

**Special Article**

# Definitions Related to the Medical Use of Opioids: Evolution Towards Universal Agreement

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**Abstract**

*Misunderstandings regarding the nature and occurrence of addiction have historically been barriers to the appropriate treatment of pain and have stigmatized the medical use of opioids. This article reviews the evolution of nomenclature related to addiction, presents current scientific understanding of addiction that may help shape universally acceptable terminology, and discusses an integrated effort of pain and addiction professionals to reach consensus on addiction-related terms. The article suggests key principles that may clarify terminology including: clear differentiation of the concepts of addiction and physical dependence, conceptualization of addiction as a multidimensional disease, and use of a label for the phenomenon of addiction that does not include the ambiguous term "dependence." More universal agreement on terminology related to addiction is expected to improve the treatment of both pain and addictive disorders; improve communication between health care providers, regulators, and enforcement agencies; and reduce health care and other societal costs. J Pain Symptom Manage 2003;26:655–667. © 2003 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.*

**Key Words**

*Opioids, addiction, nomenclature, terminology, physical dependence, pain, abuse*

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**Introduction**

Pain is among the most common complaints for which individuals seek medical attention; the evaluation and treatment of pain is therefore integral to the practice of medicine. The

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commitment of the healthcare community to effective management of pain has increased substantially in recent years. This is reflected in a number of nationwide initiatives including the new standards for pain assessment and management required for accreditation by the Joint Committee on Accreditation of Healthcare Organizations<sup>1</sup> and the "Pain as the Fifth Vital Sign" initiative of the Veterans Administration Medical System.<sup>2</sup>

The important role of opioid medications in the treatment of pain, including some types of chronic noncancer-related pain, has been affirmed in recent years by numerous national professional and regulatory organizations, including the American Academy of Family Physicians,<sup>3</sup> the American Pain Society (APS), the American Academy of Pain Medicine (AAPM),<sup>4</sup> the American Society of Addiction Medicine (ASAM),<sup>5</sup> the Federation of State Medical Boards,<sup>6,7</sup> and the United States Drug Enforcement Administration.<sup>3</sup>

An obstacle to effective pain treatment has been misunderstanding of the nature and risk of addiction when using opioids.<sup>8,9</sup> Scientists, clinicians, regulators, and the lay public often use disparate definitions of addiction, and many organizations interested in problems of addiction endorse conflicting definitions and diagnostic criteria. Such disparities may undermine appropriate clinical management of both pain and addiction, thereby leading to unnecessary pain and disability, misidentification of addiction, and misuse of medications.

The National Co-morbidity Study suggests that up to 14% of Americans will develop alcohol addiction and up to 7.5% will develop addiction to illicit drugs over their lifetimes.<sup>10,11</sup> Cross-addiction to more than one substance is common.<sup>12</sup> For hospitalized patients the prevalence of an addictive disorder is found to be 19–25%.<sup>13,14</sup> Most persons, including those with addictive disorders, require opioids for the treatment of pain at some point during their lifetimes in the context of surgery, injury, acute medical illness, or chronic disease. Given the relatively high rates of both addictive disorders and pain, misunderstandings regarding addiction related terminology can have a significant negative impact on public health.

Confusing addiction-related terminology has a long history, likely reflecting poor understanding of the phenomenology and biology of

addiction. In recent years, research has contributed significantly to understanding of the neurobiological basis of addiction. This understanding can provide a rational foundation for the development of universally acceptable definitions related to addiction. Recognizing the need for clarification of terminology, three national professional organizations interested in the interfaces between addiction and pain treatment recently collaborated to develop consensus definitions.

The purpose of this article is three-fold: 1) to review relevant aspects of the scientific understanding of addiction and opioid pharmacology that are the natural foundation for terminology related to addiction; 2) to describe the evolution of terminology currently in use related to addiction; and 3) to examine the implications for clinical care and public policy of consensus definitions developed by ASAM, APS, and APPM.

### *Scientific Basis of Addiction-Related Terms*

Three fundamental concepts must inform terminology related to addiction in order for it to reflect current scientific and clinical understanding: 1) although some drugs produce pleasurable reward, critical determinants of addiction rest also with the user; 2) addiction is a multidimensional disease with neurobiological and psychosocial dimensions; and 3) addiction is a phenomenon distinct from physical dependence and tolerance. Historically, terminology has not clearly reflected these essential elements and, despite significant growth in understanding of the scientific basis of addiction, definitions and diagnostic criteria based on obsolete conceptualizations of addiction persist.

### *Reward and Addiction*

All drugs that are associated with the development of addiction are capable of producing reward; that is, they are self-administered by some animals and may produce pleasure in humans, especially when used in a manner resulting in rapid increases in brain levels.<sup>15,16</sup>

Reward appears to be mediated through increase in synaptic dopamine in the limbic system, including the nucleus accumbens and the ventral tegmental area. Addiction is thought to occur in vulnerable individuals when repeated rewarding drug use triggers a biologic change leading to a protracted drive to use the drug,<sup>15</sup> resulting in preoccupation with use, craving, compulsive use, impaired control over use, or continued use despite harm. The nature of the biological changes induced by rewarding drugs and manifesting as addiction are not fully understood, but are believed to be related to dysregulation of brain reward circuits and physiologic stress responses.<sup>16</sup> Genetic factors are thought to significantly influence vulnerability to addiction.<sup>17</sup> Some individuals have relatively low predisposition to developing addiction with drug exposure and may use drugs repeatedly in a manner that produces reward without the development of addiction,<sup>18</sup> whereas others rapidly develop addiction following minimal exposure to rewarding drugs.

