Published in final edited form as:
*Contemp Clin Trials*. 2010 March ; 31(2): 185–188. doi:10.1016/j.cct.2010.01.002.

# A method to diagnose opioid dependence resulting from heroin versus prescription opioids using the Composite International Diagnostic Interview

**Jennifer S. Potter**[a,b,c,*], **Kristi Prather**[a], **Frankie Kropp**[d], **Mimmie Byrne**[e,f], **C. Rollynn Sullivan**[e,f], **Nadia Mohamedi**[a], **Marc L. Copersino**[a,b], and **Roger D. Weiss**[a,b]

[a]McLean Hospital, Belmont, MA, United States

[b]Harvard Medical School, Boston, MA, United States

[c]University of Texas Health Science Center at San Antonio, San Antonio, TX, United States

[d]University of Cincinnati College of Medicine, Cincinnati, OH, United States

[e]Chestnut Ridge Hospital, Morgantown, WV, United States

[f]West Virginia University, Morgantown, WV, United States

## Abstract

Treatment research with opioid-dependent populations has not traditionally distinguished between those dependent on prescription opioids versus dependent upon heroin. Evidence suggests there is a substantial subpopulation of individuals with opioid dependence resulting largely or exclusively from prescription opioid use. Because this subpopulation may respond to treatment differently from heroin users, a method for discriminating DSM-IV opioid dependence due to prescription opioid use would provide more precision when examining this population. This paper describes an innovative method using a currently available diagnostic instrument, to diagnose DSM-IV opioid dependence and distinguish between dependence resulting from prescription opioids versus dependence upon heroin.

### Keywords

Clinical trial; Diagnostic assessment; Opioids

## 1. Introduction

While opioids have long been used to treat pain, concerns about the abuse of prescription opioids have emerged in recent years. From 2002 to 2007, nonmedical use of prescription opioids increased from 4.1 to 4.6% among adults aged 18 to 25 and increased from 1.3 to 1.6% among older adults [1]. Indeed, as a result of problems with prescription opioids increased by 414% [2]. Thus, there is a need to identify effective treatments for prescription opioid dependence [3].

Most clinical trials of opioid dependence have involved largely heroin users [4–6]. However, recent evidence suggests that individuals dependent largely on prescription



*Corresponding author. UT Health Science Center, Department of Psychiatry—Mail Code 7792, Division of Alcohol and Drug Abuse, 7703 Floyd Curl Drive, San Antonio, TX 78229, United States, Tel.: +1 210 562 5438; fax: +1 210 562 5403. potterjs@uthscsa.edu (J.S. Potter).

opioids may have differential substance abuse treatment outcomes compared to persons dependent upon heroin [7,8]. Thus, we cannot assume that our clinical characterizations of opioid dependence, based primarily on studies of patients with heroin dependence, extend to those dependent on prescription opioids. To develop effective treatments, high-quality, rigorous clinical trials will require reliable and valid diagnostic assessments. The DSM-IV-TR [9] does not distinguish between heroin and prescription opioids when establishing a diagnosis of opioid dependence. Because many individuals may have a history of using both types of opioids, researchers examining this population of dual users may benefit from a method to discriminate between prescription opioid use and heroin use when making DSM-IV-TR diagnoses. This is particularly important for investigators who wish to focus on a population of those with primarily prescription opioid dependence.

In conducting a large, multi-site, randomized clinical trial examining combined behavioral and pharmacological treatments for DSM-IV-TR opioid dependence upon prescription opioids, we wish to ensure that our study treatment population was primarily opioid dependent due to using prescription opioids, with no history of opioid dependence resulting from heroin use. This creates a methodological challenge that other researchers conducting similar trials will face, namely how to include individuals who meet dependence criteria because of prescription opioid use and exclude individuals who meet criteria because of heroin use [10]. Thus, we developed a method to make this distinction.

## 2. Method

### 2.1. Study overview

The Prescription Opioid Addiction Treatment Study (POATS) is a multi-site trial being conducted by investigators within the National Institute on Drug Abuse National Drug Abuse Treatment (NIDA) Clinical Trials Network. POATS examines different lengths and combinations of buprenorphine/naloxone (BUP/NX) and individual drug counseling to identify optimal treatment strategies for this patient population. The study was approved by the Institutional Review Boards of the 10 participating sites and monitored by a NIDA-appointed Data and Safety Monitoring Board. In designing the study, several design issues emerged [11], including how to identify potential participants with DSM-IV opioid dependence resulting from prescription opioid use and not heroin use. Because there was no pre-existing method available to accomplish this task, we developed a novel method, described in this report.

