Postdischarge Treatment Costs Following Closure of a State Geropsychiatric Ward: Comparison of 2 Levels of Community Care

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Objectives: The purposes of this study were to (1) examine the cost of community-based health care services for geropsychiatric inpatients discharged into the community after the closure of an inpatient state geropsychiatric unit and (2) compare costs for patients treated with extra support through an Expanded Community Services (ECS) program to patients treated traditionally.

Method: This study was a 6-month prospective, observational analysis of 30 patients discharged in conjunction with a ward closure in October 2002 (17 patients were nonrandomly assigned to the ECS program, and 13, to standard care). We analyzed costs of care, mortality, and rehospitalization rates derived from Medicaid paid claims and other data sources and compared costs to an estimate of hospital costs had the patients not been discharged. Patients were discharged to various community placements including long-term care facilities, assisted living facilities, and adult family homes in Eastern Washington State.

Results: Costs for community care were approximately half of estimated costs for hospital care. Patients treated in the ECS program, representing the most severely in-need discharges, had costs of care that were nonsignificantly higher than non-ECS patients but still significantly lower than estimated hospital care. No differences in mortality or rehospitalization rates were found between ECS and non-ECS patients.

Conclusion: Costs of community care were significantly lower than hospital care. Quality of life for patients in the community settings versus the hospital was not assessed. The ECS program was able to maintain high-risk geropsychiatric patients in the community comparably to less severely ill patients at less than hospital costs. Recommendations are provided for ways to establish community treatment programs for deinstitutionalized elderly patients with serious mental illness.

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The deinstitutionalization of persons with mental illness from state inpatient facilities to community placements is common practice in the United States. Over a 40-year period, the number of occupied state hospital beds declined from 339/100,000 in the civilian population to 21/100,000.[1] Cost savings have been the driving force behind this shift in mental health policy and, despite some inconsistent findings,[2] national costs for mental health care have been driven downward primarily by a reduction in inpatient days.[3] Problems in implementing this transition have included inadequate funding, failure to develop adequate community services, and problems in maintaining the continuity of postdischarge care.[3,4] One major funding obstacle has been the failure to move institutional dollars into the community with the patient.[5]

According to a 2001 report prepared by the Department of Social and Health Services (DSHS) for the Washington State legislature, many state patients remained hospitalized primarily due to barriers to community placement.[6] These barriers were particularly problematic for geropsychiatric patients and other patients with the most severe mental illnesses, who tended to be hospitalized for longer periods than similar patients in other states. The report concluded that the primary reason for lack of discharge was lack of access to sufficient support services for those community facilities willing to treat this difficult patient population. Others have reported a similar lack of support services to provide the increased levels of care needed to meet the needs of mentally ill patients in the community.[1,3] As a result, many patients once

discharged are readmitted to alternative facilities, such as acute stay and long-term stay hospitals.

In response to the identified state barriers to provision of community geropsychiatric care, the Washington State DSHS initiated a program beginning in 2002. This program included additional service dollars provided to a targeted geropsychiatric patient population characterized by long-term hospital stays and a history of chronic behavioral problems. These added services were named Expanded Community Services (ECS). Once the ECS program was in place, the second phase of the plan called for a targeted closure of a 30-bed geropsychiatric unit at one of the state's 2 inpatient psychiatric hospitals.

The ECS program supported additional services to community providers to allow them to meet the high medical and psychiatric needs of these challenging patients. Specific ECS services included (1) an increased daily funding rate paid to facilities for ECS designated patients, (2) training sessions provided to the facilities' staff members on how to access available mental health and crisis services within the community, and (3) weekly psychiatric consultations from a special ECS team provided through a grant with a local mental health center. This team consisted of a geropsychiatrist, a nurse practitioner, and a nurse.

The current study tracked 30 geropsychiatric patients (both ECS and non-ECS) over a 6-month period following discharge from the closed ward to several community treatment facilities. Patients were monitored monthly, and their clinical status and pharmaceutical care needs were recorded. The null hypotheses were that non-ECS and ECS patients would experience comparable outcomes and costs and that costs between community care and hospital care would be the same. The alternative hypotheses were that ECS patients would experience superior outcomes but at higher costs than non-ECS patients and that community care would be less expensive than hospital care.

