socma SYNTHETIC ORGANIC CHEMICAL MANUFACTUR
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December 10, 1979

TO: GOV'T AFFAIRS COMM.
OSHA COMM.
ENV. POLICY COMM.
TSCA REVIEW GROUP
CCA

FROM: SOCMA

DATE: 12/14/79

The Honorable Eula Bingham
Assistant Secretary of Labor
U.S. Occupational Safety
and Health Administration
200 Constitution Avenue, N.W.
Washington, D.C. 20210

The Honorable Douglas M. Costle
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: Labeling Rulemaking

Dear Dr. Bingham and Mr. Costle:

The Synthetic Organic Chemical Manufacturers Association, Inc. ("SOCMA"), a non-profit trade association whose membership includes more than 100 large and small manufacturers of synthetic organic chemicals, understands that your agencies intend to publish within the next few weeks an extremely broad proposed labeling regulation.

The point which SOCMA here seeks to address is that EPA and OSHA should publish an advance notice of proposed rulemaking ("ANPR") before publishing a proposed regulation, because of the complexity of the issues, the substantial legal questions, and the severe economic effects created by an omnibus labeling rule.

Substantial Legal Questions

The legal problem is that there are serious questions as to whether EPA or OSHA has statutory authority to promulgate an omnibus labeling rule. This has recently been brought to your attention, and it would be redundant for SOCMA to reiterate or expand upon those submissions. (See letter to Mr. Costle from counsel to Chemical Manufacturers Association, dated October 26, 1979; see also "Memorandum of Points and Authorities in Support of Chemical Manufacturers Association for Leave to Intervene as Defendant", dated October 17, 1979, filed in Public Citizen Health Research Group v. Marshall, Civil No. 79-2581 (D.D.C.).)

Widespread Economic Impact

We have noted recent statements in OSHA's regulatory agenda that: 1) OSHA expects to publish a proposed labeling rule by January 1980, and 2) the rule is expected to be of such widespread impact that a regulatory analysis will be prepared. (44 Fed. Reg. 65566, 65572 (Nov. 13, 1979); see also 44 Fed. Reg. 68278 (Nov. 28, 1979).) We also understand that there exists an economic report concerning an earlier draft of a broad labeling standard. We understand that this report (by Foster D. Snell), and a peer review of that report (by Southwest Econometrics), demonstrated that the earlier labeling proposal if implemented would have imposed costs upon the U.S. economy in terms of billions of dollars.

These studies, the labeling proposal upon which they were based, and subsequent draft labeling proposals received at most only limited outside review. (We understand that a request to obtain these and other documents under the Freedom of Information Act was filed with your agencies in November.) The widespread impact of your contemplated labeling regulation, and the confidential handling of the earlier labeling proposal and its economic analyses, further underscore the need to publish an ANPR.

Criteria for Determining Carcinogenicity

We further understand that a labeling rule that is being considered by EPA may include a list of substances that are believed to be carcinogenic or otherwise hazardous, and as to which labeling is believed to be appropriate. It is imperative, in advance of any such listing, to publish an ANPR seeking information as to what criteria should be used in selecting the substances to be listed. An ANPR also is necessary to consider the relationship of the labeling rulemaking to, for example, OSHA's controversial proposal for generic regulation of alleged carcinogens in the workplace, and EPA's equally controversial proposal to regulate alleged airborne carcinogens. Moreover, failure to publish an ANPR will create a substantial likelihood that non-carcinogenic products will be listed as carcinogens, with a substantial adverse impact upon the market for these products.

The Need for Up-to-Date Information

We recognize that EPA and OSHA have already obtained some information from the public concerning labeling. Most of this information is not current because it was obtained in response to a request for information that OSHA published almost three years ago. (42 Fed. Reg. 5372 (Jan. 28, 1977).) OSHA's recent statements

describing the widespread scope of the presently contemplated rulemaking, and the inevitable changes in labeling requirements over a three-year period (including, for example, major new statutes such as the Trade Agreements Act of 1979, discussed below), further emphasize the need for your agencies to publish an ANPR.

OSHA itself now recognizes the necessity to update ANPRs. This is illustrated by OSHA's handling of ANPRs in its rulemaking concerning entry into and working in confined spaces, where OSHA stated: "In consideration of both the complexity of the issues and the period of time since the previous Advance Notice, OSHA has decided to again request information of value to the development of its proposal on confined spaces in general industry." (44 Fed. Reg. 60334.) 1/ It is essential to follow the same course of action with respect to the complex issues of labeling rulemaking, including circulation of a draft ANPR for comment prior to publication of the ANPR in the Federal Register.

Executive Order 12044

Moreover, President Carter has explicitly recognized the desirability of an ANPR. In his Executive Order 12044, he stated that "[a]gencies shall give the public an early and meaningful opportunity to participate in the development of agency regulations," and he listed as one means of accomplishing this objective: "publishing an advance notice of proposed rulemaking." (43 Fed. Reg. 12662 (Mar. 24, 1978).)

Impact Upon Trade Secrets and International Trade

The reasoned analysis that could be triggered by your agencies' publication of an ANPR is also essential because your regulation could have an adverse impact both upon the national economy through erosion of competitive trade secrets, and upon the balance of payments as affected by the marketability of U.S. goods abroad under the new trading patterns initiated this year by the completion of the Multilateral Trade Negotiations, and by the Standards Agreement set forth in Title IV of the Trade Agreements Act of 1979, Pub. L. No. 96-39 (July 26, 1979). Briefly stated, Title IV expressly requires your agencies to consider thoroughly the international impact of your contemplated labeling regulation.

1/ In 1975, OSHA published an ANPR concerning confined spaces rulemaking (40 Fed. Reg. 30980 (July 24, 1975)), and received 107 responses to that ANPR. Early in 1979 OSHA circulated a draft of a new ANPR, and late in 1979 published the ANPR. (44 Fed. Reg. 60333 (Oct. 19, 1979), corrected at 44 Fed. Reg. 64095 (Nov. 6, 1979).)

Section 451(13) of Title IV defines "standard" as including "[s]pecifications relating to the . . . labeling requirements applicable to a product." Section 401 requires that a standards-related activity serve a "demonstrable purpose", protecting "legitimate health or safety" objectives. The legislative history of the Act defines "demonstrable purpose" as something that is "capable of being shown or proved". Thus, "a mere statement of the purpose is insufficient to meet this test -- there must be a reasonable showing that the activity indeed is designed and operates to serve a legitimate domestic objective." The phrase legitimate domestic objective "is to be interpreted in full accordance with the recognized existing authority of . . . Federal agencies . . . in the standards area." (Report of the Committee on Ways and Means of the House of Representatives on Trade Agreements Act of 1979, H.R. Rep. No. 317, 96th Cong., 1st Sess. 113 (1979).) As noted supra at 1, there is no recognition of -- indeed, there is a substantial dispute as to -- your agencies' authority to embark upon labeling rulemaking on an omnibus basis.

Section 402(3) provides that "[e]ach Federal agency shall, if appropriate, develop standards based on performance criteria . . . rather than on design criteria . . . ." We urge that any labeling rule comport with the Act's preference for performance-based rulemaking.

Section 402(2)(A) provides that "each Federal agency, in developing standards, shall take into consideration international standards and shall, if appropriate, base the standards on international standards." An ANPR is necessary to ensure that appropriate consideration is given to international labeling activities. Section 402(2)(B) does not alter the requirement that international standards be considered, but does state that the protection of human health or safety (to the extent this requires labeling) is a permissible reason for deciding not to implement an international standard.

Section 414 provides for the establishment of a "standards information center", the function of which is to "serve as the central national collection facility for standards . . . whether such standards . . . are . . . domestic or . . . international . . . ." The Act is expected to become effective on January 1, 1980, and the standards information center therefore has not yet been established. We explained above that Title IV, requiring as it does review of international labeling activities, underscores the necessity of publishing an ANPR to ascertain the status of pending and existing international labeling agreements. The current information obtained from the ANPR also would be of considerable assistance to the Secretary of Commerce, who is required by Section 414(a) to maintain the standards information center.

* * *

As explained above, the contemplated regulation could have a substantial adverse effect upon the national economy and upon the marketability of U.S. products abroad. We are therefore providing a copy of this letter to the Chairman of the Senate Finance Committee and the Chairman of the House Ways and Means Committee.

Similarly, we are providing a copy of this letter to the President's Special Representative for Trade Negotiations, the Chairman of the Regulatory Analysis Review Group, the Acting Secretary of Commerce, the Director of the Council on Wage and Price Stability, the Director of the Office of Management and Budget, and the Director of the Regulatory Council.

If you should have any questions regarding the necessity of publishing an ANPR on labeling, please do not hesitate to contact SOCMA's Washington office (telephone: 202-659-0060).

Sincerely yours,

Ronald A. Lang

Ronald A. Lang
Executive Director

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October 26, 1979

The Honorable Douglas M. Costle
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: Labeling Regulations for Industrial Chemicals Under TSCA

Dear Mr. Costle:

This firm represents the Chemical Manufacturers Association (CMA), a trade association whose member companies account for more than 90 percent of the total production capacity for basic industrial chemicals in the United States. We are writing about an issue of great concern to the chemical industry -- the promulgation of hazard-related labeling requirements for industrial chemicals under the Toxic Substances Control Act (TSCA). According to recent press accounts, the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) are now proceeding with a joint program to develop such labeling requirements and intend to publish proposed rules on the subject in the next few months.

