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Old and New: A Comparison of State Psychiatric Hospitals

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did not obtain ratings using the "original" GAF for comparison, nor were patients' self-ratings of functioning obtained. However, the findings are important and noteworthy. Because consumers of mental health services are at least as interested in functioning as in symptoms, mental health providers and managed care programs are choosing to allocate more resources to psychiatric disorders associated with significant functional disability. If the revised GAF is used as the only tool to assess functional disability, inaccurate and misleading information may be obtained. We did not test the original GAF, which is commonly used as a measure of functioning. However, based on our work with the revised GAF, which includes functional anchors only, we would not expect the original GAF to be any better than the revised GAF as a measure of functioning. ♦

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The study examined whether state hospitals in operation before deinstitutionalization still carry vestiges of older models of psychiatric care. Using a national database, the authors compared 166 state hospitals built before 1949 with 80 state hospitals built after that time. The old hospitals treated fewer children and adolescents, received more state funding and less third-party funding, had fewer professional clinical staff, spent less on salaries and maintenance, and had more beds, a lower turnover rate, and a longer average length of stay. Findings suggest that planners and policymakers should take into account a facility's history when attempting to introduce innovations. (*Psychiatric Services* 47:866–868, 1996)

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Studies of the effects of deinstitutionalization on state hospitals consistently find greatly increased emphasis on community programs, dramatic declines in state hospital patient censuses, and expansion of federal support for mental health programming (1–3). Increased admissions coupled with shorter lengths of stay, greater staff-to-patient ratios, and higher per capita costs to run and maintain state hospitals have also been found (2–4).

The question arises of whether these changes have occurred in all state hospitals, particularly in "old" facilities—that is, hospitals established before deinstitutionalization. Old state hospitals may still carry vestiges of psychiatric treatment and programming models used before deinstitutionalization that are lacking in "new" hospitals—that is, those that were founded after deinstitutionalization. The persistence of the

Table 1

Characteristics of state hospitals established before deinstitutionalization (old hospitals) and after deinstitutionalization (new hospitals)

Variable	Old hospitals (N=166)		New hospitals (N=80)			
	Mean	SD	Mean	SD	F[1]	p
Service mix[2]	.81	1.38	.84	1.33	.02	.879
Patient mix by age group (%)						
Children and adolescents	6	14	20	31	23.50	<.001
Adults	77	17	68	32	7.73	.006
Elderly	16	14	11	19	5.96	.015
Payer mix (%)						
Medicare	4	4	3	5	.19	.666
Medicaid	8	10	12	17	4.65	.032
State	80	15	73	27	7.79	.006
Patient fees and insurance	5	7	7	11	3.44	.065
Other payer	3	6	5	15	2.11	.147
Staffing[3]						
Administrative	.80	.57	.93	.62	2.72	.101
Professional clinical	.16	.12	.29	.26	23.67	<.001
Other clinical	1.20	.42	1.55	1.15	12.31	<.001
Expenditures						
Capital expenditures per bed	$ 1,869	$ 6,363	$ 1,610	$ 5,492	.10	.750
Salary expenditures[4]	$57,099	$37,721	$79,955	$60,220	13.32	<.001
Maintenance expenditures[4]	$13,084	$15,728	$18,164	$15,339	5.90	.016
Facility capacities						
Inpatient beds (N)	503.09	357.31	227.99	214.17	42.31	<.001
Occupancy rate[5]	.92	.12	.90	.13	2.23	.137
Turnover rate[6]	4.00	2.88	7.88	7.00	37.53	<.001
University affiliation (%)	71	45	64	48	1.17	.280
Length of stay (N days)[7]	119.59	68.72	85.99	72.18	12.84	<.001

[1] df=1,244

[2] An additive index of five types of noninpatient services: outpatient care, residential treatment, residential supportive care, partial care, and emergency services (score range=0 to 5).

[3] Number of full-time-equivalent staff at the facility per average daily census

[4] Total expenditures per average daily census

[5] Average daily census divided by total number of beds

[6] Total annual number of patients divided by total number of beds

[7] Total annual number of patient days divided by the total number of patients

older models may be reflected in census, staffing, and costs.

To address this question, data from a national facility-specific database were analyzed. We anticipated that changes in state hospitals documented by other studies would be magnified in new facilities because they do not carry the influence of the past. We expected that vestiges of predeinstitutionalization care, defined in part by a previous study (4), would be found in old state hospitals.

Specifically, we hypothesized that, compared with the new facilities, old state hospitals would have more adult and elderly patients and fewer children and adolescents; would be more dependent on state funding for support and would bill third parties less often; would be organized principally as inpatient facilities with fewer alternative, less restrictive services; would be less likely to be affiliated with an academic institution; would have fewer staff and lower staff salary expenses and higher capital and maintenance costs; and would have more beds with higher occupancy rates and less turnover and higher average lengths of stay.

