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## Can Substance Use Disorders be Managed Using the Chronic Care Model? Review and Recommendations from a NIDA Consensus Group

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### Abstract

Brain imaging and genetic studies over the past two decades suggest that substance use disorders are best considered chronic illnesses. The passing of the Affordable Care Act in the United States has set the occasion for integrating treatment of substance use disorders into mainstream healthcare; and for using the proactive, team-oriented Chronic Care Model (CCM). This paper systematically examines and compares whether and how well the CCM could be applied to the treatment of substance use disorders, using type 2 diabetes as a comparator. The chronic illness management approach is still new in the field of addiction and research is limited. However comparative findings suggest that most proactive, team treatment-oriented clinical management practices now used in diabetes management are applicable to the substance use disorders; capable of being implemented by primary care teams; and should offer comparable potential benefits in the treatment of substance use disorders. Such care should also improve the quality of care for many illnesses now negatively affected by unaddressed substance abuse.

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## INTRODUCTION

Addictions have historically been misunderstood by the public as a bad habit, hedonism or a moral failing—not as an acquired health condition. Evidence of genetic vulnerability to nicotine, alcohol, opioid and other substance addictions<sup>1</sup>; and persistent brain changes following heavy use of many substances<sup>2</sup> have suggested that many addictions are best considered as acquired illnesses. In turn, because there is now evidence that long-term treatments can be effective in managing—but not curing—addictions,<sup>3,4</sup> it is reasonable to think of these as *chronic illnesses*.

But addictions have never been treated, insured or evaluated like other chronic illnesses. Since the late 1960s, addictions have been treated as acute conditions, in specialty addiction treatment programs which are segregated geographically, financially and culturally from the rest of general healthcare.<sup>5</sup> This segregation has contributed to willful inattention by physicians to the pervasive substance use problems that occur in every medical setting. Addictions occur in eight to 11 percent of the general United States adult population,<sup>6</sup> but are found in 20 percent of patients in US primary care settings<sup>7</sup> and over 50 percent of patients in US hospital, emergency room and trauma centers.<sup>8</sup>

### Addiction vs. Substance Use Disorder

Addictions are merely the most severe of the substance use disorders (SUDs). In the US over 23 million adults meet diagnostic criteria for an addiction to alcohol, or other drugs—but over 40 million additional adults manifest less severe or earlier onset “medically harmful substance use”<sup>9</sup> that is less recognized and thus regularly untreated despite its prevalence. These are treatable medical conditions in their own right, but when unaddressed in the treatment of other medical illnesses they produce: generally poor adherence to medications<sup>10</sup>; poor control of hypertension and diabetes<sup>11</sup>; increased risk for a host of cancers and medical illnesses<sup>12</sup>; and decreased effectiveness of treatments for chronic pain.<sup>13</sup> More severe and chronic addictions exact a high toll in preventable death.<sup>14</sup>

### Healthcare Reform and SUDs

The longstanding segregation of SUDs from the rest of healthcare in the US will change in 2014 with the implementation of the Patient Protection and Affordable Care Act (PPACA).<sup>15</sup> This legislation requires essentially all health plans to offer prevention, screening and brief interventions to detect and reduce medically harmful use, and medications and clinical management services for those most severely addicted. Most severe, chronic cases of addiction will still be managed in specialty addiction treatment programs, but this care will soon be financed through the same health insurance plans as the rest of general healthcare. In addition, the Mental Health Parity and Addiction Equity Act (the Parity Act)<sup>16</sup> requires that care for SUDs have generally the same type, duration, range

of service options and patient financial burden as the care currently available to patients with comparable physical illnesses. The implications are significant. For the first time, SUDs will be treated like other chronic illnesses (see ref.<sup>17</sup>)—but how?

### Evolution in the Management of Chronic Illness

Despite the clear clinical need and legislative mandate, actualizing this change will be complicated for two reasons. First, this has never been done, so there are few practical models to provide guidance. Second, the clinical model for treating other chronic illnesses is itself evolving toward the “chronic care model” (CCM) first described by Wagner, Bodenheimer and colleagues.<sup>18</sup> The CCM is a proactive management strategy that involves multidisciplinary teams of healthcare providers using new health information technologies to anticipate and prevent recurrence of serious and expensive relapses. Key elements of the CCM are summarized in Table 1.

