Cite this article as:
B Dickey and H Azeni
Impact of managed care on mental health services
Health Affairs 11, no.3 (1992):197-204
doi: 10.1377/hlthaff.11.3.197

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The cost of mental health care continues to rise at a rate greater than that of the rest of the health care sector. Efforts to contain the rising costs of psychiatric and substance abuse care have spawned different strategies for reducing use of expensive hospital resources. Strategies that focus on the management of hospital episodes case by case fall under the rubric of managed care.

In this DataWatch we focus on managed care as it pertains to use of mental health services. We compare the use of inpatient services before and after the introduction of two specific types of managed mental health care programs designed to reduce “inappropriate” use of hospital services. The purpose of these programs is to contain the costs of reimbursed mental health care provided to employees and their dependents who have chosen an indemnity plan for their health care coverage.

One managed care tool, utilization management, has grown in popularity in direct proportion to the increase in the costs of mental health care. To stem the tide of increasing costs, corporate purchasers have turned to “fourth-party” utilization management firms, which have promised to manage care by reducing hospital use and, implicitly, reducing spending for psychiatric and substance abuse care. Although many mental health professionals regard managed care strategies as unwelcome intrusions into clinical affairs, from the point of view of corporations (the payers in most cases) these strategies are alternatives to financially based strategies to reduce costs, such as demand-side cost sharing in the form of day limits on covered services or supply-side cost sharing in the form of prospective payment. Utilization review programs that focus on determination of medical necessity have been...
around for almost three decades, but specialized programs have been
developed only within the past decade or so. It is estimated that virtually
all third-party payers conduct or sponsor some type of utilization review.\textsuperscript{5}
Blue Cross has had several different forms of utilization review programs
in place in more than 85 percent of their plans since 1985.\textsuperscript{6}

**Impact of managed care on use and costs.** Almost no empirical work
has been published that describes the effects of managed care on patterns
of use of mental health care for members of indemnity plans. Studies of
utilization management in acute care hospitals have just begun. Thomas
Wickizer has noted that private programs of the type we are examining
here have not been rigorously evaluated, and most information about
them is anecdotal in nature.\textsuperscript{7} He summarizes the studies published to
date as reporting reductions in both use and costs but notes that the data
supporting these claims are not convincing. In the most analytically
sophisticated research to date, two studies tested the effect of managed
care programs on measures of utilization and on expenditures.\textsuperscript{8} They
found that the programs reduced hospital use and expenditures by 8
percent. For mental health, early reports of peer review (that is, retro-
spective chart reviews) in the Civilian Health and Medical Program of
the Uniformed Services (CHAMPUS) suggested that the rate of rising
costs had been slowed, but the research was descriptive of that program
only, without comparisons to nonreviewed plans.\textsuperscript{9} Richard Frank and
colleagues used data from Maryland and Washington State to demon-
strate that substantial increases in adolescent admissions and admissions
for drug and alcohol abuse have been the major contributors to rising
mental health costs.\textsuperscript{10}

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**Description Of The Managed Care Programs**

The two interventions we examine here are representative of two
types of utilization review programs: (1) a mandatory prior approval
program that certifies all admissions as medically necessary prior to or
within twenty-four hours after admission, authorizing a certain number
of days to be reimbursed; and (2) a mandatory concurrent review pro-
gram that subjects all psychiatric and substance abuse admissions to the
scrutiny of concurrent review, specific to treatment and discharge plan-
ing. Review occurs after the patient is admitted, and determination of
medical necessity by the reviewers is linked directly to reimbursement.

Both interventions studied here were purchased from a commercial
insurance carrier by corporations that also purchase their health care
insurance from that same carrier. The programs under study are alike in
many ways. Both are mandatory; that is, all admissions must be re-
viewed, and documentation specific to the review is stored within an internal computer network linked to the claims payment department. No claim is reimbursed without determination of medical necessity through the review process. Also, in both programs the claims payment department is notified at the time of review of the expected length-of-stay (and of extensions of length-of-stay, as determined medically necessary). A claim is reimbursed at the rate specified in the benefit plan only if the admission has been approved and is so noted in the computerized interactive claims file. The benefit plan contract states that the patient is at risk for all charges incurred for care not authorized by designated review programs. When denials occur, penalties of reduced reimbursement are enforced at the discretion of the corporation. In both review programs, denials are subject to appeal and external review.

The programs are different, however, in their assumptions (and thus their activities) about how best to reduce hospital use. The prior approval program assumes that careful screening of admissions and assigned length-of-stay are adequate management for psychiatric admissions. Once an admission is approved, treatment and discharge planning are solely within the discretion of the attending physician. The concurrent review program, however, was designed by mental health specialists to reflect the probability that these admissions are far more likely to be emergency (rather than planned) admissions and thus to escape the usual preadmission screening process. Rather than denying admission to achieve reductions, focus is on discharge planning after the admission has occurred, requiring attending physicians to provide details of treatment as it relates to discharge. The vendor of the concurrent review program argues that the program “shortens” length-of-stay by encouraging efficiency on the part of the clinical treatment team, rather than by limiting or truncating treatment goals arbitrarily. In special cases, when the reviewer considers it cost-effective, he or she may recommend that the carrier and the corporate benefit manager consider making a benefit “exception” and extend coverage to services not usually available to facilitate a discharge that otherwise might be delayed.