CMA's members are committed to providing their employees and customers with adequate information concerning the safe use of chemicals. Together with its member companies, CMA has participated actively in developing and implementing voluntary labeling programs to achieve this objective. Based on its expertise and experience, CMA stands ready to assist EPA in developing labeling regulations under TSCA which have similar aims. Indeed, CMA has already offered such assistance to the Agency in a letter

dated July 6, 1979 which was addressed jointly to you and Dr. Bingham of OSHA.

At the same time, CMA strongly believes that any labeling requirements which EPA adopts must comport fully with the requirements of TSCA. Recent press accounts of public statements by certain EPA officials indicate that, in its current deliberations, the Agency may not be devoting sufficient attention to applicable statutory provisions. Accordingly, before the rulemaking process progresses any further, we wish to direct EPA's attention to certain basic principles, derived from the text and legislative history of TSCA, to which any EPA labeling proposal must conform. These principles, we believe, provide the basic framework within which EPA's labeling rules must be developed.

1. Definition of Unreasonable Risk

The central issue which any labeling proposal must address is the criteria for imposing labeling requirements. EPA must develop principles for determining which chemicals will be labeled, which manufacturers and processors of those chemicals will be subject to labeling requirements, and what level of risk must be presented before those labeling requirements come into play.

In examining these questions, EPA must be guided by Section 6(a) of TSCA, from which the Agency's authority to require labeling derives. Under Section 6(a)(3), EPA may promulgate rules directing that a substance or mixture "be marked with or accompanied by clear and adequate warnings and instructions with respect to its use, distribution and commerce, or disposal . . ." As specified by Section 6(a), the precondition for imposing such requirements is a finding that "there is a reasonable basis to conclude" that the chemical substance or mixture in question presents or will present "an unreasonable risk of injury to health or the environment." In determining whether such a risk exists, EPA must be guided by Section 6(c), which requires it to consider, and publish a statement with respect to, four factors before promulgating a rule under Section 6(a): the effects of the chemical on health and the environment, the magnitude of human and environmental exposure to the chemical, the chemical's benefits for various uses and the availability of substitutes for those uses, and the probable economic effect of EPA's proposed action, including its impact on small business and technological

innovation. Thus, EPA must weigh the potential harm associated with the specific chemical against the adverse economic and social impact of regulatory requirements.

These provisions have a number of important implications for any labeling rules which EPA adopts under Section 6(a)(3).

First, EPA cannot promulgate labeling requirements for a chemical which, under its actual conditions of use and exposure, poses no risk or a risk that is insubstantial. Rather, the statute requires a finding of "unreasonable risk" as a prerequisite to labeling requirements. Thus, EPA must make some showing that, absent labeling instructions concerning safe use of a chemical, that chemical will cause significant harm to humans, the environment or both. EPA is not empowered to require labeling information which relates to hazards which are purely theoretical or to hazards which, in view of a chemical's uses and exposure, are remote and of little practical concern. Moreover, since the concept of "unreasonable risk" involves a balancing of costs and benefits, the Agency must show that, for the chemical in question, the harm which labeling will prevent outweighs the expense and effort that labeling requirements will entail. If labeling a particular chemical will provide small benefits and impose large burdens, EPA cannot require that labeling under Section 6.

There is an important corollary to these principles which must shape the procedures that EPA utilizes to determine whether there is an "unreasonable risk" for which labeling can be required. Because risk is a function of the properties, uses and exposure patterns associated with a particular chemical, EPA cannot adopt omnibus labeling requirements which apply to a broad and non-specific chemical class. Rather, the Agency must present evidence concerning the alleged risks of each chemical proposed for labeling requirements, and industry must have a meaningful opportunity to comment on that evidence and respond with evidence of its own. Without a procedure which provides for these factual determinations concerning specific chemicals, the careful balancing test which underlies the Congressional concept of "unreasonable risk" could not be applied, and EPA's labeling requirements would be legally defective.

While an omnibus proceeding covering all or most industrial chemicals would be beyond EPA's statutory authority, a two-stage approach to developing labeling rules could be utilized that would satisfy statutory requirements. During the first stage of this process, EPA could develop a "prototype" labeling rule which (1) defines the different types and degrees of hazard which would trigger labeling obligations, and (2) for each such hazard, prescribes appropriate warnings and instructions and specifies methods for their dissemination. Once EPA has established the basic standards and procedures for labeling requirements, the Agency would then apply these standards and procedures to particular chemicals. This task would necessarily entail separate rulemaking proceedings for particular chemicals and, where appropriate, for chemical categories which are sufficiently narrow to satisfy Section 26(c) of TSCA. The focus of such proceedings would be on whether the basic statutory criterion of "unreasonable risk" has been met for a particular chemical in view of that chemical's specific properties, uses and exposure.

CMA would be willing to work with EPA in developing an appropriate "prototype" labeling rule under Section 6. It believes that the existing standard of the American National Standards Institute (ANSI) provides a useful point of departure for acute hazard labeling and could be restructured to embody the statutory concept of "unreasonable risk." It must be clearly understood, however, that such a rule would merely serve as a "model" for subsequent proceedings, and these later proceedings would provide for a full consideration of the unique facts which relate to individual chemicals.

2. <u>The Importance of Minimizing Regulatory Burdens</u>

Complemented by Section 2 of TSCA, Section 6 directs EPA to act prudently and responsibly, with constant and careful attention to the economic consequences of its regulatory decisions. Rules which EPA issues under Section 6(a) must prescribe the "least burdensome requirements" possible, while Section 6(c) directs EPA to make findings concerning the "reasonably ascertainable economic consequences" of any rule that it proposes to adopt. Similarly, Section 2(b)(3) of the Act directs EPA to exercise its authority "in such a manner as not to impede unduly or create unnecessay economic barriers to technological innovation." Section 2(c) amplifies this policy by providing that it is

"the intent of Congress that [EPA] shall carry out this Act in a reasonable and prudent manner" and by directing EPA to "consider the environmental, economic, and social impact of any action the Administrator takes or proposes to take under this Act."

These statutory provisions must be brought to bear on any labeling program which EPA proposes. First, the Agency must devote careful consideration to -- and attempt to minimize -- the potentially massive costs of making detailed labeling information available at nearly every level of a chemical's distribution process, including its sites of manufacture, processing and disposal. If there are alternative communications tools which can minimize these costs and lessen the overall burden of compliance without jeopardizing the goals of the Agency's labeling effort, these alternative tools must form the basis of any EPA rule under Section 6(a)(3).

Equally important, EPA has a responsibility to avoid labeling requirements which place an unwarranted stigma on particular chemicals by exaggerating or misrepresenting the potential risks which they pose. For this reason, every effort must be made to utilize a labeling terminology and format which accurately convey the severity and likelihood of any injury which particular chemicals can cause.

The need for a balanced presentation of potential risks is particularly great with respect to "chronic" hazards like carcinogenicity, mutagenicity and teratogenicity. In designing labeling requirements, EPA must take into account the substantial scientific uncertainty involved in identifying chemicals which can cause these effects. It must also take into account the disparate levels of risk which different chemicals pose depending on such factors as their innate properties, potency, uses and conditions of exposure. Significantly, in its recent policy concerning the regulation of chemical carcinogens, the Regulatory Council stressed the importance of these considerations, indicating that any analysis of a substance's carcinogenic potential involves a "characterization of the extent and quality of the evidence supporting this determination" and an assessment of "the size of the exposed population", "exposure sources, routes, and conditions, the duration, frequency and intensity of exposure, and the relevant characteristics (e.g., age, sex, health) of

the exposed population." 44 Fed. Reg. 60038, 60040 (October 17, 1979). Any EPA labeling program under TSCA which does not convey information concerning these matters would be incomplete and misleading.

EPA's goal should be to encourage informed and balanced decisions about chemicals by manufacturers, distributors, processors and workers. An approach which fails to place potential risks in proper perspective and causes undue alarm and disruption among users of chemicals would constitute poor public policy, discriminatory agency action and a violation of the requirements of TSCA.

3. Disclosure of Chemical Composition

Over the past several months, some groups have apparently advocated requiring all manufacturers and distributors of chemicals covered by TSCA to disclose the precise composition of those chemicals to their users, including exposed members of the workforce. In the case of "substances", this disclosure would involve the specific identity of the chemical. In the case of "mixtures", disclosure would involve listing the constituent substances of the chemical and the relative quantities in which those substances are present.

TSCA does not authorize EPA to require such an across-the-board disclosure of chemical composition. Under Section 6(a)(3), the Agency may require manufacturers and distributors to provide labeling information for one purpose only -- to afford protection against "unreasonable risks" within the meaning of Section 6(a). In view of this purpose, EPA cannot require the routine disclosure of chemical composition for all chemicals. Rather, such disclosure can only occur on a selective basis and must be tied to a determination that (1) the chemical in question presents an "unreasonable risk", and (2) that risk can be reduced or eliminated if users of the chemical are informed of its precise composition. The situations where this test is satisfied will be the infrequent exception, not the norm.

4. Confidentiality

Any labeling program which requires the disclosure of chemical composition must also provide full protection for

confidential business information. Frequently, the specific identity of a substance or the precise contents of a mixture is a valuable "trade secret" whose disclosure will enable competitiors to market products with identical properties and characteristics. In this situation, it is common for manufacturers to describe the chemical to customers and users in "generic" terms and to withhold more precise information about its composition in order to prevent competitive harm.

