



ENVIRONMENTAL POLLUTION  
AND  
CANCER AND HEART AND LUNG DISEASES

Second Annual Report to Congress

August 7, 1979

TASK FORCE ON ENVIRONMENTAL CANCER AND HEART AND LUNG DISEASE

Environmental Protection Agency  
National Cancer Institute  
National Heart, Lung and Blood Institute  
National Institute for Occupational Safety and Health  
National Institute of Environmental Health Sciences  
National Center for Health Statistics  
Center for Disease Control  
Food and Drug Administration

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## PREFACE

The Task Force on Environmental Cancer and Heart and Lung Disease was established in accordance with Section 402 of Public Law 95-95, enacted August 7, 1977, for the purpose of recommending and coordinating Federal programs concerned with the reduction of such diseases. The Task Force initially included representatives from the Environmental Protection Agency, the National Cancer Institute, the National Heart, Lung and Blood Institute, the National Institute for Occupational Safety and Health, and the National Institute of Environmental Health Sciences. The Administrator of the Environmental Protection Agency (or his delegate) was designated as Chairman by this law. Subsequent legislation, Section 9 of Public Law 95-623 enacted November 9, 1978, added the Director of the National Center for Health Statistics and the head of the Center for Disease Control to the membership of the Task Force.\* The Task Force is required to report annually to Congress on its progress and problems.

This report describes the work of the Task Force in its second year (August 1978 to August 1979) and outlines plans for the future. Chapter 1 is an introduction that delineates the responsibilities of the Task Force and summarizes its first annual report. Status summaries of the Task Force's activities are presented in Chapter 2. Chapter 3 describes future plans of the Task Force.

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\* In September 1978, the Food and Drug Administration was invited to participate in Task Force activities.

### Abbreviations of Agencies and Organizations

ACDA	- Arms Control and Disarmament Agency
ADAMHA	- Alcohol, Drug Abuse, and Mental Health Administration
CDC	- Center for Disease Control
CEQ	- Council on Environmental Quality
CPSC	- Consumer Product Safety Commission
DHEW	- Department of Health, Education, and Welfare
DOC	- Department of Commerce
DOD	- Department of Defense
DOE	- Department of Energy
DOI	- Department of Interior
DOL	- Department of Labor
DOS	- Department of State
DOT	- Department of Transportation
EOP	- Executive Office of the President
EPA	- Environmental Protection Agency
FAA	- Federal Aviation Administration
FDA	- Food and Drug Administration
FSQS	- Food Safety and Quality Service
HCFA	- Health Care Financing Administration
HRA	- Health Resources Administration
HSA	- Health Services Administration
HUD	- Department of Housing and Urban Development
ITC	- International Trade Commission
LOC	- Library of Congress
MSHA	- Mine Safety and Health Administration
NAS	- National Academy of Sciences
NASA	- National Aeronautics and Space Administration
NCHS	- National Center for Health Statistics
NCI	- National Cancer Institute
NCTR	- National Center for Toxicological Research
NHLBI	- National Heart, Lung, and Blood Institute
NIA	- National Institute on Aging
NIAID	- National Institute of Allergy and Infectious Diseases
NIAMDD	- National Institute of Arthritis, Metabolism and Digestive Diseases
NICHHD	- National Institute of Child Health and Human Development
NIDA	- National Institute of Drug Abuse
NIEHS	- National Institute of Environmental Health Sciences
NIGMS	- National Institute of General Medical Services
NIH	- National Institutes of Health
NIMH	- National Institute of Mental Health
NINCDS	- National Institute of Neurological and Communicative Disorders and Strokes
NIOSH	- National Institute for Occupational Safety and Health
NLM	- National Library of Medicine
NOAA	- National Oceanic and Atmospheric Administration
NRC	- Nuclear Regulatory Commission
NSF	- National Science Foundation
OASH	- Office of Assistant Secretary for Health
OSHA	- Occupational Safety and Health Administration
OSTP	- Office of Science and Technology
SI	- Smithsonian Institution
SSA	- Social Security Administration
USDA	- U. S. Department of Agriculture
VA	- Veterans Administration

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## EXECUTIVE SUMMARY

## EXECUTIVE SUMMARY

This is the second annual report to Congress by the Task Force on Environmental Cancer and Heart and Lung Disease.

### INTRODUCTION

The Task Force was established in the Clean Air Act Amendments of 1977 to focus efforts by the Environmental Protection Agency and the various branches of the Department of Health, Education, and Welfare on the development of coordinated, comprehensive Federal research programs and strategies for the reduction of the risks of environmentally related cancer and heart and lung diseases.

