Adjustment of Tuberculosis Patients One Year After Hospital Discharge

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ALTHOUGH tuberculosis has both medical and social aspects, there has been only limited investigation of the social factors affecting the adjustment of discharged patients to medical recommendations. Such information is important to improve planning for patients, particularly in regard to those social factors relevant to the elimination of tuberculosis from the community.

This study was made to ascertain the extent and kind of adjustment to medical recommendations of a group of patients treated for active tuberculosis 1 year after discharge from hospital treatment. Also considered was the relationship between this adjustment and certain social characteristics and potential forces in their environment. These factors were race, length of residence in the State, marital status, education, occupation, living arrangements and environment, and economic status. Extent of disease, medical status, type of discharge, readmission, referral to vocational rehabilitation, and use of alcohol were also ascertained. The cost of hospitalization for the group, including all previous known hospital stays, was calculated, as well as the approximate amount of welfare funds they received during the first 6 months after discharge.

Many physicians now believe alcoholism is playing an increasing role in the failure of the treatment of tuberculosis patients. Therefore, it was of interest to find out the number of this study's population so affected, how many had left the hospital against medical advice, and if the adjustment and social characteristics of the alcoholic differed from those of the nonalcoholic.

While individual personality of patients undoubtedly is important, a study of factors related to this was beyond the scope of the present investigation.

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Methods and Materials

The study group consisted of all patients discharged from January 1, 1959, through May 31, 1959, from the Oregon State Tuberculosis Hospital at Salem where they had been treated for active tuberculosis. Of 77 patients, 3 had died, and the whereabouts of 8 was unknown; 40 men and 26 women comprised the remaining group. The medical recommendations pertained to medication, diet, and activity, and the discharges were both regular and irregular. The term "irregular discharge" was used as defined by Tollen (*1*).

Adjustment to medical recommendations and those influences which unquestionably tended to mold this adjustment were rated according to the following classifications.

ADJUSTMENT

Satisfactory. Adapted well to recommendations and followed physician's prescriptions on chemotherapy, activity, and diet.

Fairly satisfactory. Adjustment broken by occasional periods of not following prescriptions for chemotherapy and activity, and diet occasionally or consistently lacked at least two of the food groups.

Not satisfactory. Did not adapt well to medical recommendations. Frequently or consistently failed

to follow prescriptions for chemotherapy, activity, and diet.

ENVIRONMENT

Good. Type of neighborhood, surroundings, and living arrangements adequate; home has comfortable income, is not overcrowded, has good facilities for rest and sanitation.

Fair. Type of neighborhood, surroundings, and living arrangements passable; home has moderate income and fairly adequate facilities for rest and sanitation.

Poor. Type of neighborhood, surroundings, and living arrangements poor; home has limited income, is crowded or is scantily furnished, with meager facilities for comfort, rest, and sanitation. Surroundings in some instances may be classified as skid row.

Patients were classified as nondrinkers or chronic drinkers according to their use of alcohol and whether or not their drinking impaired their family role and their social and economic functioning. The occupational scale used was that of Goodenough and Anderson (*2*).

Data which might explain these adjustments were collected through a prepared interview schedule. A personal interview was held with public health nurses supervising the patients. Additional information was obtained from the official case records of social service department, medical and outpatient clinics of the tuberculosis hospital, the State board of health tuberculosis control section, and county health departments. Information about hospital costs and welfare grants was obtained from official sources.

Planning for Discharged Patients

Admission and discharge procedures frequently influence a patient's posthospital adjustment to medical recommendations. The State hospital has a harmonious, interested, well-trained, intelligent staff, who work cooperatively together and with the community. When the patient is admitted, the staff receives a full social history developed by a public health nurse of his county of residence and by a social worker if he is on the welfare rolls. The patient is interviewed by the hospital social worker, and she shares the additional information with the staff. Within 12 hours after admittance, the patient is seen by a staff physician. There also is a defined, integrated staff plan to teach patients about their illnesses and how they can cooperate in treatment.

The physician, nurse, social worker, vocational rehabilitation counselor, community agencies, and the patient participate in a planned, coordinated discharge program. The patient is given instructions about his necessary medication, diet, and activity regimen, and also on the importance of medical followup. The help available from the public health nurse, who follows these patients after discharge, the social worker, and various community agencies is also explained. On discharge, a detailed letter about the patient and his hospital course of therapy, with the treatment now recommended, is sent to his private physician, the local county health department of his residence, and, if pertinent, the local welfare department.

