Detection of Alcohol Use Disorders in General Hospital Admissions in the United States

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Background: Previous studies in which research-based assessment for alcohol problems at admission was compared with physician diagnoses indicated that many alcohol diagnoses in hospitalized patients were missed. We estimated the extent to which hospital records documented detection of alcohol abuse or dependence and other alcohol-related problems in a national sample of hospital admissions having a research-based diagnosis of alcohol use disorder (‘interview-positive admissions’). We also estimated rates of inpatient alcohol intervention and referral for treatment.

Methods: A complex, multistage, probability sample was designed to represent nonmaternity, acute-care admissions to nonfederal, short-stay, general hospitals in the contiguous United States. The study included 2040 admissions, 1613 male and 427 female. Research-based diagnoses of current (ie, past 12 months) alcohol use disorder (AUD) were derived from a structured, computer-assisted, personal interview containing the Alcohol Use Disorders and Associated Disabilities Interview Schedule. Information on detection, inpatient intervention, and treatment referral were obtained via retrospective analysis of closed hospital records covering the index visit.

Results: Record-documented diagnoses of alcohol-related problems were found in 40% to 42% of interview-positive admissions. Inpatient intervention rate was estimated at 21% for interview-positive admissions, and treatment referral rate, 24%. For detected interview-positive admissions, estimated rates of intervention and referral were 50% and 53%, respectively.

Conclusions: Estimated rates of detection, inpatient intervention, and treatment referral of alcohol use disorders in hospital admissions were low. Current-drinking hospital admissions should be screened for alcohol problems as part of the admission routine, with further professional evaluation, intervention, and treatment referral as indicated.

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Alcohol Abuse and Dependence are serious threats to the health and well-being of Americans. Affecting virtually every body system, alcohol is implicated not only in liver disease, but also in injuries, hypertension, immune dysfunction, and weakening of the heart muscle, to name a few. The cost of health care associated with alcohol consumption is estimated at $26 billion annually. Total annual cost is estimated at $185 billion, which includes, in addition to health care costs, productivity impacts and other impacts on society.

Using a structured, diagnostic instrument to identify alcohol use disorder (AUD), a national survey of hospital admissions (the National Hospital Prevalence Study) estimated that 1.8 million (SE, 0.2 million) annual nonmaternity, acute-care admissions to nonfederal, general hospitals in the contiguous United States in 1994 had a current (ie, past 12 months) AUD, as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), of the American Psychiatric Association. This represented an estimated 24.0% (SE, 2.7) of admissions who had consumed at least 12 alcoholic drinks in the past 12 months (“current-drinking admissions”).

Since prevalence of AUD was substantial in current-drinking hospital admissions, the question of detection took on added importance. Previous studies of detection rates defined as percentage of inpatients scoring positive on a research-based alcohol assessment who had physician-rendered alcohol diagnoses, suggested a need for examination of detection of AUDs in a national sample. Previous studies were conducted in 1 or 2 hospitals or in selected department(s) of a single hospital.
hospital, and therefore do not support national inference. Most studies used screening instruments, which do not produce DSM-IV diagnoses, as the standard of comparison for physician diagnoses. Previous research also found highly variable detection rates, ranging from 7% to about 70%. The highest detection rates were found in studies of admissions to an internal medicine service, while lower rates were seen in larger, less restrictive samples. Rates of intervention or referral for alcohol treatment also varied widely, from about 20% to 60%. Studies with the highest detection rates reported intervention or referral rates below 40%.

Detection is an important topic for investigation because hidden AUDs may have detrimental effects on the treatment of hospitalized patients. For example, chronic alcohol consumption may alter availability and decrease effects of therapeutic doses of certain prescribed medications. In addition, increased enzyme activity may increase toxicity of some drugs. Detection not only informs treatment decisions, but may also have salutary effects on the AUD by leading to intervention, and thereby has the potential to promote primary and secondary prevention of alcohol-related medical disorders.

The current research sought to expand knowledge by examining alcohol detection and intervention in a sample designed to represent nonmaternity, acute-care admissions to short-stay, general hospitals in the United States. National Hospital Prevalence Study admissions were given a diagnostic interview to identify current DSM-IV AUDs (“interview-positive admissions”). Data derived from retrospective review of hospital records were used to estimate rates of alcohol detection, intervention, and treatment referral among interview-positive admissions. This large, comprehensive, diagnosis-based survey provided a unique opportunity to refine estimates of prevalence of AUD in hospital admissions, and also afforded the opportunity to refine knowledge of detection rates. Evaluation of detection rates in this nationally representative sample of hospital admissions would provide the strongest detection information to date having the potential to produce recommendations leading to improved practice.