### 2.2. Eligibility criteria

With regards to opioid dependence, participants are eligible to participate if they 1) meet DSM-IV criteria for opioid dependence at any time during the past 12 months, 2) have never injected heroin, 3) had not used heroin more than 5 days in the past month, and 4) have never had DSM-IV opioid dependence that would be accounted for by heroin use alone. Thus, some heroin use was permitted as we expected some use (e.g., when prescription opioids were not available.) The intent of these criteria is to ensure that the study sample is drawn from the subpopulation of individuals with DSM-IV opioid dependence due to prescription opioid use. This paper reports on our novel method for evaluating eligibility criteria, described above.

### 2.3. General diagnostic assessment

The Composite International Diagnostic Interview (CIDI V2.1), developed by the World Health Organization, is a fully-structured interview-based assessment of psychiatric disorders [12]. The CIDI, which is an expansion of the Diagnostic Interview Schedule [13], is organized into 15 sections, organized by disorder and other administrative components.

Advantages of the CIDI include the fact that 1) diagnoses can be established according to definitions and criteria for DSM-IV and ICD-10, and 2) it can be administered by non-clinicians with relatively minimal training. Interviewers are trained and certified by certified trainers on the proper use of the CIDI and its materials. These rigorous and standardized training and administration procedures result in highly reliable diagnoses.

For the present study, the CIDI administration is computer-assisted. If a computer is not available, the interview is conducted using a paper form. Interviewers were trained in CIDI administration for the study at an in-person national training that was video-taped to enable new research assistants to be trained in the method. Ongoing booster training is also provided throughout the trial. Finally, independent quality assurance monitors review the accuracy of CIDI administration.

### 2.4. Assessment of substance use disorders

The CIDI section on substance-related disorders, Section L, evaluated the presence of DSM-IV substance use disorders for opioids and other substances. Assessment for substance-related disorders proceeds through three sub-sections: 1) screening for potential use of substances, 2) substance abuse, and 3) substance dependence. The screening section has 7 items (L1–L7), which determine whether respondents have ever used illicit substances and/or medicines “other than as prescribed” [12]. In this section route of administration is also established, as are the onset, recency, and frequency of use. As shown in Table 1, the first three questions are relevant to screening for potential illicit use of substances available by prescription (referred to as medicines in the CIDI) including opioids. These questions are phrased to exclude medications used as prescribed and identify illicit use of these medications. Thus, these items were particularly important to the study objectives, as responses were directly relevant to our study population.

As indicated in Table 1, if the respondent reports lifetime illicit use of a drug class on 5 or more occasions, the assessment continues to the abuse and dependence sections. CIDI coding conventions provide the opportunity to distinguish whether or not symptoms associated with these diagnoses were present within the past 12 months. This process results in the investigator’s ability to differentially define DSM-IV diagnoses of substance use disorders as “current” (in this study, defined as having active symptoms within the past 12 months) and “lifetime” (defined by this study as having met diagnostic criteria more than 1 year ago, but with symptoms that have remitted within the past 12 months) for purposes of study eligibility. As eligibility criteria for this study did not address opioid abuse (including heroin), the remainder of this report focuses on our modified method for assessing opioid dependence.

### 2.5. Discriminating dependence related to heroin versus prescription opioid use

As stated above, the study eligibility criteria related to heroin use are designed to produce a sample of individuals who meet criteria for opioid dependence because of prescription opioids alone. To accomplish this, elements of standard CIDI Section L administration were enhanced or modified for this study.

First, in addition to the standard substances included with the CIDI materials, we created a study-specific list of substances available by prescription. The list provides a more comprehensive list of substances available by prescription. Because we are evaluating a population specifically recruited because of illicit use of medicines available by prescription, we deemed it necessary to develop a more comprehensive list of opioids, sedatives, stimulants, and other medications with abuse liability. This expanded list includes non-opioid medication substances because we wished to minimize any participant confusion

regarding whether a given medicine was an opioid. The list included commercial, chemical, and "street" names (as necessary). In this way, we trained the participants and ensured that opioids and non-opioids were classified correctly. This also assisted research staff with conducting the interview.

