

# Benefits of an Outpatient Psychiatric TeleConsultation Unit: Results of a 1-Year Pilot

Jonathan L. Worth, M.D., and Theodore A. Stern, M.D.

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**Background:** A Psychiatric TeleConsultation Unit (PTCU) was created at the Massachusetts General Hospital (MGH) in response to critical changes in the health care delivery system. The PTCU's design was based on an understanding of the needs of primary care physicians (PCPs) at MGH, as derived from PCPs' responses to a survey and at focus groups. The PTCU was designed to supply psychiatric expertise to PCPs on a "1 phone call away" basis and to assist the MGH in supporting an increasingly large network of PCPs by expanding access to the MGH's psychiatric staff and services.

**Method:** Open Monday through Friday, 9 a.m. to 5 p.m., the PTCU provided PCPs with immediate telephone access to a staff psychiatrist who answered diagnostic- and treatment-related questions, often while the patient was still in the PCP's office. If a referral for mental health services was required, the PTCU facilitated this using an electronic mail (e-mail)-based referral system. Data were gathered from April 1996 to April 1997.

**Results:** During its first year of operation, the PTCU served 107 PCPs and their 46,377 patients; its projected capacity was 470,000 patients. It provided 595 teleconsultations; half were primarily directed toward making a referral, one fourth were primarily directed toward diagnosis or treatment, and one fourth were for both referral- and diagnosis- or treatment-related reasons. 361 patients were referred via e-mail distribution lists to a network of 92 clinicians. In 72 teleconsultations (12%), referral for mental health services was prevented. The estimated savings from these prevented services far exceeded the PTCU's costs of providing all 595 teleconsultations. Projected yearly savings for the PTCU at full capacity were projected at \$379,080, from prevented referrals for mental health services. Follow-up semistructured interviews of the first 81 PCP callers revealed that 71% were "extremely satisfied," 18% were "very satisfied," and only 2% were "not at all satisfied" with the PTCU. PCPs reported that the PTCU saved them time in 85% of teleconsultations. Teleconsultations related to diagnosis or treatment changed the PCP's diagnosis 20% of the time and changed the PCP's treatment plan in nearly two thirds of cases. Twenty percent of the teleconsultations were done while the patient was in the PCP's office. Ninety-four percent of the PCPs enthusiastically said they would use the PTCU again.

**Conclusion:** Our PTCU increased the efficiency and efficacy of care provided by PCPs. Cost savings associated with a reduced frequency of unnecessary referrals were more than the costs of the PTCU in a capitated health care system.

(*Primary Care Companion J Clin Psychiatry* 2003;5:80-84)

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Received Oct. 25, 2002; accepted Dec. 18, 2002. From Massachusetts General Hospital, Harvard Medical School, Boston.

The authors report no financial affiliation or other relationship relevant to the subject matter of this article.

Corresponding author and reprints: Jonathan L. Worth, M.D., Department of Psychiatry, Massachusetts General Hospital, Fruit St., WACC 805, Boston, MA 02114 (e-mail: jworth@partners.org).

Major mental disorders occur frequently in and are costly for the general population, due to associated impairments in psychosocial function, high rates of disability, and overutilization of health care services.<sup>1</sup> When compared with the disability and psychosocial dysfunction of chronic medical diseases, mental disorders result in dysfunction that is similar in terms of its severity and chronicity.<sup>2</sup> Fortunately, an increasing number of major mental disorders have become treatable with newly developed medications and with specific psychotherapies.

Unfortunately, for a variety of reasons, many persons with such disorders fail to receive appropriate treatment, and their employers and families often do not reap the benefits derived from effective treatments. First, mental disorders are infrequently detected, and, when identified, tend to be undertreated.<sup>3</sup> Second, low fee schedules of third-party payers and their restrictive service authorizations have limited patient access to optimum care. Third, although, in general, treatments delivered by mental health professionals result in a better outcome than those provided by primary care physicians (PCPs), such treatments cost more than if PCP-delivered.<sup>3</sup> Fourth, many patients feel stigmatized when they receive their care from a mental health professional.