METHODS

SURVEY METHODS

National Hospital Prevalence Study methodology has been described in detail elsewhere. Briefly, the survey used a stratified 3-stage probability design to estimate the prevalence of current DSM-IV alcohol abuse or dependence (ie, AUDs) among adult nonmaternity admissions receiving acute, inpatient care in nonfederal, short-stay, general hospitals in the contiguous United States. The 3 sampling stages were (1) primary sampling unit (typically a county or group of counties; n = 52), (2) hospital (n = 90), and (3) admission (n = 2040; 1613 males and 427 females). In stage 3, to identify at-risk respondents, we initially screened males with the Alcohol Use Disorders Identification Test. We then applied different sampling rates to over-sample males with positive results on the test. Females were not oversampled because pilot work showed a rate of positive results on the test too low to make oversampling efficient. Survey weights were used to account for probability of selection at each stage (eg, weights accounted for the oversampling in stage 3), and to adjust for nonresponse among hospitals and admissions.

HUMAN SUBJECTS

Institutional review board approval, as well as written informed consent for the interview and for release of medical and billing records, was obtained. Admissions could consent to the survey only (ie, omitting record release) if they wished. Record data were obtained for 1920 of the 2040 participating admissions. There were no significant differences in prevalence of interview-positive status in admissions with or without record data.

RESPONSE RATES

Interview response rate was 72.3% for females. For males, the screening response rate was 73.3% and the interview response rate was 84.0%. Taking hospital response rate into consideration (62.9%) and weighting by total number of interviews, the overall response rate was 41.0%. In multistage studies, multiplicative effects of nonresponse produce a lower overall response rate even when component rates are relatively high. Because of the low overall rate, we performed comparative analyses of characteristics of participating and nonparticipating hospitals; we also compared demographics of our sample of admissions with the nonmaternity discharges from 1994 National Hospital Discharge Survey. Results showed no significant differences. More important, weights were prepared to support unbiased estimation from the survey to the target population.

MEASURES

Basic demographic data were derived from the interview. Socioeconomic status (SES) combined information about occupation and education according to Hollingshead. Alcohol use disorders among admissions were operationalized by means of the Alcohol Use Disorders and Associated Disabilities Interview Schedule, which was administered in face-to-face, computer-assisted, personal interviews by trained lay research staff. Interview-positive admissions (ie, those with AUDs as measured by the interview) numbered 380. The Alcohol Use Disorders and Associated Disabilities Interview Schedule is a structured diagnostic interview that assesses criteria for alcohol abuse and dependence as defined in DSM-IV. Reliability coefficients above 0.70 were obtained in a general population sample and in a clinical sample.

Physician detection rates were operationalized as percentage of interview-positive admissions for whom alcohol-related diagnoses established at the time of discharge were documented in hospital records covering the hospitalization during which the interview was conducted (the index visit). Four detection rates were explored. Three were based on increasingly inclusive categories of established, all-listed International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) diagnoses, defined as including primary diagnoses (reasons for hospitalization) and any secondary or other diagnoses (diagnoses that affected treatment or length of stay that coexisted or developed) (see the list that follows). To capture detection more fully, we used a fourth category that included any alcohol-related diagnosis as well as any specific mention of alcohol diagnoses or symptoms in the text of the discharge summary or final progress note, or any mention of alcohol abuse or alcohol-related problems in the medical history. The increasingly inclusive detection categories were as follows: (1) alcohol abuse or dependence (n = 218), (2) alcohol psychiatric...
disorder (n=220), (3) any alcohol-related diagnosis (n=238), and (4) any mention (n=388).

The measures of all-listed diagnoses from hospital records classified according to ICD-9-CM were as follows (the sum of n values in subcategories may exceed category totals because of dual diagnoses and documentation in multiple locations):