There is substantial evidence indicating that the CCM is more effective than traditional clinical care in the treatment of many chronic medical illnesses<sup>19,20</sup> including depression<sup>21</sup>; is more appreciated by patients and physicians<sup>22</sup>; and does not appear to cost more than traditional care.<sup>23</sup> There is conceptual<sup>24</sup> indication that SUDs may also be manageable through the CCM. However, a recent systematic review of CCM studies in behavioral health conditions did not identify any randomized controlled trials comparing CCM to other models of care for the treatment of SUDs (see ref.<sup>21</sup>(p.9)).

### Management of SUDs within the CCM

To prepare for integration of SUD treatment into mainstream healthcare and to set needed research priorities in this area, the National Institute on Drug Abuse convened a panel of experienced primary care providers and researchers to perform a two-stage, systematic examination of whether and how well the CCM could be applied in the treatment of SUDs. Stage one focused on how the six core elements of the CCM (Table 1) have been applied to the treatment of type 2 diabetes because it too is a prevalent, acquired, often complicated chronic illness, that is familiar to general medical audiences. Stage two examined whether and how each of the same six core elements of the CCM could be applied to the treatment of SUDs.

## THE SIX CORE ELEMENTS OF THE CCM

### Element 1: Healthcare Delivery System Redesign

**Relevance in the CCM**—The CCM reorients care from acute, reactive and procedure-oriented, to preventive, continuing and patient-oriented practices. This type of proactive care requires organizations to redesign staffing models, develop new referral partners, and create, train and sustain inter-disciplinary teams of providers who interact and communicate effectively through an electronic health record (EHR). A key goal of this re-design is prevention and early intervention for patients who are at risk or have early stage disease.

**Application in the Management of Diabetes**—Preventive diabetes care includes screening at-risk but asymptomatic adults (e.g., patients who are overweight or have

hypertension) using fasting plasma glucose or glyco-sylated hemoglobin (HbA1c). Among patients already diagnosed with pre-diabetes or diabetes, proactive early intervention care includes counseling about nutrition, exercise and medication adherence. In the CCM, such care is delivered by a clinical team, and the severity of a patient's disease determines how much and in what ways specific team members are mobilized. For example, a triage nurse or medical assistant may review outstanding screenings and prompt the primary care provider, via the EHR, to order an HbA1c on an overweight patient. If a patient already being followed for diabetes has an elevated HbA1c, the physician adjusts the insulin dose and sends a note through the EHR to the diabetes care manager. Group visits conducted by nurses are arranged to assist patients with peer learning about diabetes self-management and to assure that all of the necessary services are accessible to the patient for maximum disease adherence.

**Application in the Management of SUDs**—The CCM appears to offer a good framework for achieving evidence-based care for SUDs using the same care team, deployed in essentially the same ways as for diabetes management. Again, disease progression and severity will determine clinical team actions. For example, a medical assistant can quickly screen a college student and identify at-risk drinking with three questions, occasioning a physician, nurse, or health behaviorist to deliver a single brief counseling intervention during the visit. The patient can be added to a registry, and followed up longitudinally to monitor progress and to provide additional interventions as needed. Alcohol screening and brief counseling, are considered essential services within the PPACA legislation<sup>17</sup>; carry a Grade B recommendation from the US Preventive Services Task Force; and are fully reimbursed elements of care without patient co-pay. Of all preventive services recommended by the Task Force, brief alcohol interventions yield the quickest and greatest reductions in healthcare costs.<sup>25</sup>

A more severely addicted patient with alcoholic cirrhosis and ongoing alcohol dependence would be unlikely to respond to a brief intervention and would require more attention and a different service mix, including motivational enhancement therapy by the health behaviorist, and prescription of an anti-craving medication like naltrexone by the primary care physician. Team-based care integrating medical and behavioral health produces favorable patient outcomes for patients with SUDs.<sup>26</sup> There are five FDA-approved medications for opioid dependence and three for alcohol dependence to assist primary care team-based management.<sup>27</sup> Some cases will require referral to a specialty alcohol treatment program, and the care manager would arrange that referral, continue to communicate with them during treatment and accept the stabilized patient back for continued monitoring and management in a coordinated way.

