



Deinstitutionalization of American Public Hospitals for the Mentally Ill Before and After the Introduction of Antipsychotic Medications

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Abstract: Deinstitutionalization following the introduction of antipsychotic medications in 1954 has received much attention as a major narrative in psychiatry. Little attention has been given, however, to deinstitutionalization before 1954. Using United States census data on discharge and readmission rates of US mental hospitals from 1935 to 1964, this article analyzes deinstitutionalization using an interrupted time-series model, with particular attention to the statistical significance of trends before and after the advent of antipsychotics. Discharge rates significantly increased in the period before antipsychotics, indicating that deinstitutionalization began before 1954, although readmissions during that same period increased at the same rate as discharges. A reasonable inference is that patients discharged in the pre-antipsychotic period were unable to live independently outside the hospital. After 1954, both discharges and readmissions increased significantly, but due to a continuing increase in admissions, no significant decrease in mental hospital populations occurred during the seven-year period after 1954. The decline began in 1961 and coincided with changes in federal policy. The fate of mental patients discharged from hospitals during this second period of deinstitutionalization is examined. The central conclusions are (1) the overall reduction in the population of mental hospitals did not coincide with the 1954 introduction of antipsychotic medications, and (2) deinstitutionalization before and after drugs has been met with inadequate community-based care.

Keywords: chlorpromazine, community psychiatry, deinstitutionalization, discharge, family care, mental hospital, outpatient care, readmission

From the point of view of the hospital observer, it is unfortunate that the advent of psychopharmacology coincided with the wave of hospital reforms and innovation in the treatment of psychotic patients . . . The evidence at hand, while only fragmentary and subject to many qualifications, indicates that the introduction of chlorpromazine and reserpine acted to potentiate and accelerate already existing trends . . .

– G. L. Klerman, in “Historical Baselines for the Evaluation of Maintenance Drug Therapy of Discharged Psychiatric Patients” (1961)¹(p. 297)

In the early nineteenth century, individual US states started building public hospitals for the mentally ill.² Over the course of that century, the rate of construction of new

psychiatric hospitals increased linearly,³ and as the number of hospitals increased, so did the patient population.^{3,4} By 1955, 3.38 persons per 1000 US population resided in public mental hospitals.³ In absolute numbers, at its peak, the mental hospital population in the United States exceeded half a million.³ Then, in the middle of the twentieth century, the 150-year trend of rising mental hospital populations turned on a dime. During the course of a few decades, the number of persons in mental hospitals decreased to approximately one-third of its 1955 peak.⁵

This depopulation of mental hospitals is usually referred to as “deinstitutionalization.” One must be careful to distinguish between the goals of deinstitutionalization and its processes. The goal was the virtual elimination of large, state-run, long-term residential facilities for the mentally ill—that is, to “de-populate” mental hospitals. The processes that were used to achieve that end were numerous. They included a complex array of influences both proximal and distal to hospital administration. Proximal influences included discharge and admission rates. Obviously, depopulation requires that the former exceed the latter. More distal influences included the following: a social movement by advocates for the mentally ill aimed explicitly at closing large state hospitals; initiatives designed to help discharged patients live

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successfully in the community, such as the construction of community-based mental health centers to provide counseling and medication; and provisions for shelter (such as group homes) and employment for the functionally able. All of these influences—both proximal and distal—arose from a host of sources. Some were local, such as decisions by hospital administrators to reduce admissions. Others came from state and federal government regulatory initiatives, such as placing caps on the size of mental hospitals, and statutory programs, which allocated funds to care for discharged patients in the community. There were also private legal initiatives, such as lawsuits aimed at establishing a “right to treatment.” Deinstitutionalization is, in sum, a complex and multifaceted phenomenon; it cannot be attributed to monolithic events, no matter how salient.

One of the most enduring, pervasive, and central tenets of modern psychiatry is that deinstitutionalization was caused by the *pharmacologic efficacy* of antipsychotic drugs, particularly chlorpromazine and reserpine, that were introduced in the 1950s. According to the internationally recognized historian Edward Shorter, “What initiated the massive discharge of psychiatric patients to the ‘community,’ a process known as deinstitutionalization, was the introduction of antipsychotic drugs in 1954, the year the Food and Drug Administration licensed chlorpromazine.”^{6(p 279)} Indeed, the idea that deinstitutionalization was a direct result of psychotherapeutic drugs is frequently expounded by the pharmaceutical industry. Some have suggested that such assertions are intended to enhance public and professional perception of drug efficacy.^{5,7}

The attribution to drugs as the causative agent of deinstitutionalization is, at best, simplistic and, at worst, misleading. Nevertheless, it makes an appealing narrative, which goes as follows. For centuries, physicians tried a multitude of treatments for mental illness, including the bizarre (e.g., artificial drowning) and dangerous (e.g., lobotomy). Some treatments, like lobotomy and insulin coma therapy, rendered patients more manageable. But with few exceptions (arguably, such as Jauregg’s malarial therapy for neurosyphilis), nothing halted or prevented the pathological processes that underlie the most common and severe mental illnesses (e.g., schizophrenia). Then, overnight, a chemotherapeutic alternative was introduced that was so effective that vast numbers of patients—many of whom would have faced prolonged, if not lifelong, hospitalization—became well enough to return to homes and families, with some even capable of employment and independent or semi-independent life in the community.

This narrative is appealing not only for the reduction in suffering it implies but also because it is a story of scientific triumph and progress—and in a medical specialty (i.e., psychiatry) that was unable for so long to provide effective treatments that it was saddled with the appellation “stepchild of medicine.” With the introduction of antipsychotic drugs, psychiatry, at long last, became a respected branch of medicine, and depopulation of mental hospitals was its crowning achievement.

In the pages that follow, we examine the phenomenon of deinstitutionalization in its myriad details both qualitatively and quantitatively. We begin by documenting a little-known fact: the movement to depopulate mental hospitals predated the introduction of antipsychotic drugs. We then present novel data on the US mental hospital population from 1935 to 1964. These data were subjected to time-series analysis to identify trends and to test for the significance of events (e.g., introduction of drugs). The result of this analysis contradicts previous research, much of it done in the early years of deinstitutionalization,^{8,9} that purported to show that the new drugs caused an immediate, significant decrease in hospital populations. Our analysis failed to confirm a significant effect of drug introduction. Rather, it revealed an abrupt and significant decline in hospital population beginning in the early 1960s coincident with federal policy changes that promoted deinstitutionalization and provided immediate financial incentives for discharging patients into the community. Finally, we examine the consequence to patients of discharge in the context of drug efficacy.