## METHOD

Since we believed that worse treatment outcomes and higher overall costs were likely to result from implementation of managed care programs, we sought to initiate strategic interventions that would enhance the quality of PCP-delivered mental health care at a cost that was less than that delivered by mental health professionals. At the end of 1994, no such strategic interventions existed at Massachusetts General Hospital (MGH) to address the clinical care of mental disorders by PCPs. Therefore, we surveyed 147 MGH PCPs to determine which services they wanted from our department. Ninety-nine PCPs (67%) responded to the survey. The 2 most frequently

requested services were telephone-based consultations with a psychiatrist (41% of responders) and referral of patients to a known clinician or to one with subspecialty expertise (44%). As a result of this survey's findings and of prior assessments of departmental operations, the authors drafted an initial design for the Psychiatric TeleConsultation Unit (PTCU).

In 1995, the initial design was discussed in 6 focus groups conducted with 33 MGH PCPs from 4 group practices. The findings from these focus groups were incorporated into the PTCU design. PCPs wanted answers to questions about whether treatment should be pharmacologic or psychological; an immediate response to their calls and questions (so that either treatment could be initiated or a treatment plan could be changed while the patient was still in their office); routine referrals arranged within 2 to 3 days; referrals made by their having to make only 1 phone call; informed treatment of the mental disorder (by the PCP, without referral) if pharmacotherapy was indicated (they reported that their patients also wanted this); referral of patients with psychotic disorders, mania, suicidal ideation, addictions/substance disorders, and eating disorders; and assistance with treatment of psychiatric disorders of their medically ill patients. Referrals made to mental health professionals that were unknown to them were acceptable to MGH PCPs, but only if those clinicians were thought by PTCU staff to be of high quality. PCPs also requested that the mental health professionals who accepted the referral call the patient to arrange the office visit, since many of their patients were reluctant to make a "cold call" to a mental health clinician.

The final design for the PTCU was presented to 8 MGH PCP group practices that cared for diverse patients; these groups consisted of 107 PCPs. Each of these group practices volunteered to participate in the 1-year pilot, which began in April 1996. Each group "started up" with the PTCU in a similar fashion: a face-to-face meeting was held in which the goals and operations of the PTCU were explained, self-adhesive labels (with the PTCU phone number) were provided for the PCPs' phones, and a 1-page mailer and an electronic mail (e-mail) summary of how the PTCU functioned were distributed.

In late 1995, 92 clinical staff of the MGH Department of Psychiatry agreed to participate in a pilot e-mail-based referral system that enabled them to take referrals from MGH-based PCPs. This pool of clinicians "practiced" receiving referrals (using referrals from an existing Department of Psychiatry referral service) via e-mail for 4 months prior to the start of the PTCU pilot phase. In addition, 12 members of the MGH Department of Psychiatry were selected to staff the PTCU. Two months prior to the start of the PTCU pilot, the PTCU staff started classroom training using the PTCU database. Two weeks prior to the PTCU pilot start-up, these staff began taking "mock calls," to become accustomed to the process of

teleconsultation and to become comfortable with the use of the necessary technologies.

### Specific Aims of the PTCU

The primary goals of the PTCU were to respond to the needs derived from a survey of MGH PCPs and to address points raised in focus groups regarding the design of the PTCU. The 2 services that were most often requested were telephone-based consultation with a psychiatrist and referral to a known or expert clinician. We also hoped to increase the ability of PCPs to effectively treat the mental disorders of their patients. In addition, we sought to support an increasingly large network of PCPs by expanding access to the staff, expertise, and services of the MGH Department of Psychiatry with a "1 phone call away" service. Lastly, we hoped to increase the clinical efficacy and cost-efficiency of both the psychiatric staff and PCPs at the MGH.

### Program Design

**Overview.** The PTCU was designed to serve PCPs—physicians and nurse practitioners—and their patients by providing "curbside consultation." Our intent was to make it a "warm line," not a "hot line." The PTCU was entirely telecommunication-based, and it relied on existing technology (i.e., telephones, e-mail, and desktop personal computers) widely available in U.S. health care delivery systems. PTCU staffers consisted of existing MGH Department of Psychiatry staff with extensive experience in performing consultations and in teaching PCPs. Referrals were made to a specifically recommended mental health professional or, via e-mail, to a group of clinicians with appropriate specialty expertise.