1. Alcohol abuse or dependence (n=218),
   - Alcohol abuse: 305.0-305.03 (n=57)
   - Alcohol dependence: 303.0-303.93 (n=161)
2. Alcohol psychiatric disorder (n=220)
   - Alcohol abuse or dependence
   - Alcohol psychoses: 291-291.9 (n=63)
3. Any alcohol-related diagnosis (n=238)
   - Alcohol psychiatric disorder
   - Alcoholic polyneuropathy: 357.5 (n=3)
   - Alcoholic cardiomyopathy: 425.5 (n=3)
   - Alcoholic gastritis: 535.3-535.31 (n=7)
   - Alcoholic liver disease: 571.0-571.3 (n=45)
   - Excessive blood alcohol level: 790.3 (n=0)
   - Alcohol toxicity: 980-980.9 (n=1)
   - Alcohol poisoning: E860-E860.9 (n=1)
4. Any mention (n=388)
   - Any alcohol-related diagnosis
   - Mention of alcohol diagnoses or symptomatology in discharge summary or final progress note (n=311)
   - Mention of alcohol abuse or alcohol-related problems in medical history (n=346)
   - Procedure codes:
     - Personal history of alcoholism, V11.3 (n=2)
     - Alcoholism in the family, V61.41 (n=1)
     - Specific screening for alcoholism, V79.1 (n=0)
   - Procedure codes:
     - Alcoholism counseling, 94.46 (n=0)
     - Referral for alcohol rehabilitation, 94.53 (n=0)
     - Alcohol rehabilitation, detoxification, rehabilitation/detoxification, 94.61-94.63 (n=21)
     - Combined alcohol and drug rehabilitation, detoxification, rehabilitation/detoxification, 94.67-94.69 (n=10)

Inpatient alcohol intervention was defined by ICD-9-CM procedure codes (for alcohol detoxification, rehabilitation, and/or counseling) or notation of alcohol detoxification in the discharge summary. Alcohol treatment referral was also defined by ICD-9-CM procedure code or notation in the discharge summary of referral for alcoholism treatment (see preceding list of diagnoses).

All hospital-record diagnoses were classified according to ICD-9-CM. For psychiatric disorders, this classification system represents the counterpart to the American Psychiatric Association’s DSM-IV, which served as the basis of diagnostic classification in the interview. The ICD-9-CM criteria for alcohol abuse and dependence were influenced by the concept of the alcohol dependence syndrome, which was also influential in DSM-IV, and the specific basis for interview diagnoses.

Medical records professionals abstracted the medical record, providing up to 13 diagnoses, as well as specific alcohol-related information from the text of the discharge summary, medical history, and final progress note. Laboratory test data were also abstracted. Billing office staff abstracted the billing record, also providing up to 13 diagnoses. In the absence of medical record information, billing diagnoses were used when available (n=38). There were no significant differences in AUD diagnoses (according to the interview or according to the record review) based on source of diagnostic data (medical vs billing record).

Reliability and validity of health record data for use in research have been investigated. Adequate reliability and validity were found for record data such as chief complaint, physical examination, medical diagnoses, and abnormal laboratory results, but Aaronson and Burman cautioned that sensitive data, such as alcohol abuse, is often poorly documented. We recognize that operationalizing detection as documentation will miss detected cases that were not recorded. However, since hospital records are medico-legal documents that are required to be complete in terms of relevant medical information, there is justification for use of record documentation as the sole measure of detection.

CURRENCY OF ALCOHOL MEASURES

Data for this research were collected in 1994. To estimate their current utility, we examined data from several federal sources to determine whether significant changes in relevant alcohol measures had occurred between 1994 and the most recent available data. Apparent US per-capita alcohol consumption showed no significant change from 1994 to 1998 by test for time trend (P=.60). The 1998 National Household Survey on Drug Abuse indicated that the percentage of the US population 12 years and older who reported current drinking, binge drinking, and heavy binge drinking remained stable for 10 years. Therefore, drinking measures, including measures associated with alcohol-related problems, remained stable.

Since the basis of detection measures in this research was documentation in hospital records of all-listed alcohol-related diagnoses among nonmaternity admissions, we examined similar alcohol-related morbidity data (for US nonmaternity hospital discharges who were 15 years and older) used for surveillance by the National Institute on Alcohol Abuse and Alcoholism. Surveillance data were derived from the National Center for Health Statistics’ national hospital surveys of discharges from US nonfederal, short-stay hospitals (eg, Popovic and Hall [2001] for 1999 data). Among total nonmaternity discharges, the proportion having record-documented all-listed alcohol-related diagnosis showed no significant change between 1994 and 1999 (P=.41). Likewise, the proportion of nonmaternity discharges with all-listed alcohol dependence, alcohol abuse, or alcoholic psychoses (akin to our alcohol psychiatric disorder category) showed no change between 1994 and 1999 (P=.50). In terms of nonmaternity discharge rates per 10000 US population, changes were not statistically significant for (1) any all-listed alcohol-related diagnosis (P=.49), (2) all-listed alcohol dependence syndrome (P=.08), and (3) alcoholic psychosis diagnoses (P=.33). A small, but statistically significant, increase in the nonmaternity discharge rate per 10000 US population was observed for nondependent alcohol abuse diagnoses (P=.002), which increased from 0.13% in 1994 to 0.19% in 1999. These results support the currency of our detection measures.