METHOD

We conducted a 6-month prospective analysis of rehospitalization, mortality, and costs of care between ECS and non-ECS patients, using paid claims and other sources. Descriptions of the subjects, measures, and methods of analysis follow.

Subjects

In October 2002, a geropsychiatric unit of a state psychiatric hospital located in Medical Lake, Wash., closed, resulting in the relocation of 30 patients into various community placements, including long-term care facilities, assisted living facilities, and adult family homes in Eastern Washington State. At time of discharge, 17 of these patients were nonrandomly assigned to the ECS program, and the remaining 13, to customary community care, termed *standard care* (SC). Assignment of persons to ECS was made by a team consisting of state hospital treatment staff members and DSHS case managers utilizing the following criteria:

1. A history of assaultive behavior requiring high caregiver demand.
2. A history of failing placements due to problematic behaviors or complex psychiatric issues.
3. Hospitalized for more than 14 days and denied community placement due to psychiatric or behavioral needs.
4. Currently exhibiting 2 or more of the following behaviors:
   - Self-endangering behaviors including suicidal ideation and medication noncompliance.
   - Aggression that can only be prevented with a higher level of skilled staffing interventions.
   - Intrusive behavior that requires increased staff attention.
   - Intractable psychiatric symptoms.
   - Complex treatment regimens including high utilization of p.r.n. psychiatric medications.
   - Medications or treatments that require frequent visits to a health care provider for administration and monitoring.
   - Sexually inappropriate behavior.
   - High elopement risk without the skills required to meet survival needs outside structured placement.

Both ECS and non-ECS patients also had to meet the following inclusion criteria to qualify as a study participant: (1) discharged from the state hospital geropsychiatric unit during the period of ward closure, (2) at least 60 years of age, and (3) enrolled Medicaid recipients. Hospice patients and those with a terminal status diagnosis were excluded as study participants.

The DSHS Washington State Institutional Review Board and the Washington State University Institutional Review Board approved this study. Informed consent was obtained per institutional review board guidelines for all subjects from their family members, legal guardians, and the patient (in those few deemed competent).

Design and Measures

We obtained costs of care from 4 sources. First, we obtained the records of all paid health care transactions from the state Medical Assistance Administration. For each of the 30 patients, there was a record for each service received for the 6-month postdischarge period. Each record included the type of service provided, the amount paid by Medicaid, and the amount paid by other payers. Second, we contacted the nursing facilities to which the patients were discharged to obtain the daily room and board costs that they received. Third, we obtained the daily cost of

Table 1. Demographic Summary and Comparisons of Expanded Community Services (ECS) and Standard Care (SC) Patients

Variable	Total (N = 30)	ECS (N = 17)	SC (N = 13)	p[a]
White, %	90	88	92	NS
Female, %	50	47	54	NS
Mean (SD) age, y	77.0 (9.4)	74.9 (10.4)	79.7 (7.9)	NS
Older than 80 y, %	47	39	53	NS
Marital status, %				NS
Single	13	18	8	
Divorced	40	47	31	
Widowed	23	12	39	
Married	23	24	23	
Dementia diagnosis	70	65	77	NS
Length of inpatient stay, mean (SD), d	606 (1024)	962 (1239)	141 (82)	.01
No. of previous admissions, mean (SD)	3.2 (7.5)	3.2 (5.8)	3.3 (7.3)	NS
Global Assessment of Functioning score, mean (SD)	28.2 (10.9)	28.4 (12.7)	28.0 (7.8)	NS

[a]Comparison of ECS and non-ECS patients.
Abbreviation: NS = not significant.

Table 2. Cost Summary for 30 Geropsychiatric Patients Discharged Into the Community

Cost Category	Cost, US $
Per day reimbursement rate for state hospital inpatients	519.87
Average daily room and board cost at community care placement facilities	106.97
Average Medicaid claims paid per person over 6 mo	10,246.95
Average non-Medicaid claims paid per person over 6 mo	1414.30
Per person per day ECS costs	84.24

Abbreviation: ECS = expanded community services.

hospital care for inpatients at the state psychiatric hospital from the Mental Health Division of DSHS. The daily cost of hospital care is calculated each year by the Mental Health Division for each state hospital based on actuarial cost figures from the previous year. Fourth, per patient costs of the ECS program were obtained from local ECS representatives.

