

# The Physician Clinical Support System-Buprenorphine (PCSS-B): a Novel Project to Expand/Improve Buprenorphine Treatment

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Opioid dependence is largely an undertreated medical condition in the United States. The introduction of buprenorphine has created the potential to expand access to and use of opioid agonist treatment in generalist settings. Physicians, however, often have limited training and experience providing this type of care. Some physicians believe having a mentoring relationship with an experienced provider during their initial introduction to the use of buprenorphine would ease implementation. Our goal was to describe the development, implementation, resources, and evaluation of the Physician Clinical Support System-Buprenorphine (PCSS-B), a federally funded program to improve access to and quality of treatment with buprenorphine. We provide a description of the PCSS-B, a national network of 88 trained physician mentors with expertise in buprenorphine treatment and skills in clinical education. We provide information regarding the use the PCSS-B core services including telephone, email and in-person support, a website, clinical guidances, a warmline and outreach to primary care and specialty organizations. Between July 2005 and July 2009, 67 mentors and 4 clinical experts reported providing mentoring services to 632 participants in 48 states, Washington DC and Puerto Rico. A total of 1,455 contacts were provided through email (45%), telephone (34%) and in-person visits (20%). Seventy-six percent of contacts addressed a clinical issue. Eighteen percent of contacts addressed a logistical issue. The number of contacts per participant ranged from 1–125. Between August 2005 and April 2009 there were 72,822 visits to the PCSS-B website with 179,678 pages viewed. Seven guidances were downloaded more than 1000 times. The warmline averaged more than 100 calls per month. The PCSS-B model provides support for a mentorship program to assist non-specialty physicians in the provision of buprenorphine and may serve as a model for dissemination of other types of care.

**KEY WORDS:** buprenorphine; opioid-related disorders; primary health care; education, distance.

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The abuse of opioids, including heroin and prescribed pain medications, is a significant health problem in the United States.<sup>1–3</sup> Opioid agonist treatment decreases illicit opioid use,<sup>4–6</sup> yet it is estimated that only 15% of those who need treatment receive it.<sup>7</sup> The introduction of buprenorphine has created the potential to expand access to opioid agonist treatment to settings such as general psychiatry and primary care.<sup>8</sup>

Buprenorphine, an opioid partial agonist, reduces opioid cravings, blocks the effects of opioids, and has limited overdose potential. Despite evidence of its efficacy and safety,<sup>9–13</sup> office-based treatment using buprenorphine has not been as quickly adopted by U.S. physicians as some had anticipated or was needed.<sup>14–18</sup> According to its manufacturer, approximately 585,000 individual patients (total) received medically supervised buprenorphine detoxification or maintenance treatment over the four year period from 2003 to 2007.<sup>19</sup> During the same period of time approximately 250,000 patients per year received treatment with methadone.<sup>20</sup> Buprenorphine treatment is facilitated through a relatively low number (8,000 to 10,000) of prescribers; therefore it represented a minority of the opioid agonist treatment provided during this period.<sup>21</sup> In addition, almost half of prescribers are addiction specialists,<sup>21</sup> suggesting limited uptake in more general medical practices such as general psychiatry or primary care.

Research on the uptake of buprenorphine suggests several factors influence physician interest in prescribing. These include knowledge and experience; availability of resources and support; cost and reimbursement; and perceptions regarding the challenges of caring for opioid-dependent patients.<sup>18,22–31</sup>

Most physicians who qualify to prescribe buprenorphine under the provisions of Drug Addiction Treatment Act (DATA 2000) do so by completing an 8-hour course on the treatment of opioid dependence. To date, more than 16,000 U.S. physi-

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cians have completed such a course. Recognizing that it is impossible to cover all the needed information in such a brief course, particularly for physicians with little pre-existing training in the clinical care of addictive disorders, the Substance Abuse and Mental Health Services Administration/Center for Substance Abuse Treatment (SAMHSA/CSAT) funded the Physician Clinical Support System-Buprenorphine (PCSS-B) to assist with the implementation of buprenorphine in the U.S. treatment system. The goal of the PCSS-B is to promote more widespread use of buprenorphine by providing educational support to physicians interested in offering it as a treatment option for patients addicted to prescription opioids and heroin. The primary target audience was all physicians who had received initial 8-hour training but would benefit from additional educational support. By creating the educational support services of the PCSS-B, it was hoped that non-specialist physicians would be more inclined to undergo training.