Under Section 14 of TSCA and 18 U.S.C. § 1905, EPA has no authority to compel departures from this customary industry practice. Section 14(a) forbids EPA, except in certain limited circumstances, from disclosing information that falls within Exemption 4 of the Freedom of Information Act, 5 U.S.C. § 552(b)(4). This exemption applies to "trade secrets and commercial or confidential information obtained from a person and privileged or confidential." Similar obligations are placed on EPA by 18 U.S.C. § 1905, which requires all federal agencies to safeguard trade secrets. Section 14(b) creates a narrow exemption from EPA's duty to withhold competitively sensitive information for "any health and safety study" submitted to the Agency. Clearly, however, labeling information covered by a Section 6(a)(3) rule could not be considered part of a "health and safety study." Moreover, Section 14(b) does not permit EPA to compel disclosure of confidential procedures used in manufacturing or processing a chemical or the portion of a mixture comprised by its component chemical substances. Much of the information concerning chemical composition which EPA's labeling rules might encompass would clearly fall in this category. This information would still be immune from disclosure even if Section 14(b)'s exemption for "health and safety studies" were to apply.

It is true that Section 14(a)(4) permits EPA to require the disclosure of confidential commercial information when "necessary to protect health or the environment against an unreasonable risk of injury . . ." CMA questions, however, whether the disclosure of precise information concerning chemical composition will ever be "necessary" within the meaning of this provision. Instructions concerning proper use and handling of a chemical, augmented by a "generic" description of its composition, will be sufficient to enable the chemical's users to protect exposed persons. For this reason, a more precise description of the chemical's identity

would not add to the goal of safe chemical use. Since an adequate labeling program can be developed without disclosing the precise composition of the chemicals it covers, EPA has no authority under TSCA to require such disclosure where it would compromise the protection of trade secret information.

* * *

The above principles provide a necessary legal framework for any labeling program which EPA proposes under Section 6 of TSCA. If the Agency conforms to these principles, we believe that it can develop a labeling proposal which is constructive, effective and in keeping with statutory requirements. Within the basic legal framework outlined in this letter, CMA stands ready to assist the Agency in formulating the particulars of such a labeling proposal. The undersigned and other CMA representatives would be happy to discuss this matter further with you or your staff on a mutually convenient date.

In conclusion, we wish to emphasize that any industry-wide labeling program that EPA adopts would be a massive undertaking which involves substantial cost and effort by industry and significant long-term effects on the attitudes of those who make and use chemicals. Any program of this scope and impact deserves the most careful consideration by all concerned.

Sincerely yours,

Peter Barton Hutt

Peter Barton Hutt

Robert M. Sussman

Robert M. Sussman

cc: Dr. Eula Bingham
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BY-LAWS OF THE AMERICAN CONFERENCE ON CHEMICAL LABELING*

ARTICLE I

Name. The name of the organization shall be the American Conference on Chemical Labeling, hereinafter the "Conference."

ARTICLE II

Membership.

Section 1. Membership in the Conference shall be available to those persons affiliated with the business sector whose job responsibilities or professional interests include precautionary labeling or hazard information communication of chemicals.

Section 2. The only obligations of members shall be to attend meetings of the Conference and to conduct themselves in accordance with the purposes of the Conference.

Section 3. Persons who qualify under Section 1 of this Article shall be deemed members of the Conference upon presentation of a written request for membership to the Chairman of the Conference or his designee, except that persons in attendance at the preliminary organizational meeting or the formal organizational meeting of the Conference, and who are otherwise eligible for membership, shall be deemed members unless they decline such membership in writing to the Chairman of the Conference or his designee.

Section 4. Only members, or guests invited by or given the permission of the Chairman or his designee, may attend meetings of the Conference.

ARTICLE III

Purpose. The purposes of the Conference shall be:

Section 1. To provide a forum in which persons engaged in the precautionary labeling and hazard information communication of chemicals can meet for appropriate discussion of their mutual professional interests;

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* Language in brackets is for approval by the members at the first meeting of the Conference following the formal organizational meeting.

Section 2. To maintain current expertise in precautionary labeling and hazard information communication and to foster the development of such expertise; and

Section 3. As deemed appropriate by the Conference to serve as a resource to any responsible group that wishes to avail itself of the expertise represented in the Conference.

ARTICLE IV

Procedures for the Election of Officers and Conduct of Business.

Section 1. At the formal organizational meeting:

(a) The members shall elect a temporary Chairman and vice Chairman and adopt by-laws on a two-thirds (2/3rds) vote of the members present and shall transact other business on a majority vote of the members present;

(b) ~~the~~ temporary Chairman shall appoint a Nominating Committee.

Section 2. ~~At the first meeting of the Conference following the formal organizational meeting~~ the members shall elect, by a two-thirds vote of a quorum of the members present, a Chairman, Vice Chairman, [and Secretary]* from among nominees presented by the Nominating Committee.

Section 3. [A quorum for the purpose of transacting business ~~after the formal organizational meeting~~ shall be one-fourth (1/4) of the full membership and all actions shall be taken by majority vote of a quorum present]* except that the election [or removal]* of officers and amendment of the By-Laws shall be by a two-thirds (2/3) vote of such quorum.

[Section 4. Meetings of the membership shall be called by the Chairman upon such notice as he deems appropriate.]*

[Section 5. Meetings of Conference committees shall be called by the respective Chairmen of those committees upon such notice as they deem appropriate.]*

ARTICLE V

Officers.

Section 1. The Chairman, Vice Chairman [and Secretary] of the Conference shall each serve a two (2) year term of office [and may be reelected]*.

Section 2. It shall be the responsibility of the Chairman to plan and preside at meetings of the Conference according to Robert's Rules of Order and to appoint such Committees and Committee members as he deems appropriate for the purposes of the Conference.

Section 3. It shall be the responsibility of the Vice Chairman to serve in the absence of the Chairman, to serve any unexpired term of the Chairman, should that office become vacant for any reason, and to perform such duties as may be directed by the Chairman.

Section 4. It shall be the responsibility of the Secretary to record the minutes of the meetings of the Conference, to prepare agendas and announcements of meetings, and to maintain an accurate list of members.

[Section 5]*. The members may reimburse the Chairman, and the Vice Chairman when serving as Chairman, for actual expenses incurred in the performance of his duties.

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[redacted]

25A AMERICAN COUNCIL ON
SCIENCE AND HEALTH

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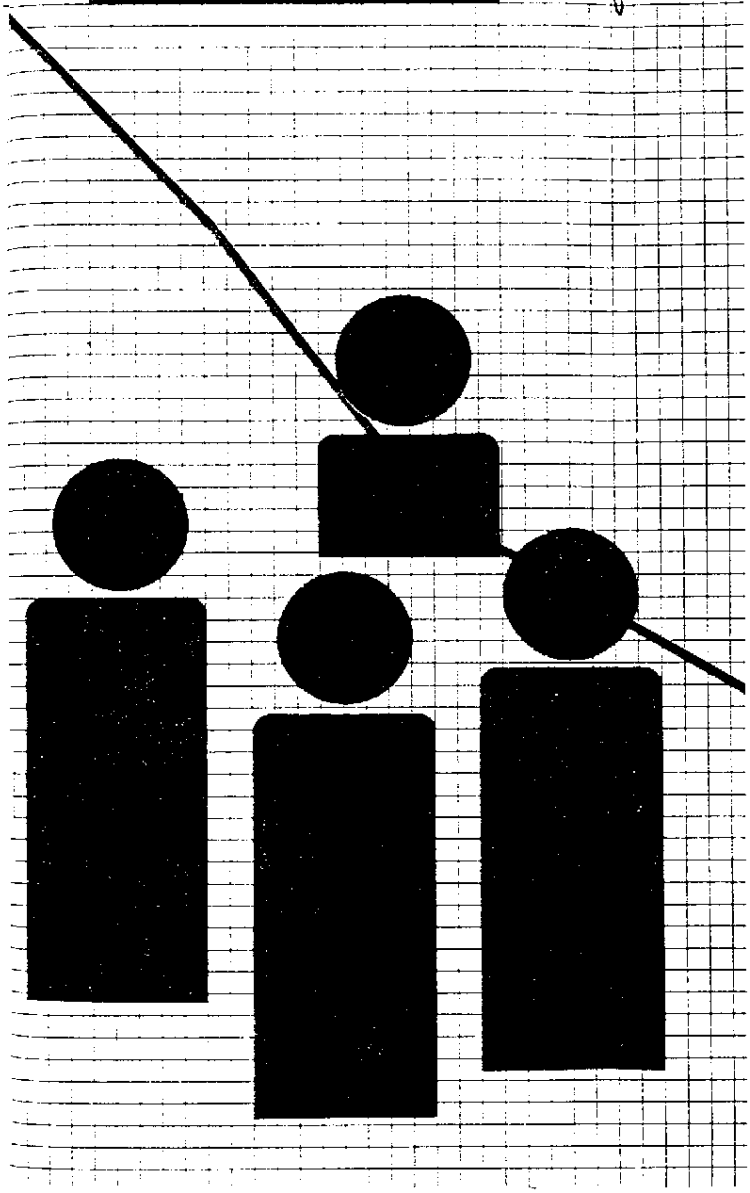
America's Health: A Century of Progress But A Time of Despair

A Report by the American Council on Science and Health



The American Council on Science and Health (ACSH) is a national consumer education association directed and advised by a panel of scientists from a variety of disciplines. **ACSH** is committed to providing consumers with scientifically balanced evaluations of issues relating to food, chemicals, the environment and health.

ACSH is a nonprofit association exempt from federal income tax under Section 501(c) (3) of the Internal Revenue Code. All contributions are tax-deductible as provided by law.

Individual copies of this report are available at a cost of $2. Prices for 10 or more copies are available on request.

November 1983

This report on health in the United States was written by **Cathy Becker Popescu, M.S.**, a Research Associate with the **American Council on Science and Health.**

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ACSH thanks Dr. Merril Eisenbud for allowing us to borrow the title of this report from a speech and article written by him ("The Environment, Technology and Health: A Century of Progress But A Time of Despair", *American Journal of Medicine,* April 1980).

