

**Utilization of Short-Stay Hospitals
by Persons Discharged
With Alcohol-Related Diagnoses
United States, 1976**

Statistics are presented on the utilization of non-Federal short-stay hospitals by persons discharged with alcohol-related diagnoses. The alcohol-related data are shown according to age, sex, race, length of stay, marital status, and discharge status of the inpatient, as well as the bed size, geographical division, and ownership of the hospital.

DHHS Publication No. (PHS) 80-1798

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Office of Health Research, Statistics, and Technology
National Center for Health Statistics
Hyattsville, Md. May 1980



Library of Congress Cataloging in Publication Data

Sanchez, Marcus J.

Utilization of short-stay hospitals by persons discharged with alcohol-related diagnoses: United States, 1976.

(Vital and health statistics: Series 13, Data from the National Health Survey; no. 47)
(DHHS publication; no. (PHS) 80-1798)

Supt. of Docs. no.: HE 20.6209:13/47

1. Alcoholism—United States—Statistics. 2. Psychiatric hospitals—United States—Utilization—Statistics. 3. United States—Statistics, Medical. I. Moien, Mary, joint author. II. Title. III. Series: United States. National Center for Health Statistics. Vital and health statistics: Series 13, Data from the National Health Survey, Data from the hospital discharge survey; no. 47. IV. Series: United States. Dept. of Health and Human Services. DHHS publication; no. (PHS) 80-1798. [DNLM: 1. Alcoholism—United States—Statistics. 2. Alcoholism—Complications—United States—Statistics. 3. Hospitals—Utilization—United States—Statistics. W2 A N148vm no. 47]

RA407.3.A349

no. 47

[RC565]

362.1'1'0973s

ISBN 0-8406-0187-5

362.2'928

80-607159

NATIONAL CENTER FOR HEALTH STATISTICS

DOROTHY P. RICE, *Director*

ROBERT A. ISRAEL, *Deputy Director*

JACOB J. FELDMAN, Ph.D., *Associate Director for Analysis*

GAIL F. FISHER, Ph.D., *Associate Director for the Cooperative Health Statistics System*

ROBERT A. ISRAEL, *Acting Associate Director for Data Systems*

ALVAN O. ZARATE, Ph.D., *Acting Associate Director for International Statistics*

ROBERT C. HUBER, *Associate Director for Management*

MONROE G. SIRKEN, Ph.D., *Associate Director for Mathematical Statistics*

PETER L. HURLEY, *Associate Director for Operations*

JAMES M. ROBEY, Ph.D., *Associate Director for Program Development*

GEORGE A. SCHNACK, *Acting Associate Director for Research*

ALICE HAYWOOD, *Information Officer*

OFFICE OF STATISTICAL RESEARCH

GEORGE A. SCHNACK, *Acting Associate Director for Research*

DWIGHT B. BROCK, Ph.D., *Acting Chief, Statistical Research Branch*

ROY E. HEATWOLE, *Acting Chief, Research Technology Branch*

ROSALIE A. DUNN, Ph.D., *Acting Chief, Epidemiology Branch*

DIVISION OF HEALTH RESOURCES UTILIZATION STATISTICS

W. EDWARD BACON, Ph.D., *Acting Director*

W. EDWARD BACON, Ph.D., *Acting Chief, Hospital Care Statistics Branch*

JAMES E. DeLOZIER, *Chief, Ambulatory Care Statistics Branch*

MANOOCH EHR K. NOZARY, *Chief, Technical Services Branch*

JOAN F. VAN NOSTRAND, *Chief, Long-Term Care Statistics Branch*

STEWART C. RICE, *Chief, Family Planning Statistics Branch*

COOPERATION OF THE U.S. BUREAU OF THE CENSUS

Under the legislation establishing the National Health Survey, the Public Health Service is authorized to use, insofar as possible, the services or facilities of other Federal, State, or private agencies.

In accordance with specifications established by the National Center for Health Statistics, the Bureau of the Census, under a contractual arrangement, participated in planning the survey and collecting the data.

Vital and Health Statistics-Series 13-No. 47

DHHS Publication No. (PHS) 80-1798
Library of Congress Catalog Card Number 80-607159

CONTENTS

Introduction	1
Background	1
Alcohol Discharge Rate	1
The Sample	2
Limitations of Data	2
Selected Findings	2
Age	2
Sex	5
Color	5
Direct Age-Adjusted Rate	6
Census Division	6
Discharge Status	7
Marital Status	8
Bed Size	10
Type of Ownership	11
Highlights	12
List of Detailed Tables	13
Appendixes	27
I. Technical Notes on Methods	28
II. Definitions of Certain Terms Used in This Report	33

LIST OF TEXT FIGURES

1. Alcohol Discharge Rate by age: United States, 1976.....	3
2. Alcohol Discharge Rate for females, excluding obstetrical conditions, by age: United States, 1976	4
3. Alcohol Discharge Rate for white persons, by age: United States, 1976.....	4
4. Alcohol Discharge Rate for other than white females, by age: United States, 1976.....	4
5. Alcohol Discharge Rate by sex and color: United States, 1976.....	5
6. Alcohol Discharge Rate by sex and age: United States, 1976.....	5
7. Alcohol Discharge Rate by color and sex: United States, 1976.....	6
8. Alcohol Discharge Rate by color and age: United States, 1976.....	6
9. Alcohol Discharge Rate by census division: United States, 1976.....	7
10. Alcohol Discharge Rate by sex and discharge status: United States, 1976.....	8
11. Alcohol Discharge Rate by marital status: United States, 1976.....	9

12. Alcohol Discharge Rate by sex and marital status: United States, 1976.....	9
13. Alcohol Discharge Rate by sex and bed size of hospital: United States, 1976.....	10
14. Alcohol Discharge Rate for white persons by sex and bed size of hospital: United States, 1976.....	11
15. Alcohol Discharge Rate by sex and hospital ownership: United States, 1976.....	11
16. Alcohol Discharge Rate for white persons by sex and hospital ownership: United States, 1976.....	12

SYMBOLS

Data not available-----	---
Category not applicable-----	...
Quantity zero-----	-
Quantity more than 0 but less than 0.05-----	0.0
Figure does not meet standards of reliability or precision-----	*

UTILIZATION OF SHORT-STAY HOSPITALS BY PERSONS DISCHARGED WITH ALCOHOL-RELATED DIAGNOSES

Marcus Sanchez, Office of Statistical Research, and Mary Moien, Division of Health Resources
Utilization Statistics

INTRODUCTION

This report presents statistics for 1976 on the utilization of short-stay hospitals by persons discharged with alcohol-related diagnoses. Detailed tables 1-21 and figures 1-16 show numbers, rates, and standard errors of alcohol-related discharges according to selected characteristics of the discharged inpatients and the attributes of the hospitals in which patients received treatment. Patient characteristics are age, sex, race, length of stay, marital status, and discharge status. The hospital characteristics are bed size, census division, and ownership. Data for newborn infants are excluded from this report.

Background

The primary responsibility of the National Center for Health Statistics is the development and maintenance of survey mechanisms that provide accurate and comprehensive information on matters of health, health resources, vital events, and related matters. To satisfy the health community's need for inpatient data from short-stay hospitals, the National Center for Health Statistics (NCHS) conducts the National Hospital Discharge Survey.

Information from the medical records of inpatients discharged from a sample of hospitals in the United States is collected for the National Hospital Discharge Survey. Hospitals in this Survey are short-stay, special and general hospitals having at least six beds for inpatient use and an

average length of stay of less than 30 days. Federal hospitals and hospital units of institutions are not included in the survey. At least one, but not more than five, final diagnoses are coded for each medical record surveyed. The form used to abstract information from medical records is displayed in appendix I, and the collection and processing procedures are detailed there, too.

Alcohol Discharge Rate

In this report, an alcoholic discharge or an alcohol-related discharge is a discharge that has at least one of the following diseases (and codes) that are assigned as a final diagnosis according to the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States*.^a Certain modifications to these classifications are made for the National Hospital Discharge Survey.

Alcoholic psychosis

Delirium tremens, 291.0

Korsakov's psychosis (alcoholic), 291.1

Other alcoholic hallucinosis, 291.2

Alcoholic paranoia, 291.3

Other and unspecified, 291.9

Cirrhosis of the liver (alcoholic), 571.0

^aNational Center for Health Statistics: *Eighth Revision International Classification of Diseases, Adapted for Use in the United States*. PHS Pub. No. 1693. Public Health Service. Washington. U.S. Government Printing Office, 1967.

Alcoholism

Episodic excessive drinking, 303.0

Habitual excessive drinking, 303.1

Alcoholic addiction, 303.2

Other and unspecified alcoholism, 303.9

Toxic effect of ethyl alcohol, 980.0

Acute pancreatitis, 577.0

Chronic pancreatitis, 577.1

The principal measure of alcohol morbidity or alcoholism used in this report is the Alcohol Discharge Rate (ADR). For a given hospital sub-population or category, the ADR is the number of alcohol-related discharges divided by the total number of discharges multiplied by 100,000. The ADR may be expressed as:

$$\text{ADR} = \frac{\text{number of alcohol-related discharges in category} \times 100,000}{\text{total discharges in category}}$$

An example may be useful. Suppose one has a category of 3,825,298 other-than-white discharged patients, of whom 156,799 are discharged for alcohol-related conditions. Then, the computation for ADR is:

$$\text{ADR} = \frac{156,799 \times 100,000}{3,825,298} = 4,099$$

The Sample

The National Hospital Discharge Survey (NHDS) utilizes a two-stage, stratified, probability sample design. In the first stage, a sample of short-stay non-Federal hospitals that mainly serve the civilian noninstitutionalized population was chosen from the NCHS Master Facility Inventory, a national survey of all inpatient health facilities, i.e., hospital, nursing homes, and other facilities. The hospitals are selected from a universe stratified by geographic area, size of hospital, and ownership of hospital. For the 1976 survey, 511 hospitals formed the NHDS sample. In the second stage, discharges are systematically sampled from the sample hospitals. Approximately 223,000 discharges were processed in

1976. A more complete description of the NHDS sample design is contained in appendix I.

Limitations of Data

Several limiting factors should be considered when using the data contained in this report. The target population does not include persons discharged from Federal hospitals, hospital units of institutions, hospitals with less than six beds for inpatient use, nor hospitals with an average length of stay in excess of 29 days. Thus, a portion of the U.S. population that may contain a high degree of alcoholic morbidity is not represented in this report. Also, this report presents statistics on discharges, not individual persons. During 1976, some persons may have had more than one hospital episode.

Another consideration is that these data are based on a sample of the target population; therefore, the estimates are subject to sampling error. In this report, sampling error has been taken into account by the use of statistical tests of significance, as specified in appendix I.

Finally, one must exercise caution when interpreting hospital utilization data classified by the color of the discharged patient. In this report, alcohol utilization data are grouped into three color categories: white, all other, and not stated. The estimated number of alcohol-related discharges in which color was not stated represents a substantial portion of all alcohol-related discharges, approximately 14 percent. If the color classification for all discharges were known, the findings by color in this report could be materially altered.

SELECTED FINDINGS

Age

An estimated 884,600 inpatients (table 1), excluding newborn infants, were discharged with an alcohol-related diagnosis from non-Federal short-stay hospitals in 1976. Of those discharged with an alcohol-related diagnosis, the 45-64-year-old age group accounted for the largest proportion (approximately 44 percent); the under-15-years age group accounted for the smallest proportion (about 1 percent).

The Alcohol Discharge Rate (ADR) for all inpatients was 2,573 per 100,000 discharges (table 2). As measured by the ADR, alcoholism was related to age. The ADR increases with advancing age up to age 45. The ADR for persons under 15 years of age is significantly less than that for persons 15-24 years of age, and that for persons aged 25-34 is materially less than that for those 35-44 years of age. However, after age 44, the ADR decreases to the extent that persons 45-64 years of age have a significantly lower ADR than persons in the 35-44 age group, and persons 65 years or more of age have a significantly lower rate of alcohol-related discharges than those in the 45-64-year age group. The relationship between age and the ADR for both sexes is graphically illustrated in figure 1.

