Using Signs of Decompensation as Triggers for Early Intervention to Reduce Hospitalization

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A recurring issue in managing any system of mental health care that includes inpatient services is the overutilization of hospital beds by patients with multiple admissions. These frequent service users require a disproportionate amount of system resources, including emergency services, inpatient beds, and transportation, and are often identified as failures of the service system (1–8). To effectively manage the care of this group, service systems must ask themselves whether they are carrying out best practices. The Joint Commission on Accreditation of Healthcare Organizations (9,10) conceptualizes best practices in terms of nine dimensions of care: efficacy, appropriateness, timeliness, effectiveness, efficiency, availability, safety, continuity, and respect and caring.

This column describes a system of early interventions to prevent recidivism that attempts to address these nine aspects of care. The system was developed by the Southeastern Area of the Massachusetts Department of Mental Health and is the result of an ongoing performance improvement process. The Southeastern Area is the first mental health network to be accredited by the Joint Commission on Accreditation of Healthcare Organizations under its new standards for health care networks (11).

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Early intervention program

In spring 1994 we identified 88 individuals who, in the past four years, had met the agency's criterion for multiple hospitalization of more than two hospitalizations of any length within a year. A team of public and private providers reviewed the medical records of the 88 frequent service users using qualitative and quantitative techniques from performance improvement methodology, including brainstorming and multivoting (9,10).

Eleven clinical events isolated from these data were judged to be potentially useful as measures for risk management aimed at reducing inpatient utilization. The 11 events were named "triggers," both because the event's occurrence was thought to be early evidence of a clinical decompensation that might trigger an inpatient admission and because the identification of the event would trigger an intensive review of the consumer's treatment plan.

Trigger events included any admission to a detoxification facility for alcohol or substance use; two consecutive missed appointments for medication monitoring; an incident report filed by staff in case management, residential, or outpatient services related to the consumer's use of alcohol or drugs or psychiatric symptoms; and four unplanned phone calls to the emergency services program in one seven-day period. The other trigger events were two face-to-face evaluations in a seven-day period or three such evaluations in a 30-day period, a stay of nine or more days in a crisis stabilization bed, three admissions to a crisis stabilization bed in six months or two admissions in one month, and any readmission to an inpatient facility within six months.

The next step was to institute a tracking system for the triggers and a procedure for early intervention. Two levels of screening were put in place. All trigger events are initially reviewed by clinicians affiliated with the program that report the events. For example, if the emergency service identifies five people who had more than three evaluations in a week, the clinical content of each evaluation is reviewed by an emergency services clinician.

If the clinician decides that the event represents evidence of clinical decompensation, the consumer is referred for a more intensive clinical review by an interdisciplinary team. The team reviews the consumer's treatment plan and changes the plan to include interventions designed to improve the consumer's functioning and thus reduce the likelihood of hospitalization.

Results

The system for identifying clinical decompensation and early intervention to prevent hospital recidivism was instituted in September 1994 after being pilot tested during July and

Table 1

Mean number of hospital admissions and length of stay of all Southeastern Massachusetts patients and frequent users of hospital services during three years before and one year after the triggers system was implemented

Variable	Before			After
	1991–1992	1992–1993	1993–1994	1994–1995
All patients				
N	6,795	6,866	7,098	7,116
N total admissions	851	866	1,071	924
Total admissions per 100,000 general population	.00075	.00076	.00093	.00080
Mean±SD length of stay (days)[1]	52.20	41.16	28.84	20.95
Frequent service users[2]				
N	86	83	79	65
% of all patients[3]	1.2	1.2	1.1	0.9
N admissions	353	311	313	238
% of total admissions[4]	41.4	35.9	29.2	25.7
Mean±SD length of stay (days)[5]	31.96	27.79	25.81	15.33

[1] $F=24.25$, df=3,3,708, $p<.05$

[2] Frequent service users had more than two hospitalizations within a year.

[3] $\chi^2=16.5$, df=3, $p<.001$

[4] $\chi^2=17.1$, df=3, $p<.001$

[5] $F=3.71$, df=3,1,211, $p<.01$

August. Since then, data on triggers and the clinical reviews have been reviewed monthly, and several salient features have emerged. First, some of the trigger events occur more frequently than others. Second, some of the events are selected for review more often than others.

The team found several reasons why some triggers occur more often than others. Some types of utilization by their very nature occur more frequently than others; for example, the number of phone calls received by an emergency service is generally greater than the number of evaluations it completes. Some events—such as admissions to substance abuse treatment or to inpatient or crisis stabilization units—occur relatively infrequently. In addition, triggers may overlap; the same person who met the criterion of three evaluations in a week may have also had four evaluations in a month.