The Oregon State Public Welfare Commission honors the physician's recommendations for a high-vitamin, high-protein diet, so that the patient's dietary needs can be met. The hospital dietitian helps the patient to understand the benefits and reasons for following dietary prescriptions.

The hospital social worker interviews each patient before he is discharged to determine his ability to obtain the recommended chemotherapy. If purchasing the drugs will cause hardship, the State, through the local health department, supplies them after the local welfare agency verifies the financial need.

Before discharge can become final, the patient's choice of residence is investigated and evaluated for suitability by the public health nurse. The hospital social worker tries to motivate each patient to live in a place acceptable from a public health point of view. If the patient lacks adequate resources, he can, before discharge, have plans completed for public assistance through the cooperation of the hospital social worker and his local county welfare commission. No person in need of financial help leaves the hospital without some means of support. Welfare agencies consider the amount of assistance granted as generally adequate to provide housing with adequate sanitation facilities, a separate bedroom if possible, comfortable surroundings, and no overcrowding.

Before discharge, the patient's hospital physician, with the aid of the social service worker, decides whether he can continue in his usual occupation, considering his physical con-

dition. The hospital social worker, with the vocational counselor, then reviews each patient's employment situation, and, before discharge, she prepares patients for referral to vocational rehabilitation. The counselor, in turn, explains and plans with the patient for any help necessary for future employment or retraining.

Findings

Data were collected on a number of characteristics of the study group. However, it is not possible to state how representative this group is of tuberculous patients in general, and only a brief summary of population characteristics seems appropriate for this report.

Population Characteristics

As a group, the 40 men were older than the 26 women, the median ages being 52 and 44. The range was from 17 to 80 for the men, and 21 to 81 for the women. Only three were born outside the United States, and only three were nonwhite. Nearly 90 percent had lived in Oregon 5 years or longer, with 72 percent having at least 10 years of residence. About two-fifths of the group had received an eighth-grade education, and more women than men had at least attended high school. Of the women, 73 percent were married; of the men, 65 percent were single, divorced, or separated. The patients' occupational levels were predominantly semiskilled, slightly skilled, and laborer.

Generally, the women seemed to locate in better environments (neighborhoods and living quarters) than did the men, with good surroundings attained by about 62 percent of the women but only 28 percent of the men. During the 6-month postdischarge period, patients generally were considered unemployable, and 85 percent of the men but only 31 percent of the women received welfare assistance.

The extent of disease of approximately 50 percent of both sexes was classified as moderately advanced. One-fifth of the men had minimal, and another one-fifth, far-advanced disease. Approximately one-tenth of the women had minimal, and one-third had far-advanced disease, this third apparently having struggled with tuberculosis for many years.

Regular discharges had been given to 85 percent of the women and 63 percent of the men. The 15 men and 4 women leaving with irregular discharges had a total of 28 self-discharges, 41 admissions, and 11 readmissions. Of the entire group, 50 percent of the men and 31 percent of the women had had more than one hospitalization for tuberculosis.

Fifty percent of the men and 12 percent of the women were classified as alcoholics, or chronic drinkers. While no average has been accepted for alcoholism among the tuberculous, it is evidently elevated, perhaps 10 to 12 times that of the general population. Reported hospital findings vary from 15 to 70 percent, with 25 to 35 percent thought average (*3,4*).

Characteristics and Adjustment

Population characteristics were compared with the three defined levels of adjustment: satisfactory, fairly satisfactory, and unsatisfactory.

Twenty-four people, 37 percent of the entire group, made satisfactory adjustment in all classifications—medication, diet, and activity—while five, or 8 percent, were unsatisfactory. Nearly three-fourths of the 66 followed drug therapy satisfactorily, but only about two-fifths carried out diet and activity recommendations satisfactorily.

In the fairly satisfactory and unsatisfactory classifications, a larger number did better on diet and activity than on drugs (see table).

Although the youngest and the oldest subjects seemed to do best, age did not appear to be important in the adjustment of these patients; nor did race, length of residence in the State, extent of disease, readmissions, or referral to vocational rehabilitation.

The women surpassed the men in all classifications. The women, especially, made the best adjustment to recommendations for drug therapy, with 81 percent of the women, compared with 65 percent of the men, satisfactory in this area.