DEINSTITUTIONALIZATION BEFORE ANTIPSYCHOTIC DRUGS

As mentioned above, the idea of deinstitutionalization did not originate with the introduction of antipsychotic drugs in the 1950s. Systematic efforts to discharge patients into the community to reduce hospital overcrowding had been occurring—albeit on a relatively small scale—at least since the second half of the nineteenth century.¹⁰ In 1863, the Massachusetts State Board of Charities was founded and made responsible for addressing the increasing number of mental patients in hospitals. Based on the board’s recommendations, an act was passed in 1885 that provided for the placement of “chronic” and “quiet” patients in private homes. In most cases, the patient and family were unrelated. That is, patients were placed with “foster families,” to whom the state gave an allowance to defray the associated costs. The scale of this practice was initially small. By 1914, Massachusetts had only 341 patients in foster family care.¹¹ Even so, due to continuing increases in crowding and the rising cost of maintenance at state mental hospitals,¹² interest in foster family care spread to other states. One major benefit was financial, with foster family care estimated to cost half as much as institutional care.^{10,11} The Newark State School in Walworth, New York, adopted the practice of foster family care in 1933. The institution reported benefits to both patients and the state,¹³ and by 1945, New York state had 1700 patients in family care.¹⁴ Other states, including California, Illinois, Maryland, Michigan, Pennsylvania, Rhode Island, and Utah, established foster family care programs in the 1930s and 1940s.¹¹ For example, in 1945, there were 420 patients in family care in Illinois and 228 in Rhode Island.¹⁴

The foster family care “movement” was disrupted by World War II, causing a decline in the number of families

willing to take in patients. In some cases, the costs of placement in foster families doubled.¹⁵ The practice never recovered its former scope.¹⁶

Foster family care was a small-scale attempt to relieve hospital overcrowding; it was not an attempt to close mental hospitals. Perhaps the first serious proposal that mental hospitals begin large-scale discharge for the purpose of dramatically reducing the mental hospital population was made by Dr. John Maurice Grimes, who, in 1930, was commissioned by the American Medical Association (AMA) to conduct a two-year-long “investigation of all hospitals caring for mental patients.”^{17(p vi)} Grimes’s investigation portrayed hospital care for the mentally ill in an unfavorable light. For example, he observed that the institutions

are not all hospitals, although their beds are counted in the Register of Hospitals as hospital beds. Many of them are schools or colonies, and some do not even have a hospital unit. Many others are rest homes, not therapeutic but custodial in nature . . .

Many other institutions in this mental group are asylums. They represent, for the most part, the point of view of a former day, when insanity was assumed to be a permanent affliction and its victims were put away for life. The unfortunates in these asylums are inmates, not patients[.]^{17(p 7)}

Of the care available in such institutions, Grimes commented:

In nearly every large mental hospital numbering its patients by the thousand, there are hundreds of patients who are seldom if ever interviewed by physicians. The period of hospitalization of such patients is reckoned in years. Their activities are observed and directed mainly by attendants and industrial managers. Their daylight hours are spent more or less in mending shoes, making brooms or mattresses or small furniture, milking cows, or tending crops; they occupy “hospital beds” only at night and for the purpose of sleep. They are not under treatment but merely in custody; the reason for continued institutional care is not therapeutic but presumably protective—they might be nuisances or menaces if returned to civil life.^{17(p 8)}

Grimes’s report was sufficiently unflattering that some persons—whom Grimes described only as “a small group of men, located in the East but nationally known”^{17(p viii)}—protested. A central point of contention was that such an investigation was the responsibility of the American Psychiatric Association, not the AMA. Whoever these “disgruntled Wise Men from the East”^{17(p xiv)} were, they wielded sufficient power to have Grimes fired, and the report suppressed. Nevertheless, Grimes, who was “driven . . . by a real and logical sense of obligation,”^{17(p vi)} published the report independently at his own expense.¹⁷

Grimes ended his self-published book by concluding that the solution of the problem “must begin with a de-institutionalization rather than with a further speeding up of the mad race between building operations and new commitments.”^{17(p 113)} To our knowledge, this occurrence of the term *de-institutionalization* is the first ever. It is noteworthy, particularly considering the sudden wholesale discharge of mental patients that began in the 1950s, that Grimes advocated a gradual process of discharge:

The first step, then, will be a concentration of the medical staffs of the huge, overcrowded hospitals on the problem of de-institutionalization, with the definite aim of paroling all parolable patients. Nearly every such hospital contains hundreds of patients whose parole would not be dangerous to their home communities nor harmful to themselves.^{17(p 113)}

Although short on specifics, Grimes recognized that successful reintegration into the community would require support and supervision of patients after discharge. In this regard, Grimes thought social workers had a central role to play and that “the employment of scores of social workers would make possible the parole of hundreds or even thousands of patients.”^{17(pp 96–97)} He further advocated using the resources freed up by discharge to concentrate efforts on acute cases. He reasoned that special attention to acute patients would reduce the likelihood that they would become chronic—further reducing the mental hospital population.¹⁷ In Grimes’s conceptualization of aftercare, medical services were to be provided by a collaborative effort between the institution and “active affiliations with the medical and nursing staffs of general hospitals.”^{17(p 116)}

Although Grimes did not discuss the development of independent outpatient clinics, the movement toward increased reliance on outpatient clinics was about to begin. Initially, outpatient clinics primarily treated children.¹⁸ An influential manual published in 1941 entitled *The Organization and Function of the Community Clinic* focused on organizing child clinic services in the community. The second edition of this manual, published in 1952, remarked on important changes in community and clinic thinking.¹⁸ Between the publication of the first and second editions, clinics began to treat more adult patients, and increasingly more emphasis was placed on the “teamwork approach.” This approach assigned responsibility for patient care to a team of professionals, most often consisting of psychiatrists, psychologists, and psychiatric social workers. The second edition of the manual also noted that the number of outpatient clinics for children, under the auspices of the American Association of Psychiatric Clinics for Children, increased from 7 in 1944 to 81 in 1952. Although these clinics were nominally for children, many also served adults, making the Association of Psychiatric Clinics for Children significant in the field of adult clinics, too. By 1952, the manual provided clear

guidelines on establishing adult clinics and on the multidisciplinary approach.¹⁸

World War II had a significant impact on advancing outpatient clinics. The large number of draftees rejected due to mental illness led to more public awareness of mental illness.¹⁸ It suggested a level of psychopathology in the general public far greater than previously assumed,¹⁹ and generated increased interest in psychiatric problems.¹⁸ The Veterans Administration adopted the outpatient clinic model to provide psychiatric services for mentally ill war veterans.¹⁵

The main goals of the National Mental Health Act of 1946 were to support research on psychiatric disorders, increase training of mental health personnel, and assist states in establishing clinics and treatment centers.²⁰ The act provided funds for small communities to plan new mental health programs and for larger communities to extend existing programs.¹⁸ Two million dollars was allotted in 1948, and the following year grant-in-aid-funding was increased to \$3.5 million.²⁰ State governments also showed "postwar psychiatric enthusiasm for community clinics."^{20(p 167)} The clinics were appealing to state governments for several reasons: the clinics were intended to shorten hospital stays, decrease hospital populations, provide a more humane and effective alternative to institutionalized care, diminish costs, and deliver both preventive and treatment services.²⁰

In the 1940s, the number of mental health clinics increased from approximately 800 to 1200.²¹ Before 1948, more than half of all states had no clinics, and by 1949 all but five states had at least one clinic.²⁰ Likewise, whereas nearly all psychiatric care was delivered in hospitals at the beginning of the twentieth century, 23 percent of the 1.7 million patients receiving psychiatric services were cared for in outpatient treatment by 1955.^{22(p 220)}

