

Citation:

McDonald AJ 3rd, Wang N, Camargo CA Jr. US emergency department visits for alcohol-related diseases and injuries between 1992 and 2000. *Arch Intern Med.* 2004 Mar 8;164(5):531-7.

PubMed ID: [15006830](#)

Study Design:

Trend Study

Class:

D - [Click here](#) for explanation of classification scheme.

Research Design and Implementation Rating:

NEUTRAL: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

This study examines alcohol-related emergency department (ED) visits at a national level, without relying on physician medical record documentation or patient disclosure of alcohol involvement in ED visits.

Inclusion Criteria:

Data were obtained from the National Hospital Ambulatory Medical Care Survey for 1992 through 2000.

Exclusion Criteria:

The NHAMCS excluded federal, military and Veterans Affairs hospitals.

Description of Study Protocol:**Methods:**

Data were obtained from the National Hospital Ambulatory Medical Care Survey for 1992 through 2000.

Design: Longitudinal analysis

Thirty-seven alcohol-related diagnoses and their corresponding alcohol-attributable fractions (AAFs) were used to estimate the number of ED visits attributable to alcohol. Diagnoses with an AAF of 1 were analyzed by age, sex, and race. Disposition to inpatient settings and alcohol screening also were examined.

Blinding used (if applicable): not applicable

Intervention (if applicable): not applicable

Statistical Analysis

- Trends were analyzed for the 9-year study using STATA 7.0 software (StataCorp, College Station, TX).
- To assess a change in trend over time, 95% prediction bands were calculated by fitting a line to all years except 2000.
- The 2000 data point was considered significantly different from the established trend when outside the 95% prediction band.
- Confidence intervals (CIs) were calculated using the relative SE of the estimate.

Data Collection Summary:

Timing of Measurements

Data analyzed from 1992 through 2000.

Dependent Variables

- Alcohol-related emergency department visits

Independent Variables

- Alcohol-attributable fraction (AAF): 37 alcohol related diagnoses
- AAFs equal to 1: alcoholic psychoses, alcohol dependence syndrome, nondependent abuse of alcohol, alcoholic polyneuropathy, alcoholic cardiomyopathy, alcoholic gastritis, alcoholic fatty liver, acute alcoholic hepatitis, alcoholic cirrhosis of liver, alcoholic liver damage - unspecified, excessive blood level of alcohol, accidental poisoning by ethyl alcohol

Control Variables

Description of Actual Data Sample:

Initial N: see below

Attrition (final N): see below

Total Numbers and Rates of Alcohol-Related ED Visits from 1992 through 2000

Year	Alcohol-Related ED Visits in Thousands	Total No. of ED Visits in Thousands	Percentage of Total No. of ED Visits that Were Alcohol Related
1992	7070	89,796	7.9

1993	6948	90,266	7.7
1994	7176	93,402	7.7
1995	7598	96,545	7.9
1996	7453	90,347	8.2
1997	7668	94,936	8.1
1998	8130	100,385	8.1
1999	8223	102,765	8.0
2000	8376	108,017	7.8
Total	68,643	866,459	7.9

Age: Ranged from 15 to 50+ years

Ethnicity: Not reported; however the authors did state that there were no differences in hospital admission rates between blacks and whites.

Location: United States

Summary of Results:

Key Findings

- During these 9 years, there were an estimated 68.6 million (95% CI, 65.6 million to 71.7 million) Emergency Department (ED) visits attributable to alcohol, a rate of 28.7 (95% CI, 27.1-30.3) per 1000 US population
- The number of alcohol-related visits increased 18% during this period.
- Visit rates for diagnoses with AAFs of 1 were highest for those who were aged 30 through 49 years, male and black.
- From 1992 to 2000, these disparities remained stable for age group but significantly changed for sex (+22%) and race (-76%).
- Most patients with diagnoses with AAFs of 1 were not admitted to an inpatient unit.
- The percentage of patients who underwent blood alcohol concentration testing was substantially lower than corresponding AAFs.

Author Conclusion:

Alcohol-related Emergency Department (ED) visits are approximately 3 times higher than previous estimates determined by physician documentation or patient disclosure of alcohol involvement. Rising trends, changing disparities, and suboptimal ED management of such visits are a call to action.