The purpose of this article is to describe the development, implementation, resources, and evaluation of the PCSS-B for the first 4 years (July 2005–July 2009) of its implementation. Lessons from the remote mentoring model used within PCSS-B may be translatable to other medical and treatment issues.

## PCSS-B PROGRAM DEVELOPMENT AND DESCRIPTION

**Program Development.** The development of the PCSS-B occurred according to established criteria in medical education and curriculum development.<sup>32</sup> Needs analyses came from surveys conducted during early physician trainings<sup>28,31,33,34</sup> and evaluations of clinical experience using buprenorphine.<sup>18</sup> These surveys, conducted nationally on over 2,000 physicians, demonstrated that a substantial proportion of physicians receiving training were non-addiction specialists, had limited experience providing opioid agonist treatment, anticipated significant challenges and specific concerns with this model of care and were receptive to a mentorship model and support services that included online and distance learning techniques. This work, along with information regarding the characteristics of the learners derived from federal agencies and specialty medical societies, provided the rationale for the development of a training and support system comprised of multiple medical specialties (e.g. internal medicine, family practice, psychiatry, HIV medicine), treatment environments (e.g. inpatient, primary care, medication-free), practice locations (e.g. rural, urban) and practice types (e.g. private practice, academic, solo-practitioner).

**Program Description.** We identified specific instructional strategies based on observed deficits in knowledge, skills, and attitudes among the potential learners. The components of the PCSS-B are 1) a national network of trained physician mentors with expertise in buprenorphine treatment and skills in clinical education who are supported by a Medical Director and a small group of national Clinical Experts, 2) telephone warmline, 3) clinical guidances, 4) PCSS website ([www.pcssmentor.org](http://www.pcssmentor.org)), and 5) targeted outreach to state chapters of primary care organizations. The efforts of the PCSS-B are overseen by a Steering Committee composed of representatives

from leading addiction medicine societies, organizations that represent the target physician populations, and the federal government (Table 1).

As of late 2009, the PCSS-B included 88 mentors around the U.S. and Puerto Rico. The mentors were chosen by the Medical Director and the Clinical Experts based on the individual's knowledge of opioid dependence, experience using buprenorphine according to its FDA approved indications, teaching ability, and availability for contact with PCSS-B participants (those in need of mentor services) by telephone, email, and/or in person (to allow participants to observe their practice using buprenorphine).

The PCSS-B warmline is a national system of telephone triage that strives to answer queries about buprenorphine or match participants with mentors within 24 hours. Warmline staff, non-clinical administrative personnel with support from a nurse and physician, refer inquirers to the PCSS-B website and other technical assistance sources, assist in mentor-participant matching according to specialty/geographic location/practice setting, respond to requests for general information and information about continuing medical education, and provide overall mentor-participant administrative support.

The PCSS-B has developed guidances to address common questions and concerns that have been posed by participants. The guidances (Table 2) are brief documents that provide concise and focused discussion of a clinical problem, briefly review the pertinent medical literature or consensus documents according to established levels of evidence, and provide clinical recommendations. All guidances are available through the PCSS-B website ([www.pcssmentor.org](http://www.pcssmentor.org)). The website also provides resources on buprenorphine, including federal guidelines, links for additional resources and serves as a tool for data collection, data management, and project management (i.e. web-based surveys, electronic enrollment into the system and matching of mentors to participants).

