A study of a cohort of 223 schizophrenic patients from a single catchment area followed up for two years after discharge from inpatient status revealed a significant association between the presence of two of 38 clinical problem categories (social withdrawal and drug abuse) and subsequent readmission. In addition, patients without social withdrawal who were readmitted showed a significantly greater use of aftercare services than those not readmitted, while, among those with social withdrawal, male patients were significantly more likely to be readmitted than female patients. Neither prior hospitalization nor the presence of affective symptoms were significantly associated with readmission. Clinical and research implications of these findings are discussed.

Several recent reviews have catalogued the wide variety of factors which have been implicated in the determination of outcome in schizophrenia. These variables have ranged from measures of premorbid adjustment to social influences (stress, familial influences, social stimulation) to the receipt of aftercare services. In general, however, most studies have indicated a general lack of predictive power of signs and symptoms of illness with two exceptions: symptoms related to social isolation or general withdrawal have been associated with chronicity or poor outcome while affective symptoms, notably depression, have predicted good outcome. When readmission to hospital is used as an outcome measure, the strongest predictor has consistently been a history of prior hospitalization. Unfortunately, this finding is of limited value to the clinician dealing with a newly-admitted patient and of no value with a first admission. The present study used a two-stage analytic strategy to examine the association of a broad range of problem behaviors, demographic and service utilization variables with readmission in a cohort of hospitalized schizo-
phrenic patients from a defined geographic catchment area. The primary question thus addressed was whether any clinical characteristics of schizophrenic patients on admission could prove useful to the treating clinician in identifying a subgroup of schizophrenic patients at high risk for readmission.

METHOD

The study population consisted of a one year cohort of all residents of a single county catchment area who were inpatients receiving a diagnosis of schizophrenia (DSM-II code 295.0-9) at one or both of the public mental health facilities serving the catchment area on August 1, 1975, plus all subsequent schizophrenic admissions (unduplicated) through July 31, 1976. Study patients were limited to those who were discharged from this index admission during the study period ending July 31, 1976. Patient data were obtained from a computerized psychiatric information system, the Multi-State Information System, utilized by both facilities. Data included a 38 item problem field completed by the treating physician on admission as well as demographic information and followup data regarding the length of the index hospitalization, a history of prior hospital care at either facility during the two years prior to the study year, receipt of outpatient services following discharge and a history of subsequent admission to either facility. A validation study of diagnostic reliability for a 10 percent sample of the study cohort using DSM-III criteria revealed significant agreement for schizophrenia ($K = 0.67$) between the two diagnostic systems which was considered sufficient for the purposes of the present study. The 38 problem categories covered symptomatology, social functioning and problem behavior and was identical to those found in the Problem Appraisal Scale except that, in this case, the clinician merely records the presence of the problem rather than rating its severity.

For purposes of the present analysis, the variables of age, sex, each problem (yes-no), a history of admission during the two years prior to index admission, length of index admission (number of days) and average number of service days per month until readmission or the end of the study period (for those continuously in treatment during the study period) or the last treatment contact (for those terminating treatment before the end of the two year followup) were used as independent variables while the dichotomous variable of readmission during the followup period (yes-no) was the dependent variable. Analyses were carried out in two stages. In the first stage, statistical significance of each problem category's relationship to readmission rates was carried out using the Chi-square test. Using the criterion of $p < 0.05$ as a cutoff level of significance, only three problem categories reached significance: social withdrawal, sex problems, and drug abuse. These three variables were then entered into a linear logistic regression analysis with the other independent variables to measure the effect of each independent variable on the odds of readmission after allowing for variation of readmission rates among all other independent variables.

RESULTS

A total of 223 patients met study criteria of whom 137 (61.4%) were readmitted during the followup period. As noted above, the first stage screening procedure for a significant bivariate association between each problem category and readmission revealed only three such relationships. Of the 84 patients recorded as exhibiting social withdrawal, 58 (70.2%) were readmitted, compared to 56.1 percent of 132 patients without this problem (Chi-square = 4.4, $p = 0.036$). Sixteen of the nineteen (84.2%) patients with drug abuse problems were readmit-