In 1949, a governors' conference was held to address the organization, administration, and operation of state programs for the mentally ill.²³ The data presented at the conference covered 94% of all state hospitals, and it was observed that "many persons in state hospitals . . . are not now in need of continuing psychiatric hospital care."^{23(p 5)} For this reason, a major recommendation emerging from the conference was that "[o]ut-patient clinics should be extended and other community resources developed to care for persons in need of help, but not of hospitalization."^{23(p 5)}

In the years leading up to 1954 (when antipsychotic drugs were introduced), the use of community care was most evident in the states of California and New York. In California, one author discussed the liberalization and extension of the state's parole policy, stating that the 1939 adoption of a policy to extend extramural care led to a considerable reduction in overcrowding in the seven state hospitals.²⁴ The total number of patients in extramural care in California almost doubled between 1939 and 1941.²⁴ By 1953, an act was passed in California which allowed for locally operated outpatient services to receive state subsidies.²⁵ In New York, the Mental Health Commission, created in 1949, was mandated to

develop a master plan for community mental health.²⁶ The commission staff submitted its findings to the commission in 1953; a special committee then drafted recommendations to the state government; and these recommendations were embodied in the Community Mental Health Services Act of 1954, which established a permanent system of state aid for locally operated community mental health services.²⁶

Research into the nature and number of outpatient clinics also increased. The need for post-hospital rehabilitation research was discussed by Richard Williams in December 1953.²⁷ He referred to the role of both the outpatient clinic in providing continued therapy and the halfway shelter in providing living arrangements. Besides stating the economic gains of discharging patients, he emphasized the need for research into the types of services available for released patients. By 1954, research on these services had advanced, and the National Institute of Mental Health published a statistical report of outpatient psychiatric clinics.²⁸ For the purpose of the report, the psychiatric outpatient clinic was defined as a psychiatric outpatient service for ambulatory patients, where a psychiatrist is in attendance and takes medical responsibility for all patients in the clinic.²⁸ In a subsequent report, NIMH stated that in 1954 there were 1234 such clinics.²⁹

Thus, deinstitutionalization, both as a concept and as a process, was under way well before the introduction of antipsychotic drugs. In previous work we have shown that a significant trend in increased discharge rates began about 1938.⁴ The effect of drugs on this trend, however, has not been assessed quantitatively and statistically. In that context we present an empirical analysis by using time-series analysis to examine the significance of pre- and post-antipsychotic trends on mental hospital discharges and readmissions. Time-series analysis is also used here to test for the significance of drug effects and policy changes on trends in these variables.

The process of deinstitutionalization cannot be fully understood by examining discharge rates or changes in total hospital population. As previously defined, deinstitutionalization is an attempt to reduce mental hospital population by increasing discharge rates. If patients are readmitted as fast as they are discharged, however, the process of deinstitutionalization has presumably failed its primary objective of moving the mentally ill from hospital to community. Moreover, two types of admission must be taken into account: first admission and readmission. First-admission data have been the subject of much previous research because, in theory, they provide an index of incidence. A relatively neglected variable is readmission. Readmission is important because it is an index of the successful integration of discharged patients into the community.¹⁹

TIME-SERIES ANALYSIS

The total US population and total number of state mental hospital discharges, first admissions, and readmissions were collected from US Census data for the period of 1935 to 1964. The US Census Bureau began collecting information on mental

disorders in 1840.³⁰ *The Statistical Manual for the Use of Institutions for the Insane* was published in 1918,³¹ with the consequence that statistical reporting by US mental hospitals became more standardized. The US Census Bureau adopted this manual in 1923. Although data on first admissions and readmissions were collected from 1923, it was not until 1935 that discharges were also reported. In 1947, the US Public Health Service was given responsibility for conducting mental hospital censuses. The NIMH, created as a division of the US Public Health Service in 1949, continued to conduct annual hospital censuses through 1964, after which mental hospital censuses were discontinued. Annual data on discharges and admissions are therefore available during the 19-year period before, and the 10-year period after, introduction of antipsychotic medications.

In the present article, discharge and readmission rates are expressed per 1000 of the total US population, thereby controlling for population growth. For the purpose of statistical comparison of discharge to readmission rates, the difference between the two rates was examined as a separate variable.

The rates of discharge, rates of readmission, and difference between rates were examined using an interrupted time-series design. A time-series is an ordered sequence of inherently correlated observations through time.³² Time-series analysis controls for this correlation.³² An interrupted time-series design similar to the one used by Garand, Monroe, and Vlosky³³ allows for the analysis of a time-series before and after an intervention (e.g., the introduction of antipsychotics in 1954). That is, the effect of the intervention on the time-series can be tested for statistical significance. A Prais-Winsten procedure was applied to correct for standard errors in the face of auto-correlated errors.³⁴

Figure 1 presents the rates of discharge per 1000 US population for the period 1935 to 1964. The trend in the rates

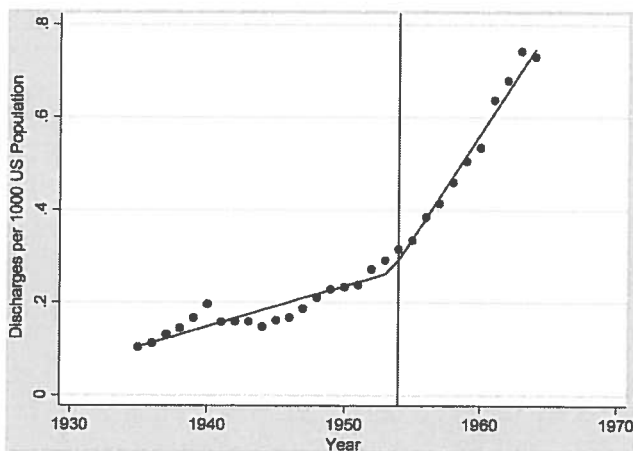


Figure 1. This figure presents the rates of discharge per 1000 US population for the period 1935 to 1964. The vertical line represents the year 1954, the dots represent data points, and the sloping line is the regression line derived from time-series analysis.

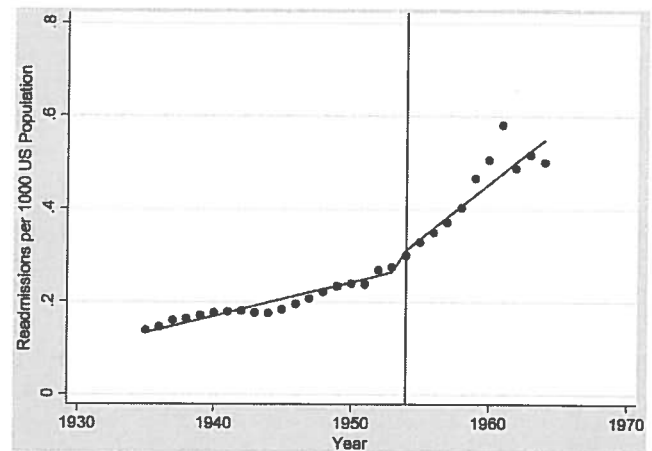


Figure 2. This figure presents the rates of readmission before and after the introduction of antipsychotics. The vertical line represents the year 1954, the dots represent data points, and the sloping line is the regression line created from the time-series analysis.

of discharge (represented by the initial, pre-intervention slope of the regression line) is positive and statistically significant in the pre-antipsychotic period between 1935 and 1953, inclusive ($b = 0.009$; $t = 5.81$; $p < .001$). During this period the number of patients discharged (per 1000 US population) significantly increased by .162, or by .009 each year. The slope of the regression line sharply increased in the post-antipsychotic period of 1954 through 1964, inclusive ($b = 0.037$; $t = 9.96$; $p < .001$). During this period, the number of patients discharged (per 1000 US population) increased by .37, or by .037 each year, bringing the number of discharges (per 1000 US population) to .046 per year (i.e., $0.009 + 0.037 = 0.046$). Thus, the introduction of antipsychotics was coincident with sharply accelerated rates of discharge over time.

