

**RESULTS:**

- Data set included responses from 1454 psychiatrists and 488 PCPs who completed all assessment questions during the study period
- Psychiatrists: Knowledge/competence improved ( $P < .001$ ;  $V = 0.54$ ; large educational effect) following participation in the CME activity:
  - While 5% answered all 3 questions correctly on pre-assessment, 70% answered them all correctly on post-assessment, with the largest increases on accurate differentiation between possible signs of mania and depression, accurate diagnosis of bipolar depression, and ability to select treatments for MDD with mixed features
  - 20% reported being more confident in their ability to select treatments for various presentations of mood disorders
- PCPs: Knowledge/competence improved ( $P < .001$ ;  $V = 0.49$ ; large educational effect) following participation in the CME activity:
  - While 2% answered all 3 questions correctly on pre-assessment, 48% answered them all correctly on post-assessment, with the largest increases on accurate differentiation between possible signs of mania and depression, accurate diagnosis of bipolar depression, and ability to select treatments for MDD with mixed features
  - 24% reported being more confident in their ability to select treatments for various presentations of mood disorders

**CONCLUSIONS:** Online CME in a clinically relevant interactive case-based format can improve knowledge, competence, and confidence in management of various presentations of mood disorders and better equip physicians to recognize key features, accurately diagnose, and treat the complex spectrum of this patient population.

**FUNDING ACKNOWLEDGEMENTS:** The educational activity and outcomes measurement were funded through an independent educational grant from Sunovion Pharmaceuticals Inc.

## 146 Effect of Heroin Use on Changes of Brain Functions as Measured by fMRI, a Systematic Review

Jungjin Kim, MD<sup>1</sup>; Ayman Fareed, MD<sup>2</sup>; Bethany Keichen, PhD<sup>3</sup>; Woo Jin Kwak, DO<sup>3</sup>; Danzhao Wang, MD<sup>3</sup>; Hilaire Shongo-Hiango, MD<sup>3</sup>; and Karen Drexler, MD<sup>4</sup>

<sup>1</sup> Resident Psychiatrist, Emory University School of Medicine, Atlanta, Georgia

<sup>2</sup> Associate Professor, Emory University School of Medicine, Atlanta, Georgia and Atlanta VA Medical Center, Decatur, Georgia

<sup>3</sup> Staff Psychologist, Atlanta VA Medical Center, Decatur, Georgia

<sup>4</sup> Associate Professor, Emory University School of Medicine, Atlanta, Georgia and Deputy National Mental Health Program Director, Addictive Disorders, Office of Mental Health Services - Veterans Healthcare Administration

**ABSTRACT:** In this study the authors focus on reviewing imaging studies that used resting state functional magnetic resonance imaging for individuals with a history of heroin use. This review study compiled existing research addressing the effect of heroin use on decision making by reviewing available functional neuroimaging data. Systematic review of the literatures using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist. Eligible articles were retrieved through a computer-based MEDLINE and PsycINFO search from 1960 to December 2015 using the major medical subject headings "heroin, fMRI" (all fields). Only English language was included. Thirty-seven articles were initially included in the review. Sixteen were excluded because they did not meet the inclusion criteria. The results of 21 articles that met all the inclusion criteria were presented. Based on the 21 studies included in the current review, there is evidence that heroin use may have a direct and damaging effect on certain brain functions and that these changes may be associated with impulsive and unhealthy decision making. From the review of these studies, the authors understand that a longer duration of heroin use may be associated with more damaging effects on brain functions. The authors also understand that these brain changes could last long after abstinence, which may increase the risk of relapse to heroin use. More research is needed to create a biomarker map for patients with heroin use disorder that can be used to guide and assess response to treatment.

**FUNDING ACKNOWLEDGEMENTS:** No funding.

## 148 Visual Snow Defeats Guardians of the Galaxy Volume 2: Unremitting Pixelation Despite Three-Dimensional Stereoscopic Film

Kanchan S Prashar, medical student year 4<sup>1</sup>; Abraham M Titus, medical student year 4<sup>1</sup>; Vishal Kinkhabwala, medical student year 4<sup>1</sup>; and Alan R Hirsch, MD<sup>2</sup>

<sup>1</sup> Avalon University School of Medicine, Willemstad, Curacao

<sup>2</sup> Smell and Taste Treatment and Research Foundation, Chicago, IL