The relationship between age and the ADR for males was quite similar to that for persons of both sexes. As among persons of both sexes, the ADR increases with each successive age group up to age 45, and thereafter, decreases. For instance, the ADR for males under age 15 (247) is substantially less than that for males 35-44 years of age (10,302), and the rate for males 45-64 years of age (6,934) is materially greater than that for males aged 65 years and over (2,428) (figure 1).

Among females, the relationship between age and the ADR varies somewhat from that for both sexes. As among persons of both sexes, the ADR increases with each advancing age group up to age 45, but, unlike that for persons of both sexes, there is no statistically significant difference between the Alcohol Discharge Rate for females aged 35-44 and that for females aged 45-64 years. However, the ADR's for females aged 35-44 and 45-64 are substantially greater than that for females aged 65 years or more. The relationship between age and the ADR among females is pictorially displayed in figure 1.

If obstetrical conditions are excluded, the relationship between the ADR and age for females does not appear to change materially (table 5). As among females with all conditions, the ADR's for females, excluding obstetrical discharges (EOD), increase with advancing age up to age 45. The ADR-EOD for females under 15 years of age is substantially less than that for females 15-24 years of age, and the ADR-EOD for females 25-34 years of age is significantly less than that for females 35-44 years of age. There is no essential difference between the ADR-EOD for females aged 35-44 and that for females aged 45-64. Also, the ADR-EOD for females aged 45-64 is significantly greater than that for females

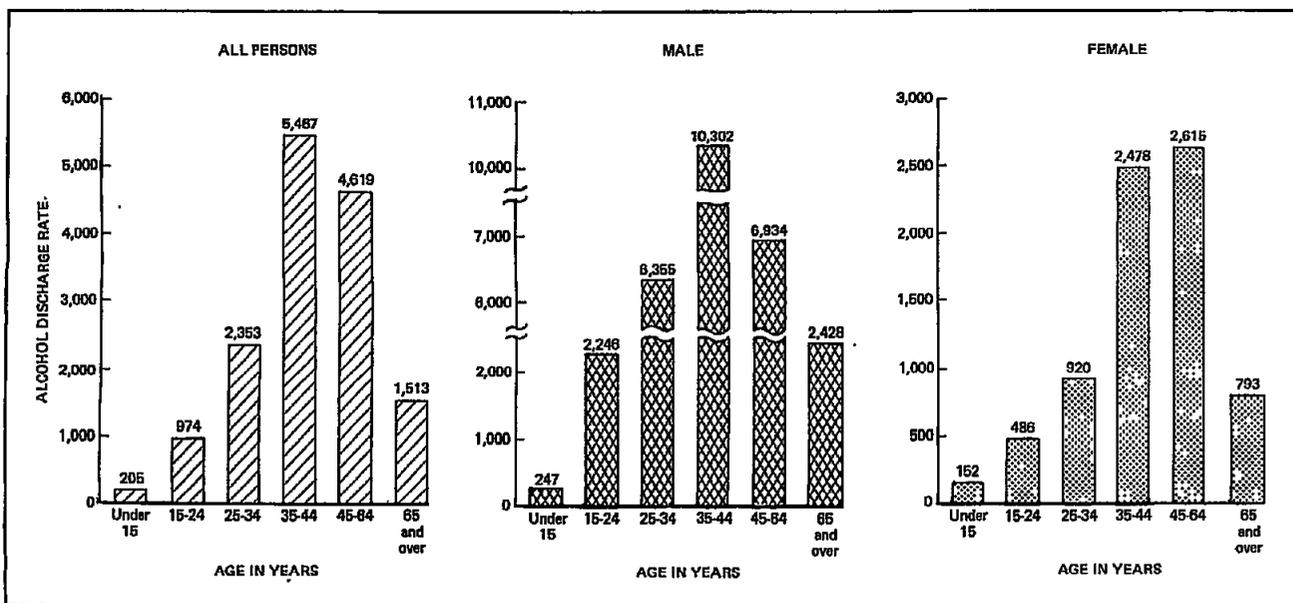


Figure 1. Alcohol Discharge Rates by age: United States, 1976

aged 65 years or more (figure 2). Thus, the exclusion of obstetrical discharges does not materially alter the relationship between age and the ADR for females.

The estimates in table 2 also show that the relationship between age and the ADR for white

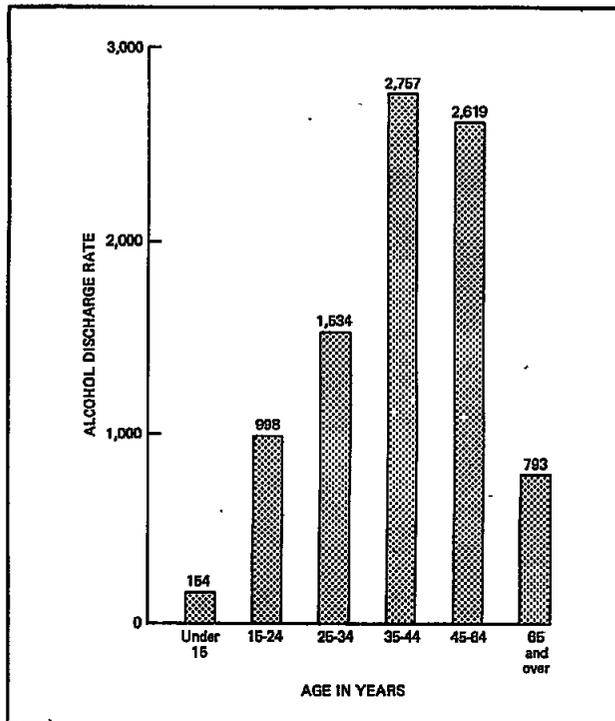


Figure 2. Alcohol Discharge Rate for females, excluding obstetrical conditions, by age: United States, 1976

persons is quite similar to that for persons of all races. As among persons of all races, the ADR for white persons increases with advancing age up to age 45; thereafter, the ADR decreases with advancing age (figure 3). With the exception that there is no significant difference between the ADR for white females aged 35-44 and that for white females aged 45-64, the ADR's for white females and for white males also increases with advancing age up to age 45, decreasing thereafter.

The association between the ADR and age for other than white males and females is similar to that found among their white counterparts. The Alcohol Discharge Rate among all other males and females generally increases with advancing age up to age 45; thereafter, the rate

tends to decrease with advancing age (figure 4 and table 2).

In summary, the relationship between age

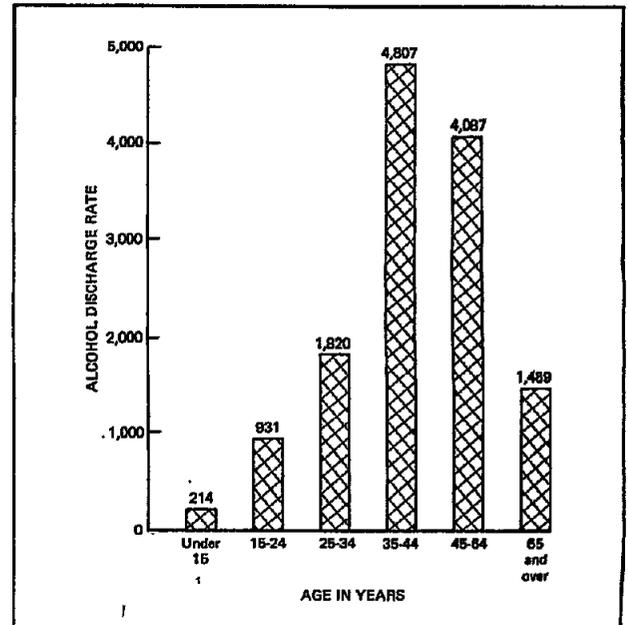


Figure 3. Alcohol Discharge Rate for white persons, by age: United States, 1976

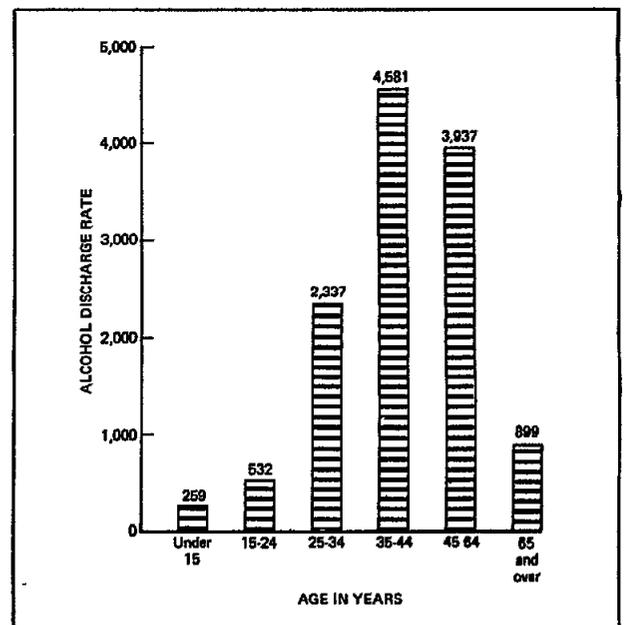


Figure 4. Alcohol Discharge Rate for other than white females, by age: United States, 1976

and the Alcohol Discharge Rate appears to be relatively consistent. Regardless of sex and color, the ADR generally increases with advancing age up to age 45, and decreases thereafter.

Sex

More males than females were discharged from short-stay hospitals with alcohol-related diagnoses, an estimated 620,000 males as opposed to an estimated 264,000 females. As measured by the Alcohol Discharge Rate (ADR), alcoholic morbidity appears to be more prevalent among males than females. The ADR for males is significantly greater than that for females, 4,512 per 100,000 discharges as opposed to 1,281 (figure 5). The same difference by sex prevailed in each of the given age categories, except for the under-15 age group (figure 6).

White males also had a substantially higher ADR than white females had, 4,014 compared with 1,156. Similarly, the ADR for other than white males (7,842) was materially higher than that for other than white females (1,971). The same trend by sex prevailed within each of the various age groups for both white and other than white persons except for white persons under age 15. Thus, regardless of age and color, males generally have a higher ADR than females have.

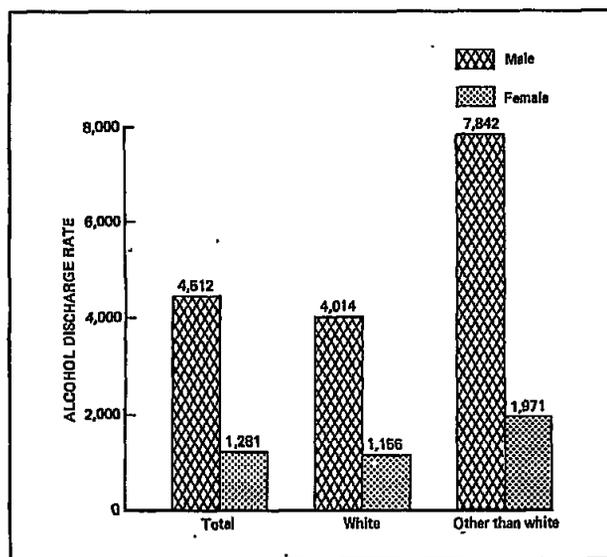


Figure 5. Alcohol Discharge Rate by sex and color: United States, 1976

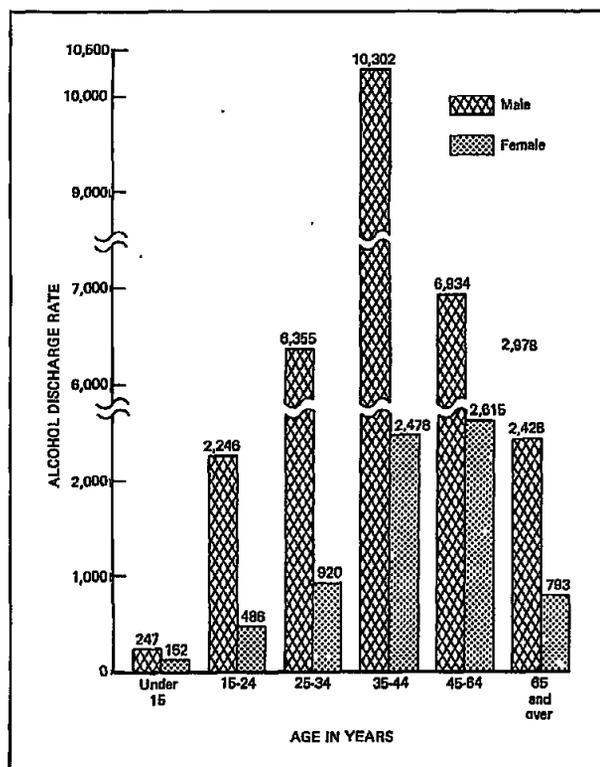


Figure 6. Alcohol Discharge Rate by sex and age: United States, 1976

Color

As indicated in figure 7, alcohol morbidity appears to be more prevalent among other than white persons than among white persons. The Alcohol Discharge Rate (ADR) for other than white persons (4,099) was significantly greater than that for white persons (2,314). Differences in the ADR of white persons and other than white persons were also found among persons of the same age group. Within the four older age groups, other than white persons consistently had higher ADR's than white persons had (figure 8).