Figure 2 presents the rates of readmission per 1000 US population for the period 1935 to 1964, inclusive. The trend in the rates of readmission is also statistically significant in the pre-drug period ($b = 0.007$; $t = 4.25$; $p < .001$). During this period the number of patients readmitted (per 1000 US population) significantly increased by .126, or by .007 each year. The slope of the regression line sharply increased in the post-antipsychotic period of 1954 through 1964, inclusive ($b = 0.016$; $t = 3.92$; $p < .001$). During this period, the number of patients readmitted (per 1000 US population) increased by .16, or by .016 each year, bringing the number of readmissions (per 1000 US population) to .023 per year (i.e., $0.007 + 0.016 = 0.023$).

Figure 3 shows the trend in the difference between discharge and readmission rates per 1000 US population by year. A time-series analysis was performed to determine whether the trend in this difference changed with the introduction of antipsychotic drugs, but the difference between discharges and readmissions did not change significantly in the pre-antipsychotic period. During this period, the number

of patients discharged exceeded readmissions (per 1000 US population) by a nonsignificant .001 each year. That is, the rates of discharge and readmission were increasing at the same pace. The slope of the regression line sharply increased, however, in the post-antipsychotic period of 1954 through 1964 ($b = 0.021$, $t = 4.12$, $p < .001$). During this period, the number of patients discharged exceeded readmissions (per 1000 US population) by .21 patients, or by .021 each year, bringing the number by which discharges exceeded readmissions (per 1000 US population) to .022 per year (i.e., $0.001 + 0.021$).

Interestingly, however, the rates of discharge and readmission were statistically the same (though both were slightly elevated) between 1954 and 1961. The significant difference between these variables was confined to the period between 1962 and 1964.

Figure 4 shows the rates of discharge, readmission, and first admission from 1935 to 1964. Both readmissions and first admissions began to decrease sharply in 1962, whereas discharges continued to climb. A separate interrupted time-series analysis was carried out on the difference variable, excluding the years 1961 to 1964, inclusive. There was no significant trend in this regression, and notably, the post-antipsychotic slope was not significantly steeper than the pre-antipsychotic slope ($b = 0.002$; $t = 0.74$; $p > .05$).

Based on the regression of differences between 1954 and 1960, inclusive, predicted values were generated for the excluded years of 1961 to 1964. The predicted values are shown in Figure 5. The original regression from Figure 3, based on the actual difference, is also included. A 90% confidence interval was constructed around the regression line based on predicted values. Observed values lie outside the confidence interval only during the last three years (1962 to 1964). Thus, as in the period prior to antipsychotics, no

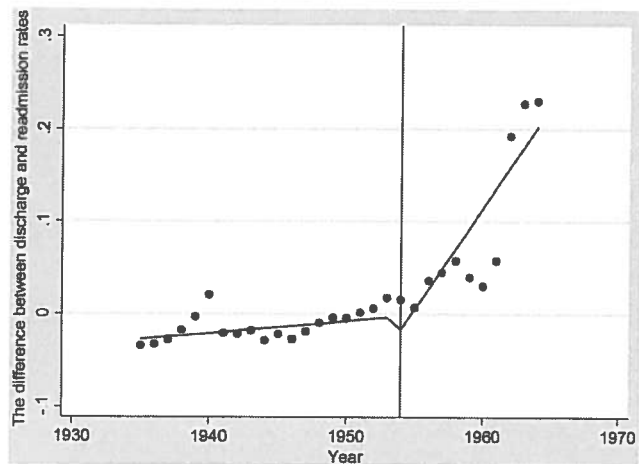


Figure 3. This figure presents the differences between discharge and readmission rates before and after the introduction of antipsychotics. The vertical line represents the year 1954, the dots represent data points, and the sloping line is the regression line created from the time-series analysis.

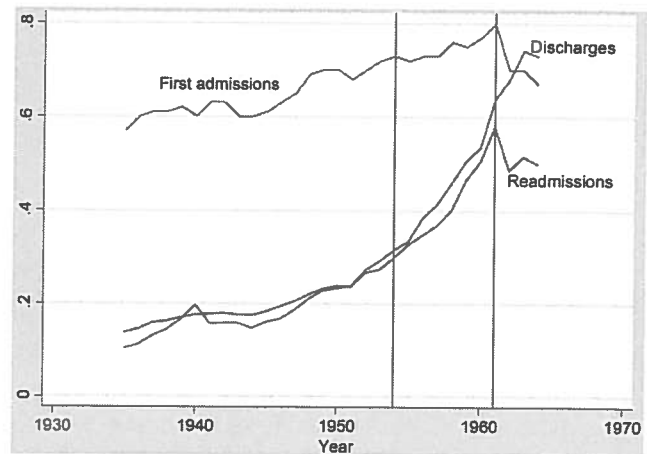


Figure 4. This figure presents the first-admission, readmission, and discharge rates before and after the introduction of antipsychotics. The first vertical line represents the year 1954 and second vertical line represents the year 1961.

significant difference between discharge and readmission rates occurred during the seven-year interval immediately after their introduction.

Although there was a large (127%) increase in discharges from 1954 to 1961, the hospital population decreased by only 1% decrease (see Table 1). This decrease was small because both first admissions (23%) and readmissions (117%) increased during the same period. From 1961 to 1964, the hospital population showed a greater decrease of 14%. It is unlikely that this decrease was due to increased discharges, however, as the percentage change in discharges (down 20%) was much less than in the 1954–61 period (down 127%).

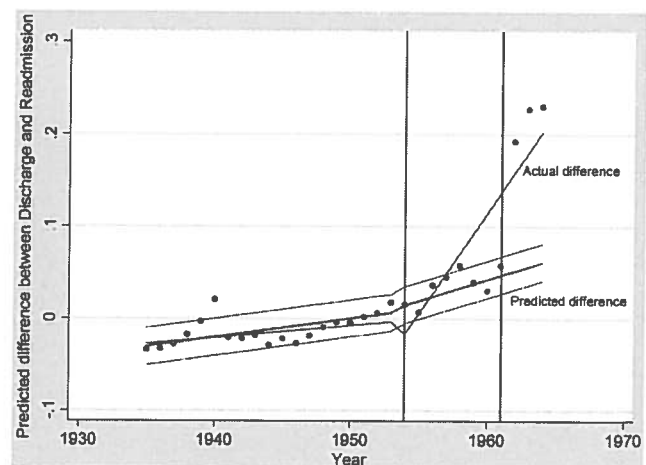


Figure 5. This figure presents the differences between discharge and readmission rates based on predicted values. The first vertical line represents the year 1954, the second vertical line represents 1961, and the dots represent data points. The sloping line with the greater slant is the regression line from the time-series analysis of actual differences. The sloping line with the lesser slant is the regression line from the time-series analysis based on predicted differences. The two lines bordering the second regression line represent a 90% confidence interval.