## **Element 2: Healthcare Organization Support**

**Relevance in the CCM**—Senior leadership must perceive the value of investing in proactive, team treatment, information systems and outcomes measurement through a strong business case justifying commitment of resources; as has been demonstrated in various evaluations of the CCM (see ref.<sup>28</sup>).

**Application in the Management of Diabetes**—Research indicates team treatment re-organization provides significantly better disease management and can also produce cost savings. For example, the Robert Wood Johnson Foundation’s nationwide Diabetes Initiative, which employed the team-based care management approach within in primary care settings—including patient group visits led by nurses or health behavioral specialists—improved quality adjusted life years (QALY) for patients while simultaneously reducing lifetime costs by USD \$3,385 per patient.<sup>29</sup>

**Application in the Management of SUDs**—There have not yet been cost-effectiveness evaluations of treating SUD in a CCM, but proactive, team-based treatment of opioid dependence with buprenorphine has produced significant cost reductions—for both inpatient and emergency department utilization—compared with untreated individuals.<sup>30</sup>

### Element 3: Expert-Informed Decision Support for Providers

**Relevance within the CCM**—Expert-informed decision support to primary care teams can include provider education, facilitated expert consultation, standardized assessment tools, and evidence-based treatment algorithms. These decision supports are used by primary care teams in cardiology, oncology and diabetes care.

**Application in the Management of Diabetes**—Specialty techniques to manage diabetes have been widely translated into routine primary care practice through EHR prompts to assess for microalbuminuria, links to expert guidelines, embedded expert protocols, and facilitated consultation with endocrinologists for patients with refractory disease.<sup>31</sup> One example is Diabetes Wizard, an EHR-based diabetes clinical decision support system developed by HealthPartners Medical Group in Boston.<sup>32</sup> This system summarizes current control measures, suggests specific medication changes to intensify management when HbA1c is not at goal, prompts the physician to order outstanding labs like a lipid profile, and suggests a short follow-up interval for patients not at goal. In a clinic-randomized controlled study, using Diabetes Wizard increased the proportion of patients who received a HbA1c test, decreased mean HbA1c levels,<sup>20</sup> was inexpensive (USD \$120 per patient) and had an incremental cost-effectiveness ratio of only USD \$3,017/QALY.<sup>33</sup>

**Application in the management of SUDs**—Expert-informed decision support for providers may be even more important care for SUDs than for other medical conditions because of the relative lack of medical education and training in this area. There are now evidence-based decision supports in the form of: screening instruments for alcohol and drug use (e.g., Alcohol Use Disorders Identification Test – Consumption (AUDIT-C), Alcohol, Smoking and Substance Involvement Screening Test (ASSIST))<sup>34,35</sup>; assistance in implementing brief interventions<sup>36</sup>; published clinical practice guidelines for treatment of SUDs<sup>37</sup>; and guidelines for referral to specialty care environments.<sup>38</sup>

However, simply training primary care teams about screening tools or treatment guidelines may not be sufficient to improve practices regarding substance use care. For example, among family medicine residents, receipt of coaching and feedback from Motivational Interviewing experts was critical in skill adoption.<sup>39</sup> Expert decision support may also be

necessary to encourage broader use of available, US Food and Drug Administration-approved pharmacotherapies to treat alcohol and opioid dependence; studies have shown that inexperienced physicians were uncomfortable prescribing these medications and expressed need for access to expert consultation.<sup>40</sup>

#### **Element 4: Improving Clinical Information Systems to Enable Long-Term, Coordinated Care**

**Relevance within the CCM**—EHR systems are activated when a patient enters any service component within a health system and thereafter serves as the patient’s complete medical record. That record can prompt patient engagement through web-based or mobile applications that improve care management practices such as screening and care guidance to patients, their families and provider teams.<sup>41</sup> Federal initiatives are underway to develop a US-wide EHR, or inter-operability across different EHRs, which will enable better and more efficient management.