"It is extraordinary that we have just now become convinced of our bad health, our constant jeopardy of disease and death, at the very time when facts should be telling us the opposite. In a more rational world, you'd think we would be staging bicentennial ceremonies for the celebration of our general good shape. In the year 1974, out of a population of around 220 million, only 1.9 million died, or just under one percent — not at all a discouraging record once you accept the fact of mortality itself . . .

. . . Despite the persisting roster of still unresolved major diseases — cancer, heart disease, stroke, etc. — most of us have a clear, unimpeded run at a longer and healthier lifetime than could have been foreseen by any earlier generation."

Lewis Thomas in Notes of a Biology-Watcher: The Health Care System, *New England Journal of Medicine* 293, December 11, 1975

CONTENTS

INTRODUCTION

A membership and fundraising appeal by a well-known consumer group began with the following words:

"Earlier generations lived in fear of polio and smallpox. Nowadays the most deadly epidemics are manmade" (Ref. 2).

The apparent intent of these statements is to suggest that modern lifestyle and technology are responsible for an equivalent (or perhaps even greater) amount of death and disease as were past epidemics of poliomyelitis and smallpox. Similar allegations that the health of Americans has deteriorated due to poor dietary habits and exposure to man-made products, such as food additives, pesticides and pollutants, abound in popular books and articles. The authors of these books and articles frequently appear on radio

and television programs, spreading their message of gloom and doom even further.

It is no wonder that much of the American public believes that the nation's health has never been worse. As scientist and author Lewis Thomas has said, "The new danger to our well-being, if we continue to listen to all the talk, is in becoming a nation of healthy hypochondriacs, living gingerly, worrying ourselves half to death" (11).

Yet, according to the health statistics, Americans are healthier than ever before. Modern technology and lifestyle have drastically reduced the health hazards to which we are exposed, rather than increasing them.

In 1900, approximately 100 out of every 1,000 infants born in the United States died before their first birthday; today fewer than 12 out of every 1,000 infants fail to survive their first year. An American born today can be expected to live an average of 27 years longer than someone born in 1900. The age-adjusted[1] death rate declined 53% from 1900 to 1950, and another 27% from 1950 to 1977.

The death rate from infectious diseases has plummeted to record lows in this century. With the reduction of infectious disease mortality, many more people now live to an age where they are subject to chronic diseases, such as cancer and heart disease. Consequently, chronic diseases now account for a much larger proportion of deaths than they did at the turn of the century.

Even the death rate from heart disease, the leading cause of death in the United States, has declined significantly within the past 30 years or so. The death rate from cerebrovascular disease (stroke) has also decreased. There has been a gradual decline since the 1930s in the age-adjusted cancer death rates (excepting lung and skin cancer) for Americans under the age of 65.

The bottom line is that Americans have never been healthier. Certainly, there is much room for improvement, but with a few specific exceptions, the technological and lifestyle changes which have occurred in the past eight decades have improved, rather than harmed, Americans' health.

1 *Age-adjustment is a method of calculating mortality and/or incidence rates in order to remove the confounding effect due to the age distribution of a population. Such procedures are required to compare death and disease rates for populations whose age compositions may differ due to time or geography.*

HOW HEALTH IS MEASURED

The health status of a population can be measured in several ways. The most commonly used measurements are those relating to mortality, such as life expectancy and death rates. Information on mortality is fairly accurate, is easy to obtain from death records, and comparable historical and international information is often available.

Information about the incidence or prevalence of illness (morbidity) is more difficult to obtain. Although physicians are required to report some diseases (mainly those that are infectious) to the Centers for Disease Control, most illnesses are not recorded in any central registry.

The morbidity information available from research studies, medical reports and national surveys is often difficult to interpret, especially when comparisons are made over time or between countries. For example, an increase in the prevalence of a disease may mean only that diagnosis has improved over the years. Similarly, a high rate of reported illness in one country may simply reflect the fact that diagnosis is more accurate there than in other nations.

LIFE EXPECTANCY

Life expectancy is the average number of years of life remaining to individuals of a given age. The most common measure of life expectancy is the number of years which the average newborn can be expected to live.

During this century, there have been dramatic gains in this important health index (Table 1). In 1900, the average newborn could be expected to live only 47 years (7), whereas a child born today can be expected to live 74.5 years[2]. The gains in life expectancy were especially evident in the first half of the century, and were largely attributable to the control of infectious and parasitic diseases, which were major killers of the young (6).

2 *U.S. Dept. of Health and Human Services, Public Health Service, Office of Health Research, Statistics and Technology, National Center for Health Statistics, Annual Summary of Births, Deaths, Marriages and Divorces, United States: 1982,* Monthly Vital Statistics Reports, 31 (13), 1983.

It is not just the young who have benefited from an increased life expectancy. Within the past 30 years, adults have realized greater gains in life expectancy than have infants. From 1900 to 1950, life expectancy at birth increased 38%, while the life expectancy of a 45 year-old person rose only 15%. From 1950 to 1980, however, life expectancy at birth increased 8%, whereas life expectancy at age 45 increased 13% (9). This appears to be a major reversal of an historical trend which may be due, in large part, to the recent drop in deaths due to cardiovascular disease.

In spite of the increases in life expectancy, the maximum life span of Americans has not increased, probably because there is a biological limit to life span. Population statistics suggest that under ideal societal conditions, the average age of death would be approximately 85 years (7). During this century, Americans have rapidly approached that ideal. In 1900, the average person died 38 years "prematurely", 17 years "prematurely" in 1950 and only 12 years "prematurely" in 1980. Moreover, violent death accounts for three of the years by which we fall short of the ideal.

TABLE 1. CHANGES IN LIFE EXPECTANCY IN THE UNITED STATES

Year*	Life Expectancy at Birth	Decade's Gain (%)	Life Expectancy at Age 45	Decade's Gain (%)
1900	49.2	- - - -	24.8	- - - -
1910	51.5	4.7	24.5	- 1.2
1920	56.4	9.5	26.3	7.3
1930	59.2	5.0	25.8	- 1.9
1940	63.6	7.4	26.9	4.3
1950	68.1	7.1	28.5	5.9
1960	69.9	2.6	29.5	3.5
1970	70.8	1.3	30.1	2.0
1980†	73.6	4.0	32.1	6.6

National Center for Health Statistics Data

*Except for 1910 and 1980, the numbers given are three-year composites. For example, the 1970 data reflects changes occuring from 1969 to 1971

†Provisional data

SOURCE: McGinnis, J.M., Recent health gains for adults, *New England Journal of Medicine* 306: 671, 1982

DEATH RATE

Perhaps most indicative of Americans' improved health is the declining death rate. The age-adjusted death rate decreased 53% between 1900 and 1950, from 18 deaths to 8 deaths per 1,000 people per year. From 1950 to 1977, the death rate fell another 27% to 6 deaths per 1,000 people per year (6). In 1982, less than 6 of every 1,000 Americans died[3]. These decreases are especially remarkable when one considers that a 100 percent decline in the death rate would mean that we had achieved immortality![4]

Major reductions in the death rate have occurred in all age, sex and race groups although some groups have benefited more than others.

AMERICANS ASSESS THEIR HEALTH

While self-assessment of health may be subjective, it has been found to correlate well with utilization of health care services and a physician's judgment of health status.

When asked to rate their own health status in comparison with that of others within their age group, the vast majority (88%) of Americans say that their health is excellent or good. Only 12% of more than 100,000 individuals questioned in the 1978 National Health Interview Survey reported that their health was fair or poor (18).

There is a marked tendency for people to perceive their health status as declining with age. In the 1978 survey, only 9% of young adults (17 - 44 years) said that their health was fair or poor, while 30% of those 65 and over rated their health as fair or poor (18). Those with low incomes are more likely to report fair or poor health than are those with higher incomes (18).

3 *Ibid.*

4 *This observation was made by epidemiologist James Enstrom in a 1980* New York Times *article.*

INFECTIOUS DISEASES

Many of the infectious diseases which once claimed the lives of thousands of Americans annually have decreased remarkably in incidence and lethality due to improved sanitary conditions, effective immunization and antimicrobial therapy.

Deaths from influenza and pneumonia declined from 200 per 100,000 people in 1900 to 31 per 100,000 in 1970. In 1900, 194 of every 100,000 people died from tuberculosis, compared to fewer than 3 in 1970. Similarly, deaths from enteric (intestinal) diseases dropped from 143 per 100,000 in 1900 to less than 1 in 1970 (4).

Perhaps the most noteworthy example of the impact which immunization has had on health is poliomyelitis. When a vaccine first became available in 1955, there were about 29,000 reported polio cases. Five years later the incidence had dropped to 3,000 and by 1975 only 8 cases were reported (19).

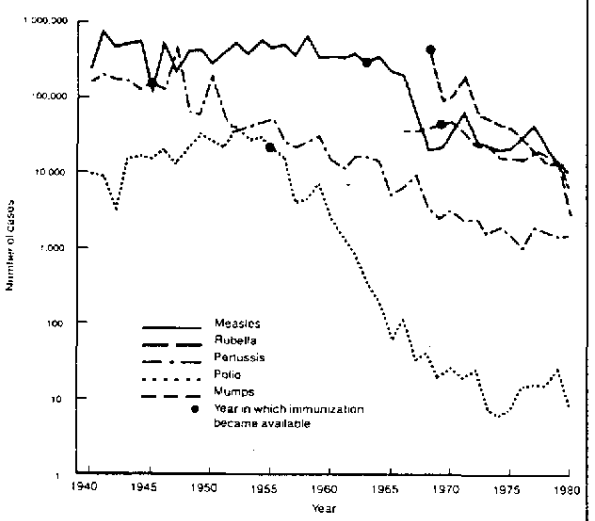
As indicated in Figure 1, many infectious diseases which were once common among children have become increasingly rare due to widespread immunization. As the number of cases of these diseases has decreased, so has the number of deaths caused by their complications. Unfortunately these dramatic reductions in morbidity and mortality have increased the visibility of the rare adverse effects of immunization, resulting in unwarranted reluctance of some parents to have their children immunized. Since these childhood diseases have not been eliminated, but merely controlled, by immunization, this could pose a serious threat to public health.