We estimated the cost of community health care by summing the costs of care from these sources. All paid claims were added to the daily cost of room and board, plus ECS costs for persons in that program. We calculated paid claims in 2 ways, first considering only Medicaid claims and then considering all payments. When someone was rehospitalized at the state facility, we discontinued calculation of daily room and board but included subsequent costs of hospitalization. When someone died, we discontinued calculation of room and board and hospital costs from that date to the end of the study period.

We then calculated the costs of each person during the 6-month period and statistically compared that estimate to the estimate of hospital costs that would have been incurred had the patient not been discharged into the community. In estimating hypothetical hospital costs, we discontinued inclusion of hospital costs when a patient died. Costs were estimated for the ECS group, the standard care group, and overall, as well as for Medicaid and Medicaid plus other payers.

RESULTS

Demographics

The mean age of the subjects at time of discharge was 77.0 years (range, 60–92 years), with 47% (14/30) over the age of 80. The mean ± SD length of stay at the state hospital before discharge was 606 days ± 1024 days ranging from 31 days to 4035 days. These results are summarized in Table 1.

Thirteen (43%) study participants had previous admissions to the state psychiatric hospital. Twenty-seven (90%) were white and 3 (10%) were Native American. Fifteen (50%) of the study participants were men, and 15 (50%) were women. Marital status was as follows: 13% were single, 40% were divorced, 23% were widowed, and 23% were married. Fourteen (47%) study participants had a primary Axis I psychiatric diagnosis other than dementia (e.g., schizophrenia, bipolar affective disorder, or major depression); 21 (70%) had some form of dementia. All 30 subjects had at least 1 diagnosis of dementia or other mental illness, and 10 subjects (33%) had both dementia and other mental illness.

During the 6-month follow-up study period, 6 study participants (20.0%) died and 4 (13.3%) were readmitted to the state psychiatric hospital for mental health reasons. Among geriatric patients residing at the state hospital, the historical 6-month mortality figure is 12.5%; the observed mortality rate of 20.0%, however, was not statistically higher than the historical rate among this small sample.

A comparison of demographic characteristics of ECS patients and SC patients is also shown in Table 1. Although some differences appear to be present, few of the differences between ECS and SC patients were statistically significant due to the small sample size. ECS clients had on average a longer inpatient stay prior to community discharge compared to SC recipients (962 days vs. 141 days).

There were 2 SC and 2 ECS patients readmitted to the state psychiatric hospital during the 6-month study period. Four of 17 ECS and 2 of 13 SC recipients died during the study period. These figures do not represent statistically significant differences between groups.

Cost Results

For 2 of the 30 patients, we were unable to obtain room and board costs from their community placement facility, and for these patients, we used the mean room and board costs of the other facilities. The breakdown of the various costs is summarized in Table 2.

Table 3. Comparative Cost Estimates for Community Care and Hospital Care Among Expanded Community Services (ECS) and Standard Care (SC) Patients

Cost Category	ECS (N = 17)	SC (N = 13)	Total (N = 30)
Total per person estimated hospital cost, US $	85,625.65	87,058.23	86,246.43
Total observed costs of community care, US $[a]	49,176.40[b]	35,206.73[b]	42,690.48[b]
Total observed costs of community care, excluding non-Medicaid claims, US $	47,465.10[b]	33,942.37[b]	41,186.69[b]

[a]Includes Medicaid claims paid, non-Medicaid claims paid, ECS costs, nursing facility costs, and rehospitalization costs.
[b]The community costs were significantly lower than the corresponding estimate of hospital costs for ECS, SC, and the total group; $p < .001$.

Table 3 presents results of the analysis to determine whether costs of care for the discharged patients were lower than the estimate of what those costs would have been had the patients remained as inpatients at the state psychiatric hospital. For example, it was estimated that total hospital costs for the 6-month period would have been $86,246.43 per person; actual costs for community care were approximately half of this cost, $42,690.48 per person. Confidence intervals around the community care costs excluded the estimate for hospital care, indicating that community care was significantly lower than the estimated hospital care at $p < .001$ for all groups (ECS, SC, Medicaid only, and total).