Methods

The data used for this study were collected through the Inventory of Mental Health Organizations, now conducted by the survey and reports branch of the Center for Mental Health Services (formerly by the National Institute of Mental Health) (5). Collected in 1989, the data reflect information from fiscal year 1988 for each of the facilities. We defined old facilities as those in existence in 1949 and still operating in 1988. They were identified using a comprehensive Council on State Governments Report published in 1950 (6). New facilities were defined as those built and operated after 1949 and still operating in 1988. Because the 1950 report did not include any exclusively forensic or children's facilities, we eliminated from the comparison all new exclusively forensic facilities (12 hospitals) and new facilities with only child and adolescent patients (23 facilities). A total of 166 old facilities and 80 new facilities were identified and compared.

A discriminant analysis technique (7) was used to develop a linear model of the constructed variables such that the resulting prediction equation minimized the chance of misclassification between old and new facilities. Hospital characteristics were operationalized; some characteristics were based on the work of Arrington and Haddock (8). The eight characteristics examined were service mix, patient mix, payer mix,

staffing, expenditures, facility capacities, university affiliation, and length of stay.

Service mix was measured as an additive index of five types of noninpatient services—outpatient care, residential treatment, residential supportive care, partial care, and emergency services (score range=0 to 5). Patient mix was the proportion of clients by age group: child and adolescent, adult, and elderly. Payer mix was the proportion of revenues from Medicare, Medicaid, the state (exclusive of Medicaid), client fees and insurance, and "other" sources. Staffing was measured as the number of full-time-equivalent staff at the facility per average daily census. Three types of staff were included: administrative, professional clinical (psychiatrists, psychologists, and master's-level social workers and nurses), and other clinical (non-master's-level social workers and nurses and mental health workers and aides).

Expenditures were capital expenditures per inpatient bed, and total salary and maintenance expenditures per average daily census. Facility capacities were the number of inpatient beds, occupancy rate (the average daily census divided by the total number of beds), and the turnover rate (the total number of patients divided by the total number of beds).

The proportion of hospitals affiliated with a university was documented. Length of stay was the mean length of stay for 1988 at the facility (the total number of patient days divided by the total number of patients).

Results

Discriminant analysis entered three variables into a prediction equation in the following order: number of inpatient beds, patient turnover rate, and proportion of child and adolescent patients. The equation successfully classified the facilities 77.6 percent of the time. However, because the discriminant equation misclassified 35 percent of new hospitals and only 15 percent of old hospitals, it appeared to be better at classifying the older facilities.

Means for the variables and univariate F tests were examined to more directly assess the ability of each variable to differentiate the old and new facilities. As shown in Table 1, significant differences ($p<.05$) between old and new state hospitals were found in 12 of the 20 construct variables. The differences were in all three age categories of patient mix; two categories of payer, Medicaid and the state; professional clinical staff and other clinical staff; expenditures for salaries and maintenance (although maintenance expenditures were in the opposite direction from the one predicted); two facility capacities, inpatient beds and turnover rate; and length of stay.

Discussion

It was hypothesized that state psychiatric facilities built and put into operation before the initial wave of deinstitutionalization would still carry many of the vestiges of predeinstitutionalization ideas about treatment, programming, and allocation of resources, compared with facilities built after deinstitutionalization began. Most of our hypotheses were confirmed. Compared with the new hospitals in the sample, the old facilities were larger, with lower turnover rates and greater lengths of stay. The old hospitals had fewer clinical staff, but also fewer expenditures for salary and maintenance. They received a greater amount of revenues from state coffers and less from third-party billing. They treated fewer children and adolescents.

There are important limitations of this study and of the data set used. Nevertheless, our results appear to confirm that state hospitals built and operated before 1949 reflect their history, and as a group appear to have adjusted more slowly to modern psychiatric treatment approaches than facilities built during and after the initial wave of deinstitutionalization.

This finding has important implications for policymakers and state mental health authorities. If old facilities still carry the influence of predeinstitutionalization custodial care, implementation of innovative approaches to public psychiatric care at these facilities may be diminished or compromised. Perhaps newly built facilities should be favored over old facilities in attempts to promote innovative programming. New facilities may be more likely to adapt to the implementation of different models of service delivery such as managed care.

Clearly, the type of facility can have a significant impact on the course, and possibly the effectiveness, of treatment. Perhaps future research should more closely examine treatment outcomes in these two facility types. It may be helpful to explore the effectiveness and efficacy of various interventions in old and new facilities and to examine the extent to which variables such as patient mix and age of the facility affect performance. Moreover, addressing the functional mission of the various facilities may be important.

Finally, perhaps state mental health authorities should focus more efforts on helping old facilities adjust to more modern approaches to psychiatric treatment. Because our data suggest that newer and older facilities behave differently in the emerging continuum of mental health services, it would be prudent to recognize a facility's history when developing and implementing innovative programming and service delivery models for the care of mentally disabled individuals. ♦

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