The incidence of one class of infectious disease — sexually transmitted infections — has increased in recent years. The number of reported gonorrhea cases rose about 12% from 1966 to 1973, and has since levelled off at about 1 million cases per year (17). There has also been an increase in reported cases of syphilis since 1977, with more than 31,000 primary and secondary infections occurring in 1981 (17). Genital herpes infections have become increasingly common. It is estimated that 500,000 to 1 million Americans are infected each year (13).

More recently, there has been an outbreak of a new disease, Acquired Immunodeficiency Syndrome, or AIDS, which appears to be caused by an unidentified virus. As of August 1, 1983 approximately 2,000 cases of AIDS had been reported in the U.S. Nearly 40% of those affected had already died at that time (16).

The disorder, which destroys a person's immune system, leaving him vulnerable to a variety of rare infections and malignancies, appears to be spread primarily through sexual contact and exposure to infected blood. Homosexual and bisexual men are most likely to be affected by AIDS (71% of all cases). Intravenous drug users, hemophiliacs, and, possibly, Haitians are also at risk. A small number of cases of AIDS have been reported in recipients of blood transfusions and in female sex partners of AIDS victims or those at high risk of AIDS (15).

Figure 1: REPORTED CASES OF SELECTED DISEASES BEFORE AND AFTER AVAILABILITY OF IMMUNIZATION: UNITED STATES, 1950-80



SOURCE: U.S. Dept. of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health United States: 1982*, 1982

LEADING CAUSES OF DEATH

At the turn of the century, most deaths resulted from infectious diseases. The age-adjusted death rate from influenza and pneumonia in 1900 was equal to the present heart disease death rate and the death rates for tuberculosis and diarrheal diseases exceeded the present cancer death rate (20).

The turn of the century population was subject to a much greater variety of potentially lethal illnesses than are today's citizens. Although the four leading causes of death accounted for only 40% of all deaths in 1900, in 1977 they accounted for 71 % of all deaths (20).

The leading cause of death in the U.S. today is heart disease. Cancer ranks second, stroke third, accidents fourth and chronic obstructive pulmonary disease fifth (22). Listed in Table 2 are the death rates due to the 15 leading causes of death of Americans in 1979.

Today's leading causes of death partially reflect the fact that more people in the United States are living longer. A quarter of a century ago, only 8% of the population was 65 years of age or older. Today, close to 11% of the population is in this age group, which is more prone to develop and die from chronic disease (6).

Heart Disease and Stroke (Cardiovascular Disease)

Heart disease, stroke and related disorders kill more Americans than all other causes of death combined. In 1980, more than 1 million deaths — 51% of all deaths for that year — were attributable to these diseases (22). Information obtained from the 1972 National Health Interview Survey indicated that 2% of those under age 45 suffered from cardiovascular disease, while 9% of those aged 45 to 64 and 20% of those 65 and older were affected (6).

Despite the high proportion of deaths due to cardiovascular disease, the outlook is encouraging. Age-adjusted death rates from heart disease fell 18% in the 20 years from 1950 to 1970 — an average annual decrease of 1%. From 1970 through 1977, the heart disease death rate dropped 2.6% per year. The reductions in age-adjusted heart disease mortality rates have been much greater for females than for males, particularly between 1950 and 1970. (6)

Mortality rates from cerebrovascular disease (stroke) declined about 25% from 1950 to 1970. In recent years, cerebrovascular disease death rates have continued to decrease more rapidly than have heart disease death rates (6).

The improvement in cardiovascular disease death rates may be partially explained by improvements in medical treatment and care, but it is likely that other factors also contributed. Some possible explanations for the decline in heart disease and stroke mortality include: decreased cigarette smoking; improved detection and control of hypertension; decreased dietary intake of total calories and calories from fats; and increased emphasis on physical activity. It is difficult, however, to quantitate the effect which any one, or a combination of these factors, may have had.

TABLE 2. DEATH RATES AND PERCENT OF TOTAL DEATHS FOR THE 15 LEADING CAUSES OF DEATH: UNITED STATES, 1979
(Rates per 100,000 population)

Rank	Cause of death (Ninth Revision International Classification of Diseases, 1975)	Rate	Percent of total deaths
- - -	All causes	869.5	100.00
1	Diseases of the heart	333.1	38.3
2	Cancer	183.3	21.1
3	Cerebrovascular disease (stroke)	77.0	8.9
4	Accidents and adverse effects	47.8	5.5
- -	Motor vehicle accidents	24.3	- - -
- -	All other accidents and adverse effects	23.5	- - -
5	Chronic obstructive pulmonary diseases and allied conditions	22.7	2.6
6	Pneumonia and influenza	20.5	2.4
7	Diabetes mellitus	15.1	1.7
8	Chronic liver disease and cirrhosis	13.5	1.6
9	Atherosclerosis	13.1	1.5
10	Suicide	12.4	1.4
11	Certain conditions originating around the time of childbirth	10.7	1.2
12	Homicide and legal intervention	10.2	1.2
13	Nephritis, nephrotic syndrome and nephrosis (disorders affecting the kidneys)	7.1	0.8
14	Congenital anomalies (birth defects)	6.1	0.7
15	Blood poisoning	3.6	0.4
- -	All other causes	93.3	10.7

Adapted from U.S. Dept. of Health and Human Services, Public Health Service, Office of Health Research, Statistics and Technology, Advance Report of Final Mortality Statistics, 1979, *Monthly Vital Statistics Reports* 31 (6), Supplement, 1982.

Cancer

Contrary to popular belief, there is no evidence that America is experiencing a cancer epidemic.

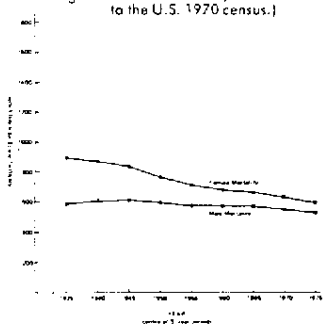
The American Cancer Society estimates that in 1983, some 440,000 Americans will die of cancer. (Of these, about 114,000 or 25% will die of lung cancer.) That may seem like an epidemic to some, but with the exceptions of lung and skin cancer (which are almost entirely self-induced), the age-adjusted cancer death rate among those under 65 declined slightly from 1933 to 1977 (Figure 2).

According to data from the Second and Third National Cancer Surveys (SNCS and TNCS), conducted by the National Cancer Institute, the age-adjusted overall cancer incidence declined slightly from 1947 to 1971.[5] Data from TNCS and a later survey, the Surveillance, Epidemiology and End Results program (SEER), are sometimes combined to support contentions of a recent increase in cancer incidence. Such a comparison is not valid, however, since SEER involves data collection and sampling methods which are quite different from those employed in the previous cancer incidence surveys.

Although it is widely believed that the United States has an unusually high cancer death rate compared with other countries, the data do not support this assumption. In a comparison of age-adjusted cancer death rates for 42 countries, the U.S. ranked 17th in male and 19th in female cancer death rates (Figure 3).

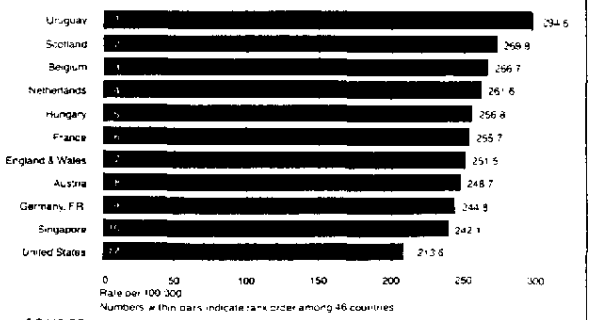
5 *Data from the 1947-1948 Second National Cancer Survey and the 1969-1971 Third National Cancer Survey.*

Figure 2: AGE-STANDARDIZED CERTIFIED CANCER DEATH RATES FOR ENTIRE U.S. POPULATION, 1933-77
(All cancers except lung and skin. Rates per million, standardized to the age distribution of all respondents under 65 yr. to the U.S. 1970 census.)



SOURCE: Adapted from Doll, R. and Peto, R., *The Causes of Cancer.* Oxford University Press, New York, 1981

Figure 3: AGE-ADJUSTED WHITE MALE CANCER DEATH RATES PER 100,000 POPULATION, SELECTED COUNTRIES, 1976-77



SOURCE: American Cancer Society, 1983 Cancer Facts & Figures. New York, 1982

Accidents

Accidents are the leading cause of death of Americans from the age of one through 38 (13). In 1979, more than 100,000 people died as a result of accidents and adverse effects (22). The age-adjusted death rate among males was about three times the rate among females.

Although there has been a slight upward trend in the death rate from motor vehicle accidents since 1975 (with an unexplained drop in 1982), the death rate from all other accidents and adverse effects has been decreasing gradually since 1950.

Chronic Obstructive Pulmonary Disease

This category includes deaths from chronic bronchitis, emphysema and asthma. It accounted for nearly 50,000 deaths in the U.S. in 1979 (22). Approximately 85% of emphysema and chronic bronchitis deaths are attributable to smoking (10).