It is interesting to consider why such a large majority had followed so well the prescribed drug regimen. Had the prospect of the effectiveness of the drugs modified the mental attitude of the patients? Were they fearful, even unconsciously, of rehospitalization? Did adjustment reflect the hospital's coordinated staff education and integrated discharge plan-

ning program? Or was this the result of the persistent followup of the public health nurses and the way they continued the educational program begun in the hospital? The nurses spent a great amount of time and effort in trying to influence patients to have desirable attitudes toward their illness and to continue medical care and in assisting them to realize their own part in treatment and cure.

Education was not highly correlated with the adjustment pattern of the men, but it did appear that the better adjustment of the women was influenced by their higher educational attainment.

The adjustment of those who were married or widowed was significantly better in all classifications than that of those who were single, divorced, or separated.

Their occupations appeared to have a significant influence on both men and women. Those in the slightly skilled and the laboring groups made a poorer adjustment than those in other occupations.

The best adjustment in all three categories was made by those living in good environments. In fact, certain social characteristics of those living in good and in poor surroundings appeared to have an impressive influence on their adjustment. For instance, 67 percent of all persons living in good environments were married. However, whether they were married, single, divorced, or separated, they lived in their own homes or apartments or in those of relatives or friends, with someone, such as a spouse or others. The exception was one man recently separated from his wife who lived alone in a hotel in a commercial area. There was only one recorded irregular discharge among this group. (The patient stated that he had left the hospital because his wife threatened him with divorce.)

Only 9 percent living in poor environments were married; 86 percent of this group lived alone in hotels or rooming houses, and 68 percent lived in commercial districts. They were responsible for 17 irregular discharges.

The women, regardless of their source of support, did better than the men, but the adjustment, except for drugs, among those on welfare was not as good as those with other financial support. About 60 percent of the men supported by welfare maintained a satisfactory drug regimen, while only 18 percent maintained diet standards and 24 percent followed activity recommendations.

Of those irregularly discharged, 13 percent did well on medication, but the majority adjusted only fairly well to diet and activity prescriptions, and about one-third were rated unsatisfactory. In contrast, the great majority of those regularly discharged were judged satisfactory and fairly satisfactory in all three

Adjustment of patients 1 year after discharge from Oregon State Tuberculosis Hospital, Salem, by sex

Sex and adjustment classification	Drugs		Diet		Activity	
	Number	Percent	Number	Percent	Number	Percent
Men						
Satisfactory	26	65. 0	10	25. 0	11	27. 5
Fairly satisfactory	9	22. 5	23	57. 5	22	55. 0
Unsatisfactory	5	12. 5	7	17. 5	7	17. 5
Total	40	100. 0	40	100. 0	40	100. 0
Women						
Satisfactory	21	80. 8	18	69. 2	17	65. 4
Fairly satisfactory	4	15. 4	7	26. 9	7	26. 9
Unsatisfactory	1	3. 8	1	3. 9	2	7. 7
Total	26	100. 0	26	100. 0	26	100. 0
Both sexes						
Satisfactory	47	71. 2	28	42. 4	28	42. 4
Fairly satisfactory	13	19. 7	30	45. 4	29	43. 9
Unsatisfactory	6	9. 1	8	12. 2	9	13. 7
Total	66	100. 0	66	100. 0	66	100. 0

classifications of recommendations, the women in this group also doing better than the men.

The correlations indicated that except for medication, none of the chronic drinkers followed recommendations satisfactorily. Both men and women were about evenly divided between the fairly satisfactory and the unsatisfactory classifications.

Medical Status

All 66 patients in this study were under medical supervision 1 year after discharge, a reflection of the strenuous efforts of those in the hospitals, clinics, and communities who had participated in their treatment. Records showed they were being treated by their private physicians, or in tuberculosis hospitals or their clinics, or by health departments. This included five who had left the State, four who had been readmitted to tuberculosis hospitals, one who was in the State penitentiary, and one in the State mental hospital.

Four men did not always report regularly to the clinic, but the records indicated they finally came reluctantly, probably because of the interest, patience, and urgent prodding of public health nurses. Three of these men were considered chronic drinkers, and all four had histories of irregular discharge.

Hospital and Public Welfare Costs

The 66 patients received a total of 14,854 days of hospital care on their last admissions within the time limit of this study, which was set at June 1, 1956. At a daily cost of $13.88 for the period July 1, 1956–June 30, 1958, and $15.20 for July 1, 1958–June 1, 1960, the total expenditure for their hospital treatment was $222,336.16, and the average cost per patient per hospital stay was $3,368.72.