#### *Multidimensional Disease*

Like many other chronic conditions, such as diabetes, cardiovascular disease, and asthma, addiction is a multidimensional disease.<sup>19</sup> Although a neurobiological predisposition is thought to be important to the evolution of addiction, psychological and social factors are also important, particularly as they shape patterns of risky drug use in vulnerable individuals and sustain drug use over time.<sup>20</sup> In addition, many studies suggest that stress may be a critical element in the development of addiction in some settings.<sup>21</sup> Psychosocial factors are also important influences on recovery from addiction.<sup>22,23</sup>

Some terms currently used in relation to addiction reflect only the psychological dimension of the illness, tending to obscure its multidimensional nature. Although the term “psychic reward” is a reasonable description of the subjective pleasure experienced with abuse of certain drugs, use of the term “psychic (or psychological) dependence” to mean addiction suggests that addiction is due only to cognitive, affective, or other psychological processes, which is not supported by current scientific thinking that recognizes a critical role of neurobiological mechanisms. “Psychological

dependence” may be one aspect of the phenomenology of addiction, but it may also occur in relation to therapeutic use of medications. It is natural, for example, for persons who have severe pain that is relieved by continuous use of opioids to feel anxious or concerned regarding possible loss of analgesia and hence to have a psychological, as well as physiological, dependence on their medications; this is not addiction, but might reasonably be referred to as psychological dependence. In order to facilitate accurate understanding of addiction, it is important that the nomenclature of addiction reflect the full biopsychosocial dimensions of the disease, not only the psychological dimension as reflected in terms such as “psychic” or “psychologic” dependence.

#### *Physical Dependence and Tolerance*

Physical dependence and tolerance are forms of physiologic adaptation to the continuous presence of certain drugs in the body. Physical dependence occurs not only to drugs with reward potential, such as opioids and benzodiazepines, but also to those with little or no reward potential, such as alpha-2 adrenergic agonists (e.g., clonidine), and tricyclic antidepressants. The hallmark of physical dependence is the appearance of a withdrawal syndrome when the drug effect significantly diminishes or stops. Drugs from different classes produce different types of withdrawal syndromes. The opioid withdrawal syndrome includes autonomic signs such as diarrhea, rhinorrhea, and piloerection, as well as central neurologic arousal with sleeplessness, irritability, and psychomotor agitation. A noradrenergic mechanism in the locus ceruleus appears largely responsible for the mediation of opioid withdrawal, as distinct from the dopaminergic mechanism and limbic sites associated with reward.<sup>24</sup>

Although physical dependence can occur in the presence of addiction, it is not inevitable. For example, individuals who use heroin in a binge pattern and have no recent use are not likely to be physically dependent on the drug, but may be addicted, experiencing craving when the drug is not available and relapsing into compulsive use when it is. On the other hand, physical dependence often occurs without addiction. Many individuals who use opioids on a long-term basis for pain control develop

physical dependence, but experience no craving, compulsive behavior, or other indications of addiction to the drug.

Similar to physical dependence, tolerance is a physiologic adaptation to the presence of a drug in the body such that increased doses are required to produce the pharmacologic effects initially resulting from smaller doses. Tolerance may be present in addiction, but it can also occur in the absence of addiction, as when drugs are used therapeutically over a period of time.

Until recently, physical dependence and tolerance were thought to be important, if not essential, elements in addiction. Much early animal research on addiction measured withdrawal as the critical indicator of addiction. However, this model was unable to explain high relapse rates occurring long after completion of withdrawal or the observation that addiction is uncommon in patients who become physiologically dependent while using opioids for pain control. Recent research on addiction mechanisms has therefore shifted to the study of limbic reward systems.<sup>25,26</sup> Although physical dependence will lead some animals to self-administer opioids to avoid the noxious experience of withdrawal, and withdrawal may intensify the desire to use opioids in individuals who are addicted to opioids,<sup>27</sup> considerable clinical experience indicates that most humans who have been physically dependent on prescribed opioids are able to withdraw from them easily when pain is resolved and not return to non-therapeutic use if the medications are tapered.<sup>28</sup> Contemporary research on addiction mechanisms in both humans and animals supports the view that addiction is a biologically complex phenomenon, driven significantly by limbic reward mechanisms, that may occur with or without the physiologic adaptations of physical dependence and tolerance.<sup>16</sup>

### ***Historical Perspective on Terminology***

#### *The Evolution of WHO Addiction-Related Terms*

A review of the World Health Organization's (WHO) efforts to develop definitions related to addiction provides an interesting window on the complexities of the evolution of terminology. In 1952, in connection with its role in the international control of drugs, the WHO used the two terms "addiction" and "habituation."

Drugs that were prone to abuse were designated as causing either one or the other of these two states, depending on their perceived effects.

"Addiction" was viewed primarily as a direct effect of certain drugs, and secondarily due to the psychologic make-up of the drug taker: "[Morphine and morphine-like drugs] will always produce compulsive craving, dependence, and addiction in any individual ... sooner or later there must come a time when the use of the drug cannot be interrupted without significant disturbance, always psychic (psychological) and sometimes physical."<sup>29</sup> "Habituation" was viewed as occurring in response to other drugs "which never produce compulsive craving, yet their pharmacologic action is found desirable to some individuals to the point that they readily form a habit of administration, an habituation."<sup>29</sup> The distinction between the two terms lacked clarity and confused most professionals.<sup>30</sup>

In 1957, the WHO Expert Committee on Addiction-Producing Drugs introduced the terms "psychic (psychological) dependence" and "physical dependence."<sup>31</sup> Physical dependence was reflected in the development of an abstinence syndrome. Psychic dependence was not defined. Addiction was characterized by the presence of both physical and psychological dependence and was viewed as primarily drug-induced. Habituation was characterized by psychological dependence and was thought to be primarily due to the psychological make-up of the user.