	1954–61	1961–64
Hospital population	1.05% decrease	14.04% decrease
Discharges	127.09% increase	19.76% increase
First admissions	23.42% increase	12.07% decrease
Readmissions	117.27% increase	9.91% decrease

Rather, the decrease in hospital population from 1961 to 1964 is more likely attributable to the decline in admissions observed during this period; first admissions declined by 12% and readmissions by 10%.

DISCUSSION

The data presented here show that during the first seven years after the introduction of antipsychotics, the immediate slight downward trend in the number of patients in US mental hospitals was not significant, despite a large increase in the discharge rate. The principal reason is that discharge rates were nearly exactly matched by readmission rates during that period. The single most important conclusion that can be drawn from this analysis is that the introduction of antipsychotic drugs in 1954 did not initiate the eventual massive drawdown of mental hospital populations that would be seen over the coming decades.

However, scholarly diligence requires consideration of plausible rival explanations. One is that the number of patients who received the new medications between 1954 and 1964 was too small to substantially affect the vast total hospital population. To our knowledge, no incontrovertible national data are available on the prevalence of in-hospital antipsychotic drug therapy during that period. Nevertheless, the existing information suggests that the new drugs were used by US mental hospitals immediately after their introduction and that within a few years they were being employed on a massive scale. Overholser estimated that as early as 1955, “probably as many as four million patients have had [chlorpromazine] prescribed for them.”^{35(p 212)} Unfortunately, however, he provides neither data nor an explanation for how he arrived at this estimate. Considering that mental hospital population was approximately half a million in 1955⁴ and that chlorpromazine had been used in the United States for only about one year, his estimate would appear to be an exaggeration. The best available data on the extent of early hospital use of the new drugs (i.e., chlorpromazine and reserpine) comes from a national survey conducted by the California State Legislature in 1956. Some of these data are tabulated by Swazey.^{7(pp 210–13)} The California study found that the number of US state mental hospital patients “currently on drugs” in the 30 states that responded to the survey was just over 108,000. Among the states reporting, the percentages

of the mental hospital population on these medications varied from a high of 80% in New York to a low of 10% in Alabama. On average, states reported that about 20% of patients in mental hospitals were on the new antipsychotic medications. Again, despite the paucity of data, all anecdotal indications are that the use of these drugs increased dramatically between 1954 and 1961, the period that showed no significant decline in total US mental hospital population.

The preceding discussion suggests that the new antipsychotics were used on a sufficient scale to be a factor in the sharp increase in discharge rates after 1954. An equally important question, however, is whether patients were maintained on these medications after discharge on a sufficient scale and dose to prevent readmission. If not, that lapse could explain why the dramatic increase in discharges between 1954 and 1961 did not result in a dramatic decrease in the hospital population. Once again, we have to rely on anecdote to assess this possibility.

In an interview given to Judith Swazey by Charles Bolling and Frazier Cheston—the product manager and director of hospital sales, respectively, for Smith, Kline & French (SK&F), the company licensed to market chlorpromazine (as Thorazine) in the United States—it was noted that about 18 months after public hospitals started to use chlorpromazine,

[w]e began to get feedback static . . . about released patients coming back to the hospitals in droves, and complaints that the return rate was undermining all the institutions’ savings that Thorazine had helped to effect. From this experience evolved the concept of “aftercare.” . . . [W]e found that one reason for the initial high return was [that] when patients went home, to their families and private physicians, they were put on a low maintenance dose of Thorazine . . .

SK&F’s involvement with aftercare included a great deal of “pump-priming,” in which we funded or gave free drugs to several pilot aftercare projects . . . This work, and the studies it produced, catalyzed the aftercare concept . . .^{7(pp 204–05)}

The potential importance of maintenance drug therapy after discharge was clearly recognized. It cannot be answered with certainty, however, whether the large sales force of SK&F and other advocates for the new therapy (such as patients, families, and private practice physicians) succeeded in getting maintenance drug therapy initiated on a sufficiently large scale in the United States between 1954 and 1961 to have reduced readmission rates. It is noteworthy that both state hospitals and SK&F had a strong financial incentive to make reintegration into the community a success. The cost of maintaining patients outside the institution on chlorpromazine was estimated to be \$46 per annum versus the \$912 that it cost to keep those patients in the hospital.⁵ In the absence of a statistically significant reduction in hospital population

between 1954 and 1961, however, it is clear that patients did not receive adequate aftercare or that the treatment received was ineffective in maintaining patients in the community. If the former is true, then one needs to explain why readmission rates abruptly began a downward trend in 1961. Are we to suppose that in 1961, discharged patients suddenly began receiving adequate aftercare? Even more puzzling is that first admissions declined at precisely the same time (i.e., 1961), and for the first time in history. Consequently, if the new drugs were efficacious in preventing hospitalization, then we also have to assume an abrupt and dramatic shift in prescription practices prior to hospitalization. Other factors that argue against pharmacologic efficacy as the driving force behind deinstitutionalization include (1) studies from the early 1960s that revealed that the introduction of drugs had little or no effect in hospitals that were deemed to have a good therapeutic milieu, and (2) the failure of discharge rates in Austria, Germany, and Norway to increase after the introduction of large-scale drug therapy.^{5,36}

This is not to say that the introduction of antipsychotics had no effect on discharge. Indeed, it did. As we have documented, however, the process of deinstitutionalization was under way well before the introduction of antipsychotics. The introduction of the drugs no doubt catalyzed this ongoing process. It would nevertheless be wrong to infer that drug efficacy as such was responsible. Because of the tremendous pent-up pressure to relieve overcrowding in state mental hospitals, the mere availability of a new, inexpensive treatment that could easily be administered outside the hospital, irrespective of efficacy, could have easily catalyzed discharge. Moreover, although the drugs may have spurred discharge, they did not decrease the population of state mental hospitals; the readmission rates substantially increased during the seven-year period from 1954 to 1961.

If the preceding analysis is correct, we are still left with an unexplained phenomenon. In 1961, both readmissions and first admissions dropped suddenly. Why? We believe that the answer is the rapid enactment of policies that had as their goal the elimination of state mental hospitals.