The PCSS-B conducts outreach services to the organizations of steering committee members, state medical societies and state chapters of national organizations representing Internal Medicine and Family Physicians. These services include postings of descriptions of buprenorphine and PCSS-B services in electronic and paper media and providing speak-

Table 1. PCSS-B Steering Committee

Addiction Technology Transfer Centers
American Academy of Addiction Psychiatry
American Academy of Child and Adolescent Psychiatry
American Academy of Pediatrics
American Association for the Treatment of Opioid Dependence
American Medical Association
American Osteopathic Academy of Addiction Medicine
American Pain Society
American Psychiatric Association
American Society of Addiction Medicine
Association for Medical Education and Research in Substance Abuse
Center for Substance Abuse Treatment
Health Resources and Services Administration
National Alliance of Advocates for Buprenorphine Treatment
National Alliance of Methadone Advocates
National Association of State Alcohol/Drug Abuse Directors
National Institute on Drug Abuse/Clinical Trials Network
Pacific AIDS Education and Training Centers
Society of General Internal Medicine
The College on Problems of Drug Dependence
The New York Academy of Medicine

Table 2. PCSS-B Clinical Guidances

Adherence, Diversion and Misuse of Sublingual Buprenorphine
Buprenorphine Induction
Management of Psychiatric Medications in Patients Receiving Buprenorphine/Naloxone
Monitoring of Liver Function Tests and Hepatitis in Patients Receiving Buprenorphine/Naloxone
Opioid Therapies, HIV disease and Drug Interactions
Physician Billing For Office-Based Treatment of Opioid Dependence
Pregnancy and Buprenorphine Treatment
Psychosocial Aspects of Treatment in Patients Receiving Buprenorphine/Naloxone
Transfer from Methadone to Buprenorphine
Treatment of Acute Pain in Patients Receiving Buprenorphine/Naloxone

ers for presentations on opioid dependence and the use of buprenorphine at annual state chapter meetings.

## EVALUATION METHODS

Mentors are encouraged, but not required, to log all of their mentoring activities. As an incentive to provide accurate and timely data, mentors receive a modest honorarium (ranging from \$200–\$2,675/year) based on the number of contacts registered in a web-based system. Mentors can log into the web-based system and provide a description of contacts with their assigned participants. The system collects information on the geographic location of the contact, type of contact (urgent versus routine); nature of the questions (clinical or logistical), mode of contact (email, telephone or on-site visit), the clinical/logistical areas addressed; and resources used.

Data on the use of PCSS-B clinical guidances are collected from mentors and using website statistics on downloaded documents. Website utilization data includes general usage

trends such as counts of unique visitors, pages viewed, hits, pages most often viewed, and documents downloaded.

All telephone calls to the warmline (but not calls to mentor physicians) and outreach to primary care activities are recorded and monitored by PCSS-B staff. Data are collected on a range of topics including mentor matching requests, numbers of requests per geographical region and inquiries related to the SAMHSA physician locator, a web-based tool that lists physicians who have completed the buprenorphine training and waiver process. Similarly, a PCSS liaison maintains a database of presentations conducted, PCSS resources distributed, and information published to promote PCSS-B services to primary care and the public.

Data are primarily collected using self-report through web-based surveys. Once submitted the data are transferred through a secure system to the evaluators at The New York Academy of Medicine. These data are then downloaded and imported into SPSS v.15 (SPSS Inc., Chicago IL) for analysis using descriptive statistics. Geographic data are analyzed using ArcGIS v.8.0 (ESRI, Redlands CA).

## RESULTS

**PCSS-B Mentors and Participants.** The PCSS-B currently has 88 physician-mentors and five clinical experts located in 61 cities across 34 states and Puerto Rico. Nearly all mentors are certified in the treatment of addictions (81%) and had more than three years of experience treating opioid dependence when they joined the PCSS-B (93%). Mentor specialties include psychiatry (40%), internal medicine (24%), family medicine (15%), and addiction medicine (14%). Half identified their primary practice setting as an addiction treatment program, 25% a private practice and 22% an academic institution.