In addition, both males and females in the other than white category had appreciably higher ADR's than white persons of the same sex had. For example, the ADR of white males was 4,014 as compared with 7,842 for other than white males. In general, the ADR for other than white persons is significantly higher than that for white persons, regardless of age or sex.

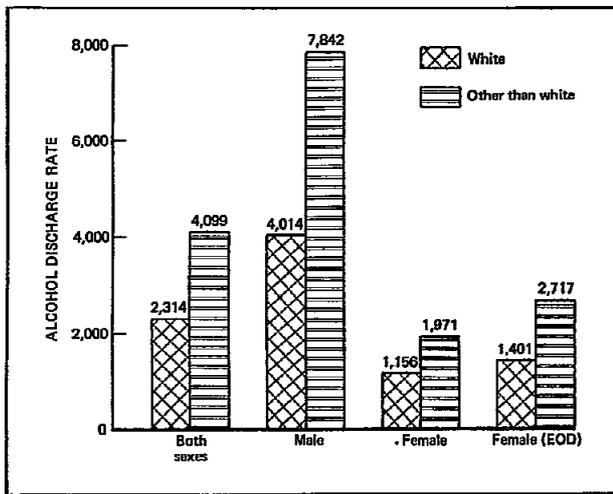


Figure 7. Alcohol Discharge Rate by color and sex: United States, 1976

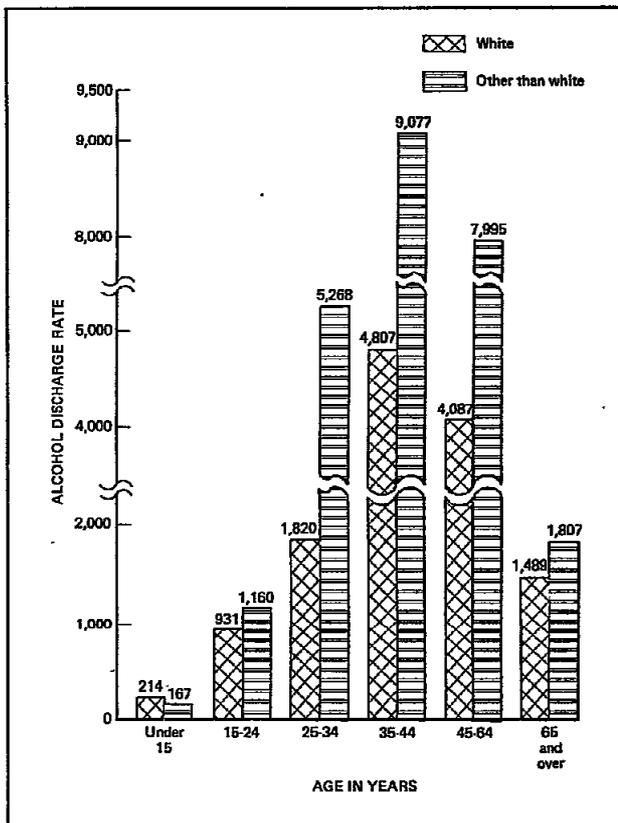


Figure 8. Alcohol Discharge Rate by color and age: United States, 1976

The Direct Age-Adjusted Rate

In order to control for age, the direct age-adjusted rate is used. A discussion of the calculation and utility of this rate is described in *Statistical Methods for Rates and Proportions*.^b Since the previous analysis indicates that age is related to the Alcohol Discharge Rate, a direct age adjustment was made in order to account for differences in the age distribution of each of the variables analyzed in the remainder of this report. Sampling variability for specific age groups was usually larger than for the total age group because of the smaller number of sample persons in each age group. Because the larger sampling variability of age-specific rates frequently masks the relationships that exist with respect to hospital subpopulation variables, the summary comparison of age-adjusted rates was used instead of rate age-specific comparisons.

Census Division

Table 7 shows the number and table 8 shows the rate of alcohol-related discharges from short-stay hospitals by census division, sex, and color. Alcoholism, as measured by the Alcohol Discharge Rate (ADR), varies according to census division. Persons in the New England division have the highest ADR (5,630); persons in East South Central (1,140) and West South Central divisions (1,248) have the lowest ADR's (figure 9). When age is taken into consideration by comparing the age-adjusted ADR's among the regions, the relationship between ADR and census division does not change substantially. That is, persons in New England had the highest age-adjusted ADR while persons in the East and West South Central divisions had the lowest age-adjusted ADR's.

The relationship between census division and ADR for males and females is similar to that for persons of both sexes. For example, females in the New England census division had the highest ADR (2,620), and females in the East South Central and West South Central divisions have the lowest ADR's (657 and 741, respectively). Also, with only one exception, the

^b Fleiss, J. L.: *Statistical Methods for Rates and Proportions*, New York. John Wiley & Sons, 1973.

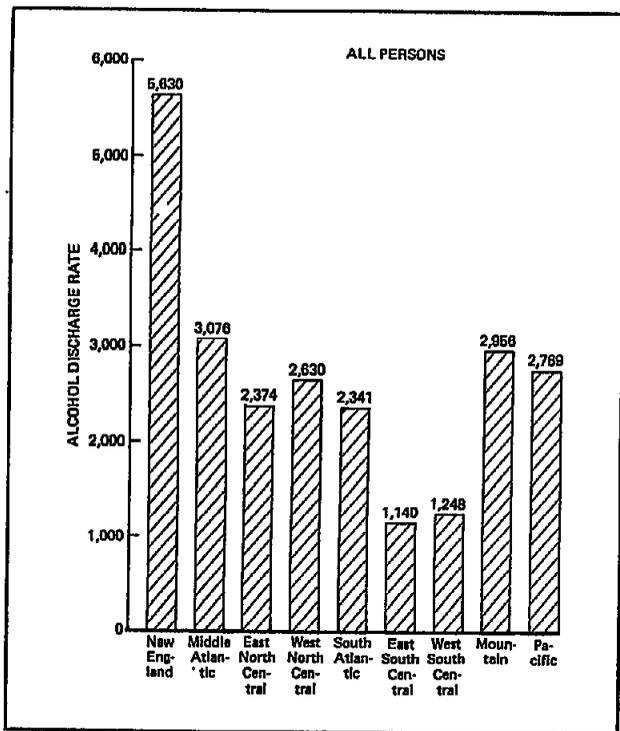


Figure 9. Alcohol Discharge Rate by census division: United States, 1976

ADR's among white males and females tends to be highest in the New England and lowest in the East and West South Central census divisions. The lone exception is that the ADR among white females in New England is not substantially greater than that for white females in the Pacific census division. When age is taken into consideration, the relationship between census division and the ADR for white males and females is not materially altered.

As among their white counterparts, other than white males and females with the lowest ADR's tend to reside in the West and East South Central census divisions. When age is taken into consideration, other than white males and females in the West South Central and East South Central divisions continue to have the lowest ADR's. With the exception of the Mountain and West North Central census divisions, other than white males residing in the Middle Atlantic census division appear to have the highest ADR regardless of age.

It is not clear which census division has the highest ADR among other than white females. For example, the ADR for other than white females in the Mountain census division was not significantly greater than that for other than white females in the Middle Atlantic, South Atlantic, West North Central, New England, and Pacific census divisions. When age is taken into consideration, the picture clears to some extent; with the exception of the Middle Atlantic, South Atlantic, and West North Central, other than white females in the Mountain census division have the highest ADR.

In summary, persons residing in the East and West South Central census divisions tend to have the lowest ADR's regardless of age, sex, or color. For white males and females, the highest ADR was recorded in New England. Because of large sampling variances, the census division with the highest ADR for other than white males and females was not readily apparent. Nevertheless, for other than white males, the ADR's tend to be highest for those residing in the Middle Atlantic census division, while that for other than white females tend to be highest in the Mountain census division.

Discharge Status

As shown in table 10, approximately 97 percent of the inpatients with an alcohol-related diagnosis (about 859,000) were discharged alive. The Alcohol Discharge Rate (ADR) was not related to the discharge status of all inpatients; the ADR of persons discharged alive was not essentially different from that of persons discharged dead. However, when age was taken into consideration, the ADR of those persons discharged dead was significantly greater than that of persons discharged alive.

After classifying the data by sex, we found that the ADR for males was greater among those discharged alive than among those discharged dead (figure 10 and table 11). But for females the relationship between ADR and discharge status was strikingly different. The ADR was significantly greater among females discharged dead than among those discharged alive. When age was taken into consideration, the relationship between ADR and discharge status for fe-

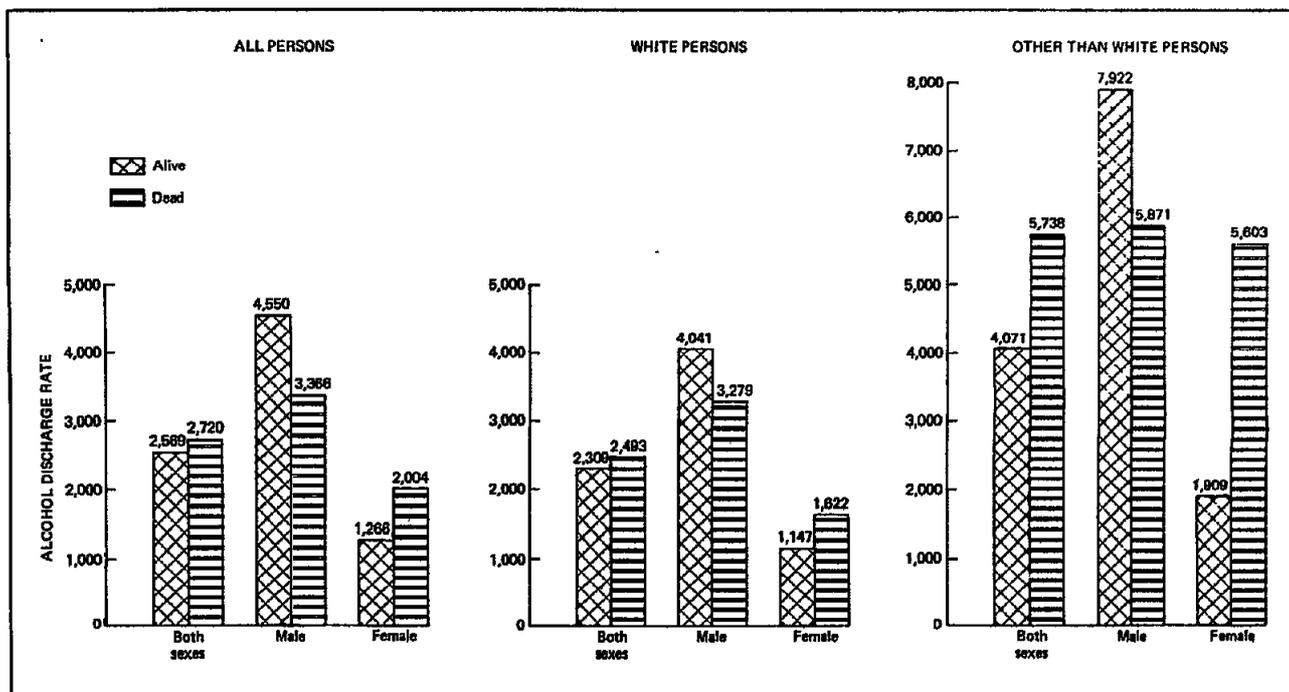


Figure 10. Alcohol Discharge Rate by sex and discharge status: United States, 1976

males did not change, but, for males, differences in ADR according to discharge status became insignificant. Thus, the difference in ADR according to discharge status for males may be attributed to difference in age.

