Final Report

Medical Care Use by Treated and Untreated Substance Abusing Medicaid Patients

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SUMMARY

Rates of substance abuse are high in the Medicaid population. This takes its toll in human costs, and in costs to the medical care system. In 1991, 20% of Medicaid expenditures for hospital care, more than four billion dollars, went to pay for the acute treatment of substance abuse or the diseases caused by substance abuse. Substance abuse treatment has been shown to reduce overall health care costs for patients enrolled in Health Maintenance Organizations and in fee-for-service insurance plans. This effect has not been reported for Medicaid patients. We analyzed Ohio Department of Human Services (ODHS) Medicaid and Ohio Department of Drug and Alcohol Services (ODADAS) computer files to compare the Medicaid reimbursement costs in the year before and the year after substance abuse treatment for patients receiving treatment in County of Summit Alcohol, Drug and Mental Health Services Board agencies (ADAMHS) with patients having substance abuse related diagnoses who received no treatment in an ADAMHS agency.

The study was located in Summit County, Ohio and included individuals who 1) reached their eighteenth birthday before July 1, 1993, 2) was a resident of Summit County anytime between July 1, 1993 and December 31, 1994, and 3) either used an ODADAS treatment service or was a Medicaid enrollee anytime between July 1, 1993 and December 31, 1994. We report use of, and costs for, physician services, outpatient services, hospital inpatient services and prescription drugs.

There were 1043 Medicaid patients treated for substance abuse problems by an ADAMHS agency (treated group) and 2125 patients who had a substance abuse diagnosis who had not received treatment through an ADAMHS agency (untreated group). These untreated patients were significantly more likely than treated patients to be male (47% vs. 39%), white (56% vs. 45%) and older (39.7 yrs. ± 13 SD vs. 35.5yrs ± 10 SD). We confirmed that people with substance abuse problems are costly to the health care system. The average monthly costs to Medicaid for care of patients in the untreated group were higher in the twelve-month period
prior to identification than were the costs for those who were treated. The average monthly costs in this period were $206.83 for treated patients and $257.03 for those who were untreated. The monthly costs in the six months following identification rose more steeply for those who had been untreated. The average monthly costs in this period were $372.97 for the treated and $760.87 for the untreated. The costs in the final six months of follow up returned to near the original for the treated patients ($224.44) while those for the untreated remained higher at $340.14. The annual cost for the year after treatment or identification was $3,584.46 for those persons treated in an ADAMHS agency and $6,647.98 for the untreated. When the untreated patients were classed into those with diagnosed or occult substance abuse the occult patients were observed to have the highest Medicaid costs. The total average Medicaid costs for occult patients in the year following the index date was $9,682.61 compared to $6,071.13 for the diagnosed patients.

The untreated patients were older than were the treated patients and they were frequent users of the medical care system. This suggests that there were many opportunities to screen, or otherwise identify, these persons and conduct a brief intervention or raise the issue of considering treatment. A policy where patients could be identified through either their medical profiles or a formal screening program using established instruments could be instituted. The Medicaid system and the ODADAS system would have to be integrated to allow easy referral and follow-up.

Substance abuse is indeed a significant cost of dollars to Medicaid. Medical service use by patients treated in the ADAMHS system is lower than use by patients who did not receive treatment through an ADAMHS agency. A formal policy of screening and coordination between ODADAS and ODHS may reduce medical services use and its attendant costs.
Medical Care Use by Treated and Untreated Substance Abusing Medicaid Patients

Introduction

Alcohol and other drug abusers consume a large percentage of health care resources.\textsuperscript{1,2} We review this literature in Appendix A. Briefly, treatment has been shown to reduce overall health care costs for patients enrolled in Health Maintenance Organizations and in fee-for-service insurance plans. However, these studies calculate this benefit no matter the length, location or type of treatment.\textsuperscript{3,4,5} There is compelling evidence that these factors do affect the probability of a successful outcome. Successful treatment outcomes produce overall better health outcomes. A recent large study of Veterans' Administration patients showed that patients who completed inpatient treatment were less likely to die than were those who failed to complete treatment. Patients in a short detoxification program had the highest mortality rates.\textsuperscript{6}

Twenty percent of Medicaid reimbursed hospital days are due to diseases attributable to substance abuse (alcohol, tobacco and other drugs). The costs to Medicaid in 1994 are estimated to be more than eight billion dollars.\textsuperscript{7} Studies of private and managed care patients suggest that the costs of substance abuse treatment are more than offset by reduced demands for medical care.\textsuperscript{3,4,5} Whether the results obtained for insured workforce patients would occur in Ohio Medicaid patients is not known. The impact on the Medicaid system of patients with substance abuse related medical diagnoses whose substance abuse is untreated, or unsuccessfully treated, is not known. The outcome of different forms of substance abuse treatment and the effects on health care costs for patients enrolled in Medicaid has yet to be determined.
Objective
Ohio Department of Human Services Medicaid and Ohio Department of Drug and Alcohol Services (ODADAS) computer files for adult patients who were treated in either system between July 1, 1993 - December 31, 1994 were analyzed to compare the Medicaid reimbursement costs in the year before and the year after substance abuse treatment for Medicaid patients receiving treatment in County of Summit Alcohol, Drug and Mental Health Services Board (ADAMHS) agencies with patients having a substance abuse related medical diagnoses who received no treatment for their substance abuse in an ADAMHS agency.