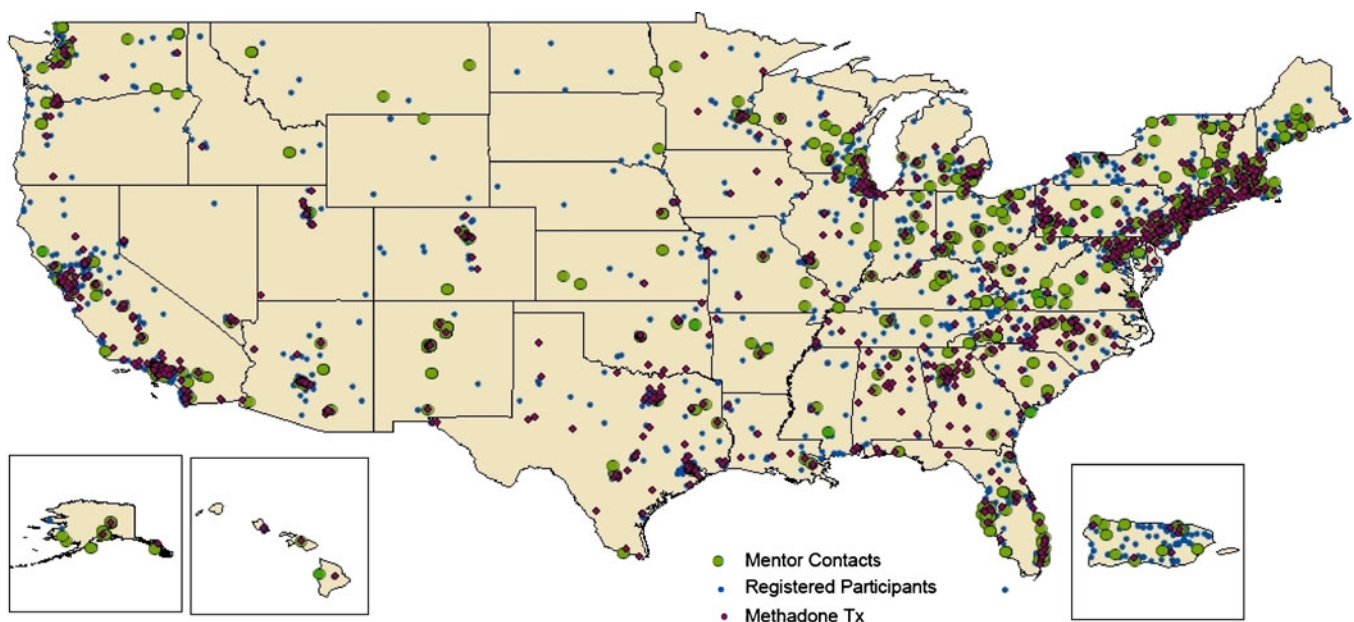


Figure 1. PCSS-B registered participants, contacts, and methadone treatment availability.



As of July 2009, a total of 4,162 individuals have registered into the PCSS-B system representing all 50 states, Washington DC, and Puerto Rico (Fig. 1). PCSS-B participants identify their specialty as psychiatry (36%), internal medicine (13%), family medicine (22%), addiction medicine (3%), and other (24%). Primary practice settings include private practice (49%), academic setting (8%), addiction treatment programs (5%), and other (35%). The majority of individuals (76%) self-registered by phone or through the website or were automatically registered at a training designed to allow physicians to meet the requirements of DATA 2000. Far fewer (5%) were registered into the system by a mentor. Mentor-registered participants, however, account for over half of the mentor contacts recorded.

#### PCSS-B Services Provided (mentor-participant contacts).

Between July 2005 and July 2009, 67 mentors and four clinical experts reported providing mentoring services to 632 participants in 48 states (none in Iowa or Utah), Washington DC and Puerto Rico (Fig. 1). A total of 1,455 contacts were provided through email (45%), telephone (34%) and in-person visits (20%). Mentors provided a wide range of services and support. Seventy six percent of contacts included a clinical issue and 18% included a logistical issue. The most frequently requested clinical and logistical support is presented in Table 3. The number of contacts per participant varied greatly, ranging from 1 to 125. The majority of participants had five or fewer contacts. Mentors report spending an average of 5 minutes on preparation, 15 minutes of direct contact, and about 3 minutes on follow per contact.

**Warmline.** The PCSS-B warmline responds to an average of 100 inquiries and requests each month via email (55% of inquires), phone (43%), the website and fax (both < 1%). Overall, just under half of the requests (49%) were from individuals seeking a mentor and about a third (31%) were requests for general information about the PCSS-B. Other requests included information about buprenorphine courses/trainings (7%), continuing medical education (5%), the buprenorphine physician locator (4%), and how to become a mentor (3%).

