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## **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.*

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**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. For more information about FIU Business, visit <http://business.fiu.edu>.*

**About FIU:**

*Florida International University, a public university located in Miami, has a passion for student success and community solutions. The university is classified by [Carnegie as "R1."](#) FIU is among the top 100 public universities in U.S. News and World Report's [2019 Best Colleges](#) and 18 academic programs are individually ranked. FIU was recently ranked as the second best performing university in Florida and graduates are among the highest-paid in the state. FIU has multiple [state-of-the-art research facilities](#) including the [Wall of Wind Research and Testing Facility](#) and FIU's [Medina Aquarius Program](#). FIU has awarded more than 330,000 degrees since 1972 and enrolls more than 57,000 students in two campuses and centers including FIU Downtown on Brickell, FIU@I-75, the Miami Beach Urban Studios, and sites in Qingdao and Tianjin, China. FIU also 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. For more information about FIU, visit [www.fiu.edu](http://www.fiu.edu)*