THE HEALTH STATUS OF AMERICANS IN DIFFERENT AGE GROUPS

It is a little misleading to examine only the health statistics for the population as a whole. There are significant differences in the death rate, leading causes of death and general health status of different age groups.

The Health of American Infants

At the turn of the century, about 100 of every 1,000 infants born in the United States died before their first birthday. By 1959, fewer than 30 of every 1,000 infants failed to survive their first year (20).

Progress in reducing infant mortality has not been quite so dramatic in recent years, although important gains have been made (Figure 4). The infant mortality rate remained fairly stable between 1950 and the mid-1960s, but it has again begun to decline rapidly in recent years. Between 1965 and 1979, the infant mortality rate fell nearly 50%. In 1982, there were slightly more than 11 infant deaths per 1,000 live births.[6]

There are marked differences in the infant mortality rates for different groups within the U.S. The infant mortality rate for blacks is nearly double that for whites (19).

The U.S. infant mortality rate is higher than that reported in certain other industrialized nations (Figure 5). There are, however, significant differences in the manner in which infant mortality statistics are gathered in the various countries. Thus, international comparisons of infant mortality rates may not accurately reflect survival differences among infants in different countries. For example, Sweden and the Netherlands have consistently been ranked as having the lowest infant mortality rates. In Sweden, infants which do not breathe, but which display other signs of life at birth, are registered as being stillborn and are excluded from infant mortality statistics. In the United States, on the other hand, such infants are declared as "live at birth" and their deaths are included in the infant mortality statistics. In the Netherlands, all infants who die before registration are excluded from birth or death statistics. Since it sometimes takes as long as a week to register an infant, many deaths may be omitted from the infant mortality statistics. In addition, all fetal deaths which occur after 20 weeks of gestation are recorded in the U.S., whereas in many European countries, only those fetuses who die after 28 weeks of gestation are registered. Nevertheless, the United States still has a higher infant mortality rate than some other countries, even when such factors are taken into consideration (5).

There is some evidence that the higher incidence of low-birth weight (LBW) infants in the U.S. may be largely responsible for the higher rate of infant death here. When U.S. mortality rates in specific weight

6 *U.S. Dept. of Health and Human Services,* Annual Summary of Births, Deaths, Marriages and Divorces, United States: 1982.

groups were compared with those of corresponding weight groups of Swedish infants, the U.S. rates were consistently lower, even though Sweden has a lower overall infant mortality rate (20).

Factors contributing to low birth weight include: poor maternal nutrition, maternal cigarette smoking, lack of prenatal care, poor physical condition and several specific diseases that are not related to pregnancy.

The chances of an American infant being born alive have increased rapidly in recent years. Between 1965 and 1977, fetal death rates declined 37% in whites and 45% in all other races (20). Other races still have much higher fetal death rates than do whites, however, due at least in part to differences in medical care, nutrition, etc.

Recently, there appeared a widely publicized report indicating that the incidence of birth defects in the United States had doubled during the past 25 years. This report was based upon research done at the University of California, utilizing data obtained from the National Health Interview Survey.

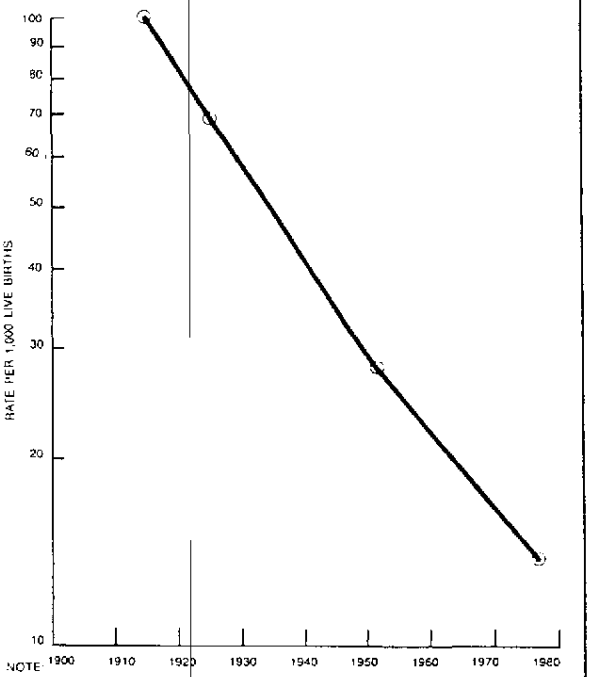
In that survey, parents were asked to describe any congenital physical, mental or behavioral disabilities which their children had. There was no attempt to verify the presence of the alleged "birth defects" from medical records. In addition, the diagnosis of "birth defects" such as learning and behavioral disabilities is influenced by the publicity which such disorders receive — and by the absence of other, more overriding, health concerns, such as the complications of poliomyelitis or measles. Changes in such factors could account for an increase in *diagnosis* of these disorders in the absence of an increase in incidence.

Researchers at the Centers for Disease Control (CDC), whose data collection methods are more controlled and reliable than those used in surveys, have found no such generalized increase in physical deformities or chromosomal abnormalities in recent years (14). The CDC information is based upon hospital discharge records of several hundred thousand births from nearly 1,000 hospitals around the country.

According to CDC, in 1980 the number of children born with major defects, such as anencephaly and spina bifida, was *less* than expected based upon 1970-1973 rates. The incidence rates of some birth defects, such as those affecting the cardiovascular system, were higher than expected, but the rates of most defects remained essentially unchanged (14).

It is also of interest to note that the University of California researchers found no increase in the number of children born who were so severely impaired that they required institutionalization. If there actually were a major increase in the incidence of birth defects, one would expect that the rate of major, as well as less serious, birth defects would have risen.

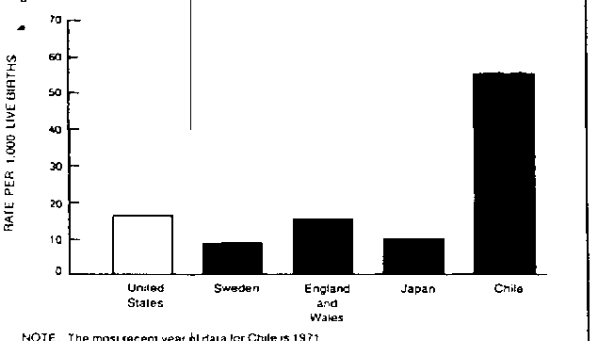
Figure 4: INFANT MORTALITY RATES: UNITED STATES SELECTED YEARS 1915-1977



NOTE: 1977 data are provisional, data for all other years are final. Selected years are 1915, 1925, 1950, 1977

SOURCE: U.S. Dept. of Health, Education and Welfare, Public Health Service, *Healthy People*, 1979

Figure 5: INFANT MORTALITY RATES: SELECTED COUNTRIES, 1975



NOTE: The most recent year of data for Chile is 1971

SOURCE: U.S. Dept. of Health, Education and Welfare, Public Health Service, *Healthy People*, 1979

The Health of American Children

In 1900, 870 of every 100,000 children aged one through 14 died. By 1925, the death rate had fallen to 330, and by 1977, to 43 per 100,000 children per year (Figure 6).

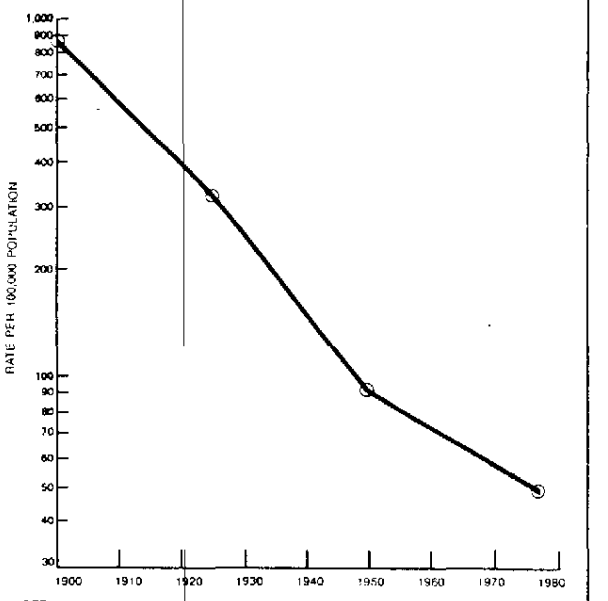
One to four year-olds. Between 1950 and 1979, the death rate among children aged one through four declined 53%, most of it attributable to a marked reduction in deaths due to natural causes (19). The death rate from motor vehicle accidents remained relatively stable, while fatalities due to other types of accidents fell 32% during this period (Figure 7).

Deaths from pneumonia and influenza declined 89% in pre-school children from 1950 to 1979, with most of the decline occurring since 1960. Mortality from cancer dropped 57% and deaths due to congenital anomalies (birth defects) decreased 36% in these years (Figure 7).

Five to 14 year-olds Since the late 1960s, more school-age children have died each year from accidents and violence than from disease (Figure 8). Historically, non-motor vehicle accidents have been the single largest cause of death among the five to 14 year-olds. In recent years, fewer school-age children have died in such accidents and more have been killed in motor vehicle accidents, resulting in nearly equal death rates from these two causes since 1970. Fire and drowning are responsible for the majority of non-motor vehicle related accident deaths (19).

Cancer has been the leading cause of disease-related deaths among five to 14 year-old children since 1950, with leukemia deaths being the most common. Although the leukemia death rate remained relatively stable from 1950 to 1970, it fell significantly thereafter. The number of deaths due to congenital anomalies has also dropped sharply (19).

