

A Spreadsheet Method for Calculating Maximum Caseload and Intake Capacity for CMHC Psychiatrists

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Objective: A method was sought to help administrators of community mental health centers determine a level of psychiatric staffing that is both cost-efficient and ensures high quality of care. **Methods:** A survey of staff psychiatrists was conducted at a large community mental health center with seven outpatient clinics. The survey measured variables that can affect staffing requirements, including the number of hours psychiatrists have available for direct care, their preferred intervals between a patient's return visits, and the duration of appointments for an initial psychiatric assessment and for medication maintenance. A computer spreadsheet was developed to calculate the caseload capacity and intake capacity for clinics of the center. **Results:** The survey indicated that the psychiatrists at the center had an average of 33 hours a week available for direct care. The mean preferred time between a patient's medication maintenance visits was 7.3 weeks. The mean time required for a psychiatric assessment was 80 minutes, and for a medication maintenance visit it was 33 minutes. With these data, the spreadsheet method was used to calculate intake and caseload capacity for psychiatric staff at three of the center's clinics. **Conclusions:** The data-based approach to calculating capacity can be modified to meet local needs. It brings objectivity to decision making about staffing, and the methods can improve resource management and enhance relationships between stakeholders and physicians. (*Psychiatric Services* 48:1578-1581, 1997)

Administrators of community mental health centers have the challenging task of providing high-quality care that is cost-efficient. Administrators must also be able to explain to stakeholders how expenditures contribute to the health and well-being of patients.

One of the most expensive resources in a community mental health center is its psychiatric staff. As resources become increasingly scarce, community psychiatrists face pressures to see more patients in less

time. However, attempts to improve efficiency by reducing the size of the psychiatric staff can diminish quality and increase the rate of physician burnout and turnover. It is therefore imperative that the way in which decisions are made about the size and caseload of psychiatric staff be closely scrutinized.

Despite the impact that psychiatric staffing can have on budgets and quality of care, few studies have examined adequate physician staffing in mental health settings (1-4). Only

Goldman and associates (5) have described a method for estimating the psychiatric staffing needs of community mental health programs. Their guidelines called for estimating the average load of a psychiatrist and assigning the number of minutes per week that a psychiatrist should spend on various categories of work. Their method is a consensus-building approach, using a negotiation process involving psychiatrists, administrators, clinical staff, and other stakeholders.

The basic approach that Goldman and colleagues used is a sound one. Clearly, administrators must work together with staff and stakeholders to determine both the job responsibilities of psychiatric staff and the time allocation to accomplish those responsibilities. However, an important weakness in Goldman's study is that the method relies on the experience of the negotiators to estimate time parameters and caseloads. Personal experience may lead to inaccurate estimations for several reasons. Physicians have different styles that may increase or decrease the amount of time they spend doing any given task. Clinics may vary in how responsibilities are allotted. Local systemic problems may have an impact on physicians' efficiency.

This paper presents an alternative, data-based method for determining caseload capacity and intake capacity. By using a combination of survey data and monthly performance reports, a more accurate determination of efficiency and capacity can be made. The information collected can

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be considered in decisions about staffing patterns. In addition, the objective nature of the data is important in justifying resource management decisions to physicians and stakeholders.

Methods

Setting

The study was conducted between fall 1996 and spring 1997 in the adult mental health clinics of a community mental health center in a large Southwestern city. The center has seven clinics throughout its large metropolitan catchment area of more than 3 million people. Each clinic has a medical director whose time is equally divided between clinical and administrative duties, plus as many as six full-time clinical psychiatrists who provide services as part of a multidisciplinary treatment team.

The center's psychiatrists provide two primary clinical services, psychiatric assessments and medication follow-up appointments. Each treatment team typically cares for about 300 patients. Virtually all patients have a diagnosis of schizophrenia, bipolar disorder, major depression, or schizoaffective disorder.

Due to the requirements of funding sources, all patients followed by the center must undergo a comprehensive assessment, including an examination by a psychiatrist, to determine eligibility for the rehabilitation and social services available through the center. In addition, a reassessment and reauthorization by a psychiatrist must occur every 90 days. Therefore, unlike most community mental health centers, the center does not carry an inactive caseload. The cases of patients who cannot be contacted every 90 days are closed until contact is made. Thus no data from inactive cases were included in the calculations for this study.

Measurements

The typical physician work week at the center is 40 hours. However, many responsibilities pull physicians away from face-to-face service to patients (direct service). Mandatory activities, meetings, and other absences from the clinic decrease the amount of time available for patient care. For

this study, a list of activities at the center known to regularly affect physicians' availability for direct service was generated, along with the amount of time allocated to each activity. The list included treatment team meetings (two hours a week), required training (averaging one hour a week), administrative meetings (averaging one hour a week), and peer review activities (half an hour a week).