ANALYSES

All analyses were performed with SUDAAN statistical software, which takes design features into account when computing SEs. All results represent weighted analyses. For all tests of significance, we used α=.05 and included exact P values on tables. In tests of contrasts, we placed in boldface type contrasts that remained significant when the Dunnett C procedure for multiple comparisons was applied. The small sample size of interview-positive females did not permit analysis of sex differences.

RESULTS

Hospital records indicated that 0.4% (SE, 0.12%) of admissions entered the hospital with a primary diagnosis
of alcohol abuse or dependence; any record-documented primary alcohol-related diagnosis involved 0.9% (SE, 0.17%) of admissions. Table 1 describes the sample of admissions.

Table 2 presents prevalence estimates of (1) record documentation of all-listed alcohol abuse or dependence and (2) current DSM-IV alcohol abuse or dependence as determined by the research interview. Rates are presented for all admissions (n = 1917 and n = 2040, respectively) and for current-drinking admissions (n = 914 and n = 966, respectively). (Current drinking was defined as consuming 12 or more alcoholic drinks in the past 12 months.) Rate of diagnosis by research interview was 7%, and by record documentation, 4%. Relations among subgroups were similar for the 2 detection strategies (i.e., research interview and record documentation). Whether by research interview or by record documentation, in all and in current-drinking admissions, younger admissions were more likely to be diagnosed than older admissions, and lower-SES admissions were more likely to be diagnosed than upper-SES admissions. Current-drinking minority admissions were more likely than current-drinking nonminorities to have an alcohol diagnosis by either method.

Using interview-positive diagnosis of current AUD as the standard for comparison, we estimated detection rates (Table 3). Alcohol abuse or dependence diagnoses (all-listed) were documented in 40% of interview-positive admissions, and alcohol psychiatric disorder (all-listed) in 40%. For interview-positive admissions, one would expect to find a record-documented diagnosis in 1 of these 2 categories. Any alcohol-related diagnosis (all-listed) was observed in 42% of interview-positive admissions; any mention of alcohol-related problems including diagnoses and notations in the medical history, discharge summary, or final progress note was found in 57%.

Similar rates of detection persisted in admissions not entering the hospital for follow-up procedures and aftercare. Since one might not expect the record to include coexisting alcohol diagnoses for a limited index visit when a more extensive recent workup was documented in a previous record, we stratified by V code, V51 to V58 (n = 43), defined as hospitalization to consolidate treatment, deal with residual states, or prevent recurrence after hospital stays to treat a disease or injury. This procedure isolated admissions receiving such services as cancer chemotherapy and rehabilitative procedures after surgery. In interview-positive admissions whose index visit diagnoses did not include V51 to V58, detection rate was 39% (SE, 6.5%) for alcohol abuse or dependence; it was 39% (SE, 6.6%) for alcohol psychiatric disorder and 40% (SE, 6.8%) for any alcohol-related diagnosis. Thus, estimated detection rates were not affected by inclusion of these V code admissions.

To further characterize detection rates, we used the κ statistic, which measures agreement beyond agreement expected by chance. The values of κ range from 0 to 1, indicating no agreement beyond chance to perfect agreement; agreement above 0.75 is considered excellent. With interview-positive diagnosis of AUD used as the standard for comparison, κ for any mention, the broadest of the detection categories, was 0.47.

We also investigated detection according to age, race or ethnicity, and SES. One would anticipate no differences in detection of interview-positive status among subgroup members unless some form of selective identification were operating. In univariate analyses, no significant differences were observed for age and SES, but a significant difference (P = .04) was observed for minorities, in which 59.7% (SE, 10.6%) of interview-positive minorities, compared with 34.7% (SE, 6.4%) of interview-positive nonminorities, had record-documented diagnoses of alcohol psychiatric disorder. However, when we standardized by age and SES, differences in estimated detection rates between minorities and nonminorities (33.2% and 40.4%, respectively) were not statistically significant (P = .11) (data not shown).