Methods
Overview
This study linked records of patients from two public systems, Ohio Department of Alcohol and Drug Addiction Services and Ohio Department of Human Services Medicaid, to answer questions concerning services used and costs of care.

Inclusion/Exclusion Criteria
The target population for this study was Summit County, Ohio residents who were Medicaid recipients between July 1, 1993 and December 31, 1994. To be included in the study individuals must have reached their eighteenth birthday before July 1, 1993, been a resident of Summit County anytime between July 1, 1993 and December 31, 1994 and either used an ADAMHS treatment service or have been a Medicaid enrollee during the intake period. Patients whose only reason for being a client of an ADAMHS agency is as a co-dependent/collateral of an enrolled client were not considered as treated by an ADAMHS agency.
Measurement

Medicaid supplied tapes that contained claim and recipient file records for eligible individuals. The files were the recipient master file and claims history files containing inpatient, outpatient, physician and prescription drug claims. Claims history files contain details of services used and Medicaid’s reimbursement costs. The recipient master file contains client demographic information. The original study design was to use information that the local ADAMHS Board provided by a disc that contained information from three ODADAS forms. These forms are the 1) Initial Contact, 2) Closure/Summary and 3) Service Activity Log. These forms contain demographic information, service use and costs of care. All ODADAS patients are assigned a unique identification number that is used by all agencies. In the study we actually used this information from ODADAS as the ODADAS files contained patients whose records were not retained at the local level. The ODADAS files also had one more data monitoring and file cleaning step.

Information for the year before July 1, 1993 and the year after December 31, 1994 for patients treated during the intake phase was required to complete the study. Information for the last half of 1995 was not available when we began the analyses. Therefore, information from both systems was obtained for patient encounters from July 1, 1992-June 30, 1995 and in the study so some patients had incomplete data.

Records from the two systems were linked by using the person's Medicaid number as a common identifier. ADAMHS Board agencies do an excellent job capturing Medicaid numbers from all Medicaid eligible clients. Medicaid eligibility varies by recipients' socioeconomic circumstance so that people may be Medicaid recipients for part of the study period. Medicaid eligibility at any point in the eighteen-month study period classed a person as eligible for our analyses.
We edited the files to eliminate duplicates and assure as clean information as possible. There were instances where a Medicaid recipient number was recorded for an ODADAS patient but no corresponding number was found in the Medicaid master file. In these cases we matched by identifiers common to both records and manually compared recipient numbers.

Medicaid patients who had records in the ODADAS files during the intake period comprised the treated group. Patients who were not treated in an ADAMHS agency but who had on any of their records a diagnosis known to be related to alcohol or drug abuse during the intake period were considered the untreated group. Substance abuse diagnoses include those that are directly attributable to drug or alcohol abuse such as alcohol dependence, ICD-9 code 303. They also include those where a substance is clearly mentioned in the diagnosis, e.g., acute alcoholic hepatitis (ICD-9 code 571.2). The third type of diagnosis includes those diseases where research has shown a high attributable risk to substances of abuse (other than tobacco) such as endocarditis, ICD-9 codes 421.0 and 421.9. The ICD codes selected are those used successfully by Holder and Blose\textsuperscript{3} and Fox and colleagues\textsuperscript{7} in their economic analyses. The diagnoses and ICD-9 codes that we will use are shown in Appendix B. The appendix lists only the major diagnostic classifications. We used all appropriate subclassifications.

**Analyses**

Patients in both groups were assigned an index date which was the date of initial ADAMHS service during the intake period for the treated group and the first date of service for one of the selected ICD-9 diagnoses for the untreated group. All patients were to be followed for one year from the index date. However the last six months of information were not available so not all patients had complete follow up. However, the analysis by month uses all information that was available. Services and Medicaid reimbursement costs were obtained from the claims history files. Outpatient services are recorded for each encounter rather than the visit. There
could be more than one encounter on any date of service. This approach records the number of services used rather than the less informative number of visits made. Average monthly total Medicaid reimbursement costs and costs for each type of service before and after the index visit are reported. We did not perform statistical tests as the study groups were large and small differences would be statistically significant.

We performed a secondary analysis in which the patients in the untreated group were divided into two subgroups. One was patients who, while not treated in an ADAMHS agency, had diagnoses that indicated that their abuse was recognized and treated. For example, they may have had a diagnosis of alcohol dependence, ICD 305. The second group was patients who were treated for a substance abuse related disease, but whose diagnoses did not suggest that the primary substance abuse problem was being treated. We called the first group diagnosed and the second we called occult. The ICD codes for persons in the diagnosed group are marked with an asterisk in Appendix B.

