

**Submitter Name:** Vanessa Troiani  
**Submitted email:** vtroiani@geisinger.edu

### **Validation of a DSM-5 OUD severity score derived from health record review**

Anthony Seiwel<sup>1</sup>, Sarah A. Palumbo<sup>2</sup>, Alexia Perrin<sup>1</sup>, Tabitha Milliken<sup>1</sup>, Ashlee Olenginski<sup>1</sup>, Samantha Hoffman<sup>1</sup>, Kayleigh M. Adamson<sup>1</sup>, Shivani Manorahan<sup>1</sup>, Sarathbabu Krishnamurthy<sup>3</sup>, Raghu Metpally<sup>3</sup>, Colt Young<sup>1</sup>, Kortney McBryan<sup>1</sup>, Stephanie Ranck<sup>1</sup>, Richard C. Crist<sup>4</sup>, Glenn A. Doyle<sup>4</sup>, Thomas Ferraro<sup>4,5</sup>, Wade H. Berrettini<sup>1,4</sup>, Janet Robishaw<sup>2</sup>, Vanessa Troiani<sup>1,6,7</sup>

<sup>1</sup>Geisinger Clinic, Geisinger; <sup>2</sup>Charles E. Schmidt College of Medicine, Florida Atlantic University; <sup>3</sup>Dept. of Molecular and Functional Genomics, Geisinger; <sup>4</sup>Perelman School of Medicine, University of Pennsylvania; <sup>5</sup>Cooper Medical School, Rowan University; <sup>6</sup>Dept. of Imaging Science and Innovation, Geisinger; <sup>7</sup>Neuroscience Institute, Geisinger

**Background:** Opioid Use Disorder (OUD) is ideally diagnosed based on a clinician interview that determines severity based on DSM-5 criteria, resulting in a severity score. However, many patients are prescribed opioids without undergoing such an interview, and thus may not be diagnosed with OUD, despite meeting criteria. Thus, it would be advantageous to have a quantitative scoring algorithm that can determine a DSM-5 OUD severity score based on existing health record data.

**Methods:** We conducted in-depth chart review of 600 patients. 400 patients were used to develop a proxy DSM-5 risk score to predict severity of OUD (200 at high-risk of OUD and 200 low-risk). We then validate this proxy DSM-5 score in 200 additional patients who have confirmation of OUD diagnostic status and a self-reported questionnaire that assesses DSM-5 criteria for OUD.

**Results:** We used our proxy DSM-5 scoring criteria to predict OUD severity among opioid-using patients. In the high-risk patients, there was a high prevalence of moderate to severe OUD with 94 patients (47%) meeting the criteria for severe OUD and 50 patients (25%) meeting the criteria for moderate OUD. Validation chart review of an independent sample of patients with confirmed diagnosis is ongoing.

**Conclusion:** These results indicate that many DSM-5 criteria for OUD can be determined via in-depth chart review. Following a validation review on an independent sample of patients with confirmed OUD and quantitative scores for DSM-5 OUD criteria, we will determine whether the same criteria can be extracted via automated methods using discrete EHR variables.