**Application in the Management of Diabetes**—A recent EHR initiative at Kaiser Permanente in Oakland California for managing diabetes included comprehensive order entry, diabetes-specific decision support for laboratory testing and treatment intensification, and secure messaging between providers and patients. The initiative led to improved rates of medication treatment adherence, follow-up monitoring, and glycemic and lipid control in patients.<sup>42</sup>

**Application in the Management of SUDs**—As has been shown in diabetes management,<sup>43</sup> proactive engagement through electronic (message, text) or voice (phone) reminders and follow-up contacts, has produced improved patient retention, care participation and lower relapse rates among out-patients in substance abuse treatment.<sup>44</sup>

#### **Element 5: Fostering Patient Self-Management**

**Relevance within the CCM**—Self-management is defined as the “tasks that an individual must undertake to live well with one or more chronic conditions”.<sup>45</sup> Primary care teams are being charged with helping patients to self-monitor and change unhealthy behaviors, and remain adherent to their treatment regimens.

**Application in the Management of Diabetes**—Initially, diabetes treatment regimens were chiefly biomedical in nature. Quality measures focused on the process of biomedical care, such as assessing for retinopathy and neuropathy; and usually only with patients having frank diabetes. Increasingly, efforts are directed at improving self-management behaviors earlier in the disease course such as facilitating exercise, dietary control and medication adherence.<sup>46</sup> Yet these self-management behaviors are difficult to foster. In a recent study fewer than 15 percent of patients met goals for control of glucose, blood pressure, and low density lipoprotein.<sup>47</sup>

**Application in the Management of SUDs**—Recent efforts in the management of SUDs have paralleled those in diabetes care—moving from sole emphasis on the most severely affected to address those with emerging substance use problems. Patients with SUDs also

face challenges in overcoming environmental vulnerabilities to relapse such as situational, emotional and interpersonal cues that trigger drug cravings and withdrawal. As is true in diabetes management, research on the management of SUDs has shown little behavioral change from simple disease education and even less from scolding or confrontation.<sup>48</sup> Instead, clinical techniques such as Motivational Interviewing—an empathic, respectful, collaborative approach to promoting behavior change—has reliably produced significant and long lasting reductions in substance use and related unhealthy behaviors.<sup>49</sup>

### **Element 6: Linking Patients to Community Resources**

**Relevance within the CCM**—Healthcare settings cannot offer all the resources needed to fully manage chronic illnesses. Thus, an important aspect of CCM involves linking patients and their families with community resources such as wellness programs, exercise groups, assisted living arrangements and health fairs to help patients manage their illness.

**Application in the Management of Diabetes**—Community resources play an important role in diabetes management. For example, the Diabetes Prevention and Control Alliance<sup>50</sup> is a partnership between United Health Group, the YMCA, and retail pharmacies to enhance linkages between clinical and community-based diabetes prevention and control services. The initiative consists of two parts. The Diabetes Prevention Program helps people with pre-diabetes eat healthier, increase physical activity, and learn about other health-promoting behavior modifications. The Diabetes Control Program links people with diabetes to local pharmacists who are trained to help them manage their condition and follow their physicians' treatment plans.

**Application in the Management of SUDs**—Facilitating linkages to community resources is a critical component of managing SUDs. Research shows that SUD patients assigned case managers who coordinated and expedited access to community resources such as exercise, nutrition, housing, parenting and employment services, had significantly better social functioning, and less substance use at six month follow-up than did patients who received standard substance use-focused care.<sup>51</sup> Among the easiest to arrange and most effective community services a primary care team can provide to patients with any type of substance use problem is linkage to free, easily accessible sober social networks such as Alcoholics Anonymous (AA), Narcotics Anonymous (NA) or SMART Recovery. Research shows that participation in these peer-support activities is associated with decreased substance use, enhanced psychosocial adjustment, and lower health care costs.<sup>52</sup>

## **DISCUSSION AND CONCLUSIONS**

It is important to emphasize that severe “addictions” represent only the highly visible fraction of those with SUDs. Lower severity or earlier onset cases of medically harmful alcohol and other substance use are ubiquitous, commonly affecting over 20 percent of patients seen in primary care settings. However, they are not easily recognized and thus often under-addressed. As a consequence, they interfere with treatment of other illnesses, reduce adherence to medication and care plans, and contribute to hospital readmissions at great expense.<sup>7-13</sup> Like pre-diabetes, medically harmful substance use can be easily, quickly and accurately screened. Brief advice and monitoring can prevent the progressive behavioral

and brain changes that often become the chronic illness of addiction. Because chronic illness management is a central part of the new healthcare reform legislation in the US, and because the CCM has been recognized as an effective management framework, we examined the extent to which CCM could be an appropriate framework for the primary care management of SUDs.