**Results**

There were slightly in excess of thirty-three thousand Medicaid eligible adults in Summit County (33,384 in fiscal 1994 and 33,414 in fiscal 1995) and 8790 clients in the ODADAS system. We classed 1043 of these patients in the treated group and 2125 were in the untreated group. Not all patients were under observation long enough to complete the full year of follow up. Complete follow up was obtained for 792 (76%) of the treated patients and 1551 (73%) of those in the untreated group. The untreated patients were more likely to be male (47% vs. 39%) and older (39.7 yrs. ± 12.99 SD vs. 35.5 yrs. ± 10 SD). Forty five percent of the treated patients were white compared to 56 percent of the untreated group.
**Table 1. Monthly Rates of Services Used Per 1,000 Patients in Three Periods**

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>1 Year Prior</th>
<th>1-6 Months Post</th>
<th>7-12 Months Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treated</td>
<td>Untreated</td>
<td>Treated</td>
</tr>
<tr>
<td>Hospital Inpatient</td>
<td>35.93</td>
<td>35.61</td>
<td>31.32</td>
</tr>
<tr>
<td>Physician</td>
<td>653.88</td>
<td>828.00</td>
<td>1187.44</td>
</tr>
<tr>
<td>Outpatient</td>
<td>250.16</td>
<td>317.33</td>
<td>279.48</td>
</tr>
<tr>
<td>Prescription</td>
<td>627.12</td>
<td>943.61</td>
<td>856.82</td>
</tr>
</tbody>
</table>

Table 1 compares the monthly rates of service per 1000 patients used by both groups of patients in three periods. The first period is the monthly rate during the year prior to treatment or identification, the second period covers the first six months after that index date and the third period is the last six months of follow up. Both groups showed an increase in use of services between the year prior to identification or treatment and the year following it. The treated and untreated groups had approximately the same rate of inpatient service use in the year prior to study entry. The treated group showed a slight decline during the year while the untreated group had an increase in the first six months and a fall to a rate slightly higher than they had prior to the index event. The increase in hospital use is not surprising as this group of people were most likely to have been hospitalized with a substance abuse related disease. The hospital stays for the treated group were shorter than were those of the untreated group. The treated group stays averaged six days for the year prior and 5.4 days for the first six-month post treatment period. The untreated group’s stays averaged 7.9 days and 7.8 days for the same periods.

Physician services for both groups were higher in the six-month period where treatment or identification occurred. The untreated group again had higher use in all periods. Their use of physicians’ services was 18 percent higher for the final six month period. Similar patterns were seen for prescription drug use and outpatient-services.
While services used is interesting the real story is told in costs of care for these patients. Untreated patients were considerably more costly to Medicaid than were the treated patients. Figure 1 shows the average monthly Medicaid reimbursement costs for the year prior to the index event, the average monthly costs for the first six months after the event and the average monthly costs for the remainder of the follow up period. Untreated patients were 26% more costly in the year prior to the index event. The six months following identification or treatment was the most costly period with the treated group averaging $372.97 and the untreated averaging $760.87 per month. The untreated patients were more than twice as expensive during this period of intensive service use. Most telling is that while the treated group returned to baseline costs in the second six months following treatment the untreated patients remained at levels higher than their pre event period. The average...
monthly cost for the untreated patients in the final six months of follow up was $340.14 while the treated patients averaged $224.44. The untreated had a 52% increase in costs in the final six months. Treated patients cost Medicaid $3,584.46 in the year after treatment and untreated patients cost $6,647.98 for the same period. The untreated patients were 85% proportionally more costly to Medicaid than were those treated in an ODADAS agency each year.

The bars in figure 2 present the portion of each month’s cost that were due to hospital inpatient services, physicians’ fees, out patient services and prescription drugs. Over the year more than half of the Medicaid costs for the treated patients were due to physicians’ services and a third were for hospital inpatient stays. All
most two-thirds of the cost for the untreated group was for inpatient stays and one fifth was from physicians’ fees.

There were 336 patients in the occult group and 1789 in the diagnosed group. Diagnosed patients were more likely to be male (49% vs. 36%) and younger (39 years vs. 44 years). Figure 3 depicts the average monthly costs to Medicaid for the untreated patients in the occult and diagnosed groups. The diagnosed patients had approximately the same average monthly cost to Medicaid as did the patients who received treatment in an ADAMHS agency. However, their costs in the subsequent year were considerably higher. In the first six months following identification the diagnosed patients had average monthly costs of $721.48. The most costly patients were those untreated patients in the occult group they averaged $1,014.43 for the six-month period. The total average cost to Medicaid for the year following the index for date was $9,682.61 for the occult

**Figure 3: Total Medicaid Expenditures for Diagnosed and Occult Substance Abuse Patients**
patients. The diagnosed patients had Medicaid payments of $6,071.13 for the same period. The contributions of costs for inpatient visits, outpatient visits, physicians’ services and prescription drug costs are depicted in Figure 4. Almost two thirds of the total costs for both groups came from inpatients stays and 19% came from physician services.