We next explored performance of laboratory tests frequently ordered to aid in the diagnosis and treatment of patients thought to have alcohol-related disorders, mean corpuscular volume, aspartate aminotransferase (AST), alanine aminotransferase (ALT), γ-glutamyl transpeptidase (GGT), and blood alcohol level (Table 4). Most patients for whom laboratory test data were available received the mean corpuscular volume test, and frequency of mean corpuscular volume testing did not differ between detected and undetected interview-positive admissions. Two thirds of interview-positive admissions received the AST; less than half, the ALT; and less than one fourth, the GGT. For interview-positive admissions whose alcohol abuse or dependence was detected by documentation of an alcohol psychiatric diagnosis, 92% received the AST; 64%, the ALT; and 38%, the GGT. The difference between detected and not detected admissions in terms of laboratory test performance was statistically significant for the AST and the GGT. Thus, 2 of the 3 liver enzyme tests were more likely to be performed in interview-positive admissions when the alcohol diagnosis was detected. Blood alcohol level was performed in 25% of interview-positive admissions and 36% of detected interview-positive admissions. Differences between detected and nondetected admissions were not significant, but sample size for blood alcohol level was small (n = 115).
The past 20 years.11 Consistent with those appearing in the literature during
recent years, rates of detection, intervention, and referral are largely
represented a unique opportunity to identify alcohol abuse
and dependence so that appropriate intervention and referral could follow. The critical importance of hospitalization in terms of alcoholism intervention and referral
was indicated in two recent studies conducted in Germany.34,35 In the first study, in a general hospital population, Rumpf and colleagues34 found that 71% of study-diagnosed alcohol-dependent patients had not sought assistance for their drinking problems in the past year,
and 38% had never received assistance. In the second study,35 readiness to change was explored. Alcohol-dependent individuals were identified in a general hospital and in the general population. Forty-three percent
of alcohol-dependent individuals in the hospital population and 40% of all hospitalizations were classified as being in the stage of change in which the individual was ready
to take action to modify behavior. The authors attributed readiness to change in alcohol-dependent individuals in the hospital population, compared with 16% in the general population, to the stage of change in which the individual was ready to take action to modify behavior. The authors attributed readiness to change in alcohol-dependent individuals in the hospital population, compared with 16% in the general population, to the stage of change in which the individual was ready to take action to modify behavior. The authors attributed readiness to change in alcohol-dependent individuals in the hospital population, compared with 16% in the general population, to the stage of change in which the individual was ready to take action to modify behavior. The authors attributed readiness to change in alcohol-dependent individuals in the hospital population, compared with 16% in the general population, to the stage of change in which the individual was ready to take action to modify behavior. 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Table 4. Laboratory Tests Performed in Interview-Positive Admissions Where All-Listed Alcohol Psychiatric Disorders Were Detected and Not Detected *

<table>
<thead>
<tr>
<th>No. of Subjects</th>
<th>All Admissions (n = 1822)</th>
<th>Detected (n = 163)</th>
<th>Not Detected (n = 175)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>SE</td>
<td>%</td>
</tr>
<tr>
<td>MCV</td>
<td>1740</td>
<td>94.7  1.3</td>
<td>96.7  2.3</td>
</tr>
<tr>
<td>AST</td>
<td>1376</td>
<td>74.4  2.3</td>
<td>66.5  7.5</td>
</tr>
<tr>
<td>ALT</td>
<td>939</td>
<td>51.7  2.7</td>
<td>48.6  6.3</td>
</tr>
<tr>
<td>GGT</td>
<td>509</td>
<td>23.1  3.2</td>
<td>29.3  5.5</td>
</tr>
<tr>
<td>BAL</td>
<td>115</td>
<td>2.9  0.7</td>
<td>24.7  6.5</td>
</tr>
</tbody>
</table>

Abbreviations: ALT, alanine aminotransferase; AST, aspartate aminotransferase; BAL, blood alcohol level; GGT, serum γ-glutamyl transpeptidase; MCV, mean corpuscular volume.

*See “Measures” subsection of the “Methods” section for definition of alcohol psychiatric disorder.

†P values in boldface are those that remained significant after the Dunnett C procedure for multiple comparisons31 was applied to these 5 contrasts.

Table 5. Estimated Rates of Inpatient Alcohol Intervention and Referral for Alcohol Treatment

<table>
<thead>
<tr>
<th>%</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient alcohol intervention</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1.7</td>
</tr>
<tr>
<td>Interview-positive</td>
<td>20.6</td>
</tr>
<tr>
<td>Detected interview-positive</td>
<td>50.1</td>
</tr>
<tr>
<td>Alcohol treatment referral</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2.1</td>
</tr>
<tr>
<td>Interview-positive</td>
<td>23.9</td>
</tr>
<tr>
<td>Detected interview-positive</td>
<td>52.6</td>
</tr>
<tr>
<td>Interview-positive with patient alcohol intervention</td>
<td>80.8</td>
</tr>
</tbody>
</table>

*Detection was operationalized as all-listed alcohol psychiatric disorder in the record. See “Measures” subsection of the “Methods” section for definition.