In 1964, WHO stopped using the terms "addiction" and "habituation" altogether and introduced in their place the term "drug dependence," noting that dependence, either psychological or physiologic or both, was a common feature of both conditions.<sup>32</sup> The 1964 report further classified different types of dependence relating to specific substances, such as "drug dependence of the morphine type" or "drug dependence of the barbiturate type," and described the perceived relative contributions of psychic and physical dependence in each of the given types. The development of an abstinence syndrome was considered the "most characteristic and distinguishing feature of drug dependence of the morphine type" which also included "an overpowering desire or need to continue taking the drug..., a tendency to increase the dose owing to tolerance..., and psychic dependence on the effects of the drug

related to a subjective and individual appreciation of the effects of the drug" (p. 13).<sup>32</sup>

In 1969, the WHO Expert Committee on Dependence Producing Drugs was renamed the WHO Expert Committee on Drug Dependence. The Committee reconceptualized the definition of "drug dependence" to include significant behavioral criteria and to explicitly acknowledge that drug dependence is due to both host and drug factors:

A state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioral and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present (p. 6).<sup>33</sup>

In 1993, the WHO Expert Committee on Drug Dependence noted the potential for confusion between the terms "physical dependence" and "drug dependence" and substituted the term "withdrawal syndrome" for "physical dependence" (pp. 5–6).<sup>34</sup> The term "drug dependence" was defined in the 1993 report as:

a cluster of physiological, behavioral and cognitive phenomena of variable intensity, in which the use of a psychoactive drug (or drugs) takes on a high priority. The necessary descriptive characteristics are preoccupation with a desire to obtain and take the drug and persistent drug-seeking behavior. Determinants and problematic consequences of drug dependence may be biological, psychological or social, and usually interact (p. 5).<sup>34</sup>

Tolerance was defined for the first time, as "reduction in the sensitivity to a drug following repeated administration, in which increased doses are required to produce the same magnitude of effect previously produced by a smaller dose" (pp. 5–6).<sup>34</sup> The Committee viewed withdrawal syndrome and tolerance "merely as consequences of drug exposure which, alone, are not sufficient for a positive diagnosis of drug dependence" (p. 4).<sup>34</sup> This was an important step towards ensuring that persons who develop physical dependence as a result of therapeutic opioid use are not viewed as pathologically drug dependent.

In 1998 the Expert Committee replaced the term "drug dependence" with "dependence syndrome," but reaffirmed its 1993 definition without revisions.<sup>35</sup> The 1998 term "dependence syndrome" and the 1993 definition "withdrawal syndrome" represent the current WHO nomenclature.

### ***Current Status of Other Addiction-Related Definitions***

#### *International Diagnostic Classification*

Like the WHO, the International Classification of Diseases (ICD-10)<sup>36</sup> currently uses the term "dependence syndrome." ICD-10 provides clinical guidelines for diagnosing the syndrome. An individual must meet at least three of six features to be identified with dependence syndrome. Of the six criteria, four relate to compulsivity: 1) a persistent strong desire to take a drug, (2) difficulty controlling drug use, (3) impairment of function, including neglect of pleasures and interests, and (4) harm to self. The remaining two factors relate to the evidence of withdrawal symptoms and tolerance.

Under the ICD-10 classification, as under the current WHO formulation, a person using opioids prescribed for pain who demonstrates opioid tolerance and physical dependence would not meet criteria for addiction unless they additionally meet at least one of the four conditions characteristic of compulsive use. Compulsive use of a drug, under these two formulations, remains the essential component of dependence syndrome, whereas withdrawal symptoms or tolerance are by themselves insufficient for an affirmative diagnosis.

#### *U.S. Diagnostic Classification: DSM-IV*

The international classification of "dependence syndrome" of the ICD-10 converges considerably with the fourth edition of the American Psychiatric Association's (APA) Diagnostic and Statistical Manual (DSM-IV) criteria for "substance dependence" (p. 181).<sup>37</sup> The DSM-IV presents seven criteria, two of which relate to expected physiological sequelae of opioid use (physical dependence and withdrawal), and five of which are functional in nature. Three of seven criteria must be met in the context of "a maladaptive pattern of substance use, leading to clinically significant

impairment or distress” in order to make a diagnosis of substance dependence. Therefore, if the criteria are applied as intended, pain patients using opioids effectively for pain control should not be diagnosed as substance dependent unless they display maladaptive drug-related behavior and meet criteria other than physical dependence and withdrawal.

However, it has been pointed out that some of the five functional DSM-IV criteria might be mistakenly applied to certain patients appropriately using opioids for pain. For example, “substance often taken ... over a longer period than intended” (criteria 3) and “a great deal of time spent in activities necessary to obtain the substance” (criteria 5) might be applied to a patient due to unexpectedly protracted pain and difficulty obtaining treatment.<sup>38</sup> In addition, some pain patients, distressed by under-treated pain or other stressors, may be interpreted as having significant impairment or distress due to a maladaptive pattern of drug use, when, in fact, impairment and distress may be due to under-treated pain. An inappropriate diagnosis of “substance dependence” should not occur in the context of pain treatment, however, if the criteria are carefully applied.

