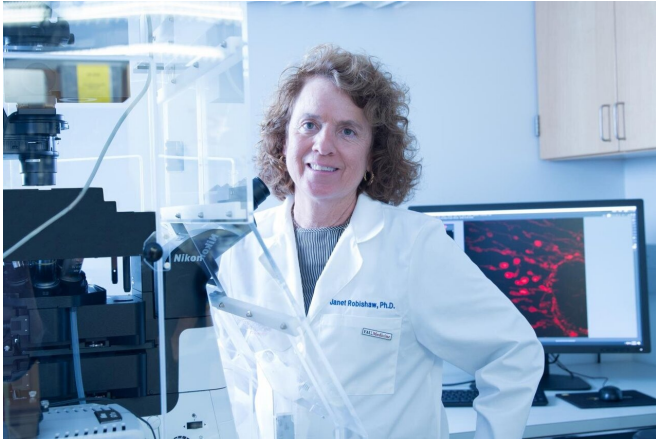


Opioid use disorder? Electronic health records help pinpoint probable patients

21 October 2020



Janet Robishaw, Ph.D., co-author, senior associate dean for research and chair of the Department of Biomedical Sciences in FAU's Schmidt College of Medicine. Credit: Alex Dolce, Florida Atlantic University

Opioid use disorder affects about 2 million Americans each year and is the number 1 cause of accidental death. Between 50 to 90 percent of individuals with this disorder were exposed to a prescription opioid first. Opioid use disorder is likely underdiagnosed within the healthcare system setting, which may be due in part to the reticence of practitioners who lack the specialized training in addiction medicine.

A new, retrospective cross-sectional study by researchers from Florida Atlantic University's Schmidt College of Medicine in collaboration with Geisinger, the University of Pennsylvania Perelman School of Medicine, and Cooper Medical School of Rowan University, shows that information in [electronic health records](#) (EHRs) may help identify patients with opioid use disorder. EHRs provide significant patient information such as demographic features, prior health encounters and prescription history.

For the study, researchers analyzed individuals within Geisinger, a large, integrated health system in Pennsylvania, who were prescribed opioids between Dec. 31, 2000 and May 31, 2017, using a mixed-methods approach. The cohort was identified from 16,253 patients enrolled in a Geisinger-specific medication monitoring program for opioid use, including patients who maintained or violated contract terms, as well as a demographically matched control group of 16,253 patients who were prescribed opioids but not enrolled in the monitoring program. Substance use diagnoses and psychiatric comorbidities were assessed using automated EHR summaries. A manual medical record review procedure using the Diagnostic and Statistical Manual of Mental Disorders, DSM-5 (Fifth Edition) criteria for opioid use disorder was completed for a subset of patients.

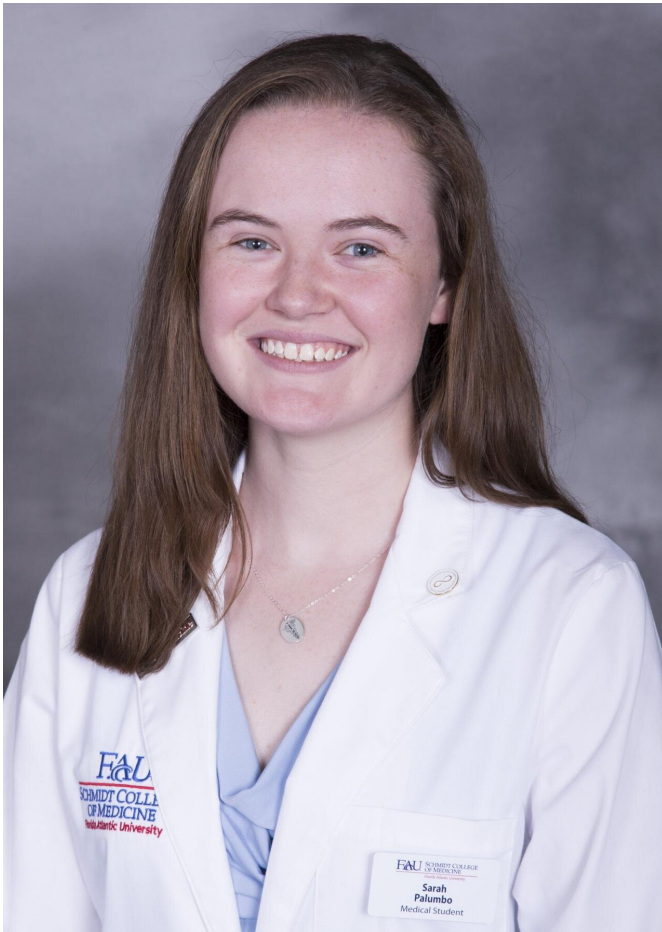
Results of the study, published in *JAMA Network Open*, suggest that patients with opioid use disorder may be identified using information available in the EHR, even when diagnostic codes do not reflect this diagnosis. Furthermore, the study demonstrates the utility of proxies coding for DSM-5 criteria from medical records to generate a quantitative DSM-5 score that is associated with opioid use disorder severity. Methods used in the study are unique in deriving a severity score that aims to mirror severity scores from more traditional interview-based diagnostic procedures.