When color differentials are taken into consideration, the relationship between ADR and discharge status does not appear to change. For both white and other than white males, the ADR of those discharged alive is materially greater than that for those discharged dead. Again, after the data are adjusted for age, differences in the ADR by discharge status become insignificant for white and other than white males. On the other hand, the ADR for females in both color categories remains substantially greater among those discharged dead than among those discharged alive, regardless of age (figure 10).

In summary, the ADR for females is consistently greater among those discharged dead than among those discharged alive regardless of color or age. The difference in ADR by discharge status among males, however, is accounted for by age differences, regardless of color.

Marital Status

Of persons discharged with an alcohol-related diagnosis, 44.8 percent were married, 21.9 percent were divorced or separated; 19.5 percent were single (never married), and 8.7 percent were widowed (table 13). As shown in table 14, significant differences in the Alcohol Discharge Rate (ADR) were found among marital status groups. Divorced or separated persons were most likely to be discharged with an alcohol-related diagnosis; the ADR among divorced or separated persons was 8,498. The ADR's among married (2,102) and widowed people (1,906) were significantly less than those of persons in the other marital categories (figure 11).

After the data were adjusted for age, the relationship between marital status and the ADR changed slightly. The ADR for married persons became substantially lower than that for all other marital categories, but separated and divorced people continued to suffer the highest ADR.

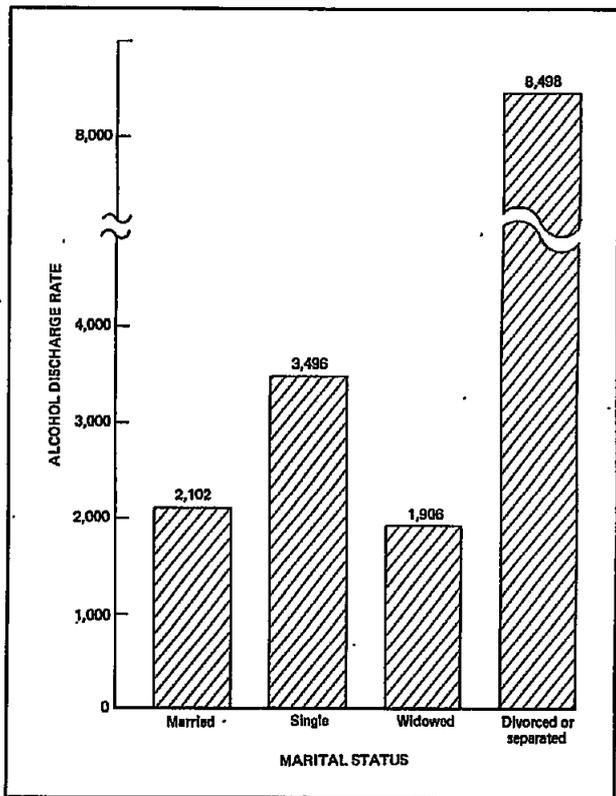


Figure 11. Alcohol Discharge Rate by marital status: United States, 1976

As among persons of both sexes, male and female married persons had a substantially lower ADR than their male and female counterparts in the other marital groups had. Also, the ADR for both male and female divorced-separated persons was materially higher than that of males and females in the other marital categories (figure 12). When age was taken into consideration, the relationship between marital status and the ADR for male and female persons was not materially altered.

The relationship between marital status and the ADR for both male and female white persons was similar to that for all patients. Among white males, for instance, those married had the lowest ADR (3,311) and those divorced or separated had the highest ADR (17,483) (figure 12). After controlling for age, the relationship between marital status and the ADR for white males and females was not materially altered.

As among white males and females, males and females of all other colors with the highest ADR tend to be divorced or separated (figure 12). For example, other than white males who are divorced or separated had a substantially higher ADR (21,226) than other than white males in each of the other marital groups. It is not clear which marital group enjoys the

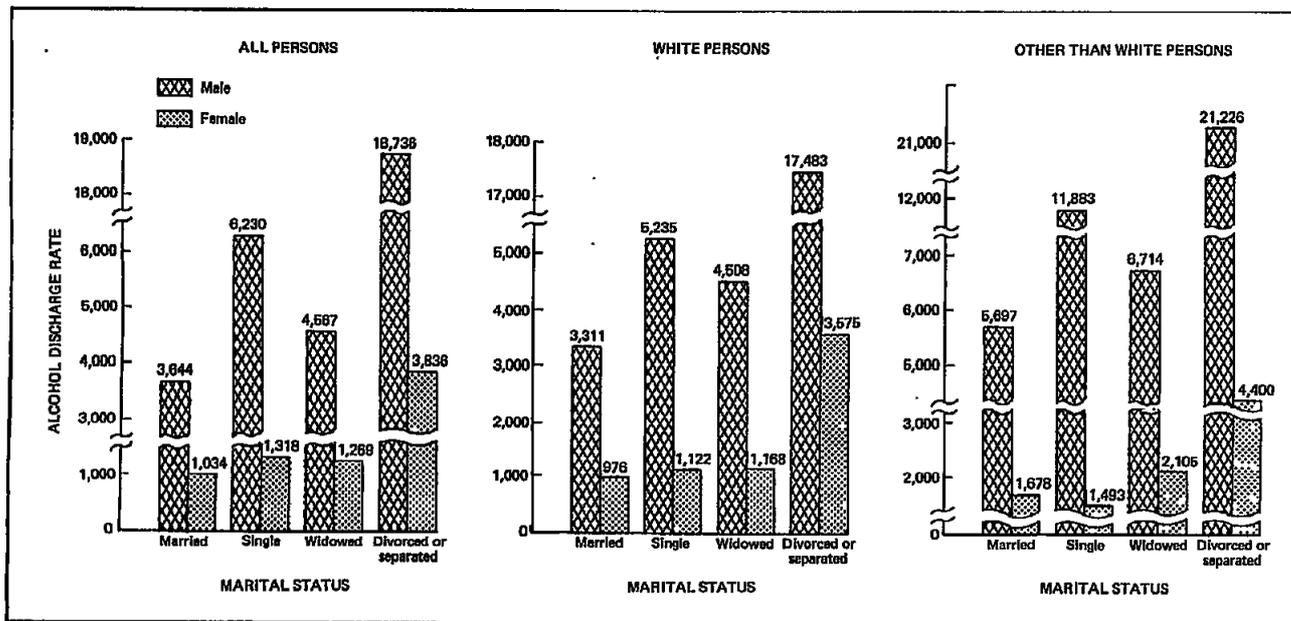


Figure 12. Alcohol Discharge Rate by sex and marital status: United States, 1976

lowest ADR among other than white males and females because of relatively large sampling error. However, when the data are age adjusted, married males and females emerge as the marital groups with the lowest ADR among other than white persons.

In general, we may conclude that separated-divorced persons tend to have the highest ADR while married persons usually enjoy the lowest ADR, regardless of age, sex, or color.

Bed Size

The number of inpatients discharged with an alcohol-related diagnosis according to bed size of hospital, sex, and color is shown in table 16. The largest proportions of inpatients discharged with an alcohol-related diagnosis were discharged from hospitals in the 6-99 and the 300-499 bed-size categories (26.4 percent and 25.6 percent, respectively). The smallest proportion (11.2 percent) of inpatients with an alcohol-related diagnosis were discharged from hospitals in the 200-299 bed-size category.

Inpatients discharged from hospitals in the 6-99 bed-size category tend to have the highest Alcohol Discharge Rate (ADR) (3,535). The lowest ADR (1,844) was found among inpatients discharged from hospitals in the 200-299 bed-size group (table 17 and figure 13). After age was taken into consideration, the relationship remained essentially the same. That is, persons discharged from hospitals in the 6-99 bed-size group had the highest ADR while those discharged from hospitals in the 200-299 bed-size group had the lowest ADR.

As among inpatients of both sexes, male inpatients discharged from hospitals in the 6-99 bed-size category generally have the highest ADR (6,629), while the lowest ADR for male inpatients (3,175) was found among those discharged from hospitals in the 200-299 bed-size category. After age was taken into account, the ADR for males remained unaltered.

The lowest ADR for female inpatients was recorded by those discharged from hospitals in the 200-299 bed-size category (956). However, we are unable to determine which bed-size group has the highest ADR among female inpatients as the ADR of the 6-99 bed-size category is not significantly greater than that of the 100-199, 300-

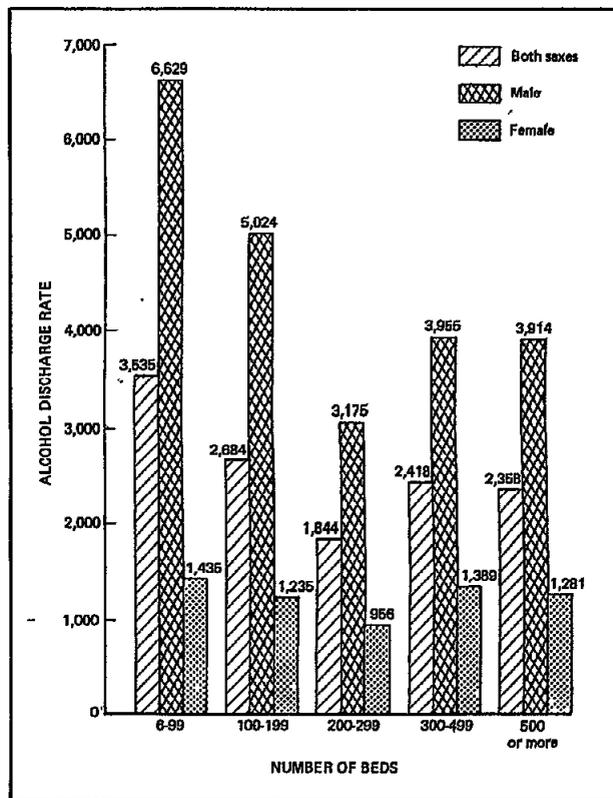


Figure 13. Alcohol Discharge Rate by sex and bed size of hospital: United States, 1976

499 or 500 and over bed-size categories. Again, when age is taken into account, the relationship between ADR and bed size among females is not altered.

Among white males, inpatients discharged from hospitals in the 6-99 bed-size group usually have the highest ADR (5,781). But we are unable to determine which bed-size category has the lowest ADR among white males as there is no essential difference among the three groups of hospitals with the largest number of beds (figure 14). When age is taken into consideration, the association between ADR and bed size for white males remains the same. For white and other than white females, the picture is less clear as we are unable to determine which bed-size category has the highest or lowest ADR.

For other than white males, inpatients discharged from hospitals in the 200-299 bed-size category had the lowest ADR (4,567); however, we are unable to determine which bed-size category had the highest ADR among other than

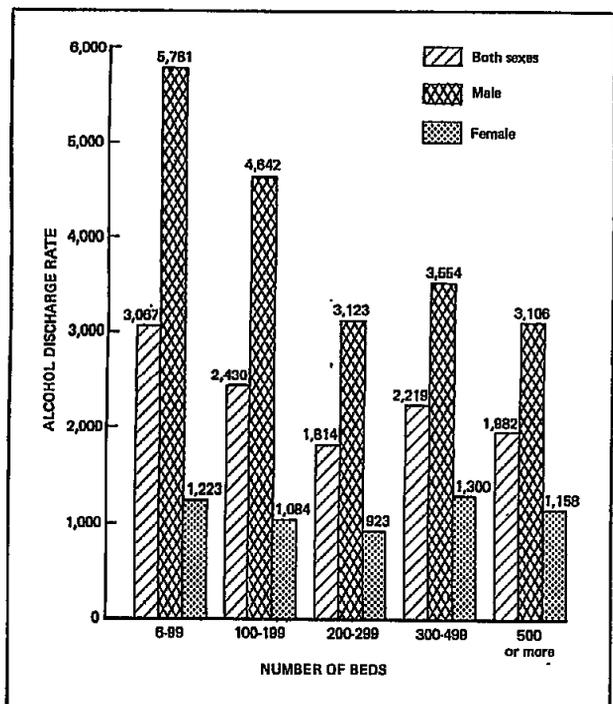


Figure 14. Alcohol Discharge Rate for white persons by sex and bed size of hospital: United States, 1976

white males. After age was taken into account, the relationship between ADR and hospital bed size for other than white males did not change.