#### *U.S. Federal and State Policies*

Whereas health-related organizations, such as the WHO and the APA, have significantly revised addiction-related terminology over the last half-century, U.S. federal and state statutes and regulations have not generally undergone similar revision. For example, the Federal Controlled Substances Act (CSA) defines an “addict” as a person who:

Habitually uses any narcotic drug so as to endanger the public morals, health, safety, or who is so far addicted to the use of narcotic drugs as to have lost power of self-control with reference to his addiction.<sup>39</sup>

Although this definition uses archaic and circular language, it does not appear to confuse addiction with physical dependence or tolerance, and thus has little potential for confusing patients using opioids for pain with persons who compulsively abuse opioids due to addiction.<sup>40-43</sup>

Definitions in state statutes and regulations, however, often present more potentially deleterious implications for patient care. Definitions of “drug dependence” are currently found in 13 state policies.<sup>40</sup> The following definition of a drug dependent person from Oklahoma law is typical of language in the other states:

Drug-dependent person means a person who is using a controlled dangerous substance and who is in a state of psychic or physical dependence, or both, arising from administration of that controlled dangerous substance on a continuous basis. Drug dependence is characterized by behavioral and other responses, which include a strong compulsion to take the substance on a continuous basis in order to experience its psychic effects, or to avoid the discomfort of its absence.<sup>44</sup>

This definition differs from current national and international health organization standards because physical dependence alone appears to be sufficient to classify an individual as drug dependent. Thus using this definition, a patient using opioids on a long-term basis for the treatment of pain could be interpreted as “drug dependent.”<sup>40,45</sup>

#### *Professional Education Textbooks*

The role of confusing terminology as barriers to pain management has been recognized recently in two studies that analyzed such terminology in nursing textbooks.<sup>46,47</sup> These studies found that textbooks commonly used to educate nurses rarely defined addiction-related terminology. When definitions were provided, they were often incorrect or inadequately distinguished addiction from physical dependence or tolerance. However, Ferrell and colleagues<sup>47</sup> reported that most of the evaluated textbooks acknowledged that lack of clear terminology contributed to inadequate pain management.

#### *AMA Council on Scientific Affairs*

Noting that “the confusing panoply of terms and definitions has tended to impede understanding and appropriate responses” (p. 555), the American Medical Association’s Council on Scientific Affairs Panel on Alcoholism and Drug Addiction created a task force in the early 1980s that attempted to reach consensus on addiction-related terminology.<sup>48</sup> A panel of 80

experts from more than 20 professional organizations developed and rated definitions of 50 terms related to substance abuse, including *addiction*, *addict*, *physical dependence*, *tolerance*, and *chemical dependency*.

Although substantial agreement was achieved, these consensus definitions contained a curious blend of attributes that perpetuated, rather than clarified, the confusion. For example, addiction was reasonably defined in terms of functional phenomena as “a chronic disorder characterized by the compulsive use of a substance resulting in physical, psychological or social harm to the user and continued use despite that harm” (p. 556).<sup>48</sup> The definition of “addict,” however, included both compulsive use and the expected physiologic effects of drugs:

a person who is physically dependent on one or more psychoactive substances whose long-term use has produced tolerance, lost control over his intake and would manifest withdrawal phenomena if discontinuance were to occur (p. 556).<sup>48</sup>

Such confounding of terminology in the course of a major national effort to achieve clarity underscores the prevalence of confusion regarding the phenomena themselves.

### ***A Recent Effort to Achieve Consensus***

#### *The Liaison Committee on Pain and Addiction*

Increasing cross-fertilization between the fields of addiction medicine and pain medicine has occurred over the last ten years as areas of mutual interest have commanded the attention of professionals in both fields. These areas include, among others, the treatment of pain in individuals with addictive disorders, the need to discriminate addiction from therapeutic use

of opioids in pain treatment, and the prevention of abuse and addiction to prescribed opioids. Requisite to all these areas is the need for clear, shared definitions of addiction and related phenomena.

In July 1999 the APS, AAPM, and ASAM jointly formed the Liaison Committee on Pain and Addiction (LCPA) to encourage collaboration between pain specialists and addiction specialists on issues of common interest, including areas of research, education, clinical care, and policy development. Two member appointees and one administrative director from each organization meet biannually to discuss issues of common interest and to establish, pursue, and revise specific goals (see Table 1). Between meetings, frequent communication and coordination fosters progress on active projects.

#### *Development of the LCPA Definitions*

At its initial meeting, the LCPA reviewed a variety of interfacing issues in the fields of pain and addiction and determined that the development of consistent nomenclature was fundamental to all of them. Misunderstandings between regulators, health care providers, patients, and the general public related to terms such as addiction, physical dependence, and tolerance were identified as contributing to important misperceptions regarding the medical use of opioids in both pain treatment and addiction treatment, and leading to unnecessary suffering, economic burdens to society, stigmatization of the disease of addiction, and inappropriate legal or regulatory actions against patients and professionals.

The LCPA identified as its first priority the development of clear and unambiguous terms related to addiction that are consistent with current scientific and clinical understanding of pain, addiction, and opioid pharmacology. The ultimate goal of the definitions project is

Table 1  
Members of Liaison Committee

Committee Member	Primary Specialty	Organization Represented
Edward C. Covington, MD	Psychiatry	AAPM
Howard Heit, MD	Internal Medicine	ASAM
John Hunt, MD	Anesthesiology	AAPM
David Joranson, MSSW	Public Policy	APS
Seddon Savage, MD (Chair)	Anesthesiology	APS
Sidney H. Schnoll, MD, PhD	Neurology/PhD-Pharmacology	ASAM

to promote the use of conceptually consistent definitions by clinicians, regulators, and the public in order to improve the care of persons with pain and with addictive disorders throughout the world.

The LCPA's consensus process is outlined in Table 2. The LCPA reviewed existing definitions and identified key scientific and clinical concepts appropriate to informing ideal definitions. Initial definitions were then drafted, discussed and revised by LCPA members. When the LCPA was satisfied with its draft, the definitions were reviewed by other experts in the fields of pain medicine, addiction medicine, public health, and drug regulation and revised with this input. The definitions then went through internal review processes within each parent organization, and were further revised by the LCPA with this input. After negotiating the final revisions, the Boards of AAPM, APS, and ASAM approved the definitions and a consensus statement in February 2001.