Among the 16,253 patients enrolled in the medication monitoring program, opioid use disorder diagnoses as defined by ICD-10 diagnostic codes in the EHRs were present at a much lower rate than expected from the published literature—291 patients (2 percent) - indicating the necessity for alternative diagnostic strategies. Using proxy measurements from the EHR for the DSM-5 criteria to assess opioid use disorder, the manual review of 200 patients in the monitoring program and 200 control patients pinpointed a larger percentage of

patients with moderate-to-severe opioid use disorder. In the monitoring program, researchers identified 145 of 200 (73 percent) and in the [control group](#) 27 of 200 (14 percent) compared with the lower prevalence of opioid use disorder assessed using diagnostic codes.

"We find that chart review of electronic health records enables us to identify more patients with probable opioid use disorder than relying on diagnostic codes alone," said Vanessa Troiani, Ph.D., senior author and an assistant professor at Geisinger, who directed the team of scientists involved in this research.

Typically, opioid use disorder is diagnosed during a patient-physician consultation during which the addiction trained practitioner uses dialogue with the patient or questionnaires to evaluate whether the patient exhibits symptoms of opioid use disorder based on the DSM-5 opioid use criteria. These criteria are based on the assessment of whether opioid use causes significant impairment in physical and social functioning, as well as aspects of craving and unsuccessful efforts to reduce or control use, with multiple DSM-5 criteria within a 12-month period warranting an opioid use disorder diagnosis. In addition, the practitioner often relies on the self-report of the patient but may consult a significant other or relative of the patient.



"Our study showed that proxy measures that rely on multiple sources of data, including prescription drug history and notes in the electronic health record, may help identify patients with opioid use disorder who have not received a diagnosis," said Janet Robishaw, Ph.D., co-author, senior associate dean for research and chair of the Department of Biomedical Sciences in FAU's Schmidt College of Medicine.

Sarah Palumbo, 21, first author and a second-year medical student in FAU's Schmidt College of Medicine played a lead role in the research. Palumbo, who works in Robishaw's laboratory, was one of the first students accepted into the "FAU High School M.D. Direct" program and graduated from college three months after graduating from FAU High School.

"Our findings that psychiatric and other substance use codes are increased in patients in the drug monitoring program suggest the potential for assessing psychiatric and other substance use codes as an associated factor to evaluate patient risk for opioid use disorder in the chronic pain setting," said Palumbo.

Sarah Palumbo, 21, first author and a second-year medical student in FAU's Schmidt College of Medicine played a lead role in the research. Credit: Florida Atlantic University

According to the National Institute on Drug Abuse, roughly 21 to 29 percent of [patients](#) prescribed opioids for chronic pain misuse them and between 8 and 12 percent develop an opioid use disorder. An estimated 4 to 6 percent who misuse prescription opioids transition to heroin. This issue has become a public health crisis with devastating

consequences including increases in [opioid](#) misuse and related overdoses, as well as the rising incidence of neonatal abstinence syndrome due to [opioid use](#) and misuse during pregnancy.

"Opioids continue to be used for the treatment of pain. Precision medicine within integrated health systems such as Geisinger could be a major associated factor in developing more efficient pain treatments with less risk for addiction, and studies of this potential could be helped by establishing more effective proxy measures for [opioid use disorder](#) using data from electronic health records," said Robishaw.

More information: Sarah A. Palumbo et al, Assessment of Probable Opioid Use Disorder Using Electronic Health Record Documentation, *JAMA Network Open* (2020). [DOI: 10.1001/jamanetworkopen.2020.15909](#)

Provided by Florida Atlantic University

APA citation: Opioid use disorder? Electronic health records help pinpoint probable patients (2020, October 21) retrieved 17 January 2021 from <https://medicalxpress.com/news/2020-10-opioid-disorder-electronic-health-probable.html>

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