**Figure 4: Proportion of Average Monthly Medicaid Reimbursements for Types of Services for Diagnosed and Occult Patients**

Discussion

We showed that untreated substance abusing individuals are consistently more costly than are those who are treated for their abuse. Moreover, patients in the occult group, those who did not have their abuse or addiction problems identified, who were treated for diseases secondary to the abuse incurred costs that were almost three times higher than were the costs for patients treated in the ADAMHS system. The classic article dealing with
the value of treating substance abuse is Holder and Blose’s analysis of a midwestern manufacturing concern. Their study showed that the health care costs for the employed people were similar in both groups for the period prior to treatment or identification. After the initial treatment period the untreated group showed a continued rise in costs while the treated returned to normal. They analyzed their data by six month intervals and demonstrated a peak for the treatment period followed by a return to baseline for those who were treated. We noted that the untreated started with higher average use and costs than did the treated and that these costs for the untreated rose to a higher level and remained higher than did the costs for the treated patients. Our treated group showed an increase in the half year after identification and then returned to a level close to their pretreatment costs. The implication is that Medicaid patients are high users of services and that those with substance abuse problems are the highest users. The cost of treatment more than offsets the continuing high cost of allowing patients to remain untreated.

Policy relevance

We confirmed that people with substance abuse problems are costly to the health care system. More importantly is that our analysis strongly suggests that this cost is increased for patients who apparently are not receiving treatment from an ADAMHS agency and dramatically increased for patients in the occult group. These untreated patients were older than were the treated patients and they were frequent users of the medical care system. This implies that there were many opportunities to screen, or otherwise identify, these persons and conduct a brief intervention or raise the issue of considering treatment. A policy where patients could be identified through either their medical profiles or a formal screening program using established instruments could be instituted. The Medicaid system and the ODADAS system would have to be integrated to allow easy referral and follow-up.
Limitations

This study’s major limitation is that it analyzes one slice of time from a continuous record of service use. Patients were classed as untreated based on the observation that they received no ADAMHS agency treatment during the study period. This does not preclude that they received ADAMHS treatment prior to our enrollment. We also followed patients for one year post treatment. It would be important to observe what happens as their career develops.

The study time frame incorporated the period when the ADAMHS agencies began electronic capture of their patient records. As we progressed in the study, we discovered that this information was not recorded with the reliability and accuracy that we would have liked for analyses. The ADAMHS Board now has this accuracy and reliability. Nevertheless, we were unable to use the ADAMHS data set to answer some of the questions in our original proposal. We did answer the questions that could be addressed with the Medicaid data set.

The Medicaid information is an administrative data set. While we used all available diagnosis fields for determining if a patient had one of the selected diagnoses indicating substance abuse it is possible that these diagnoses were not recorded for severely ill individuals. If this were the case than the costs for the untreated group would be higher. While every effort was made to clean the data, it is reasonable to assume that there are errors in the information. If these occurred, it is likely that they are random and do not influence the general conclusion.

Originally the follow up period was to include one full year after the last patient was enrolled. However, tapes for the period July 1, 1995-Dec. 31, 1995 were not available. Therefore, some observations were censored. The rate of censoring was equal in both groups and there is no reason to believe that patients admitted later in the intake period would have had an experience that was different from those admitted earlier.
Conclusions

Substance abuse is indeed a significant cost of dollars to Medicaid. Service use by patients treated in the ADAMHS system, and costs, are lower than are those of the patients who did not receive treatment through an ADAMHS agency. A formal policy of screening and coordination between ODADAS and ODHS may reduce medical services use and its attendant costs.

References

1. Holder HD. Alcoholism treatment and potential health care cost savings, Med Care, 25:52-71, 1987
6. Bullock KD, Reed RJ, & Grant I. Reduced Mortality Risk in Alcoholics who achieve long term abstinence, JAMA, 267:668-672, 1992
Appendix A

UNDERSTANDING THE “REVOLVING DOOR”

IN HEALTH SERVICES UTILIZATION

A Study of the

Medicaid Population of Summit County, Ohio

A Literature Review by James R. Boex, MBA
PROBLEM STATEMENT

The existence of a set of patients who utilize a disproportionate share of the health care resources available through repeated hospitalizations is well-known. In the mid-1980s it was documented that 22% of Medicare’s hospital discharges for the period 1974-1977 were followed by a readmission within 60 days, and that 24% of Medicare’s inpatient expenditures were on such readmissions.¹ A more recent study of this phenomenon showed that 35 “wandering” patients within the VA system generated over $6.5 million in expenditures over a five-year period.²