The LCPA developed a set of definitions that discriminate common addiction-related terms and were acceptable to all members of the Committee and the Boards of all three parent organizations.<sup>49</sup> As such, they currently represent the standing definitions of all three organizations, which believe that they fundamentally reflect current scientific and clinical understanding. The definitions of addiction, physical dependence, and tolerance are listed in Table 3.

## Discussion

### *Four Critical Elements of the Definitions*

Four critical elements of the consensus definitions deserve attention: use of the term "addiction" rather than a term that includes

*Table 2*  
**Consensus Process: Development of LCPA Definitions**

- Existing definitions reviewed
- LCPA definitions drafted
- Draft discussed and revised by LCPA
- LCPA definitions reviewed by outside experts
- Expert recommendation integrated
- Internal review by each parent organization of LCPA definitions
- Parent organization recommendations integrated
- Final definitions approved by all three boards in February 2001

"dependence;" clear separation of the concepts of physical dependence, tolerance, and addiction; conceptualization of addiction as a chronic disease; and utility in distinguishing addiction from other forms of aberrant drug use.

*Use of the Term "Addiction."* The World Health Organization and ICD-10 currently use the term "dependence syndrome," and DSM-IV uses "substance dependence," rather than the term "addiction." The Committee on Opportunities in Drug Abuse Research of the Institute of Medicine noted in 1996 that many professionals perceive the term "addiction" to be stigmatizing, and believe that use of "a less pejorative term would help to promote public understanding of the medical nature of the condition" (p. 20).<sup>50</sup> The Committee also noted, however, that some professionals prefer the term "addiction" to "dependence," because it more clearly distinguishes compulsive drug use from physical dependence resulting from prolonged medical use.

The LCPA elects to use the term "addiction" for several reasons. The similarity of the term "physical dependence" to the terms "substance dependence," "drug dependence," and "dependence syndrome" is confusing, particularly to individuals not regularly working with these distinctions, and may lead to misidentification of

*Table 3*  
**Definitions Developed by the American Academy of Pain Medicine, the American Pain Society, and the American Society of Addiction Medicine**

Term	Definition
Addiction	Addiction is a primary, chronic, neurobiologic disease, with genetic, psychosocial, and environmental factors influencing its development and manifestations. It is characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.
Physical Dependence	Physical dependence is a state of adaptation that is manifested by a drug class specific withdrawal syndrome that can be produced by abrupt cessation, rapid dose reduction, decreasing blood level of the drug, and/or administration of an antagonist.
Tolerance	Tolerance is a state of adaptation in which exposure to a drug induces changes that result in a diminution of one or more of the drug's effects over time.



physical dependence as addiction and to trivialization of the occurrence of addiction. Second, the term “dependence” no longer reflects current understanding of the scientific basis of addiction, in that addiction appears to be driven largely by reward phenomena rather than by physical or psychological dependence. Finally, although there is no question that stigma is attached to the word “addiction,” clear understanding and appropriate use of terms will likely do more to dispel stigma and improve treatment than use of an arguably more benign term such as “dependence” which introduces ambiguity.

*Clear Conceptual Separation of Physical Dependence, Tolerance, and Addiction.* Past definitions of addiction and dependence often have included references to tolerance and physical dependence as necessary elements of addiction. Because scientific understanding now views these as distinct, if sometimes interrelated, phenomena, it is important that this distinction be reflected in language. Reinforcement of the perception that physical dependence and tolerance are necessarily part of addiction may lead to over-diagnosis of addiction with the therapeutic use of opioids and other drugs and the under-recognition of addiction to substances that do not result in demonstrable physical dependence.

Recent changes in federal policy governing the use of opioids in addiction treatment underscore the importance of distinguishing between addiction and physical dependence. In the past, the admission criteria to federally registered narcotic treatment programs (NTPs) defined “narcotic dependence,” exclusively by the presence of physical dependence,<sup>51</sup> making patients receiving opioids for pain treatment eligible for admission. Some individuals seeking pain relief, in fact, have been admitted to NTPs solely for the purpose of pain management, not for treatment of opioid addiction.<sup>52</sup> This practice has raised questions about appropriate use of limited drug abuse treatment resources and about barriers to pain treatment in the general health care system.

Effective May 2001, federal policy changed admission criteria to opioid treatment programs to “evidence of physiologic dependence and opioid addiction” with exceptions permitting admission of some persons “who are not

currently physiologically dependent.”<sup>53</sup> The policy also acknowledges the importance of “making careful diagnostic distinctions between the physical dependence associated with chronic administration of opioids for relief of pain and the disease of opioid addiction” and notes that only four of seven DSM-IV criteria were relevant to assessing opioid addiction in the context of pain treatment.<sup>54</sup>

*Recognition of Addiction as a Chronic Disease.* The acknowledgment of addiction as a chronic medical illness within the definition of addiction underscores the important role of physicians in addressing the disease on a longitudinal basis. Because addiction is a serious, sometimes life-threatening, disease, patients require intensification of management when it emerges in the context of medical care, despite an occasional impulse to discharge patients, particularly when addiction has resulted in the abuse of prescribed medications. With appropriate care, treatment compliance rates and patterns of remission and exacerbation are similar to those of other chronic illnesses.<sup>19</sup>

*Other Forms of Aberrant Drug Use.* The defining characteristics incorporated into the definition of addiction can help distinguish it from other forms of aberrant drug use.<sup>8,61-66</sup> Some persons have been described as “chemical copers,” and tend to use available medications, including opioids, to cope with a variety of life issues for which they were not intended. Such uses can include managing stress, relieving anxiety or depression, or facilitating sleep; this also has been referred to as self-medication. Usually, it is helpful to identify such use, to further assess the problem, and to institute more specific treatments.