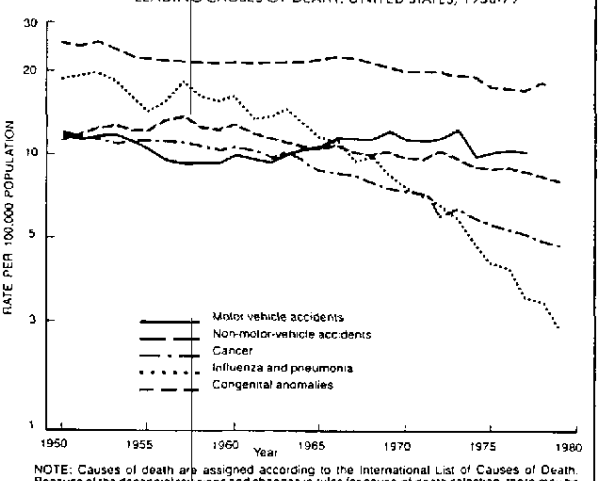
Figure 6: DEATH RATES FOR AGES 1-14 YEARS: UNITED STATES, SELECTED YEARS 1900-1977



NOTE:
1977 data are provisional; data for all other years are final. Selected years are 1900, 1925, 1950, 1977

SOURCE: U.S. Dept. of Health, Education and Welfare, Public Health Service *Healthy People*, 1979

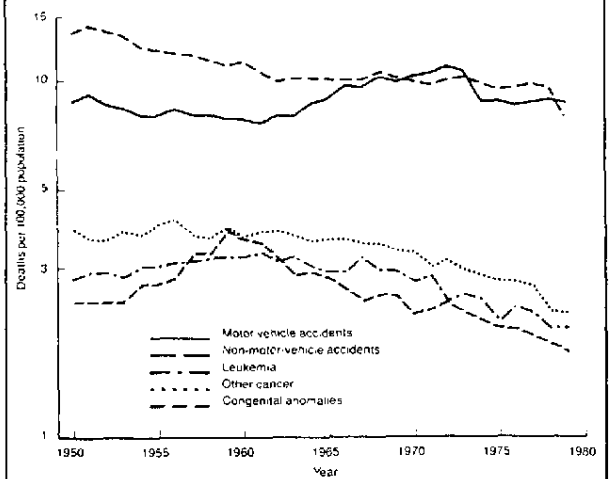
Figure 7: DEATH RATES FOR CHILDREN 1-4 YEARS OF AGE, ACCORDING TO LEADING CAUSES OF DEATH: UNITED STATES, 1950-79



NOTE: Causes of death are assigned according to the International List of Causes of Death. Because of the decennial revisions and changes in rules for cause-of-death selection, there may be some lack of comparability from one revision to the next. The beginning dates of the revisions are 1949, 1958, 1968, and 1979.

SOURCE: U.S. Dept. of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health United States: 1982*, 1982

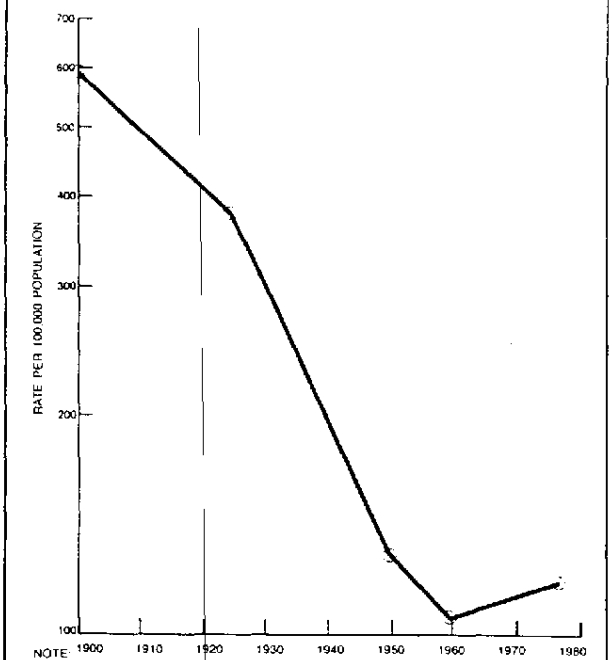
Figure 8 DEATH RATES FOR CHILDREN 5-14 YEARS OF AGE, ACCORDING TO SELECTED CAUSES OF DEATH: UNITED STATES, 1950-79



NOTE: Causes of death are assigned according to the International List of Causes of Death. Because of the decennial revisions and changes in rules for cause-of-death selection, there may be some lack of comparability from one revision to the next. The beginning dates of the revisions are 1949, 1958, 1968, and 1979.

SOURCE: U.S. Dept. of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health United States: 1982*, 1982

Figure 9: DEATH RATES FOR AGES 15-24 YEARS: UNITED STATES, SELECTED YEARS 1900-1977



NOTE: 1977 data are provisional; data for all other years are final. Selected years are 1900, 1925, 1950, 1960, 1977.

SOURCE: U.S. Dept. of Health, Education and Welfare, Public Health Service, *Healthy People*, 1979

The Health of Adolescents and Young Adults

The death rate of adolescents and young adults fell until 1960, but since then it has risen. This is the only age group which now has a higher death rate than it did 20 years ago (Figure 9).

In 1980, natural causes accounted for only one out of five deaths among adolescents and young adults. Death rates from natural causes have fallen significantly, while deaths due to accidents, suicide and homicide have risen (19).

Cancer was the leading cause of natural death in 1980, accounting for 26% of natural deaths, but only 5% of all deaths (19).

Other major threats to the well-being of young adults are alcohol and drug abuse, which contribute to accidental death; unwanted pregnancies and sexually transmitted diseases.

The Health of American Adults

The death rate of American adults decreased more than 2% annually from 1970 through 1977 after a slight rise during the 1960s (Figure 10).

25 to 44 year-old adults Death rates among adults 25 to 44 years of age have declined about one third since 1950. Much of this may be due to the large drop in heart disease deaths since 1965. The cancer death rate has also decreased more than 30 percent in this age group (19).

Accidents are the leading cause of death among adults 25 to 44 years of age (Figure 11). Accident mortality rates for American adults reached their highest levels in the 1960s and then dropped slightly. Suicide and homicide, the fourth and fifth leading causes of death in this age group, have both increased since the mid-1950s (19).

There are large sex differences in mortality. The overall death rate of men is twice that of women. Among men, motor vehicle accidents are the leading cause of death, followed by heart disease, non-motor vehicle accidents, cancer, homicide and suicide. Two and a half times as many women in this age group die from cancer as from the next two leading causes of death — heart disease and motor vehicle accidents. Breast and genital cancer account for a great many of these cancer deaths (19).

45 to 64 year-old adults The mortality rate of middle-aged adults has fallen 27 percent since 1950, with the substantial reduction in heart disease mortality being largely responsible. As indicated in Figure 12, cancer deaths increased slightly during this period, due to a dramatic rise in lung cancer deaths. Mortality from other types of cancer fell approximately 10% over the past 30 years or so (19).

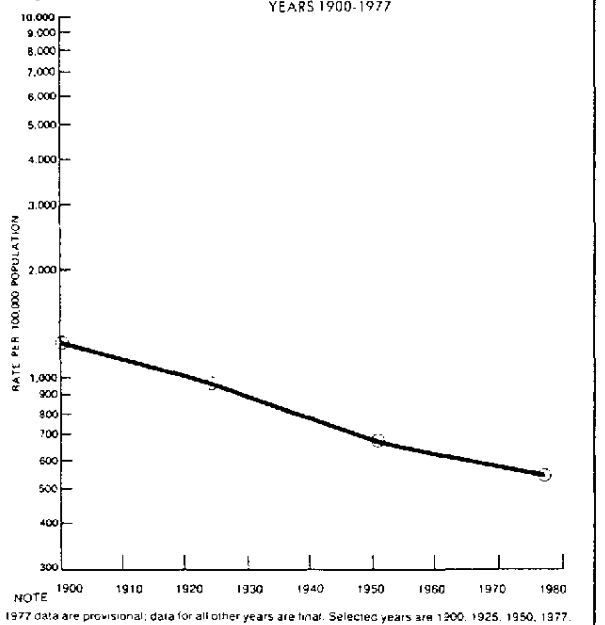
Mortality from stroke, the third leading cause of death in this age group, declined 62% between 1950 and 1979. The death rate from cirrhosis of the liver doubled from 1950 to the early 1970s, but has recently begun to decline (19).

Accidents are the fourth leading cause of death in adults 45 to 64 years of age. Since 1975, more middle-aged adults have died in motor vehicle accidents, while fewer have died in other types of accidents (19).

The death rate for males in this age group is twice that of females, with the largest differential in heart disease deaths — men are three times more likely to die of heart disease than are women (19).

Overall, most middle-aged Americans report that their health is good. In a survey conducted in 1979-80, only 6% said that they were unable to carry out usual activities because of chronic illness, while 21% considered their health to be fair or poor (19).

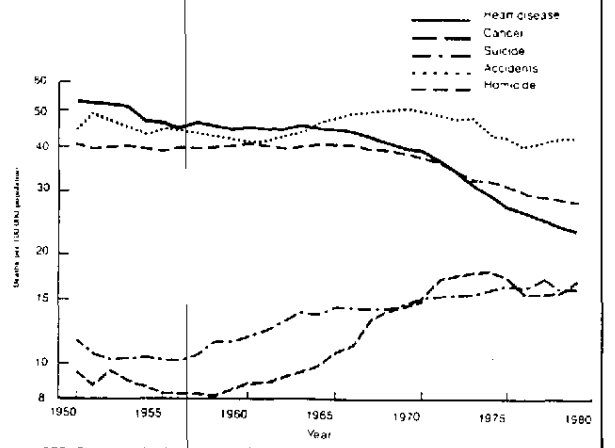
Figure 10: DEATH RATES FOR AGES 25-64 YEARS: UNITED STATES, SELECTED YEARS 1900-1977



NOTE: 1977 data are provisional; data for all other years are final. Selected years are 1900, 1925, 1950, 1977.