Several factors may account for a trigger's not leading to a clinical review. An individual might meet a trigger criterion for three consecutive months, but if the clinical review was done in the first month, it would not be repeated. Also, some of the triggers are probably more useful in providing early evidence of decompensation. In 1995 a total of 1,455 triggers were reported, and 303 clinical reviews were done. The triggers most often selected for clinical review were those derived from the crisis stabilization service: a stay of nine or more days in such a service had a 29 percent likelihood of triggering a clinical review, three admissions within six months had a 36 percent likelihood of triggering a review, and two admissions in one month had a 44 percent likelihood of triggering a review.

Certain triggers, such as an admission for detoxification or missing two consecutive medication monitoring appointments, had less than a 10 percent likelihood of being selected for clinical review. The reason for the low incidence of referral for missed medication appointments appears to be that most programs already had a procedure in place for aggressive outreach in the case of missed appointments and were handling those cases through the usual process.

It is not clear why admission for detoxification did not trigger a review more frequently, as substance abuse is often listed as an important factor in patients' recidivism. Some reviewers reported that information about admission for detoxification is difficult to obtain and is not timely or comprehensive. Because the department of mental health does not fund substance abuse programs, we must depend on the consumer or family for these data.

To evaluate the effectiveness of the triggers system in reducing multiple hospitalizations, we examined data on number of admissions and average length of stay for inpatients from three 12-month periods before introduction of the system (July 1991 to June 1994) and one 12-month period after the process was implemented (October 1994 to September 1995). Table 1 shows data for all admissions to department of mental health facilities in Southeastern Massachusetts during those four years and for frequent service users.

An analysis of variance was used to test for differences among the lengths of stay. An extension of the median test was used to derive chi square values for comparison of the numbers of admissions in the four years because different numbers of patients were admitted in each year and the data were frequency counts. There were no significant differences between the four years in number of admissions for all patients. No differences between years were found in the number of frequent service users and the number of admissions of frequent service users until the fourth year, the first year the triggers were used, when the number of frequent service users and the number of their admissions were significantly lower.

According to the federal census for our geographic area, the general population showed very little growth during the four years we analyzed. As length of stay for all admissions steadily decreased during the study years and the source population did not grow, the reduced length of stay is likely the result of changes in the service environment, such as increased oversight by managed care organizations. However, length of stay for the frequent service users did not decrease, suggesting that although managed care efforts were significantly affecting the overall inpatient population, a similar impact on multiple admissions was absent. Only in 1994–1995 did length of stay

for frequent service users decrease. The major difference in our mental health system during that time was the introduction of the triggers system. These results suggest that implementation of this system for early intervention produced a reduction of inpatient utilization among the population of frequent service users.

Discussion and conclusions

One explanation for the effectiveness of the triggers system in reducing inpatient admissions and length of stay may be that the tracking system and clinical reviews led to improvements in the overall functioning of the mental health system. Local managers reported increased involvement by private providers in team reviews, more effective communication among providers in cases where many agencies serve a single consumer, and more intensive and focused treatment planning for frequent service users, which led to more effective interventions and better outcomes.

The idea that increased contact with consumers through intensive case management may reduce recidivism is well documented (12–15). The triggers system may have provided a systematic, quantifiable way to focus the attention and resources of the managed care system on a selected group of patients in the early stages of decompensation. The triggers system has also provided an easy way for staff to prioritize the needs of various consumers when competing demands on staff time and energy are made.

A major positive result of the triggers system was the increased involvement by private providers in treatment planning and clinical reviews. In the past, the public mental health system has had difficulty gaining access to the time and resources of private providers who are not under contract for the provision of services.

The triggers system meets the criteria for best practices in the nine dimensions of care outlined by the Joint Commission. It meets the criteria for efficacy because it produces increased scrutiny and treatment planning for consumers who may be experiencing a psychiatric deterioration. The process is also appropriate because it allows treatment planning directed to the consumer's immediate needs. The system meets the criteria for availability, timeliness, effectiveness, and efficiency because clinical reviews are provided for screened trigger events soon after the event, and the plan that results from the review reduces unnecessary hospitalizations and crisis stays. Because the process is a cooperative venture among service providers, reduces the risk of hospitalization, and includes the consumer in treatment planning, the goals of continuity, safety, and respect and caring are met. We hope that continued study will further define the advantages of the triggers system and that the results reported here may be replicated. ♦

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