**PCSS Clinical Guidances and Website Use.** Mentors reported distributing PCSS-B clinical guidances in over 10% of contacts. Between August 2005 and April 2009 there were 72,822 visits to the PCSS-B website with 179,678 pages viewed. The pages most often viewed were those that included information on the PCSS-B, the mentors, or resources related to buprenorphine prescribing and seven guidances were downloaded more than 1,000 times (Table 4).

**Outreach to Primary Care.** From 2005–2008, mentors presented 57 educational workshops to state chapters of

**Table 3. Most Frequently Provided Clinical and Logistical Support**

Clinical	%*	Logistical	%**
Medication dose management	34	Scheduling	43
Dosing induction procedure	32	Payment	35
Induction procedure timing	26	Provider availability	27
Clinical logistical assistance	19	Paperwork	24
Chronic pain	12		

\*% of clinical contacts, \*\*% of logistical contacts

**Table 4. Most Frequently Downloaded PCSS-B Website Documents**

Document	Downloaded
PCSS-B Guidance: Transfer from Methadone to Buprenorphine	2573
PCSS-B Guidance: Treatment of Acute Pain in Patients Receiving Buprenorphine/Naloxone	1967
PCSS-B Guidance: Pregnancy and Buprenorphine Treatment	1847
PCSS-B Guidance: Monitoring of Liver Function Tests and Hepatitis in Patients Receiving Buprenorphine/Naloxone	1735
PCSS-B Guidance: Physician Billing For Office-Based Treatment of Opioid Dependence	1379
PCSS-B Guidance: Management of Psychiatric Medications in Patients Receiving Buprenorphine/Naloxone	1256
DSM IV: Instructions	1062
PCSS-B Guidance: Opioid Therapies, HIV Disease and Drug Interactions	1021
COWS - Clinical Opiate Withdrawal Scale	930
Tip 40: Clinical Guidelines for the Use of Buprenorphine	920

American Academy of Family Physicians (AAFP), American College of Physicians (ACP), and state medical societies including a number of states in which access to opioid treatment is less readily available such as Alaska, Hawaii and North Dakota. Articles about the PCSS-B have appeared in over 35 different publications, including *USA Today*, *American Medical News*, *American Academy of Family Practice News Now* and *Society of General Internal Medicine Forum*, as well as 14 State Medical Association newsletters.

#### Support for Opioid Treatment in Areas with Limited Availability of These Services.

Geographic data suggest that the PCSS-B has been successful at providing support for the treatment of opioid addiction to areas with little or no access to methadone. In some parts of the United States, buprenorphine offers the first and only access for pharmacologically-based treatment for opioid dependence. A goal of the PCSS-B was to promote the availability of buprenorphine across the country paying particular attention to those areas without reliable access to methadone treatment. The program has proven successful at providing support to physicians in several remote areas and in states that do not permit methadone maintenance treatment or have greatly limited access to methadone maintenance treatment for opioid dependence. This can be seen in the map (Fig. 1) which plots the locations of PCSS-B contacts and the availability of methadone treatment.<sup>35</sup> In the 13 states with fewer than five locations to access methadone treatment (AK, AR, DE, HI, IA, ID, MS, MT, ND, NE, SD, TN, WY), mentors have had 100 contacts with PCSS-B participants. Additionally there is evidence to support the role of PCSS-B in providing support to providers in rural areas which lack methadone treatment opportunities.

## DISCUSSION

Office-based buprenorphine treatment has the potential to expand access to and use of opioid agonist treatment in non-

specialty settings. Recent research suggests several factors affect treatment uptake including: physician knowledge and experience; availability of resources and support; cost and reimbursement; and a perception of attracting patients with significant psychosocial needs. The PCSS-B was developed to address the first of these by improving physician knowledge and linking physicians to experienced prescribers. Our results indicate that the PCSS-B has been able to disseminate information regarding the appropriate use of buprenorphine through email, telephone, and in-person support to participants in 48 states, Washington DC, and Puerto Rico. In particular, support has focused on both clinical (medication dose management, dosing induction procedure, induction procedure timing, clinical logistical assistance, and chronic pain) and logistical (scheduling, payment, provider availability, paperwork, and medication supply) issues related to providing buprenorphine treatment.