During its first year, the Task Force defined the problem of environmentally related cancer and heart and lung diseases and developed objectives and an organizational capability to address the problem. It also identified Federal resources available and began the exchange of information among its members. The Task Force identified six areas of special concern which warranted early action:

- Standardization of Measurements and Tests
- Exposure and Metabolic Mechanisms,
- Early Indicators of Disease
- Risk Assessment
- Education of the Public and of Health Professionals
- Strategies to Protect Public Health.



## WORK OF THE SECOND YEAR

During the second year, Project Groups were formed to deal with three of these areas.

A Project Group on Standardization of Measurements and Tests examined ways to improve comparability of experimental results, and subsequently concentrated on formulating suggested Federal guidelines on the standardization of measurements and tests.

A Project Group on Education of the Public and of Health Professionals concentrated on identifying available educational programs of environmentally related disease. In October 1979, this group will conduct a workshop to explore how health professionals perceive their needs in environmental education and to consider ways in which the Government can promote educational initiatives to meet these needs and thereby aid in the reduction of environmental disease.

The Task Force requested a feasibility report on the utility of interagency study of exposure and metabolic mechanisms. A report was prepared by the National Institute of Environmental Health Sciences which addressed the problem in terms of four representative chemicals. A Project Group on Exposure and Metabolic Mechanisms was then established to work in this field.

Separate Project Groups were not established for Early Indicators of Disease, Risk Assessment, or Strategies to Protect Public Health. The question of Early Indicators of Disease may be considered by the Project Group on Exposure and Metabolic Mechanisms. The Task Force as a whole reviewed the work done by the Interagency Regulatory Liaison Group in the



area of risk assessment and decided to coordinate activities of other groups in this area rather than establish a separate Project Group.

The Task Force views information exchange among its members as the primary basis for establishing coordination and development of interagency programs. Activities this year included creation of a directory of interagency groups working in environmental health, publishing a monthly calendar of events, listing data bases for Federal research programs, and assisting the National Center for Health Statistics in its efforts under Section 8 of Public Law 95-623 to develop plans for the collection of environmental health data. As it did last year, the Task Force identified and classified relevant funding in each of its member agencies. Approximately \$270 million were spent in 1978 by the seven agencies on research and strategy planning addressed to Task Force objectives.

#### TASK FORCE PLANS

In the coming year the Task Force will continue its information exchange activities and will strengthen ties with such groups as the Interagency Regulatory Liaison Group and the National Toxicology Program. In addition, it will move forward in the Project Group areas of Standardization of Measurements and Tests, Education of the Public and of Health Professionals, and Exposure and Metabolic Mechanisms. Each group will identify and recommend specific actions appropriate for meeting the objectives of reduction of environmental diseases.

The Task Force will continue and expand its review of the role of risk assessment. An inventory of relevant current and planned programs will be assembled by member agencies as a basis for analyzing emphases and new initiatives. Activities during the year will be directed toward the development of recommendations to Congress and to the member agencies.

Chapter 1  
INTRODUCTION

## Chapter 1

### INTRODUCTION

#### THE TASK FORCE RESPONSIBILITY

The Task Force on Environmental Cancer and Heart and Lung Disease is composed of representatives from:

Environmental Protection Agency (EPA)  
National Cancer Institute (NCI)  
National Heart, Lung and Blood Institute (NHLBI)  
National Institute for Occupational Safety and Health (NIOSH)  
National Institute of Environmental Health Sciences (NIEHS)  
National Center for Health Statistics (NCHS)  
Center for Disease Control (CDC)  
Food and Drug Administration (FDA) (observer).

The Task Force was established to provide a focus for a concerted attack upon the national problem of environmentally related cancer and heart and lung diseases.\* Congress directed the Task Force to recommend comprehensive programs for quantifying the relationships between environmental pollution and associated disease and for reducing the risk and incidence of such disease. It also was directed to coordinate relevant research, stimulate cooperation among Federal agencies, and report to Congress annually on its progress and difficulties in reaching these objectives. The Task Force was identified in

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\* Appendix A includes relevant sections from Public Laws 95-95 and 95-623.

Section 8 of Public Law 95-623 which requires that the Secretary of the Department of Health, Education, and Welfare, acting through NCHS, consult with and take into consideration recommendations of the Task Force with respect to collection and coordination of environmental health statistics.

#### THE FIRST YEAR

The Task Force was formally organized in November 1977. At that time the EPA Administrator assigned staff within the Office of Research and Development to serve as a technical secretariat to the Task Force. Subsequently, at the first plenary meeting of the Task Force, a Working Group composed of alternate Task Force members was established to increase the Task Force's capability.\*

During the first year, the national problem with regard to environmentally related cancer and heart and lung diseases was outlined. The Task Force defined pollution as those chemical pollutants present in the ambient and workplace environment which affect humans through various media such as air, water, and soil. It examined information on existing environmental research programs and inventoried and categorized resources available to Federal agencies to combat the problem. The first annual report, submitted to Congress on August 7, 1978, stated:

- There is evidence that risk and occurrence of cancer and heart and lung diseases increase with environmental pollution, which is broadly defined to include all environmental factors.

