

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672

66 SCOMM 6 : SENATE SPECIAL COMM. ON ALCOHOLISM 1977-78

(5) Please indicate other groups who have expressed interest or opposition to legislation or regulations dealing with health insurance coverage for alcoholism:

<u>Name of Group</u>	<u>Contact Person</u>	<u>Supported Legislation</u>	<u>Opposed Legislation</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

C. AGENCY OPERATIONS

(1) Please describe how your agency determines whether health insurance carriers operating within your state are in compliance with your regulations (check all that apply):

- Carrier must periodically file copies of policies and amendments for your review and approval
- Carrier periodically stipulates compliance
- No formal mechanism to assure compliance
- Competition among carriers tends to assure compliance
- Other (please specify) \_\_\_\_\_

(2) Does your agency make routine or special examinations of health insurance carriers operating within your state?

- No
- Yes (please explain) \_\_\_\_\_

(3) Does your agency call upon other state agencies concerned with licensing of health care facilities and personnel or professional health associations or groups for advice, consultation, review of regulations, etc.?

- No
- Yes (please explain) \_\_\_\_\_

(4) Does your agency collect on a routine basis data concerning various aspects of health insurance? Check those which apply.

- Data on consumer costs
- Data on carrier income
- Data on carrier benefit payments
- Data on illness costs (e.g., hospitals and physician care costs)
- Other data (please explain) \_\_\_\_\_

(5) Has your agency ever collected data which reflects:

a) the nature and extent of benefits paid out for treatment of alcoholism?

No

Yes (please explain) \_\_\_\_\_  
\_\_\_\_\_

b) the cost of treatment for alcoholism?

No

Yes (please explain) \_\_\_\_\_  
\_\_\_\_\_

c) the effectiveness of health insurance carriers in handling claims for payment of alcoholism treatment costs?

No

Yes (please explain) \_\_\_\_\_  
\_\_\_\_\_

(6) Please describe how rates are established for health insurance policies:

Agency establishes rates independently (please describe) \_\_\_\_\_

Carriers submit proposed rate schedules for agency review and approval

Rates are, in effect, established by the competitive health insurance carrier marketplace

D. PERCEPTIONS CONCERNING HEALTH INSURANCE COVERAGE FOR ALCOHOLISM

(1) Do you think your current regulations assure adequate health insurance coverage for alcoholism?

Yes

No (please explain) \_\_\_\_\_  
\_\_\_\_\_

(2) Do you feel that health insurance should provide coverage for treatment of alcoholism?

Yes

No (please explain) \_\_\_\_\_  
\_\_\_\_\_

(3) Which type of health insurance contracts (group or individual) do you feel should provide coverage for treatment of alcoholism?

Group only (please explain) \_\_\_\_\_

Individual only (please explain) \_\_\_\_\_

Individual and group

- (4) Do you think that statutes and/or regulations are necessary to assure that health insurance policies will contain provisions for coverage of treatment of alcoholism?

       Yes (please explain) \_\_\_\_\_  
\_\_\_\_\_  
       No (please explain) \_\_\_\_\_  
\_\_\_\_\_

E. HEALTH MAINTENANCE ORGANIZATIONS (HMOs)

- (1) Do HMOs fall under the insurance regulations of your state?        Yes        No.
- (2) Do your health insurance regulations require that HMOs offer treatment for alcoholism?        No        Yes. If not, are such regulations planned?        No        Yes  
(Please describe planned regulations) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PLEASE RETURN COMPLETED QUESTIONNAIRE TO: Dr. J. B. Hallan  
H-2, Inc.  
P. O. Box 10503  
Raleigh, N. C. 27605

APPENDIX B

LEGISLATIVE INTERVIEW GUIDE

Legislative Group  
Interviewed

Name & Title of  
Person Interviewed

1. State \_\_\_\_\_

2. Legislative groups active in health insurance coverage for alcoholism (HICA)

A. Senate

- Names 1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_

B. House

- Names 1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_

3. Description of legislative activities concerning HICA during past two years

- \_\_\_ originators of hearings and bills  
\_\_\_ administration inputs  
\_\_\_ special study groups  
\_\_\_ lobbying groups and activities  
\_\_\_ deliberations of House or Senate  
\_\_\_ actions: \_\_\_ passage or \_\_\_ defeat  
\_\_\_ implementation time

4. Key factors in development, passage or defeat of bills

Development

Passage of Bill

Defeat of Bill

5. Information used in bill preparation: sources and types

Sources

Types

- |  |       |
|--|-------|
| <input type="checkbox"/> lobbying groups     | _____ |
| <input type="checkbox"/> professional groups | _____ |
| <input type="checkbox"/> administration      | _____ |
| <input type="checkbox"/> other states        | _____ |
| <input type="checkbox"/> Federal Government  | _____ |
| <input type="checkbox"/> other               | _____ |

6. Perception of need and support for legislation

- legislative peers
- professional groups - providers
- public - consumers

7. Description of bill provision

- individual contract coverage
- group contract coverage
- exact nature of benefits specified

8. Relevant work in progress by either house, administration or lobbying groups

9. Planned future work

APPENDIX C

POTENTIAL UNIFORM REGULATORY LANGUAGE CONCERNING  
HEALTH INSURANCE COVERAGE FOR ALCOHOLISM

MINIMUM STANDARD  
BENEFIT LANGUAGE

All (issued or renewed) policies or plans of group or individual health (medical, hospitalization, accident and sickness, disability) insurance shall provide for the care and treatment of alcoholism on an equivalent basis to other health service benefits specified in the policy or plan.

STANDARD BENEFIT LANGUAGE

All (issued or renewed) policies or plans of group or individual health (medical, hospitalization, accident and sickness, disability) insurance shall provide for the inpatient, intermediate, and outpatient care and treatment of alcoholism provided that such care and treatment is given in a licensed treatment facility.

MAXIMUM STANDARD  
BENEFIT LANGUAGE

All (issued or renewed) policies or plans of group or individual health (medical, hospitalization, accident and sickness, disability) insurance shall provide for the following minimum benefits for the care and treatment of alcoholism:

- (1) Inpatient benefits: no less than 14 days of inpatient care in a licensed treatment facility during any given inpatient benefit period.
- (2) Intermediate care benefits: no less than 30 days of intermediate care in a licensed treatment facility during any given benefit period.
- (3) Outpatient care benefits: no less than 45 outpatient visits to a licensed treatment facility during any given benefit period.

## GLOSSARY\*

**BENEFITS:** Services provided through and paid by the insurer under an insurance contract.

**BENEFIT PERIOD:** A period of time following initiation of some type of care during which a person may receive maximum benefits as provided for in the benefit specifications.

**GROUP INSURANCE POLICY:** Insurance covering a group of persons under one contract issued to an employer or organization for the benefit of employees or other members of the group.

**HEALTH INSURANCE:** The generic term covering forms of insurance relating to the health of human beings including but not limited to accident insurance, sickness insurance, disability insurance, hospital insurance, and medical expense insurance.

**INDIVIDUAL INSURANCE POLICY:** A contract insuring but one person or one person and his family.

**INPATIENT CARE:** Care provided on a 24 hour basis to a person domiciled within a given treatment facility; services are usually of a wide range and may include medical and psychosocial treatment.

**INTERMEDIATE CARE:** Care provided for persons not requiring full time inpatient care but who need either day or night care or sheltered living arrangements. Such care may involve (1) a range of services such as that found in inpatient care or (2) more limited services, e.g. social therapy.

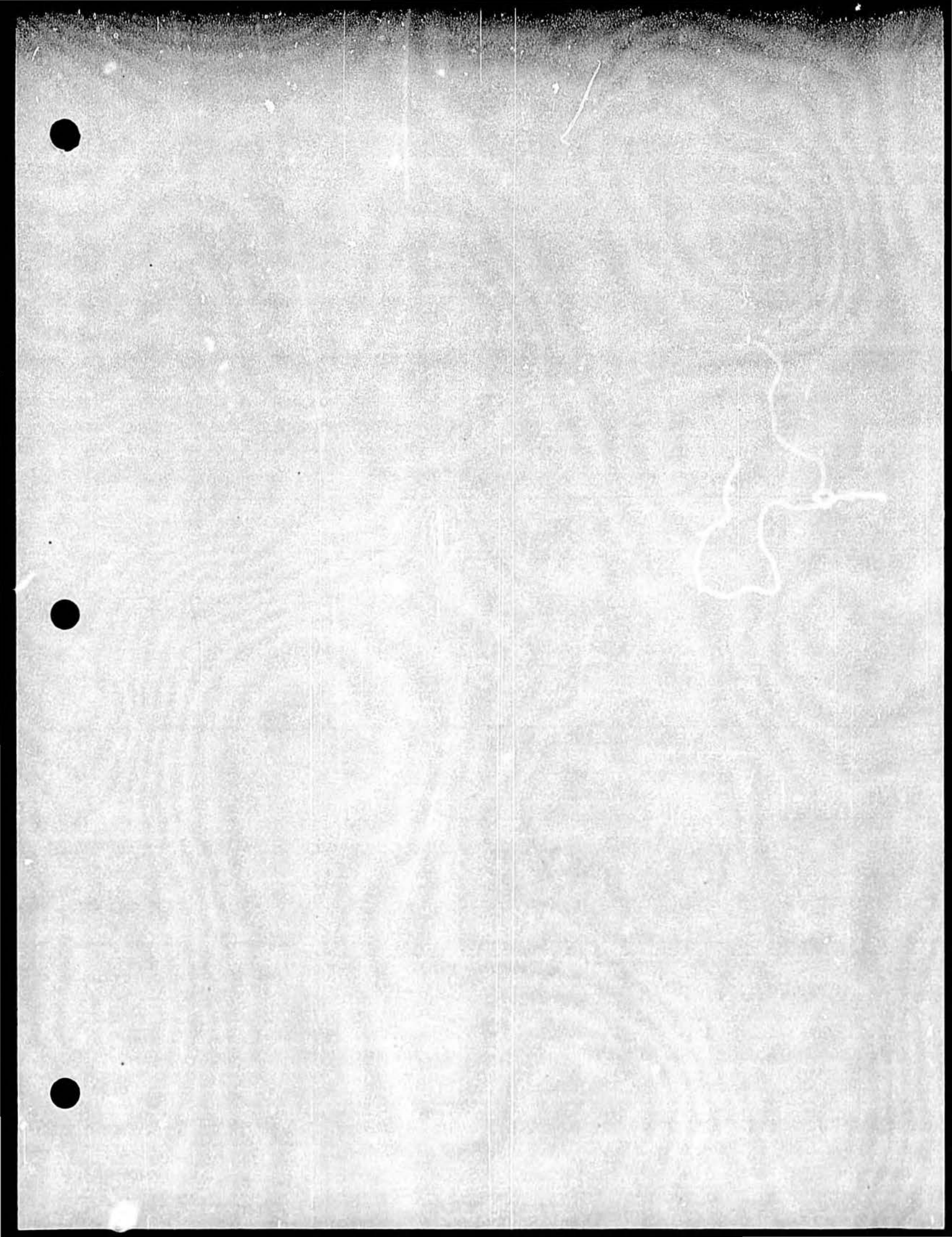
**LICENSED TREATMENT FACILITY:** Any facility or service setting which has been licensed by an appropriate state authority to provide for the care and treatment of alcoholism.

**OUTPATIENT CARE:** Care provided by and in a facility, institution or service to a nonresident person. Such care may include a range of services on an emergency or nonemergency continuous basis.

**PLAN:** A document that sets out the insurance contract.

**POLICY:** A document that sets out the insurance contract.

- \*Sources:
- 1) E. J. Faulkner, Health Insurance, NY: McGraw Hill Book Co., 1960.
  - 2) J. B. Hallan, "Health Insurance Coverage for Alcoholism: Model Benefit Provisions," unpublished report prepared for the National Institute on Alcohol Abuse and Alcoholism, 1973.
  - 3) Joint Commission on Accreditation of Hospitals, Accreditation Manual for Alcoholism Programs, 1974, unpublished report prepared for the National Institute on Alcohol Abuse and Alcoholism, 1974.



subterfuge diagnoses, or by nonmedical modalities, including those of clinical psychology, religious counseling, lay therapies, and, from the mid-1930s on, Alcoholics Anonymous; or, for the most part, they went untreated until they became totally disabled.

As time went on, and as the commercial insurance companies had no specific exclusions for mental illness, or for alcoholism, the States began submitting claims in the case of patients who had insurance to recover the costs of their hospitalization. Insurance companies countered by newly defining "hospitals" so as to exclude State mental hospitals. Even in the early 1950s, when coverage by health insurance for outpatient treatment of physical conditions was beginning to expand, there was no comparable expansion of mental health and alcoholism benefits (10).

The current situation in mental health insurance coverage, mostly including alcoholism, is a far cry from that of 20 years ago. Approximately 63 percent of the civilian population now have some form of private health insurance which covers the in-hospital treatment of mental illness. About 61 percent have some coverage for physician in-hospital visits, and about 38 percent for physician office visits, for mental conditions (24). Despite such seemingly extensive coverages, highly restrictive limitations often exist with regard to the type of facility in which the patient can be hospitalized, the length of stay, and, for outpatient treatment, the number of visits and the amount of reimbursement.

### History of Federal Experience

Although some Federal agencies, such as Social Rehabilitation Services and the Social Security Administration, have been concerned with alcoholism services for populations under their jurisdiction, the major concern for health insurance coverage for alcoholism has been within the Department of Health, Education, and Welfare (DHEW) and more specifically, since its creation in 1970, in the National Institute on Alcohol Abuse and Alcoholism (NIAAA). DHEW's activities date back to before the establishment of the National Center for Prevention and Control of Alcoholism, the predecessor of NIAAA. At that time, an Advisory Committee to the Secretary of DHEW recommended that studies in the area of alcoholism be undertaken. One recommendation

concerned the need to examine third-party reimbursements for alcoholism. In 1967, the National Center for the Prevention and Control of Alcoholism began accumulating data on inpatient coverage for alcoholism treatment under health insurance. A 1968 report released the following information (25):

- Just over 60 percent of the general hospitals excluded the admission of persons needing alcoholism treatment.
- About 40 percent of the Blue Cross-Blue Shield plans excluded alcoholism from coverage.
- Independent health insurance plans had even greater exclusions for alcoholism than the Blue Cross-Blue Shield plans. Commercial insurance companies were not surveyed, but available information indicated that they were probably similar to Blue Cross and Blue Shield.

With the advent of the legislation that created NIAAA (the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act of 1970) the question of insurance coverage for alcoholism came to the forefront. As NIAAA encouraged programs for employed alcoholic persons (see chapter VIII) it emphasized also the advantages of insurance coverage for them.

In the spring of 1972 NIAAA sponsored an update of the 1968 report. This study (11), released in the fall of 1972 (discussed in detail below), found that although there had been some improvement in health insurance coverage for alcoholism, it is still far behind benefits available for physical conditions. Among the companies that provided alcoholism coverage, the nature and extent of benefits varied widely.

Coinciding with the interests of NIAAA were those of the Public Policy Committee of the National Council on Alcoholism (NCA). This committee represented national voluntary efforts in developing public and private third-party payment mechanisms for the treatment of alcoholism. After the 1972 NIAAA study was released, a joint NCA-NIAAA committee was set up to act in an advisory capacity and to coordinate further efforts regarding health insurance coverage for alcoholism.

### State Regulatory Activities

The McCarran Act of 1945 gave to the States the power to regulate the type and extent of

Director, Office of Public Affairs.....  
 Director, Office of International Health.....  
 Director, Office of Health Legislation.....  
 Director, Office of Equal Employment Opportunity.....

**Alcohol, Drug Abuse, and Mental Health Administration**

5600 Fishers Lane, Rockville, Md. 20857  
 Phone, 301-443-4795

Administrator.....  
 Director, Office of Administrative Management.....  
 Director, Office of Communications and Public Affairs.....  
 Director, Office of Program Planning and Evaluation.....  
 Director, Office of Program Coordination.....

Director, National Institute of Mental Health.....

Director, National Institute on Alcohol Abuse and Alcoholism.....  
 Director, National Institute on Drug Abuse.....

**Center for Disease Control**

1600 Clifton Road NE., Atlanta, Ga. 30333  
 Phone, 404-633-3311

Director.....  
 Deputy Director.....  
 Assistant Director for Program.....  
 Assistant Director for Operations.....  
 Associate Director (CDC Washington Office).....  
 Special Assistant to the Associate Director (CDC Washington Office).....  
 Executive Officer.....  
 Assistant Executive Officer.....  
 Director, Office of Information.....  
 Director, Bureau of Epidemiology.....  
 Director, Bureau of Health Education.....  
 Director, Bureau of Laboratories.....  
 Director, Bureau of Smallpox Eradication.....  
 Director, Bureau of State Services.....  
 Director, Bureau of Training.....  
 Director, Bureau of Tropical Diseases.....  
 Director, National Institute for Occupational Safety and Health.....  
 Deputy Director.....  
 Executive Officer.....

**Food and Drug Administration**

5600 Fishers Lane, Rockville, Md. 20852  
 Phone, 301-443-3380

Commissioner of Food and Drugs.....  
 Deputy Commissioner.....  
 Associate Commissioner for Medical Affairs.....  
 Associate Commissioner for Compliance.....  
 Associate Commissioner for Science.....  
 Associate Commissioner for Administration.....  
 Assistant Commissioner for Planning and Evaluation.....  
 Assistant Commissioner for Public Affairs.....

MICHAEL F. WHITE, Acting.....  
 ROBERT DECAIRES, Acting.....  
 C. GRANT SPAETH.....  
 MATTIE K. WRIGHT.....

GERALD L. KLERMAN.....  
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 WILLIAM C. WATSON, JR.....  
 H. BRUCE DULL.....  
 DONALD R. HOPKINS.....  
 JOHANNES STUART.....

LARRY W. SPARKS.....  
 JAMES D. BLOOM.....  
 ELVIN R. HILVER.....  
 DONALD A. BERRITH.....  
 PHILIP S. BRACHMAN.....  
 HORACE G. OODEN.....  
 ROSLYN Q. ROBINSON.....  
 J. MICHAEL LANE.....  
 J. DONALD MILLAR.....  
 WINTROP N. DAVEY.....  
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 GERALD L. BAREDDOLL.....  
 JOHN T. WALDEN.....

Assistant Commissioner for Professional and C Programs.....  
 Executive Secretariat.....  
 Director, Office of Legislative Services.....  
 Equal Employment Opportunity Officer.....  
 Director, Bureau of Foods.....  
 Director, Bureau of Drugs.....  
 Director, Bureau of Veterinary Medicine.....  
 Director, Bureau of Radiological Health.....  
 Director, Bureau of Biologics.....  
 Director, Bureau of Medical Devices.....  
 Director, National Center for Toxicological Research.....  
 Executive Director of Regional Operations.....

**Health Resources Administration**

Center Building, 3700 East-West Highway, Hyattsville, Md. 20814  
 Phone, 301-443-6614

Administrator.....  
 Deputy Administrator.....  
 Associate Administrator for Operations and Management.....  
 Associate Administrator for Planning, Evaluation and Legislation.....  
 Associate Administrator for Communications.....  
 Associate Administrator for Health Resources Community Programs.....  
 Associate Administrator for Health Systems Liaison.....  
 Director, Bureau of Health Manpower.....  
 Director, Bureau of Health Planning and Resource Development.....  
 Director, Equal Employment Opportunity.....

**Health Services Administration**

5600 Fishers Lane, Rockville, Md. 20857  
 Phone, 301-443-2086

Administrator.....  
 Deputy Administrator.....  
 Associate Administrator for Operations.....  
 Associate Administrator for Management.....  
 Associate Administrator for Communications and Affairs.....  
 Associate Administrator for Planning, Evaluation and Legislation.....  
 Associate Administrator for Regional Affairs.....  
 Director, Indian Health Service.....  
 Director, Bureau of Medical Services.....  
 Director, Bureau of Community Health Services.....

**National Institutes of Health**

300 Rockville Pike, Bethesda, Md. 20014  
 Phone, 301-656-4000

Director.....  
 Deputy Director.....  
 Deputy Director for Science.....  
 Assistant Director for Intramural Affairs.....  
 Associate Director for Collaborative Research.....

HE 21, 23, 31

Second Special Report to the U.S. Congress on  
Alcohol and Health, June 1970  
From the Secretary of Health, Education and Welfare

## Findings

- Alcoholism and alcohol misuse continue to occur at high incidence rates within American society.
- The proportion of American youth who drink has been increasing. Most adolescents have at least tried alcohol, and the highest scores on an index of possible problem-drinking behaviors were recorded in the youngest age group for which data are available, the 18-20 year olds.
- The public suffers from much ignorance concerning alcohol and from ambivalent feelings toward it. Worse yet, heavier drinkers know less about alcohol than do lighter drinkers or abstainers. In general, American attitudes about drinking are marked by confusion and dissent.
- The economic cost associated with misuse of alcohol in the United States is estimated at \$25 billion a year.
- The U.S. systems of alcohol controls are chaotic relics. They provide little support in mitigating alcohol problems and may induce a counterproductive ambivalence among the public.
- The excessive use of alcohol, especially when combined with tobacco, has been implicated as increasing the risk of developing certain cancers. Nonwhite men appear to be especially susceptible.
- Heavy drinking during pregnancy can adversely affect the offspring of alcoholic mothers. The significance of heredity in alcoholism is as yet unresolved.
- The development of a new animal model of liver cirrhosis gives promise of resolving the problem of cause in one of the severest damages suffered by alcoholic people, and may contribute to more effective treatment, and prevention.
- Moderate consumption of alcohol is generally not harmful. In some cases, such as among the elderly, it may have beneficial physical, social, or psychological effects.
- The nonexcessive use of alcohol does not appear to adversely affect the overall mortality rate, nor the mortality from a specific major cause of death, coronary heart disease. In fact, the mortality of drinkers is lower than that of abstainers and ex-drinkers.
- How alcohol intoxicates and how alcohol addiction develops are outstanding fundamental questions that require intensive research in several disciplines.
- Alcoholism is a treatable illness, but different treatments are required by different individuals. Increasingly, individual treatment needs can be determined on the basis of valid studies or clinical experience.
- Early identification and treatment of alcoholic people are seriously constrained by the fact that the United States lacks a national consensus on what constitutes responsible use of alcohol. Furthermore, the current lack of parameters with regard to safe versus comparatively unsafe drinking patterns provides an inadequate and ineffective clinical base for the diagnosis of alcoholism.

## Recommendations

On May 14, 1974, the President signed Public Law 93-282, continuing and giving renewed emphasis to the Nation's settled commitment to deal with alcohol abuse and alcoholism as initially expressed by the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act of 1970. The new amendments build on the experience since 1970 and sharpen that comprehensive commitment:

"It is the policy of the United States and the purpose of this Act to (1) approach alcohol abuse and alcoholism from a comprehensive community care standpoint, and (2) meet the problems of alcohol abuse and alcoholism not only through Federal assistance to the States but also through direct Federal assistance to community-based programs meeting the urgent needs of special populations and developing methods for diverting problem drinkers from criminal justice systems into prevention and treatment programs."

On the basis of this legislative mandate and the findings of this Report, the Secretary of Health, Education, and Welfare recommends—

### **THAT THE GROWING STORE OF KNOWLEDGE ABOUT ALCOHOL AND ALCOHOLISM BE MADE MORE READILY AVAILABLE FOR USE BY SPECIALISTS AND THE PUBLIC.**

*The need to systematize and process the growing world-wide experience, study, and research so that it will be available to scholars, researchers, legislators, educators, administrators, professionals, and all citizens is critical. The further development of the National Clearinghouse for Alcohol Information, in collaboration with appropriate academic and other sources, should therefore be pursued energetically.*

### **THAT EDUCATIONAL RESOURCES FOR PROFESSIONALS AND SCHOOLS BE EXPANDED AND DEVELOPED.**

*The rehabilitation of problem drinkers and alcoholic people requires the help of a wide variety of professional and allied personnel with special skills and understanding. Resources for the training and accreditation of such specialized personnel should be identified in model form, and States or regional consortiums should be encouraged to adopt these approaches as appropriate to their own needs.*

*The long-range prevention of alcohol misuse depends in part on the transfer of knowledge about alcohol, and the understanding of its use and nonuse, to the younger generation. Schools throughout the Nation have an important role in this process. Suitable modules of alcohol education should be developed by the National Center for Alcohol Education and Regional Centers. State and local school systems can adapt these modules for their curriculums.*

### **THAT EFFORTS TO DECRIMINALIZE AND INSTEAD PROVIDE COMMUNITY CARE FOR ALCOHOLISM AND PUBLIC INTOXICATION BE REDOUBLED.**

*The Uniform Alcoholism and Intoxication Treatment Act recommended to the States by the National Conference of Commissioners on Uniform State Laws and by the Secretary of Health, Education, and Welfare provides a model for States to decriminalize alcoholism and public intoxication and establish the legal framework within which to approach them from a community care*

standpoint. This action has been recommended by the courts, Presidential Commissions, and professional organizations. A special grant in Public Law 93-282 to States that adopt this legal framework and approach is a fundamental recognition of its importance by Congress and the Administration.

**THAT THE NEW LAWS PROTECTING THE PRIVACY AND CONFIDENTIALITY OF ALL CITIZENS WITH DRINKING PROBLEMS BE STRICTLY AND IMMEDIATELY ENFORCED.**

*Public Law 93-282 amends section 333 of the Alcoholism Act to provide the first comprehensive approach to the issue of confidentiality and privacy for people with drinking problems.*

**THAT EFFORTS BE SPEEDED UP TO ASSURE QUALITY CARE FOR AND TO REDUCE THE CARNAGE OF ALCOHOLISM AMONG SPANISH-SPEAKING AMERICANS, INDIANS, AND OTHER NATIVE AMERICANS, YOUNG BLACK MEN, AND HIGHWAY TRAVELERS.**

**THAT THE VALUES OF EARLY IDENTIFICATION AND TREATMENT PROGRAMS IN BUSINESS AND INDUSTRY BE GENERALLY RECOGNIZED THROUGHOUT THE COUNTRY.**

*The magnitude of the cost to the Nation's economy stemming from problem drinking and alcoholism is staggering. It is imperative to encourage the wider establishment, in Government as well as in the private sector, of the types of program that, with the cooperation of labor and management, have successfully restored substantial majorities of affected personnel to health and normal function. The economic benefits of effective early identification and treatment programs demonstrably outweigh the cost, and the human benefits are beyond valuation.*

**THAT QUALITY AND COMPREHENSIVE CARE BE EXTENDED TO ALCOHOLIC PEOPLE THROUGH COVERAGE UNDER HEALTH AND DISABILITY BENEFITS AND THE ESTABLISHMENT OF STANDARDS FOR CARE.**

*Total coverage for the treatment of alcoholism through traditional and other third-party payment plans should continue to be studied. The application of such coverage in both general and special therapeutic settings should be explored, with particular consideration to the continuum of health and human-service needs of alcoholic people in the process of recovery and rehabilitation. Standards and certification for such care are crucial to insurance coverage and to the quality of care that can be obtained by alcoholic people.*

**THAT NEW AND REVISED POLICIES AND GUIDELINES GOVERNING THE DISTRIBUTION AND SALE OF ALCOHOLIC BEVERAGES BE DEVELOPED.**

*Current laws and regulations need to be reevaluated to determine whether they are fulfilling their intended purposes. To the extent that they are not, a set of model codes of alcohol-beverage control should be formulated, which States and communities may adopt with modifications to suit their own needs.*

**THAT IT BE RECOGNIZED THAT THE MULTIPLICITY AND EXTENT OF ALCOHOL-RELATED PROBLEMS CANNOT BE THE EXCLUSIVE RESPONSIBILITY OF THE FEDERAL GOVERNMENT. ACCORDINGLY WE SHOULD FIND WAYS—**

*To strengthen the involvement and the role of private enterprise in reducing the problems of alcohol misuse and alcoholism;*

*To enhance the role of voluntary agencies, and support by State and local governments, in activities related to the care of the afflicted, and in contributing to preventive efforts.*

THAT EFFORTS BE MADE TO INTENSIFY  
THE STUDY OF THE RELATION OF  
ALCOHOL USE TO—

*Cancer*  
*Heart disease*  
*Liver disorders*  
*Pregnancy and fetal health*  
*Aging*  
*Longevity and mortality*  
*Brain function and the addictive process*

THAT A NEW NATIONAL CONSENSUS  
CONCERNING WHAT CONSTITUTES  
RESPONSIBLE USE AND NONUSE OF

ALCOHOLIC BEVERAGES BE FOR-  
MULATED AND ARTICULATED.