SOURCE: U.S. Dept. of Health, Education and Welfare, Public Health Service, *Healthy People*, 1979

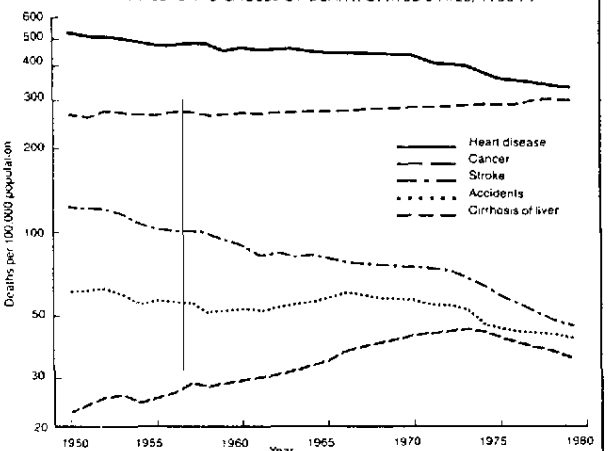
Figure 11: DEATH RATES FOR PERSONS 25-44 YEARS OF AGE, ACCORDING TO LEADING CAUSES OF DEATH: UNITED STATES, 1950-79



NOTE: Causes of death are assigned according to the International List of Causes of Death. Because of the decennial revisions and changes in rules for cause-of-death selection, there may be some lack of comparability from one revision to the next. The beginning dates of the revisions are 1949, 1958, 1968, and 1979.

SOURCE: U.S. Dept. of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health United States: 1982*, 1982

Figure 12: DEATH RATES FOR PERSONS 45-64 YEARS OF AGE, ACCORDING TO LEADING CAUSES OF DEATH: UNITED STATES, 1950-79



NOTE: Causes of death are assigned according to the International List of Causes of Death. Because of the decennial revisions and changes in rules for cause-of-death selection, there may be some lack of comparability from one revision to the next. The beginning dates of the revisions are 1949, 1958, 1968, and 1979.

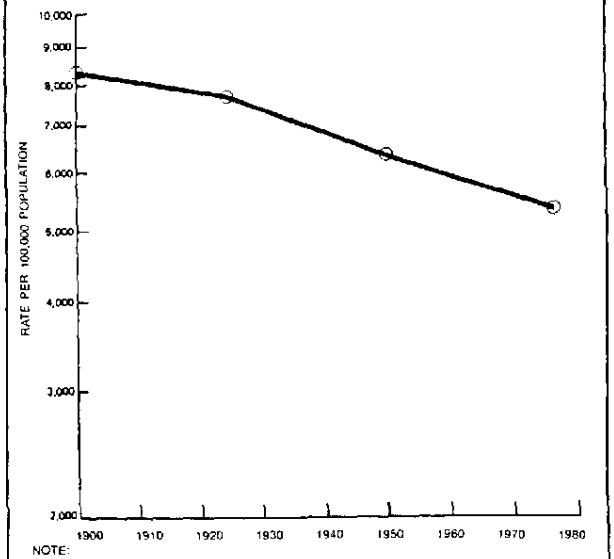
SOURCE: U.S. Dept. of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health United States: 1982*, 1982

The Health of Older Americans

From 1950 to 1979, the age-adjusted death rate among those 65 and older fell 17% (Figure 13 and Reference 19). (It is necessary to age-adjust because the proportion of elderly people over 85 years of age has grown more rapidly than the proportion of those 65 to 84 years old). The decline in heart disease mortality accounted for about one-half of this decrease in

the death rate. Deaths from cancer increased 13% during this time period (Figure 14). Cancers of the lung, colon, genital organs and breast (among women) account for more than half of all cancer deaths among the elderly (19).

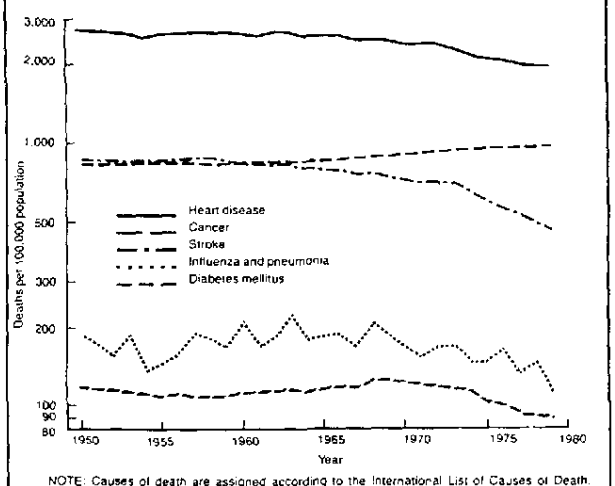
Figure 13: DEATH RATES FOR AGES 65 YEARS AND OVER: UNITED STATES, SELECTED YEARS 1900-1977



NOTE:
1977 data are provisional; data for all other years are final. Selected years are 1900, 1925, 1950, 1977.

SOURCE: U.S. Dept. of Health, Education and Welfare, Public Health Service, *Healthy People*, 1979

Figure 14: AGE-ADJUSTED DEATH RATES FOR PERSONS 65 YEARS OF AGE AND OVER, ACCORDING TO LEADING CAUSES OF DEATH: UNITED STATES, 1950-79



NOTE: Causes of death are assigned according to the International List of Causes of Death. Because of the decennial revisions and changes in rules for cause-of-death selection, there may be some lack of comparability from one revision to the next. The beginning dates of the revisions are 1949, 1958, 1968, and 1979.

SOURCE: U.S. Dept. of Health and Human Services, Public Health Service, National Center for Health Statistics, *Health United States: 1982*, 1982

In 1979, as in 1950, 75% of all deaths among the elderly were due to heart disease, cancer and stroke. An additional 5% of deaths were the result of diabetes (19).

Most older Americans retain their vigor and independence, although 45% have some activity limitation caused by heart conditions, arthritis, hearing loss or visual impairment. The largest portion of chronic activity limitation stems from respiratory conditions, such as emphysema and chronic bronchitis (12).

PREVENTING PREVENTABLE DEATHS

While everyone has to die of something, we prefer that it happens at a ripe old age. The best one can hope for is not to escape death, but to prevent premature death. Public health programs should, therefore, focus on preventable causes of untimely death.

The five leading causes of death — heart disease, cancer, cerebrovascular disease, accidents and chronic obstructive pulmonary disease — claimed the lives of nearly one and a half million Americans in 1979 (22). Almost one-third of these deaths could have been prevented by modifying just three risk factors: smoking, hypertension and alcohol abuse.

Four of the five leading causes of death are directly related to cigarette smoking. It is estimated that smoking is responsible for 30% of all cancer deaths, or 121,000 deaths in 1979 (24). Thirty percent of all heart disease fatalities, or 220,000 deaths in 1979, are also attributable to smoking (10). It is a major, but unquantifiable risk factor for cerebrovascular disease and is responsible for 85% of chronic bronchitis and emphysema deaths — 42,000 deaths in 1979 (10).

(Infant and fetal mortality could also be substantially reduced by decreased cigarette smoking. Smoking is responsible for elevated rates of spontaneous abortion and stillbirth, and accounts for up to 14% of all premature birth in the United States (25).)

It is obvious that if Americans really want to prevent premature deaths and improve their health, giving up smoking is the place to start. As the World Health Organization has stated, "The control of cigarette smoking could do more to improve health and prolong life in (developed) countries than any other single action in the whole field of preventive medicine" (12).

Hypertension, or high blood pressure, is responsible for approximately 3% of heart disease deaths, or

22,000 deaths in 1979 (23). Thus, further improvements in public awareness, detection and control of hypertension could significantly reduce cardiovascular disease mortality.

Accidents are the leading cause of death for Americans from the age of one through 38 (13). Any reduction in accidents would thus have a substantial impact on the rate of premature death in the U.S.

Alcohol-related accidents are the leading cause of death of adolescents and young adults. Some 55% of motor vehicle fatalities (29,000 deaths in 1979) involve an intoxicated driver (26). Curtailing the use of alcoholic beverages by teen-agers, and more cautious use by all age groups, would significantly diminish America's highway death toll.

Cigarette smoking, alcohol abuse and hypertension are known to have contributed to more than 430,000 deaths in 1979. In contrast, there is little evidence that most of the recently introduced chemicals in our food, air and water play a significant role in premature death. They may in fact, promote good health.

To prevent early death, the choices are clear. With limited resources, money should be allocated where it will do the most good. A comparison of the number of premature deaths known to be caused by allegedly "toxic agents" and the number of premature deaths known to result from the effects of cigarette smoking, alcohol and hypertension indicates that our resources are better spent on the latter. By keeping our priorities straight, we can have some control over the time and cause of death — even if we all must succumb eventually.

CONCLUSION

One conclusion emerges from an appreciation of the health statistics presented here: America is not experiencing an epidemic of disease caused by modern technology and lifestyle. On the contrary, the health of Americans has never been better and continues to improve.

The substantial increase in life expectancy, reduction in the death rate, and other improvements in health status which have occurred during this century indicate that the sum of all the health hazards to which Americans are exposed must be less than it was in the past. As Philip White, of the American Medical Association, wrote: "Peril cannot be the cost of progress, for progress is in reality a reduction in peril" (27).

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