Mentoring has been shown to be an effective method of transferring knowledge and skills in many contexts. While not addiction specific, the use of mentor relationships in the Association for Australian Rural Nurses' *Mentor Development and Support Project* resulted in enhanced knowledge, skills, and confidence among nurses in rural and remote areas.<sup>36</sup> The *shared care* concept of United Kingdom is another approach that has shown some success in promoting addiction treatment in primary care.<sup>37</sup> In one pilot program, specialists nurses trained in addiction were successfully used in rural primary care to provide support to general practitioners. In this instance nurses were able to provide important support and expertise to physicians who lacked addiction training, reduce physician workload, improve communication with pharmacists, and improve client satisfaction.<sup>38</sup> The PCSS-B was inspired and components modeled after the National HIV/AIDS Clinicians' Consultation Center established in the early 1990's to support HIV treatment.<sup>39</sup>

Our data are subject to several limitations. First, as a descriptive study, without a control condition or patient level data, we are not able to assess the true impact of the PCSS-B on care quality or buprenorphine treatment expansion. As such it is not possible to quantify the impact of the PCSS-B on population health. Nonetheless, anecdotal information derived from the mentors supports an interpretation that for those participants who accessed the system, buprenorphine treatment was facilitated and likely more consistent with guidelines. Second, while the sample incorporates a diverse range of physicians with regard to geography, practice setting, clinical background and experience, they are not representative of all physicians trained to prescribe buprenorphine. The findings are further limited by the fact that all data collected were by self-report using a web-based evaluation system. The burden of reporting services rested entirely on the physician mentors. While the web-based system was designed to be straight forward, the technology and time required to catalogue events proved challenging for some. We note that this program did not provide market-value reimbursement to mentors for their time and effort and believe that many mentors were motivated to participate based on their commitment to the field and concern over the appropriate implementation of buprenorphine treatment. Based on conversations with mentors, we estimate that we were able to collect 33–50% of the total PCSS-B mentor-participant contacts. To improve data collection, the mechanism of apportioning honorariums to mentors has been modified to more directly reflect the number

of recorded contacts. It appears that not all registered participants went on to receive mentoring services and that participants who were registered by mentors had the highest use of services. This implies that strategies to foster a close connection between participants and mentors may increase use of PCSS-B services.

Despite these limitations, these data do provide important insight into physician educational needs with respect to office-based opioid treatment. They also demonstrate the feasibility of implementing a national system of mentors positioned to provide ongoing education and support to facilitate and promote addiction treatment in non-specialty treatment settings. We believe the most immediate lessons that have been learned from the PCSS-B are the feasibility, acceptability, and use of expert mentoring services via email, telephone, and on-site visitation in the practice of medicine. These types of support services may be most appropriate in situations in which knowledge, skills and attitudes are not learned in medical school or residency, yet are needed by practicing clinicians. The examples of HIV care and buprenorphine treatment are emblematic of this type of need. Based on the experience with the PCSS-B, SAMHSA/CSAT have funded the implementation of a parallel program designed to improve the quality of care among patients receiving methadone in opioid treatment programs, pain practices, and primary care—the Physician Clinical Support System for Methadone (PCSS-M). For more information on this program see [www.pcsmethadone.org](http://www.pcsmethadone.org).

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**Conflicts of Interest:** *Judith Martin is employed by BAART Programs, a substance abuse treatment program which provides treatment to patients with buprenorphine. Elinore McCance-Katz is on the Data Safety Monitoring Board of Synosia. John Renner has consulted as an author and Advisory Board member with Shire Pharmaceuticals; has received honoraria from Alkermes/Cephalon, Forest Labs, and Reed Medical Education; and owns Johnson & Johnson stock. Andrew Saxon has consulted with Reckitt Benckiser Corporation; has received honoraria from Direct Success, Inc. and Schering-Plough Canada; has received a grant and has another pending from Titan Pharmaceuticals. David Fiellin serves on an expert advisory board to monitor for misuse, abuse, and diversion of buprenorphine for Pinney Associates.*

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