

# Psychiatric Prescribing Trends and Practices in Iowa's Prisons

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**In response to rising pharmacy costs in the Iowa Department of Corrections prison system, a retrospective analysis of psychiatric drug use and expenditures was performed for fiscal years 1990 through 2000. Population-adjusted changes in use and expenditures over time were analyzed in aggregate and by drug class. Expenditures for psychiatric drugs increased 28-fold from \$7,974 in 1990 to \$381,893 in 2000, or from \$291 to \$8,138 per 100 inmates, while use increased fivefold. The use of antipsychotics remained relatively constant, but expenditures increased ninefold. In contrast, both use of and expenditures for antidepressants increased tremendously, from \$215 to \$1,929 per 100 inmates. (*Psychiatric Services* 53:1023–1024, 2002)**

The elevated prevalence of mental illness among inmates has long been recognized (1). In one recent study from the Bureau of Justice Sta-

tistics, 16 percent of state prisoners reported a history of mental illness (2). Of particular concern is the suggestion that prisons are replacing mental health centers as a primary source of psychiatric services for persons with serious psychiatric illness (3,4). Lamb and Weinberger (5) further proposed that "the criminal justice system appears to have little interest in decriminalizing persons with psychiatric disorders." Despite such observations, many prisons provide mental health services for no more than 10 percent of inmates (6). The low proportion of prisoners who receive services is of particular significance given that prisoners are constitutionally guaranteed adequate health care, including mental health services.

In response to concerns about meeting mental health care standards, the Iowa Department of Corrections (IDOC), in conjunction with the Iowa Consortium for Mental Health, proposed a comprehensive review of its psychiatric services. One focus of inquiry was the dramatic increase in expenditures for psychiatric drugs during the 1990s. The purpose of this study was to characterize trends in the prescribing of psychiatric drugs in the IDOC prison system.

## Methods

Recent demographic data on the IDOC prison population have been published (7). As of January 1, 1999, the prison population in Iowa was 7,394. Most prisoners were male (93.4 percent), which is consistent with the national average of 93.5 percent. Sixty-nine percent were white, which is higher than the national av-

erage of 40.3 percent; the racial distribution of the remaining prisoners was 23.9 percent black, 4.2 percent Hispanic, and 2.7 percent other. For this evaluation, the average prison population for fiscal years 1990 through 2000 was obtained directly from the IDOC. The total prison population nearly doubled during that period, from 3,700 in 1990 to more than 7,300 in 2000.

Data on psychiatric drug use and expenditures were extracted from pharmacy records of the IDOC prison system for fiscal years 1990 through 2000. Annual population-adjusted measures of expenditures and use were calculated for each unique chemical entity and across therapeutic classes. To allow drug use to be summed across drug classes in a clinically meaningful manner, the use of individual drugs was expressed in terms of minimally effective standard daily dosage units (SDDU). The psychotherapeutic classes of interest were antipsychotics, antidepressants, mood stabilizers, anxiolytics and hypnotics, and stimulants. The study was approved by the institutional review board of the University of Iowa.

## Results

Annual expenditures on psychiatric drugs increased dramatically in the 1990s, from \$7,974 in 1990 to \$381,893 in 2000. After adjustment for the number of prisoners, annual expenditures increased 28-fold, from \$291 per 100 inmates in 1990 to \$8,138 in 2000. Similar but less expansive trends were observed for drug utilization. Population-adjusted use increased fivefold, from 1,351

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SDDU per 100 inmates in 1990 to 6,438 SDDU in 2000. Thus expenditures increased disproportionately relative to utilization.

The use of antipsychotic drugs remained stable from 1990 to 1999: 817 SDDU per 100 inmates in 1990 and 838 SDDU per 100 inmates in 1999. Antipsychotic use declined slightly to 677 SDDU per 100 inmates in 2000, which was attributable to a decreased use of long-acting injectable agents. In contrast, antipsychotic expenditures increased ninefold, from \$215 per 100 inmates in 1990 to \$1,929 in 2000. Antidepressant expenditures increased exponentially, from \$23 per 100 inmates in 1990 to \$4,986 in 2000, and accounted for 62.4 percent of the overall increase in the pharmacy budget for psychiatric drugs. Use of antidepressants increased from 337 SDDU per 100 inmates in 1990 to 3,949 SDDU in 2000.

Expenditures for mood stabilizers increased from \$28 per 100 inmates in 1990 to \$581 per 100 inmates in 2000, and utilization increased from 131 to 409 SDDU per 100 inmates. Expenditures for anxiolytics and hypnotics increased from \$24 per 100 inmates in 1990 to \$634 in 2000, and utilization increased from 66 to 1,399 SDDU per 100 inmates. Although expenditures for and use of mood stabilizers and anxiolytics and hypnotics increased markedly, these drug classes accounted for only 15 percent of the pharmacy budget for psychiatric drugs. The use of stimulants was first observed in 1994 and did not increase significantly over the period examined. Overall, stimulants accounted for less than .3 percent of the total psychiatric drug budget.

## Discussion

The overall use of and expenditures for psychiatric drugs by the IDOC prison system increased dramatically during the 1990s. However, in the case of antipsychotics, population-adjusted expenditures increased dramatically while utilization remained largely unchanged. This disparity reflected the transition toward atypical antipsychotics as first-line treatment for psychotic disorders. Although the use of atypical antipsychotics increased over time, this drug class ac-

counted for only 27.9 percent of antipsychotic use in fiscal year 2000. This finding is somewhat consistent with data from the Texas prison system, in which 14.6 percent of inmates with schizophrenia received atypical antipsychotics in 1998 (8).

Similarly, the transition to selective serotonin reuptake inhibitors and other newer antidepressants produced a tremendous increase in expenditures. However, unlike expenditures for antipsychotics, the increase in expenditures for antidepressants was accompanied by increased use. There are several possible explanations for this increase, including an expanding number of approved indications, increasing prevalence of psychiatric illness among prison populations, and improved mental health screening for prisoners.

The results of this study raise several practical questions for the IDOC. First, are the current trends in psychiatric drug utilization unique to the Iowa prison system, or do they merely reflect the state of general psychiatric practice? Additional work is under way to compare these trends with those in community-based settings.

The second question is whether any steps can be taken to control increasing expenditures for psychiatric drugs. A return to the use of conventional antipsychotics and tricyclic antidepressants would reduce pharmacy budgets, but such an intervention is constrained by obvious ethical and legal issues. Prisoners are guaranteed a level of psychiatric care commensurate with the community standard of practice, even though there are differences in practice pressures between these settings. Part of the justification for the newer antidepressants and antipsychotics is that these agents are cost-effective—or at least cost-neutral—despite their higher acquisition costs (9,10). However, these cost advantages are largely contingent on the prevention of hospital admissions and clinic visits, and it is unclear whether these cost-effectiveness data can be generalized to the prison setting.

## Conclusions

Increased use and a shift toward safer—though more expensive—agents produced a tremendous increase in ex-

penditures for psychiatric drugs and placed an additional strain on already scarce IDOC resources. These preliminary observations highlight the need for further investigation of treatment outcomes and of whether greater use of psychiatric medications has improved the mental health of prisoners. Such research is important because it is not at all clear whether data on efficacy and cost-effectiveness from noncorrectional settings can be generalized to the prison setting. It is important to document whether increased psychiatric drug use truly represents an advance in treatment to justify greater funding for mental health resources in prisons. ♦

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