*Current concepts and mores concerning the use and nonuse of alcoholic beverages are confused, inconsistent, and sometimes destructive. Knowledge about the use and misuse of alcohol needs to be shared more widely and continually so that citizens and especially our young people are given the opportunity to base their decisions to drink or not to drink on the best information that is available. In addition, new and alternative recreational and social settings may be considered in which drinking will be a coincidental function rather than the main reason for people frequenting them.*

*Most Americans drink. Drinking is learned mostly at home or from adolescent peers. Being a drinker—rather than an abstainer—is thus an American norm. But there is no universal American drinking pattern, and no common American attitude toward alcoholic beverages.*

*Amount, frequency, and style of drinking differ according to sex, age, ethnic origin, religion, education, occupation, socioeconomic status, group membership, residence, and, in some, uncontrollable individual needs. Some people have a drink just a few times in a year. Some have a drink, or two or three, nearly every day. Some have many, many drinks at a time—even getting drunk—quite often.*

*The more affluent, the better educated, and the urbanites are more likely to be drinkers. The younger and the poorer are more likely to experience problems in connection with their drinking. Consistently—except if they become problem drinkers—women drink less, and less often, than men.*

*Heavier drinking—and getting into some trouble in connection with it—tends to prevail during the home-leaving and courtship years. With settling down and advancing years, it tends to taper off—in some to total abstinence. But some people learn to drink too well and become helplessly enmeshed in "problem drinking" or "alcoholism."*

**TABLE 1**  
**APPARENT CONSUMPTION OF SPIRITS, WINE, AND BEER, AND**  
**OF ABSOLUTE ALCOHOL FROM EACH, AND OF TOTAL ALCOHOL,**  
**IN U.S. GALLONS PER PERSON IN THE DRINKING-AGE**  
**POPULATION, U.S.A. AND BY STATES, 1972**

State	Distilled Spirits	Absolute Alcohol	Wine	Absolute Alcohol	Beer	Absolute Alcohol	TOTAL Absolute Alcohol	Rank Order
Alabama	1.86	0.80	0.83	0.09	16.93	0.78	1.65	48
Alaska	5.06	2.18	2.93	0.43	77.87	1.25	3.86	4
Arizona	2.61	1.12	2.46	0.36	34.70	1.56	3.04	9-10
Arkansas	1.28	0.59	0.95	0.14	17.66	0.79	1.52	50
California	3.17	1.36	4.66	0.88	26.60	1.20	3.24	6
Colorado	2.95	1.27	2.64	0.38	29.61	1.33	2.98	12
Connecticut	3.26	1.40	2.43	0.25	21.81	0.98	2.73	21
Delaware	3.79	1.63	1.87	0.27	28.15	1.27	3.17	8
Florida	3.89	1.59	2.36	0.34	28.99	1.30	3.23	7
Georgia	2.69	1.16	1.11	0.16	20.64	0.93	2.25	36
Hawaii	2.54	1.10	1.91	0.28	24.43	1.10	2.48	29
Idaho	1.80	0.77	1.94	0.28	30.86	1.38	2.43	32
Illinois	3.16	1.36	2.18	0.32	27.36	1.23	2.91	14-15
Indiana	1.72	0.74	0.88	0.13	22.76	1.02	1.89	41
Iowa	1.63	0.70	0.56	0.02	25.27	1.14	1.86	43
Kansas	1.59	0.68	0.57	0.08	21.32	0.96	1.72	47
Kentucky	1.93	0.83	0.70	0.10	22.39	1.01	1.94	39
Louisiana	2.04	0.88	2.20	0.32	28.11	1.26	2.46	38
Maine	2.25	1.01	1.88	0.24	29.92	1.25	2.60	26
Maryland	3.37	1.45	2.10	0.30	28.68	1.29	3.04	9-10
Massachusetts	3.18	1.37	2.54	0.37	26.50	1.19	2.93	13
Michigan	2.51	1.08	1.92	0.28	31.25	1.41	2.77	20
Minnesota	2.65	1.14	1.41	0.20	25.88	1.16	2.50	27-28
Mississippi	1.82	0.78	0.82	0.11	21.93	0.99	1.88	42
Missouri	2.18	0.94	1.34	0.19	25.86	1.15	2.28	35
Montana	2.52	1.08	1.14	0.16	34.95	1.57	2.81	16-19
Nebraska	2.42	1.04	1.10	0.16	28.81	1.30	2.50	27-28
Nevada	8.26	3.55	5.73	0.76	41.86	1.88	6.19	1
New Hampshire	7.41	3.19	2.67	0.39	40.93	1.84	5.42	2
New Jersey	3.14	1.35	2.90	0.42	25.32	1.14	2.91	14-15
New Mexico	2.28	1.02	2.42	0.25	32.08	1.44	2.81	16-19
New York	2.93	1.26	3.06	0.44	25.78	1.16	2.86	16
North Carolina	2.08	0.89	1.50	0.22	18.33	0.82	1.93	46
North Dakota	2.80	1.20	1.15	0.17	29.26	1.32	2.69	24
Ohio	1.84	0.79	1.40	0.20	28.33	1.72	2.71	22-23
Oklahoma	1.79	0.77	1.05	0.15	19.67	0.88	1.80	44
Oregon	2.13	0.92	3.29	0.48	28.15	1.27	2.67	26
Pennsylvania	1.88	0.81	1.50	0.22	28.68	1.29	2.32	34
Rhode Island	2.77	1.19	2.87	0.43	30.62	1.38	3.00	11
South Carolina	2.95	1.27	1.52	0.22	21.17	0.95	2.44	31
South Dakota	2.19	0.94	1.19	0.17	23.44	1.05	2.16	38
Tennessee	1.50	0.64	0.79	0.11	22.09	0.99	1.74	48
Texas	1.76	0.76	1.42	0.21	31.99	1.44	2.41	33
Utah	1.37	0.59	1.05	0.15	18.15	0.82	1.96	49
Vermont	4.41	1.90	3.15	0.48	34.78	1.96	3.92	3
Virginia	2.26	1.01	1.61	0.22	22.29	1.00	2.23	37
Washington	2.26	1.01	3.03	0.44	28.05	1.26	2.71	22-23
West Virginia	1.74	0.75	0.89	0.10	20.09	0.90	1.75	45
Wisconsin	3.04	1.31	1.87	0.27	38.73	1.79	3.37	5
Wyoming	2.81	1.21	1.30	0.20	32.10	1.44	2.85	17
District of Columbia	9.91	4.26	6.31	0.91	38.96	1.37	6.54	
U.S.A.	2.60	1.12	2.16	0.31	26.62	1.20	2.63	

Amounts calculated from tax-paid withdrawals only. The drinking-age population is taken as 15 years and older.

Source: Efron, Keller and Gurioli (20).

The Pacific and New England regions consume the greatest amount of alcohol, while the East South Central region consumes the least.

Figure 1a. APPARENT CONSUMPTION OF ABSOLUTE ALCOHOL, IN U.S. GALLONS PER PERSON IN THE DRINKING-AGE POPULATION, BY REGION, U.S.A. 1972



Source: Efron, Keller and Gurnell (20).

Note: The regions are the standard regions of the U.S. Census Bureau. Amounts and population calculated as in Table 1.

consumption of those States, at the same time causing an underestimation of the true consumption in their own States.

Somewhat more realistic indices of apparent consumption are shown in figures 1a and 1b, in which the consumption is divided among the populations of larger geographic units, the Bureau of the Census regions. Here the consumption, per drinking-age person, is shown as the absolute alcohol contained in the various beverages (figure 1a) and the proportion of the total absolute alcohol contributed by each major class of beverage (figure 1b).

Interesting and perhaps important differences between areas come to light in these figures. At one extreme, inhabitants of the South Central regions apparently consume the least alcohol, and those in the Pacific and New England regions the most. An interesting trend is that the Mountain rate is not far behind that of the Pacific and New England regions. The Mountain region has traditionally had a relatively low consumption rate, but it has been increasing steadily and is now the third highest.

As for different classes of beverages (figure 1b), at one extreme the residents of the West South Central region drink mostly beer (55

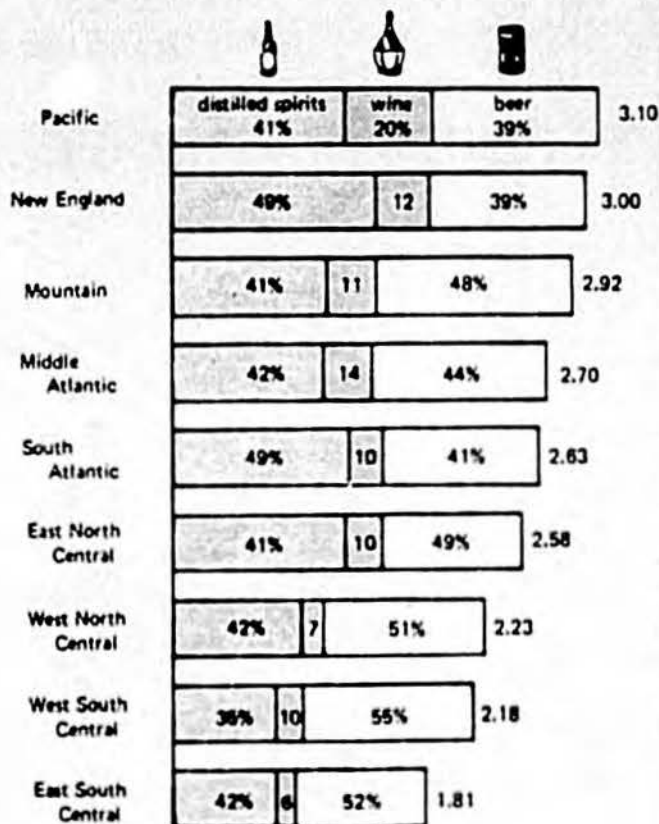
percent of their alcohol is consumed in that form), while at the other extreme the New England and the South Atlantic regions favor distilled spirits (49 percent of their alcohol is consumed in that form). Only the Pacific region obtains a substantial portion of its alcohol (20 percent) from wine. In the United States as a whole the largest proportion of alcohol consumed is in the form of beer (46 percent of the total), followed by distilled spirits (42 percent) and wine (12 percent).

Today's American drinking-age population consumes not much more than half as much distilled spirits per capita as 125 years ago. As absolute alcohol, distilled spirits accounted for almost 90 percent of the total consumed in 1850, but for less than half in recent years (20). These proportions reflect a long-term shift from distilled spirits to less concentrated beer and wine. Most of this change was completed by the last years of the 19th century. It is likely, too, that a much larger portion of the spirits was consumed undiluted in past times than nowadays, when ice and mixers are available and popular.

In the 15 years following World War II, alcohol consumption in the United States was

Inhabitants of the West South Central region consume only 35% of their alcohol from spirits and 55% from beer, while those in the South Atlantic States consume 49% from spirits and 41% from beer. The Pacific Region stands out by taking 20% of its alcohol in the form of wine.

**Figure 1b. APPARENT CONSUMPTION OF TOTAL ABSOLUTE ALCOHOL IN ALL BEVERAGES, AND PROPORTION OF ALCOHOL FROM SPIRITS, WINE AND BEER, IN U.S. GALLONS PER PERSON IN THE DRINKING-AGE POPULATION, BY REGION, U.S.A., 1972**



Source: Efron, Keller and Gurnoli (20).

Note: The regions are the standard regions of the U.S. Census Bureau. Amounts and population calculated as in Table 1.

fairly stable at slightly more than 2 gallons of absolute alcohol per person in the drinking-age population. In the 12 years since then the total consumption has risen by over 25 percent (20). By class of beverage, consumption of alcohol in beer has risen about 23 percent, in wine about 44 percent, and in distilled spirits about 30 percent. The higher percentage increase of wine may indicate a new development in public taste and customs, especially as the trend has favored the milder wines (about 13 percent alcohol) rather than the stronger ones (about 20 percent alcohol). But wine still contributes only some 12 percent of the total absolute alcohol consumed in this country. It has been suggested (32) that not all the rise in apparent consumption of

alcohol represents a real increase in the average amount consumed per drinker: A part of the total may reflect a higher proportion of actual drinkers within the drinking-age population, especially of women and youth, and a part of the distilled-spirits rise may reflect substitution of legal (hence recorded) sources for declining moonshine.

#### International Comparisons

The long-term shift to lighter beverages has also occurred in many other countries with a tradition of heavy spirits consumption, and the popularity of lighter beverages and particularly

**TABLE 2**  
**CHANGE IN ALCOHOL CONSUMPTION IN 17 COUNTRIES**  
**FROM LATE 1950s TO EARLY 1970s**

Country	Dates of Data	Percentage Increase (+) or Decrease (-) in Consumption of:			
		Spirits	Wine	Beer	Total
France	1955 - 1968	-20%	-18%	+3%*	-9%
Italy	1957 - 1969	+80	-8	+149	+1
W. Germany	1957 - 1970	+66	+65	+54	+61
Switzerland	1950/55 - 1966/69	+38	+11	+8*	+13
Australia	1955/56 - 1968	+28	+45	+8	+15
Belgium	1956 - 1967	+42	+3681	+12*	+33
New Zealand	1956 - 1967	-11	+158	+13	+13
U.S.A.	1958 - 1971	+42	+45	+20	+32
Denmark	1956 - 1969	+119	+49	+64	+54
Canada	1956 - 1969	-27	+79	+101	+17
United Kingdom	1957 - 1970	+38	+89	+9	+20
Sweden	1957 - 1970	-5	+71	+93	+26
Ireland	1955 - 1970	+65	+103	+29	+41
Netherlands	1956 - 1969	-31	+188	+137	+83
Finland	1955 - 1969	-2	+37	+357	+50
Norway	1957 - 1970	+23	+64	+52	+42
Iceland	1952 - 1971	+31	+102	+21	+33

Source of Data: Keller and Efron (23); Efron, Keller and Gurioli (20). The time-period between observations in these two reports ranged from 11 to 19 years; changes in all countries were reduced to a 10-year rate by arithmetical interpolation. Countries are listed in order of their total consumption at the latest report.

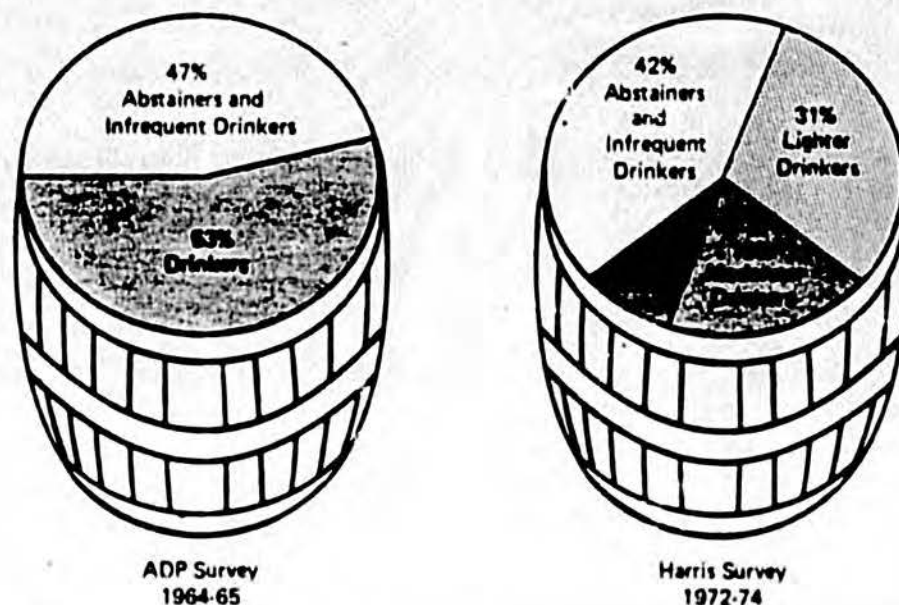
\*Includes cider.

of beer has continued to increase in recent times. Comparing the consumption trends in the United States with those in other industrialized countries in recent times (table 2), it is apparent that in some respects the United States is reflecting overall trends but not in others. In fact, 12 of the 16 European and British Commonwealth countries shown in table 2 outranked the United States, in the period from the late 1950s to around 1970, in the percentage increase of wine use. The total consumption of alcoholic beverages rose enough in the same period in some of the other countries so that the United States is outranked by 8 of the 16 in average annual percentage increase in overall consumption.

On the other hand, the United States now outranks all but 2 of the 25 other countries from which reports are available in per capita consumption of distilled spirits (20). Although proportional increases in spirits consumption have been higher in several other countries in recent years, the United States is somewhat exceptional in its persistent high level of spirits consumption, compared to the general 20th-century trend toward beer drinking (54, 55) in industrialized countries with a history of heavy spirits consumption.

Whether the alcohol strength or other properties of beverages affect the damage that heavy intake may cause is now under new study. Most governments, including those in the United States, have taxed spirits, per unit of absolute alcohol, more heavily than lighter beverages (1), often with the explicit purpose of discouraging the consumption of stronger beverages. There are indications that some health problems are more often associated with stronger than with weaker beverages (56, 60); support for this hypothesis has recently been assembled in a report commissioned by the Canadian Brewers Association (1). On the other hand, there are indications that some diseases may be associated with beer drinking (25), though the nature of the relationship is unexplained. It appears likely that at least some of the differences are related more to amount and manner of use than to the alcohol content or chemical composition of the types of beverage. As for alcoholism itself, some investigators (18) have argued against any association with specific beverages, noting that the beverages chosen by alcoholic persons tend to match the popular preferences of the country in which they live. Thus the question whether the important aspect of consumption is the types of beverage or the total of absolute alcohol remains to be resolved.

**Figure 2. PERCENTAGE OF DRINKERS AND TYPES OF DRINKERS AMONG ADULTS, U.S.A., 1964-1974**



The ADP Survey includes adults aged 21+, whereas the Harris Survey includes adults aged 18+. In the Harris Survey, type of drinker is based upon a quantity-frequency index score which equals the average ounces of absolute alcohol consumed per typical day.

- Abstainers and Infrequent Drinkers - Drink less than once a month or not at all.
- Drinkers - Drink once a month or more.
  - Lighter drinkers - Drink less than 0.22 ounce absolute alcohol per day.
  - Moderate drinkers - Drink over 0.22 but less than 1.0 ounce absolute alcohol per day.
  - Heavier drinkers - Drink 1.0 ounce or more absolute alcohol per day.

The 1974 Harris survey was conducted during a period which included holidays, when many infrequent drinkers choose to drink. The proportion of adults in this latter survey period who chose not to drink may provide the most accurate reflection of the current rate of abstainers, which approximates the percentage found in the 1964-65 ADP survey (about 32 percent).

#### Trends in Teenage Drinking

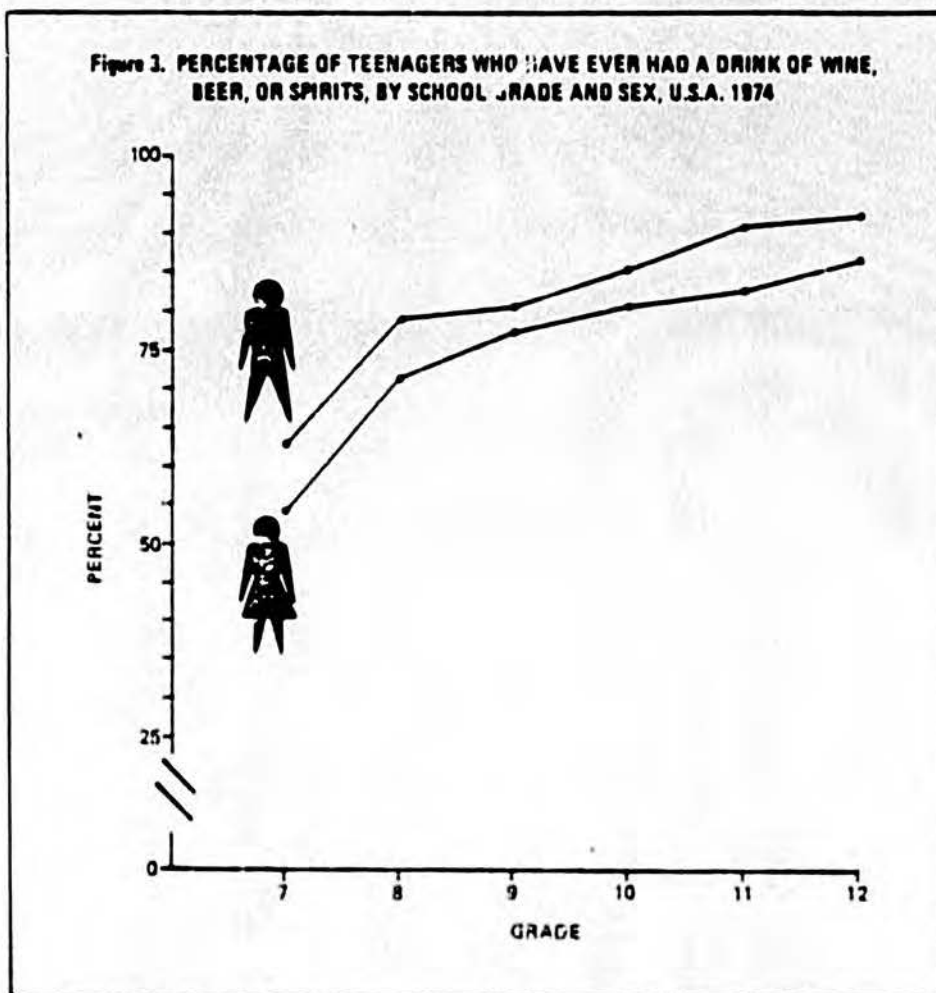
Surveys of adults leave out a sizable portion of drinkers. Numerous studies of younger populations, mostly in high school, reveal that a substantial proportion of teenagers drink (3, 39). Estimates based on an aggregation of such surveys show that, in recent years, from 71 to 92 percent of high school students have at least tried alcoholic beverages (3). In view of the common practice of drinking in the American

lifestyle, it comes as no surprise that a vast majority of teenagers have been introduced to alcohol.

Preliminary findings from the 1974 national survey of high school students indicate that among 7th graders, 63 percent of boys and 54 percent of girls have had a drink. As figure 3 indicates, the proportion of teenage ever drinkers increases with grade to 93 percent of boys and 87 percent of girls in the 12th grade.

Figure 4 shows that the frequency of drinking also increases with age. Beer is the most preferred beverage, especially among boys. Drinking beer at least once a week increased from 10 percent among 7th-grade boys to 42 percent among 12th graders. Half of the boys reported consuming two drinks or less per drinking occasion, compared to one or less per occasion among girls. Generally, the quantity of alcohol consumed at any one time by both boys

Figure 3. PERCENTAGE OF TEENAGERS WHO HAVE EVER HAD A DRINK OF WINE, BEER, OR SPIRITS, BY SCHOOL GRADE AND SEX, U.S.A. 1974



and girls increased with school grade, regardless of beverage type.

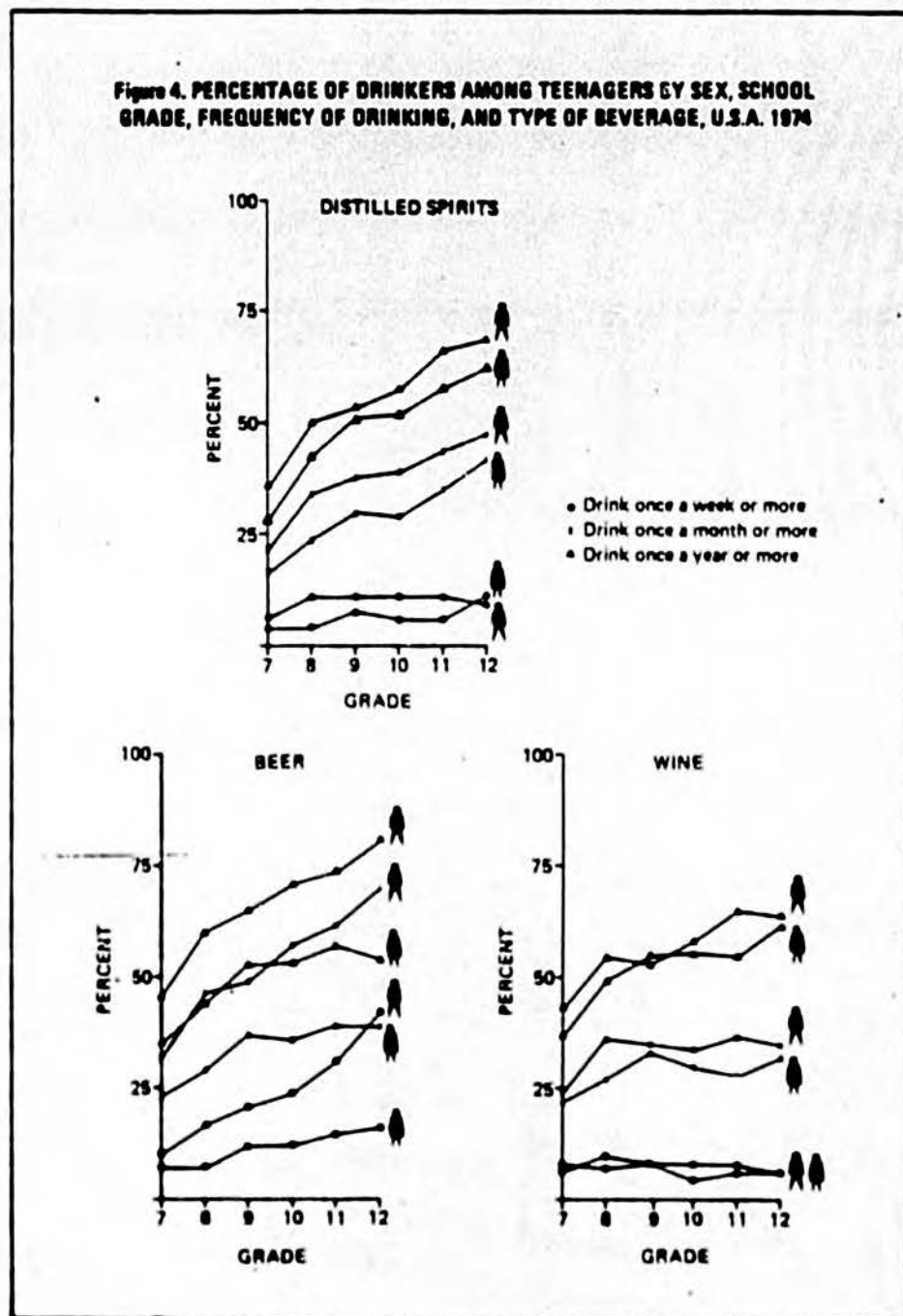
Preliminary estimates of drug use (other than alcohol) among teenagers indicate that marihuana ranks second to alcohol in frequency of use. Approximately 40 percent of boys and 36 percent of girls in senior high schools (grades 10-12) reported having used marihuana. These proportions are somewhat higher in the north-eastern United States and considerably lower in the South. Drinking was more common among marihuana users. Among teenagers who reported marihuana use, approximately 92 percent drink, while among teenagers who drink, approximately 34 percent have used marihuana. Much smaller proportions of teenagers reported having used other nonalcoholic drugs. Approximately 12 percent of senior high school boys and 9 percent of senior high school girls had used hallucinogens and amphetamines. Less than 3

percent of them reported having used "hard" drugs such as heroin or cocaine.

Little information is available about drinking by school dropouts. The dropout populations that have been examined are those which, for the most part, have been incarcerated (38, 40, 42, 43, 50), and one group (35) consisted of Job Corps trainees. In these studies, except one in New York in 1962 (40), the nonstudents had a higher proportion of drinkers than the school populations. These findings suggest that the numbers of adolescent drinkers and the frequency and amount of their alcohol consumption may be underestimated.

The findings from annual surveys conducted in California (49) between 1968 and 1973 indicate an increase in the proportion of students who began drinking during each previous year (52 percent of 7th-grade boys in 1969, 72

Figure 4. PERCENTAGE OF DRINKERS AMONG TEENAGERS BY SEX, SCHOOL GRADE, FREQUENCY OF DRINKING, AND TYPE OF BEVERAGE, U.S.A. 1974



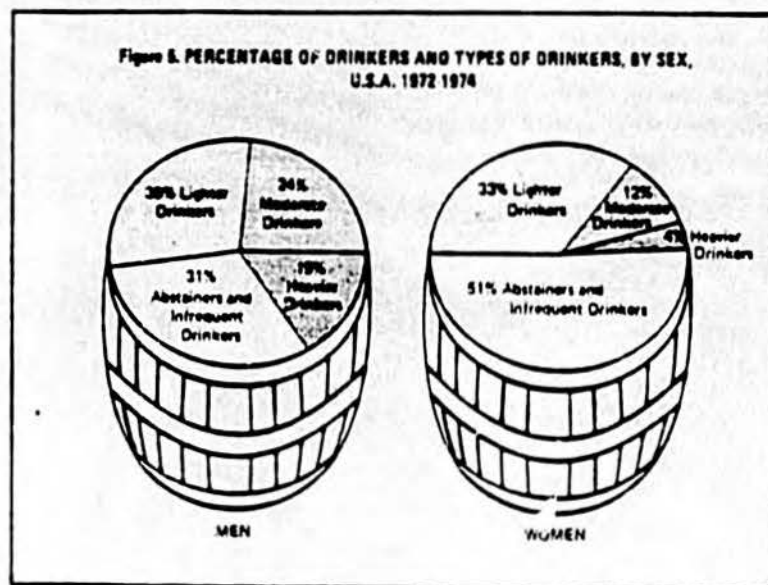
percent in 1973); girls showed similar trends (38 percent in 1969, 67 percent in 1973).

A survey of students in grades 7 through 12 in Duval County, Florida (19), also showed increases in the number of students who reported using alcoholic beverages at all, as well as in drinking once a week and once a month.

Three surveys in Toronto, in 1968, 1970, and 1972, examined adolescents' alcohol use (52). In 1968, 47 percent of the students had used

alcohol during the 6 months before the survey; this proportion increased to 60 percent in 1970 and 70 percent in 1972. These percentages were similar to those reported in San Mateo County, California, in 1972 (49). The shift in Toronto does not seem attributable to the lowering of the "legal age" in 1971 from 21 to 18 years, for no change in legal age had occurred in California during the similar increase in proportion of adolescent drinkers. A 1962 survey of New York

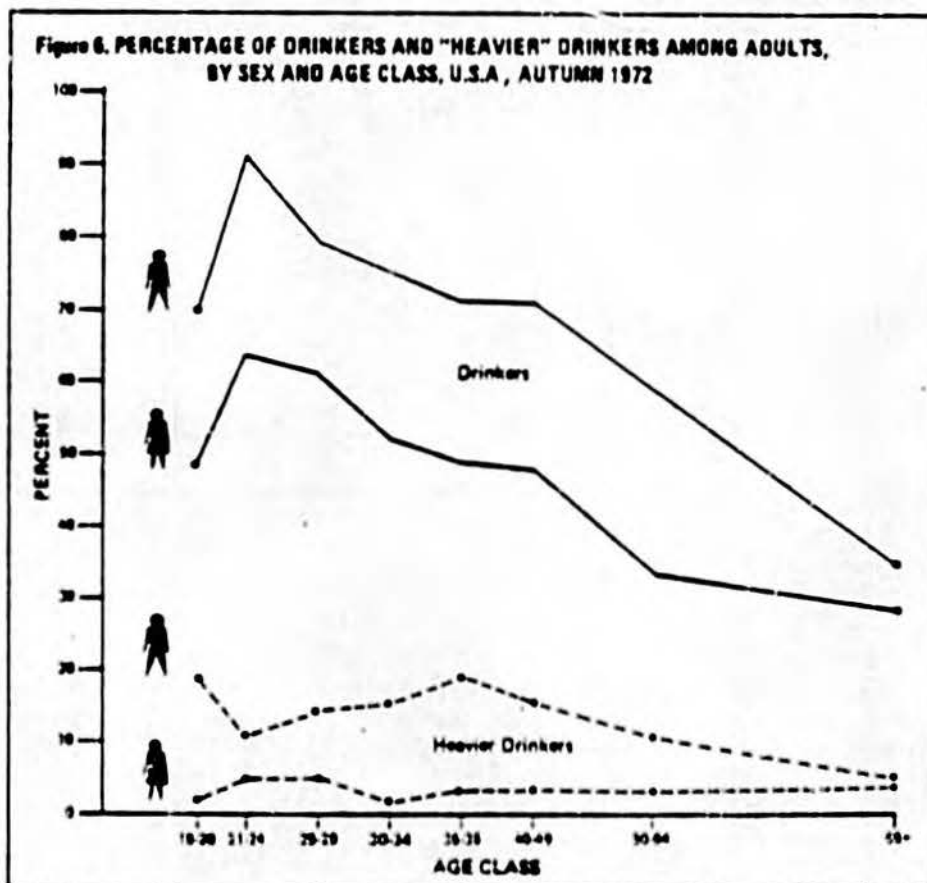
Figure 5. PERCENTAGE OF DRINKERS AND TYPES OF DRINKERS, BY SEX, U.S.A. 1972-1974



About half of these elderly people drink alcoholic beverages, but only two could be considered problem drinkers. This is nearly identical with the proportions reported in national probability samples of people in the same age range (11, 24). Although their drinking

frequency varied considerably, there was very little difference among them in the amount they drank per occasion—most had one or two drinks each time. The more frequent drinkers were somewhat younger, in better health, of European ancestry, and reported considerable

Figure 6. PERCENTAGE OF DRINKERS AND "HEAVIER" DRINKERS AMONG ADULTS, BY SEX AND AGE CLASS, U.S.A., AUTUMN 1972



**TABLE 3**  
**SOCIAL CONTEXTS OF DRINKING APPROVED BY**  
**AMERICAN BUSINESS EXECUTIVES**

<u>OCCASIONS</u>	<u>% WHO SAY "NOT IMPROPER" TO DRINK</u>	<u>% WHO SAY WOULD DRINK ON OCCASION</u>
Before Dinner	92	71
After Round of Golf	88	56
After-Theatre Party	83	56
After Dinner	74	34
Office Christmas Party	69	56
Business Lunch	60	34
Football Game	51	21
One-Day Sales Conference	48	32

Source: Caravan Surveys (14)

would probably have one or more drinks. As table 3 shows, more executives felt it was proper to drink on each of various occasions than acknowledged they probably would drink on those occasions.

*Adolescents:* The social contexts in which adolescents drink are subject to special restrictions. Many teenagers drink before they can legally buy alcoholic beverages or patronize licensed premises. These restrictions naturally affect the contexts in which they drink and the channels through which drink is obtained. Alcohol may be obtained illegally from licensed merchants in a permissive community, but in a restrictive community it is obtained illegally from unlicensed merchants (22). Studies of Scandinavian youth indicate that the main impact of rigid control is to increase the amount of out-of-doors drinking (8).