In summary, inpatients discharged from hospitals in the 6-99 bed-size group usually have the highest ADR while inpatients discharged from hospitals in the 200-299 bed-size group generally have the lowest ADR. However, when race and sex are taken into consideration, the relationship between bed size and ADR becomes less clear.

Type of Ownership

Ownership refers to the organization that controls and operates a hospital. Of those inpatients discharged with an alcohol-related diagnosis, nonprofit hospitals (operated by churches or other nonprofit organizations) cared for approximately 570,000, or 64.4 percent; government (State or local) hospitals cared for about 203,000, or 22.9 percent; and proprietary hospitals cared for about 112,000 or 12.6 percent (table 19).

The Alcohol Discharge Rate (ADR) varied significantly according to type of ownership (table

20). The ADR for all patients was substantially higher among those discharged from proprietary hospitals (4,114) than among those discharged from government (2,915) or nonprofit hospitals (2,308) (figure 15). When age and sex are taken into consideration, the relationship between ADR and type of ownership tends to remain unchanged. That is, the ADR for males and females is usually higher for those discharged from proprietary hospitals and lower among those discharged from nonprofit hospitals, regardless of age.

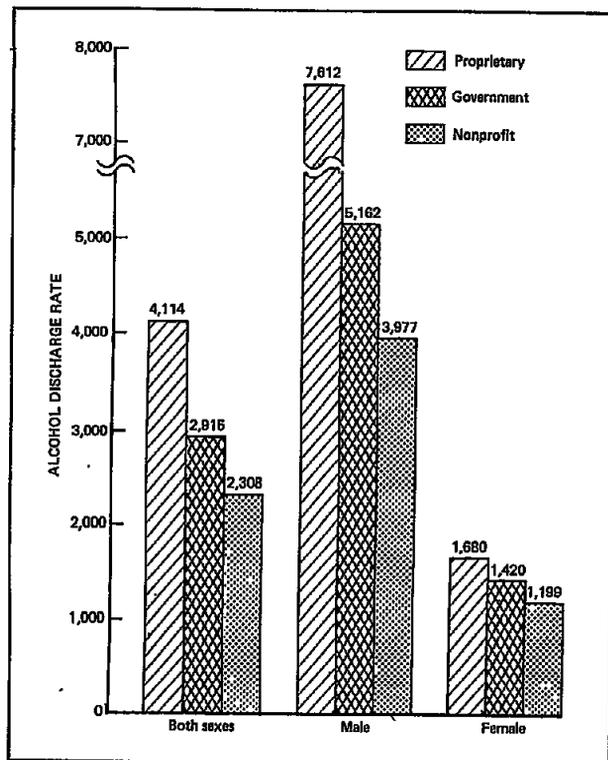


Figure 15. Alcohol Discharge Rate by sex and hospital ownership: United States, 1976

The association of ADR and type of ownership for white males was similar to that for all patients. As among all patients, the ADR for white males was highest among those cared for in proprietary hospitals (5,608) and lowest among those cared for in nonprofit hospitals (3,661) regardless of age (figure 16).

On the other hand, the ADR for white females did not vary significantly according to

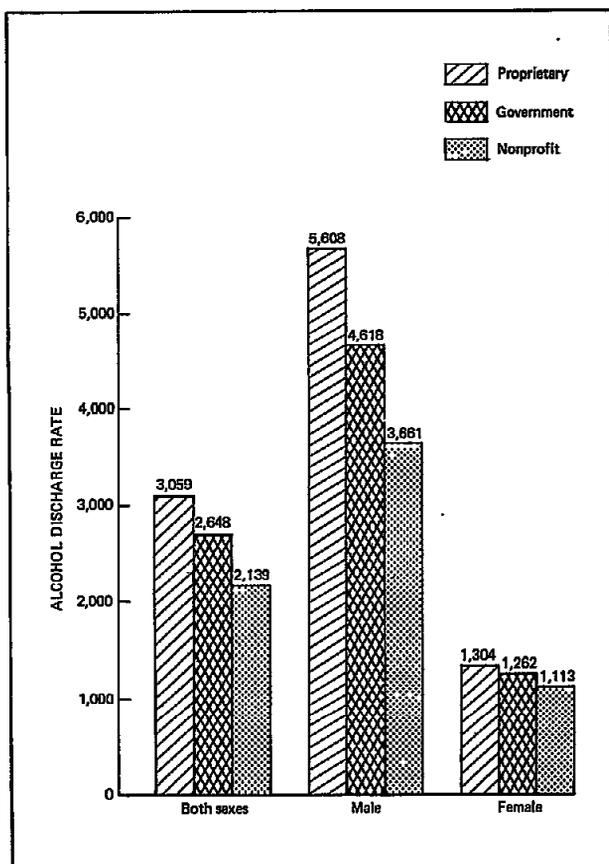


Figure 16. Alcohol Discharge Rate for white persons by sex and hospital ownership: United States, 1976

type of ownership. Similarly, no essential differences in the ADR for other than white persons were found among the ownership categories, regardless of age or sex.

Therefore, the ADR tends to be highest among the persons cared for in proprietary hospitals and lowest among those cared for in nonprofit hospitals, regardless of age or sex. However, after color was taken into consideration, the ADR of white females and other than white persons of both sexes did not vary significantly according to type of ownership.

HIGHLIGHTS

Alcohol morbidity, as measured by the Alcohol Discharge Rate (ADR), is related to the age,

sex, color, marital status, and discharge status of the discharged patient. In addition, the bed size, census division, and ownership of the non-Federal short-term hospital in which the inpatient receives treatment are also related to the ADR.

The ADR generally increased with advancing age up to age 45; thereafter, the ADR decreased with advancing age. The ADR was higher among males than females, and lower among white than among other than white persons. In general, separated or divorced persons tend to have the highest ADRs while married persons usually enjoy the lowest ADRs, regardless of age, sex, or color. The ADR for females was consistently higher among those discharged dead than among those discharged alive, regardless of color or age. But the difference in ADR by discharge status among male persons was accounted for by age differences.

Inpatients discharged from hospitals in the 6-99 bed-size group usually have the highest ADR while inpatients discharged from hospitals in the 200-299 bed-size group generally have the lowest ADR. When color and sex are taken into consideration, the relationship between ADR and bed size becomes less clear. As for ownership of hospital, the ADR tended to be highest among the persons cared for in proprietary hospitals and lowest among those cared for in nonprofit hospitals, regardless of age or sex. After race was taken into consideration, the ADR of white females and other than white persons of both sexes did not vary significantly according to type of ownership.

With regard to geographic area, persons in hospitals in the East South Central and West South Central census divisions tend to have the lowest ADR's, regardless of age, sex, or color. For white males and females, the highest ADR was recorded in New England. Because of large sampling variances, the census division with the highest ADR for other than white males and females was not readily apparent. Nevertheless, for other than white males, the ADR tended to be highest for those residing in the Middle Atlantic census division, while that for other than white females tended to be highest in the Mountain census division.

LIST OF DETAILED TABLES

1. Number of inpatients with alcohol-related discharges from short-stay hospitals, by color, sex, and age: United States, 1976....	14
2. Alcohol Discharge Rate from short-stay hospitals, by color, sex, and age: United States, 1976.....	15
3. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by color, sex, and age: United States, 1976.....	16
4. Number of female inpatients with alcohol-related discharges from short-stay hospitals, excluding obstetrical diagnoses, by age and color: United States, 1976.....	16
5. Alcohol Discharge Rate from short-stay hospitals for female inpatients, excluding obstetrical diagnoses, by age and color: United States, 1976.....	17
6. Standard error of the Alcohol Discharge Rate from short-stay hospitals for female inpatients, excluding obstetrical diagnoses, by age and color: United States, 1976.....	17
7. Number of inpatients with alcohol-related discharges from short-stay hospitals, by census division, sex, and color: United States, 1976.....	18
8. Alcohol Discharge Rate from short-stay hospitals, by census division, sex, and color: United States, 1976.....	18
9. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by census region, sex, and color: United States, 1976	19
10. Number of inpatients with alcohol-related discharges from short-stay hospitals, by discharge status, sex, and color: United States, 1976.....	20
11. Alcohol Discharge Rate from short-stay hospitals, by discharge status, sex, and color: United States, 1976.....	20
12. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by discharge status, sex, and color: United States, 1976	21
13. Number of inpatients, aged 15 years and over, with alcohol-related discharges from short-stay hospitals, by marital status, sex, and color: United States, 1976.....	22
14. Alcohol Discharge Rate from short-stay hospitals for inpatients aged 15 years and over, by marital status, sex, and color: United States, 1976.....	23
15. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by marital status, sex, and color: United States, 1976	23
16. Number of inpatients with alcohol-related discharges, by bed size, sex, and color: United States, 1976.....	24
17. Alcohol Discharge Rate from short-stay hospitals, by bed size, sex, and color: United States, 1976.....	24
18. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by bed size, sex, and color: United States, 1976.....	25
19. Number of inpatients with alcohol-related discharges, by ownership of hospital, sex, and color: United States, 1976.....	25
20. Alcohol Discharge Rate from short-stay hospitals, by ownership of hospital, sex, and color: United States, 1976.....	26
21. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by ownership of hospital, sex, and color: United States, 1976.....	26

Table 1. Number of inpatients with alcohol-related discharges from short-stay hospitals, by color, sex, and age: United States, 1976

Sex and age	Total	White	All other	Not stated
Both sexes				
Number in thousands				
All ages.....	885	605	157	123
Under 15 years.....	8	6	1	1
15-44 years.....	367	230	90	46
15-24 years.....	54	36	10	7
25-34 years.....	124	70	39	15
35-44 years.....	189	124	41	24
45-64 years.....	390	274	56	60
65 years and over.....	120	95	10	15
Males				
All ages.....	620	425	109	86
Under 15 years.....	5	4	0	1
15-44 years.....	259	167	60	31
15-24 years.....	35	25	6	3
25-34 years.....	88	51	26	10
35-44 years.....	136	91	27	18
45-64 years.....	272	188	41	43
65 years and over.....	85	66	7	11
Females				
All ages.....	264	1,780	48	36
Under 15 years.....	2	2	1	0
15-44 years.....	108	63	30	15
15-24 years.....	19	12	4	4
25-34 years.....	36	19	13	4
35-44 years.....	53	33	14	7
45-64 years.....	118	36	15	17
65 years and over.....	35	29	3	4

NOTE: Numbers may not add to totals due to rounding.

