of practitioners is audited, information about the audit and sanctions are communicated to other practitioners who then make an extra effort to ensure that billings are accurate.

Traditional auditing methods focus on detecting fraud, using scoring models to select practitioners or claims that are likely to be fraudulent. These methods maximize the direct benefits of audits by generating a response among audited fraudulent practitioners (audit effect). However, they overlook the second-order benefits of driving action among non-audited practitioners informed about audits underway elsewhere (sentinel effect).

The deterrence-based method first filters out practitioners with low fraud probabilities to preserve fairness. Taking into account both the audit and sentinel effects, the algorithm then estimates the network deterrence that will be generated by auditing each practitioner. Practitioners with the highest expected deterrence impact are then selected for audit.

The potential of this algorithm to reduce excess costs, especially when waste and abuse are prevalent, can ultimately maximize deterrence of waste and abuse, noted Lina Bouayad, assistant professor in the Department of Information Systems and Business Analytics at FIU Business.

"Our healthcare system is in dire need of reform that will decrease excess costs," Lina Bouayad, assistant professor in the Department of Information Systems and Business Analytics at FIU Business "Auditing algorithms such as the ones described in this study can help policy makers move in this direction."

The research, published in the INFORMS journal *Information Systems Research*, was based on interviews, surveys, analytical models and data from two Florida counties that helped drive simulations. Collectively this multi-method approach provided insights into how healthcare audits that account for the sentinel effect might produce cost savings.

The study results indicate that in large health provider networks, simple methods such as taking the sharing of information into account can be more effective at curbing improper billing behavior.

While the audit methods can be applied to other industries where waste and abuse is prevalent and dealers are connected through a communication network, the deterrence-based audit policies have so far been evaluated only in the healthcare industry.

The paper was co-authored by Bouayad with Balaji Padmanabhan, professor in the University of South Florida Information Systems Decision Sciences Department; and Kaushal Chari, incoming dean at the University of Wisconsin Milwaukee Lubar School of Business.

A copy of the research paper is available upon request.

-FIU-