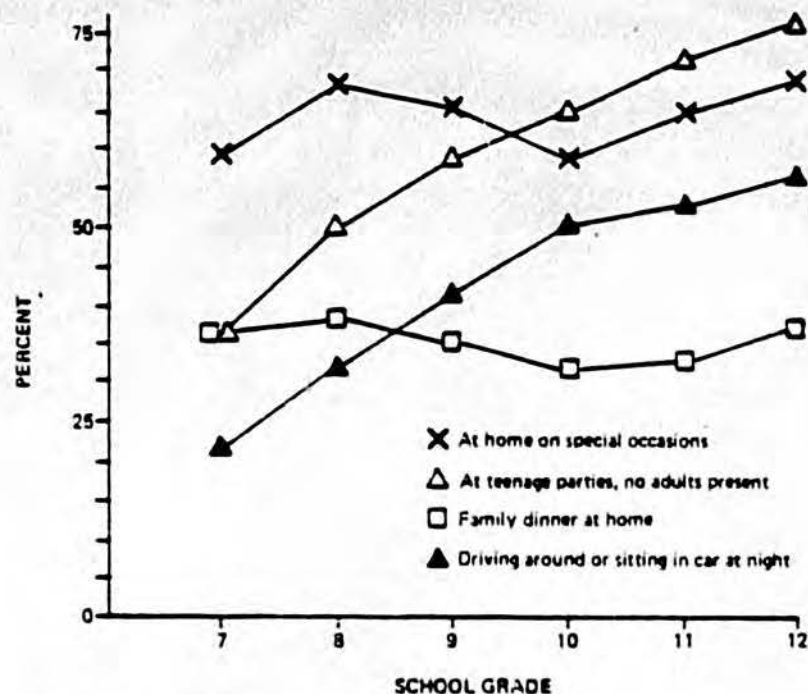
The occasions on which adolescents drink vary with age. Most teenagers who begin to drink do so at home under parental supervision (3, 39). Much of this drinking occurs on holidays and other special occasions (3). As teenagers grow older, they tend to drink more often outside the home, until the most likely drinking places are those where adults are not present (30). The preliminary 1974 teenage survey data in figure 7 highlight these age trends. Sixty percent of 7th graders reported drinking at home with their parents on special occasions, while considerably fewer (22 to 36 percent) drink away from home without parental supervision. Though the proportion of teenagers at each grade who report drinking at home tends to remain the same, away-from-home drinking increases with age. Between the 7th and 12th

grades the proportion of teenagers who drink at night in cars doubles, rising to 50 percent, while the proportion who drink at teenage parties nearly triples, rising to 75 percent.

The quantity of alcohol consumed and the drinking contexts were examined in a recent survey of students in Scotland (17). Parents often offer an alcoholic beverage in the home but for the younger child confine it to special occasions. Among boys, drinking at home decreased with age, as did drinking at home on special occasions. These trends were less pronounced among girls. Although the quantity of drink consumed by boys at home increased with age, even greater quantities were consumed at each age level at friends' homes. There is a general tendency for older boys and girls to drink more in that setting than at home. Among boys, contrary to the findings in America, drinking outdoors declined with rising age, while the frequency of drinking in pubs increased markedly.

*Ethnic differences:* In most social contexts, Irish-Americans tend not to drink more often than Italian-Americans (table 4). An outstanding exception—in that it appears as the most isolated situation—is drinking at a bar alone, in which Irish-Americans exceed Italian-Americans born in the United States by more than 50 percent, but, interestingly, this difference does not apply to first-generation Italian-Americans. There are noteworthy differences also in drinking at meals and drinking at home alone. Social drinking tends to vary according to interpersonal closeness and group solidarity in both nationalities, and among the Italians by generations. The more socially isolated a person is, the less likely he is

Figure 7. WHERE ADOLESCENTS USUALLY DRINK, BY SCHOOL GRADE (IN PERCENT), U.S.A. 1974.



Source: Johnson (30).

to drink, but the more primary-group involvement there is in a situation, the more likely he is to drink, excepting Irish-Americans at meals. The Italian custom of drinking with meals decreases with American acculturation; and though first-generation Italian-Americans give such reasons for drinking as improving the appetite or digestion, later generations of Italian-Americans emphasize pleasure as the reason for drinking at meals.

When respondents were asked about reasons for drinking in a variety of social contexts, it appeared that first-generation Italian-Americans were more swayed by external influences (drinking to conform) than were later generations of Italian-Americans.

Further data about the social contexts of drinking were obtained from a comparison of teenagers in New York and Rome (36). As table 5 indicates, most Italian teenagers drink at home with other members of the family at meals. The Italians drink much more regularly and begin regular drinking at an earlier age than American teenagers. Only 5.5 percent of the American

teenage sample reported daily drinking, and most of them were of Italian extraction. This is also reflected in solitary drinking which, among the Italians, occurred exclusively at meals when other family members happened not to be present.

The frequency of drinking at home by American adolescents was less than that reported in Rome and decreased further with age. Also, the frequency of drinking at special family events increased with age among the Italians, but decreased among the Americans. Drinking on "dates" was reported only by the American teenagers.

Drinking by adolescents in the Italian samples was associated primarily with family meals and snacks during the day. Among older teenage boys, evening drinking was limited to social life. In contrast, drinking at dinner by American teenagers was only an occasional experience. Evening drinking included beer and distilled spirits, generally in the company of friends and away from home.

**TABLE 4**  
**WHEN AND WHERE IRISH-AMERICANS AND ITALIAN-AMERICANS DRINK,**  
**BY COUNTRY OF BIRTH (IN PERCENT)**

	IRISH-AMERICANS		ITALIAN-AMERICANS	
	Born in U.S.A.	Born in U.S.A.	Born in ITALY	Born in ITALY
At a wedding	92	93	93	93
On family occasions	84	90	93	93
At a party	87	91	87	87
When visiting a friend's home	82	85	87	87
At a bar with friend	71	72	67	67
At home alone	40	38	55	55
At a bar alone	33	20	32	32
At meals	44	59	87	87

Source: Blane (5).

**TABLE 5**  
**WHERE AND WHEN TEEN-AGERS DRINK IN ROME AND NEW YORK,**  
**BY AGE (IN PERCENT)**

	Rome		New York	
	13-15 yrs.	16-20 yrs.	13-15 yrs.	16-20 yrs.
At home	95	93	74	22
Parties at home	4	0	24	5
Special family events	33	56	24	6
Parties away from home	53	67	42	51
With friends	21	30	33	38
With dates	0	0	3	17
Alone*	50	20	0	11.5
Breakfast	26	10	2	0
Lunch	73	79	0	0
Dinner	64	71	42	49
Afternoon	63	56	28	11
Evening	31	53	43	97

\*Drinking alone entailed circumstances of meals separated from other members of the family and in the Italian sample involved the use of wine.

Source: Lohr et al. (17).

### Problem Drinking

Many of the difficulties in defining alcoholism apply equally to problem drinking. It is thought to encompass such features as frequent intoxication and binge drinking, symptomatic drinking (including signs attributed to physical dependence and loss of control), psychological dependence, and disruption of normal social behavior patterns (problems with spouse or relatives,

friends or neighbors, employers, and the police). These signs are indistinguishable from those attributed to alcoholism as seen in research focused on institutionalized persons. But recent studies have tended to deal with drinking problems and related sociocultural characteristics of people in the general population.

Surveys conducted in the 1960s analyzed various factors associated with alcohol-related problems (9, 11, 13). Findings from those

CHART 1a  
 PROFILE ANALYSIS OF PERSONS  
 MOST LIKELY TO HAVE NO ALCOHOL-RELATED PROBLEMS

Lowest rates of alcohol-related problems for respondents in the 1973 national survey were found among:

- Women
- Persons over 50
- Widowed and married persons
- Persons of Jewish religious affiliation
- Residents of rural areas
- Residents of the South
- Persons with postgraduate education
- Persons who are mostly "wine drinkers"

CHART 1b  
 PROFILE ANALYSIS OF PERSONS  
 WITH HIGH ALCOHOL-PROBLEM RATES

Highest rates of alcohol-related problems for respondents in the 1973 national survey were found among:

- Men
- Separated, single, and divorced persons (in that order)
- Persons with no religious affiliation
- Persons who are beer drinkers as compared with those who are mostly hard liquor or wine drinkers
- Persons who were more likely (compared to other persons in the survey) to say:  
 "Drunkenness is usually *not* a sign of social irresponsibility" and  
 "Drunkenness is usually a sign of just having fun"

studies indicated that the greatest number of alcohol-related problems were found among poorer men under 25 years, city residents, persons who had moved from rural areas or small towns to large cities, those with childhood disruptions such as broken homes, Catholics and liberal Protestants, persons who did not attend church, and single and divorced men (chart 1).

Women were not as problem-prone as men, which is not surprising since more women are abstainers and, of those who drink, many fewer are heavy drinkers. Whereas 43 percent of the men in the 1967 survey (13) reported experiencing one or more problems connected with drinking during the previous 3 years, only 21 percent of the women reported such problems. Of the sampled persons with more severe involvement (high problem-drinking scores, possibly "problem drinkers"), 15 percent of the men but only 4 percent of the women were affected.

Men in their early 20s most frequently had experienced some problems connected with their drinking, and the proportion declined sharply among men in the late 50s. Women most frequently had problems in their 30s and 40s, again with a sharp dropoff among those in the 50s. There are several theories about why problems associated with drinking are more prevalent among younger people, but this fact is unlikely to be explained until results of longitudinal studies, which follow individuals over extended periods, are available.

Recent surveys (24) have examined the socio-cultural correlates of drinking problems among men and women aged 18 years and older. The findings are consistent with those of the earlier surveys, but there are some differences in the areas of marital status, degree of urbanization, and age. Separated persons now have higher

problem-drinking rates than single and divorced persons, although the last two groups still have more problems than married or widowed persons.

Figure 8 shows the division of the population into problem drinkers, potential problem drinkers, and nonproblem drinkers by age classes in 1973. It is evident that the 18-20 year olds have the largest proportion who had experienced some problem in connection with drinking (12 percent), followed by those aged 21-24 (11 percent) and those 35-39 (15 percent). The 18-20 year group was not included in the earlier surveys, in which the highest ratio of alcohol-related problems was reported among those aged 21-25.

People living in cities were more problem-prone than residents of suburbs, towns, and rural areas in earlier surveys, but these residential differences are fading. The proportions of people with the highest problem scores are nearly the same in cities, suburbs, and towns, and only those living in rural areas have slightly lower rates.

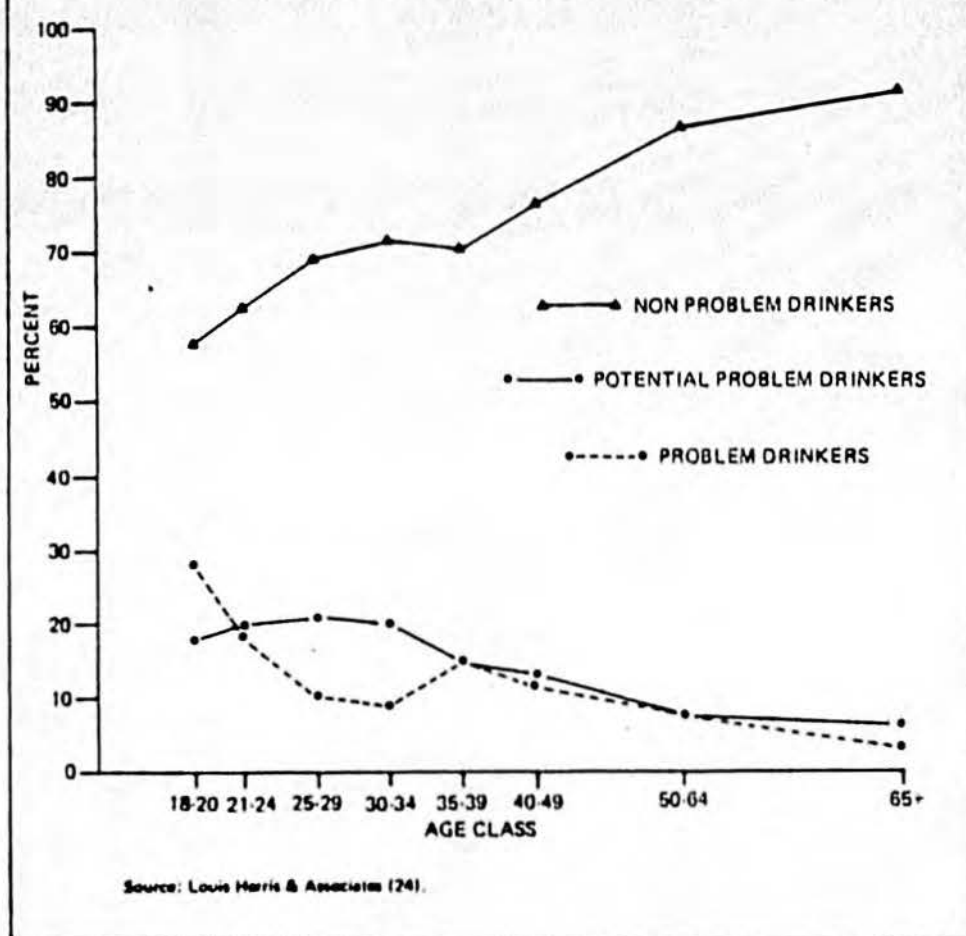
#### The Military

A survey of drinking in the Army in 1972 found the highest rate of problem drinking among enlisted men under 30 years old, with less than a college education, and not accompanied by their wives (12). The best single correlate of serious drinking problems among commissioned and warrant officers was that the father had been a heavy drinker, and the second best was that his wife was not with him at his duty station.

Rates of drinking problems tended to decline as age, grade, and years in service increased. Marital difficulties were the most frequently reported problem, regardless of pay grade.

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Figure 8. DRINKERS, PROBLEM DRINKERS AND POTENTIAL PROBLEM DRINKERS (IN PERCENT), BY AGE CLASS, U.S.A., SPRING 1973



Family separation was associated with sharp increases in reported drinking but not so sharp an increase in drinking problems.

Problems associated with drinking were much more common among enlisted men than among civilians or officers. The enlisted men were much more likely to suffer adverse social, health, and economic consequences of drinking and to manifest more uncontrolled drinking, belligerence when drinking, and problems with friends and neighbors, the job, the police, and finances. The specific problems of the officers were roughly similar to those of civilian men of the same age in both nature and extent.

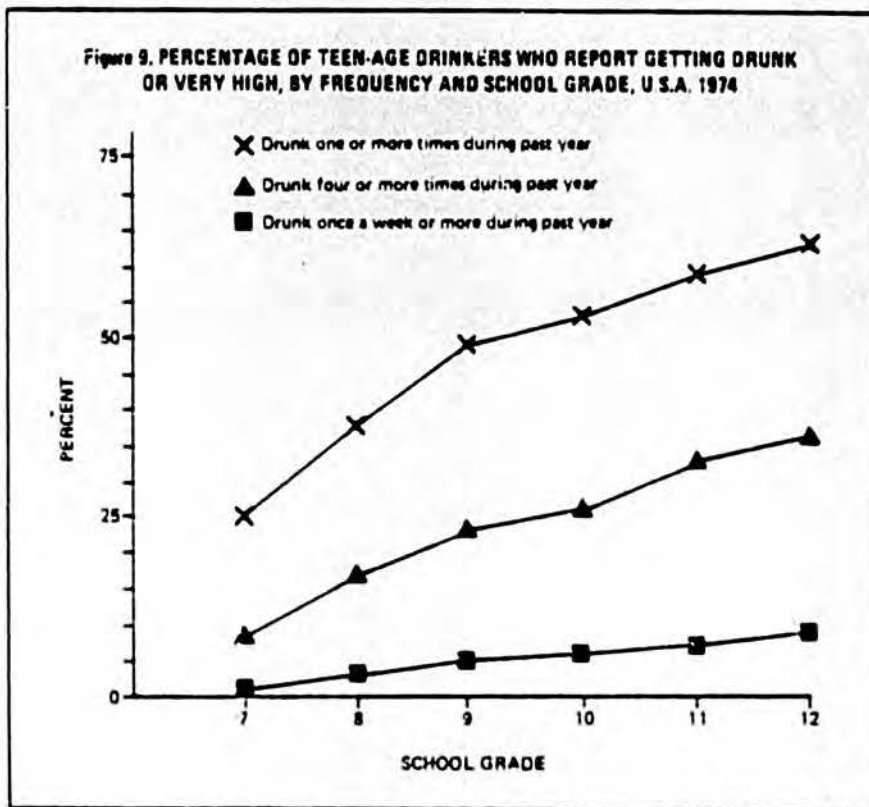
The 1972 survey of drinking in the Navy (10) showed that enlisted men had more problems of every type, except marital, than officers; and that junior enlisted men had more problems of every kind, except marital, than senior enlisted men. Of the junior enlisted men, 15 percent

reported that they had had job-related problems in the past 3 years, and 21 percent reported having been "high" or "tight" while on duty at least once during that time.

#### Adolescence

"Problems" associated with drinking by adolescents may have different meanings and characteristics from those that describe problem drinking by adults. Thus, according to some criteria, any drinking by an adolescent may be defined as a problem. If we adopt a problem-drinking criterion of getting "high" or "tight" at least once a week (9, 13), preliminary estimates from the 1974 survey indicate that approximately 5 percent of the students are problem drinkers. By a less conservative criterion of getting drunk four or more times a year, approximately 23 percent of the students

Figure 9. PERCENTAGE OF TEEN-AGE DRINKERS WHO REPORT GETTING DRUNK OR VERY HIGH, BY FREQUENCY AND SCHOOL GRADE, U.S.A. 1974



exhibited potential problem-drinking signs. As can be seen in figure 9, the proportion of students who report getting drunk (or very high) increases with school grade. These self-reports are responsive to questions that did not precisely define "drunk" or "high," and thus the percentages represent the criteria of the students themselves. It is therefore interesting that only 2 percent of the students reported that drinking had been a problem for them during the past year, and this proportion did not vary with school grade. Other survey estimates of the proportion of adolescents who experience problems associated with drinking vary from 1 to 15 percent (39, 40).

Among juvenile delinquents, however, the incidence of deviant drinking is decidedly higher than in the general teenage population (4, 45). This suggests that those who are maladjusted or antisocial misbehave typically in a variety of ways, one of which is overdrinking. For these reasons many investigators view adolescent problem drinking as one of a class of behaviors, commonly referred to as antisocial, that involve the potential for getting into trouble (6, 26, 27, 61).

A recent longitudinal study of 388 high school students (27) examined problem drinking within the framework of a variety of behavioral, personality, and social factors in the children's lives. As might be expected, problem drinking was not an isolated behavior; the problem drinkers engaged in more of other deviant behavior than did the nonproblem drinkers. The problem drinkers valued and expected achievement less than the nonproblem drinkers but esteemed independence more. They were also much more tolerant of deviant behavior. The problem-drinker girls were less compatible with their parents, and both boys and girls who were defined as problem drinkers were more supportive of drinking by adolescents.

In light of these findings, problem drinking seemed to be a logical outcome in the lives of many of the adolescents. The longitudinal design of the study enabled the investigators to employ their sociopsychological framework to predict the shift from nonproblem to problem drinking over time. They believe that some of the indicative factors could be used to identify individuals who would become problem drinkers a year later.

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*Abstinence is more common among older people. Some of them are lifelong abstainers. Others have given up drinking for reasons of health, or because they live in environments where alcoholic beverages are not available.*

*The healthier and more active elderly are more likely to be drinkers. Experiments in providing alcoholic beverages in a social setting to older persons living in nursing homes and residences for the aged yielded some beneficent effects and caused no apparent harm.*

*Alcoholism is less frequent among the elderly than among the young—in part because many problem drinkers do not survive to old age. But some people become problem drinkers only when they grow old and for reasons specially connected with aging. As the proportion of older people is growing, alcoholism among the aged may become an increasingly important problem.*

## Chapter II

# Alcohol and Older Persons

Older persons comprise a special population which has unique features of interest for the study of drinking. The incidence of drinking problems in this group is relatively low. Cahalan and his co-workers (3) have shown that with advancing age many people decrease their alcohol consumption. While it is possible that lower rates of problem drinking among the elderly are due simply to the reduced life span of alcoholic people (see chapter V, part 4), there are also indications that alcoholism may be a self-limiting disease, with a tendency toward autonomous recovery in some older persons (8). There are, indeed, well documented reports, reviewed by Wallgren and Barry (13), of problem drinkers who became abstainers or, sometimes, moderate or controlled drinkers as they grew older. Nevertheless it is hardly public-health policy to sit back waiting for the sometimes autonomous recoveries in those alcoholic persons who survive long enough. An important consideration from this perspective is that the proportion of older persons in the United States population has increased greatly in the last few decades (U.S. Census, 1970) and may be expected to continue increasing as medical advances further prolong life, and more so if the birth rate continues to decline. The care and welfare of the elderly is thus a growing social problem, only partly and unsatisfactorily dealt with by the establishment of more nursing homes and by Medicare benefits.

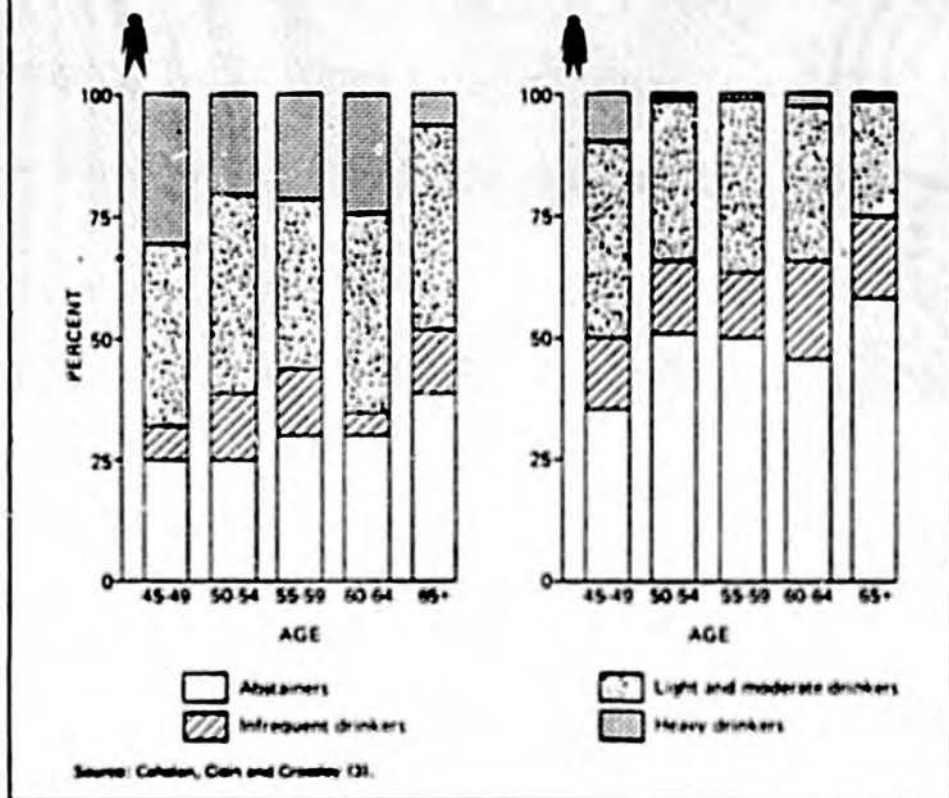
Until recently, alcoholism research devoted

little attention to the special population of older people. This may reflect a general tendency to ignore the problems of aging in a youth-oriented society. However, three major research projects in the past few years have addressed this special problem. One was a survey of drinking practices in a population of older persons living in Manhattan Borough, New York City (10); another was a series of studies of problem drinking in older persons (5); the third was an experimental study of the physical and psychological effects of introducing social drinking occasions during several weeks in a nursing home and in a residence for the elderly (1). Most of what we now know about drinking and alcoholism in the special population of older people has been reported in these recent studies. Therefore, the present chapter primarily summarizes these three reports.

### Drinking Practices

The drinking practices of American men and women at different ages were reported by Cahalan et al. (3) and summarized in the *First Special Report to Congress on Alcohol and Health* (12). A more detailed summary of the age differences from 45 years onward is shown in figure 1. At all ages, more men than women drink, and men drink more than women. But the proportion of heavy drinkers decreases substantially after the age of 49 in both sexes and with

Figure 1. CUMULATIVE PERCENTAGES OF ABSTAINERS AND TYPES OF DRINKERS, AMONG ADULTS AGED 45-66+, BY AGE AND SEX, U.S.A. 1964-66



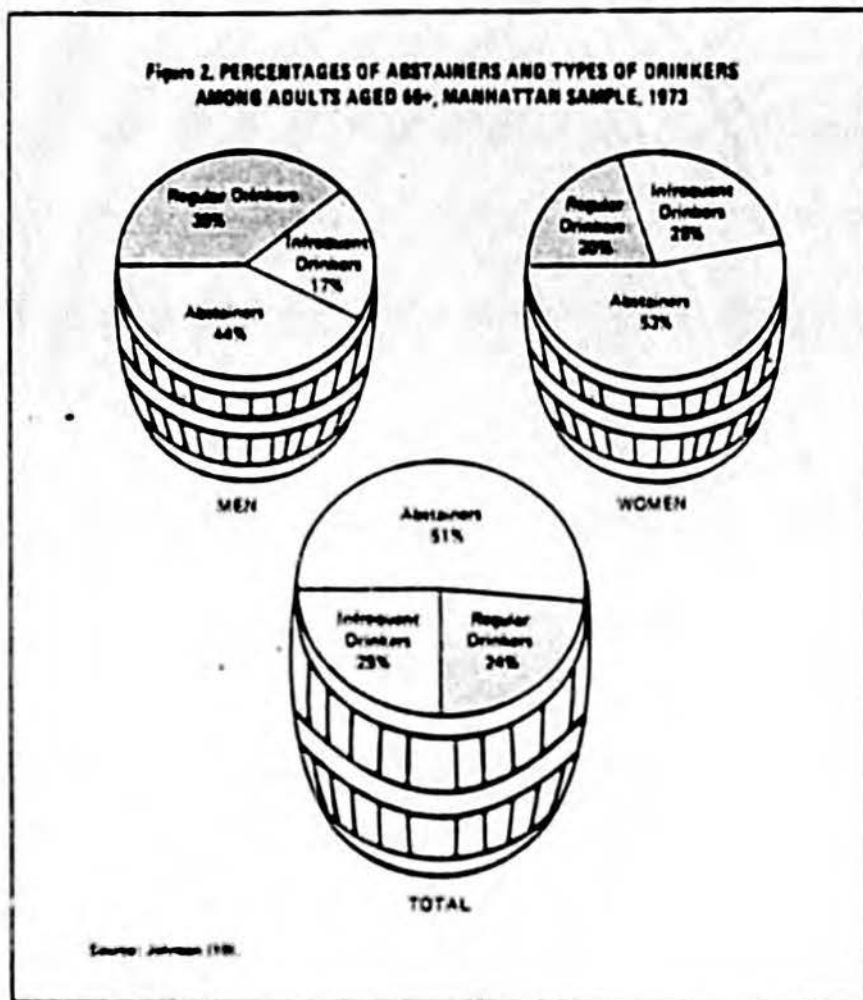
an added decline after 64 in men. The proportion of women abstainers increases substantially after age 49, and again in both sexes after 64. In general, drinking in the oldest age class decreases from a fairly stable level during the preceding 15 years.

A study by Cahalan and Room (4) of problem drinking by men under the age of 60 provides corroborative evidence for a reduced amount of drinking with advancing age. The proportion of abstainers, only 18 percent at ages 50-54, was 31 percent at ages 55-59, while the proportion of those with a high score (7 or more) on drinking problems was 17 percent at ages 50-54 compared with only 11 percent at ages 55-59. They found a striking difference among men at ages 50-59 on the basis of socioeconomic status: Of those with the highest Index of Social Position, 32 percent drank heavily (problem or potential problem drinkers) and only 12 percent abstained. But of those with the lowest Index of Social Position, much higher proportions both

drank heavily (51 percent) and abstained (28 percent). The same trends were found in the earlier survey by Cahalan et al. (3) but with less clear differentiation between the socioeconomic groups.

The higher proportion of abstainers and lower proportion of heavy drinkers among older Americans probably reflects a decrease in drinking as people grow older. Cahalan et al. (3) found that among men aged 60 years and over, more than half were former drinkers, and about half of these former drinkers had stopped after the age of 44. Among women of 60 or older, most of the abstainers had never been drinkers but half of the former drinkers had stopped after the age of 44. Drinkers of both sexes frequently reported that they used to drink more than at present, but the quantity they customarily drank on an occasion declined even more sharply with advancing age than the frequency of drinking occasions.

Figure 2. PERCENTAGES OF ABSTAINERS AND TYPES OF DRINKERS AMONG ADULTS AGED 66+, MANHATTAN SAMPLE, 1973



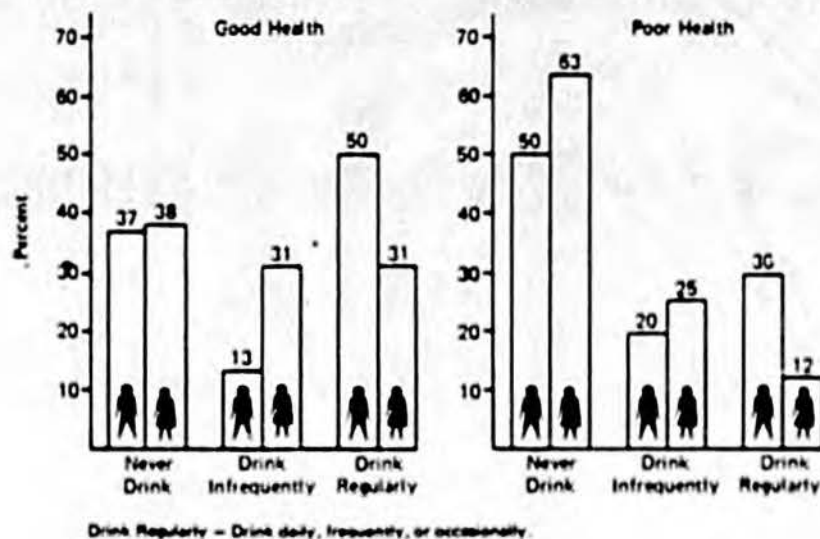
The people in the different age groups were studied at the same time, so that the older respondents were born in earlier years. Although many contemporary older people have given up drinking, the present middle-aged and young drinkers will not necessarily show the same trend of an increasing proportion of abstainers as they grow older. The cultural patterns in which contemporary older persons grew up included a strong temperance tradition, especially for women, and the period of national prohibition. Many people who took up drinking as a youthful rebellion against parental standards or prohibition, or in response to the repeal of prohibition, might have tended to return to their early traditions of abstinence as they grew older. It will not be possible to know until several decades from now whether the increase of abstinence is a general tendency among older persons, applying also to those who are reared in the more permissive contemporary traditions. Some indication that the drinking habits of

older people do not change when the social traditions favor drinking is the finding of a low proportion of abstainers (12 percent among Americans 50-59 years old) in the highest social position category (4). But even though a well-established custom of drinking usually continues into old age, it seems likely that the amount of alcohol consumed decreases. The surveys, however, do not provide very good evidence on this for people aged 60 and older.

One of the recent studies, by Johnson (10), was a survey of 169 people aged 65 years and over, living on the upper east side of Manhattan, in New York City. Most of them were from lower socioeconomic groups, living alone or in a small household. This study also revealed that men drink more often than women, and consume a larger average quantity on each occasion.