This phenomenon, variously known as the study of “frequent flyers,” “wandering patients,” “revolving door,” or other euphemisms for recidivist behaviors leading to readmissions, is also well-known and well-documented in the fields of substance abuse and mental health. Specifically regarding the effects of recidivist behavior on resource utilization, Hoffman et al noted that within the substance abuse system, the 13% of patients characterized as “high cost” utilized the same level of resources as the 87% of “low cost” patients,³ and in the mental health system Hadley and colleagues documented that 5% of Medicaid patients in Philadelphia generated 25-30% of its expenses, and that 5% of the Medicaid population in New York likewise generated 26% of that state’s total expenses.⁴

Less well-documented are the reasons for this behavior, particularly since the behavior can be, and is, claimed as the exclusive province of the medical care system, the substance abuse system, the mental health system, and even the justice system. Because of the differing cultures and approaches which characterize each separate care system, only a relatively small amount of
research is available to view this problem in its entirety. It is the goal of this study to pursue a more integrated approach to better identifying these “wandering” patients, whether initially identified as mental health, substance abuse or medical care patients, within the Medicaid population of Summit County, Ohio, and to better characterizing the reasons for behaviors which lead to their heavy utilization of the region’s health care resources.

It is estimated that 13-15 million Americans (8%) abuse alcohol or other drugs, with an estimate of annual costs for this abuse (including lost productivity) in the vicinity of $160 billion. While the prevalence of alcoholic problems among the primary care-presenting population may be as high as 30%, it has been estimated that fewer than one in ten Americans who abuse or are dependent on alcohol receive treatment for this condition.

The costs of caring for such patients is not limited to the direct treatment of their substance abuse or mental illness. On the average, untreated alcoholics usually incur general health care costs that are at least 100% higher than those of non-alcoholics. Blose and Holder documented that alcoholic employees had to be hospitalized for injuries 1.6 times more often than their non-alcoholic counterparts, and Burton et al discovered that 73% of the disability expenditures of a large midwestern employer were directly related to alcohol abuse by a small number of employees. In another area of concern Avins and colleagues have documented that heterosexual alcoholics in the San Francisco area are at significantly higher risk for HIV infection than non-alcoholic heterosexuals.
Ohio Medicaid is planning a significant change in how it provides mental health and substance abuse services. It is planning to become a value purchaser within a managed care environment. One strategy for providing addiction services within the managed care environment is a "carve out," where all behavioral medicine (substance abuse and mental health) services are managed separately.\(^{11}\) A goal of this project is to provide baseline information on medical and substance abuse treatment services use, costs, quality and effectiveness for Summit County Medicaid patients. A baseline must be established to evaluate the efficacy of substance abuse services in the new delivery system.

**DEINSTITUTIONALIZATION: THE HISTORICAL CONTEXT**

Richman, in introducing a symposium on recidivism in alcoholism and substance abuse programs at the American Psychiatric Association’s 1977 annual meeting, commented:

> Recidivism is a controversial concept in substance abuse. Some clinicians feel that the term is inappropriate for disorders which are characterized by remission and relapse. Program evaluators prefer to assess outcomes or adjustment to the community; program planners often regard recidivism as irrelevant to current models of treatment for alcoholism. However, policymakers, funding sources and the general public seek succinct information on results, and often ask about recidivism.\(^{12}\)

It is the author’s contention that how recidivism has come to be regarded a controversial concept among these different constituencies is an important part of developing an understanding of the current situation.
Until the 1960s and 1970s, most of the care provided to the mentally ill was provided through a system of state mental hospitals. To the degree that systematic care was provided for substance abuse it, too, was usually provided by the state hospital network. This system was characterized by much longer lengths of stay (LOS) than is currently the practice. Since few records were kept within and across state hospital systems, recidivism was rarely documented and poorly understood unless the patient presented repeatedly to the same institution.

[note: It should also be noted that hospitals of the Veterans Administration (VA) have played and continue to play an important role in providing mental health and substance abuse treatment for their constituency. Research undertaken in these facilities has provided important insights into the problem under consideration and will be reported upon in various locations below.]

Geller,\textsuperscript{13} studying the history of more than a century of state hospitals, specifically examined three decades of their experience looking for the ‘revolving door’: 1880-1889, 1930-1939, and 1980-1989. He found that it was only in the most recent decade that recidivism was a major finding, writing:

this was not, as has often been thought, due to problems or populations unique to the state hospitals... nor to the fact that in earlier eras the state hospital rarely discharged patients. The once-large asylum has been replaced by a facility rapidly admitting and discharging patients... State hospitals have functioned in different yet questionable ways throughout their history. Their current role of providing a revolving-door pattern of care is rooted in a contemporary shift in ideology.
The shift in ideology to which Geller refers began, as noted above, in the 1960s and 1970s as a result of a number of factors, including the general realization that state hospitals were providing little more than custodial care, cost issues, concern that patients’ rights (particularly the right to be treated in the least-intensive environment) were often ignored or violated in those settings, the availability of new psychotropic drugs, and the general perception of Great Society and similar initiatives of the time that community-based efforts were superior to the more centralized and bureaucratic approaches which had dominated many human- and social-service efforts in prior times. This ideology has become known as de-institutionalization. Like many of the community-oriented efforts of that era, de-institutionalization has met with mixed success, as documented below:

In evaluating deinstitutionalization’s effects on cost-savings, Rubin notes that

In early efforts to de-emphasize institutional care and expand community services for the mentally ill, the protagonists identified monetary savings as one of the rationales for deinstitutionalization policy. Actual experience proved to be disappointing. To many observers it appeared that dollars were not following clients into the community, but instead were being used for institutional care. They were right. Between 1971 and 1977 daily maintenance expenditures (after inflation) doubled for each resident patient in public mental institutions.
After cautioning the reader about the dangers of making cost comparisons across programs with differing approaches, Rubin goes on to compare approximate costs of treating patients in a variety of inpatient and outpatient mental health settings, calculating that - as a result of their ability to achieve economies of scale - the cost of providing state hospital care in the early 1980s was less than half the cost of some comparable types of community-based treatment.

While the excesses of state hospitals as custodial institutions have been well-documented, one must be as scrupulous in efforts to evaluate de-institutionalization’s successes in dealing with patients’ rights issues. Specifically, these successes must be considered in light of the reality that most communities were not ready to deal with the large numbers of mentally ill individuals they received in the ‘60s and ‘70s, and remain unready to this day. This has resulted in a large number of deinstitutionalized patients becoming homeless, and another large number being warehoused in the nation’s jails and prisons. This situation may simply be the most recent expression of a phenomenon first described as ‘Penrose’s Law’ in 1939 when a researcher named Penrose first noted the supposed administrative overlap in the functions of the mental hospital and jail. Basing his research on prison and mental hospital census data from 18 European nations, he documented an inverse relationship between prison and mental health populations. ‘Penrose’s Law’ postulates that, depending on the prevailing attitudes and facilities in the mental health field, unspecified numbers of mental patients would appear in criminal statistics. Basic to this notion is the idea that the volume of people requiring institutional care remains relatively stable, and that these individuals are shunted from mental hospitals to prisons and back again as societal standards change.\textsuperscript{16} In support of this, Holley and Arboleda-Florez have estimated that the range of
psychiatric morbidity among jail populations is 20-50%, as compared to 10-30% in the general population. More evidence supporting this relationship can be found in the work of Ermutlu and Canady, who documented that 56% of patients discharged in 1984 as not-guilty-by-reason-of-insanity were arrested again following their release from the hospital, and that of Roy, who found that juvenile offenders with a documented history of substance abuse were 57 times more likely to be rearrested than those who did not have such records. Draine and colleagues, who are also researchers in this field, have written that “... the boundary between the community and the jail system is crossed more often by a subgroup of jail detainees for whom appropriate, effective community treatment is not readily accessible.”

Another factor which led to the deinstitutionalization of the mentally ill was the availability of psychotropic drugs which would, in theory, allow the previously institutionalized to function at least semi-independently in society. Critical to the success of these medication programs is the ability to be assured through outpatient aftercare programs that the discharged patient compliantly consumes his or her medications regularly and in the prescribed amounts. Unfortunately, one result of the patient-rights movement noted above has been an increase in the number of patient discharges against medical advice, with subsequent inadequate discharge planning and arrangements for aftercare. The effects of this are illustrated in a retrospective study of admissions to a state hospital following the implementation of the psychotropic drug protocol in the early 1970s in which Talbot documents that 60% of their admissions were re-admissions, and that 30% of these readmissions were for “aggressive or assaultive behavior.” Ermutlu and Canady provide another measure of the effectiveness of this approach by noting that
approximately half of the inmates under their care in the urban county jail on which they reported had been taking psychotropic drugs at the time of their arrest, and recording the violent nature of the crimes which led to these arrests: in descending order (excluding the blanket charge of parole violation) aggravated assault, DUI, burglary, criminal trespass, theft by taking, armed robbery, and murder. 17 Caton has called particular attention to the plight of the homeless, writing “homeless subjects with severe mental illness have less access to needed care and are more likely to refuse treatment, compared with their counterparts who have not become homeless...the complex interplay between treatment refusal and reduced access to needed care is illustrated by a study finding that antipsychotic medications were less likely to be prescribed for homeless subjects than for [other] subjects.”21

In considering the context within which we are about to examine the problem of “frequent flyers” and their effects on the health care delivery system, the role of the ideological shift from what Geller characterized as one of “neglected and neglectful asylums” to that of the “revolving door” through de-institutionalization in defining this problem should not be underestimated.