If a managed care program is successful, then fewer individuals are admitted (reducing the total number of bed days reimbursed by the company), but those who are admitted are expected to stay, on average, at least as long as, if not longer than, individuals covered in indemnity plans without similar managed care programs because of the relative severity of their illness. We would also expect to see an increase in the amount of outpatient services used to substitute for the reduced hospital care. Although insurance claims are inadequate to fully explore these questions, the work we report here improves on earlier studies in several
ways. First, the data are comprehensive, including both outpatient and inpatient mental health claims. Second, a number of potentially confounding factors have been controlled, such as the extent of health maintenance organization (HMO) enrollment, benefit plan design, and work-force characteristics. Third, multivariate analyses were used to control for case-mix and different hospital characteristics that might also obscure effects of the review programs.

### Testing The Effects Of Managed Care Strategies

**The sample.** Employees of two large companies and their dependents covered by indemnity health care plans administered by the same commercial carrier in 1985 and 1987 were the sample used to test the effect of two different managed care strategies. The companies were chosen for their similarities: the same benefit design (no day or dollar limits on psychiatric or substance abuse admissions), the same work-force size (20,000 or more employees and their dependents), the same geographic distribution (national companies with headquarters in the East), and similar HMO penetration (about 30 percent).

The study years were chosen to capture data before and after the introduction of managed care in 1986. Individuals who made at least one inpatient or outpatient claim for the treatment of mental health disorders (including substance abuse) were identified. Once these individuals (claimants) were identified as users of mental health services, all of their inpatient and outpatient claims for mental health and medical care were organized into longitudinal claimant-level files (N = 6,534). Exhibit 1 describes the characteristics of the claimants.

**Findings.** Company A purchased a concurrent review package in 1987; Company B, a prior approval package. Comparing rates of use per 1,000 covered lives, the two companies were markedly different in 1985 and were still different but less so in 1987. Rates of admission in Company A dropped from 9.4 per thousand covered lives in 1985 to 9.0 in 1987. Admission rates in Company B rose from 4.2 per thousand in 1985 to 5.6 in 1987. In Company A bed days rose from 216.8 to 290.5 per thousand; in Company B they rose from 80.1 to 175.0 per thousand. Expenditures on mental health claims rose dramatically in 1987 for both companies, as the increases in bed days suggest. Comparing inflation-adjusted dollars, Company A paid inpatient and outpatient claims of $4,250,785 in 1985 and $4,813,385 in 1987; Company B paid $2,805,156 in 1985 and $3,903,708 in 1987.

These increases are consistent with the expanding health care environment at that time. Two separate trends in mental health care in the
1980s converged to provide a powerful force in raising both costs and length-of-stay. First, dedicated psychiatric and substance abuse beds in general hospitals had increased substantially in the 1970s and early 1980s and then leveled off, while beds in private freestanding facilities continued to increase unchecked during the period under study.\(^\text{12}\) Pressures by insurers and corporations to limit length-of-stay were offset by pressures to fill beds and cover the cost of rising capital debt. Second, the growth of specialized programs to fill these beds increased the demand for treatment of eating disorders and of alcohol and substance abuse disorders, and especially the treatment of troubled adolescents.\(^\text{13}\) The combined effect of these two trends, along with the rising costs of the period, makes it nearly impossible to judge the effectiveness of the two managed care programs in terms of cost alone. Instead, we must ask whether they had any discernible effect at all. Did either of the programs slow the rate of increase, or did the expansion of the mental health market overwhelm everything in its path?

**Adjusted comparison.** Exhibit 2 summarizes the results of the multivariate analyses when the data are adjusted for case-mix and hospital characteristics. Unadjusted comparisons of concurrent review and prior approval revealed no discernible effect, but adjusted data suggest that concurrent review contained annual mean claimant costs. The case-mix and hospital adjustments controlled for increases in the number of children and adolescents admitted and the increase in admissions to

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**Exhibit 1**

Personal And Clinical Characteristics Of Claimants, Mental Health Managed Care Sample, 1985 And 1987

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Company A</th>
<th>Company B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1985 (N = 1,826)</td>
<td>1987 (N = 1,937)</td>
</tr>
<tr>
<td>Employee</td>
<td>52%</td>
<td>55%</td>
</tr>
<tr>
<td>Male</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–17</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>18–39</td>
<td>42</td>
<td>38</td>
</tr>
<tr>
<td>40–64</td>
<td>38</td>
<td>41</td>
</tr>
<tr>
<td>65 and older</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Mean age</td>
<td>37 years</td>
<td>39 years</td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychosis</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Alcohol/drug</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Other</td>
<td>93</td>
<td>85</td>
</tr>
<tr>
<td>Inpatient</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Exhibit 2
Mean Hospital Use And Paid Claims, Adjusted For Hospital Characteristics And Case-Mix, Mental Health Managed Care Sample, 1985 And 1987