Figure 2 summarizes the drinking categories for the 54 men and 112 women separately, and for both sexes combined. Comparing regular drinkers (daily, frequently, or occasionally) with

Figure 3. PERCENTAGES OF ABSTAINERS AND TYPES OF DRINKERS, AMONG ADULTS AGED 65+, BY SEX AND CONDITION OF HEALTH. MANHATTAN SAMPLE, 1977



Source: Johnson (10).

the other categories, the sex difference is statistically significant. One of the largest sex differences was in the percentage of current abstainers who formerly drank at least occasionally: 61 percent of the men and only 29 percent of the women. Compared with the national sample of persons aged 65 and over, summarized in figure 1, the proportion of abstainers in the Manhattan sample is slightly higher among men and slightly lower among women, but the correspondence is fairly close. This may be due to the balancing circumstance that, while in the eastern urban location of Manhattan one would expect a lower proportion of abstainers, in the predominantly lower social status of the sample we would expect the opposite effect.

The respondents were asked various questions about their activities and feelings in addition to their drinking. Their self-reported physical health was strongly associated with drinking: there was a greater likelihood of drinking among people in good health than among those in poor health. In figure 3, the drinking behaviors of men and women are compared according to two health categories. The tendency for people in poorer health to drink less was stronger among women than among men.

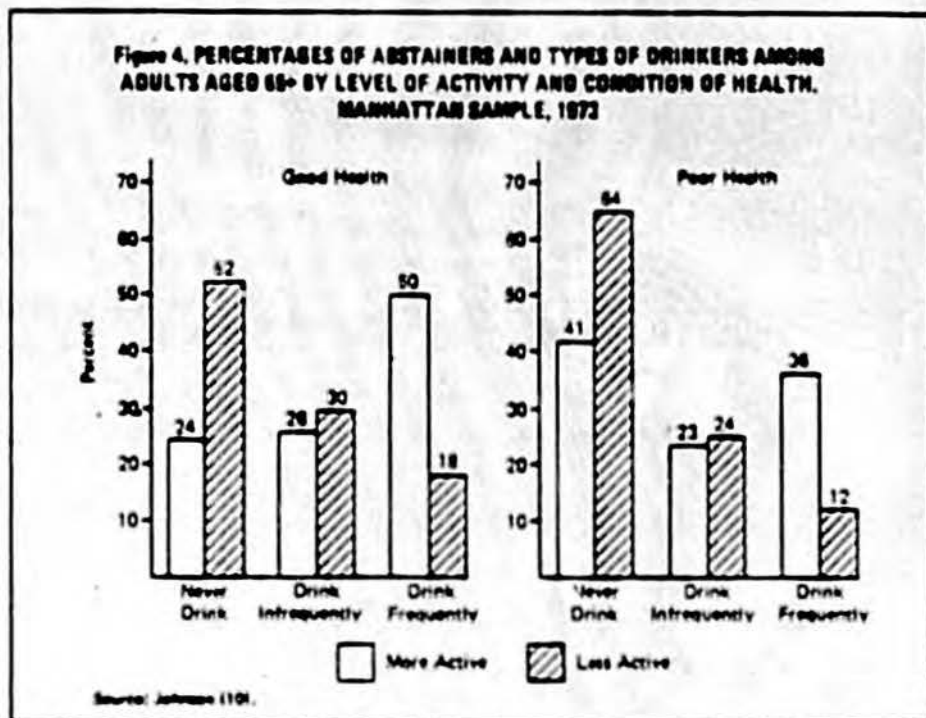
The drinking behaviors of active and less

active people in the two health categories were also compared, high activity being defined as reported participation in 8 or more out of 16 activities such as shopping, reading, playing games, and social or cultural functions. Men were more active than women, but the sex difference was fairly small. As would be expected, highly active respondents were more likely to report good health. Figure 4 shows that regular drinking was preponderant among the highly active people in good health; abstinence was preponderant among the less active people, especially those whose health was only fair or poor.

Some additional measures show a similar pattern of relationships with drinking. People who reported good psychological well-being, and seeing friends, tended to report good health, high activity, and regular drinking. Seeing relatives was less closely related to health and drinking; perhaps contact with relatives can indicate infirmity or limitations on self-reliance. The measure of activity, shown in figure 4, appeared to be the one most consistently related to drinking.

Among the 34 nondrinkers who formerly drank, 50 percent had stopped because it made them sick or was thought to be bad for their

Figure 4. PERCENTAGES OF ABSTAINERS AND TYPES OF DRINKERS AMONG ADULTS AGED 65+ BY LEVEL OF ACTIVITY AND CONDITION OF HEALTH. MANHATTAN SAMPLE, 1973



health. However, past excessive drinking or physical damage attributed to drinking did not appear to characterize these former drinkers. The proportion of them who reported good health (30 percent) was similar to the proportion (28 percent) among those who had always abstained.

In general, the amount of drinking was rather light in this sample of older persons. The drinking which did occur was part of a pattern of good health, psychological well-being, and an active social life. This probably reflects a greater enjoyment of drinking and ability to cope with the effects of alcohol.

While poor health was the cause of giving up drinking in a portion of this sample, the good health and high level of activity associated with drinking by another portion of the sample might be attributable to beneficial effects of the drinking. Moreover the person who abstains may coincidentally refrain from some of the social and convivial activities which are associated with many drinking occasions. The men, notably, were more likely to drink regularly and also tended to report better health and a slightly higher level of activity.

A study of a nursing home and a residence for the elderly in Boston (1) yielded some data on drinking practices of older persons before they

came to live in these institutions. The mean age (77 years) was substantially higher than in the Manhattan residential sample. Of the total Boston sample of 145, 72 percent were women. Drinking data were obtained from only 98 of these people, and the investigators combined the sexes for the analysis of their findings. In this sample, 30 percent reported having drunk regularly, 50 percent rarely, and 20 percent never. These proportions agree closely with the sample shown in figure 1, assuming that the drinking category did not include very many who had drunk at an earlier age and stopped prior to institutionalization. When current self-reported health was compared with former drinking practices, no significant differences were found. The sample included 8 percent who reported having stopped drinking on advice of a doctor.

A serious limitation of these surveys is their reliance on self-reports by the respondents. People may deceive themselves or the interviewer, especially about their former drinking practices. Objective, independent verification of the self-reports would be desirable and should be an important goal of future research. However, these studies have provided some new information about drinking by older persons, and at least preliminary inferences may be drawn from them.

*About 25 billion dollars is estimated as the economic cost to society of alcohol misuse in the United States in 1971. The main losses were incurred through reduced production, illness, and traffic accidents.*

*Imperfections in data and methods require that this estimate be regarded as a first approximation rather than a precise value.*

### Chapter III

## Economic Costs of Alcohol-Related Problems

A recent study of the economic effects of alcohol-related problems in the United States estimated, for the year 1971, a loss to society of over \$25 billion (3). The estimate (table 1) was based on an analysis of six areas of social behavior which past or current research had explicitly or implicitly identified as sources of significant economic costs that might be related to misuses of alcohol.

One cost estimate was developed for the market value of the lowered production of adult male workers with alcohol problems. Also, the costs to society in the form of output required in 1971 because of the socially dysfunctional effects of alcohol misuse and alcoholism were estimated separately for motor vehicle accidents and for health problems. The study estimated that over \$23 billion of the quantifiable costs occurred in these three areas. Finally, estimates were also prepared of the costs of alcohol-related programs, costs to the criminal-justice system for alcohol-related offenses in 1971, and costs of the social-welfare system related to alcoholism. An effort to assign a portion of the economic cost of fire losses to alcohol misuse did not succeed owing to the lack of adequate reliable data.

A comprehensive economic evaluation of the effects of the production and consumption of alcoholic beverages would take account not only of the costs to society associated with their misuse but also of numerous economic benefits arising from their use. This could not be accomplished in the present study. Thus, while health and medical costs of misuses have been calculated, the possible value of health-

promoting uses has been left out of the account. A further limitation of its scope is that no account is taken of the value of personal and social gratifications from use, or of the emotional sufferings caused by misuse; no attempt has been made to measure these human effects in economic terms. The present study, thus, is limited to an attempt to quantify only the economic costs of alcohol misuses and alcoholism.

Economic cost was defined as "the value of output of production that must be foregone by society because of alcohol misuse and alcoholism" (3). Costs arise from the socioeconomic process of allocating limited resources to meet, through the production of goods and services, the unlimited wants of society. If economic resources are reduced by or reallocated to alcohol-related effects, the economic cost to society is the value of the output which the resources would have produced if it had not

TABLE I  
ECONOMIC COSTS OF ALCOHOL MISUSE  
AND ALCOHOLISM, U.S.A. 1971

	Billions of Dollars
Lost production	\$ 9.35
Health and medical	8.29
Motor vehicle accidents	6.44
Alcohol programs and research	0.64
Criminal-justice system	0.51
Social-Welfare system	0.14
Total	\$25.37

Source: Berry et al. (3).

**TABLE 2**  
**ECONOMIC LOSS DUE TO DIMINISHED PRODUCTIVITY OF MEN, U.S.A. 1971**

Age of Head	Estimated Number of Families (1000's) <sup>a</sup>	Percent of Families with Problem-Drinking Men <sup>b</sup>	Estimated Number of Families with Problem-Drinking Men (1000's)	Mean Gross Deficit in Family Income of Problem-Drinking Men <sup>c</sup>	1968 Estimate of Economic Loss of Problem-Drinking Men (billions of dollars)
21-29	7,197	21%	1,314.9	\$1,011	\$1.329
30-39	10,744	13	1,243.1	1,860	2.312
40-49	11,506	12	1,228.8	2,356	2.895
50-59	10,063	11	974.1	1,565	1,524
1968 Estimated Total					\$8.06 Billion
Adjusted 1971 Estimated Total <sup>d</sup>					\$9.35 Billion

<sup>a</sup> Derived from Statistical Abstracts of the U.S. (22), Table 54, p. 41, 1971.

<sup>b</sup> From Cahalan and Room (5).

<sup>c</sup> To adjust for inflation, the 1968 estimated total of \$8.06 billion was multiplied by the percentage increase in the Consumer Price Index (16 percent) between 1968 and 1971.

been for alcohol misuse and alcoholism. The measurement of economic cost is greatly facilitated if the market prices are available for the resources which are either reduced or reallocated as a result of alcohol misuse. Because the general understanding of the relationship between alcohol and various behaviors is in a comparatively primitive state, however, estimates of the costs of some possibly significant aspects of behavior could not be formed. As a result, the estimate of loss of about \$25 billion in 1971 due to alcohol misuses may be conservative. Some considerations which would suggest that this amount may constitute an overestimate, as well as still other elements of underestimate, will be dealt with below.

#### Methods

The study was a pioneering attempt to derive systematic quantitative economic cost estimates based on the observed behavior of people with alcohol-related problems. Ideally, cost estimation is a two-stage process: First, research identifies and quantifies specific behaviors which can be attributed to alcohol misuse and alcoholism. The behavioral data are then analyzed from

an economic perspective. This process was followed as closely as possible.

Two variations of the method were employed: (a) Behavioral research on alcoholism was surveyed and the economic costs of that illness were estimated; (b) cost studies of other alcohol-related behaviors were analyzed and a proportion of the costs was allocated to alcohol misuse and alcoholism.

The conclusions follow, separately, for each of six main identified cost areas.

#### Lost Production

The largest single area of economic cost—amounting to \$9.35 billion—was the lost production of the goods and services which could be attributed to the reduced productivity of alcohol-troubled male workers.

The cost of lost production was estimated on the basis of observations of the difference in earnings of families with and without problem drinkers. The estimate was limited to a 1-year period (1971) for noninstitutionalized men aged 21 to 59. A summary of the information and findings is presented in table 2. The study

includes, possibly for the first time, estimates of lost production derived from data on people with drinking problems in the general population rather than only those seen in treatment environments, and taking into account age and income as well as prevalence. It was not possible, however, to take into account other factors, such as ethnicity, region, urbanization, parents' status, psychiatric disablements other than problem drinking, and some other factors which may also be related to both income and drinking problems.

Another important aspect of the present lost-production estimate is that it was prepared from the perspective of society as a whole. Many individual firms and large organizations, including the Federal Government, have conducted studies on the relationship between employees' wages and their productivity and have generally employed alcohol misuse as a factor in lost production.

Pell and D'Alonzo (19) have clearly outlined the source of lost productivity among alcohol-troubled workers:

The cost of alcoholism to industry is made up of several components, including loss of efficiency, absenteeism, lost time on the job, faulty decision making, accidents, impaired morale of co-workers, and the cost of rehabilitation programs. A large significant portion of the economic impact of alcoholism also includes premature disability and death, resulting in the loss of many employees in their prime who have skills that are difficult to replace.

However, the cost of production as estimated by an industry is necessarily limited. In general, it does not include the cost of the unemployed worker. Nor need it even consider the costs of the reduced productivity of alcohol-troubled workers if their wages are reduced correspondingly, and there are indications that such downward adjustments in the pay of problem drinkers do occur. Society, on the other hand, must include the costs of reduced production by all these individuals in its estimate of the costs of alcohol-related problems. Although the wider view was taken in the present study, the estimate is not completely general. The information about some groups within society is too

inadequate to allow cost estimates based on their characteristics and behavior.

The lost or reduced production of women, and of alcoholic persons who are institutionalized or living on skid row, is not included in the \$9.35 billion estimate.

The economic cost of the lost production among women is probably substantial. For several reasons, however, these costs cannot be easily calculated: (a) No reliable market prices are available which would indicate the value of women's services in household or nonmarket production. (b) There is no reliable estimate of the actual number of alcoholic women; estimates range from 900,000 alcohol addicts (9) to as many as 4.5 million problem drinkers (3). (c) There have been no systematic studies of the changes in the economic roles of family members under the impact of either an alcoholic wife or husband. Thus any estimate at this time of the cost of lost production among alcoholic women would be little more than conjecture.

Similar difficulties apply to any attempt to estimate lost production costs among institutionalized and skid row problem drinkers.

While these latter insufficiencies indicate that the amount entered in tables 1 and 2 as the cost of diminished production is an underestimate, an important caution must be entered here. To begin with, no allowance has been made for the losses that would presumably have occurred in the same population even in the absence of any drinking problem—for example, because of other psychiatric disablements. This consideration gains force from the hypothesis, as enunciated by Schuckit (20), that for some people—men in particular, in contrast to women—alcoholism represents a "choice of symptoms" as against an affective disorder. Further, the present estimate is based on comparing income of families of men exhibiting some drinking problems with income of families of men not having such problems, controlled only for age, and all the difference is assigned to the drinking problem. This leaves at least three important components out of account: (1) Since a sizable proportion of alcoholic persons are unmarried, the use of family income as a base tends to inflate the resulting loss value. (2) There may be factors other than age which are related to both drinking problems and income. For example, members of some ethnic and religious groups with relatively high rates of problem drinkers are also more likely to be workers in occupations

with lower status and income. (3) The method used herein simply attributes all reduced income of problem drinkers to the misuse of alcohol. But it is of course possible that some misuse of alcohol is caused by socioeconomic disadvantage as manifested in lower income. These various factors, not allowed for in the present estimate, render it to some extent an overestimate. There is no basis at present for gauging to what degree the overestimating and underestimating factors may balance each other. All that can be said is that the estimate of a \$9.35 billion loss of production is the best that can be derived from the presently available data. It should be thought of as a first approximation. Intensive study of a multiplicity of relevant factors, and critical refinements of methodology, will be needed to formulate a more satisfactory estimate.

### Health and Medical Costs

Treatment for alcohol-related conditions accounted for more than 12 percent of the \$68.3 billion health bill (8) for adult Americans in 1971. Approximately \$8.29 billion was expended for alcohol-related health and medical problems, making this the second largest component of the economic costs of alcohol misuse, problem drinking, and alcoholism.

Included in these costs are expenditures for the major types of health care and for medical construction, training, and education. These expenses are adjusted so that they reflect only the share attributable specifically to alcohol-induced problems. Account was taken of the costs for medical care that these patients would have been expected to incur even if they had not been impaired by alcohol, and these were excluded in arriving at the final estimate of \$8.29 billion.

Of the \$8.29 billion expended for alcohol-related health services, \$5.3 billion was for hospital care; \$0.9 billion for physicians' services; nearly \$0.3 billion for drugs; and more than \$1 billion for administration and construction. The \$5.3 billion for hospital care is nearly 20 percent of the total hospital expenditures for adults in 1971.

Three independent sources of information were analyzed in the health-medical cost estimate. The literature on the relation between

alcohol and medical care utilization was surveyed; the information system of the Nation's Alcoholism Treatment Centers was used to obtain data on hospital utilization by alcoholic patients; and field interviews were conducted among medical and health experts in the alcohol field to obtain estimates of health-care utilization by the general alcoholic population. The weakness of the bases for estimating utilization is recognized, and more reliable sources and methods should be developed in future research.

Expenditures for dental care were not included. Field interviews established that problem drinkers use fewer dental services than the general population. This appears to be reflected in the poorer dental health of alcoholic persons (15, 16).

### Motor Vehicle Accident Costs

The third largest economic cost associated with alcohol misuse is that proportion of the costs of various types of motor vehicle accidents which can be attributed to that cause. It comes to \$6.44 billion. A review of the literature suggested that the appropriate dividing line at which responsibility may be attributed to the presence of alcohol is the finding of a blood alcohol concentration of 0.05 percent or higher in the driver or pedestrian (4). This appears to be the dividing line at which the likelihood of being involved in an alcohol-caused accident begins. In this section, therefore, "alcohol misuse" indicates such a finding.

Three types of accidents were studied: fatal, personal injury, and property damage.

Based on data supplied by the National Highway Traffic Safety Administration, alcohol misuse contributed to 43 percent of the non-pedestrian traffic fatalities (19,000 deaths) in 1971; 38 percent of the adult pedestrian fatalities (2,700 deaths); 14 percent of the personal-injury accidents; and 6.8 percent of the property-damage accidents. Thus, about 40 percent (21,700) of the motor vehicle deaths were believed attributable to alcohol in 1971. This estimate does not include nonadult pedestrian deaths or any sober adult pedestrians who may have been killed by drivers under the influence of alcohol.

When these accident proportions are applied to the National Highway Traffic Safety Administration's estimates of costs in each category,

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the cost of alcohol-related accidents can be determined as follows:

Fatal accidents .....	\$ 3.56 billion
Injury accidents .....	2.38 billion
Property damage .....	0.50 billion
Total .....	\$ 6.44 billion

Other sections of the study, such as those on lost production and health and medical costs, undoubtedly include some expenditures which rightfully belong in the motor vehicle category. Double counting could not be avoided completely and this may have inflated the estimate, although care was taken to estimate these costs conservatively. It is, however, the assignment of the cost of any accident in which the driver or pedestrian had a blood alcohol concentration of 0.05 percent to alcohol misuse that introduces a possibility of error on the side of overestimation. The assumption that the person with any blood alcohol concentration—even higher than 0.05 percent—was at fault in an accident is clearly arbitrary. In two-vehicle or automobile-pedestrian accidents the other person, or both, could be at fault. Moreover, 0.05 percent is the lowest blood alcohol concentration at which motorists are thought to be impaired.

In most jurisdictions the criterion of impairment is set at 0.08 percent, 0.10 percent and higher. From this viewpoint the \$6.44 billion estimate represents a maximum. The development of more precise information on joint or "other person" culpability, as well as a more rational basis for using a presumptive blood alcohol level other than 0.05 percent, with supporting data on incidence of other blood alcohol levels, will allow a more confident estimate of the costs of traffic accidents attributable to alcohol misuse. Thus the present estimate should be regarded as the best first approximation that could be developed at this time.

#### Program and Research Costs

The expenditures for alcohol and alcoholism-related programs, including diagnosis, treatment, rehabilitation, prevention, education, and research, were estimated to have totaled approximately \$0.64 billion in 1971. Federal, State, and voluntary private agency budgets were reviewed to obtain these cost estimates.

The tremendous surge of interest in and awareness of the problems of alcohol since 1971 has resulted in increased program expenditures. Estimated Federal Government expenditures for alcoholism programs in 1971 were \$127 million. Since that time, new agencies, including the National Institute on Alcohol Abuse and Alcoholism, have been created, and more funds are being allocated especially for alcoholism treatment programs, so that current expenditures are substantially greater.

#### Costs to the Criminal-Justice System

The study estimated that violent and anti-social behavior linked to alcohol misuse cost the Nation's criminal-justice system more than half a billion dollars in 1971. This amount represents a small but not inconsiderable proportion of the \$10.5 billion expended by the police, courts, and correctional institutions in that year (21). These estimates represent only the costs to the criminal-justice system, not any costs of the crime to the victim or to the perpetrator.

No presumption was made that alcohol is the causal agent of any crime. Nonetheless, it is recognized that a certain proportion of all crime that comes to the attention of the authorities has some alcohol involvement. As the National Commission on Causes and Prevention of Violence (17) has put it, "No drug, narcotic, or alcoholic beverage presently known will, by itself, lead to violence. Nevertheless, these substances may, through misuse or abuse, facilitate behavior which may result in violence to persons or property."

Costs were determined first by reviewing the literature on alcohol and criminal behavior. The reports indicated that alcohol is frequently associated with certain violent crimes such as homicide, assault, and rape. Other offenses, such as drunkenness, disorderly conduct, driving under the influence of alcohol, and vagrancy, were classified as 100-percent alcohol-related, but liquor-law violations were excluded entirely from this accounting, since they do not bear on alcohol misuse. In 1971, violent crimes associated with alcohol, and the 100-percent alcohol-related offenses, accounted for 3.6 million arrests, equal to 41 percent of all arrests.

Cost estimates were assigned on the basis of determining what percentage of the various crime categories could be attributed to alcohol. The number was then multiplied by average cost

**TABLE 3**  
**SUMMARY OF ALCOHOL-RELATED COSTS TO THE CRIMINAL JUSTICE SYSTEM, U.S.A. 1971**

		<u>Violent Crimes</u>	<u>100-Percent Alcohol-Related Offenses</u>
<u>Police</u>			
Cost per case	\$17.80		
Total for alcohol-involved arrests		\$236.9 million	\$ 58.6 million
<u>Court</u>			
Cost per case	\$4.69		
Total for alcohol-involved procedure		\$ 28.1 million	\$ 15.4 million
<u>Jail</u>			
Cost per day per inmate	\$6.10		
Total for alcohol-involved inmates			\$ 71.4 million
<u>Prisons</u>			
Cost per day per inmate	\$6.00		
Total for alcohol-involved inmates		\$ 76.2 million	
<u>Other</u>			
Crime prevention (alcoholism rehabilitation)			\$ 25.0 million
<u>Grand Total</u>			<u>\$511.5 million</u>

data for arrests, trials, and incarceration in each category.

Drunkenness, driving under the influence, disorderly conduct, and vagrancy were found to have cost \$74 million in the year 1971. This is based on the finding that there were 3.3 million arrests for those offenses that year, and on an estimate (7) that police and court costs for each arrest came to \$22.49 per offense. More than \$71.4 million was expended for incarceration as a result of these nonviolent crimes. The estimate of police and court costs per arrest was based on findings in a study conducted for the City of Phoenix, Arizona (7), and to the extent that these costs may not be representative for the entire country the estimate would have to be modified. At the present time the Phoenix study is the only one that provides a basis for formulating a reasonable estimate.

An association with alcohol was recorded in 64 percent of all murders (26), 41 percent of all assaults (18), 34 percent of all forcible rape (1), and 29 percent of all other sex crimes (12).

Arrest and court costs for violent crimes were calculated as follows:

	Police cost	Court costs
	<i>(In millions of dollars)</i>	
Criminal homicide....	\$ 13.5	\$10.8
Aggravated assault....	209.5	15.5
Forcible rape.....	13.9	1.8
Total.....	\$236.9	\$28.1

Nearly 35,000 persons were incarcerated for violent crimes associated with alcohol use during 1971. The estimated average cost of maintaining a person in prison is \$6 per day (24) and in jail, \$6.10 (25). When multiplied by the 34,805 alcohol-involved prisoners, the cost of the imprisonment is \$208,800 per day or \$76,222,950 per year. The loss of income by these prisoners has not been taken into account. On the other hand, this estimate has assumed that each of these persons was in prison a full year.

In addition to these costs, and based on an estimate of the U.S. Office of Management and Budget (23), \$25 million was assigned as the cost of crime prevention or alcoholism rehabilitation activities by the criminal justice system. The total costs are summarized in table 3.

### Social-Welfare System Costs

Alcohol-related expenditures by the social-welfare system can be divided between two categories: social-services costs and transfer payments. Transfer payments represent a transfer of income to the needy in order to arrest the decline in the standard of living of one whose job may have been lost because of alcoholism. These payments, except for administrative costs, are not additional economic costs. They do not measure reduced or foregone output, which is measured directly by the amount of the total reduced earnings of workers. However, these income maintenance payments do have social and political significance, for they represent a financial burden to the taxpayer. If these payments were not socially mandated, the funds could have been used for alternative purposes, either by the taxpayer or the appropriate level of government. Income-maintenance payments attributable to alcoholism were estimated to be \$2.2 billion in 1971.

Social-service costs which do meet the criterion of economic cost totaled some \$135,100,000 during 1971. The social-service costs were incurred in the areas of child welfare and special welfare. This amount probably represents only a fraction of the economic cost of the weakening and, in some cases, the total disruption of family structure under the impact of alcoholism.

Social and related research has begun to identify some of the destructive effects of alcoholism on the family. Some of these effects may have complex economic as well as social implications. Chafetz et al. (6) found marital instability in 41 percent of the families of alcoholic persons. As many as 15 to 20 percent of all applications to some family-service agencies involve a drinking problem (2), and the family court in New York City has been reported to estimate that 40 percent of the problems brought to it are directly or indirectly attributable to problem drinking (11).

### Economic Cost of Fire

Preliminary research suggested that a considerable portion of the more than \$4.5 billion (10)

suffered in property loss and expended to combat fires in 1971 might be attributed to the misuse of alcohol. For example, one study (13) attributed more than 80 percent of all fire-related deaths in Memphis over an 8-year period to alcohol. Another study (14) tentatively concluded that "alcohol was a major contributor in approximately 30 percent" of 89 fires in which fatalities occurred during a 2-year period: "Smoking was established to be the major ignition source in approximately 50 percent of the fires, but alcohol was present in significant quantities in 60 percent of the 'smoking' fires." The data are suggestive, but the existing studies are not extensive enough to allow the development of cost estimates attributable to alcohol misuse; such estimates were therefore not included in the present study.

### Summary

The adverse effects of alcohol misuse impose a significant economic burden on society. It is not possible at present to place a reliable economic value on all adverse effects—such as broken homes and disturbed children. And because of insufficient data or still inadequate methodology, it is not yet possible to arrive at a cost value of certain effects in which the economic component is obvious, such as fires or loss of production in homemaking. In six areas, however, estimates could be developed of the costs of alcohol misuse in the United States in 1971. The cost assigned to lost business-industrial production was \$9.35 billion, to health-medical services \$8.29 billion, to traffic accidents \$6.44 billion, to the criminal-justice system \$0.51 billion, to the social-welfare system \$0.14 billion, and to alcohol-related programs and research \$0.64 billion, for a total of \$25.37 billion. Some factors which would cause under- and overestimations in the three largest categories could not be taken into account, nor was account taken of any counterbalancing beneficial effects of alcohol use. These estimates should therefore be regarded not as precise values but as reasonable first approximations, for the present, of the economic costs of alcohol misuse. They represent, moreover, a distinct advance in understanding, as well as a foundation for continued study.

**TABLE 1**  
**RELATIONSHIP BETWEEN CANCER AT VARIOUS SITES**  
**AND THE USE OF ALCOHOL AND TOBACCO**

Sites	Number of Cases	Relationship with Use of Alcohol	Relationship with Use of Tobacco	Sex Ratio (M:F)
Hypopharynx	4,225	very strong	very strong	28.0
Larynx	5,524	very strong	very strong	27.4
Esophagus	5,007	very strong	strong	16.6
Lips	4,616		very strong	11.8
Oropharynx	3,216	strong	very strong	11.6
Tongue	4,856	very strong	strong	9.3
Oral cavity (other sites)	4,145	strong	very strong	8.6
Lips	3,609		strong	8.1
Bladder and other urinary organs	962		strong	2.6

Source: Flamant et al. (15).

habits, including the amount of alcohol intake. It is known to be a difficult task to establish reliably how much alcohol is consumed by heavy drinkers. Moreover, there is the confounding condition that people who drink heavily often also smoke heavily. The latter fact was first taken into account by Flamant et al. (15), who assessed both factors and reported, based on analysis of previous research (table 1), that there was a "strong" or "very strong" association of alcohol intake with cancer of those sites that came most strongly in contact with alcohol (tongue, hypopharynx, larynx, esophagus), but no association in sites lacking such contact (lung, lips, bladder, other urinary organs). On the other hand there was also a strong or very strong association of tobacco use with cancer of all these sites—those without as well as those with alcohol contact. The frequent co-existence of alcohol and tobacco use has made it difficult to identify the influence of each independently in relation to cancer.

The means by which alcohol might exert a carcinogenic effect in man are unknown, but several have been suggested and are being studied. Among the possibilities are effects of prolonged and repeated contact of body tissues with alcohol in various forms, especially in strong solutions; a role of alcohol as a cocarcinogen with tobacco, or as a trigger mechanism for a hypothetical viral cause; indirect consequences of alcoholism, such as malnutrition,

anemia, and poor hygiene; and the possible presence of carcinogenic substances in some alcoholic beverages. Each of these hypothesized mechanisms becomes important in consideration of the possible effect on specific sites and types of cancer.

#### Alcohol and Specific Sites of Cancer

##### *Upper Aerodigestive Tract*

Cancers of the upper aerodigestive tract (the mouth, pharynx, and larynx) appear to be related to heavy drinking in the United States and other parts of the world where these cancers occur with high frequency in men. Tobacco use and alcohol consumption each contribute separately to increased risk of cancer; and the data suggest that heavy use of both has an additive and possibly even a synergistic effect in increasing risk (47). Laboratory experiments indicate that alcohol and tobacco augment the carcinogenic effect of 7-14-dimethyl-benzanthracene in hamsters and mice (14, 54), giving some laboratory support for this epidemiological observation.

The use of tobacco in one form or another is the most important worldwide link to cancer of the mouth (18). This has been demonstrated in many studies of tobacco chewing, snuff dipping,

TABLE 2  
RELATIVE RISK OF ORAL CANCER ACCORDING TO LEVEL OF  
EXPOSURE TO ALCOHOL AND SMOKING

Ounces of Absolute Alcohol per Day	n	Cigarette Equivalents per Day		
		Less than 20	20 - 39	40 or More
No alcohol	1.00	1.52	1.43	2.43
Less than 0.4 oz.	1.40	1.67	3.18	3.25
0.4 - 1.5 oz.	1.60	4.36	4.46	8.21
More than 1.5 oz.	2.33	4.13	9.59	15.50

Risk is expressed relative to a risk of 1.00 for persons who neither smoked nor drank.  
Source: Rothman and Keller (47).

the chewing of betel (mixed betel nuts, tobacco, and lime), beedi smoking (Indian home-rolled tobacco), and cigarette, cigar, and pipe smoking. Risk is further increased among people who also drink heavily (63). It should be noted that while cancer of the lip has been specifically linked to clay and metal pipe smoking, cancer of the skin adjacent to the lips is related to exposure to the sun's ultraviolet rays and not to alcohol or tobacco use, demonstrating the specificity of discrete sites to different carcinogenic factors.

