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A Predictive Framework to Identify Potential Diversion by Health Care Providers

K. Vavonese¹, X. Shan², and M.T. Khasawneh¹

¹Department of Systems Science and Industrial Engineering,
State University of New York at Binghamton

²Department of Engineering,
University of Houston Clear Lake

Corresponding author's Email: shan@uhcl.edu

Author Note: Kimberly Vavonese was a M.S. student in Industrial and Systems Engineering, and Dr. Mohammad T. Khasawneh is a Professor and Chair in the Department of Systems Science and Industrial Engineering at the State University of New York at Binghamton. Dr. Xiaojun Shan is an Assistant Professor in the Department of Engineering at the University of Houston Clear Lake.

Abstract: Drug diversion committed by health care providers is increasing in the United States. Automated dispensing systems (ADSs) are implemented in many hospitals and care facilities, and contain a wealth of information within its database of drug dispensing transaction history. The objective of this paper is to develop a predictive framework for identifying potential drug diverters by analyzing their transaction behavior with data mining algorithms. A 4-day sample of data (4/1/2015 - 4/4/2015) was studied. The results show that Decision Table classifier has higher accuracy than Logistic Regression, Decision Tree, Naïve Bayes, and K-means Clustering, with high sensitivity, precision (NPV), and Receiver Operating Curve (ROC) area, combined with a low false positive rate.

Keywords: Drug diversion, Automated dispensing systems, Data mining.