In addition, each physician is allotted sick and vacation leave each month. We used physician time records to calculate the amount of

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sick leave used by the average physician (half an hour a week). We assumed use of all allotted vacation leave (two hours a week). Starting from a total of 40 available hours a week, the time for these activities and for leave was subtracted, which gave a total of 33 hours a week available for direct service.

The center's psychiatrists are known to vary the interval between patients' visits because of caseload size, acuteness of patients' symptoms, the availability and skill of support staff to manage patients between appointments, and practice style. To quantify the impact of these variables, the treatment team physicians were asked to keep a record for each patient seen over a five-day period. The record listed the interval in weeks that the psychiatrist would

ideally desire to pass before seeing each patient again.

Fifteen of the 20 treatment team psychiatrists who were surveyed responded, which yielded a sample of 754 patients. Analysis of the survey results from all physicians indicated that the desired mean \pm SD interval between medication maintenance visits was 7.3 \pm 1.4 weeks (range, 3.5 to 9.9 weeks).

Different physicians may desire different amounts of time to complete an assessment or follow-up appointment. Twenty-five team psychiatrists and seven medical directors were asked to report the time that they wished to allocate for each of these primary services. In their preferred appointment duration, they included the time it took to enter information into patients' records.

Twenty-two of the psychiatrists responded. The survey results were used to calculate a desired mean \pm SD appointment duration for medication maintenance visits of 33 \pm 8 minutes (range, 20 to 45 minutes). The mean \pm SD desired appointment duration for psychiatric assessments was 80 \pm 14 minutes (range, 60 to 100 minutes).

Data collection and calculation steps

Data for two variables, the number of full-time-equivalent (FTE) physicians working in each clinic on the last day of the month and the caseload for each physician on the last day of the month, were obtained from monthly performance reports in the center's computer database. Clinicwide caseloads were calculated by summing individual physician caseloads.

A step-by-step method was developed to calculate maximum caseloads, based on the time management data collected. In step 1 the maximum number of medication maintenance appointments available per week per physician was calculated by dividing the time available for direct care per week by the amount of time allotted for each medication maintenance appointment. In step 2 the maximum caseload capacity per FTE physician was determined by multiplying the number from step 1 by the

Table 1

Calculation of monthly caseload and intake capacity for three outpatient clinics at a community mental health center during a sample month

Data and calculation step	Clinic A	Clinic B	Clinic C
Survey data			
Mean N hours per physician per week available for direct care	33	30	33
Mean N weeks between patient visits	7.3	7.3	3.5
Mean N minutes for a medication maintenance appointment	33	33	33
Mean N minutes for a psychiatric assessment appointment	80	80	80
Monthly report data			
N of full-time-equivalent (FTE) physicians performing clinical duties in clinic	6.5	5.5	1.0
N of patients in clinic caseload on last day of month	1,584	1,455	133
Calculation of caseload capacity			
Step 1: Maximum N of medication maintenance appointments available per week per physician	60	55	60
Step 2: Maximum caseload per FTE physician	438	398	210
Step 3: Clinic's maximum caseload capacity	2,847	2,190	210
Calculation of intake capacity			
Step 4: N of medication maintenance appointments needed per month	940	863	165
Step 5: N of hours for medication maintenance appointments needed per month	517	475	90
Step 6: N of hours for medication maintenance appointments needed per FTE physician	80	86	90
Step 7: N of intake hours available per physician per month	63	44	52
Step 8: N of available intake slots per physician per month	48	33	39

average interval in weeks between a patient's visits. Finally, in step 3 the clinic's maximum caseload capacity was determined by multiplying the number from step 2 by the number of FTE physicians in the clinic.

A similar step-by-step method was developed for calculating intake capacity, based on caseloads and available time. In step 4 the number of medication maintenance appointments required per month was calculated as the number needed to see the entire current caseload within the desired appointment interval. In step 5 the number of hours needed per month for medication maintenance appointments was determined by multiplying the number in step 4 by the amount of time allotted for each appointment. In step 6 the number of hours for medication maintenance appointments needed per physician per month was figured by dividing the result from step 5 by the number of FTE physicians in the clinic.

In step 7 the number of intake hours available per physician per month was calculated by subtracting the number from step 6 from the mean number of direct care hours available monthly. Finally, in step 8, the number of intake slots available per physician per month was determined by dividing the number from step 7 by the time allotted per intake.

If this number was less than zero, then the number of intake slots available was zero.

The steps for all of these calculations were converted into a series of mathematical formulas and incorporated into a computer-based spreadsheet. At the end of each month, the monthly report data are compiled by the individual clinics. From the collected data, monthly calculations of caseload capacity and intake capacity are made.