**General operations.** The hours of the PTCU paralleled those of PCPs' clinic hours: Monday through Friday, 9 a.m. to 5 p.m. During those hours, a PCP reached the PTCU by calling a number dedicated to incoming calls. The PTCU staff member sat by the phone and either answered the call immediately or, if busy providing another teleconsultation, called the PCP back within 10 minutes. This provided a means for PCPs to obtain answers to diagnosis- and treatment-related questions, as well as to initiate or change treatments, while their patient was still in the office. Voice mail "jail" occurred only when there were more than 2 simultaneous incoming calls. The PCP caller routinely got a human voice that assured him or her of a call back as soon as possible.

A staff psychiatrist was available at all times. Each PTCU psychiatrist took one 4-hour shift weekly; the group provided cross-coverage for one another. A full-time computer systems manager and programmer shared the office with the on-duty PTCU psychiatrist and provided administrative support for the PTCU, as well as computer-related services for the entire department. This manager provided technical assistance and nonclinical PTCU administrative support and facilitated team spirit.

**Telecommunication system.** The PTCU had 2 telephone lines, one dedicated to incoming calls and another for outgoing calls; when the incoming line was busy, the second line was used by the PTCU staff member to give the PCP a call back. The second PCP's call was returned within 10 minutes.

Technology used by the PTCU included a Hewlett Packard VL 5/133 PC, with a 1.6GB hard drive, 32 MB RAM, and a graphics accelerator with 2MB VRAM; a 17-inch Mitsubishi Diamond Scan 17HX monitor; and a Hewlett Packard laser printer. The PTCU operated on the following software: Microsoft Access, Word, and Mail for Windows 3.1.1.

**TeleConsultation operations.** PTCU staff used a semi-structured interview that was based on the information fields of the PTCU database, which included the PCP's name, the patient's MGH medical record number, the reasons for the consultation, the patient's clinical history (e.g., an alcohol/addictions history and a list of current medical illnesses and medications), practical information related to referral considerations (i.e., geographic location, gender, language preference), diagnostic impressions, and specific recommendations and plans. In addition, the outcome and disposition of the consultation were recorded.

The above information was entered into a Microsoft Access database in real-time (i.e., while the teleconsultation was proceeding). A consultation number and the date and time of the teleconsultation were automatically encoded; drop-down menus with the names of PCPs and PTCU staff, reasons for the teleconsultation (e.g., diagnosis, treatment, and referral), diagnostic impressions (DSM-IV diagnostic groups), and consultation outcomes (e.g., diagnosis made, pharmacotherapy recommendation, and referral for mental health treatment) facilitated the process. Since PCPs frequently did not have this information at hand, an interface between the PTCU database and the MGH patient registration database was created, so that a patient's name, demographics, address, contact telephone number, and third-party payor information data could be imported immediately into the PTCU database. These data were needed for several reasons: risk management, facilitation of referrals, and quality assurance.

When the teleconsultation was completed, a hard copy of the consultation was printed out and mailed to the PCP for his or her office records.

To assist the PTCU staff with treatment-, management-, and referral-related teleconsultations, the PTCU office walls were filled with easy-to-read charts (e.g., equivalency tables for benzodiazepines and neuroleptics, relative receptor affinity profiles for antidepressants and neuroleptics, telephone numbers for the Department of Psychiatry staff, 24-hour shelters for battered women, 12-step program meetings and detoxification centers, and a map

of eastern Massachusetts with telephone numbers of community mental health centers).

**Referral for mental health services.** If the outcome of the teleconsultation was a recommendation for a referral to a mental health service and the PCP wanted the assistance of the PTCU staff, we facilitated the referral. Depending on the need for professional involvement in making the referral and on the complexity or idiosyncrasy of the patient's clinical presentation, 1 of 2 options was selected. The PTCU staffer either telephoned a specific clinician whose expertise or personal characteristics made him or her the best "match" for the patient's needs, or a referral was made to a group of appropriate clinicians via an e-mail-based referral system.