WHO’S PUSHING THE REVOLVING DOOR? PATIENT-CENTERED VARIABLES

As noted in the introductory section, one of the difficulties encountered when undertaking research into this problem is the discipline-specific nature of much of the available literature. The author has sought, wherever possible, articles which combine the perspective of the substance abuse care system with that of the mental health system.
The literature is in basic agreement, but not consensus, on many of the clinical and demographic patient variables most likely to be encountered in the ‘revolving door’ syndrome. As an example of this is research on the comparative importance of clinical vs demographic vs programmatic variables in predicting revolving door behaviors: a national study of determinants of readmission following inpatient substance abuse treatment found that patient differences across programs accounted for 36% of the variance in readmission rates, and programmatic differences accounted for 47%; and a similar study of psychiatric readmissions found that 39% of the variance in recidivist behavior could be attributed to demographic and social factors, and 31% was attributable to clinical factors.

Clinical Variables

The majority of researchers from all involved fields found that a dual diagnosis of substance abuse and various types of psychiatric co-morbidity was highly correlated with becoming a revolving door patient. These included Anderson and colleagues, who reported that VA patients who combined severe substance abuse problems with suicidal ideation utilized more resources than those in other groups, and Bartels et al, who discovered that schizophrenics who were also current substance abusers had significantly higher utilization of hospital, jail and emergency services than those who were not. In their study of the chronically mentally ill, Haywood and colleagues found that an additional diagnosis of substance abuse was most strongly correlated with readmission, and Kivlahan et al noted that the costs of caring for the 70% of chronic schizophrenics in their sample who had lifetime histories of substance abuse were significantly higher than the 30% who had no such history. Two different studies of national cohorts of
psychiatric patients, one focused on Denmark and the other on New Zealand, had similar diagnostic outcomes. Renz et al found that those substance abusers with a higher level of corresponding *International Classification of Diseases, 9th Revision* (ICD-9) diagnoses were more likely to be recidivists, and Moos & Moos found the same in a sample of over 1000 substance abusers nationwide.

On the other hand, a number of studies have found no correlation between dual diagnosis and readmission, but have focused on chronicity or intensity of the primarily-diagnosed disease as the main predictor of the revolving door. In a study of VA alcoholic patients, Booth and colleagues’ finding of strongest correlation was for a history of heavy drinking and/or a history of previous alcoholism, and Siegel et al found established chronicity to be the single greatest predictor of readmission in a population of mentally ill patients, overcoming even the effects of participation in aftercare programs (see Programmatic Variables, below). Swindle and colleagues found that even among dually-diagnosed patients, the severity of the primarily-diagnosed case mix was more predictive of readmission than either the fact of the dual diagnosis or degree of participation in aftercare programs.

**Demographic Variables**

Considering demographic variables, a number of factors stand out. The first is around the issue of gender. Although some studies - particularly those involving national cohorts or employee cohorts - have included both men and women, the large majority of the available literature on the
‘revolving door’ focuses on exclusively male populations: prisoners, VA patients, etc. Thus while the findings of the literature may extend to females, there is little research currently available on the female patient caught in the revolving door. Given the current interest in research into women’s health issues, this may change in the near future. Existing data from the National Center for Health Statistics show that 60.5% of alcohol- or drug-related hospital emergency department visits made in 1992 are by males, but the implications of this finding for the revolving door syndrome are suggestive at best.

Race is another variable on which the literature’s findings may or may not apply universally. Although some of the research done in jails and prisons explicitly includes data on non-Whites as well as Whites, in general the literature is monochromatic or at least finds no general differences on an ethnic or racial basis. As with gender, it may be that research currently underway on inner-city populations and/or prison populations may address this important issue.

This variable of age has produced something resembling consensus findings. Most researchers found that patients caught in the revolving door were more likely to be younger than older. This was particularly true for the jail- and prison-based research, but was also true for the employment-based and psychiatric cohort studies based in Britain, Denmark, Canada, and New Zealand.

Socio-economic status, broadly considered, is also a variable of interest. Both Moos & Moos and Slater & Linn found unemployment to be a predictor of readmission among substance abusers, and studies of psychiatric patients in Israel and Canada found that unemployment was
one of the two variables most highly correlated with revolving door status. Holley and Arboleda further reported that 47% of the psychiatric patients in their prison population were unemployed at the time of their arrest. Marital/living arrangements were also found to be influential. Both Rabinowitz et al and Marks found that separated or divorced status was a major predictor for psychiatric readmission, and Moos & Moos, Slater and Linn, and Moos et al found the same for substance abuse patients. Caton, however, in her study of the homeless schizophrenics, found no significant differences in utilization when compared to the non-homeless.