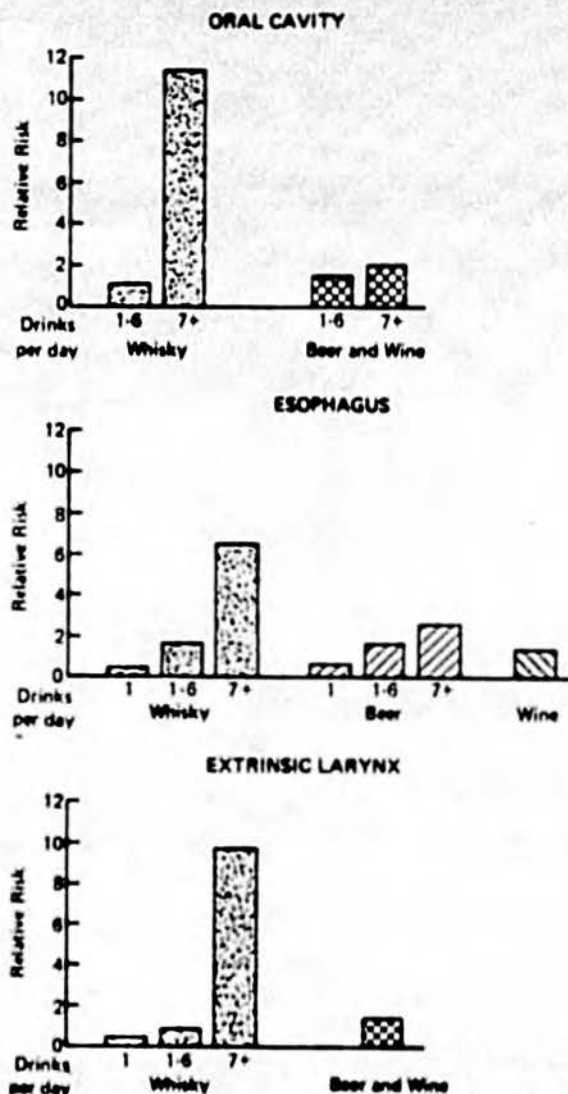
The roles of smoking and drinking in cancers of the upper aerodigestive tract have been difficult to separate due to the association of heavy drinking and smoking in the same individuals. One study (13) showed that 93 percent of the men and 91 percent of the women in a group of alcoholic outpatients were smokers, proportions far higher than in the general population. A recent preliminary report by Kissin et al. (25, 26) revealed that patients who had primary cancers of the floor of the mouth, the hypopharynx, and the esophagus, had a higher drinking-to-smoking ratio than patients with primary cancers of the roof of the mouth, the larynx, and nasopharynx, who smoked more than they drank. Since alcohol comes in closer contact with the "ingestion tract" and tobacco smoke comes in closer contact with the "inhalation tract," a possible differential contributory relationship was suggested. In addition, patients with cancer of the ingestion tract had used more distilled spirits than those with cancer of the inhalation tract.

Attempts to separate tobacco from alcohol as a risk factor in cancer of the mouth and pharynx require sophisticated epidemiological models. A four-level gradation for each exposure to alcohol and a matrix of 16 relative risk estimates were used in a study by Rothman and Keller (47). These estimates were tabulated to permit inspection of either alcohol intake or cigarette smoking as the independent variable (table 2). The increasing relative risk at the higher levels of both drinking and smoking suggests the possibility of a synergistic effect, though based on these data alone the simple additive model cannot be excluded. These findings accord with earlier reports (31, 32) that the relative risk of buccal and upper respiratory tract cancer among those who use both alcohol and tobacco was greater than the sum of either risk alone.

Toward the end of the 1950s Wynder and his colleagues in a series of studies (63-66) found that patients with oral and laryngeal cancers were considerably heavier drinkers than control patients. By separating individual risk factors in oral cancer, the conclusion was reached (66) that "heavy drinkers" had roughly a 10 times greater risk of developing cancer of the mouth than "minimal" drinkers. When amount of alcohol consumed increased, the relative risk of cancer of the mouth, extrinsic larynx, and esophagus was also increased (figure 1), much more so with whisky than beer and wine.

It has been suggested that the heavy smoking might initiate and the heavy drinking synergistically promote laryngeal cancer (69).

Figure 1. RELATIVE RISKS OF DEVELOPING CANCER OF THE ORAL CAVITY, ESOPHAGUS, AND LARYNX, BY TYPE AND AMOUNT OF BEVERAGE CONSUMED



Reproduced from Wynder and Malins (18) by permission of Academic Press.

A case-control study of oral and pharyngeal cancer among veterans led Keller (23) to conclude that there is a strongly positive association between drinking more than 1.6 oz. of absolute alcohol per day plus smoking 40 or more cigarettes per day and cancer of the mouth and pharynx. Of the cancer patients in that study, 43 percent were classified as "heavy drinkers" (over 1.6 oz. of absolute alcohol per day) compared to 20 percent of the control subjects.

Other investigators (38, 39, 57, 60) have reported an apparent association between drinking and cancer of the mouth, pharynx, larynx, and esophagus that persisted when control subjects were matched for tobacco use. Lung cancer was found to be associated with tobacco but not with alcohol use, while cancer of the stomach, which has been declining in recent years, was associated with neither alcohol nor tobacco use. No association was found between

**TABLE 3**  
**ALCOHOL CONSUMPTION AND PERCENTAGE OF PERSONS WITH ALCOHOLISM**  
**AMONG CANCER PATIENTS AND NON-CANCER CONTROL GROUP**  
**(WORKERS IN THE PARIS AREA)**

Site of Cancer	Quantity Consumed				Percentage with Alcoholism			
	Number of Cases	Ounces of Absolute Alcohol Consumed Daily	Gross Significance	Significance Level after Adjustment for	%	Gross Significance	Significance Level after Adjustment for	
			Tobacco	Tobacco and Age		Tobacco	Tobacco and Age	
Tongue	43	5.2	***	*	74	***	***	***
Buccal cavity (other locations)	23	5.4	**	*	83	***	***	**
Oropharynx	34	4.9	**	*	56			
Hypopharynx		5.5	***	*	82	**	*	*
Larynx	63	5.4	***	**	81	**	*	**
Esophagus	100	5.3	***	**	58	**	*	*
Control group	366	4.0			43			

\*p < .05; \*\*p < .01; \*\*\*p < .001.

Source: Schwartz et al. (52).

cirrhosis of the liver and cancer of the mouth, pharynx, larynx, or esophagus. From these epidemiological indications Terris and Keller (57) inferred that alcohol may act as a carcinogen or cocarcinogen on susceptible tissues of contact but not indirectly through impaired liver metabolism.

Research in France has provided important evidence on the relation of alcohol to cancer of several sites. Schwartz et al. (52) investigated 3,937 cancer patients according to the amount they drank and whether they showed signs of alcoholism—diagnosed by the occurrence of tremors of the extremities, spider telangiectasis, and morning drinking. They also studied another group of 1,807 patients to determine the possible interaction of alcohol and tobacco. Their results showed that patients with cancer of the mouth, hypopharynx, larynx, and esophagus drank considerably more than the control subjects, even after adjustment for tobacco use and age (table 3). This relationship was particularly striking in cancer of the esophagus. Alcoholism was also significantly more common among patients with cancers of the same sites, and also among those with cancer of the tongue, even after adjusting for tobacco use and age.

Three prospective studies of the drinking patterns of alcoholic persons and their risk of developing cancer have been conducted in

Canada, Norway, and the United States (table 4). The first study, by Schmidt and DeLint (49), a followup of 5,000 men and 1,000 women treated at the Toronto Addiction Research Foundation between 1951 and 1963, showed that cancer of the upper aerodigestive tract occurred five times more frequently among the alcoholic persons than in the general Ontario population.

In a followup to the end of 1962 of 1,722 men who had been treated for alcoholism in Oslo, Norway, between 1925 and 1940, Sundby (56) showed that these men faced a multifold increase in the risk of death from cancer of each of the upper aerodigestive tract sites, nearly the same increased risk from cancer of the larynx, and a smaller increased risk of death from lung cancer. No excess mortality from cancers of the stomach, pancreas, liver, or intestines was observed.

A comparison by Pell and D'Alonzo (43) of 900 alcoholic employees of an American corporation with an equal number drawn from among 75,000 nonalcoholic employees of the same company showed that the alcoholic employees had a nearly fourfold excess of cancer deaths (26 cases versus 7) involving the mouth, pharynx, esophagus, and lung.

In the latter three studies, however, smoking was not taken into account. The data on lung

**TABLE 4**  
**NUMBER OF DEATHS FROM CANCER AMONG ALCOHOLIC**  
**PERSONS COMPARED WITH DEATHS IN MATCHED CONTROL GROUPS**

Cause of Death	Schmidt & DeLint (Toronto)			Sundby (Oslo)			Pell and D'Alonzo (U.S.)		
	Deaths		Ratio	Deaths		Ratio	Deaths		Ratio
	Alcoholic Group	Control Group		Alcoholic Group	Control Group		Alcoholic Group	Control Group	
All Causes	639	315.2	2.03	1,061	496.9	2.14	102	32	3.22
Cancer (all forms)	77	58.1	1.33	118	85.5	1.38	26	7	3.71
Lung	30	13.9	2.16	19	5.4	3.54	5	2	2.50
Larynx	7	0.8	8.75	5	0.6	8.20	3	0	*
Oral <sup>a</sup>	6	1.7	3.53	22	1.7	12.94	3	0	*
Esophagus	6	1.3	4.62	40	3.4	11.82	1	1	1.00
Number of People	5,395 Men			1,722 Men			842 Men 57 Women		
Number of Person-years	34,445			34,951			4,240 <sup>b</sup>		

<sup>a</sup>Mouth and esophagus combined. <sup>b</sup>Estimated. \*Indeterminate.

cancer in two of them (43, 56), however, suggest an important role of smoking in these samples, and this reemphasizes the difficulty of evaluating any possible contributory role of drinking when smoking—and, possibly, other relevant factors—are not taken into consideration simultaneously.

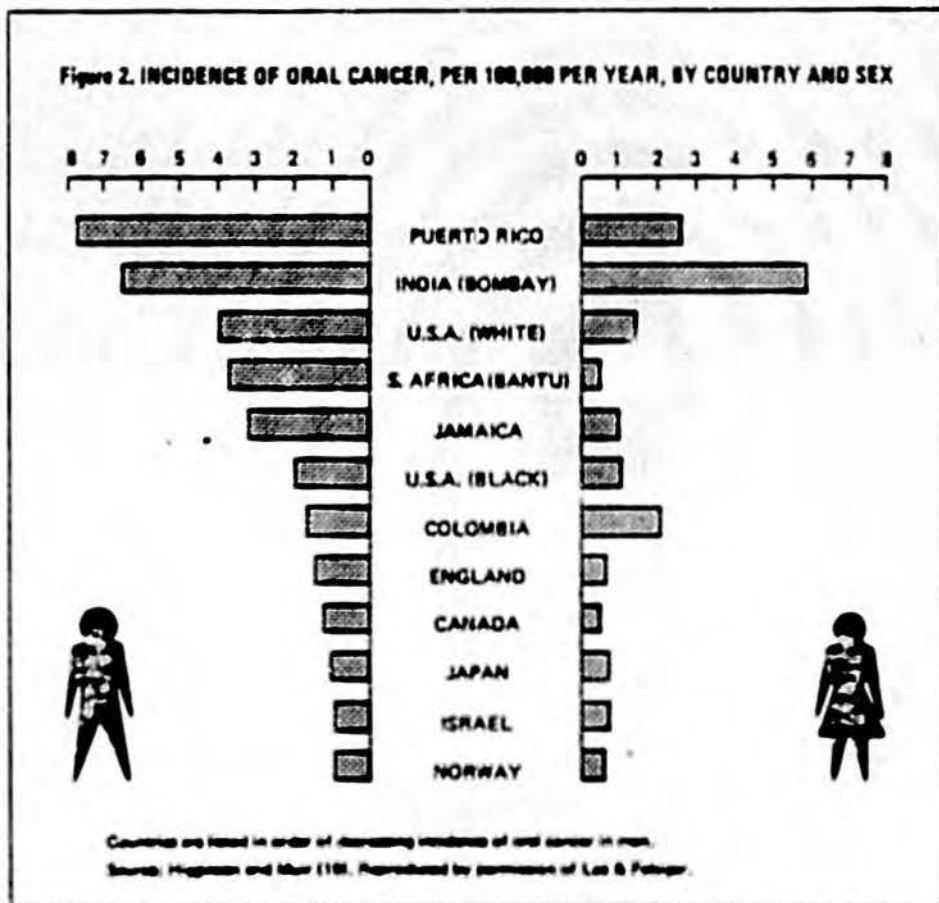
In parts of Asia (particularly India), where drinking by the general population is relatively minimal and alcoholism is presumed to be rare, cancer of the mouth is among the most common neoplasms (18). Tobacco is thought to be the most potent carcinogenic factor. Prolonged exposure of oral tissues to tobacco may result in leukoplakia, lesions which have a high risk of malignant transformation and are generally considered to be precancerous (45). The heterogeneous nature of the etiology of upper aerodigestive tract cancer becomes clear when the worldwide incidence is considered (figure 2), but heavy alcohol intake appears to be a significant

contributing factor in the United States and other Western countries.

Malnutrition and anemia are also associated with increased risk of oral, hypopharyngeal, and esophageal cancer. This is evident in the relationship of Plummer-Vinson syndrome to nutritional deficiencies, especially vitamin-B-complex and iron (67), and the association of that syndrome with cancer of the mouth, pharynx, and esophagus in women in Sweden (68). A study of American women with oral cancer (66) revealed a Plummer-Vinson-like syndrome of glossitis, brittle nails, and early loss of teeth, which appeared to be related to dietary deficiencies. It is possible thus that the increased risk of oral cancer in alcoholism may be related to the nutritional defects associated with heavy alcohol intake.

In a prospective study of 3,000 alcoholic persons, 8 were found with carcinomas of the mouth, pharynx, or larynx but none in 3,000

Figure 2. INCIDENCE OF ORAL CANCER, PER 100,000 PER YEAR, BY COUNTRY AND SEX



matched nonalcoholic control subjects (27). The 8 alcoholic patients who developed carcinoma had longer average smoking and drinking histories than the noncancerous alcoholic subjects. The duration of exposure to a carcinogenic factor and the latent period between exposure and the development of cancer are important areas for study in understanding and prevention of these carcinomas.

Despite the association of parotid gland swelling with excessive drinking, no association has been observed between parotid gland carcinoma and alcohol intake.

#### The Esophagus

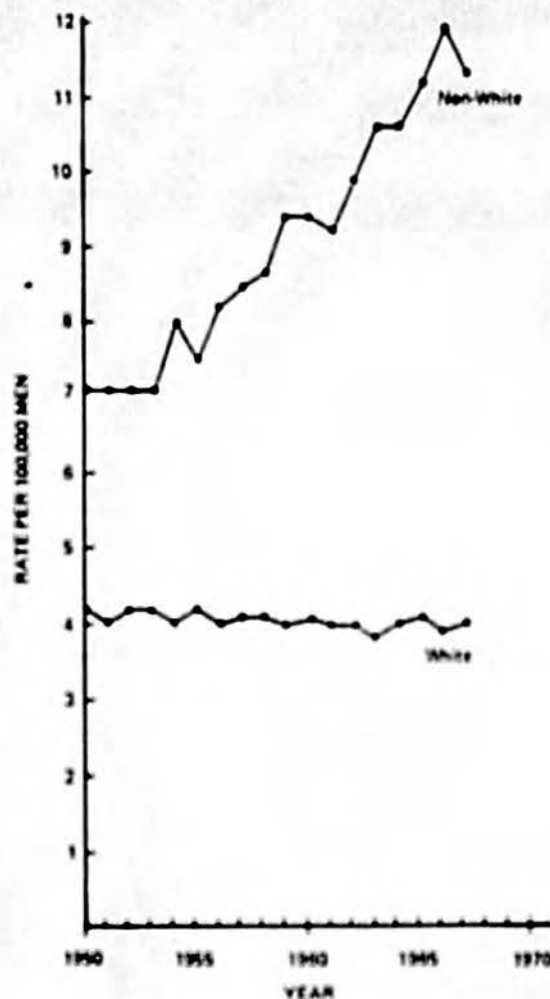
The highest incidence of cancer of the esophagus, a usually rapidly fatal disease, is reported in the eastern Iranian province of Mazandaran, in the adjacent Kazakhstan and Turkmenistan republics of the Soviet Union, in certain parts of Africa, and in the Brittany region of France. Alcohol consumption in these areas varies from almost nil in Iran to very high in Brittany. The

wide differences in esophageal cancer incidence between the sexes and between adjacent communities (58) indicate that external factors may be important. In Western countries, where esophageal cancer occurs mostly in men, excessive drinking is thought to be a major contributor to increased risk, with tobacco use playing a synergistic role (62, 68).

In the United States esophageal cancer death rates are now stable among white men but increasing among nonwhite men (figure 3). The reasons for this striking increase among nonwhite men require study and a careful assessment of their drinking, smoking, and possibly other relevant habits. Increased heavy smoking and drinking among nonwhite men, together with improved living standards, changes in diet, and urbanization have all been suggested as factors requiring investigation.

A recent retrospective study by Lynch et al. (36) revealed that while there were only 2.7 cases of esophageal cancer per 100,000 population in the United States in 1957, 69 percent

Figure 2. DEATH RATES FROM CANCER OF THE ESOPHAGUS IN MEN, U.S.A. 1960-1967



Source: Bureau VI.

of the patients with cancer of this site also had a history of alcoholism. A higher frequency of alcoholism among patients with cancer of the esophagus than among those with cancer of the colon has also been reported (22).

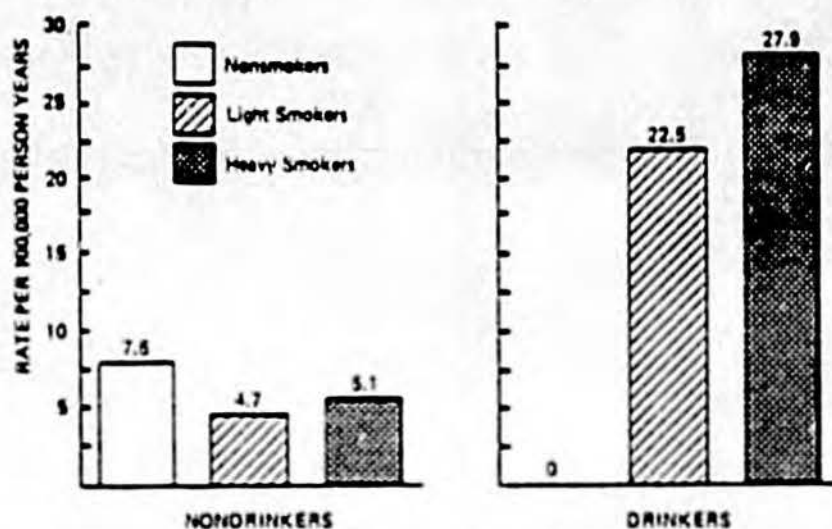
Several investigators have shown a relationship between heavy drinking, especially of whisky or other spirits (58, 62), and esophageal cancer after correction for age and tobacco use was made (15, 52). In one study (52) smoking was found to be less important than alcohol in esophageal cancer, and in another (62), smoking in the absence of heavy drinking appeared to have little or no effect on its development.

A correlation analysis in 41 States of the

United States by Breslow and Endstrom (4) showed that alcohol consumption was related to increased risk of esophageal cancer mortality among both white men and white women.

Other environmental factors, however, may also play a role in the pathogenesis of esophageal cancer (26). An epidemiological analysis of mortality from this disease in the United States showed a significant correlation between urbanization and per capita cigarette and alcohol sales (50). After partial correlation coefficients were calculated, to remove the effect of the other independent variables, urbanization still remained significantly correlated with esophageal cancer. Poverty and the particular hazards of

Figure 4. DEATH RATES FROM CANCER OF THE ESOPHAGUS IN MEN, BY SMOKING AND DRINKING CHARACTERISTICS, JAPAN 1978



The number of person years observed varied from 19,000 to 95,000 in the several groups.  
Source: Hiraizumi (19).

It is important to note that in Hiraizumi's study there are not yet enough person-years of exposure on record to assess the risk for the development of esophageal cancer among the nonsmoking drinkers. The latent period for environmentally related cancers is often 20 years or more, and since cigarette smoking in Japan is primarily a post-World War II phenomenon, the smoking factor may have had only a meager effect so far. It is difficult to assess the interaction of multiple factors at this early point in the study, especially in view of the demonstrated importance of the duration of exposure (26).

A large prospective study of a million people in the United States being conducted by the American Cancer Society (2) will become an important source of similar information about an American population. Both prospective and retrospective studies are hampered by the reluctance of people to report accurately how much they drink. Underestimation of intake may have biased previous studies, particularly retrospective ones in which the relation of alcohol and cancer was known to be under examination.

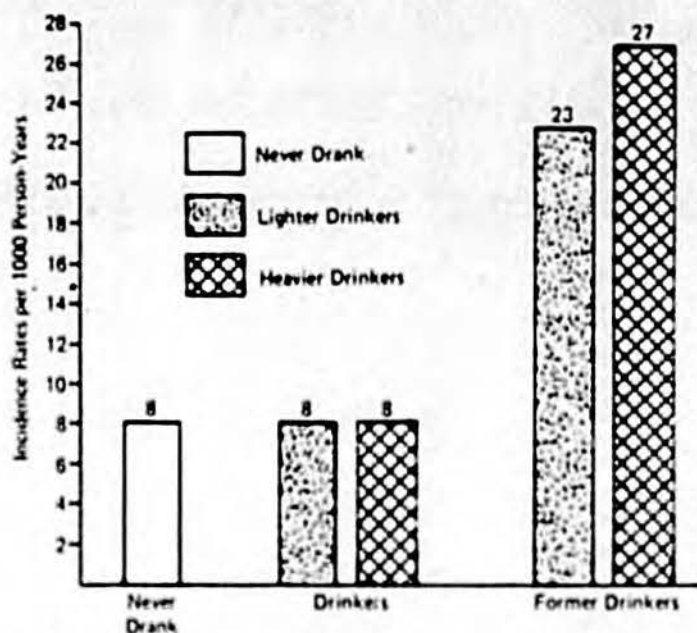
Prospective studies may be able to obtain more accurate data about drinking since a wide spectrum of questions about personal habits can be asked.

In addition to the large-scale prospective studies of alcohol and cancer in Japan and the United States, the World Health Organization's International Agency for Research on Cancer (IARC) in Lyons, France, with support from the U.S. National Institute on Alcohol Abuse and Alcoholism, has intensified its epidemiological research on the possible relations of alcohol to cancer in its various forms and sites.

Prospective studies now under way in Norway may clarify some of the possible relations and provide leads for more specific studies of mechanisms involving alcohol that increase the risk of cancer. Preliminary results from studies of patients with alcoholic cirrhosis in the United Kingdom show a significant relation between heavy drinking and primary liver-cell cancer (21).

The IARC expects to complete these studies, as well as those in France mentioned previously, in 1974. Their findings and more definitive

Figure 1. CORONARY HEART DISEASE RATES IN MEN WHO WERE AGED 45-59 AT THE START OF THE TECUMSEH STUDY, BY DRINKING PATTERN



Coronary heart disease was defined as myocardial infarction. Lighter drinking was defined for this analysis as 4 ounces of absolute alcohol per week (about 10 ounces of distilled spirits) or less; heavier drinking as any larger amount. Source: Ullman et al. (6).

in 1962-65 and 1967-69. A special analysis of the Tecumseh data by Ullman et al. (6) revealed fairly complicated relationships between alcohol use and coronary heart disease.

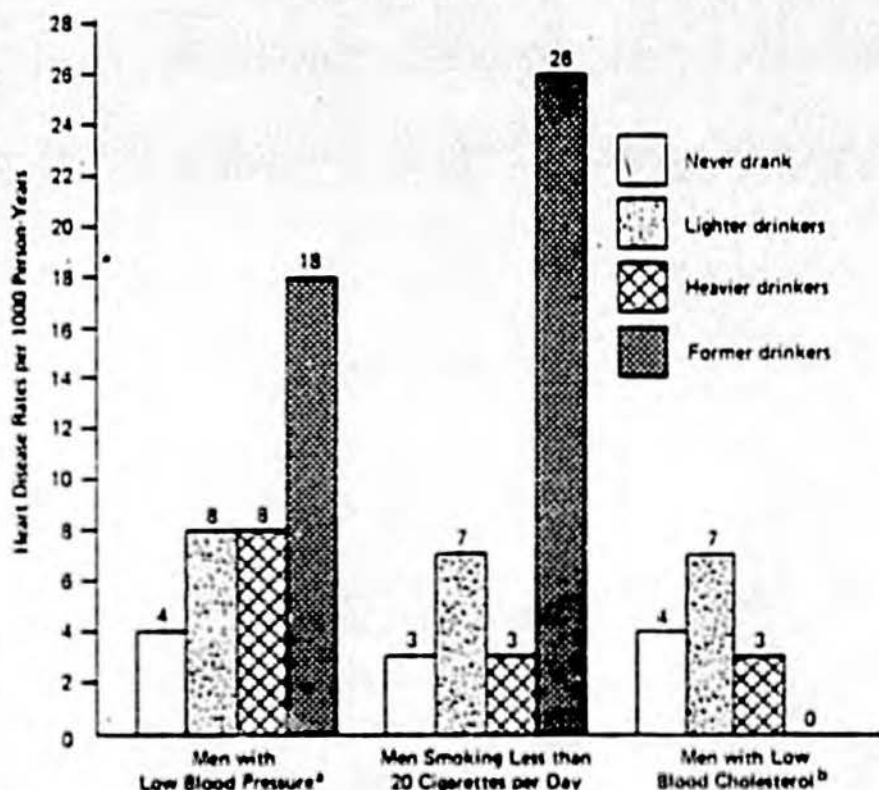
Questions about alcohol use were asked and answers recorded when the study began in 1959; the incidence of heart disease was assessed throughout the 8- to 10-year study period. Figure 1 shows the rates of coronary disease in men who were aged 45 to 59 at the start of the study. Persons who never drank had the same rates as those who drank at either lighter or heavier levels (8 events per 1,000 person-years). On the other hand, persons who were former drinkers but had stopped drinking before the start of the study were about three times as likely to have experienced a heart attack than the drinkers or lifelong abstainers. It should be noted that for the purpose of this analysis, lighter drinkers are those who consume 4 ounces or less of absolute alcohol per week and heavier drinkers are those who consume more than 4 ounces of alcohol per week. (This quantity of

absolute alcohol is equal to about 10 ounces of distilled spirits.) Also, heavier drinkers are not necessarily problem drinkers or alcoholic persons.

It is not clear at this time why the former-drinking group has a higher rate of coronary disease. The former drinkers did not differ from the other groups with regard to risk factors known to predict heart disease, such as blood pressure, blood cholesterol level, or cigarette smoking. A special inquiry about the reasons why these persons had stopped drinking revealed that 20 to 25 percent cited health reasons. It is possible, then, that the former-drinking group included many more persons in poor health than the other groups—in spite of similar blood pressure or cholesterol levels—leading to greater susceptibility to coronary disease.

Whether or not alcohol use had caused their poorer health is not clear. The former lighter drinkers—those who drank 4 ounces or less of alcohol per week—had coronary rates almost as high as the former heavier drinkers, yet there is

Figure 2. ALCOHOL USE AND CORONARY HEART DISEASE RATES IN LOW-RISK MEN AGED 45 - 59



<sup>a</sup>Lower two-thirds of distribution (systolic pressure lower than approximately 150 mm. Hg).

<sup>b</sup>Lower two-thirds of distribution (approximately 250 mg. per 100 ml. or lower).

Source: Lilman et al. (8), Tecumseh Study.

no evidence that alcohol consumption at the level of about 10 ounces of spirits per week—an average of about one 1½-ounce drink per day—is physically damaging. Moreover, the heavier drinkers who had not stopped drinking showed rates no different from those who never drank at all. Thus, if alcohol was a causal factor in the former-drinking group, it had an adverse effect only in this relatively small subpopulation.

Another possible explanation of these findings would be that the stopping of drinking itself caused the higher rates. This would imply that in an organism accustomed to alcohol, cessation of its use could cause coronary disease. But at present there is no known physiological basis for such an effect.

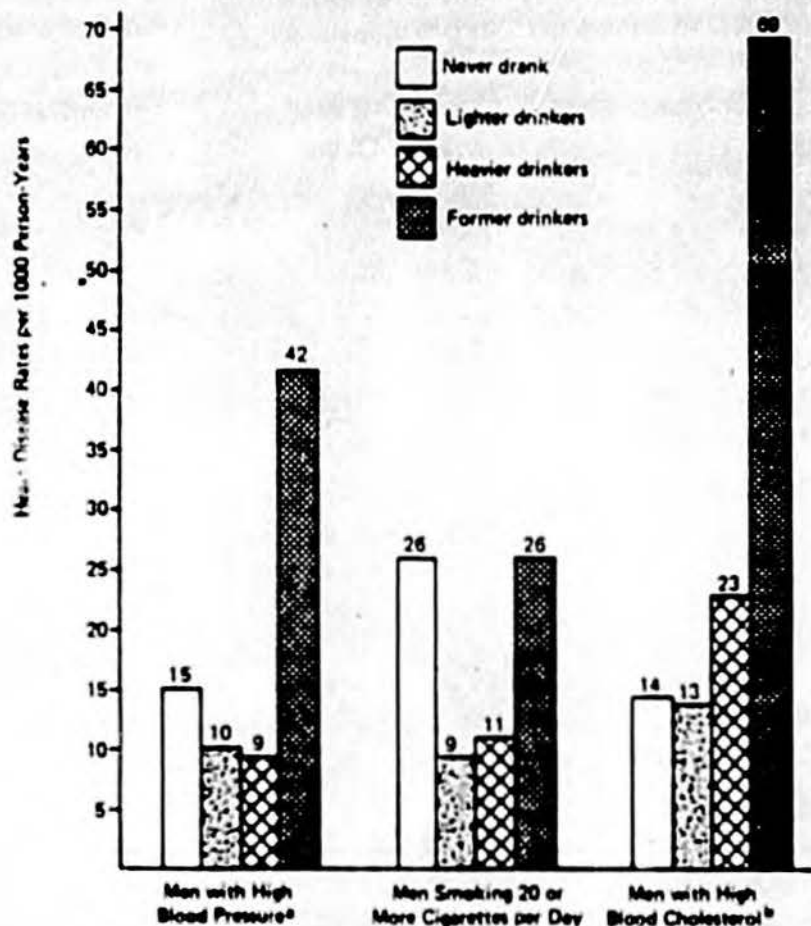
One unascertained factor, however, is the age composition of the several groups. It is known that many Americans tend to become abstainers as they grow older (see chapter I). If the

former-drinking groups included a disproportionate number of older people, then age could account for a higher incidence of coronary heart disease among them.

Many studies have established that certain characteristics are associated with higher risks of coronary heart disease. Three of the most consistent risk indicators are blood pressure, cigarette smoking, and blood cholesterol level. Middle-aged men with high levels of blood pressure, smoking, or cholesterol are two to three times as likely to have heart attacks as those with lower levels. In an attempt to further clarify the relationship between alcohol and heart disease, the Tecumseh study examined coronary disease rates and alcohol consumption in both low-risk and high-risk persons.

Figure 2 shows the relation between coronary disease and alcohol use in the lower-risk men. The relationships are complex. There is no

Figure 3. ALCOHOL USE AND CORONARY HEART DISEASE RATES IN HIGH-RISK MEN AGED 45 - 50



<sup>a</sup>Upper third of distribution (systolic pressure higher than approximately 149 mm. Hg)  
<sup>b</sup>Upper third of distribution (total cholesterol higher than approximately 250 mg. per 100 ml.)