Although ECS patients had higher community costs than SC patients, this difference was not statistically significant because of the small size of the sample relative to the variability in costs among patients.

DISCUSSION

Deinstitutionalization of persons with mental illness from inpatient treatment facilities to community placements is commonly perceived as a way to reduce overall treatment costs. This study demonstrated that it was in fact less expensive to treat geropsychiatric patients in certain community treatment facilities compared to maintaining them within a state mental hospital. Similar to previous research with adult psychiatric patients,[7] treatment costs for our geropsychiatric sample during the 6 months postdischarge were approximately half the costs of estimated inpatient treatment. Bernstein and Hensley[8] also reported similar cost savings following placement of patients aged 55 years and older (presence of dementia not specified) into area nursing homes from a state hospital in Florida. Mental Health Overlay (MHO) teams were made available to the nursing home staffs. The teams reported a daily state hospital cost 2.3 times greater than that of their MHO nursing home program cost.

Over half of our subjects (17/30) qualified for the ECS program and the extra treatment services that this status involved. Although the average ECS treatment costs tended (nonsignificantly) to be higher than SC, ECS costs were still significantly lower than inpatient treatment. Two of 17 (11.8%) ECS patients required psychiatric rehospitalization during the 6 months postdischarge versus 2 of 13 (15.4%) SC patients, a nonsignificant difference. There were also no significant mortality differences over the 6-month study period. We add a cautionary note to these findings by mentioning that there was a 20% overall mortality rate among discharged patients, compared to a historical rate at the hospital of 12.5%; although these figures are not statistically different, they warrant attention and suggest the possibility that, with a larger sample, mortality differences may become apparent.

However, the ECS program demonstrated its usefulness in placing challenging, institutionalized geropsychiatric patients in community-based settings. Staff members within the community facilities treating ECS patients frequently commented that the availability of the psychiatric consultations provided by the ECS team was particularly helpful in maintaining these patients.

Our findings are consistent with research on nongeriatric patients, which found that adult long-stay psychiatric patients can live successfully in community residential settings at lower costs than hospital care.[7] Geropsychiatric patients, however, provide particular challenges as dementia is often superimposed on other chronic mental illnesses, leading to a high incidence of behavioral problems. This population also suffers from a number of age-related physical illnesses, which further complicates treatment and medication management.[9,10] Treatment costs for elderly psychiatric patients are estimated to be higher than for other adult psychiatric patients.[11]

Few studies have specifically examined cost of care for deinstitutionalized geropsychiatric patients in the United States. Several international studies have examined populations similar to ours but have focused on different dependent variables or different population characteristics.[12–15]

Lariviere and colleagues[12] tracked a cohort in Montreal, Quebec, Canada and concluded that community placement did not lead to significant decreases in quality of life and global functioning. Meehan and colleagues[13] reported similar findings involving 60 geropsychiatric patients in New Zealand who were transferred from a psychiatric hospital to special community-based psychogeriatric extended care units (ECUs). These ECUs were free-standing and employed specially trained staff members who visited patients on the inpatient ward for 3 months prior to their transfer. An inpatient nursing staff member spent the first week in the ECU with the patient. This is an exceptional model for optimal transfer of patients, but it is far different from our population in which patients were transferred

directly into various community placements, including long-term care facilities, assisted living facilities, and adult family homes.

Depla et al. [14] reported on the effectiveness of 2 different housing models for community integration of elderly long-term psychiatric patients as compared to accommodation in a psychiatric hospital in the Netherlands. They did not report cost data of the 2 models versus hospitalization, and their sample differed from ours in that patients with dementia were excluded from the study. Leff and colleagues[15] presented 1-year follow-up data of 737 patients discharged from 2 psychiatric hospitals in the United Kingdom to ordinary houses in their district of origin, which were staffed at levels similar to admission wards in the hospitals. Subjects were patients hospitalized for more than 1 year. All patients over age 65 years who suffered from dementia were excluded, and the mean age was 53.9 years, unlike our population. The authors concluded that when adequate resources are invested in community-based staffed houses, benefits greatly outweigh the risks (e.g., reduced criminality, homelessness) in this population.