**E-mail-based referral operations.** The e-mail-based referral system involved a multiple-step process. First, the PTCU staff member chose the appropriate distribution list of clinicians (e.g., for general psychiatric evaluation, general pharmacotherapy, general psychotherapy, cognitive-behavioral therapy, addictions, bipolar disorder, eating disorder, obsessive-compulsive disorder, or couples and family therapy). Second, the PTCU database "dumped" selected non-identifying information into an e-mail message in the form of a template referral query, which the PTCU staffer edited. This query specified the third-party payor, the reason for referral, the PCP's name, appropriate clinical information, and practical referral considerations. This interface between the PTCU database and e-mail automatically selected the previously determined distribution list. Third, the e-mail referral was then sent out to clinicians on the distribution list; interested clinicians e-mailed back their willingness to accept the referral. The first clinician to accept the case got the referral and was called with the patient's identifying information. The referring PCP was notified of the referral assignment via both e-mail and a hard copy of the teleconsultation. The rest of the clinicians on the distribution list were sent a second e-mail telling them that the referral had been taken.

Accepting clinicians knew that referrals were assigned on a first-come, first-served basis and that they were expected to call the patient to arrange an office visit, to see the patient within 2 weeks of referral, and to follow up with the referring PCP—even if the evaluation visit did not occur. To insure privacy, only non-identifying patient information was communicated via e-mail; identifying information was communicated via telephone.

During the pilot phase of the PTCU, it rapidly became clear that referrals required multiple levels of time-crucial information to be passed in tandem from one PTCU staff member to another, without a face-to-face "sign out." Consequently, the PTCU staff designed and implemented a "scut list" within the PTCU database that incorporated all of the practical information that was needed to accomplish a timely referral and that could be annotated during subsequent PTCU shifts.

## RESULTS

All 8 PCP group practices that were asked to participate in the 1-year pilot phase of the PTCU agreed to do so. These groups comprised 107 PCPs and their 46,377 patients. All of these groups “started up” by the fourth month of the pilot.

Over the year-long pilot, a total of 595 teleconsultations were performed for 74 PCPs (69%). There was little variation in the timing of teleconsultations, e.g., by day of the week, by morning or afternoon clinic session, or by hour of the day.

Since not all PCPs practiced on a full-time basis, we calculated PCP utilization on the basis of number of calls per 1800 patients; 1800 patients was the average caseload of a full-time PCP in the pilot-phase PCP group practices. With little overall variation, on average, PCPs used the PTCU approximately once every other week. However, PTCU utilization was not uniform between PCPs. There appeared to be “PTCU superusers”: 17% of PCPs ( $N = 18$ ) requested 69% of all teleconsultations (410/595). Calls were uncommon from the only PCP group practice that had a co-located multidisciplinary mental health department, based in an MGH community health center.

Each teleconsultation took about 15 minutes (from receipt of the PCP’s incoming call to creation of an edited hard copy of the teleconsultation report and completion of the referral process). Using the above rate of PTCU utilization by PCPs—one 15-minute consultation call per full-time PCP, each with a caseload of 1800 patients—the capacity of the PTCU was estimated at 261 full-time practicing PCPs with a total patient-panel size of 469,800.

Of the 595 teleconsultations performed, 26% were solely for diagnosis- or treatment-related reasons, 51% were for referral-related reasons, and 23% were for both diagnosis- or treatment-related and referral-related reasons. That is, the PTCU assisted PCPs in making an accurate diagnosis and providing pharmacotherapy and found a suitable mental health professional who could provide a specific type of psychotherapy. Over the course of the pilot, there was little variation in the frequency of these 3 types of teleconsultations.

Of the 303 teleconsultations in which the PCP called the PTCU with the intention of making a referral, the teleconsultation significantly changed the PCP’s treatment plan in 72 cases (24%): in 8 cases (3%), the PCP decided not to make the referral; in 59 cases (19%), the PCP decided to provide pharmacotherapy and refer for psychotherapy; and in 5 cases (2%), the PCP decided to provide pharmacotherapy and not refer the patient. The specialty care costs saved by these 72 teleconsultations were estimated at \$37,440, which exceeded the costs of providing all 595 teleconsultations by 62%.

