

NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM

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Mission:

Alcohol is the third leading cause of preventable death in the United States and the third leading cause of healthy years lost to death and disability in developed nations, according to the Centers for Disease Control and Prevention and the World Health Organization, respectively. The financial burden from alcohol abuse and alcoholism on our nation is estimated at \$185 billion annually.

Both genetic and environmental factors contribute to alcoholism. Among the reasons for alcohol's high ranking as a cause of death and disability is its extraordinarily widespread biological interactions with cells of the brain B interactions that lead to alcohol-related behaviors B and with the cells of other organs. It is a registered toxin and a carcinogen, yet if consumed in moderation appears to protect against some chronic diseases. Unique social and legal issues add to its complexity.

Despite alcohol's #3 ranking, one of the biggest obstacles that must be overcome is the need for the medical community to accept alcoholism as a developmental disease requiring early recognition and intervention. We now know that most cases of alcoholism are established before the age of 25. Typical of the gap between research and practice is the fact that new medications for alcoholism are available and appear in medical journals and press releases, yet largely are not prescribed by physicians.

Selected Achievements and Initiatives:

Most Alcoholism Begins Before Age 25: Independent studies have produced striking evidence that most cases of alcoholism are established by age 25. However, practitioners traditionally diagnose it in the late stages, when people are older and their social structures and health have become severely damaged enough to produce blatant symptoms. The discovery that alcoholism begins in youth requires a major shift in both the research and practice communities, to reflect the fact that youth is the primary window of opportunity for understanding, preventing, and treating alcoholism.

Preventing Underage Drinking in Rural and Small Urban Areas: Alcohol is the primary substance of abuse among the nation's children, and rural children top the geographical list of those exhibiting several major risk behaviors. An NIAAA initiative is identifying risk factors, including neurobiological factors, common to youth, and is developing and implementing prevention and intervention programs. Partnering with practitioners to address underage drinking has taken on increased urgency, now that we know that youth is the age of greatest risk of alcoholism. NIAAA has recruited academic health centers to conduct the research for this initiative, since they tend to have in place medical components and networks of service providers. Among the goals of this project is to determine if existing health systems can successfully prevent and treat alcohol-related problems of youth.

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Building on the Genetic Link to Alcoholism and a Brainwave: NIAAA-funded scientists recently discovered a potential genetic marker for risk of alcoholism and pathway for pharmaceutical targets. In previous studies, the scientists had linked deviations in the beta brainwave to increased risk of alcoholism. They also had linked the brainwave to a cluster of genes that encode a receptor for one of the major neurotransmitters in the brain (GABA). Now, the same scientists have narrowed the search to the genes that produce one specific building block of the GABA receptor.

Basic Research on Medications Development for Alcohol-Use Disorders: We have the potential to greatly expand treatment success, in a substantially larger portion of the population, with medications designed to target the biological mechanisms that underlie alcohol-use disorders and organ damage. Developing medications based on an understanding of the biological underpinnings of alcohol-use disorders is a top priority. Our research includes studies of genetic factors that influence whether or not a given medication will be effective from individual to individual. Identification of neurobiological pathways of recovery will reveal potential pharmaceutical targets. Investigators are using neurocognitive imaging methods in humans and animal models for this project.

Behavioral and Genetic Risk Factors for Alcoholism: We need to know what factors put people at risk of developing alcoholism, or protect them from it, in order to develop effective prevention strategies. About half of the risk is genetic; the other half stems from environmental factors. These factors are numerous, change throughout the lifespan, and occur in multiple combinations. This initiative is identifying these risk factors and determining how they interact with each other to result in alcohol-use disorders. Large, long-term studies of the same individuals throughout life are providing the necessary data for analysis. Cultural and ethnic minorities offer particular advantages for detecting genetic and environmental factors, and are included in this research.

Appropriations History

(\$ in thousands)

FY 2001	\$340,453 (+16.4%)
FY 2002	\$383,615 (+12.7%)
FY 2003	\$416,051 (+8.5%)
FY 2004	\$428,669 (+3.0%)
FY 2005	\$438,277 (+2.2%)

Extramural Research Project Grants

(Includes SBIR/STTRs)

FY 2001	684
FY 2002	725
FY 2003	749
FY 2004	766
FY 2005	775

Success Rate — Research Project Grants

FY 2001	33%
FY 2002	32%
FY 2003	27%
FY 2004	29%
FY 2005	31%

Research Training Positions Supported

FY 2001	247
FY 2002	237
FY 2003	255
FY 2004	267
FY 2005	264

Research Centers

FY 2001	15
FY 2002	15
FY 2003	16
FY 2004	18
FY 2005	18