Reviewer Comments:

Authors note the following limitations:

- *Reliance on the diagnoses and corresponding AAFs described in the Alcohol-Related Disease Impact Software; some diagnoses that could be caused by alcohol may not be included*
- *Considering the limitations involved in the indirect calculations of AAFs, these fractions should be regarded as best estimates*
- *Errors in medical record review and coding would affect accuracy of results*
- *NHAMCS data excluded federal, military and Veterans Affairs hospitals.*

Research Design and Implementation Criteria Checklist: Primary Research

Relevance Questions

1.	Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies)	N/A
2.	Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about?	Yes
3.	Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to nutrition or dietetics practice?	Yes
4.	Is the intervention or procedure feasible? (NA for some epidemiological studies)	N/A

Validity Questions

1.	Was the research question clearly stated?	Yes
1.1.	Was (were) the specific intervention(s) or procedure(s) [independent variable(s)] identified?	Yes
1.2.	Was (were) the outcome(s) [dependent variable(s)] clearly indicated?	Yes
1.3.	Were the target population and setting specified?	Yes
2.	Was the selection of study subjects/patients free from bias?	???
2.1.	Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study?	Yes
2.2.	Were criteria applied equally to all study groups?	Yes
2.3.	Were health, demographics, and other characteristics of subjects described?	Yes
2.4.	Were the subjects/patients a representative sample of the relevant population?	???

3.	Were study groups comparable?	N/A
3.1.	Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT)	N/A
3.2.	Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline?	N/A
3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	N/A
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	N/A
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	N/A
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
4.	Was method of handling withdrawals described?	N/A
4.1.	Were follow-up methods described and the same for all groups?	N/A
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or response rate (cross-sectional studies) described for each group? (Follow up goal for a strong study is 80%.)	N/A
4.3.	Were all enrolled subjects/patients (in the original sample) accounted for?	N/A
4.4.	Were reasons for withdrawals similar across groups?	N/A
4.5.	If diagnostic test, was decision to perform reference test not dependent on results of test under study?	N/A
5.	Was blinding used to prevent introduction of bias?	Yes
5.1.	In intervention study, were subjects, clinicians/practitioners, and investigators blinded to treatment group, as appropriate?	N/A
5.2.	Were data collectors blinded for outcomes assessment? (If outcome is measured using an objective test, such as a lab value, this criterion is assumed to be met.)	Yes
5.3.	In cohort study or cross-sectional study, were measurements of outcomes and risk factors blinded?	N/A
5.4.	In case control study, was case definition explicit and case ascertainment not influenced by exposure status?	N/A

5.5.	In diagnostic study, were test results blinded to patient history and other test results?	N/A
6.	Were intervention/therapeutic regimens/exposure factor or procedure and any comparison(s) described in detail? Were intervening factors described?	Yes
6.1.	In RCT or other intervention trial, were protocols described for all regimens studied?	N/A
6.2.	In observational study, were interventions, study settings, and clinicians/provider described?	Yes
6.3.	Was the intensity and duration of the intervention or exposure factor sufficient to produce a meaningful effect?	N/A
6.4.	Was the amount of exposure and, if relevant, subject/patient compliance measured?	N/A
6.5.	Were co-interventions (e.g., ancillary treatments, other therapies) described?	N/A
6.6.	Were extra or unplanned treatments described?	N/A
6.7.	Was the information for 6.4, 6.5, and 6.6 assessed the same way for all groups?	N/A
6.8.	In diagnostic study, were details of test administration and replication sufficient?	N/A
7.	Were outcomes clearly defined and the measurements valid and reliable?	???
7.1.	Were primary and secondary endpoints described and relevant to the question?	Yes
7.2.	Were nutrition measures appropriate to question and outcomes of concern?	Yes
7.3.	Was the period of follow-up long enough for important outcome(s) to occur?	Yes
7.4.	Were the observations and measurements based on standard, valid, and reliable data collection instruments/tests/procedures?	???
7.5.	Was the measurement of effect at an appropriate level of precision?	???
7.6.	Were other factors accounted for (measured) that could affect outcomes?	Yes
7.7.	Were the measurements conducted consistently across groups?	N/A
8.	Was the statistical analysis appropriate for the study design and type of outcome indicators?	Yes
8.1.	Were statistical analyses adequately described and the results reported appropriately?	Yes
8.2.	Were correct statistical tests used and assumptions of test not violated?	Yes

8.3.	Were statistics reported with levels of significance and/or confidence intervals?	Yes
8.4.	Was "intent to treat" analysis of outcomes done (and as appropriate, was there an analysis of outcomes for those maximally exposed or a dose-response analysis)?	N/A
8.5.	Were adequate adjustments made for effects of confounding factors that might have affected the outcomes (e.g., multivariate analyses)?	Yes
8.6.	Was clinical significance as well as statistical significance reported?	Yes
8.7.	If negative findings, was a power calculation reported to address type 2 error?	N/A
9.	Are conclusions supported by results with biases and limitations taken into consideration?	Yes
9.1.	Is there a discussion of findings?	Yes
9.2.	Are biases and study limitations identified and discussed?	Yes
10.	Is bias due to study's funding or sponsorship unlikely?	Yes
10.1.	Were sources of funding and investigators' affiliations described?	Yes
10.2.	Was the study free from apparent conflict of interest?	Yes

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