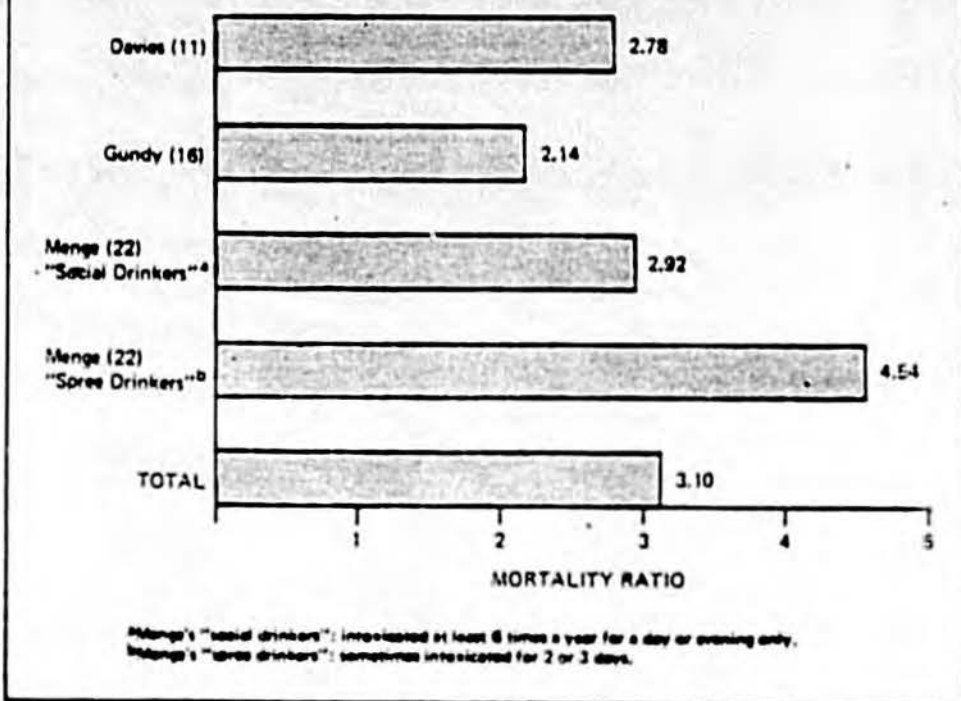
Source: Ulman et al. (6), Tecumseh Study.

consistent pattern when the two classes of drinkers are compared with lifelong abstainers, but the rates are generally low in both drinkers and those who never drank. Former drinkers, however, have the highest rates, except that those with low cholesterol levels had no incidents of coronary heart disease at all during the 10-year study.

The results in the high-risk groups are shown in figure 3. As was to be expected, the rates are consistently higher than in the low-risk groups.

Interestingly, the two drinking groups have lower rates than the lifelong-abstainer and former-drinking groups of men with high blood pressure and men who are heavy smokers. But among men with high cholesterol levels, heavier drinkers have higher rates of heart disease than abstainers. The most striking relationships, however, are found in the former drinkers. Men with high blood pressure or with high cholesterol levels who stopped drinking have rates four to five times greater than most of the other groups.

Figure 1. MORTALITY RATIOS COMPARING "SUBSTANDARD" AND "STANDARD" INSURANCE GROUPS



for Women in London and became its first dean.) "Anstie's limit," then, was as follows (1):

the equivalent of  
 1.5 ounces of absolute alcohol per day;  
 that is, 3 ounces of whisky, well diluted;  
 or, ¼ bottle of table wine;  
 or, 4 glasses of beer.

This daily limit was to be imbibed only with meals.

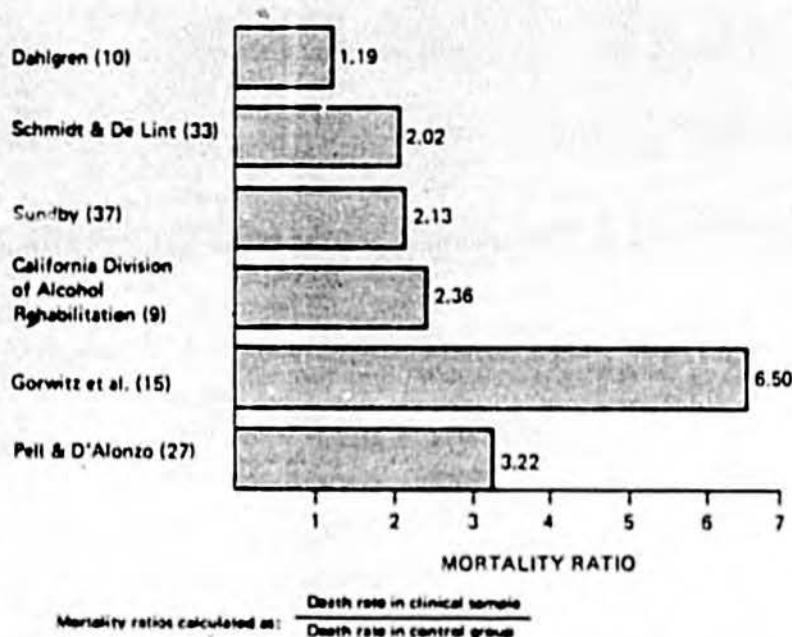
The concern about a safe limit more or less disappeared from view in the present century, although the learned researchers of the American Committee of Fifty did not forget it in their report (4) published in 1903. But in the heyday of the teetotal temperance movement, the issue became one of drinking versus nondrinking, and the question of a safe amount became irrelevant. Later on, the popularization of the medical concept of alcoholism, as a specific disease defined by a loss of control over drinking, diverted attention from studying the risks of drinking by "normal" people to studying clinical samples. These two currents of thought produced characteristic forms of studies.

#### Insurance Studies: Drinking vs. Nondrinking

During the late 19th and early 20th centuries numerous studies were sponsored by insurance companies comparing the mortality of "total abstainers" with that of "drinkers" (24). The problem with these early insurance studies is that they lumped all drinkers together, thereby overlooking the possibility that some patterns of drinking might be highly associated with excess mortality and others not at all (26).

Since the end of prohibition, insurance-company studies have moved toward a different two-class comparison: "standard" vs. "substandard" policyholders, the latter being those whose records include adverse information about their drinking. Although the "substandard" group is sometimes subdivided by drinking patterns (22, 28), the total group represents a small and relatively extreme part of the spectrum of drinking patterns. Again, the relation of moderate drinking to mortality can be determined, but the studies do yield useful information on the excess mortality associated with heavy drinking. As can be seen in figure 1, mortality was consistently higher in the groups

Figure 2 MORTALITY RATIOS IN MALE ALCOHOLIC SAMPLES COMPARED WITH CONTROL GROUPS



judged substandard because of drinking habits (ranging from 2.14 to 4.54 greater mortality) than in the standard groups. The ratio is particularly high in what Menge (22) called "spree drinkers," and in the younger age groups. It should be noted that a high mortality ratio does not necessarily indicate a very high actual rate of death. In the younger age groups death is still a relatively rare event.

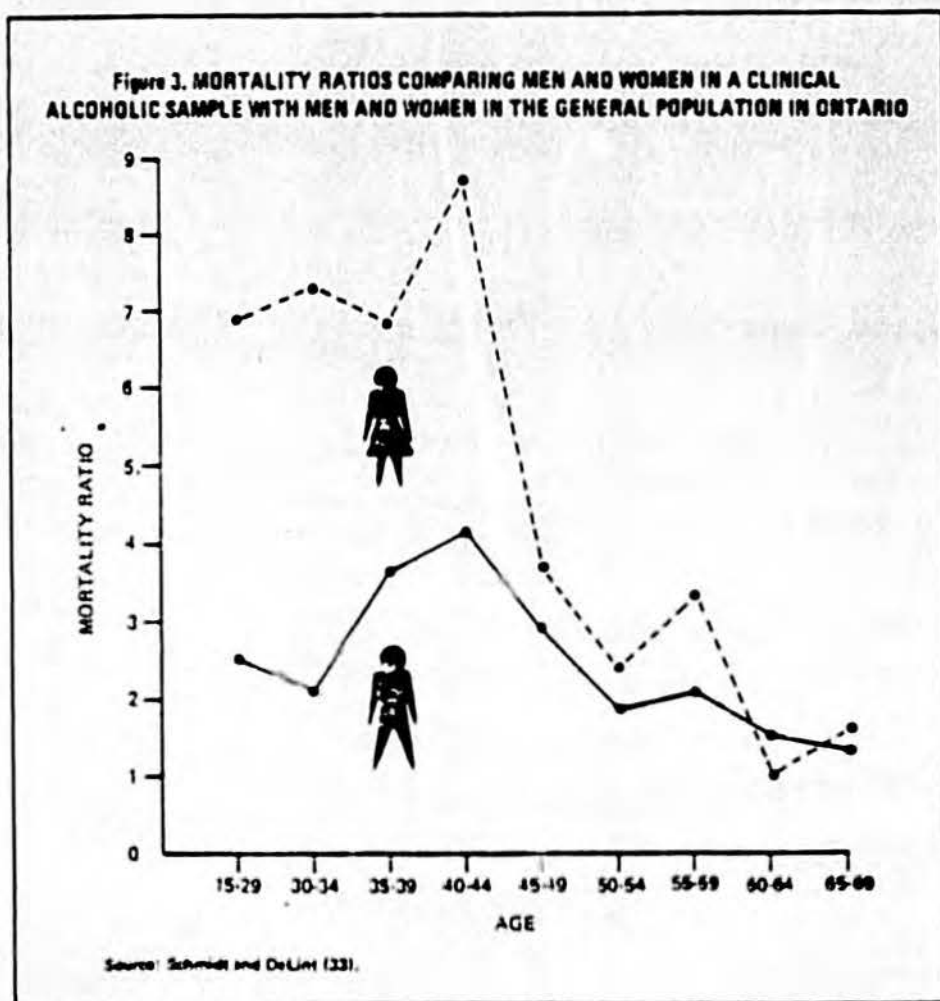
Several factors need to be borne in mind in interpreting the relevance of these studies to patterns in the general population. Insurance-company studies exclude segments of the population which do not seek life insurance—for example, people with lower income. They also exclude those who are rejected for insurance, including those whose drinking habits are considered too extreme for them to be insurable. The latter would be expected to have a higher mortality than the standard population. On the other hand, those who are designated as substandard on account of their drinking habits may be substandard on other mortality-relevant factors. Moreover, the "standard" population with which the "drinking habits" cases are compared is specially selected by the insurance company to have low mortality, that is, to be not

"substandard." For these and still other reasons, the results from insurance-company studies are likely to differ from those of the population at large.

#### Clinical Samples

The conception of alcoholism as a disease has led to several studies in recent years comparing the mortality experience of clinical samples—persons who have been in treatment for alcoholism—with that of the population in general. The data from such followup studies of alcoholic patients (9, 14, 33, 37) are rather consistent. As can be seen in figure 2, with one exception the mortality ratios fall within a relatively narrow range. Like the substandard insurance groups, clinical populations show higher mortality ratios in the younger compared to the older patients. All these findings are confirmed in the newest study of mortality in alcoholism, a followup by Nichols et al. (25) of 678 men and 257 women 10 to 15 years after they were discharged from 4 hospitals in England. The ratio of observed to expected deaths in the men was 2.65, and in the women, 3.07. In both sexes combined the ratio of those

Figure 3. MORTALITY RATIOS COMPARING MEN AND WOMEN IN A CLINICAL ALCOHOLIC SAMPLE WITH MEN AND WOMEN IN THE GENERAL POPULATION IN ONTARIO

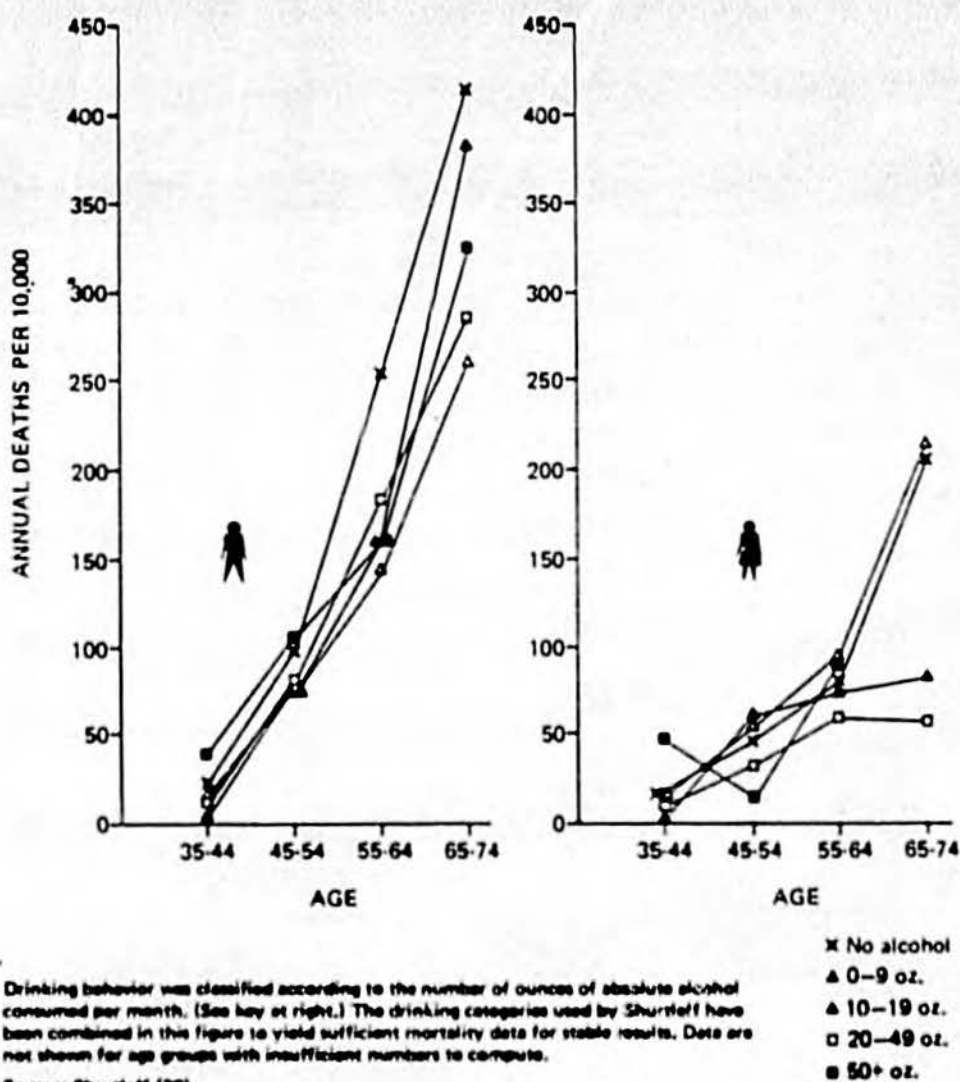


aged under 40 was 9.21; in the age classes 40-49, 5.21; 50-59, 3.21; 60-69, 1.86; 70-79, 1.73, and even in those aged 80 or over, still higher than expected—1.31. Figure 3 illustrates the finding that women, when studied, had higher rates of death than men.

Results from clinical samples are not necessarily applicable to drinker categories in the general population. Obviously those who end up in treatment for alcoholism have a history of heavy drinking (29); but, beyond this, there is reason to believe that such persons are not a random selection of all heavy drinkers in the general population. Recent work by Cahalan and Room (8) suggests that certain drinking patterns are less likely to be associated with problems in general-population samples than in clinical samples; and that, in general, the clinical population of problem drinkers—those who come into

treatment—are distinguished from other problem drinkers by the multiplicity and long duration of their problems. Differential clinical diagnosis by social class, race and sex, has also been noted (5, 15), and the known likelihood of preferential admission on the basis of poor physical status is confirmed by Schmidt and DeLint's data (33) showing an increased mortality upon initial entry to the patient population. The same conclusion may be drawn from data on enlisted men in the U.S. Navy and Marine Corps, as reported by Schuckit and Gunderson (34): The mortality of men hospitalized for alcoholism between 1965 and 1971 in each of the services was 15 per 1000, compared with overall rates of 2 in the Navy and 10 in the Marines. Thus these individuals have not only drinking problems but serious physical problems that may precipitate their appearance at hospitals and clinics. Their mortality rates, therefore, cannot be assumed to

Figure 4. MORTALITY RATES, BY DRINKING BEHAVIOR, SEX, AND AGE, FRAMINGHAM, MASS.

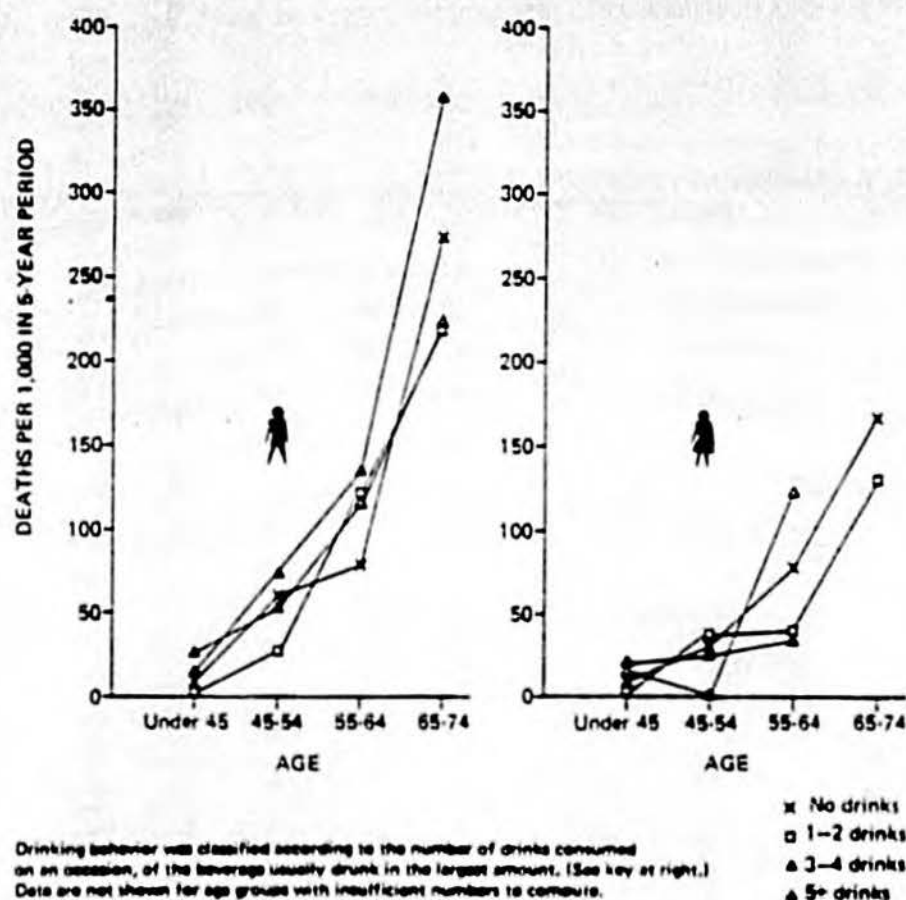


terms of overall volume of drinking per month, which tends to equate infrequent heavy and frequent light patterns of drinking. In this study, at all ages and in both sexes, the data tend to show an excess mortality of both abstainers and high-volume drinkers. The high-volume drinkers show the highest excess mortality at younger ages, while the abstainers show the highest at older ages.

The study by Belloc (2), conducted in Alameda County, California (figure 5), measured drinking in terms of the usual amount per occasion, of the type of beverage (beer, wine, or

spirits) usually drunk in the largest amount. The top category on this measure, then, includes those who usually drink 5 or more drinks of any beverage, whether they drink frequently or only intermittently, but only if they do not also drink that beverage more frequently at lesser amounts. The results from this study are less clear than those from Framingham. Heavier drinkers show a higher mortality among younger men, but in other sex and age groups the results vary without a clear pattern emerging, other than a slight tendency for light drinkers to show the lowest mortality on an age-adjusted basis.

Figure 5. MORTALITY RATES, BY DRINKING BEHAVIOR, SEX, AND AGE, ALAMEDA COUNTY, CALIFORNIA

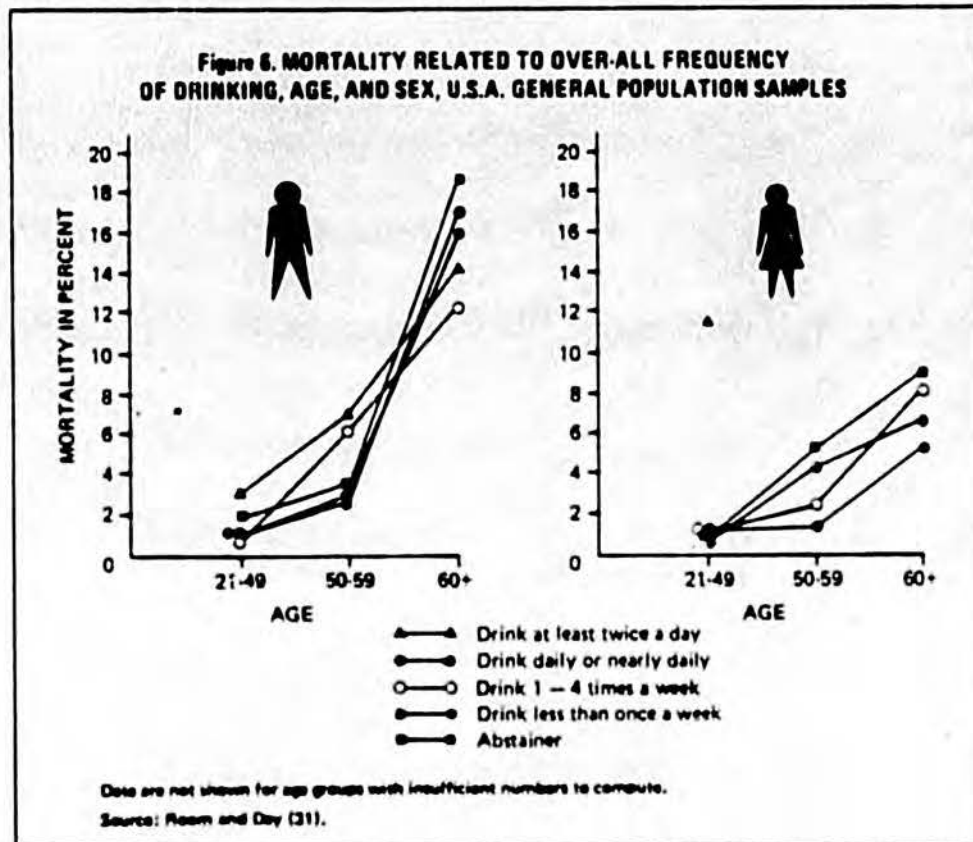


Overall, these two community studies show lower mortality ratios than were found in the insurance and clinical studies comparing heavier drinking with other patterns. Reasons for expecting higher ratios in insurance and clinical samples than in the general population have already been explored. However, there are some additional probable causes for the lower ratios in the Framingham and Alameda studies. Neither study used a measure of drinking which isolates a pure group of relatively heavy drinkers. The highest category in the Framingham data, as reproduced here (figure 4), consists of those drinking approximately two drinks a day or more, which probably includes some frequent light drinkers. The highest category in the Alameda data is fairly arbitrary, since it includes

some infrequent drinkers but leaves out many heavy drinkers who happen also often to drink lightly. Furthermore, both studies, as has been usual in surveys of drinking practices, asked only about current patterns of drinking. It is possible that the generally higher mortalities of abstainers than of moderate drinkers are due in part to those who are now abstaining because of health problems, including those whose health had been damaged by drinking. Controlling for health status or asking for a history of drinking patterns might thus have given higher mortality ratios in the drinking population, and especially in ex-drinkers.

Despite recent reports on alcohol-related mortality in general populations, the nature and strength of the relationship remains unresolved.

**Figure 6. MORTALITY RELATED TO OVER-ALL FREQUENCY OF DRINKING, AGE, AND SEX, U.S.A. GENERAL POPULATION SAMPLES**



Some preliminary findings from a study by Room and Day (31) are presented below. Since this study is specifically aimed at drinking behavior and problems, the relation between drinking patterns and increased mortality can be explored in much greater detail than in previous studies.

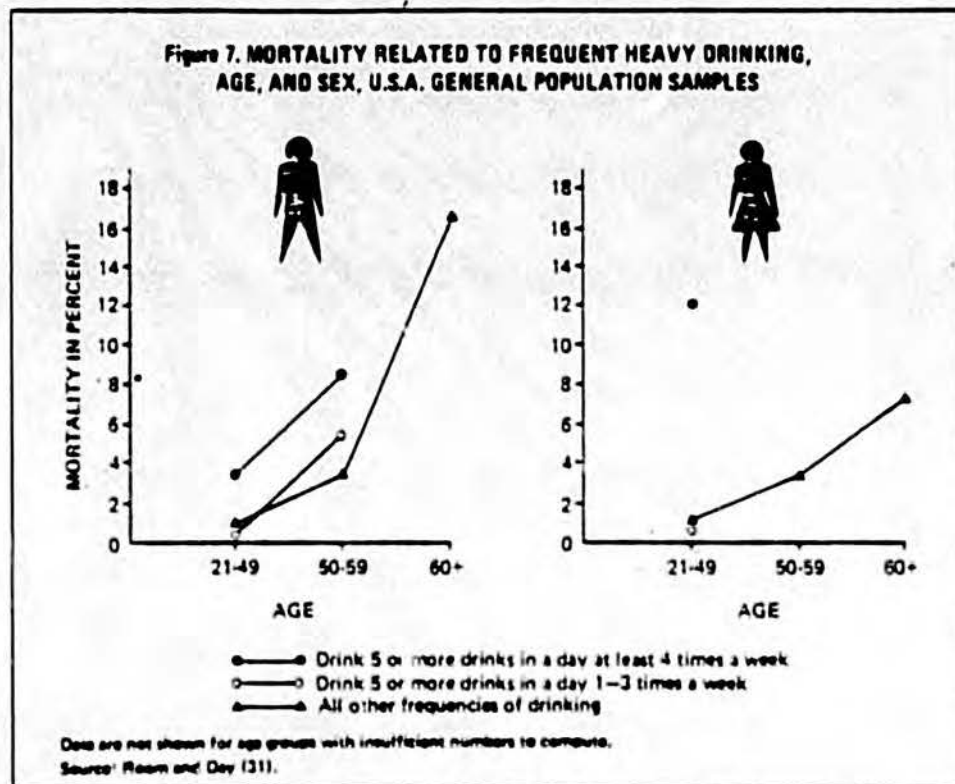
The analysis by Room and Day is based on four separate samples of the general population: two samples of adults in San Francisco, and two nationwide samples of adults. One of the San Francisco samples and one of the nationwide samples are limited to men aged 21-59. The pooled data are of course not representative of any particular U.S. population but can be described as reflecting patterns in the general U.S. population, with an overrepresentation of urban and younger men. It should be kept in mind that the samples exclude those not living in households and those who refused or were not found for interviewing; and that self-reports of drinking tend to underreport the recorded total U.S. consumption (30). The samples have been followed for varying lengths of time, ranging from 4 to 11 years, and the rates are therefore expressed in weighted person-years of

experience. Since lost cases and those not traced for the whole period are treated as alive, the total mortality reported in this analysis is somewhat underestimated.

Figures 6-9 show the mortality rate of men and women at different ages in relation to four measures of drinking practices and problems. In terms of overall frequency of drinking (figure 6), the lowest mortality in each sex and age group is at an intermediate drinking level. Under age 60, the highest death rates occur at the highest frequency of drinking; above age 60, the highest death rates are among abstainers. As in previous studies, there is a consistent tendency for those who are currently abstainers to show a higher mortality than those who are currently moderate drinkers.

Figure 7 shows mortality rates by frequent heavy drinking, a measure of the frequency with which the respondent drinks 5 or more drinks on an occasion. Among women over age 50 and men over 60, such relatively heavy drinking is so rare that mortality cannot be computed. Among those under 50, increased mortality appears to be specific to those drinking 5 or more drinks 4 or more times a week, while among men in their

Figure 7. MORTALITY RELATED TO FREQUENT HEAVY DRINKING, AGE, AND SEX, U.S.A. GENERAL POPULATION SAMPLES



50s, those drinking such amounts 1 to 3 times a week seem to show some elevation of mortality.

Figures 8 and 9 show sex and age-specific mortality according to overall measures of problems with drinking: one for problems during the "current" period (the last 1 to 3 years) and one for problems "ever" experienced (any time in the respondent's life, including the current period). These overall scores include measures of the severity of social and health problems associated with drinking, feelings of dependence on drinking, and behaviors indicating heavy and symptomatic drinking.

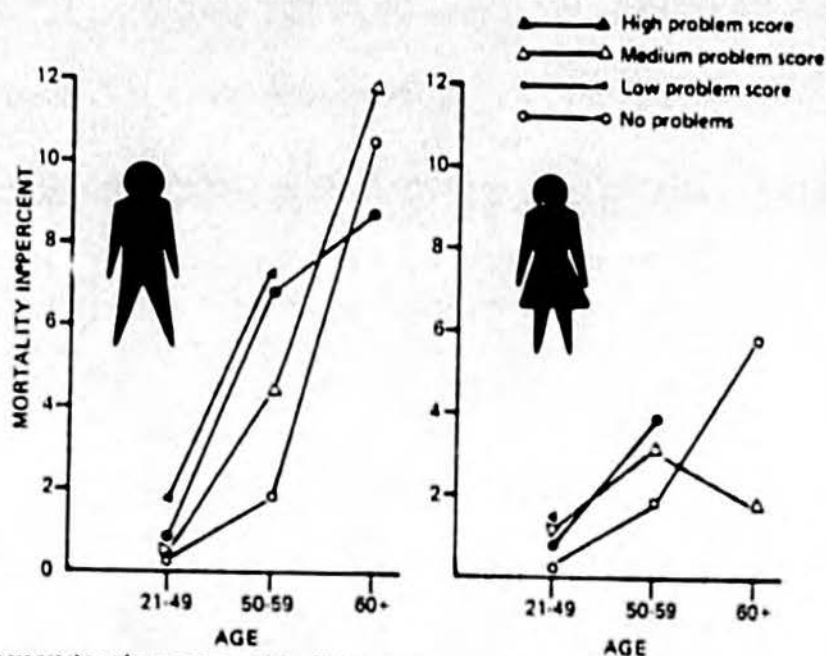
These results show some consistent tendencies with different measures of drinking practices and problems. The highest mortality ratios among heavy compared with light drinkers occur in the youngest cohort, although the absolute rates of death are much lower at younger than at older ages irrespective of amount of drinking.

As in previous studies, current abstainers have a generally higher mortality than light drinkers. Since the present series of studies included a question on the respondent's overall estimate of his health, it is possible to test the extent to

which this relationship seems to be due to abstinence because of perceived bad health.