In 1960, the US Congress enacted Medical Assistance to the Aged, the first major federal medical assistance program for that age group.³⁷ This legislation provided subsidies to elderly patients to defray the cost of hospital care, but only private care and local facilities such as nursing homes were eligible for governmental reimbursement; state institutions were not.³⁷ As a consequence, no additional support was available for elderly residents in state mental hospitals—whose numbers had been growing steadily during the first half of the twentieth century.^{19,23} The Medical Assistance to the Aged Act thus provided a financial incentive to move the elderly from state hospitals to nursing homes. For example, the California Department of Mental Hygiene established a geriatric screening unit in 1963 that was designed to identify elderly patients qualified for federal assistance.^{37,38} In the three-year period after its establishment, only 4% of the

elderly persons evaluated were committed to state hospitals, and within four years, the number of admissions to local hospitals for psychiatric evaluations was reduced by 65%.³⁹ By 1970, California had reduced the number of patients in state mental hospitals who were 65 and over by 73.5%.³⁷ In the United States, from 1963 to 1969 the number of patients over 65 in state and county mental hospitals decreased by 25%, and the number of patients over 65 in nursing homes increased by 95%.⁴⁰

In a separate policy change in 1962, the Department of Health, Education, and Welfare revised its policy toward mental health patients. Persons on conditional release were no longer barred from eligibility for state public assistance in the form of matching federal funds.³⁹ Because the community placement of patients depends on the availability of funds to support them, this policy change increased the chances that released patients could remain in community settings.³⁹ In California, these federal funds became available to released patients through Aid to the Totally Disabled and were distributed through public assistance programs for the mentally handicapped.⁴¹ Ten years later, the California State Department of Mental Hygiene stated that the provision of financial support through public assistance programs was primarily responsible for the mass emigration from state hospitals that began in 1962.⁴¹

Another key event occurred in 1961: publication of the final report of the Joint Commission on Mental Illness and Health, which the 1955 Mental Health Study Act had asked to assess the United States' mental health needs.⁴² The final report, *Action for Mental Health* (1961),⁴³ stated:

No further State hospitals of more than 1000 beds should be built, but not one patient should be added to any existing mental hospital already housing 1000 or more patients. It is further recommended that all existing State hospitals of more than 1000 beds be gradually and progressively converted into centers for the long-term and combined care of chronic diseases, including mental illness.^{43(p xvi)}

The report itself was largely ideological⁴⁴ and did not indicate what legislative action was needed to achieve its proposals. Many of the recommendations led to action, however, because of the federal government's abundant funds and moral support.⁴⁴ According to Torrey,⁴² the commission's report had a major impact. Indeed, it relegated large institutions with powerful constituencies to a secondary role in the US mental health system. According to Mike Gorman, a contributor to the report, its "hidden agenda was to break the back of the state mental hospital."^{42(p 92)} In other words, its goal was to eliminate state mental hospitals, which were to be replaced with community mental health clinics as "a main line of defense in reducing the need of many persons with major mental illness for prolonged or repeated hospitalization."^{43(p 263)} The report also recommended that the federal government, instead of individual

states, should have increased fiscal responsibility for the mentally ill.^{42,43} It stated that the “Federal government should be prepared to assume a major part of the responsibility for the mentally ill insofar as the States are agreeable to surrendering it.”^{42(p 287)} This recommendation would represent the beginning of what would be a considerable shift toward increasing federal and welfare involvement in mental health care. Other key events that occurred in 1961 include publication of several influential books that undermined the role of mental hospitals. These include *Asylums* by Erving Goffman,⁴⁵ *The Myth of Mental Illness* by Thomas Szasz,⁴⁶ and *An Approach to Community Mental Health* by Gerald Caplan.⁴⁷ All of these events contributed to growing attitudes that psychiatric hospitals should be closed or greatly reduced in size, and that both patients and treatment should be moved to community settings.⁴²

Perhaps most importantly, the *Action for Mental Health* report influenced the US president, John F. Kennedy, who delivered the first-ever message to Congress on mental illness and mental retardation in 1963.^{22,48} In this message, the president stated that most of the mentally ill “are confined and compressed within an antiquated, vastly overcrowded, chain of custodial State institutions” and that “reliance on the cold mercy of custodial isolation will be supplanted by the open warmth of community concern and capability.” Within the speech, he referred to the 1961 “comprehensive study by the Joint Commission on Mental Health and Illness” and its findings. The commission’s recommendations for increasing federal fiscal responsibility for the mentally ill and expanding community mental health care were especially well received by the president. He stated, “I am proposing a new approach to mental illness and mental retardation. This approach is designed, in large measure, to use Federal resources to stimulate State, local, and private action,” and “I recommend, therefore, that the Congress . . . authorize grants to the States for the construction of comprehensive community mental health centers.”^{48(pp 164–67)}

One month after President’s Kennedy’s address to Congress, congressional hearings on community mental health centers (CMHCs) began,⁴² and the Community Mental Health Centers Act was enacted the same year. The act provided grants to build CHMCs, and it specified the services that the centers were to provide.¹⁹ These essential services were inpatient services, partial hospitalization (day hospital), outpatient services, emergency services, consultation, and education to a catchment area of 75,000 to 200,000 people. The regulations under the act failed to include, however, a mandatory working relationship between CMHCs and state mental hospitals, even though CMHCs were supposed to assume responsibility for released patients.⁴²

The consequences of the reports and acts discussed above were immediate and of sufficient magnitude to begin a decades-long drawdown of the US mental hospital census. By 1965, the CMHC movement was in full swing, and the new president, Lyndon B. Johnson, amended the previous

act to authorize more CMHC construction and funding.⁴⁹ The enactment of Medicare and Medicaid also occurred in 1965 and rapidly accelerated the movement of elderly patients out of state mental hospitals.²⁰ Amendments for the funding and expansion of CHMCs occurred again in 1970 and 1975, with the consequence that CMHCs continued to expand during and after the 1970s. State mental hospital populations declined rapidly. In the decade after 1965, the hospital population dropped by 59%. Because a mandatory working relationship between state hospitals and CHMCs was never established, CHMCs were never directly responsible for those released. Much of the deinstitutionalized population had chronic mental illness, and CHMCs were less focused on providing care to the deinstitutionalized population than to persons with other problems in living (such as alcohol and drug abuse).²²

In the 1970s, another motive for depopulating state mental hospitals emerged. As a result of several important cases,^{37,42,50,51} federal courts asserted that the mentally ill had certain constitutional rights. These cases, such as *Wyatt v. Stickney*⁵⁰ and *O’Connor v. Donaldson*,⁵¹ led to the establishment both of legal rights to adequate treatment for mental patients and of minimum standards for such treatment, including a minimum staff-to-patient ratio. In order to meet this staff-to-patient ratio, many states simply discharged more patients.^{37,42} By 1980, as a result of multiple converging pressures to close mental hospitals, the mental hospital census decreased to 140,000 from its 1955 peak of 558,000.¹⁹

As mentioned earlier, deinstitutionalization was not entirely independent of the advent of antipsychotics. That said, since the availability of antipsychotics had no significant effect on hospital populations between 1954 and 1961, a reasonable inference is that the profound changes taking place in the US mental health system were not due to the pharmacologic efficacy of these drugs. Nevertheless, antipsychotics did much to foster a zeitgeist that meshed well with the forthcoming changes in federal policy. As Mechanic has suggested,⁴⁴ what made the joint report so important was not the uniqueness of its recommendations but rather the receptive climate into which they were introduced: the American economy was in an excellent position to finance the recommendations; the president himself was committed to the program in mental health; psychiatric drugs had changed administrative attitudes regarding care for the mentally ill; and the harmful consequences of custodial-hospital environments had been demonstrated. As Scull so accurately observed,⁴⁰ many of the criticisms of asylums in the 1860s and 1870s were identical to criticisms made in the 1950s and 1960s. Overcrowding and rising costs were not novel complaints. When the drugs were introduced, their pharmacological efficacy may not have been sufficiently demonstrated, but they represented the potential to drastically alleviate these complaints, making drugs especially appealing to governments.