Other persons divert opioids from their intended use for a variety of reasons. Some individuals obtain and use opioids to get high, but do not use the drugs in the compulsive manner that suggests addiction. Others may divert part or all of their prescribed opioid medications to sell for profit. Still others may use part of their medication for analgesia, sharing excess medications with friends or family who also have pain. When practitioners suspect aberrant drug use, careful evaluation that defines the patterns and purposes of use is important to determine an appropriate clinical response.

### *Clinical Importance of the Definitions*

Healthcare professionals often underutilize opioids in pain treatment due to unrealistic concerns about addiction.<sup>55</sup> Although the use of opioid analgesics can lead to addiction in vulnerable individuals, these medications do not usually result in addiction when administered for pain in persons with no prior history of substance abuse or addictive disorder.<sup>56,57</sup> However, indiscriminant prescribing of opioids, as well as failure to monitor for the development of abuse and addiction during treatment, can contribute to serious morbidity and even patient mortality.<sup>58,59</sup>

Although they are not intended to serve as formal diagnostic criteria, the LCPA definitions provide a conceptual framework that may be helpful in identifying addiction in the course of medical treatment and in discriminating addiction from therapeutic use of medications. A persistent pattern of behaviors that includes one or more of the defining features of addiction (impaired control over drug use; compulsive use; craving; and physical, psychological, or social harm due to use) suggests the need for more formal assessment of the possibility that addiction is present.

Compulsive use, craving, and impaired control may be reflected in a patient's inability to comply with an effective agreed-upon dosing schedule, frequent reports of lost or stolen prescriptions, doctor shopping for prescriptions, abuse of non-prescribed drugs or alcohol, non-compliance with non-opioid pain management strategies, and running out of medications before schedule in the absence of increased pain. Physical, psychological, or social harm or adverse consequences due to use may be reflected in increasing functional impairment, persistent intoxication or sedation, negative mood changes such as irritability, apathy or depression, increasing social isolation, and adverse legal or economic consequences.

Although any of these behaviors can occur from time to time in a non-addicted patient who is using medications therapeutically, a persistent pattern requires further assessment. A patient who is prescribed opioids that control his or her pain, is able to use them according to an agreed upon schedule, does not routinely request early refills, has stable or improving function, reports reasonably stable pain control, and who is willing to consider additional

treatment approaches is not likely to be addicted to the medications.

At times patients with unrelieved pain may demonstrate a pattern of behaviors that suggests addiction, but that actually indicates the need for improved pain control. The term "pseudoaddiction" has been used to refer to the misidentification of addiction in patients who exhibit such behaviors due to unrelieved pain.<sup>60</sup> Even behaviors such as illicit drug use and deception can and do occur in some patients' efforts to obtain pain relief. Pseudoaddiction can often be distinguished from true addiction by observing whether drug-seeking behaviors cease when effective analgesia is achieved using opioid or nonopioid treatments. However, when opioids are used for analgesia in some patients with addiction, they may incidentally block opioid craving and help normalize behavior. Good clinical judgment must therefore be used to determine whether the pattern of behaviors signals the presence of addiction or reflects the need for more effective pain treatment.

### *Public Policy Importance of the Definitions*

Untreated pain results not only in unnecessary individual suffering, but in increased utilization of health care resources, reduced productivity, and over-utilization of disability support systems.<sup>67</sup> Definitions and diagnostic criteria that clearly discriminate between addiction, physical dependence, and tolerance encourage the development of public policies that support effective pain treatment.

Untreated addictive disorders may result in significant economic costs to society, negative public health consequences, and increased crime.<sup>68,69</sup> Regulatory definitions that acknowledge addiction as a chronic illness and clearly distinguish it from physical dependence and tolerance are critical to the development of regulatory, enforcement, and healthcare policies that effectively address addictive disorders. Current definitions that equate physical dependence with addiction or identify addiction as a moral failing may lead to inappropriate use of public health and criminal justice systems, ineffective management of the disease of addiction, persistence of stigma associated with addictive disorders, and misallocation of public resources.

### *Limitations of the LCPA Process*

It may be argued that the LCPA left a number of important and relevant terms undefined. The LCPA elected to define critical terms for which clear consensus, based on current scientific and clinical understanding, could be achieved. Terms such as “abuse” and “psychological dependence” also demand clarification. However, these terms appear to be imbued with more complex social, political, and personal meanings, and the task of defining them in a universally acceptable manner will more likely be successful once there is more universal agreement on the concepts of addiction, physical dependence and tolerance.

A second limitation is the small number of organizations involved in the consensus process. However, the organizations involved are interdisciplinary in nature and the review process included individuals from a broad range of disciplines and medical specialties, both from within and from outside of the participating organizations. Finally, the process of developing consensus inevitably requires compromise. Different organizations and individuals had preferred wordings that were altered to make the definitions acceptable to all. The compromises were made in a manner that all participants agreed preserved the key elements of the definitions.

### *Conclusions*

More universal agreement on definitions of addiction, physical dependence, and tolerance is critical to optimizing the medical care of individuals with pain, with addictive disorders, and with other conditions that require the use of medications that may be associated with abuse and addiction. Pain is a common complaint in medical practice and addictive disorders affect a significant portion of the population; improved management of these conditions would have a profound effect on public health and the use of public resources.