Table 1 shows the mortality in men not in poor health—that is, in those who replied "excellent" or "good" or "fair" when asked about their overall health—in relation to various measures of drinking behavior. A report of poor health is indeed associated with subsequent mortality: among men under 60 in poor health, the mortality rate was 12 percent, while among the remainder it was 1 percent. By the measure of overall frequency of drinking, table 1 reveals that the mortality of the most frequent drinkers (at least twice a day) is the highest, 2.7 percent. But the more moderate drinkers (less than once a week to daily) have mortalities ranging from 0.7 to 1.3 percent, while the mortality of abstainers is 2.0 percent. It turns out that the removal of those in poor health from the other comparisons does not substantially affect the relative mortalities. Thus, even when the comparison is limited to those in good health, abstainers show a higher mortality than moderate drinkers. Furthermore, when the interrelationships of the measures of drinking among

**Figure 8. MORTALITY RELATED TO CURRENT OVER-ALL DRINKING-PROBLEMS SCORE, AGE, AND SEX, U.S.A. GENERAL POPULATION SAMPLES**



Data are not shown for age groups with insufficient numbers to compute.  
 Source: Room and Day (31).

men under 60 not in poor health are cross-tabulated, the relation of higher mortality to frequency of drinking is quite specific to those who are frequent heavy drinkers, with a mortality of 4.5 percent. Likewise, higher mortality

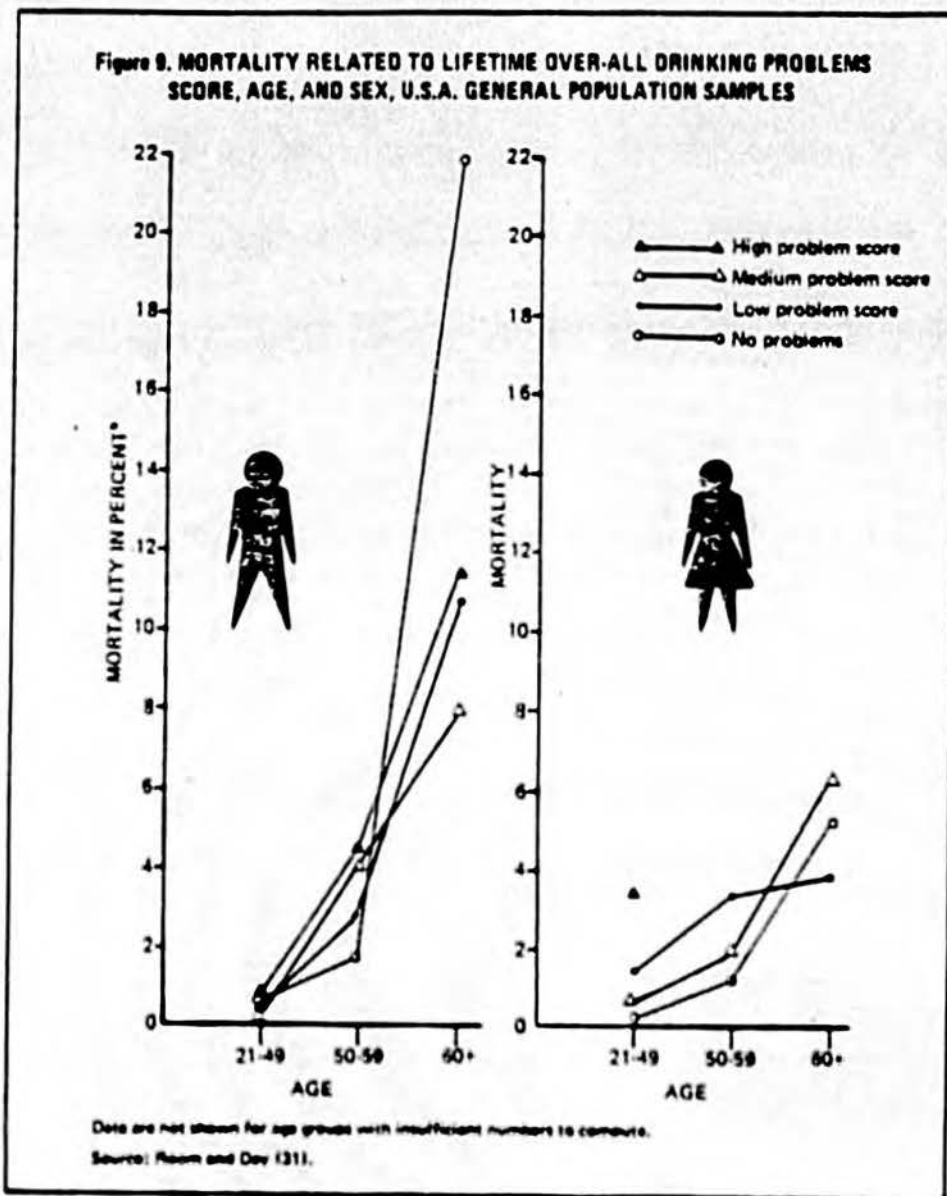
among those with an "ever" overall drinking-problems score is specific to those who show at least a medium score on current overall drinking problems. It appears, thus, that those in the general population who had some problem

**TABLE I**  
**MORTALITY OF MEN UNDER AGE 60 NOT IN POOR HEALTH,**  
**BY DIFFERENT MEASURES OF DRINKING BEHAVIOR,**  
**U.S.A. GENERAL POPULATION SAMPLES**

Over-All Frequency of Drinking	Percent Mortality
At least twice a day	2.7
Daily or nearly daily	1.3
1-4 times a week	1.1
Less than once a week	0.7
Abstainers	2.0
Average	1.2
<b>Frequent Heavy Drinking (5+ drinks in a day)</b>	
At least 4 times a week	4.5
1-3 times a week	0.9
All other frequencies	1.0
Average	1.2
<b>Current Over-All Drinking-Problems Score</b>	
High	1.9
Medium	1.8
Low	0.8
None	0.8
Average	1.1

Source: Room and Day (31).

Figure 9. MORTALITY RELATED TO LIFETIME OVER-ALL DRINKING PROBLEMS SCORE, AGE, AND SEX, U.S.A. GENERAL POPULATION SAMPLES



associated with drinking in the past but have few or no current problems do not show an excess mortality.

The data on mortality in the combined San Francisco and national samples thus consistently show excess mortality among those in the most extreme categories of frequent heavy drinking and of current drinking problems. These results apply more certainly to men, since few women fall into these heavy-drinking and high-problems categories. Even among men under 60, only 5 percent report frequent heavy drinking and 7 percent high current overall problems, so the mortality rates are based on relatively few

deaths. Since the excess mortality is specific to the top category of frequent heavy drinking and current overall drinking-problems score, it is also possible that within that category the excess mortality is confined to those with patterns substantially above the minimum criteria for inclusion in the category.

The analysis thus far has not taken into account the possible confounding of the relation of alcohol to mortality with the relation of alcohol to other factors of status and lifestyle which in turn are related to mortality. For instance, in other studies it has been shown that drinking problems are associated with low social

**TABLE 2**  
**MORTALITY RATIOS AMONG HEAVY DRINKERS COMPARED TO CONTROL GROUPS, BY SPECIFIC CAUSES OF DEATH**

	Calif. Div. of Alcohol Rehab. 194	Pitt & D'Alonzo (27)	Sundby (27)	Dahlgren (10)	Schmidt & DeLint (33)		Davies (11)	Menge (22)	U.S. 1960 Over-All Mortality Rate per 100,000 (29)
					Men	Women			
Accidents	2.4			2.82	2.52	12.40	5.00 <sup>a</sup>	1.03	51.3
Suicide			7.98	3.62	7.80	8.69		1.30	10.6
Accidents and Homicide			2.71					4.38	56.0
Diseases of digestive system				1.11				4.67	
Cirrhosis	7.0		9.88		11.49			4.5	11.3
Digestive system minus cirrhosis			1.54		0.69	0.95			
Ulcer					3.55	6.66			6.4
Malignancies		3.98		1.31			2.32	0.85	
Oral and upper respiratory			11.68		2.79	1.88			1.7
Atherosclerotic and degenerative heart disease		2.09			1.79	4.10	2.63	1.33	307.4
Cardiovascular disease	0.58	2.28	1.86	1.04	1.14	2.43	1.33		
Tuberculosis			2.11	0.85				0.56	5.6
Diabetes			3.72						16.7
Chronic alcoholism						32.33			1.2

<sup>a</sup> Motor vehicle accidents only.

Mortality ratios calculated as:  $\frac{\text{Cause specific mortality rates in cases}}{\text{Cause specific mortality rates in controls}}$

A preliminary analysis of the interaction of various habits and statuses associated with increased mortality suggests that the relation between heavy drinking and mortality is, if anything, stronger when other factors (age, health, social status) are taken into account. But the prediction of mortality from alcohol intake in the general population remains less strong than in alcoholic populations seen in clinics and hospitals. This imposes a need for caution in

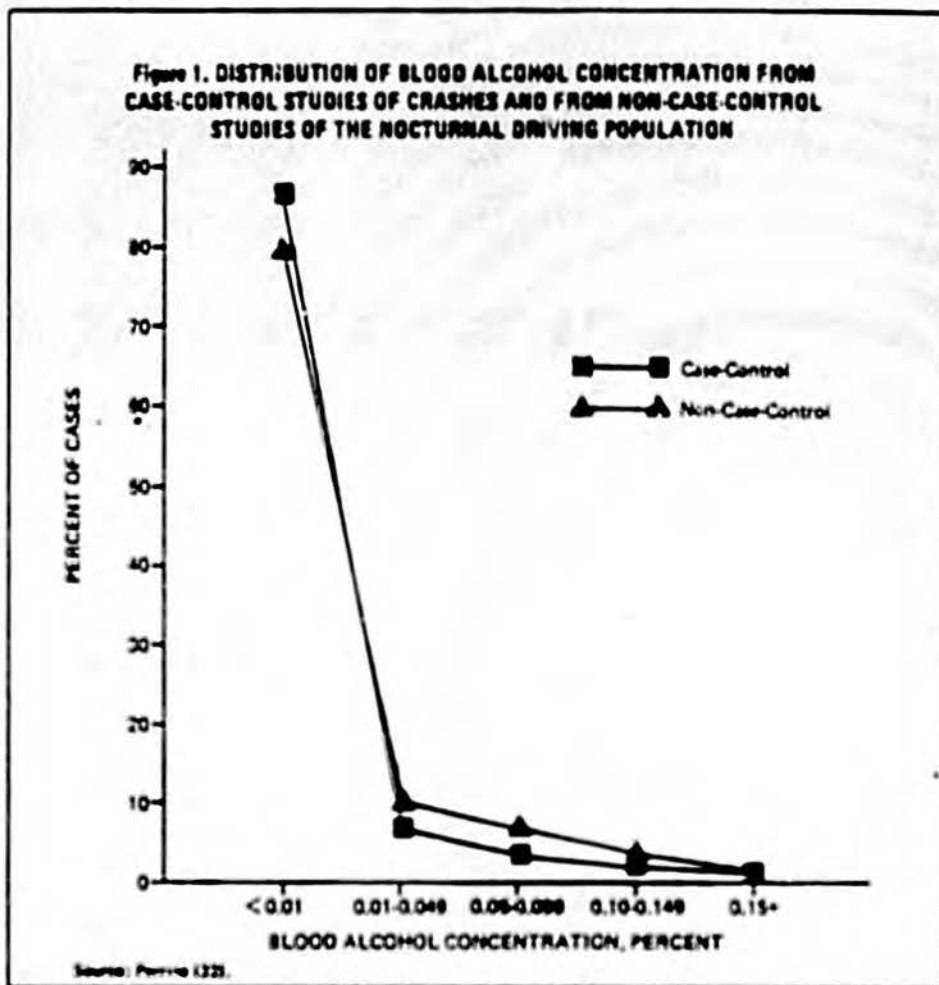
extrapolating findings from clinical populations to the alcoholic population at large.

All in all, the data on general mortality suggest that for amount of drinking there may be some kind of threshold below which mortality is little affected. In the absence of further evidence, the classical "Anstie's limit" seems still to reflect the safe amount of drinking which does not substantially increase the risk of early death.

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Figure 1. DISTRIBUTION OF BLOOD ALCOHOL CONCENTRATION FROM CASE-CONTROL STUDIES OF CRASHES AND FROM NON-CASE-CONTROL STUDIES OF THE NOCTURNAL DRIVING POPULATION



high enough—and no DWI's was low enough—to be in this transition range.

#### Nonfatal Crashes

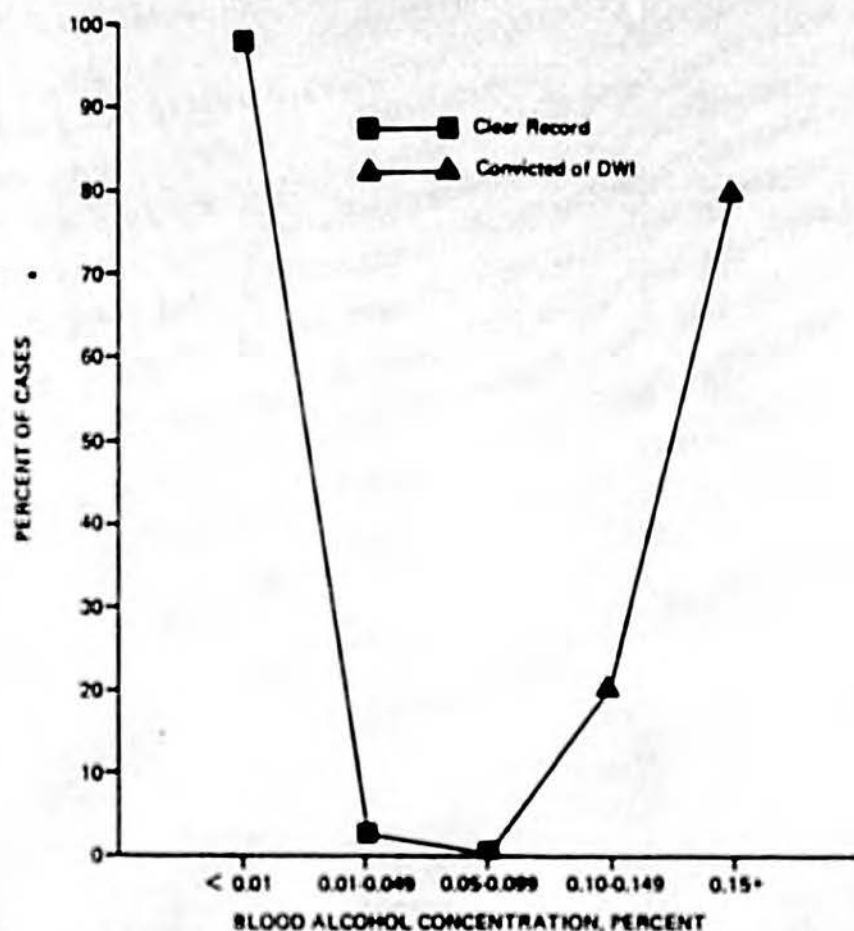
Despite probable underreporting due to selective sampling and to legal and logistical problems, it seems safe to estimate that impaired drivers (0.10 percent BAC or higher) are involved in 5 to 10 percent of the run-of-the-mill accidents and 10 to 35 percent of the serious-injury crashes (4, 6, 15, 27, 33, 35). Furthermore, injury to the driver is more likely after drinking, and both the probability and the severity of injury appear to increase as the amount of alcohol rises. The likelihood of being responsible for the crash is greater if the driver has been drinking, and higher BACs are associated with higher proportions of drivers responsible for the crashes.

#### Fatal Crashes

More complete data are available about fatal crashes than about other types. In general, about 45 percent (ranging from 40 to 55 percent) of all fatally injured drivers have BACs of 0.10 percent or more, and a surprisingly large proportion of these drivers exceed the highest BACs found in the population-at-risk (13, 22, 24, 25, 33, 43). However, in order to obtain a more accurate portrayal of the contribution of alcohol to fatal crashes, it is useful to distinguish between multiple- and single-vehicle accidents and, more importantly, to determine whether or not the fatally injured driver was responsible.

When drivers fatally injured in multiple-vehicle crashes are considered as a separate subgroup, regardless of estimated responsibility, approximately one-third (ranging from about one-quarter to one-half) have BACs of 0.10 percent or higher (13, 24, 25, 33, 43).

Figure 2. DISTRIBUTION OF BLOOD ALCOHOL CONCENTRATION IN CLEAR-RECORD CONTROL DRIVERS AND IN THOSE CONVICTED OF DRIVING WHILE INTOXICATED



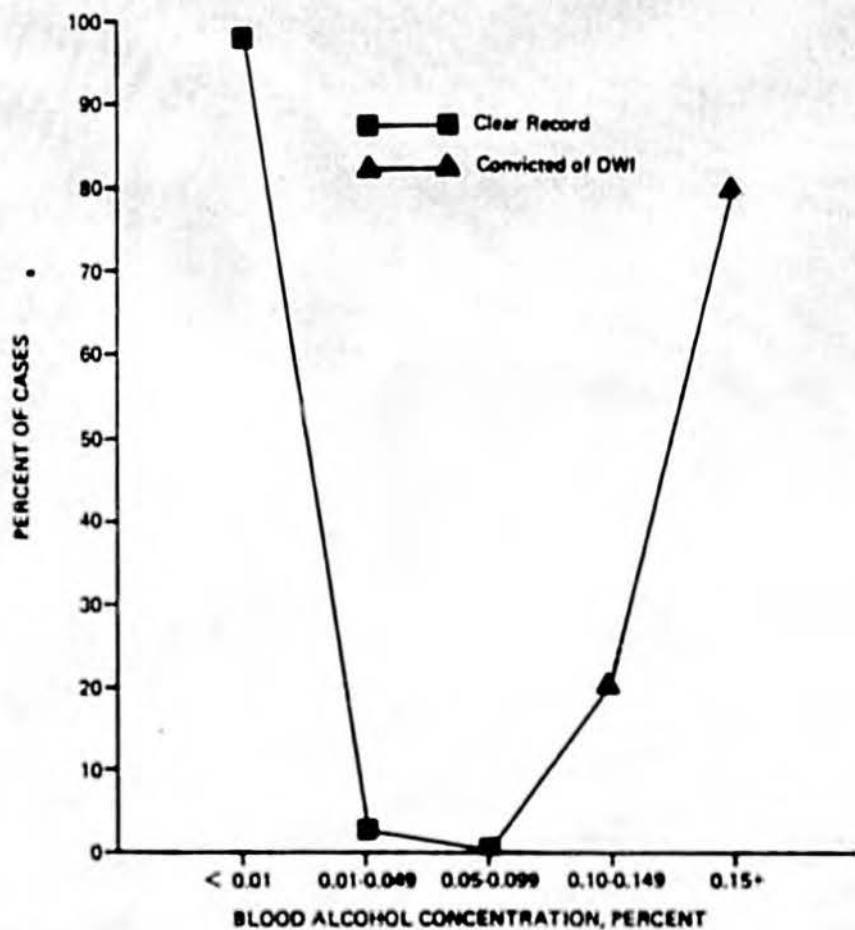
Source: Perrine et al. (33).

When drivers fatally injured in single-vehicle crashes are examined as a subgroup, between 55 and 65 percent have BACs of 0.10 percent or higher (13, 22, 26, 33, 43). Single-vehicle and multiple-vehicle crashes occur with approximately equal frequency; each represents about 40 percent of all fatal crashes (pedestrian fatalities account for the remaining 20 percent). Thus a disproportionately large part of the high-BAC driver fatality problem is contributed by the drivers in single-vehicle crashes. This overrepresentation becomes even greater when responsibility is considered.

A useful system for assigning crash responsibility was first reported by McCarroll and Haddon (22) and has been utilized in a number of studies since that time. In this system, a driver-vehicle combination is assumed to be

responsible if it is the only vehicle involved, or it has struck a nonmoving object, or it played an unambiguous role in initiating the crash. If two vehicles were involved and both contributed substantially to the event, responsibility is treated as unascertained, contrary to the common practice among enforcement agencies. Based on a composite of studies by Neilson (26) and by Perrine et al. (33), Zylman (48) has determined that about 43 percent of drivers designated as "responsible" had legally impairing BACs of 0.10 percent or higher, whereas only 10 percent of those designated as "not responsible" had BACs in that range. Thus, a composite of all drivers assumed responsible in nonpedestrian fatal crashes (that is, all drivers from single-vehicle crashes, as well as from about two-thirds of the multiple-vehicle crashes according to the

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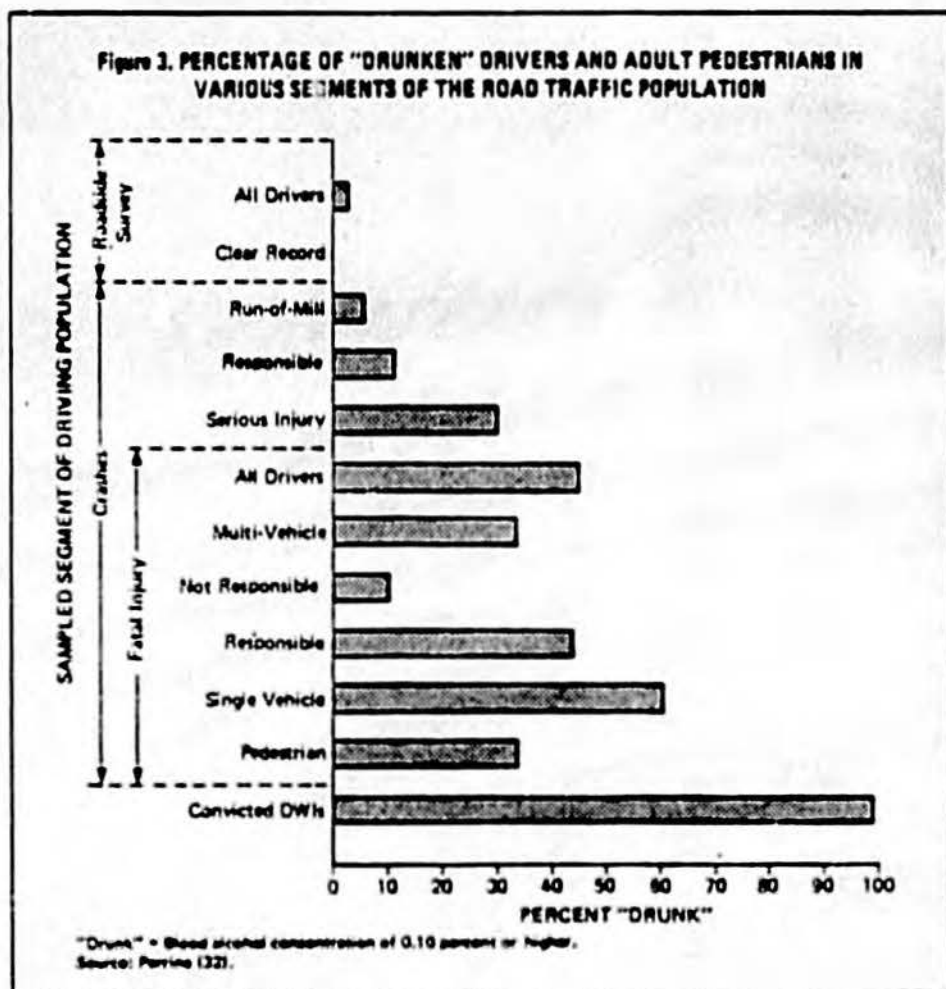
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Figure 3. PERCENTAGE OF "DRUNK" DRIVERS AND ADULT PEDESTRIANS IN VARIOUS SEGMENTS OF THE ROAD TRAFFIC POPULATION

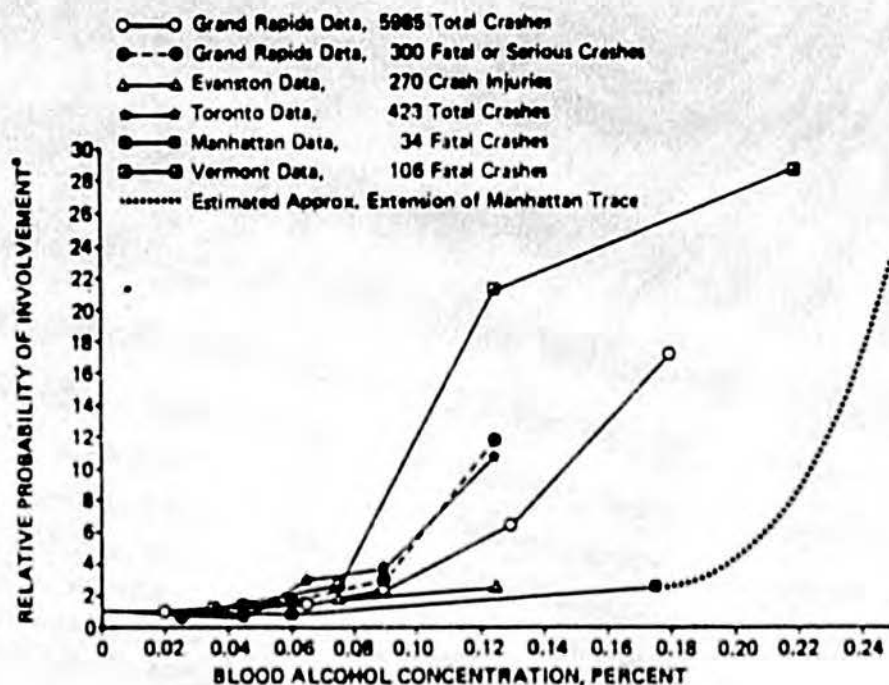


probability of being presumed responsible for a fatal crash can be estimated for subsets of the fatally injured drivers in two of the case-control studies, the Manhattan and Vermont. Because of the larger sample size, the Vermont data are used in figure 5, which shows the relative probability of being responsible for initiating a fatal crash in relation to BAC. It appears that at low BACs (less than 0.05 percent), the probability of being responsible for a fatal crash is essentially the same among fatally injured drivers as it is among control drivers (exposed to similar circumstances of time and place but not involved in a crash). At BACs between 0.05 and 0.10 percent, however, the relative probability of fatal-crash responsibility begins to increase appreciably, so that at a BAC of 0.10 percent a driver would be seven times more likely to be responsible for having a fatal crash than he would with no alcohol. The relative-hazard curve rises very steeply above this lower limit for a

DWI violation (0.10 percent in most States); at a BAC of 0.15 percent a driver would be 25 times more likely to be responsible for a fatal crash; at 0.18 percent, 60 times more likely; and at 0.20 percent (the average BAC found among those convicted for DWI and among fatally injured drivers who would have been eligible for conviction) he would be at least 100 times more likely to be responsible for a fatal crash than if he had not been drinking at all.

Similar results were obtained in the Grand Rapids study of drivers assumed responsible (using another system) for all crashes, regardless of severity. A comparison of drivers assumed responsible for crashes in three case-control studies (Grand Rapids, Manhattan, and Vermont) has been presented by Hurst (18). Perrine et al. (33) concluded from these studies that BACs of 0.08 percent or higher "are incompatible with safe driving, and the higher the concentration, the greater the incompatibility."

Figure 4. RELATIVE PROBABILITY OF CRASH INVOLVEMENT IN RELATION TO BLOOD ALCOHOL CONCENTRATION



\*Relative probability at zero alcohol = 1.0.

Source: Harst (18, Figure 1).

Small increases in BAC above 0.08 percent result in "disproportionately large increases in crash risk." For example, among fatally injured drivers in the Vermont study who were assumed to have been at fault, 52 percent had BACs of 0.08 percent or higher, compared with only 14 percent among those not at fault.

#### Personal Characteristics, Crashes, and Alcohol

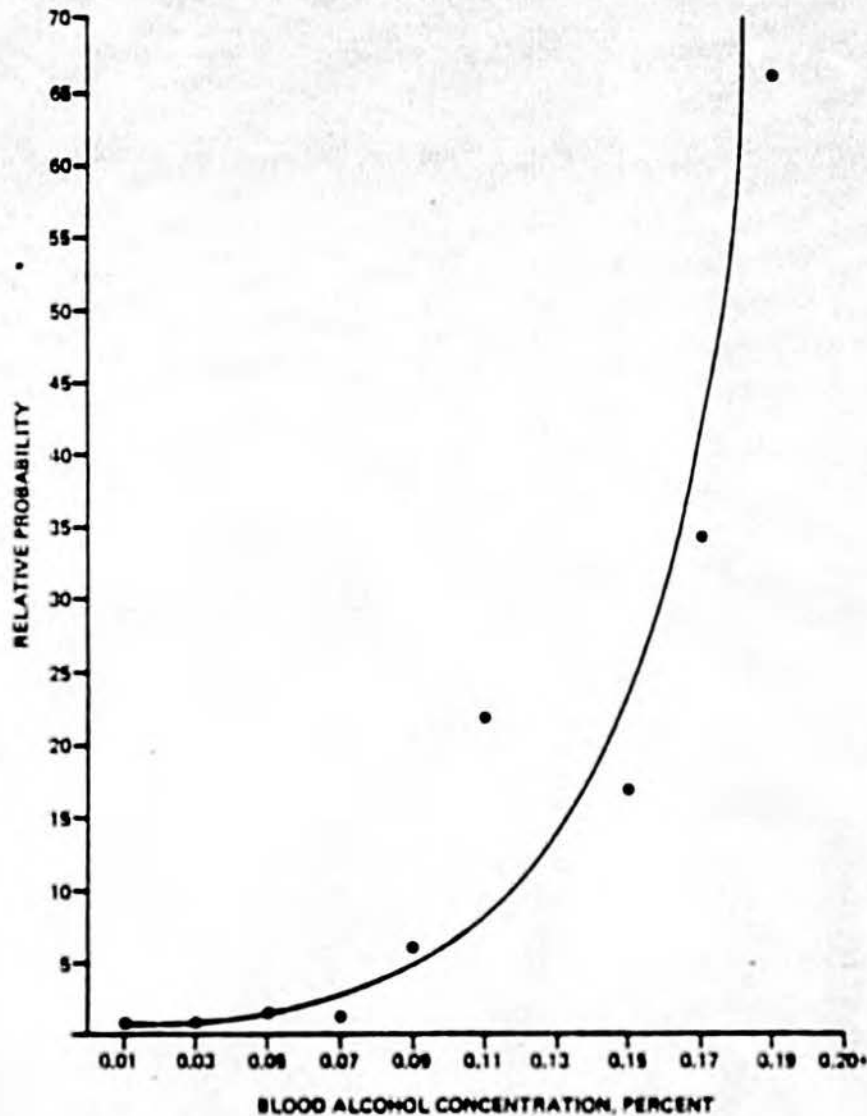
The biographical and psychological characteristics of drivers who are involved in highway crashes or citations have been studied in the belief that such information can be helpful in identifying problem drivers and designing appropriate countermeasures for different subgroups. The relevant personal variables tend to fall into three general classes, the first essentially demographic (sex, age, etc.), the second two essentially behavioral: (a) driving history and drinking-and-driving patterns, and (b) patterns of alcohol use.

#### Biographical Variables

A number of studies have found significant relations between crashes, alcohol, and the following biographical variables: sex, age, marital status, and occupational level. Less consistent but still potentially useful findings have been reported for such single and combined variables as ethnicity, religious affiliation, educational level, socioeconomic status, social stability, social mobility, leisure activities, and contact with social agencies (1, 4, 5, 6, 7, 9, 10, 11, 13, 19, 20, 28, 29, 30, 33, 41, 43, 45, 47).

**Sex.** Drinking-and-driving is predominantly a male behavior. In contrast to approximately equal representation in the adult population, men comprise a larger proportion of licensed drivers (about two-thirds), a larger proportion of drivers sampled during roadside surveys (about 80 percent), a larger proportion of fatally injured drivers (about 90 percent), and virtually all (about 98 percent) convicted DWIs (9, 10,

Figure 5. RELATIVE PROBABILITY OF BEING RESPONSIBLE FOR A FATAL CRASH IN RELATION TO BLOOD ALCOHOL CONCENTRATION



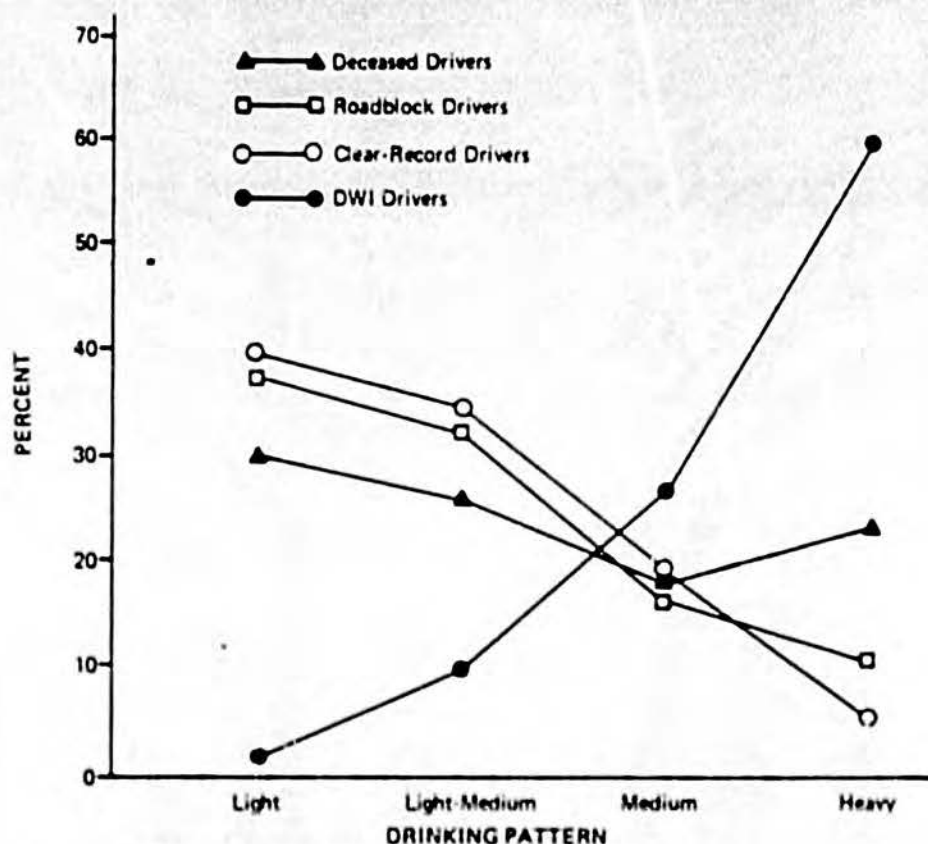
Source: Perrine et al. (32).