Using $3,368.72 as the average, the 28 previous readmissions in this State or elsewhere of these 66 amounted to approximately $94,324.16, or $316,660.32 spent for total hospital care for tuberculosis. These sums indicate the size of the community's investment in the institutional care of such a group. Some patients had been hospitalized as far back as the 1930's, when the cost of care was much lower, but the period of hospitalization was probably longer then because chemotherapy was not available.

The cost for the 19 patients who interrupted their hospital treatment was $45,642.40 for 3,841 days of care. Among these 19, however, there was a history of eight additional irregular discharges which, using the average cost for care, would amount to $26,949.76. A total of $72,592.16 had been spent on a group who had left the hospital against medical advice during treatment.

The State public welfare commission notified 42 (85 percent of the men and 31 percent of the women) that they could receive public welfare grants after discharge. Using $86.73, the customary monthly grant at that time to the totally disabled in Oregon as an average, this group received a total of approximately $21,855 during the 6-month period after discharge. This amount does not include administrative costs of the welfare agency or other assistance given the families of these patients. The 16 discharged irregularly who received welfare aid for 6 months were given approximately $8,326.

Some patients, particularly the older ones who have other disabilities, will probably never be employable, and welfare assistance will continue to be needed.

Discussion

While a small number of patients were followed for only 1 year, this report differs from earlier studies because relationships of adjustment to social characteristics and environmental factors were investigated. The factors affecting adjustment to medical recommendations in tuberculosis are so complicated that analysis of one factor may not be fruitful, but analysis of several may disclose meaningful relationships with the type of adjustment.

This study revealed that more men than women were hospitalized and that the men were older than the women, facts which agree with the general estimates of the incidence of tuberculosis in relation to age and sex. The fact that the women, as a whole, adjusted better than the men might be related to certain factors. About three-fourths of the women were married, lived in residential areas with their spouses and children, if they had any, and in their own homes or apartments. Well over half were located in good environments. None of these women were discharged irregularly,

and those with previous hospital stays had a long history of the disease. None were alcoholic. The women generally had more education than the men. Living with others in a good environment seemed to foster some kind of a relationship and interaction that led the women to make satisfactory adjustments to medical recommendations.

For the majority of the men the correlations, if taken together, revealed a different picture. Because 37 of the 40 men had lived in Oregon 5 years or longer, length of residence might have meaning in the light of Dr. Dunham's article, "Skid Rows—Past, Present, and Future" (*5*). The "increasing stabilization of the population of the Row," he felt, "was caused by certain social and economic factors, including technological changes in industry which have forced the migratory worker back to the Row."

Seventy percent of the men in the study group were slightly skilled or laborers, about half of them in the most numerous age group, 51 to 60 years. The records indicated a large number of these men seemed to have only sporadic jobs; some appeared to have lost their ability to work, and others were unemployed by choice or because of excessive drinking. When they did work, it was at seasonal farm labor or at construction jobs, or as loggers or lumberjacks.

Of the 40 men in the study group one-half lived alone with no close family or constructive personal ties, and 85 percent were supported by welfare grants. How many of them had once been married the records did not reveal. Although the hospital staff at the time of their discharge planned with these homeless men to live in a satisfactory place, they often did not remain there long and gradually drifted back to unsatisfactory surroundings. Half of the men lived in a poor environment, such as hotels or rooming houses in commercial areas.

Lowell's study of "Socio-Economic Conditions and Tuberculosis Prevalence in New York City" (*6*) supports the finding about environment. He stated that the high rates of tuberculosis were more generally found in areas of poor housing and low income, and conversely that low prevalence rates were found in areas of better housing and income.

This group with poor housing and low income was responsible for all 19 irregular discharges in the study, 14 of them having had 26 irregular discharges. While the reasons for the irregular discharges are not a part of this study, undoubtedly the endowments and experiences of this group made it impossible for them to incorporate what they had learned about tuberculosis and why they should follow medical recommendations into the fabric of their contributing attitudes, values, aspirations, and behavior patterns.

Many who finally rejected care and returned to poor environments were unstable, homeless men seemingly inaccessible to those who tried to help them. Notations about them in the county health records are illuminating: "This patient needs very close supervision." "Nurse stood by until he agreed to get dressed so he could go to clinic." "Man drinks heavily and has missed some appointments, but with nurse's efforts is on clinic schedule again."