WHAT’S INSIDE THE REVOLVING DOOR? PROGRAMMATIC VARIABLES

There is a rich literature on the effects of programmatic variables on revolving door patients. One finds a near-consensus in these studies on the correlation between completing the course of treatment (including both inpatient treatment and a rigorous outpatient aftercare program) and lower rates of readmission and recidivism. Premature discharge, however, often against medical advice, is a serious problem in this area, often exceeding 70%. Both Moos & Moos and Haywood and colleagues found that dually-diagnosed patients who exhibited noncompliance with their outpatient medication regimens were far more likely to be readmitted than those who completed such regimens, and Moos et al had a similar finding for patients in residential programs. Studying a population of men in VA treatment, Bunn and colleagues discovered that those who completed a formal inpatient treatment regime had significantly lower mortality than those who left such a program early, and Ornstein and Cherepon, seeking demographic variables of readmission in a similar sample, were only able to demonstrate a correlation with aftercare participation similar to those noted above. Johnson and Herringer found that the most
significant factors correlating with abstinence in substance abusers was participation in aftercare programs.\textsuperscript{46}

Given the State of Ohio’s Medicaid plans, of particular interest is a study by Renz et al, which compared the effect of managed care vs traditional fee-for-service delivery systems on treatment outcomes for substance abuse disorders. Revolving door patients may represent a kind of litmus test for managed care plans. One the one hand, the principles of managed care - an emphasis on prevention, a single primary care gatekeeper point of entry, strong patient databases supporting “managed” care via a sort of case management approach - would seem to be a nearly ideal response to the revolving door problem in our segmented system of care. On the other hand, too often the practices of managed care - particularly for-profit managed care firms, with their focus on the bottom line resulting in serious questions about the quantity and quality of the care they provide - are the direct opposite of the kind of exorbitant resource utilization so characteristic of the revolving door patient. In the study in question, recidivism rates among substance abuse patients in both traditional and intensive managed care plans were not significantly different from patients in Medicaid and private fee-for-service plans.

\textbf{SUMMARY}

From many diverse sources the literature above was assembled to guide and inform our efforts to better characterize the ‘revolving door’ Medicaid population of Summit County. There can be no doubt, based on the weight of the majority of that research, that Kastrup was correct when he wrote:
It seems likely that readmission... is a process rather than a discrete event. That is, there is a complex interaction over time between levels of support available or utilized, including inpatient services, outpatient services, family or support networks, and precipitants such as physical/emotional well-being, economic conditions, and forces of social control.

Yet at the same time we have been able to assemble a specific enough picture of the context and the general causes and effects of recidivism to go forward in an informed way.

REFERENCES


11. Tompkins, A.R., *OhioCare: A More Rationale Use of Public Resources*, application to HCFA for a section 1115 waiver, Ohio Department of Human Services, Columbus OH 1994


14. McCloskey, Robert, *The Promised Land*


19. Draine et al, “Predictors of Reincarceration Among Patients Who Received Psychiatric Services in Jail,” *Hospital and Community Psychiatry* 45(2) 1994; 163-167


23. Kent & Yellowlees, “Psychiatric and Social Reasons for Frequent Rehospitalization,” *Hospital and Community Psychiatry* 45(4) 347-350


27. Kivlahan et al, “Treatment Cost and Rehospitalization Rate in Schizophrenic Outpatients With a History of Substance Abuse,” *Hospital and Community Psychiatry* (42)6: 609-614


30. Renz et al, “The Effect of Managed Care on Treatment Outcomes of Substance Abuse Disorders,” *General Hospital Psychiatry* 17, 287-292, 1995


46. Johnsen & Herringer, “A Note on the Utilization of Common Support Activities and Relapse Following Substance Abuse Treatment,” *J Psychology* 127(1), 73-78
Appendix B

DISEASES ENTIRELY RELATED TO SUBSTANCE ABUSE CODES

Alcohol Related

*291 Alcohol Psychoses
*303 Alcohol Dependence
*305.0 Alcohol Abuse
357.5 Alcoholic Polyneuropathy
421.0 Endocarditis
421.9
425.1
425.4 Alcoholic Cardiomyopathy
425.5
535.3 Alcoholic Gastritis
571.0 Alcoholic Fatty Liver
571.1 Acute Alcoholic Hepatitis
571.2 Alcoholic Cirrhosis of Liver
571.3 Alcoholic Liver Damage, Unspecified
571.9 Unspecified
572.3 Portal Hypertension
*790.3 Excessive Blood Level of Alcohol
*980 Toxic Effect of Alcohol
*V11.3 Alcoholism
*V70.4 Examination for Medicolegal Reasons (Blood Alcohol Tests)
*E860.1 Other Rand Unspecified Ethyl Alcohol and its Products
*E860.2 Methyl Alcohol
*E860.8 Other Specified Alcohols
*E860.9 Unspecified Alcohol

Drug Related

*292 Drug Psychoses
*304 Drug Dependence
357.6 Polyneuropathy Due to Drugs
*648.3 Drug Dependence
965 Poisoning by Analgesics, Antipyretics, and Antihumatics
967 Poisoning by Sedatives and Hypnotics
968 Poisoning by Other Central Nervous System Depressants and Anesthetics
969 Poisoning by Psychotropic Agents
970 Poisoning by Central Nervous System Stimulants
971 Poisoning by Drugs Primarily Affecting the Autonomic Nervous System
977 Poisoning by Other and Unspecified Drugs and Medicinal Substances