Results and discussion

Table 1 shows the spreadsheet data used to calculate the caseload capacity and intake capacity for three clinics during a sample month. The calculations for clinic A used the survey data described above. However, the spreadsheet format allows for flexibility when local issues warrant. For example, the calculations for clinic B used a lower number of weekly hours available for direct care to account for a planned two-week medical leave by one of the clinic's physicians. Clinic C serves mentally ill homeless people. The physicians at this clinic preferred a short mean interval of 3.5 weeks. This number was incorporated into the capacity calculations to account for physicians' efforts to engage patients by seeing them more frequently.

The estimates derived from the worksheet can be used to set caseload limits and intake goals for each clinic and physician. These goals become part of performance measures for individual physicians and for each clinic. They can be modified based on monthly report data. However, the data can also be used in a number of other ways.

The method can be used to calculate staffing needs for specific capacity expectations. For example, the center's administration may set specific goals for the number of new patients served. Given current caseloads, the spreadsheet could be used to calculate the impact of intake targets on the appointment intervals for established patients. In addition, a recommendation could be made about the number of new psychiatrists needed to achieve the intake goal without having an impact on appointment intervals. Such efforts to educate administrators about the level of physician staffing necessary for high-quality care are well received by physicians. Subsequent increases or shifts in physician staff to meet workload requirements may be associated with decreased physician turnover.

In a manner similar to that of Atkins (3), the spreadsheet can be used to analyze the impact of staffing changes or

time allotments on capacity. For example, studies of the impact of changes in weekly direct service hours, physician staff size, or no-show rates can be carried out. These kinds of studies can be used to determine cost-efficient ways to improve capacity.

The spreadsheet can also clarify how physicians' productivity varies by clinic. The calculations can be made for individual physicians at each clinic, with variables in the survey data section of the spreadsheet changed to reflect individual physicians' patterns. Variables that affect available hours, such as sick leave use, can be factored into the calculations. This process can help identify the source of performance differences, and plans can then be developed to improve performance in problem areas.

The monthly capacity data can be used to educate stakeholders about the center's efficiency and capacity. Stakeholders are given a snapshot of requisite duties and bureaucratic requirements that take physicians away from direct care. Armed with data on factors that have an impact on system capacity, stakeholders become well-informed advocates for funding and administrative change. Sophisticated stakeholders also scrutinize data and provide useful comments that lead to better efficiency without the sacrifice of quality care.

Conclusions

Although the methods described here enhance those presented in previous studies, certain limitations exist. Unexpected absences, unscheduled patient crises, and other variables that are difficult to measure or predict can affect physicians' available time. Also, it is impossible to predict when certain patients will require more time than allocated. Finally, the model remains experienced based, and it could be made more powerful by incorporating objective measures of the acuteness of patients' symptoms, such as dangerousness, frequency of hospitalizations, and psychosocial factors, into the decisions about appointment lengths and intervals.

In addition, the data generated by the spreadsheet method will be use-

ful only if administrators and stakeholders are convinced that the practice patterns represented thereby are valid. Policy makers who believe that psychiatrists are not needed or are overutilized may choose to ignore the data. Ultimately, some consensus building will still need to occur.

Nevertheless, the methods described here offer a practical way to estimate the amount of physician staffing required in a community mental health center, supplementing administrative experience and judgment in the decision-making process. The method is flexible enough to allow consideration of any variables for which data are available. The variable need only be incorporated into a spreadsheet formula. The data-based methodology can also reassure stakeholders about cost-efficiency in resource allocation, and thus lend sup-

port to any discussions about staffing and funding requirements for quality mental health care. ♦

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Compendium on Violent Behavior and Mental Illness Now Available

A 72-page compendium of articles entitled *Violent Behavior & Mental Illness* was recently published by the Psychiatric Services Resource Center. All of the articles in the compendium originally appeared in *Psychiatric Services* or its predecessor, *Hospital and Community Psychiatry (H&CP)*.

The compendium contains 12 articles that report studies of the prevalence of violent behavior by persons with mental illness, identify risk factors for violent behavior, and describe useful interventions. It also includes an introduction by Carl C. Bell, M.D., a member of the *Psychiatric Services* editorial board and an expert on violent behavior and mental illness.

The compendium complements an earlier collection of articles from *H&CP* entitled *Management of Violent Behavior*. Single copies of *Violent Behavior & Mental Illness* are priced at \$13.95; five or more copies are \$9.95 each. Substantial discounts are available to staff in member facilities of the Resource Center. To request an order form, call the Resource Center at 800-366-8455 or fax a request to 202-682-6189.