Table 2. Alcohol Discharge Rate from short-stay hospitals, by color, sex, and age: United States, 1976

Sex and age	Total	White	All other	Not stated
Both sexes				
Rate per 100,000 discharges				
All ages.....	2,573	2,314	4,099	2,792
Under 15 years.....	205	214	167	192
15-44 years.....	2,573	2,229	4,354	2,493
15-24 years.....	974	931	1,160	980
25-34 years.....	2,353	1,820	5,268	2,172
35-44 years.....	5,467	4,807	9,077	5,632
45-64 years.....	4,619	4,087	7,995	5,786
65 years and over.....	1,513	1,489	1,807	1,503
Males				
All ages.....	4,512	4,014	7,842	4,881
Under 15 years.....	247	273	95	256
15-44 years.....	6,097	5,278	11,492	5,669
15-24 years.....	2,246	2,155	3,736	1,538
25-34 years.....	6,355	5,061	13,442	5,916
35-44 years.....	10,302	9,069	17,632	10,901
45-64 years.....	6,934	6,034	12,701	8,886
65 years and over.....	2,428	2,381	2,845	2,481
Females				
All ages.....	1,281	1,156	1,971	1,379
Under 15 years.....	152	139	259	109
15-44 years.....	1,079	880	1,941	1,145
15-24 years.....	486	422	532	754
25-34 years.....	920	657	2,337	861
35-44 years.....	2,478	2,086	4,581	2,452
45-64 years.....	2,615	2,402	3,937	3,102
65 years and over.....	793	803	899	671

Table 3. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by color, sex, and age: United States, 1976

Sex and age	Total	White	All other	Not stated
Both sexes				
All ages.....	126.78	102.86	253.19	379.57
Under 15 years.....	32.45	34.83	88.77	117.96
15-44 years.....	150.79	129.14	301.80	389.35
15-24 years.....	57.70	66.42	131.16	164.00
25-34 years.....	157.55	131.02	465.20	357.73
35-44 years.....	371.95	319.56	682.65	1,042.57
45-64 years.....	263.40	196.31	554.23	889.09
65 years and over.....	61.22	69.73	176.00	158.12
Males				
All ages.....	257.07	201.37	534.45	745.87
Under 15 years.....	46.67	55.11	69.31	147.02
15-44 years.....	412.56	346.82	979.30	961.96
15-24 years.....	158.86	172.49	541.72	396.36
25-34 years.....	493.52	431.26	1,434.17	1,046.49
35-44 years.....	748.01	634.31	1,578.60	2,055.37
45-64 years.....	465.02	333.17	916.98	1,890.23
65 years and over.....	110.21	122.11	303.35	301.27
Females				
All ages.....	55.16	54.97	137.20	155.98
Under 15 years.....	42.24	39.78	188.49	118.04
15-44 years.....	57.09	51.94	141.93	176.28
15-24 years.....	40.78	44.82	86.14	149.56
25-34 years.....	64.16	52.46	247.24	166.86
35-44 years.....	192.61	196.15	455.30	503.56
45-64 years.....	138.35	140.63	413.43	389.47
65 years and over.....	58.64	64.03	220.71	126.75

Table 4. Number of female inpatients with alcohol-related discharges from short-stay hospitals, excluding obstetrical diagnoses, by age and color: United States, 1976

Age	Total	White	All other	Not stated
Number in thousands				
All ages.....	262	179	46	36
Under 15 years.....	2	2	1	0
15-44 years.....	106	63	29	15
15-24 years.....	19	12	4	4
25-34 years.....	34	18	11	4
35-44 years.....	53	33	14	7
45-64 years.....	118	86	15	17
65 years and over.....	35	29	3	4

NOTE: Numbers may not add to totals due to rounding.

Table 5. Alcohol Discharge Rate from short-stay hospitals for female inpatients, excluding obstetrical diagnoses, by age and color: United States, 1976

Age	Total	White	All other	Not stated
	Rate per 100,000 discharges			
All ages.....	1,579	1,401	2,717	1,742
Under 15 years.....	154	140	276	110
15-44 years.....	1,759	1,413	3,400	1,957
15-24 years.....	998	826	1,393	1,533
25-34 years.....	1,534	1,136	3,566	1,850
35-44 years.....	2,757	2,302	5,321	2,731
45-64 years.....	2,619	2,406	3,955	3,110
65 years and over.....	793	803	899	671

Table 6. Standard error of the Alcohol Discharge Rate from short-stay hospitals for female inpatients, excluding obstetrical diagnoses, by age and color: United States, 1976

Age	Total	White	All other	Not stated
	Rate per 100,000 discharges			
All ages.....	68.82	67.16	194.25	196.92
Under 15 years.....	42.73	40.03	200.16	119.14
15-44 years.....	95.25	84.60	258.54	300.04
15-24 years.....	83.15	86.93	223.52	303.93
25-34 years.....	111.72	93.11	417.44	316.25
35-44 years.....	213.85	216.28	527.74	558.25
45-64 years.....	138.46	140.87	414.75	390.38
65 years and over.....	58.64	53.49	220.67	126.72

Table 7. Number of inpatients with alcohol-related discharges from short-stay hospitals, by census division, sex, and color: United States, 1976

Sex and color	Total	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
Both sexes		Number in thousands								
Total.....	885	113	170	157	107	110	22	50	55	102
White.....	605	71	105	110	77	76	16	39	35	77
All other.....	157	3	51	24	10	31	5	11	6	16
Not stated.....	123	39	14	23	20	2	1	0	13	9
Males										
Total.....	620	82	125	112	76	74	15	31	37	69
White.....	425	50	77	79	54	54	11	23	25	51
All other.....	109	2	38	18	7	18	2	7	4	12
Not stated.....	86	30	10	15	14	2	1	0	8	6
Females										
Total.....	264	31	45	45	31	36	8	19	18	32
White.....	180	21	28	31	22	22	5	15	11	26
All other.....	48	1	13	6	3	13	2	4	2	4
Not stated.....	36	9	4	8	6	1	0	0	5	3

NOTE: Numbers may not add to totals due to rounding.

Table 8. Alcohol Discharge Rate from short-stay hospitals, by census division, sex, and color: United States, 1976

Sex and color	Total	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
Both sexes		Rate per 100,000 discharges								
Total.....	2,573	5,630	3,076	2,374	2,630	2,341	1,140	1,248	2,956	2,769
White.....	2,314	4,286	2,394	2,231	2,659	2,121	1,158	1,193	2,560	2,840
All other.....	4,099	4,644	7,159	4,120	4,981	3,760	1,411	1,629	7,436	4,443
Not stated.....	2,792	13,750	3,245	2,100	2,077	829	646	423	3,342	1,437
Males										
Total.....	4,512	9,867	5,718	4,128	4,655	3,918	1,827	2,142	4,943	4,600
White.....	4,014	7,327	4,366	3,844	4,715	3,662	1,799	1,990	4,583	4,571
All other.....	7,842	9,078	15,257	8,336	9,314	5,948	2,205	3,114	13,248	8,071
Not stated.....	4,881	24,434	5,782	3,427	3,612	1,545	1,558	711	4,534	2,534
Females										
Total.....	1,281	2,620	1,343	1,156	1,275	1,285	657	741	1,600	1,496
White.....	1,156	2,134	1,062	1,071	1,289	1,044	661	737	1,260	1,614
All other.....	1,971	1,973	2,804	1,676	2,300	2,513	1,016	821	3,970	1,921
Not stated.....	1,379	5,715	1,555	1,238	1,023	380	95	248	2,321	736

Table 9. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by census region, sex, and color: United States, 1976

Sex and color	Total	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific
Both sexes										
Total.....	126.78	1,282.09	479.75	193.00	362.48	224.64	188.62	159.06	456.28	245.06
White.....	102.86	736.60	406.99	213.49	445.82	212.35	232.31	182.62	482.74	267.42
All other.....	253.19	928.17	1,126.99	476.17	1,261.62	468.93	297.85	301.04	1,852.02	823.44
Not stated.....	379.57	4,895.67	805.45	519.11	426.71	310.70	295.44	206.53	899.67	440.72
Males										
Total.....	257.07	2,492.09	1,000.65	368.21	661.77	405.20	332.98	288.79	790.99	402.86
White.....	201.37	1,349.68	850.39	398.04	796.70	408.90	399.01	277.55	914.00	434.35
All other.....	534.45	1,772.95	2,593.66	998.99	2,270.25	756.24	599.57	400.40	3,409.16	1,529.76
Not stated.....	745.87	9,138.59	1,559.21	864.85	735.93	657.85	722.47	534.87	1,491.28	777.80
Females										
Total.....	55.16	484.35	159.86	89.82	237.16	127.11	127.14	100.99	248.40	156.66
White.....	54.97	368.87	130.87	97.46	318.37	105.05	147.37	98.32	231.51	176.35
All other.....	137.20	596.51	449.00	265.17	650.71	358.59	224.53	229.05	1,246.14	478.36
Not stated.....	155.98	1,798.95	352.12	311.57	243.74	130.74	65.71	164.84	562.05	234.23

Table 10. Number of inpatients with alcohol-related discharges from short-stay hospitals, by discharge status, sex, and color: United States, 1976

Sex and color	All discharge statuses	Alive	Dead	Not stated
Both sexes				
Number in thousands				
Total.....	885	859	23	3
White.....	605	587	17	1
All other.....	157	152	5	0
Not stated.....	123	119	2	2
Males				
Total.....	620	603	15	2
White.....	425	413	12	1
All other.....	109	106	3	1
Not stated.....	86	84	1	1
Females				
Total.....	264	255	8	1
White.....	180	175	5	0
All other.....	48	46	2	0
Not stated.....	36	35	1	0

NOTE: Numbers may not add to totals due to rounding.

Table 11. Alcohol Discharge Rate from short-stay hospitals, by discharge status, sex, and color: United States, 1976

Sex and color	All discharge statuses	Alive	Dead	Not stated
Both sexes				
Rate per 100,000 discharges				
Total.....	2,573	2,569	2,720	2,705
White.....	2,314	2,309	2,493	2,210
All other.....	4,099	4,071	5,738	985
Not stated.....	2,792	2,808	1,682	3,823
Males				
Total.....	4,512	4,550	3,366	4,481
White.....	4,014	4,041	3,279	3,471
All other.....	7,842	7,922	5,871	
Not stated.....	4,881	4,955	1,949	6,908
Females				
Total.....	1,281	1,266	2,004	1,482
White.....	1,156	1,147	1,622	1,166
All other.....	1,971	1,909	5,603	1,354
Not stated.....	1,379	1,374	1,362	1,894

Table 12. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by discharge status, sex, and color: United States, 1976

Sex and color	All discharge statuses	Alive	Dead	Not stated
<u>Both sexes</u>				
Total.....	126.78	129.65	206.23	574.04
White.....	102.86	105.59	220.70	731.50
All other.....	253.19	252.21	955.05	857.50
Not stated.....	379.57	385.22	460.60	1,025.14
<u>Males</u>				
Total.....	257.07	265.69	294.56	1,144.66
White.....	201.37	208.26	341.36	1,311.98
All other.....	534.45	547.65	1,060.79	-
Not stated.....	745.87	764.83	682.40	2,164.87
<u>Females</u>				
Total.....	55.16	55.47	287.67	418.17
White.....	54.97	56.27	271.77	587.10
All other.....	137.20	130.69	1,624.17	1,166.21
Not stated.....	155.98	157.28	683.31	749.50

Table 13. Number of inpatients, aged 15 years and over, with alcohol-related discharges from short-stay hospitals, by marital status, sex, and color: United States, 1976

Sex and color	All marital statuses	Married	Single	Widowed	Divorced or separated	Not stated
<u>Both sexes</u>		Number in thousands				
Total.....	877	393	171	76	192	44
White.....	599	290	103	58	127	22
All other.....	156	45	49	11	39	11
Not stated.....	122	58	20	7	25	11
<u>Males</u>						
Total.....	615	279	135	35	132	33
White.....	421	204	83	27	89	17
All other.....	108	30	39	6	25	9
Not stated.....	86	45	13	2	18	8
<u>Females</u>						
Total.....	262	114	36	41	59	11
White.....	178	85	19	30	38	5
All other.....	47	15	10	6	14	2
Not stated.....	36	14	7	5	7	4

NOTE: Numbers may not add to totals due to rounding.