Techniques and the epidemiology of alcohol abuse and dependence during the last 20 years are considered. Effective treatment options for alcohol dependence have been expanded to include pharmacotherapy, and brief interventions have proved effective for nondependent individuals who drink at hazardous levels.1 Moore and colleagues7 demonstrated that even minimal interventions motivate hospitalized patients to seek alcohol treatment. Recent evidence also supports cost-effectiveness of brief physician advice. In ambulatory medical settings, Fleming and colleagues36 found significant reductions in drinking measures and hospital days, as well as savings of $4.30 for every $1.00 spent on early intervention.

In a discussion of reliability and validity of medical record information, Aaronson and Burman25 noted that data of a sensitive nature, such as alcohol abuse, is poorly documented in hospital records. Poor documentation may be due, at least in part, to concerns about legal issues, insurance coverage for injuries caused by alcohol intake, and confidentiality of record information.37 However, considerations other than poor documentation were likely involved in the present findings. Niles and McCrady8 noted that detection of alcohol abuse and dependence seemed linked to its pertinence in the treatment of the patient, a factor that appeared to influence current results as well. In the present study, once alcohol abuse or dependence was detected, appropriate laboratory examinations tended to be performed, and interview-positive admissions who received inpatient alcohol intervention were referred for postdischarge treatment at a rate of 81%.

Other factors that may account for low detection, intervention, and treatment referral rates have been enumerated in the literature. In 1981, Clark38 described impediments to diagnosing and treating alcoholism that physicians encounter, including lack of knowledge, attitudes and values inconsistent with treatment, and problems in communicating about alcohol problems with patients. In 1989, Geller and colleagues39 identified deficits in knowledge and negative attitudes as barriers to physician detection and treatment of alcoholism. In 2001, Miller and colleagues40 discussed problems in medical education that result in physicians being poorly equipped to treat patients with alcohol abuse and dependence. These authors made specific recommendations for improving medical education in addictive disorders aimed at clarifying the role of the physician and supporting this role through training, research, and policy revision.40

Several factors must be considered in interpreting these findings. Major strengths of this research include its national sample of nonmaternity acute-care admissions to nonfederal, US short-stay, general hospitals and its use of an established diagnostic interview to identify AUDs. The current research is the largest and most comprehensive study on this topic to date, although the data were collected in 1994. Comparison of national 1994 data with the most recent available national data support the currency of our data in terms of stability of (1) US alcohol consumption measures; (2) percentage of nonmaternity discharges from US nonfederal, short-stay hospitals with all-listed alcohol-related diagnosis; and (3) nonmaternity discharge rates per 10,000 US population for all-listed alcohol-related diagnosis.

Limitations include reliance on record documentation as the only measure of detection. Since physicians were not interviewed, evidence of detection of alcohol-related disorders was confined to matters documented...
in the record. Another potential limitation is response rate. While our admission response rates were all above 70%, our hospital response rate was 63%. We found no significant differences between participating and non-participating hospitals on 12 key variables, 4 of which were significantly associated with AUD.3 Our overall response rate (41%), derived by multiplying 3 levels of nonresponse for males (hospital, male screening, and male interview) and 2 levels of nonresponse for females (hospital and female interview), was low. Concerned that this might impact the representativeness of our sample of admissions, we compared our sample with the National Hospital Discharge Survey sample for 199417 and found no significant differences based on sex, age, or race.3

In conclusion, alcohol abuse and dependence represent major problems among US inpatient admissions in that 24% of current-drinking admissions were found to have a current DSM-IV AUD.3 Given these circumstances, hospitalization provides an excellent opportunity for identifying alcohol problems among patients and providing them with alcohol intervention or treatment referral services as needed. However, our findings suggest that this opportunity is often missed, as we found estimated rates of detection, intervention, and treatment referral to be unacceptably low. Concerted efforts are needed in education of medical students and residents, and in continuing medical education of practicing physicians, to address this problem. Current-drinking admissions to short-stay, general hospitals should be screened for alcohol problems as part of the admission routine, with further professional evaluation, intervention, and treatment referral as indicated.

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