Scientific and clinical understanding of addictive disorders, pain, and the pharmacology of opioids has evolved significantly in recent years and may provide a sound foundation for the development of universally acceptable terminology. The APS, AAPM, and ASAM have developed definitions based on current

understanding of these phenomena through a consensus process that incorporated input from a multidisciplinary group of experts.

Efforts are currently underway to seek endorsement of the key principles of the definitions by professional groups representing medicine, nursing, and pharmacy, as well as from organizations representing legal, regulatory, and law enforcement interests. National organizations and agencies are encouraged to consider the critical elements of the LCPA definitions in revising their own definitions and diagnostic criteria.

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### *References*

1. Berry PH, Dahl JL. Making pain assessment and management a healthcare system priority through the new JCAHO pain standards. *J Pharm Care Pain Symptom Control* 2000;8(2):5–20.
2. Anonymous. VA launches pioneering pain management initiative. *Veterans Health Administration Highlights*, 1999.
3. American Academy of Family Physicians et al. Promoting Pain Relief and Preventing Abuse of Pain Medications: A Critical Balancing Act. A joint statement from 21 health organizations and the Drug Enforcement Administration, 2002.
4. American Academy of Pain Medicine and American Pain Society. The use of opioids for the treatment of chronic pain: a consensus statement. Glenview, Ill: American Academy of Pain Medicine and the American Pain Society, 1997.
5. American Society of Addiction Medicine. Rights and responsibilities of physicians in the use of opioids for the treatment of pain. Chevy Chase, MD: American Society of Addiction Medicine, 1997.

6. Federation of State Medical Boards of the United States, Inc. Model guidelines for the use of controlled substances for the treatment of pain. Euless, TX, 1998.
7. Federation of State Medical Boards of the United States, Inc. Position of the federation of state medical boards in support of adoption of pain management guidelines. Euless, TX, 2000.
8. Portenoy R, Dole V, Joseph H, et al. Pain management and chemical dependency: evolving perspectives. *JAMA* 1997;278:592-593.
9. Sees KL. Pain management in a patient with an addiction history. *JAOA* 1999;99(Suppl):11-15.
10. Warner LA, Hughes M, Anthony JC, Nelson CB. Prevalence and correlates of drug use and dependence in the United States. *Arch Gen Psychiatry* 1995;52:219-229.
11. Kessler RC, Blazer DG, Bromet E, et al. The U.S. National Comorbidity Survey overview and future directions. *Epidemiologia e Psichiatria Sociale* 1997;6:4-14.
12. Regier D, Kramer MJ. The NIMH Epidemiological Catchment Area study. *Arch Gen Psychiatry* 1984;41:934-958.
13. Moore RD, Bone LR, Geller G, et al. Prevalence, detection and treatment of alcoholism in hospitalized patients. *JAMA* 1989;261:934-958.
14. Graham AW. Screening for alcoholism by lifestyle risk assessment in a community hospital. *Arch Int Med* 1991;151(5):958-964.
15. Gardner E. The neurobiology and genetics of addiction: implications of the reward deficiency syndrome for therapeutic strategies in chemical dependency. *Addiction: Entries and Exits*. New York: Russell Sage Foundation, 1999, 57-119.
16. Koob GF. Drug addiction, dysregulation of reward, and allostasis. *Neuropsychopharmacology* 2001;24:97-129.
17. Enoch M, Goldman D. Genetics of alcoholism and substance abuse. *Psych Clinics North America* 1999;22:289-299.
18. Nicholson T, White J, Duncan DF. A survey of adult recreational drug use via the World Wide Web: The DRUGNET study. *J Psychoactive Drugs* 1999;31:415-422.
19. McClellan AT, O'Brien CP, Kleber HD. Drug dependence, a chronic medical illness: implications for treatment, insurance, and outcomes evaluation. *JAMA* 2000;284:1689-1695.
20. Oettin E, Donnermeyer J. Primary socialization theory: the etiology of drug use and deviance. *Substance Use Misuse* 1998;33(4):995-1026.
21. Piazza P, Moal ML. Pathophysiological basis of vulnerability to drug abuse: role of an interaction between stress, glucocorticoids and dopaminergic neurons. *Ann Rev Pharmacol Toxicol* 1996;36:359-378.
22. Tucker JA, Vuchinich RE, Gladsjo JA. Environmental influences on relapse in substance use disorders. *Internat J Addict* 1990;25:1017-1050.
23. Miller L. Predicting relapse and recovery in alcoholism and addiction: neuropsychology, personality, and cognitive style. *J Substance Abuse Treat* 1991;8:277-291.
24. Melichar J, Daglish M, Nutt D. Addiction and withdrawal: current views. *Curr Opin Pharmacol* 2001;1:84-90.
25. Van Ree JM, Vanderschuren LJ. Opioids, reward and addiction: an encounter of biology, psychology, and medicine. *Pharmacol Rev* 1999;51:341-396.
26. Gardner E. What we have learned about addiction from animal models of drug self-administration. *Amer J Addict* 2000;9:285-313.
27. Fulmer RH. A study of professed reasons for beginning and continuing heroin use. *Internat J Addict* 1980;15:631-645.
28. Ralphps JA, Williams AC, Richardson PH, et al. Opiate reduction in chronic pain patients: a comparison of patient controlled reduction and staff controlled cocktail methods. *Pain* 1994;56:279-288.
29. World Health Organization. Expert Committee on Drugs Liable to Produce Addiction. 3rd report. Geneva, Switzerland: WHO, 1952.
30. Room R. Alcohol and drug disorders in the International Classification of Diseases: a shifting kaleidoscope. *Drug Alcohol Rev* 1998;17:305-317.
31. World Health Organization. Expert Committee on Addiction-Producing Drugs. 7th report. Geneva, Switzerland: WHO, 1957.
32. World Health Organization. WHO Expert Committee on Addiction-Producing Drugs. 13th report. Geneva, Switzerland: WHO, 1964.
33. World Health Organization. WHO Expert Committee on Drug Dependence. 16th report. Geneva, Switzerland: WHO, 1969.
34. World Health Organization. WHO Expert Committee on Drug Dependence. 28th report. Geneva, Switzerland: WHO, 1993.
35. World Health Organization. WHO Expert Committee on Drug Dependence. 30th report. Geneva, Switzerland: WHO, 1998.
36. World Health Organization. The ICD-10 Classification of Mental and Behavioral Disorders: Clinical Descriptions and Diagnostic Guidelines. Geneva, Switzerland: WHO, 1992.
37. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. Washington, DC: American Psychiatric Association, 1994.
38. Sees KL, Clark W. Opioid use in the treatment of chronic pain: assessment of addiction. *J Pain and Symptom Manage* 1993;8:257-264.