Second, in addition to standard CIDI training, interviewers are provided with specific training on 1) the opioid drug class (e.g., various names for the general class as well as specific opioids including street names), 2) correct administration of the medicine related screening items (Table 1) and appropriate use of probes for these items, and 3) potential confusion that respondents might experience answering questions regarding opioids available by prescription. Finally, as referred to above, the interviewers were trained to ensure that participants understood the various terms for opioids (e.g., pain killers, opioids, opiates, narcotics, prescription opioids, as well as individual drug names). During the CIDI administration, once use of opioids was established, consistent with standard CIDI instructions, the participant was instructed that the term 'opioids' would be used to referred to this drug class. This ensured that language was used consistently and clearly through the CIDI administration. This training was provided at two centralized trainings at the beginning of the trial (captured on DVD for future use by new interviewers) as well as in booster trainings provided throughout the trial.

Finally, for all dependence symptoms (items L12–L20) for the opioid drug category endorsed by a given participant, the symptom questions are repeated for heroin alone by replacing the word "opioids" (as stated in the manual) with "heroin." The interviewer makes it clear to the participant that he/she is asking about heroin use alone. For example, in symptom criterion L15, the interviewer might say "You mentioned that you had the following problem from opioids, but now, thinking about your heroin use alone, without other prescription opioids, have you ever spent a lot of your time using, getting, or getting over the effects of heroin?" We proceeded in this fashion in order to maintain the integrity of the CIDI opioid dependence diagnosis and also achieve our objective of discriminating lifetime heroin dependence (a key study exclusion criteria).

Consistent with CIDI procedures, this additional round of questions is administered only to participants who report during the screening section ever using heroin more than 5 times. If the participant endorses 3 or more opioid dependence criteria specifically for heroin, the participant is then asked (item L22), "Did you ever have three or more of these problems with heroin in the same year?" This enables the interviewer to examine the relative contribution of heroin use to the participant's opioid dependence diagnosis. If the participant endorses three or more symptom criteria specifically for heroin, and the symptoms occurred within the 12-month period, the participant is determined to have opioid dependence due to heroin use alone and is excluded from the trial.

### 2.6. Implementation of modified CIDI method

Thus far, we have conducted over 800 CIDI administrations. Our revised method has been straight-forward and efficient to implement. We periodically solicited research staff for feedback on implementation of the method. Staff report that the method is feasible to implement during the CIDI assessment, and participants are generally able to distinguish their heroin use from their illicit prescription opioid use using the modified CIDI method. Our interviewers have reported that a history of extensive heroin use makes it more challenging to discriminate heroin and prescription opioid use.

## 3. Summary

This report describes a method we are using to establish a DSM-IV opioid dependence diagnosis while ruling out participants whose opioid dependence diagnosis has ever been attributable to heroin use. This method provides for a DSM-IV opioid dependence diagnosis as well as a means to attribute this diagnosis to prescription opioids and/or heroin. A variety of approaches have been employed in previous studies, including various definitions of prescription opioid dependence (e.g., [14–16]). Establishing a standard approach to defining this population would permit better interpretation of individual study results as well as more valid comparisons of results across studies. This report presents a method to accomplish these objectives.

Our approach assumes that providing more specificity regarding opioid used (i.e., prescription opioid or heroin) is potentially meaningful. While there is evidence to suggest differences in clinical characteristics of primary prescription opioid users and primary heroin or mixed users [8,16], the true impact of this distinction for the course of the disorder and treatment outcome awaits further investigation.

We are aware of no other research describing a method for making an opioid dependence diagnosis that uses DSM-IV criteria and discriminates systematically between heroin and prescription opioids when making the diagnosis. While our methods await data to evaluate reliability and validity, we provide a relatively straight-forward, feasible method to increase diagnostic precision (using an established, validated, and reliable diagnostic instrument) for research with this subpopulation of opioid-dependent individuals. Improved diagnostic methods could aid clinical researchers conducting epidemiologic and treatment research with this population and help with interpreting the growing research literature on illicit use of prescription opioids.