Alcoholism deserves comment, first because more than one-third of the study group were so addicted. These persons had a high incidence of irregular discharges and readmissions, with the majority living alone in hotels or rooming houses in commercial neighborhoods with poor living arrangements. Second, alcoholism should be considered because it is increasingly recognized not only as a disaster to the tuberculous individual but also as a great burden to the community. Many familiar with tuberculous alcoholics think that unless the alcoholic can reform, it is unlikely that he will completely recover from tuberculosis. Even if his disease is rendered inactive, the use of large amounts of alcohol often leads to relapse. For these reasons, many believe the final attempt to eliminate tuberculosis will probably be made among alcoholics.

Some studies have shown that the active case rate among homeless men, many of them from skid row, is high enough to cause great concern (*7–10*). Although little can be found in the literature about the adjustment of discharged patients to modern medical regimens, previous research, individually applied, throws some light on the alcoholic tuberculous group. Jackson explored the effects of certain social characteristics such as preinstitutional areas of

residence, education, mental status, and other factors, and compared the nontuberculous alcoholic with the tuberculous nonalcoholic (*11*). She stated that many alcoholic patients from skid row environments on hospital discharge return to their former way of life, including their drinking pattern (*12*). Such men often experience relapses after discharge (*4,13*).

It is difficult to persuade these men to accept readmission. Also, because many of them move so freely in communities, they are easily lost to health authorities and go untreated and undetected. Often they live in unbelievably crowded conditions, disregard laws of health and hygiene, and contribute greatly to the spread of the disease. They heighten the cost of control procedures, absorb a disproportionate amount of time and effort of health and welfare workers, and create a widespread feeling of frustration among professional staff trying to help them.

Many people working with the tuberculous seem to have accepted the stereotype that alcoholic and skid rower, alcoholism and recalcitrancy, are interchangeable words. However, not all alcoholics are poverty-stricken skid row residents, which is also shown in a previous study (*14*). Jackson's studies in Washington State show that most middle-class alcoholics are not recognized as alcoholics, primarily because of the staff's stereotyped ideas about alcoholics and also because many settle into the hospital way of life without problems of any kind.

There appears to be no easy formula for handling the alcoholism of these tuberculous people. As Weiss, superintendent and medical director of Glenn Dale Hospital in Maryland, stated, "There seems to be a definite program gap in health, welfare, and community services of rather substantial proportion. A pat or proven program for this type of patient is yet to be adequately structured and supported at the essential levels of prevention, diagnosis, education, treatment, and research in the hospital and community" (*15*).

The increasing public and professional awareness and interest in the alcoholic tuberculous seem to suggest certain methods for helping them. All hospitals, and particularly those treating patients with tuberculosis, should give more attention to alcoholism, as it so often complicates and obstructs the treatment and adequate control of tuberculosis. Since the focus of the patient's treatment is the sanatorium, it would seem that attention to the alcoholic aspects should be initiated here, and the same traditional therapeutic attitude which extends to tuberculosis should also include alcoholism. An Alcoholics Anonymous chapter established in the Oregon State Tuberculosis Hospital at Salem has achieved some excellent results.

Hospital staffs and those working with patients after discharge should develop an understanding of alcoholism and more appropriate and accepting attitudes about it. They should know more about how the alcoholic thinks and feels, the "why" of the personality of the skid row patient, and some characteristics of his way of life. Such a patient represents a culture different from that of those who are trying to help him, and he cannot be judged by the professional person's standards and values (*7,16, 17*). Such knowledge would assist staffs both in and out of hospitals to be more effective in their relationships and communication with such patients and to develop the skill and understanding to deal more adequately with them.

Jackson believes the tuberculous alcoholic has difficulties in the hospital setting partly because communication between him and staff members and nonalcoholic patients has not been established or has broken down. He is a lonely, frightened man, often hiding his fears under hostilities which drive people away from him. When he is upset, those trying to help him are disturbed by his actions, and the clues that signal the underlying reasons for his behavior that might be picked up by anyone sensitive to him go unrecognized. Once the staff understands alcoholism, they will know how to help him.

A second step after staff education might be Weiss's proposals that the hospital staff and patients be organized into a comprehensive, therapeutic community (*15*). This community, it has been said, should not be set up on empirical, dictatorial, or punitive considerations, but should be based on the patient's needs. This change may bring about an understanding of why the alcoholic interacts as he does with those trying to help him. Attention for those labeled "recalcitrant" would then more often

be focused on the reasons for such behavior and the best treatment for him, whether it be social, psychological, legal, or punitive.