33). A larger proportion of women (about 90 percent) than men (about 30 percent) do not drive after drinking (10). A recent study of alcohol use by the nocturnal driving population (5) found that at night women drivers are relatively less involved in single-vehicle crashes and are less likely to have been drinking than men, but when drinking they are more likely to be involved in crashes—and at relatively low BACs (0.05 percent). Since women drive less at

night and drink less than men, Carlson (5) suggests that, as with young male drivers, inexperience with drinking-and-driving probably results in the higher risk of alcohol-related crashes.

Age. Younger drivers who get into alcohol-related trouble on the highways do so at lower average BACs than do older people (33). However, two important additional factors must also

Figure 6. DRINKING PATTERNS OF ROADBLOCK, CLEAR-RECORD, DWI, AND KILLED DRIVERS AS CLASSIFIED BY QUANTITY-FREQUENCY INDEX OF PREFERRED BEVERAGE, IN PERCENT



Source: Perrine et al. (33), Vermont Study.

The roadblock and clear-record drivers are distinguished by mostly light and light-medium drinking patterns, with very few heavy drinkers. In sharp contrast, those convicted of DWI have a large proportion of heavy drinkers.

The proportion of men to women and of unmarried to married people increased as the QFI increased. A surprisingly large proportion of the very young drivers could be categorized as heavy and frequent drinkers, and the quantity of alcohol typically consumed apparently decreased with increasing age. Although there were no significant differences by occupation, there was some indication that drivers with high QFIs were more likely to have had a greater number of job changes during the 5 years immediately preceding the interviews.

Two parallel generalizations were offered by the investigators as evidence that the BAC

sampled at one point in time during the study was a reliable indicator of usual patterns of driving after drinking: (a) the higher the frequency of driving after drinking, the heavier and more frequent the reported usual alcohol consumption; and (b) the lighter and less frequent the reported usual alcohol consumption, the lower the frequency of driving after drinking.

No clear-cut patterns of difference beyond those of the basic distributions were obtained from cross-tabulations of crashes or license suspensions by QFI, except that control drivers with higher QFIs tended to have more violations in the previous 5 years than those with lower QFIs.

An unexpected finding in the Vermont study was a high correlation of BACs of 0.10 percent or more with frequent heavy consumption of beer. Thus, when compared with both fatally

**TABLE 1**  
**CHARACTERISTICS OF CLIENTS AT TIME OF INTAKE TO DIFFERENT**  
**KINDS OF TREATMENT PROGRAMS COMPARED TO GENERAL U.S. POPULATION**

	U.S. Population*		ATC Program <sup>b</sup>		ASAP/AC Program <sup>c</sup>	Public Inebriate Program
	Total	Drinkers	All Clients	DWI Clients	AC DWI Clients	All Clients
<b>Heavy Drinking</b>						
Average years			14.3	13.3	11.6	15.8
<b>Prior Treatment</b>						
Average years			0.9	0.4	0.2	1.7
Average years by clients reporting prior treatment			2.5	2.3	1.6	3.3
% No treatment			63.2%	84.1%	85.4%	48.5%
<b>Alcohol Consumption (preceding month)</b>						
Average ounces per day <sup>d</sup>	0.4	0.8	7.2	2.5	1.4	8.3
Average days drunk			14.9	10.2	9.9	14.6
% Abstained	42.5%	0.0%	13.0%	21.7%	17.2%	13.6%
<b>Behavioral Pattern (preceding month)</b>						
Impairment index <sup>e</sup>	0.7	1.2	13.4	5.9	3.3	16.7
% Outraged	3.2%	5.6%	37.9%	23.3%	14.3%	39.9%
% Drank on job	3.5%	6.1%	42.3%	19.4%	11.1%	46.5%
% Missed work	0.5%	0.9%	43.1%	17.9%	9.4%	62.2%
<b>Number of Intakes</b>			13,281	2,813	1,711	2,239

\* Data from Louis Harris & Associates national cross-sectional survey of U.S. population (1500 persons, age 18 and over).  
<sup>b</sup> ATC stands for comprehensive NIAAA Alcoholism Treatment Centers.  
<sup>c</sup> NIAAA Alcoholism Centers associated with Alcohol Safety Action Projects.  
<sup>d</sup> Absolute alcohol calculated from all beverages.  
<sup>e</sup> Impairment index ranges from 0 for no impairment to 33 for maximum impairment.

exhibits some data on the personnel who provide services at the centers. Only 56 percent of their time was devoted to direct services to clients, most of the remainder being devoted to administrative and other service activities.

The potential exists, through the data system, to learn a great deal about the delivery of alcoholism services as they relate to specific measures of client status. Furthermore, the standardized data base serves as an adjunct to special studies in which, for example, a sample of clients may be interviewed a year or two after initial intake to augment the existing information with knowledge about longer-term changes in their condition, sequences of treatment services received from other resources, and so forth.

#### Summary

Although ill-defined treatment concepts and inadequately tested methods have impeded

progress, significant advances in methods of treating alcoholism and in the delivery of services to greater numbers of problem drinkers have been made. Attention is being given increasingly to the needs of special populations—women, the young and the old, ethnic groups, the public inebriates, and polydrug addicts. Programs are being developed in a wider array of intermediate-care facilities as well as in general hospitals, while negative professional attitudes are undergoing modification and new cadres of helpers are being enlisted and trained. New developments in caregiving are seen in the areas of detoxication, family therapy, behavior modification and transactional-analysis techniques, and in activities associated with Alcoholics Anonymous. More thought is being given to the motivation of therapists than to that of problem drinkers.

Current data show that alcoholism is treatable, though rates of reported success vary

**TABLE 2**  
**CHANGE IN CLIENT CHARACTERISTICS SIX MONTHS AFTER INTAKE**  
**TO NIAAA ALCOHOLISM TREATMENT CENTERS**

	ALL CLIENTS			DWM CLIENTS*		
	Intake	6 Mos.	% Change	Intake	6 Mos.	% Change
<b>Alcohol Consumption</b> (during preceding month)						
Average ounces per day*	6.3	1.6	75%	2.0	0.6	70%
Average days drank	13.7	5.3	61%	8.7	5.1	41%
% Abstainers	15.4%	54.6%	355%	27.8%	49.9%	80%
<b>Behavioral Pattern</b> (during preceding month)						
Impairment index†	12.4	4.3	65%	5.5	1.7	69%
% Quarreled	37.2%	14.8%	60%	21.6%	6.8%	69%
% Drank on job	38.7%	16.1%	58%	15.6%	7.1%	54%
% Missed work (1 or more times)	40.1%	14.8%	63%	17.6%	6.2%	65%
<b>Employment Data</b> (during preceding month)						
Average days worked (labor force)	12.4	14.9	20%	16.8	18.3	9%
% unemployed (labor force)	40.5%	25.4%	37%	17.8%	12.2%	31%
Average earned income (all clients)	\$275	\$313	14%	\$430	\$451	5%
Number of clients - range for variables shown‡	1443 - 1846			377 - 424		

\* Driving while intoxicated.

† Absolute alcohol calculated from all beverages.

‡ Impairment index ranges from 0 for no impairment to 33 for maximum impairment.

§ Number of clients at intake and 6 months after intake is the same for any given variable.

**TABLE 3**  
**PROFILE OF STAFF AND DISTRIBUTION**  
**OF STAFF TIME AT NIAAA**  
**ALCOHOLISM TREATMENT CENTERS**

<b>STAFF MAN HOURS BY DISCIPLINE</b>	
Physicians	4
Nurses	14
Psychologists	3
Social workers	10
Alcoholism counselors	18
Other counselors - therapists	19
Non health administrative staff†	32
<b>Total</b>	<b>100</b>
<b>DISTRIBUTION OF STAFF TIME</b>	
Direct services to clients	56
Indirect program services	13
General administration	31
<b>Total</b>	<b>100</b>

† Does not include health department consulting time to administration.

greatly. It has become increasingly evident that no one treatment modality can be successful with all persons who exhibit drinking problems. Because individual problems, needs, and resources vary greatly, a variety of treatment strategies should be available in each community, and they should be utilized discriminatively by caregiving personnel. The future availability of large comprehensive data bases for evaluating outcomes should aid substantially in creating better treatment and rehabilitative services.

## REFERENCES

- (1) American Hospital Association. *A Plan for the Hospital Care of the Alcoholic Patient*. Chicago, 1973.

*Discriminatory clauses in many health insurance policies have denied access to treatment for alcoholism except under subterfuge diagnoses. Growing recognition of alcoholism as an illness, for which treatment is more economical than neglect, is beginning to transform the picture. New attitudes, legislation, regulations, personnel policies, payment sources, and a variety of NIAAA-fostered actions, are expected to stimulate new health insurance practices that will enable most alcoholic people to obtain treatment and rehabilitation services openly and earlier.*

## Chapter IX

# Alcoholism and Health Insurance

Despite recognition by the foremost medical authorities throughout the world that alcoholism is an illness (1, 2, 9, 16, 27), some segments of society have been slow to respond to its import as a major public health problem. One of the reluctant segments is the network of public and private agencies involved in providing insurance or other forms of financial compensation for health services. As a result, persons afflicted with the illness of alcoholism have often been denied the treatment-cost benefits provided for the health-care needs of persons manifesting other—especially physical—diseases. In this respect alcoholism is comparable to other forms of emotional illness.

A recent examination of coverage for alcoholism in various forms of health insurance in the United States (11) revealed a spectrum of widely differing benefits and limitations under various policy restrictions. Some health insurance policies, for example, provided payments only for intensive treatment in strictly medical settings. Explicit exclusion of alcoholism from policy benefits was common.

Nevertheless, some insurance companies have recognized that actually they are often paying for the treatment of alcoholism, but under subterfuge diagnoses. There are signs of a growing sensitivity to the needs of alcoholic persons for health-care services and for appropriate insurance-type coverage. Recently the House of Delegates of the American Medical Association (2) formally resolved "that insurance companies and prepaid plans be urged to remove unrealistic limitations on the extent of coverage afforded

for the treatment of alcoholism, recognizing that alcoholism is an illness."

### Background

Traditionally, to the extent that alcoholism has been covered by insurance or other prepaid plans, it has been under the umbrella of mental health benefits. But third-party payments (payments made by an agency acting for the patient) by public and private insurance companies, Medicare and Medicaid, for illnesses labeled as "mental" have lagged far behind those for the forms of illness labeled as "physical," and alcoholism has been included in the lag. Partly accounting for this discrepancy was the fact that in the late 1920s and early 1930s the public response to mental and emotional illness in general, and to alcoholism specifically, was to hide the condition, presumably because of the social stigma then associated with it. The treatment of choice for emotionally ill patients was to institutionalize them in "mental" hospitals, which were supported by State governments (10). Coverage through third-party reimbursement for the treatment of individuals exhibiting such illnesses was therefore not needed, since the costs were subsidized by the tax dollar. Under these conditions, however, for the most part only those alcoholic persons who developed acute or chronic "brain syndromes" were admitted to the State mental hospitals—a small percentage of the total. The rest were treated privately or in private sanitariums at their own expense, or in general hospitals often under

subterfuge diagnoses, or by nonmedical modalities, including those of clinical psychology, religious counseling, lay therapies, and, from the mid-1930s on, Alcoholics Anonymous; or, for the most part, they went untreated until they became totally disabled.

As time went on, and as the commercial insurance companies had no specific exclusions for mental illness, or for alcoholism, the States began submitting claims in the case of patients who had insurance to recover the costs of their hospitalization. Insurance companies countered by newly defining "hospitals" so as to exclude State mental hospitals. Even in the early 1950s, when coverage by health insurance for outpatient treatment of physical conditions was beginning to expand, there was no comparable expansion of mental health and alcoholism benefits (10).

The current situation in mental health insurance coverage, mostly including alcoholism, is a far cry from that of 20 years ago. Approximately 63 percent of the civilian population now have some form of private health insurance which covers the in-hospital treatment of mental illness. About 61 percent have some coverage for physician in-hospital visits, and about 38 percent for physician office visits, for mental conditions (24). Despite such seemingly extensive coverages, highly restrictive limitations often exist with regard to the type of facility in which the patient can be hospitalized, the length of stay, and, for outpatient treatment, the number of visits and the amount of reimbursement.

### History of Federal Experience

Although some Federal agencies, such as Social Rehabilitation Services and the Social Security Administration, have been concerned with alcoholism services for populations under their jurisdiction, the major concern for health insurance coverage for alcoholism has been within the Department of Health, Education, and Welfare (DHEW) and more specifically, since its creation in 1970, in the National Institute on Alcohol Abuse and Alcoholism (NIAAA). DHEW's activities date back to before the establishment of the National Center for Prevention and Control of Alcoholism, the predecessor of NIAAA. At that time, an Advisory Committee to the Secretary of DHEW recommended that studies in the area of alcoholism be undertaken. One recommendation

concerned the need to examine third-party reimbursements for alcoholism. In 1967, the National Center for the Prevention and Control of Alcoholism began accumulating data on inpatient coverage for alcoholism treatment under health insurance. A 1968 report released the following information (25):

- Just over 60 percent of the general hospitals excluded the admission of persons needing alcoholism treatment.
- About 40 percent of the Blue Cross-Blue Shield plans excluded alcoholism from coverage.
- Independent health insurance plans had even greater exclusions for alcoholism than the Blue Cross-Blue Shield plans. Commercial insurance companies were not surveyed but available information indicated that they were probably similar to Blue Cross and Blue Shield.

With the advent of the legislation that created NIAAA (the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment, and Rehabilitation Act of 1970) the question of insurance coverage for alcoholism came to the forefront. As NIAAA encouraged programs for employer alcoholic persons (see chapter VIII) it emphasized also the advantages of insurance coverage for them.

In the spring of 1972 NIAAA sponsored an update of the 1968 report. This study (11) released in the fall of 1972 (discussed in detail below), found that although there had been some improvement in health insurance coverage for alcoholism, it is still far behind benefit available for physical conditions. Among the companies that provided alcoholism coverage the nature and extent of benefits varied widely.

Coinciding with the interests of NIAAA were those of the Public Policy Committee of the National Council on Alcoholism (NCA). This committee represented national voluntary efforts in developing public and private third-party payment mechanisms for the treatment of alcoholism. After the 1972 NIAAA study was released, a joint NCA-NIAAA committee was set up to act in an advisory capacity and to coordinate further efforts regarding health insurance coverage for alcoholism.

### State Regulatory Activities

The McCarran Act of 1945 gave to the States the power to regulate the type and extent of

insurance contracts, the cost of insurance, and the conduct of the insurance company (i.e., policy, price, and procedure). In recent years State legislatures have increasingly considered legislation which mandates that insurance companies provide benefits for the treatment of alcoholism.

A recent survey (13) has sought to determine what action toward health insurance for alcoholism has been taken by the 50 State regulatory agencies. Responses from 47 States indicate that legislative efforts to achieve insurance coverage for alcoholism are only beginning. The majority of State regulatory agencies favor health insurance for alcoholism, but only five States (Illinois, Massachusetts, Minnesota, Washington, and Wisconsin) have passed some form of legislation mandating inclusion of benefits for alcoholism in group health insurance policies. Actual benefits provided by the enabling legislation in the five States range from no specification to a fixed number of inpatient days of care; only Massachusetts includes outpatient as well as inpatient care.

In five States (Alaska, Michigan, Mississippi, Nebraska, and Oregon) legislation concerning health insurance for alcoholism is pending (13); in four of these, individual as well as group coverage will be required, and in four, outpatient benefits will be required.

Personal visits by the survey staff to legislative officials in eight States indicated that the health insurance industry has generally shifted from opposing coverage for alcoholism to providing information which would be of use in the preparation of legislation. Labor and management groups too have supported this type of legislation and have not shown undue concern about treatment costs. Hospital and physician groups tend to favor legislation for alcoholism benefits which would limit coverage to inpatient treatment by qualified physicians.

California has initiated a pilot occupational health insurance program for all State employees, financed by State funds. The insurance covers alcoholism as a primary diagnosis for employees, their spouses, and all family members. The Comprehensive Alcoholism Treatment Program is based on the NIAAA model (described further below). The benefits include 6 days of detoxication, 21 days in a general hospital or specialized alcoholism treatment center, 30 days in a recovery home or other residential facility, and 45 outpatient visits. All

insurance carriers currently offering basic health care coverage to State employees participate in the program. The experience gained during this pilot will be used in developing an ongoing alcoholism health insurance program to be included as part of the basic health care provided for all employees in public and private industry in the State.

State legislation has been one means of gaining adequate third-party payments for alcoholism treatment from the private health insurance industry. In the future, national health insurance may become the important means.

### The Private Health Insurance Industry

According to a Social Security Administration estimate (24), about 80 percent of the civilian population now have some type of private insurance for hospitalization. As noted above, however, alcoholism is often excluded, or limited under mental health coverage, although the insurance industry is showing signs of becoming more responsive to the needs of problem drinkers. A 1973 survey (14) indicated that in a representative sample of the U.S. population 66 percent favored health insurance which would include treatment for drinking problems and alcoholism.

The 1972 study mentioned earlier (11) concerned available health insurance coverage for alcoholism. There are three major components in the U.S. private health insurance industry:

- Blue Cross and Blue Shield companies: Blue Cross is concerned with hospital services, Blue Shield with professional services. These nonprofit organizations operate in conjunction, through independent area plans, throughout the United States.
- Independent companies: These are a composite of employer-employee plans, community plans, and private group clinics and dental service corporations, both nonprofit and profitmaking.
- Commercial insurance companies: These are life and casualty insurance companies as well as others whose activities are limited to the health area. Most are stockholder private enterprises.

### Blue Cross and Blue Shield

Blue Cross and Blue Shield cover an estimated 35 percent of the private health insurance enrollment (11). Approximately 75 percent of the

Blue Cross plans, and approximately 62 percent of the Blue Shield plans, provide some type of alcoholism coverage (7).

Among the Blue Cross plans which include alcoholism as a compensable illness, about half provide only a limited set of benefits, less than those afforded for other conditions (11). Limited benefits are usually in the range of 30 to 45 inpatient-care days. A serious limitation of Blue Cross plans is that they generally cover only expenses incurred in a hospital recognized by the American Hospital Association and by the Joint Commission on Accreditation of Hospitals. Thus, care in many psychiatric or special alcoholism facilities which do not meet the accreditation criteria is not compensable. Only about 9 percent of the Blue Cross plans cover psychiatric or special alcoholism facilities.

In April 1974 Blue Cross of Maryland (3, 4) announced that it was expanding its group health coverage to include the rehabilitation of alcoholic persons at private residential treatment centers. Alcoholism can be added to group health contracts for \$0.45 a month for an individual, and \$1.00 a month for husband and wife. Coverage is limited to a lifetime maximum of 60 inpatient days, restricted to 30 days per confinement per person. Semiprivate room and board, medical and nursery services, and rehabilitation services are included. Both premium reduction and expansion of coverage to outpatient care are under consideration by this Blue Cross plan.

#### Medicaid

The Medicaid program grants funds to all States for health care for the categorically needy and the medically indigent, provided the State program meets certain standards. The types of services vary greatly, since Medicaid is primarily a State operation. Even though Federal matching money is available, many States do not include in their plans coverage for mental health outpatient services through general hospitals, psychiatric hospitals, community mental health centers, or other services in nonresidential settings.

Medicaid programs are required to include persons receiving financial assistance through programs for the aged, blind, disabled, and families with dependent children; also, other persons who would be eligible for financial assistance except that they do not meet certain State requirements. The States may also offer

care to certain medically indigent persons under age 21 and other needy persons (24).

Medicaid funds are used for physician services, inpatient and outpatient hospital and nursing home services, and other related costs, as well as psychiatric services. Medicaid State programs may not deny medical care to eligible persons on the basis of diagnosis, although they may, and many do, limit the amount of care to be provided, such as the number of hospital days or the number of physician visits. If the patient goes to a general hospital, he is eligible for the total benefits allowed by State plans, but if he goes to a public mental hospital, he must be either over 65 or under 21 years of age to be eligible.

#### National Health Insurance

In recent years third-party mechanisms to finance all or part of the costs of health care have become increasingly important. For the first time in 1965, national legislation (Medicare) provided publicly sponsored health insurance for a limited segment of the population. Since then, Congressional proposals and enactments for health insurance have been increasing.

More than a dozen proposals for various forms of national health insurance are now pending before the U.S. Congress. Others may be added in the near future. They range from minimal to comprehensive coverage, and many of them provide coverage for alcoholism under the aegis of mental health.

In a recent survey of a cross section of U.S. households (14), the respondents were asked whether treatment of drinking problems and alcoholism should be included in a national health insurance program; 73 percent thought it should be, 10 percent were not sure, and 17 percent felt that it should not be included.

It is expected that whichever bill is passed will be a compromise. Under such a national health insurance program it is hoped that there will be adequate coverage for alcoholism; that the program which emerges will encourage not only the utilization of innovative nontraditional types of health-care settings, such as community-oriented alcoholism treatment centers, but also the integration of alcoholism services into the mainstream of the health-care delivery system; and that emphasis for alcoholism services will be placed on outpatient rather than inpatient care, in most instances a less expensive and more effective means of treating alcoholism (18).

## Disability Insurance

Disability insurance is a means of providing income to the insured when normal work activities and income are interrupted due to accident or illness. The two types, public and private, seem to differ mainly in the amount of payment and the length of time for which insurance can be collected.

Public disability insurance falls into two categories: Workmen's Compensation, which provides income in the event of a work-connected accident or illness; and temporary disability insurance, which provides income when wage loss is caused by a nonwork-connected disablement. At the present time, only five States (Rhode Island, California, New Jersey, New York, and Hawaii) and Puerto Rico offer temporary disability. In all 50 States, however, Workmen's Compensation is in effect, although there is considerable variation in the coverage offered for work loss due to alcoholism. The pertinent State statutes vary widely, "from mere existence of intoxication at the time of injury (as an exclusion from benefits) to intoxication being the sole cause of the injury" (11). To date only a few instances have been reported of compensation for injured workers who suffer from alcoholism or who develop other alcohol-related problems after and due to their injuries. In such cases, compensation benefits are paid for the alcohol-related problem.

Persons with private disability insurance are generally eligible for benefits if they have disabilities connected with alcoholism (11).

## Health Maintenance Organizations

With the passage of the Health Maintenance Organization (HMO) Act of 1973, a new opportunity has become available to provide alcoholism services in a new health delivery system.

In general, an HMO is an organization which offers health services to an enrolled group of persons for a fixed prepaid fee. All HMOs receiving Federal assistance under the Act must provide basic health services on a prepaid basis to an enrollment group which includes the various age, social, and income groups within the area it serves; at their option, they may also provide supplemental health services on either a prepaid or fee-for-service basis.

Some of the provisions of the Act relate specifically to alcoholism. Others do so by

indirection and are susceptible to varying interpretations.

The basic services which relate directly to the treatment of alcoholism are defined by the Act to include (a) short-term, outpatient evaluative and crisis-intervention mental health services; and (b) medical treatment and referral services (including referral to appropriate ancillary services) for the abuse of or addiction to alcohol.

The supplemental services which relate indirectly to the treatment of alcoholism include (c) mental health services not included as a basic service under (a) above; and (d) long-term physical medicine and vocational rehabilitation services.

Of the provisions cited, only item b specifically refers to alcoholism, while provisions a, c, and d are matters of interpretation. Regulations and guidelines specifying HMO involvement with alcoholism are currently under preparation.

Thus the inclusion of alcoholism services in the benefit package is required of all HMOs receiving Federal assistance. Information is not now available as to how many of the estimated 117 operational HMOs and the 125 HMOs in process of formation offer these services. There is no doubt, however, that most HMOs are currently treating alcoholism and alcohol-related problems, although in many cases under other diagnoses. The question for the future is not whether HMOs will provide services for alcoholic persons, but whether they will provide an effective and adequate scope of services.

Currently, HMOs which offer alcoholism services must provide or arrange treatment for those who request it. This is in contrast to other health insurance programs, whose commitment is only to pay for treatment once it has been received.

## Insurance Coverage for Alcoholism Among U.S. Corporations

It has been estimated that well over half of the alcoholic persons in the United States are gainfully employed. Most of them, however, are unable to work to their fullest capacity and may become disabled if they do not resolve their alcoholism problems. These persons are thought to miss work about 2 1/4 times as often as the general employed population. Without doubt alcoholism is responsible for the loss of capable and experienced personnel, one of the most valuable resources of any company (19).

A survey (23) in 1972 by the National Council on Alcoholism sought to determine the extent of health insurance coverage for alcoholism among 21 U.S. corporations representing a total employee population of about a million. Only one corporation excludes alcoholism coverage for its employees, and two do not offer inpatient coverage. Approximately 40 percent of the corporations provide some type of outpatient coverage.

The 21 corporations use a combination of health coverages: Approximately 14 percent, including both large and small firms, are self-insured; about 38 percent are insured by Blue Cross and Blue Shield; and almost 50 percent by other insurance companies. Three corporations use a combination of Blue Cross-Blue Shield and another insurance company; in each case the other insurer provides major-medical coverage. About 40 percent of the corporations impose no limitations because of alcoholism.

In another survey (6) 503 top executives in the largest U.S. corporations were asked whether they felt that company medical insurance should pay for help to employees with alcohol problems. While 3 percent had no opinion and 15 percent felt it was not worth the cost, 82 percent thought the company should pay.

An effective alcoholism program for employees should provide insurance coverage for the treatment of alcoholism similar to what is provided for other illnesses. A 1973 study (15) reported that when employees of Illinois Bell Company utilized the alcoholism benefits offered by their health insurance, and were successfully treated, claims for alcohol-related illnesses and accidents were markedly reduced. During the 5 years prior to their rehabilitation, alcoholic employees had 662 incidents of sickness disability. In the 5 years after rehabilitation, sickness disabilities among them were reduced to 356, saving the company an estimated \$459,000 in wage replacements alone. The incidence of on-duty accidents was also greatly reduced.

A study in 1970 of absenteeism by employees of a large corporation, comparing alcoholic and nonalcoholic persons, found that 83 percent of the absences by alcoholic employees were attributed to respiratory infections and digestive and musculoskeletal disorders (22). The alcoholic employees used up a greater amount of group hospitalization insurance, regardless of whether alcoholism treatment was included or

excluded in the insurance policy. The reporting of secondary diagnoses, rather than the primary diagnosis of alcoholism, is common, so that when an employee is ill due to alcoholism and is admitted to a hospital for treatment, it is often reported as a respiratory ailment, gastritis, or a musculoskeletal disorder.

It is important to note that the funds paid out under group hospitalization coverage vary only slightly whether alcoholism is included or excluded in the contract (22).

Companies which currently include alcoholism in their health benefits package do not as yet find a need for increasing group hospitalization rates as a result of alcoholism claims. But due to the social stigma involved, employees are reluctant to take advantage of this health benefit. Through utilization of the alcoholism provision, however, many previously unacceptable claims will become reimbursable.

Although two large insurance companies have recently included alcoholism benefits in their group hospitalization plans at no increased premium, some resistance on the part of private industry to acceptance of this benefit has been reported. In a survey of executives (6) early in 1974, 83 percent of those questioned considered alcohol misuse to be less than a very serious problem among their employees.

## Federal Actions

### Social Security Amendments of 1972

The Social Security Amendments of 1972 (P.L. 92-603, commonly referred to as H.R. 1) increased benefits under the Old-Age, Survivors, and Disability Insurance Program, provided for improvements in the Medicare, Medicaid, and Maternal and Child Health Programs, and federalized certain other programs for the aged, blind, and disabled. Three major areas of concern for alcoholism treatment in H.R. 1 are as follows:

- One who qualifies as an "aged, blind, or disabled individual" solely by reason of a disability is not eligible for benefits under the Supplemental Security Income Program established by section 301 of P.L. 92-603 if it has been determined that he is an alcoholic person and is not undergoing appropriate treatment at an institution or facility approved by the Secretary of Health, Education, and Welfare.

**TABLE 1**  
**MEDIAN COSTS OF ALCOHOLISM SERVICES**  
**(BASED ON 2 TO 11 SAMPLES IN EACH CATEGORY)**

	Cost per Day	Cost per Stay
<b>Emergency Care</b>		
General hospital	\$172	\$ 588
Specialized alcoholism hospital	58	231
Other specialized hospital	97	472
Hospital-affiliated medical emergency care center	79	148
Hospital-affiliated nonmedical emergency care center	16	53
<b>Inpatient Care</b>		
General hospital	87	768
Specialized alcoholism hospital	34	270
Other specialized hospital	94	924
Hospital-affiliated inpatient care under medical supervision	117	1,174
<b>Intermediate Care</b>		
Partial hospitalization	74	1,274
Recovery home	13	681
Other 24-hour residential center	21	738
Specialized alcoholism hospital	27	793
<b>Outpatient Care</b>		
Hospital-based outpatient clinic	20	60
Family or neighborhood alcoholism center	15	220
Community mental health center	32	301

Source: Best, Allen & Hamilton (8).

- Individuals who qualify for financial assistance under H.R. 1 will receive their benefits through a third-party payee. Such a requirement of a representative payee seems to imply that alcoholic persons are incapable of managing funds even if they are undergoing treatment for their problems.
- Individuals eligible for disability benefits, including disablement by alcoholism, under H.R. 1 are also eligible for Medicare, thus enabling them to take advantage of the limited alcoholism treatment benefits offered under Medicare at the present time.

#### NIAAA Activities

In cooperation with broad representation from the alcoholism field, NIAAA has tried to meet some of the inadequacies in the third-party reimbursement area. NIAAA has defined and scheduled a 2-year Operational Planning Objective (H-21) to increase coverage by private health insurance companies for alcoholism treatment. This objective should be instrumental in clarifying many of the issues involved and help to reduce current exclusions or limitations related to alcoholism.

Under the aegis of H-21 a model health insurance benefit package has been designed to reflect the current "state of the art" and to act eventually as a guideline to companies providing alcoholism coverage in health insurance plans. It is important to note that this proposed package, which will be made available to all State alcoholism authorities, employers, trade unions, and the insurance industry, needs practical testing before it can be implemented.

In addition, preliminary data on the costs of treating and caring for alcoholic persons have recently been compiled (table 1). It is recognized that these costs may be conservative, especially in view of the rapidly changing picture in the field of health services.

Standards for alcoholism treatment services are either lacking or poorly defined. In an effort to resolve this problem, NIAAA has contracted with the Joint Commission on Accreditation of Hospitals to develop a Standards Manual for alcoholism treatment programs together with a procedure for ongoing surveys leading to accreditation. Through another contract, standards leading toward certification of nondegree professional treatment staff are being formulated. It is expected that during the coming year