<table>
<thead>
<tr>
<th></th>
<th>1985</th>
<th>1987</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length-of-stay per episode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concurrent review</td>
<td>17.3 days</td>
<td>24.17 days(^a)</td>
</tr>
<tr>
<td>Prior approval</td>
<td>10.2 days</td>
<td>23.27 days(^b)</td>
</tr>
<tr>
<td>Paid claims per episode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concurrent review</td>
<td>$7,298</td>
<td>$8,888</td>
</tr>
<tr>
<td>Prior approval</td>
<td>4,751</td>
<td>11,123(^b)</td>
</tr>
<tr>
<td>Annual bed days</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concurrent review</td>
<td>25.04 days</td>
<td>29.43 days</td>
</tr>
<tr>
<td>Prior approval</td>
<td>12.05 days</td>
<td>26.63 days(^b)</td>
</tr>
<tr>
<td>Annual paid claims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concurrent review</td>
<td>$10,701</td>
<td>$10,155</td>
</tr>
<tr>
<td>Prior approval</td>
<td>4,321</td>
<td>11,725(^b)</td>
</tr>
</tbody>
</table>

Note: Estimation model used to adjust data included case-mix variables (age, sex, employment status, and diagnosis), hospital characteristics (teaching hospital status and tax status), and the presence of a managed care program. All cost data were inflation adjusted and logged.
\(^a\) \(p \leq .05\).
\(^b\) \(p \leq .01\).

for-profit hospitals, both of which made significant contributions to the variance in paid claims. We estimated the probability of a client’s being admitted if treated for a psychiatric or substance abuse disorder in 1985 and 1987, controlling for the same patient characteristics used in the model presented in Exhibit 2. The likelihood of admission if treated dropped in 1987 in Company A but stayed about the same in Company B, suggesting that the concurrent review program does have a weak effect on admissions.

Other effects of managed care. If inpatient admissions are diverted or shortened, then we might expect changes in other aspects of care as well. At the time that Medicare implemented diagnosis-related groups (DRGs) as a cost containment mechanism, concern was expressed that shortened stays would compromise care and lead to rapid readmission of patients. The possibility also existed that these managed care programs would compromise care. Although we did not measure clinical outcomes, we did not find any evidence in these data that care was compromised; readmissions within thirty days fell in both companies.

If the review programs are successful, then we might expect that the individuals hospitalized are more seriously ill, as evidenced by increasing lengths-of-stay, an increase in admissions with major mental illness, or an increase in comorbidity, defined as psychiatric and substance abuse secondary diagnoses. Our data support these hypotheses. In 1987 there
were substantial increases in both the number of admissions for major mental illness (while other types of admissions decreased) and in the level of comorbidity. It is possible, however, that this shift represents physicians' response to pressure to demonstrate need for inpatient care. The actual level of severity may not have changed since 1985, simply the documentation of severity.

Discussion

This study has documented limited support for the effectiveness of the psychiatric concurrent review program and no support for the effectiveness of the prior approval review program. From benefit managers’ point of view, there appears to have been no effect at all, as mental health spending rose dramatically in both companies. It is not possible to provide direct empirical support for the causal link between the concurrent review program and the lower rate of increase in expenditures, even though case-mix and hospital characteristics have been accounted for in the estimation models used to adjust costs of hospital care.

Why do we find so little impact from managed care programs when so much has been promised? The health care environment is unstable, with increasing pressures driving up both the supply of and the demand for mental health services. Another factor may be in play: The changing patient case-mix reported here may be a partial response to the interaction of the growth of new types of psychiatric inpatient programs (such as adolescent treatment programs) and physicians’ desire to avoid review. New programs provide an opportunity for physicians and facilities to establish new admission criteria and new norms for length of treatment. The data reveal the tendency for the system to expand in new directions when traditional practice patterns are challenged. As conventional patterns of care were challenged in the 1980s, new patterns emerged, changing admissions by age distributions and site of care.

This study is limited in a number of important ways, and the findings can only suggest paths for future research. Claims data are notoriously limited in clinical information, and working with paid claims may obscure costs incurred but paid out of pocket by patients. Only two companies were studied, companies that may not be representative of mental health patterns of care. The study investigated only short-term effects on costs and did not include either clinical outcomes or long-term effects on claimant-level costs. Of particular interest in the future will be investigations of changing case-mix patterns.
This study has been supported by Grant no. R01 MH45089-01A1 from the National Institute of Mental Health (NIMH). The authors acknowledge the contributions of Agnes Rupp, Thomas McGuire, and Carl Morris.

NOTES


10. Frank et al., “Growth in Expenditure for Mental Health Services.”

11. Ibid.


13. Frank et al., “Growth in Expenditure for Mental Health Services.”