The causes of deinstitutionalization will, no doubt, continue to be debated. On its consequences for patients,

however, there appears to be widespread agreement. After the drugs were introduced, and later, after the mental hospitals began to depopulate, many studies investigated the fate of these patients in the community. One 1967 study examined 299 discharged patients one year after release. When assessed on their general functioning and social interaction, only 11% were functioning as well as the average person in the community.⁵² A review of drug treatment outcomes estimated that 40% of discharged schizophrenic patients on medication could not maintain life in the community for one year, and 60% could not maintain it for two years.⁵³ Many ex-patients also found it difficult to find employment. A 1965 study of 211 discharged male veterans found 23% to be employed at a six-month follow-up,⁵⁴ and a 1966 study found 72% of patients had serious employment difficulties (ranging from sporadic work to no work at all) after being released.⁵⁵

Unable to cope, many patients were simply readmitted, sometimes more than once. In the late 1960s, a five-year study of the community placement of 111 patients showed that 67 patients returned before two years.⁵⁶ In 1963, of 215 patients discharged from the Veterans Administration Hospital in New Jersey, 83, or 39%, returned within a year.⁵⁷ Furthermore, of those 83 readmitted patients, 56, or 67%, were discharged again within the same year, indicating the push to discharge.

The movement of elderly mental patients out of state mental hospitals increased through the late 1960s. As previously mentioned, this movement was due in large part to Medicare and Medicaid in 1965. NIMH statistics reveal that in 1969, 38% of discharged patients over 65 were sent to nursing homes.⁵⁸ And from 1964 to 1969, the number of nursing home residents with mental disorders or senility increased by 144%.⁵⁸

The fate of the discharged patients has also been linked to homelessness and increased incarceration in prisons. In a 1985 Los Angeles-based study of 529 homeless adults, 29% had been previously hospitalized for psychiatric reasons, and only 6% had visited a CMHC in the past month.⁵⁹ It was also found that homeless persons who had a previous psychiatric hospitalization were more likely than other homeless persons to have mental health problems, use drugs and alcohol, and engage in criminal activities. The majority of the previously hospitalized had not made a CMHC visit for mental health care in more than five years, indicating the loss of contact with mental health services.⁵⁹ In another study of homeless persons, over 50% of the sample met criteria for severe psychological disorders.⁶⁰ In 1988, a National Survey of Shelters for the Homeless found that the prevalence of mental illness among the adult sheltered homeless in the United States increased from 19% in 1984 to 34% in 1988.⁶¹

Deinstitutionalization has also been associated with incarceration of the mentally ill in prisons. Between 1968 and 1978, the correlation between the annual resident census of state mental hospitals and state prisons in the United States was $-.87$.⁶² An increase in arrest rates among mental patients

has also been observed.⁶²⁻⁶⁴ One study examined 1947, 1968, and 1975 samples of ex-patients and found that in 1947, 15% of patients had prior police records, versus 32% in 1968 and 40% in 1975.⁶⁴ Across six states, the percentage of males with at least one prior arrest admitted to a mental hospital increased from 18% in 1968 to 56% in 1978.⁶²

CONCLUSION

Deinstitutionalization was well under way before the introduction of antipsychotics, and the concept of community psychiatry originated as a mechanism to enable discharged patients to function in the community. Rising readmission rates in the pre-antipsychotic era suggest, however, that patients were not functioning independently.

After the introduction of antipsychotics, both discharge and readmission rates increased, but no significant differences between them occurred until after 1961. Beginning at that time, however, the decline in mental hospital populations coincided with changes in public policy, not with the introduction of new antipsychotic medications. In the 1970s, the deinstitutionalization movement continued to expand, and the mental hospital census continued to decline. Even so, for the vast majority of the discharged patients, neither the new medications nor the availability of community-based clinics enabled them to function independently outside the hospital. The data presented here thus support two important conclusions: (1) the depopulation of state mental hospitals was initiated not by the introduction of new medications but by changes in public policy, and (2) both before and after the introduction of antipsychotics, deinstitutionalization was unsuccessful in providing adequate community-based care.

Our analysis shows that the introduction of antipsychotic medications had no significant effect on trends in hospital population between 1955 and 1960. During that period, discharge rates increased dramatically, but readmissions increased at an equal rate—even though hundreds of thousands of patients were receiving the new medications before and after discharge. As a matter of simple logic, hospital population could not decrease until discharges exceeded admissions. Our analysis shows that the decreases began in 1961, coincident with explicit public policy initiatives designed to reduce hospital populations.

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REFERENCES

1. Klerman GL. Historical baselines for the evaluation of maintenance drugs therapy of discharged psychiatric patients. In: Greenblatt M, Levinson DJ, Klerman GL, eds. *Mental patients in transition*. Springfield, IL: Charles C Thomas, 1961: 287-301.
2. Talbott JA. *The death of the asylum*. New York: Grune & Stratton, 1978.

