



Alcoholism Isn't What it Used To Be

“NIAAA’s goal now and for the foreseeable future is to develop and disseminate research-based resources for each stage of the alcohol use disorder continuum, from primary prevention to disease management,” according to acting NIAAA director Ken Warren, Ph.D.

The realization dawned gradually as researchers analyzed data from NIAAA’s 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). In most persons affected, alcohol dependence (commonly known as alcoholism) looks less like Nicolas Cage in *Leaving Las Vegas* than it does your party-hardy college roommate or that hard-driving colleague in the next cubicle.

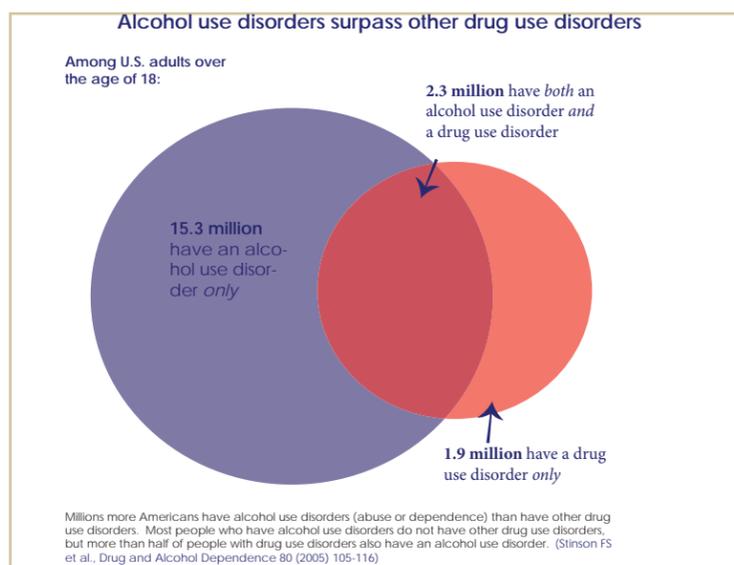
“We knew from the 1991–1992 National Longitudinal Alcohol Epidemiologic Study that alcohol dependence is most prevalent among younger adults aged 18 to 29,” says Bridget Grant, Ph.D., Ph.D., chief of NIAAA’s Laboratory Epidemiology and Biometry. “However, it was not until we examined the NESARC data that we pinpointed age 22 as the mean age of alcohol dependence onset.” Subsequent analysis by Ralph Hingson, Sc.D., director, Division of Epidemiology and Prevention Research, showed that nearly half

of people who become alcohol dependent do so by age 21 and two-thirds by age 25.

The NESARC surveyed more than 43,000 individuals representative of the U.S. adult population using questions based on criteria in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) of the American Psychiatric Association (APA). Published in 1994, DSM-IV recognizes alcohol dependence by preoccupation with drinking, impaired control over drinking, compulsive drinking, drinking despite physical or psychological problems caused or made worse by drinking, and tolerance and/or withdrawal symptoms. Meanwhile, findings continue to accumulate to challenge past perceptions of the nature, course, and outcome of alcoholism.

Among those findings:

- Many heavy drinkers do not have alcohol dependence. For example, even in people who have 5 or more drinks a day (the



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equivalent of a bottle of wine) the rate of developing dependence is less than 7 percent per year.

- Most persons who develop alcohol dependence have mild to moderate disorder, in which they primarily experience impaired control. For example, they set limits and go over them or find it difficult to quit or cut down. In general, these people do not have severe alcohol-related relationship, health, vocational, or legal problems.

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An Annotated Bibliography for the Detection of Ethyl Glucuronide in Hair

by Joseph Jones

Vice President Laboratory Operations

Many articles concerning the detection of ethyl glucuronide (EtG) have been published in the scientific literature over the past decade. Compiling a list of these works can be helpful to assess the extent of the research that has been conducted or the maturity of the current knowledge base of a particular subject matter. A simple list of articles is called a Bibliography or Reference List. Going one step further and providing a critique or summary of the important implication(s) of each article is called an Annotated Bibliography.

USDTL has prepared an annotated bibliography highlighting what we think are the important works on the subject of the detection of EtG in hair. Specific formats and content vary by institution and/or need. Each entry of our Annotated Bibliography contains the official scientific citation in APA format, the abstract, and a short summary called “Implications of this study”. In the Implications section, we summarize the points raised by the article that we feel are relevant to our objectives.

This annotated bibliography includes 22 entries and a copy of the Society of Hair Testing’s “Consensus of the Society of Hair Testing on hair testing for chronic excessive alcohol consumption 2011”. The document is 24 pages in length. Following is an example of a typical entry in our annotated bibliography.

