

Length of Stay and Outcome; Psychiatry

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The trend toward less inpatient hospital treatment for psychiatric patients has been established for well over a decade. A series of randomized clinical trials (RCTs) appeared in the 1970's that compared various regimens of brief hospital treatment with more traditional, longer periods of inpatient care for serious psychiatric disorders.

Herz and colleagues (80) reported the first large RCT studying the appropriate length of stay (LOS) for psychiatric patients, 49 percent of whom were schizophrenic. All patients newly admitted to the psychiatric unit of Columbia Presbyterian Medical Center in New York were evaluated for possible inclusion in the study. Seventy-nine percent of all patients screened were rejected—patients who were too ill or too healthy, those with uncooperative families, and those with concomitant physical illness. The remaining 90 patients were randomly assigned either to a control group receiving usual 24-hour per day inpatient treatment or to a study group that was treated with day care in the same ward, 8 hours per day, 5 days per week. LOS for the initial hospitalization was drastically reduced—48 days for the study group as opposed to 139 days for the control. During the followup period, the control group was rehospitalized more often and demonstrated more psychopathology than their counterparts in the study group.

Caffey (29) reported a trial that included two study groups in addition to a control group treated with the usual inpatient care. One study group received a maximum of 21 days hospitalization followed by intensive outpatient treatment. The second study group received the usual hospital care followed by the same outpatient treatment. The study accepted 201 schizophrenic men after a larger, but unreported, number were screened at the 14 participating Veterans Administration hospitals using criteria similar to the first study. The study was successful in discharging the short hospitalization group, as 81 percent were released within a month. In contrast, only 33 percent of the control group and 24 percent of the second study group were discharged dur-

ing the first month. Readmission rates during the year after discharge were equal in the first study and control groups (34 percent) and somewhat lower in the second study group (24 percent). The average length of time spent out of the hospital prior to readmission was 20 days longer in both of the study groups compared to the controls. There was no difference among the groups in measured levels of psychopathology or functioning abilities.

Glick and his coworkers (56) randomly assigned consecutively admitted patients to short- or long-stay groups. They analyzed their results separately for their nonschizophrenic and their schizophrenic populations. The 74 nonschizophrenics were evenly divided among study and control groups. The study patients averaged only 26 days during their initial hospitalization compared with the control group's 100 days. At 1 year following discharge (58), the long-stay patients had experienced twice as many readmission (0.4 readmission per patient for the long-stay group v. 0.2 per patient for the short-stay group) and almost twice as long a LOS per readmission (35 v. 19 days). In addition, fewer patients avoided rehospitalization in the long-stay group (76 v. 84 percent). None of these differences is statistically significant at the 5-percent level. Functional evaluation showed that on the vast majority of measures, no differences could be found between the two groups; on 2 of 27 measures the long-stay group showed a slight advantage. These differences were considered clinically insignificant as the authors concluded that their study did not provide "strong support for the use of the more expensive longer hospitalization for nonschizophrenic patients. "

The results for schizophrenic patients showed similar evidence of increased use of psychiatric services for the long-stay group (57,68). At 2 years following discharge, the long-stay group had spent almost twice as many days in the hospital as the short-stay group (17 days per patient v. 9 days). They also averaged 46 percent more psychotherapy visits per month. In addition, fewer patients

in the short-stay group were taking phenothiazines, and those who were taking the drugs were receiving a lower dose than their counterparts in the long-stay group. While the hospitalization results were not statistically significant, the drug results were. Functional testing showed that at 1 year after discharge, the long-stay group scored slightly better on global measures of severity of illness than the short-stay patients. These differences, which were statistically significant, had decreased by the 2-year followup assessment. The authors noted that the better results might have been caused not by the longer initial hospital stay directly, but rather by the greater exposure of long-stay patients to psychiatric care during the followup period. In addition to this possibility, this study has been criticized for inadequate comparability of study and control groups despite random assignment. It has also been criticized for inappropriate treatment of the short-stay group, in particular the failure to provide post-discharge treatment (81).

Herz, et al. (78,79), have also reported a study in which newly admitted patients, selected because they had cooperative families, were randomly assigned either to one study group in which a brief planned hospitalization was followed by day care, to a second study group in which brief hospitalization was followed by discharge to the community, or to a control group treated with the more lengthy, traditional period of hospitalization. A total of 175 patients were randomly allocated to these three treatments. Of the total, 63 percent of the patients were schizophrenic. It is not clear how many were rejected by failing to meet the selection criteria. LOS for both study groups averaged 11 days; the control patients stayed an average of 60 days. All groups improved in their measured levels of psychopathology; there were no statistically significant differences in improvement among groups. Furthermore, there were no differences among groups in readmission rates. However, both study groups spent far fewer total days in the hospital during the 2-year followup period than the control patients. The study group with home care spent an average of 27 days per patient in the hospital during the followup period, the study group without home care experienced 47 days per patient, and the controls experienced 115 days.