39. Controlled Substances Act. Pub. L. No. 91-513, 84 Stat. 1242; 1970.
40. Gilson AM, Joranson DE. U.S. policies relevant to the prescribing of opioid analgesics for the treatment of pain in patients with addictive disease. *Clin J Pain* 2002;4(4S):S91–S98.
41. Joranson DE. Federal and state regulation of opioids. *J Pain Symptom Manage* 1990;5(Suppl):12–23.
42. Joranson DE, Gilson A. Controlled substances, medical practice, and the law. In: Schwartz HI (ed). *Psychiatric practice under fire: the influence of government, the media, and special interests on somatic therapies*. Washington, DC: American Psychiatric Press, 1994:173–194.
43. Joranson DE, Gilson AM. Policy issues and imperatives in the use of opioids to treat pain in substance abusers. *J Law Med Ethics* 1994;22:215–223.
44. Oklahoma Statutes. Title 63, Sec. 2-101.
45. Scimeca MM, Savage SR, Portenoy R, Lowinson J. Treatment of pain in methadone-maintained patients. *Mount Sinai J Med* 2000;67:412–422.
46. Ferrell B, Virani R, Grant M. Analysis of end-of-life content in nursing textbooks. *Oncol Nurs Forum* 1999;26:869–876.
47. Ferrell B, Virani R, Grant M, et al. Analysis of pain content in nursing textbooks. *J Pain Symptom Manage* 2000;19:216–228.
48. Rinaldi RC, Steindler EM, Wilford BB, et al. Clarification and standardization of substance abuse terminology. *JAMA* 1988;259:555–557.
49. American Academy of Pain Medicine, American Pain Society, and American Society of Addiction Medicine. *Definitions related to the use of opioids for the treatment of pain*. Glenview, IL: American Academy of Pain Medicine, American Pain Society, American Society of Addiction Medicine, 2001.
50. Committee on Opportunities in Drug Abuse Research. *Pathways of addiction: opportunities in drug abuse research*. Division of Neuroscience and Behavioral Health, Institute of Medicine. Washington, DC: National Academy Press, 1996.
51. Code of Federal Regulations. Title 21. Sec. 291.505(a)(5).
52. Joranson DE. Is methadone maintenance the last resort for some chronic pain patients? *Amer Pain Soc Bull* 1997;7:1,4–5.
53. Federal Register. January 17, 2001;66(11):4075–4102.
54. Center for Substance Abuse Treatment. *Guidelines for the accreditation of opioid treatment programs*. Washington DC: Office of Pharmacologic and Alternative Therapies, U.S. Department of Health and Human Services, 2000.
55. Marks J. Undertreatment of medical inpatients with narcotic analgesics. *Ann Internal Med* 1973;78:173–181.
56. Porter J, Jick H. Addiction is rare in patients treated with narcotics. *NEJM* 1980;302:123.
57. Perry S, Heidrich G. Management of pain during debridement: A survey of U.S. burn units. *Pain* 1982;13:12–14.
58. Meier B, Peterson M. Use of painkiller spreads quickly, along with widespread abuse. *New York Times on the Web*. Accessed on 5 March 2001.
59. Passik SD. Responding rationally to recent reports of abuse/diversion of Oxycontin. [letter]. *J Pain Symptom Manage* 2001;21(5):359–360.
60. Weissman DE, Haddox JD. Opioid pseudoaddiction—an iatrogenic syndrome. *Pain* 1989;36:363–366.
61. Compton P, Estepa CA. Addiction in patients with chronic pain. *Lippincotts Prim Care Pract* 2000;4:254–272.
62. Pasero CL, Compton P. When does ‘drug-seeking’ behavior signal addiction? *Am J Nurs*. 1997;97:17–18.
63. Passik SD, Portenoy RK, Ricketts PL. Substance abuse issues in cancer patients. Part 1: prevalence and diagnosis. *Oncology* 1998;12:517–521,524.
64. Passik SD, Portenoy RK, Ricketts PL. Substance abuse issues in cancer patients. Part 2: evaluation and treatment. *Oncology* 1998;12:729–734.
65. Portenoy RK. Opioid therapy for chronic non-malignant pain: a review of the critical issues. *J Pain Symptom Manage* 1996;11:203–217.
66. Whitcomb LA, Kirsh KL, Passik SD. Substance abuse issues in cancer pain. *Curr Pain Headache Rep* 2002;6:183–190.
67. Strax T, Grabois M. Evaluating pain and disability. *Physical Med Rehab Clinics North Amer* 2001;12:559–570.
68. *Alcohol and Health: Tenth Special Report to the U.S. Congress*. U.S. Department of Health and Human Services. Washington DC, 1997.
69. Sinha R, Easton C. Substance abuse and criminality. *J Amer Acad Psychiatry Law* 1999;27:513–526.