Other assistance might be an integrated plan for referral from the tuberculosis hospital to the increasing number of community alcoholism clinics in the State. It is necessary that all hospital staff members become familiar with the community resources for treating the alcoholic. Of great benefit would be some research activity, incorporated into treatment plans, that yields additional verifiable data about the extent of its success.

Further, some different expenditure of funds might be considered for those who go back to skid row and receive public welfare assistance funds which may be spent on alcoholic beverages. Eventually they break down again and are readmitted, often repeating this pattern many times. Would not public funds be more wisely expended in further planning for this group and in trying a longer range solution designed to counteract the pattern?

Financial limitations as well as cultural factors cause this group to choose inferior dwellings and surroundings. Perhaps a domiciliary institution with a staff that practiced corrective rehabilitation techniques could be a half-way house for some. It would seem that extending this sort of help is justified if it succeeds materially in preventing alcoholic tuberculous patients, discharged as noninfectious, from returning to skid row. Such a demonstration project might prove that some alcoholic tuberculous patients can be helped by rehabilitation techniques adapted to their physical, social, and emotional needs, and it might prevent, through supervised custodial care, repeated breakdowns of others, with the needless expense, extra care, and waste such episodes entail.

Summary and Conclusions

A followup study of 66 patients consecutively discharged from January 1, 1959, through May 31, 1959, from Oregon State Tuberculosis Hospital at Salem was undertaken to determine their adjustment 1 year later to medical recommendations for chemotherapy, diet, and activity. Relationships of adjustment to certain social characteristics and to environment were investigated, and the adjustments of alcoholic and nonalcoholic patients were compared.

All patients 1 year after discharge were being treated in clinics or hospitals or by private physicians.

Twenty-four of the 66 patients made a satisfactory adjustment in all categories, five were unsatisfactory in all categories, and the remainder were judged satisfactory in some areas but not in others. Of the total group, nearly three-fourths followed drug therapy satisfactorily, but only two-fifths carried out diet and activity recommendations satisfactorily. About 45 percent followed diet and activity recommendations in a fairly satisfactory manner, and 20 percent were judged fairly satisfactory as to medication. Nine percent were unsatisfactory as to drugs, 12 percent as to diet, and about 14 percent in activity.

Adjustment to medical recommendations seemed to be influenced by the following factors: sex, marriage, education, occupation, living arrangements and kind of environment, income, kind of discharge, and alcoholism. Age, race, length of residence in the State, extent of disease, previous admissions, and referral to vocational rehabilitation seemed to have little effect on adjustment.

Satisfactory adjustments were more frequent among those who lived in good environments in their own homes or apartments or in those of relatives or friends and with spouse or others. Bars to adjustment appeared to be lack of normal social experiences, isolation from human ties, unhygienic living situations, inadequate environment, limited income, and leaving the hospital against medical advice.

More women than men adjusted satisfactorily. The women had more education, 21 of the 26 were married or widowed, and nearly all lived with spouses or relatives, the majority in good environments. The men's adjustment was progressively poorer in all areas the lower their occupations were on the occupational scale; 28 of the 40 men in the study group were slightly skilled or laborers.

Of the study group, 50 percent of the men and 12 percent of the women were classified as chronic drinkers. Use of alcohol appeared related to irregular discharge, 61 percent of the alcoholics having left this way. They lived in

less favorable surroundings than nonalcoholics; more than half lived alone in rooming houses and in poor environments located in commercial areas. Most of them were laborers.

The most recent hospitalization of the 66 patients, based on cost per hospital day, amounted to $222,336.16. The total for their hospital care, including the cost of known previous admissions, was $316,660.32, or $4,797 per patient, an expenditure that will probably grow as those who are alcoholic relapse and expose others. The last hospitalization period of those with irregular discharges cost $45,642.40. Public welfare grants to 42 members of the study group amounted to approximately $21,855.

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PHS Appointments

Dr. David E. Price, former deputy director of the National Institutes of Health, succeeded Dr. John D. Porterfield as Deputy Surgeon General of the Public Health Service on July 1, 1962. Dr. Porterfield has accepted an appointment as coordinator of medical and health affairs at the University of California.

Dr. Stuart M. Sessoms succeeded Dr. Price as deputy director of the National Institutes of Health on August 1, 1962. Dr. Sessoms was formerly associate director for collaborative research in the National Cancer Institute.