Table 14. Alcohol Discharge Rate from short-stay hospitals for inpatients aged 15 years and over, by marital status, sex, and color: United States, 1976

Sex and color	All marital statuses	Married	Single	Widowed	Divorced or separated	Not stated
<u>Both sexes</u>		Rate per 100,000 discharges				
Total.....	2,863	2,102	3,496	1,906	8,498	5,853
White.....	2,560	1,941	3,090	1,798	8,099	5,870
All other.....	4,704	3,160	4,915	3,194	8,872	11,819
Not stated.....	3,115	2,478	3,389	1,648	10,422	3,857
<u>Males</u>						
Total.....	5,281	3,644	6,230	4,567	18,738	9,720
White.....	4,651	3,311	5,235	4,508	17,483	9,654
All other.....	9,866	5,697	11,883	6,714	21,226	20,184
Not stated.....	5,723	4,667	5,170	2,827	23,262	6,097
<u>Females</u>						
Total.....	1,379	1,034	1,318	1,269	3,836	2,650
White.....	1,242	976	1,122	1,168	3,575	2,533
All other.....	2,143	1,678	1,493	2,105	4,400	4,646
Not stated.....	1,491	981	1,999	1,367	4,408	2,166

Table 15. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by marital status, sex, and color: United States, 1976

Sex and color	All marital statuses	Married	Single	Widowed	Divorced or separated	Not stated
<u>Both sexes</u>						
Total.....	126.78	118.12	114.49	97.30	519.53	780.55
White.....	102.86	94.18	110.44	97.69	516.63	716.34
All other.....	253.19	190.23	276.88	359.94	725.69	1,725.34
Not stated.....	379.57	371.92	298.14	213.86	1,796.99	1,316.68
<u>Males</u>						
Total.....	257.07	245.43	194.66	318.40	1,311.39	1,109.95
White.....	201.37	189.09	163.95	317.82	1,283.73	1,227.91
All other.....	534.45	373.24	589.67	1,089.49	2,018.69	2,808.60
Not stated.....	745.87	770.32	493.25	641.90	3,948.97	1,726.82
<u>Females</u>						
Total.....	55.16	48.85	62.61	86.21	239.14	400.59
White.....	54.97	48.60	64.81	90.93	272.19	516.17
All other.....	137.20	168.56	136.27	324.71	403.17	1,190.64
Not stated.....	155.98	132.07	181.02	203.76	922.09	753.78

Table 16. Number of inpatients with alcohol-related discharges, by bed size, sex, and color: United States, 1976

Sex and color	Total beds	6-99 beds	100-199 beds	200-299 beds	300-499 beds	500 beds or more
Both sexes		Number in thousands				
Total.....	885	233	153	99	226	173
White.....	605	168	102	80	151	105
All other.....	157	19	28	13	40	57
Not stated.....	123	47	24	7	35	10
Males						
Total.....	620	177	110	68	148	117
White.....	425	128	73	56	99	70
All other.....	109	14	21	8	27	40
Not stated.....	86	35	15	5	23	8
Females						
Total.....	264	56	43	31	78	56
White.....	180	40	28	24	62	35
All other.....	48	5	7	5	14	17
Not stated.....	36	12	8	2	12	3

NOTE: Numbers may not add to totals due to rounding.

Table 17. Alcohol Discharge Rate from short-stay hospitals, by bed size, sex, and color: United States, 1976

Sex and color	Total beds	6-99 beds	100-199 beds	200-299 beds	300-499 beds	500 beds or more
Both sexes		Rate per 100,000 discharges				
Total.....	2,573	3,535	2,684	1,844	2,418	2,358
White.....	2,314	3,067	2,430	1,814	2,219	1,982
All other.....	4,099	3,190	4,726	2,695	4,402	4,543
Not stated.....	2,792	8,527	2,528	1,306	2,140	1,367
Males						
Total.....	4,512	6,629	5,024	3,175	3,955	3,914
White.....	4,014	5,781	4,642	3,123	3,554	3,106
All other.....	7,842	5,978	10,639	4,567	7,816	8,879
Not stated.....	4,881	15,546	3,793	2,416	3,646	2,579
Females						
Total.....	1,281	1,435	1,235	956	1,389	1,281
White.....	1,156	1,223	1,084	923	1,300	1,158
All other.....	1,971	1,388	1,787	1,615	2,384	2,155
Not stated.....	1,379	3,615	1,564	588	1,175	589

Table 18. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by bed size, sex, and color: United States, 1976

Sex and color	Total beds	6-99 beds	100-199 beds	200-299 beds	300-499 beds	500 beds or more
Both sexes						
Total	126.73	679.84	201.45	129.48	195.30	158.08
White	102.72	366.07	183.44	152.80	196.99	126.95
All other	253.14	636.40	822.76	362.10	713.10	479.92
Not stated.....	379.44	3,346.55	610.32	203.62	497.14	474.15
Males						
Total	257.03	1,378.45	444.24	250.15	367.17	257.32
White	201.35	730.43	378.01	299.88	379.12	209.95
All other	533.99	1,234.97	2,280.61	610.82	1,346.29	990.21
Not stated.....	795.93	6,752.06	972.87	383.52	849.66	931.72
Females						
Total	55.11	207.79	114.67	79.45	102.43	115.26
White	54.99	137.97	119.69	82.89	105.89	117.05
All other	137.16	289.07	278.14	298.64	428.64	259.85
Not stated.....	155.92	1,089.83	360.77	109.35	290.44	192.72

Table 19. Number of inpatients with alcohol-related discharges, by ownership of hospital, sex, and color: United States, 1976

Sex and color	All ownerships	Proprietary	Government	Voluntary nonprofit
Both sexes				
Total	885	112	203	570
White.....	605	71	127	407
All other.....	157	9	62	85
Not stated.....	123	32	13	78
Males				
Total.....	620	85	143	392
White.....	425	53	92	281
All other.....	109	7	43	59
Not stated.....	86	25	9	52
Females				
Total.....	264	27	59	178
White.....	180	18	36	127
All other.....	48	3	19	26
Not stated.....	36	7	4	25

NOTE: Numbers may not add to totals due to rounding.

Table 20. Alcohol Discharge Rate from short-stay hospitals, by ownership of hospital, sex, and color: United States, 1976

Sex and color	All ownerships	Proprietary	Government	Voluntary nonprofit
<u>Both sexes</u>				
Total	2,573	4,114	2,915	2,308
White.....	2,314	3,059	2,648	2,139
All other.....	4,099	3,082	4,763	3,844
Not stated	2,792	31,001	1,565	2,254
<u>Males</u>				
Total.....	4,512	7,612	5,162	3,977
White.....	4,014	5,608	4,618	3,661
All other.....	7,842	5,774	9,077	7,408
Not stated	4,881	46,409	2,727	3,760
<u>Females</u>				
Total.....	1,281	1,680	1,420	1,199
White.....	1,156	1,304	1,262	1,113
All other.....	1,971	1,376	2,311	1,847
Not stated	1,379	13,585	849	1,227

Table 21. Standard error of the Alcohol Discharge Rate from short-stay hospitals, by ownership of hospital, sex, and color: United States, 1976

Sex and color	All ownerships	Proprietary	Government	Voluntary nonprofit
<u>Both sexes</u>				
Total	126.78	678.72	227.91	129.21
White.....	102.86	396.25	238.21	128.56
All other.....	253.19	978.40	477.68	362.29
Not stated	379.57	4,387.43	419.70	259.92
<u>Males</u>				
Total.....	257.07	1,328.84	415.93	259.21
White.....	201.37	762.11	439.53	249.69
All other.....	534.45	2,201.04	911.36	813.35
Not stated	745.87	7,853.17	722.93	460.55
<u>Females</u>				
Total.....	55.16	244.95	115.92	64.83
White.....	54.97	164.03	114.53	72.74
All other.....	137.20	429.09	278.85	171.16
Not stated	155.98	1,653.14	254.06	141.98

APPENDIXES

CONTENTS

I.	Technical Notes on Methods	28
	Statistical Design of the National Hospital Discharge Survey	28
	Data Collection and Processing	29
	Reliability of Estimates	30
	Test of Significance	32
II.	Definitions of Certain Terms Used in This Report	33
	Terms Relating to Hospital and Hospital Characteristics	33
	Terms Relating to Hospitalization	33
	Terms Relating to Diagnoses	33
	Demographic Terms	33

APPENDIX FIGURE

I.	Medical Abstract Form	31
----	-----------------------------	----

APPENDIX TABLE

I.	Distribution of short-stay hospitals in the universe (Master Facility Inventory) and in the National Hospital Discharge Survey sample and the number of hospitals that participated in the survey, by geographic region and size of hospital: United States, 1976.....	29
----	--	----

APPENDIX I

TECHNICAL NOTES ON METHODS

Statistical Design of the National Hospital Discharge Survey

Scope of the survey.—The scope of the National Hospital Discharge Survey (HDS) encompasses patients discharged from noninstitutional hospitals exclusive of military and Veterans Administration hospitals, located in the 50 States and the District of Columbia. Only hospitals having six beds or more for patient use and those in which the average length of stay for all patients is less than 30 days are included in the survey. Although all discharges of patients from these hospitals are within the scope of the survey, discharges of newborn infants from all hospitals are excluded from this report as well as discharges of all patients from Federal hospitals.

Sampling frame and size of sample.—The sampling frame (universe) for hospitals in the NHDS is the Master Facility Inventory of hospitals and institutions (MFI). A detailed description of the development of MFI, its contents, maintenance plans, and procedures for assessing the completeness of its coverage has been published.

The universe for the survey consisted of 6,965 short-stay hospitals contained in the MFI in 1963, 442 hospitals that were added to the MFI in 1969, and another 223 hospitals that were added in 1972. The distribution of the hospitals in the MFI and in the HDS sample is shown by bed size and geographic region in table I.

The sample of hospitals for 1976 consisted of 511 hospitals. Of these hospitals, 53 refused to participate and 39 were out of scope either because the hospital had gone out of business or because it failed to meet the definition of a short-stay hospital. Thus 419 hospitals partici-

pated in the survey during 1976 and provided approximately 223,000 abstracts of medical records.

Sample design.—All hospitals with 1,000 beds or more in the universe of short-stay hospitals were selected with certainty in the sample. All hospitals with fewer than 1,000 beds were stratified, the primary strata being the 24 size-by-region classes shown in table I. Within each of these 24 primary strata, the allocation of the hospitals was made through a controlled selection technique so that hospitals in the sample would be properly distributed with regard to type of ownership and geographic division. Sample hospitals were drawn with probabilities ranging from certainty (for the largest hospitals) to 1 in 40 (for the smallest hospitals).

The within-hospital sampling ratio for selecting sample discharges varied inversely with the probability of selection of the hospital. The smallest sampling fraction of discharged patients was taken in the largest hospitals, and the largest fraction was taken in the smallest hospitals. This was done to compensate for the fact that hospitals were selected with probabilities proportionate to their size class and to assure that the overall probability of selecting a discharge would be approximately the same in each size class.

In nearly all hospitals, the daily listing sheet of discharges was the frame from which the subsamples of discharge were selected within the sample hospitals. The sample discharges were selected by a random technique, usually on the basis of the terminal digit(s) of the patient's medical record number—a number assigned when the patient was admitted to the hospital. If the hospital's daily discharge listing did not show the medical record numbers, the sample was selected by starting with a randomly

Table I. Distribution of short-stay hospitals in the universe (Master Facility Inventory) and in the National Hospital Discharge Survey sample and the number of hospitals that participated in the survey, by geographic region and size of hospital: United States, 1976

Bed size of hospital	All regions	North-east	North Central	South	West
<u>All sizes</u>					
Universe.....	7,630	1,157	2,094	2,966	1,413
Total sample.....	511	131	148	156	76
Number participating.....	419	116	125	120	58
<u>6-49 beds</u>					
Universe.....	3,405	215	879	1,608	703
Total sample.....	66	7	18	28	13
Number participating.....	40	5	15	13	7
<u>50-99 beds</u>					
Universe.....	1,804	296	473	682	353
Total sample.....	75	14	19	29	13
Number participating.....	57	11	15	22	9
<u>100-199 beds</u>					
Universe.....	1,276	289	398	393	196
Total sample.....	109	26	32	35	16
Number participating.....	97	26	28	28	15
<u>200-299 beds</u>					
Universe.....	592	192	160	146	94
Total sample.....	91	31	26	20	14
Number participating.....	72	25	21	15	11
<u>300-499 beds</u>					
Universe.....	400	111	133	103	53
Total sample.....	94	25	31	26	12
Number participating.....	83	22	27	25	9
<u>500-999 beds</u>					
Universe.....	135	45	48	29	13
Total sample.....	58	19	19	13	7
Number participating.....	52	18	16	12	6
<u>1,000 beds or more</u>					
Universe.....	18	9	3	5	1
Total sample.....	18	9	3	5	1
Number participating.....	18	9	3	5	1

selected discharge and taking each k th discharge thereafter.

Data Collection and Processing

Data collection.—Depending on the study procedure agreed on with the hospital administrator, the sample selection and the transcription

of information from the hospital records to abstract forms were performed either by the hospital staff or by representatives of the National Center for Health Statistics (NCHS) or by both. In about two-thirds of the hospitals that participated in HDS during the year, this work was performed by the medical records department of the hospital. In the remaining hospitals, the

work was performed by personnel of the U.S. Bureau of the Census acting for NCHS.

Survey hospitals used an abstract form to transcribe data from the hospital records. The abstract form provides for recording demographic data, admission and discharge dates, discharge status, and information on discharge diagnoses and surgical operations or procedures (figure I). All discharge diagnoses were listed on the abstract form in the order of principal diagnosis or first-listed diagnosis if principal diagnosis was not identified, followed by the order in which all other diagnoses were entered on the face sheet of the medical record. All operations were listed in the order in which they were recorded on the face sheet.