## Acknowledgments

We thank the staff and participants at the community treatment programs and regional research and training centers of the National Institute on Drug Abuse Clinical Trials Network for their involvement in this project, including Chestnut Ridge Hospital (Appalachian Tri-State Node), San Francisco General Hospital (California/Arizona Node), St. Luke's Roosevelt Hospital and Long Island Jewish Medical Center-Addiction Recovery Services (Long Island Node), Bellevue Hospital Center (New York Node), McLean Hospital (Northern New England Node), East Indiana Treatment Center (Ohio Valley Node), Adapt, Inc. (Oregon/Hawaii Node), Integrated Substance Abuse Programs (Pacific Node), Behavioral Health Service of Pickens County (Southern Consortium Node), and Providence Behavioral Health Services (Washington Node). We also thank the staff of the Clinical Coordinating Center (The EMMES Corporation, Rockville, MD) and the Data and Statistics Center (The Duke Clinical Research Institute, Durham, NC), and the staff of the Center for the Clinical Trials Network at the National Institute on Drug Abuse (Rockville, MD) for their work on this project.

This study was supported in part by the Clinical Trials Network U10 Grants DA15831, DA13035, DA013045, and DA013732 and K23 DA022297 and K24 DA022288 from the National Institute on Drug Abuse.

## References

1. Substance Abuse and Mental Health Services Administration, O.A.S. The NSDUH Report: Trends in Nonmedical Use of Prescription Pain Relievers: 2002–2007. Rockville, MD: 2009.
2. Substance Abuse and Mental Health Services Administration, O.A.S. Treatment Episode Data Set (TEDS): 1997–2007. National Admissions to Substance Abuse Treatment Services; Rockville, MD: 2009.
3. Compton WM, Volkow ND. Major increases in opioid analgesic abuse in the United States: concerns and strategies. Drug Alcohol Depend. 2006; 81(2):103–7. [PubMed: 16023304]

4. Amato L, et al. Psychosocial combined with agonist maintenance treatments versus agonist maintenance treatments alone for treatment of opioid dependence. Cochrane Database Syst Rev. 2008; 4:CD004147. [PubMed: 18843654]

5. O'Connor PG, et al. A randomized trial of buprenorphine maintenance for heroin dependence in a primary care clinic for substance users versus a methadone clinic. Am J Med. 1998; 105(2):100–5. [PubMed: 9727815]

6. Ling W, et al. A multi-center randomized trial of buprenorphinenaloxone versus clonidine for opioid detoxification: findings from the National Institute on Drug Abuse Clinical Trials Network. Addiction. 2005; 100(8):1090–100. [PubMed: 16042639]

7. Moore BA, et al. Primary care office-based buprenorphine treatment: comparison of heroin and prescription opioid dependent patients. J Gen Intern Med. 2007; 22(4):527–30. [PubMed: 17372805]

8. Brands B, et al. Prescription opioid abuse in patients presenting for methadone maintenance treatment. Drug Alcohol Depend. 2004; 73(2):199–207. [PubMed: 14725960]

9. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4. Washington, DC: 2000. Text Revision

10. Weiss RD, PJ, Copersino ML, Prather K, Jacobs P, Provost S, Chim D, Selzer J, Ling W. Conducting Clinical Research with Prescription Opioid Dependence: Defining the Population. American Journal on Addictions. in press.

11. Weiss RD, et al. Conducting clinical research with prescription opioid dependence: Defining the population. American Journal on Addictions. in press.

12. World Health Organization. Composite Interview Diagnostic Interview (CIDI core), version 2.1. 1997.

13. Robins LN, et al. National Institute of Mental Health Diagnostic Interview Schedule: its history, characteristics, and validity. Arch Gen Psychiatry. 1981; 38(4):381–9. [PubMed: 6260053]

14. Sigmon SC, et al. Brief buprenorphine detoxification for the treatment of prescription opioid dependence: a pilot study. Addict Behav. 2009; 34 (3):304–11. [PubMed: 19081679]

15. Dersh J, et al. Prescription opioid dependence is associated with poorer outcomes in disabling spinal disorders. Spine. 2008; 33(20):2219–27. [PubMed: 18725868]

16. Banta-Green CJ, et al. Retention in methadone maintenance drug treatment for prescription-type opioid primary users compared to heroin users. Addiction. 2009; 104(5):775–83. [PubMed: 19344438]

**Table 1**

CIDI section L—standard CIDI screening questions on medication use.

| |
|---|
| Now I'd like to ask you about your experiences with medicines. Did you ever use any of these medicines (show medication list) in larger amounts than was prescribed or for a longer period than was prescribed? |
| Have you used any of these medicines more than five times when they were not prescribed for you, to get high, to relax, or to make you feel better, more active, or alert? |
| Now I'd like to ask you about your experiences with other drugs. Have you ever taken any of those more than five times? |