3. Torrey EF, Miller J. *The invisible plague: the rise of mental illness from 1750 to the present*. New Brunswick, NJ: Rutgers University Press, 2001.
4. Baumeister AA, Hawkins MF, Lee Pow J, Cohen AS. Prevalence and incidence of severe mental illness in the United States: an historical overview. *Harv Rev Psychiatry* 2012;20:247–58.
5. Valenstein ES. *Blaming the brain: the truth about drugs and mental health*. New York: Free, 1998.
6. Shorter E. *A history of psychiatry: from the era of the asylum to the age of prozac*. New York: Wiley, 1997.
7. Swazey JP. *Chlorpromazine in psychiatry*. Cambridge, MA: MIT Press, 1974.
8. Brill H, Patton RE. Clinical-statistical analysis of population changes in New York state mental hospitals since introduction of psychotropic drugs. *Am J Psychiatry* 1962;119:20–35.
9. Brill H, Patton RE. Analysis of population reduction in New York state mental hospitals during the first four years of large-scale therapy with psychotropic drugs. *Am J Psychiatry* 1959;116:495–509.
10. Pollock HM. A brief history of family care of mental patients in America. *Am J Psychiatry* 1945;102:351–61.
11. Pollock HM. Family care of mental patients. *Am J Psychiatry* 1934;91:331–6.
12. Grob GN. *Mental illness and American society: 1975–1940*. Princeton, NJ: Princeton University Press, 1983.
13. Vaux CL. Family care at Newark State School. In: Pollock HM, ed. *Family care of mental patients*. New York: Arno, 1976:50–73 [Reprinted from Pollock HM, ed. *Family care of mental patients*. Utica, NY: State Hospital Press, 1936].
14. Pollock HM. Family care and out-patients mental clinics. *Am J Psychiatry* 1946;102:541–2.
15. Pollock HM. Family care and out-patient mental clinics in 1946. *Am J Psychiatry* 1947;103:542–4.
16. Pollock HM. Outpatient mental clinics and family care. *Am J Psychiatry* 1948;104:487–9.
17. Grimes JM. *Institutional care of mental patients in the United States*. Chicago: printed by author, 1934.
18. Barhash AZ, Bentley MZ, Kirkpatrick ME, Sanders HA. *The organization and function of the community psychiatric clinic*. Broadway, NY: National Association for Mental Health, 1952.
19. Johnson AB. *Out of bedlam: the truth about deinstitutionalization*. New York: Basic, 1990.
20. Grob GN. *From asylum to community: mental health policy in modern America*. Princeton, NJ: Princeton University Press, 1991.
21. Felix RH. *Mental illness: progress and prospects*. New York: Columbia University Press, 1967.
22. Barton WE. *The history and influence of the American Psychiatric Association*. Washington, DC: American Psychiatric Press, 1987.
23. Council of State Governments. *The mental health programs of the forty-eight states: a report to the Governors' Conference*. Chicago: Council of State Governments, 1950.
24. Rosanoff AJ. Extramural care: heredity and genetics. *Am J Psychiatry* 1942;98:598–9.
25. Aviram U, Segal S. From hospital to community care: the change in the mental health treatment systems in California. *Community Ment Health J* 1977;13:158–67.
26. Hunt RC, Forstenzer HM. The New York State Community Mental Health Services Act: its birth and early development. *Am J Psychiatry* 1957;113:680–5.
27. Williams RH. Psychiatric rehabilitation in the community. *Public Health Rep* 1953;68:1231–6.
28. National Institute of Mental Health. *Mental health clinic statistics: conference report*. *Public Health Rep* 1954;69:1008–11.
29. National Institute of Mental Health. *Gains in outpatient psychiatric services, 1959*. *Public Health Rep* 1960;75:1092–4.
30. Redick RW, Manderscheid RW, Witkin MJ, Rosenstein MJ. *A history of the U.S. national reporting program for mental health statistics, 1840–1983*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service; Alcohol, Drug Abuse, and Mental Health Administration; National Institute of Mental Health, Division of Biometry and Epidemiology, 1984.
31. American Medico-Psychological Association, Committee on Statistics; National Committee for Mental Hygiene, Bureau of Statistics. *The statistical manual for the use of institutions for the insane*. New York: National Committee for Mental Hygiene, 1918.
32. Wei WS. *Time series analysis: univariate and multivariate methods*. 2nd ed. New York: Pearson Addison-Wesley, 2006.
33. Garand JC, Monroe PA, Vlosky DA. Do no-fault divorce laws increase divorce rates in the American states? Paper presented at the annual meeting of the Canadian Political Science Association, Toronto, Canada, May 2001.
34. Gujarati DN, Porter DC. *Basic econometrics*. 5th ed. New York: McGraw-Hill, 2009.
35. Overholser W. Has chlorpromazine inaugurated a new era in mental hospitals? In: Gordon HL, ed. *The new chemotherapy in mental illness*. New York: Philosophical Library, 1958:212–7.
36. Odegard O. Patterns of discharge from Norwegian psychiatric hospitals before and after the introduction of the psychotropic drugs. *Am J Psychiatry* 1964;120:772–8.
37. Lerman P. *Deinstitutionalization and the welfare state*. New Brunswick, NJ: Rutgers University Press, 1982.
38. Epstein LJ, Simon A. Alternatives to state hospitalization for the geriatric mentally ill. *Am J Psychiatry* 1968;124:955–61.
39. Aviram U, Syme SL, Cohen JB. The effects of policies and programs on reduction of mental hospitalization. *Soc Sci Med* 1976;10:571–7.
40. Scull AT. *Decarceration: community treatment and the deviant: a radical view*. Englewood Cliffs, NJ: Prentice Hall, 1977.
41. Segal SP, Aviram U. *The mentally ill in community-based sheltered care*. New York: Wiley, 1978.
42. Torrey EF. *Nowhere to go: the tragic odyssey of the homeless mentally ill*. New York: Harper & Row, 1988.
43. Joint Commission on Mental Illness and Health. *Action for mental health*. New York: Basic, 1961.
44. Mechanic D. *Mental health and social policy*. Englewood Cliffs, NJ: Prentice Hall, 1989.
45. Goffman E. *Asylums: essays on social situation of mental patients and other inmates*. New York: Doubleday, 1990 [originally published 1961].
46. Szasz T. *The myth of mental illness; foundations of a theory of personal conduct*. New York: Houbert-Harper, 1961.
47. Caplan G. *An approach to community mental health*. New York: Grune & Stratton, 1961.
48. Message from the president of the United States, February 1963. In: Foley HA, Sharfstein SS, eds. *Madness and government*. Washington, DC: American Psychiatric Press, 1983:163–82.
49. Foley HA, Sharfstein SS. *Madness and government*. Washington, DC: American Psychiatric Press, 1983.
50. Wyatt v. Stickney, 325 F. Supp. 781 (M.D. Ala. 1971).
51. O'Connor v. Donaldson, 422 U.S. 563 (1975).
52. Schooler NR, Goldberg SC, Boothe H, Cole JO. One year after discharge: community adjustment of schizophrenic patients. *Am J Psychiatry* 1967;123:986–95.

53. Liberman RP, Falloon IRH, Wallace CJ. Drug-psychosocial interventions in the treatment of schizophrenia. In: Mirabi M, ed. *The chronically mentally ill: research and services*. New York: SP Medical and Scientific, 1984.
54. Walker R, McCourt J. Employment experience among 200 schizophrenic patients in hospital and after discharge. *Am J Psychiatry* 1965;122:316-9.
55. Hall JC, Smith K, Shimkunas A. Employment problems of schizophrenic patients. *Am J Psychiatry* 1966;123:536-40.
56. Cunningham MK, Borwinik W, Dolson J, Weickert AA. Community placement of released mental patients: a five-year study. *Soc Work* 1969;14(1):54-61.
57. Lorei TW. Prediction of community stay and employment for released psychiatric patients. *J Consult Psychol* 1967;31:349-57.
58. Pollock ES, Taube CA. Trends and projections in state hospital use. In: Zusman J, Bertsch EF, eds. *The future role of the state hospital*. Lexington, MA: Lexington, 1978:50-3.
59. Gelberg JC, Linn L, Leake BD. Mental health, alcohol and drug use, and criminal history among homeless adults. *Am J Psychiatry* 1988;145:191.
60. Kahn MW, Hannah M, Hinkin C, Montgomery C, Pitz D. Psychopathology on the streets: psychological assessment of the homeless. *Prof Psychol Res Pr* 1987;18:580-6.
61. US Department of Housing and Urban Development. *The 1988 National Survey of Shelters for the Homeless*. Washington, DC: HUD, 1989.
62. Steadman GS, Monahan J, Duffee B, Hartstone E, Clark Robbins P. The impact of state mental hospital deinstitutionalization on United States prison populations, 1968-1978. *J Crim Law Criminol* 1984;75:474-90.
63. Steadman HJ, Cocozza JJ, Melick ME. Explaining the increased arrest rate among mental patients: the changing clientele of state hospitals. *Am J Psychiatry* 1978;135:816-20.
64. Grunberg F, Klinger BI, Grumet B. Homicide and deinstitutionalization of the mentally ill. *Am J Psychiatry* 1977;134:685-7.