Shipments of completed abstract forms for each sample hospital were transmitted, along with sample selection control sheets, to a Census Regional Office. Every shipment of abstracts was reviewed and each abstract form was checked for completeness. Abstracts were then sent to NCHS for processing.

Medical coding and edit.—The medical information recorded on the sample patient abstracts was coded centrally by NCHS staff. A maximum of five diagnostic codes was assigned for each sample abstract; in addition, if the medical information included surgery, a maximum of three codes for surgical operations and procedures was assigned. Following the conversion of the data on the medical abstract form to computer tape, a final medical edit was accomplished by computer inspection runs and a review of rejected abstracts. If sex or age of patient was incompatible with the recorded medical information, priority was given to the medical information in the editing decision.

The basic system used for coding the diagnoses on HDS sample patient abstracts is the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA)*.^a

Patient characteristics not stated.—If age or sex of patient was not stated on the hospital records of sample hospitals (the face sheet of patient's medical record), it was imputed by assigning the patient an age or sex consistent with the age or sex of other patients with the same diagnostic code. Color was identified as "not stated." If the dates of admission or discharge were not

given and if they could not be obtained from the monthly sample listing sheet transmitted by the sample hospital, a length of stay was imputed by assigning the patient a stay characteristic of the stays of other patients of the same age.

Age of patient and sex of patient were not stated for less than one-fourth of 1 percent of the discharges. However, color was not stated for 13 percent of all discharges and caution should be used in drawing conclusions from the data by color.

Rounded numbers.—Estimates of the numbers of inpatient discharges have been rounded to the nearest thousand for tabular presentation. For this reason, detailed figures within the tables do not always add to totals. Rates and percents were calculated on the basis of unrounded figures and will not necessarily agree with computations made from the rounded data.

Reliability of Estimates

Estimation.—Statistics produced by use of HDS are derived by a complex estimating procedure. The basic unit of estimation is the sample inpatient discharge abstract. The estimating procedure used to produce essentially unbiased national estimates in HDS has three principal components: inflation by reciprocals of the probabilities of sample selection, adjustment for nonresponse, and ratio adjustment to fixed totals. These components of estimation are described in appendix I of two earlier publications.^{c,d}

Measurement errors.—As in any survey, results are subject to nonsampling or measurement errors, which include errors due to hospital nonresponse, missing abstracts, information incompletely or inaccurately recorded on abstract forms, and processing errors. Some of these

^cNational Center for Health Statistics: Utilization of short-stay hospitals, summary of nonmedical statistics, United States, 1965, by Monroe G. Sirken. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 13-No. 2. Public Health Service. Washington. U.S. Government Printing Office, Aug. 1967.

^dNational Center for Health Statistics: Utilization of short-stay hospitals by characteristics of discharged patients, United States, 1965, by Michael J. Witkin. *Vital and Health Statistics*. PHS Pub. No. 1000-Series 13-No. 3. Public Health Service. Washington. U.S. Government Printing Office, Dec. 1967.

CONFIDENTIAL - All information which would permit identification of an individual or of an establishment will be held confidential, will be used only by persons engaged in and for the purposes of the survey and will not be disclosed or released to other persons or used for any other purpose.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Health Resources Administration
National Center for Health Statistics
MEDICAL ABSTRACT - HOSPITAL DISCHARGE SURVEY

I. Patient Identification

1. Hospital number..... _____ 4. Date of admission _____
Month Day Year
2. HDS number _____ 5. Date of discharge _____
Month Day Year
3. Medical record number..... _____

II. Patient Characteristics

1. Date of birth: _____ 2. Age (complete ONLY
Month Day Year if date of birth not given): _____
Units { 1 years
2 months
3 days

3. Sex: 1 Male 2 Female

4. Race or color: 1 White 2 Negro 3 Other nonwhite 4 "Nonwhite" 5 Not stated

5. Marital status: 1 Married 2 Single 3 Widowed 4 Divorced 5 Separated 6 Not stated

6. Discharge status: 1 Alive 2 Dead

III. Diagnoses and Operations

1. Final diagnoses

a. Principal diagnosis: _____

b. Other diagnoses: _____

_____ see reverse side

2. Operations: _____

_____ see reverse side

Completed by _____ Date _____

FOR NCHS USE ONLY

Diagnoses _____

Operations _____

Figure I. Medical Abstract for the Hospital Discharge Survey

errors were discussed under a previous section "Patient characteristics not stated."

Sampling errors.—The standard error is primarily a measure of the variability that is attributed to using a value obtained from a sample as an estimate of a population value. In this report it also reflects part of the measurement error. The value that would have been obtained had a complete enumeration of the population been made will be contained in an interval represented by the sample estimate plus or minus 1 standard error about 68 out of 100 times and plus or minus 2 standard errors about 95 out of 100 times.

Test of Significance

To determine if one statistic is significantly greater than another, the following procedure was used. First determine if the difference between two statistics is equal to or greater than

1.7 times the standard error of the difference. If so, it may be concluded that the larger statistic is significantly greater than the smaller. This procedure assumes that there are 10 chances in 100 that the difference between the two statistics is due to chance. An approximation of the standard error of the difference ($d = x - y$) of two statistics x and y given by the formula $S_d = (S_x^2 + S_y^2)^{1/2}$, where S_x and S_y are the standard errors of x and y , respectively.

The following example illustrates the above-mentioned procedure. Table 2 shows that the Alcohol Discharge Rate (ADR) for all males is 4,512 and 1,281 for all females; table 3 indicates that the standard error for all males is 257.07 and for females is 55.16. The formula yields a standard error of the difference ($d = 3,231$) of $S_d = 262.90$. Hence, as the observed difference is more than 1.7 times its standard error, it can be concluded that the ADR of males is significantly greater than that for females.



APPENDIX II

DEFINITIONS OF CERTAIN TERMS USED IN THIS REPORT

Terms Relating to Hospital and Hospital Characteristics

Hospitals.—Short-stay special and general hospitals having six beds or more for inpatient use and an average length of stay of less than 30 days. Federal hospitals and hospital units of institutions are not included.

Bed size of hospital.—Measured by the number of beds, cribs, and pediatric bassinets regularly maintained (set up and staffed for use) for patients; bassinets for newborn infants are not included. In this report the classification of hospitals by bed size is based on the number of beds at or near midyear as reported by the hospitals.

Type of ownership of hospital.—The type of organization that controls and operates the hospital. Hospitals are grouped as follows:

Voluntary nonprofit: Hospitals operated by a church or another nonprofit organization.

Government: Hospitals operated by State or local governments.

Proprietary: Hospitals operated by individuals, partnerships, or corporations for profit.

Terms Relating to Hospitalization

Patient.—A person who is formally admitted to the inpatients service of a short-stay hospital for observation, care, diagnosis, or treatment. In this report the number of patients refers to the number of discharges during the year including any multiple discharges of the same individual from one short-stay hospital or more. Infants admitted on the day of birth, directly or by transfer from another medical facility, with or with-

out mention of a disease, disorder, or immaturity are included. All newborn infants, defined as those admitted by birth to the hospital, are excluded. In this report, "patient," "inpatient," and "person" are used synonymously.

Discharge.—The formal release of a patient by a hospital; that is, the termination of a period of hospitalization by death or by disposition to place of residence, nursing home, or another hospital. "Discharges" and "patients discharged" are used synonymously.

Alcohol Discharge Rate.—The number of hospital discharges with an alcohol-related diagnosis times 100,000 divided by the total number of discharges during the year.

Terms Relating to Diagnoses

Discharge diagnosis.—The classification of one or more diseases or injuries (or special conditions and examinations without sickness or tests with negative findings) that the attending physician assigns to the medical record of patients. In HDS all discharge (final) diagnoses listed on the face sheet (summary sheet) of the medical record for patients discharged from the inpatient service of short-stay hospitals are transcribed in the order listed. Each sample discharge is assigned a maximum of five 3- or 4-digit codes according to the *Eighth Revision International Classification of Diseases, Adapted for Use in the United States (ICDA)*.^a

Demographic Terms

Age.—Patient's age refers to age at birthday prior to admission to the hospital inpatient service.

Color.—Patients are classified into two groups, "white" and "all other." The all other

classification includes all categories other than white. Mexican and Puerto Rican are included in the white category unless specifically identified as all other.

Geographic region and division.—In this report, hospitals are classified by location accord-

ing to the nine geographic divisions of the United States, which correspond to those used by the U.S. Bureau of the Census. For the convenience of the reader, the following table shows region and division groups for the 50 States and the District of Columbia.

<i>Region</i>	<i>Division</i>	<i>States included</i>
Northeast	New England	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
	Middle Atlantic.....	New York, New Jersey, Pennsylvania
North Central.....	East North Central.....	Michigan, Ohio, Illinois, Indiana, Wisconsin
	West North Central	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas
South	South Atlantic.....	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
	East South Central.....	Kentucky, Tennessee, Alabama, Mississippi
	West South Central	Arkansas, Louisiana, Oklahoma, Texas
West	Mountain	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada
	Pacific.....	Washington, Oregon, California, Hawaii, Alaska



VITAL AND HEALTH STATISTICS Series

- Series 1. Programs and Collection Procedures.*—Reports which describe the general programs of the National Center for Health Statistics and its offices and divisions and data collection methods used and include definitions and other material necessary for understanding the data.
- Series 2. Data Evaluation and Methods Research.*—Studies of new statistical methodology including experimental tests of new survey methods, studies of vital statistics collection methods, new analytical techniques, objective evaluations of reliability of collected data, and contributions to statistical theory.
- Series 3. Analytical Studies.*—Reports presenting analytical or interpretive studies based on vital and health statistics, carrying the analysis further than the expository types of reports in the other series.
- Series 4. Documents and Committee Reports.*—Final reports of major committees concerned with vital and health statistics and documents such as recommended model vital registration laws and revised birth and death certificates.
- Series 10. Data From the Health Interview Survey.*—Statistics on illness, accidental injuries, disability, use of hospital, medical, dental, and other services, and other health-related topics, all based on data collected in a continuing national household interview survey.
- Series 11. Data From the Health Examination Survey and the Health and Nutrition Examination Survey.*—Data from direct examination, testing, and measurement of national samples of the civilian noninstitutionalized population provide the basis for two types of reports: (1) estimates of the medically defined prevalence of specific diseases in the United States and the distributions of the population with respect to physical, physiological, and psychological characteristics and (2) analysis of relationships among the various measurements without reference to an explicit finite universe of persons.
- Series 12. Data From the Institutionalized Population Surveys.*—Discontinued effective 1975. Future reports from these surveys will be in Series 13.
- Series 13. Data on Health Resources Utilization.*—Statistics on the utilization of health manpower and facilities providing long-term care, ambulatory care, hospital care, and family planning services.
- Series 14. Data on Health Resources: Manpower and Facilities.*—Statistics on the numbers, geographic distribution, and characteristics of health resources including physicians, dentists, nurses, other health occupations, hospitals, nursing homes, and outpatient facilities.
- Series 20. Data on Mortality.*—Various statistics on mortality other than as included in regular annual or monthly reports. Special analyses by cause of death, age, and other demographic variables; geographic and time series analyses; and statistics on characteristics of deaths not available from the vital records based on sample surveys of those records.
- Series 21. Data on Natality, Marriage, and Divorce.*—Various statistics on natality, marriage, and divorce other than as included in regular annual or monthly reports. Special analyses by demographic variables; geographic and time series analyses; studies of fertility; and statistics on characteristics of births not available from the vital records based on sample surveys of those records.
- Series 22. Data From the National Mortality and Natality Surveys.*—Discontinued effective 1975. Future reports from these sample surveys based on vital records will be included in Series 20 and 21, respectively.
- Series 23. Data From the National Survey of Family Growth.*—Statistics on fertility, family formation and dissolution, family planning, and related maternal and infant health topics derived from a biennial survey of a nationwide probability sample of ever-married women 15-44 years of age.

For a list of titles of reports published in these series, write to:

Scientific and Technical Information Branch
National Center for Health Statistics
Public Health Service
Hyattsville, Md. 20782