Politi, L., Morini, L., Leone, F., & Poletini, A. (2006). Ethyl glucuronide in hair: is it a reliable marker of chronic high levels of alcohol consumption? *Addiction*, 101(10), 1408-1412. doi: 10.1111/j.1360-0443.2006.01537.x

Abstract: This study aims to investigate the relationship between ethanol daily intake (EDI) and the levels of ethyl glucuronide in hair. **Design:** Ethyl glucuronide concentration was determined in hair samples from different classes of ethanol drinkers and results were compared with the reported information about drinking habits. **Setting:** Pavia, Italy. **Participants:** Twenty-two known alcoholics, 21 volunteers self-reporting an EDI from 2 to 60 g, and seven teetotalers were involved in this study. **Measurements:** Ethyl glucuronide determination in hair samples was performed by liquid chromatography-tandem mass spectrometry (limit of detection: 2 pg/mg, lower limit of quantification: 3 pg/mg). **Findings:** Current known alcoholics (n=21) had ethyl

glucuronide hair concentration in the range 4.0–434.7 pg/mg (average: 62.8, median 37.4 pg/mg); ethyl glucuronide was not detected in hair samples from teetotalers (n=7); all volunteers reporting an EDI of at least 30 g (‘non-moderate drinkers’ according to the US Department of Health and Human Services) tested positive for ethyl glucuronide (cut-off: 4 pg/mg). All volunteers declaring an ethanol daily intake higher than 40 g (‘heavy drinkers’ according to the World Health Organization, Regional Committee for Europe) tested positive for this compound (cut-off: 5 pg/mg). The application of a cut-off of either 4 pg/mg or 5 pg/mg resulted in one false positive, coming

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Ask the president



President Douglas Lewis

Q: How long do I have to dispute a result?

A: USDTL saves negative specimens for seven days after initial accessioning. Seven days is longer than the customary three days that most labs retain negatives. This duration should allow clients a reasonable time to decide if dispute resolution is needed, to contact customer service and initiate the process. Positive specimens are stored frozen for one year following accessioning. Our Client Services Representatives will provide you with the necessary paperwork for you to sign and return to initiate the re-test process. Once the paperwork is in order, Client Services will return a re-test result to you in one to two working days. If you have any questions after receiving the results, please contact Client Services and they will either assist you or direct you to one of our forensic toxicologists to discuss the case with you.

Got a question for USDTL? Ask President and Scientific Director Douglas Lewis. E-mail nancy.parra@usdtl.com with your questions, and you may be featured in our newsletter!

Alcoholism (cont.)

- About 70 percent of affected persons have a single episode of less than 4 years. The remainder experience an average of five episodes. Thus, it appears that there are two forms of alcohol dependence: time-limited, and recurrent or chronic.
- Although 22 is the average age when alcohol dependence begins, the onset varies from the mid-teens to middleage.
- Twenty years after onset of alcohol dependence, about three-fourths of individuals are in full recovery; more than half of those who have fully recovered drink at low-risk levels without symptoms of alcohol dependence.
- About 75 percent of persons who recover from alcohol dependence do so without seeking any kind of help, including specialty alcohol (rehab) programs and Alcoholics Anonymous. Only 13 percent of people with alcohol dependence ever receive specialty alcohol treatment.

“These and other recent findings turn on its-head much of what we thought we knew about alcoholism,” according to Mark Willenbring, M.D., director of NIAAA’s Division of Treatment and Recovery Research.

“As is so often true in medicine, researchers have studied the patients seen in hospitals and clinics most intensively. This can greatly skew understanding of a disorder, especially in the alcohol field, where most people neither seek nor receive treatment and those who seek it do so well into the course of disease.

Longitudinal, general population studies such as the NESARC permit us to see the entire disease continuum from before onset to late-stage disease.” To Willenbring, these realizations call for a public health approach that targets at-risk drinkers and persons with mild alcohol disorder to prevent or arrest problems before they progress. NIAAA is addressing this need with tools to expand risk awareness (<http://rethinkingdrinking.niaaa.nih.gov>) and inform secondary prevention and primary care screening (<http://www.niaaa.nih.gov/guide>). New criteria to guide clinicians in diagnosis and treatment await decisions by the DSM-V committee, expected about 2012. Both Dr. Grant and Howard Moss, M.D, associate director for clinical and translational research, represent NIAAA on that committee.

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Bibliography (cont.)

from a volunteer asserting an ethanol daily intake of 30 g. of ethyl glucuronide in hair appears to correlate with EDI.

Implication of this study: This Italian study used a detailed questionnaire to determine the ethanol daily intake from a variety of risk groups. This study reported that they were able to discriminate seven teetotalers as negative, 21 alcoholics (4-435 pg/mg) and 21 social drinkers (LOD to 35.4 pg/mg). The authors reported that a correlation exists between EtG in hair and reported ethanol daily intake.

To read the full version of ‘Ethyl Glucuronide in Hair Annotated Bibliography’, please visit our website at www.usdtl.com or contact Client Services at 1-800-235-2367 to receive a copy.



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