Our findings led to three conclusions. First, it appears possible, practical and worthwhile to manage most SUDs within primary care. Research shows that this type of integrated management within primary healthcare settings can significantly reduce substance use, but also improve the clinical outcomes of many common chronic illnesses and reduce healthcare costs. The most severe, chronic and complex cases of addiction will usually require specialty care, but even in these cases primary care teams should be able to provide appropriate referral and support continuing management following the specialty care episode.

The second conclusion is that the CCM appears to be an appropriate platform to integrate care management of SUDs within primary care. Again, because this is still a relatively new concept, there has been little testing of the CCM among patients with SUDs or in primary care settings. Nonetheless findings to this point suggest that clinical and health services research in this area is warranted.

Finally, our comparative review strategy suggested that experience with the CCM in type 2 diabetes offered appropriate clinical and research guidance as well as practical solutions that could be systematically adapted in the management of SUDs. Of course there are important special clinical issues associated with SUDs; but this is true of all chronic illnesses. Until there are systematic CCM research initiatives in the SUDs field, we recommend that primary care teams adopt and evaluate three practices that are consonant with both the CCM and with good clinical practice in the SUD field:

- 1. Implement screening and brief intervention** – Clinical information systems such as the EHR should be adapted to facilitate screening brief counseling interventions for medically harmful substance use. These practices are evidence-based, practical, efficient, reimbursed and can improve care for many illnesses.
- 2. Expand and restructure the healthcare team** – Hire or train a member of the care team—typically a nurse, social worker, or health educator—to assume the functions of a “behavioral care manager” responsible for (a) screening and brief interventions; (b) facilitating linkage to community resources; and (c) teaching and encouraging patient self-management skills. These practices are also evidence-based, efficient and reduce general medical costs.
- 3. Collaborate with local addiction specialists** – It will be important to identify addiction medicine experts to consult on diagnosis, prescribing and adjusting addiction medications, and suggesting referrals to specialty care when needed. Expert advice in addiction medicine is readily available through standard clinical protocols and web contacts.

Healthcare reform legislation, advances in scientific and clinical understanding, and the potential for significantly improving general healthcare quality and efficiency, provide



ample reason to begin integrating the management of SUDs into primary care using the CCM.

## Acronyms List

<b>CCM</b>	Chronic Care Model
<b>EHR</b>	Electronic health record
<b>HbA1c</b>	glycosylated hemoglobin
<b>PPACA</b>	Patient Protection and Affordable Care Act
<b>QALY</b>	Quality adjusted life year
<b>SUD</b>	Substance abuse disorder

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**Table 1**

## Chronic Care Model (CCM) Core Elements

Core Element	Focus
Healthcare Delivery System Redesign	<i>Plan and manage</i> to facilitate preventive care; redefine roles for the clinical team to implement CCM elements.
Healthcare Organization Support	<i>Organization-level leadership and resources</i> for CCM (e.g., organization leadership to sustain CCM).
Expert-Informed Decision Support	Provision of <i>expert input to generalist clinicians</i> to help manage cases without need for separate specialty treatment.
Improving Clinical Information Systems	<i>Track and coordinate care</i> , facilitate information flow among clinical sources, the clinical team and patients.
Fostering Patient Self- management	<i>Coaching &amp; problem solving</i> to help patients self-manage disease and to participate in clinical decision making
Linking Patients to Community	Enhance <i>access to community resources</i> (e.g., peer support groups, exercise programs, housing, home care programs).

**Source:** Adapted from Bodenheimer, Wagner & Grumbach. Improving primary care for patients with chronic illness: the chronic care model, part 2. 2002.<sup>18</sup>