Within the United States, investigators for a large community-based program in Florida reported results that somewhat resembled our population and extended care program.[8] A community-based continuum of mental health care was implemented to provide persistently mentally ill elderly patients with alternatives to institutionalization. The care program consisted of a residential treatment system with supportive case management and day treatment, mental health teams that provided services to area nursing homes, educational and other support services to community caregivers, and permanent placement in foster care homes. Comparisons with our population are difficult to make since patient demographics were not presented other than that patients were aged 55 years or older and had a primary diagnosis of serious mental illness. Housing options included apartments, foster homes, retirement homes, professional group homes, intermediate group homes, nursing homes, and permanent housing in licensed private homes with supportive case management and day treatment.

Becker et al.[16] analyzed 1 year of Medicaid claims and compared the patterns and costs of mental health services of low-income adults residing in assisted living facilities (ALFs) versus other Medicaid recipients not residing in ALFs. The 1296 adults over age 65 years averaged $4635 per year for Medicaid-funded mental health services compared to $1856 for older users not in ALFs. These costs did not include medication costs, health maintenance organization hospital and primary care costs, or out-of-pocket dollars. Specific demographic data, diagnoses, and previous hospitalization data were not reported. Rothbard et al.[7] reported on the use of services and costs of community care among 321 long-stay state hospital patients 3 years after being discharged following the 1990 closure of a large psychiatric hospital in Philadelphia, Pa. Seventy-five percent of these patients received residential services that ranged from extended acute care beds in community hospitals to existing long-term care facilities, providing moderate to maximum levels of supervision. The total treatment cost per person was estimated at $60,000.00 versus $130,000.00 if the patient had remained in the state hospital. Only 21% of the 321 patients were aged 61 years or older, and no specific subanalyses were presented for this geropsychiatric population. In conclusion, although other studies generally support our findings, little research has been reported that focuses exclusively on deinstitutionalized elderly patients with serious mental illness, including dementia, to examine the costs of community care compared to hospital care.

When considering community-based placement for difficult geropsychiatric patients, it is important to realize that not all long-term care, assisted living, or adult foster care facilities are appropriate placement locations. During the initial implementation phase of the ECS program, state officials anticipated that the increased funding rate offered for ECS patients would result in an abundance of facilities applying for the program. This hypothesis did not prove to be the case, because local facility staff members were often acquainted with these patients and felt that the program would not provide enough extra support to meet the increased treatment needs of these very demanding patients. The majority of the 30 subjects were eventually placed in a handful of long-term care or assisted living facilities that were already familiar with working with difficult, demented, and/or psychiatric patients. One facility that admitted several subjects was owned by a local mental health center, which provided a therapist to the facility, as well as the services of their psychiatrist. A second facility converted to working exclusively with this patient population and utilized the ECS team extensively for staff training as well as for specific patient consultations. Thus, it would appear to be important to choose community facilities already familiar and comfortable with treating difficult geropsychiatric patients when implementing programs like ECS. Finally, the availability of psychiatric consultation to the facility appears to be critical to maintaining the more difficult geropsychiatric patients in the community.

Limitations to this study include the nonrandomized design in selecting ECS versus SC patients and the small sample size. The nonrandomization was necessary due to the specific criteria to qualify for ECS as well as the tight time schedule of the ward closure. In addition, we were unable to collect sufficient data to accurately measure quality of care to determine if there were significant quality of care differences between nondischarged patients treated as inpatients versus those treated in the community or between ECS and SC patients. We did collect data

pertaining to the medications utilized by each group as well as the incidence of drug-related problems in each group; these findings are being analyzed and will be presented elsewhere. The sample was small, and variability in costs made it difficult to detect statistically significant cost differences between the ECS and standard care patients or significant differences in other outcomes including mortality. A 6-month follow-up period may not have been sufficient to detect cost or outcome differences (i.e., mortality, rehospitalization) between ECS and SC patients, but such differences might appear with longer follow-up periods.

CONCLUSION

In conclusion, this study demonstrated that formerly institutionalized geropsychiatric patients can be treated within community facilities in a cost-effective manner, including patients who have dementia or a history of major behavioral problems. Major determinants for the successful transition from state hospital to the community include selection of facilities already familiar with difficult geropsychiatric patients and the availability of psychiatric consultation services.

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