A similar study was performed by Hirsch and colleagues (83, 100) in London. Selection criteria similar to those noted above were used to identify 224 candidates for this RCT, in which the study patients were treated with a brief period of hospitalization and the controls with the usual, longer period. The study patients spent an average of 22 days in the hospital, exactly twice as long as the study patients in the previous study, and the controls averaged 28 days. No differences in readmission rates or days hospitalized during the followup period were found. Nor were any differences measured between the two groups in improvements in psychopathology; 81 percent of the study group improved as did 79 percent of the controls.

Kennedy and Hird (95) reported a study in which 76 percent of newly admitted patients were randomly assigned either to one brief treatment ward or to two traditional treatment wards all at the Royal Edinburgh Hospital. The only reported criterion for rejection from the study was continuity of care—i. e., if a physician felt that particular patients would be best served by remaining with staff who had treated them previously, they were withdrawn from the study. This criterion applied to 27 percent of patients randomly assigned to the experimental ward and to 22 percent of those assigned to the control wards. There were 86 study patients and 161 controls. Significant differences were recorded between study and control patients in average LOS for the initial hospitalization (11 v. 24 days) and in average hospital days during the entire study period (17 v. 31 days). It should be noted that, as with the previous study, there was no difference between the groups in followup hospital days. Thus the difference in total days was entirely accounted for by differences in the initial LOS. No differences in outcome measures assessing the patients' psychopathology by interviews with patients and families were found. Nor were there any differences in the degree to which patients burdened their families. Control patients were seen more often by their general practitioners; they averaged one contact per patient in the 3 weeks after discharge while controls averaged 0.5.

Rosen and colleagues (114,115,148) have published a series of papers describing a study that

was not strictly a RCT. The study is reviewed here briefly, because it is cited prominently in the field as an influential work. Patients were allocated to two experimental wards and three control wards on the basis of bed availability. No clinical or sociodemographic characteristics were used to assign patients. For reasons not explained, control beds were filled first, then study beds. The study evaluated results only for the patients officially discharged; patients leaving against medical advice were excluded. The proportion of patients in the study and control groups who chose this option was similar (28 v. 27 percent). Short-stay patients stayed an average of 86 days; they had a target stay of less than 90 days. Long-stay patients experienced an average LOS of 179 days; they were discharged when their attending physicians felt that maximum benefit had been achieved. The fact that the study was conducted from 1970-71 may explain why the short-stay group's LOS was so much longer than that employed in later studies. Despite lack of random assignment, study and control groups were similar in most demographic and clinical measurements. The short-stay group did exhibit more cognitive disturbance than the long-stay group; this was the only significant initial difference.

The study also found that the short-stay patients had improved slightly more than the long-stay patients at the time of their respective discharges. At the end of the 3-year followup period, 24 percent of the 58 control patients had been readmitted compared to 22 percent of the study patients. The control patients were readmitted almost twice as frequently (2.1 v. 1.1 readmission per patient) and for longer periods each time (4.6 v. 2.9 months) than the study patients. Followup at 3 and 4 years showed that the two groups were *similar* in exhibiting mild to moderate psychopathology, but the long-stay group did score slightly better where the differences were statistically significant. None of these differences, which were few in number, was felt to be clinically significant. The results of this study, while consistent with those of the main body of RCTs discussed above, can be criticized, because a true random allocation procedure was not used. While it

is difficult to determine precisely how the assignment scheme actually used might have biased the experiment without a great deal more information, there is no question that the risk of bias was greater in this study than in a true RCT.

The information generated by these studies is largely internally consistent. In four of seven studies, the long-stay groups experienced more days in the hospital during the followup period than did the short-stay groups. In five of seven studies, no clinically significant functional differences could be found between the two groups. One study found slight differences in favor of the short-stay group, and one study found similar differences in favor of the long-stay group. While the authors of these studies discussed Type 11 errors no more frequently than the authors of the other studies reviewed here, it is evident that the power of these studies was greater than those previously discussed. Because data on standard deviations of functional assessment measures were not given, one cannot calculate precise estimates of power from the data reported in these studies. However, several of them noted statistically significant improvements over time in their patient populations, frequently about 20 percent (95). One infers that similar differences could have been detected had they been present between study and control groups.

The general conclusion that emerges from this review of the psychiatric literature is that prolonged initial hospitalization for acutely ill psychiatric patients is associated with greater levels of treatment following the initial period and shows no better results than a period of briefer initial hospital treatment. There is thus good evidence that short stays are not harmful and should be employed where possible. This same conclusion was reached by a prominent psychiatrist in a recent review (96). At the same time, it is also clear from the widely divergent treatment patterns and heterogeneous patient populations employed in this group of RCTs that the optimal LOS for specific subgroups of psychiatric patients has yet to be established.