These cost savings assumed that if a referral had been made, each patient would have been seen for 1 outpatient

evaluation, at a cost of \$120, and for 8 follow-up visits, at a cost of \$50 each. At full capacity—261 PCPs served, 729 specialty referrals diverted—the PTCU was projected to save \$379,080 yearly in costs of direct mental health services due to prevented referrals. The yearly operating cost for the PTCU was approximately \$120,000.

Four hundred forty patients were referred for mental health services; 361 (82%) were referred via an e-mail to a network of 92 clinicians, and 79 (18%) were referred to a specific MGH staff member, back to their existing mental health clinician, or to their managed care program. On rare occasions, a patient was referred directly to the Acute Psychiatric Service located in the MGH Emergency Department. Not all referrals resulted in an outpatient evaluation; some evaluation visits took place only after a second teleconsultation was conducted. This often required several phone calls between the PCP and PTCU staff. Anecdotally, the tight feedback loop furnished by the PTCU and the physician-to-physician dialogue provided PCPs with the ability to “observe” how their patients changed their minds after leaving their office, or how they behaved differently—often with difficulty—with other clinicians.

Of the 595 teleconsultations, the PTCU staff gave 777 provisional diagnoses; 2 provisional diagnoses were made in 225 teleconsultations (38%). Of the 48 diagnostic categories used to give provisional diagnoses, the 8 with the highest frequency were mood disorders (i.e., depression) (39%), anxiety disorder (16%), adjustment disorders (7%), relational problems (5%), substance-related disorders (5%), mood disorders (i.e., mania or bipolar) (3%), eating disorders (3%), and bereavement/grief reaction (2%). These 8 diagnostic groups comprised 80% of all provisional diagnoses. Another 9 diagnostic groups (including somatoform disorders, personality disorders, delirium/dementia/cognitive disorders, academic/occupational disorders, obsessive-compulsive disorder, schizophrenia/other psychotic disorders, pain syndromes, sexual dysfunction, and posttraumatic stress disorder) had frequencies of 1% to 2%.

The PTCU’s computer systems manager conducted a structured telephone interview with each PCP about their satisfaction with the first 81 teleconsultations. Overall, PCPs were highly satisfied with the PTCU’s service, as rated on a 5-point scale: 71% were “extremely satisfied,” 18% were “very satisfied,” 4% were “somewhat satisfied,” and 2% were “not at all satisfied.” The teleconsultations saved the PCP time in 85% of cases. When the teleconsultation was diagnosis- or treatment-related, PCPs reported that the teleconsultation changed their diagnosis in one fifth of cases and changed their treatment plan in nearly two thirds of cases. PCPs reported that the patient was in their office during 20% of teleconsultations and that no patient appeared upset by the consultation. PCPs reported that some patients began to request that they “call up that psychiatrist you talked to last time.”

Thirty percent of PCPs thought videoconferencing would have been a useful addition for the teleconsultation. On occasion, during a diagnosis-related teleconsultation, PCPs handed the telephone to their patient to talk directly with the PTCU staffer, to enhance the efficiency of the teleconsultation. In 94% of teleconsultations, the PCP said he or she would use the PTCU again.

### CONCLUSIONS

The PTCU appeared to be well regarded by its users (MGH PCPs), who were integrally involved in its inception and its design. The service supported and facilitated PCPs in their diagnosis and assessment of mental disorders, as well as their formulation of appropriate treatment plans. It also appeared to facilitate the direct psychopharmacologic treatment of patients' mental disorders by

PCPs. Moreover, the PTCU's database appeared to be transportable to other sites; its referral component has been implemented at a nearby affiliated academic tertiary care hospital. Additionally, the PTCU was able to extend high-quality psychiatric expertise in a cost-effective manner. Thus, a PTCU (such as ours) may be helpful to departments of psychiatry and to health care delivery systems as they attempt to meet the demands of traditional managed care and capitated health care financing programs.

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