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\* Members are listed in Appendix B; meeting dates in Appendix C.

- The extent of illness, death, and cost to society from environmentally related cancer and heart and lung diseases is a matter of national concern.
- There is expectation that levels of illness, death, and cost resulting from these environmentally related diseases could be substantially reduced by preventive measures and current preventive measures are believed to be inadequate to obtain desired reductions of risk and occurrence.
- Increased knowledge of pollution-disease relations and improvements in strategies and preventive measures are needed for reduction of risk and occurrence.
- The Federal Government has a central, critical role to take in research and prevention of environmentally related disease; changes in current Federal efforts may be necessary if reductions of risk and occurrence of environmentally related cancer and heart and lung diseases are to be obtained.

In addition, in the first annual report, the Task Force identified a limited set of areas of special concern and interest:

- Standardization of Measurements and Tests
- Exposure and Metabolic Mechanisms
- Early Indicators of Disease
- Risk Assessment
- Education of the Public and of Health Professionals
- Strategies to Protect Public Health.

It was decided to examine these subjects through the formation of Project Groups, each charged with determining: (1) the contribution which improved knowledge in each area could make to the achievement of Task Force objectives, (2) the needs for improved knowledge and (3) the feasibility of

undertaking interagency activities to assist in resolving problems in these areas. Reports of the Project Groups will constitute a basis for further actions.

The establishment of ties with other existing interagency groups working in related fields and the exchange of information among Task Force member agencies were also identified as areas for emphasis.

The Chairman of the U.S. House of Representatives' Subcommittee on Health and the Environment acknowledged the first annual report on behalf of the Subcommittee in a letter to the Chairman of the Task Force on September 8, 1978. His letter, which suggested several areas in which further effort and consideration would be desirable, is presented in Appendix D.



Chapter 2

STATUS SUMMARY

## Chapter 2

### STATUS SUMMARY

A hierarchical approach was implicit in emphasizing the areas identified for detailed examination in the first annual report of the Task Force. The aspects related to standardization of measurements and tests form the basis for much of the work related to the Task Force's responsibilities. Information and knowledge of exposure to pollutants, metabolic mechanisms and early indicators of disease represent the next hierarchical level. The assessment of risks and education of the public and of health professionals forms the next level, while strategies to protect public health is at the apex of this pyramidal structure. In addition to these areas, the development of an information exchange system was subsequently cited as an important activity for Task Force consideration.

Project Groups were formed in the following areas: standardization of measurements and tests, education of the public and of health professionals, and exposure and metabolic mechanisms. The Project Groups are composed of representatives from the Task Force agencies and other interested Federal agencies.\* The activities of these Project Groups during the past year focused on organizing, determining the exact scope of their activities and gathering preliminary information.

In this chapter, the status reports of these Project Groups are given. Activities concerning information exchange and risk assessment are

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\* Members are listed in Appendix B.

described. A summary of funding of the relevant research programs of the Task Force agencies also appears in this chapter.

#### STANDARDIZATION OF MEASUREMENTS AND TESTS

Research in the area of environmentally related disease is conducted under the sponsorship of numerous Federal agencies. To improve the validity, quality and interagency applicability of this research, measurements and tests need to be standardized. A Project Group was established to study ways of improving the intercomparability of test results through the development of common definitions and standard test protocols for the Task Force member agencies. Biostatisticians as well as laboratory research scientists participated in the activities of this Project Group.

As defined by the Task Force in its first annual report to Congress, standardization of measurements and tests included chemical, physical and biological factors in laboratory, clinical and community conditions. Early discussions among the members of the Task Force and among their Working Group representatives resulted in the suggestion that this definition be narrowed to a more manageable scope during the initial activities of the Project Group. Subsequently, the Project Group defined the scope of its activities to include the standardization of measurements and tests in chemical, physical, and biological systems and in health data collection systems. This approach was reviewed by the Task Force which recommended that the Project Group concentrate on the standardization of physical and chemical tests and measurements. To address this more specific charge, the composition of the Project Group was changed and representatives who had more direct involvement and expertise in physical and chemical measurement procedures were appointed.

When the members of the Project Group met to reformulate their objectives, they decided to concentrate on policy concerns instead of on the implementation of specific procedures. This decision was based upon the different responsibilities and perspectives of the participating agencies, since some of the participating agencies have regulatory functions while others are primarily research oriented. In addition, the group decided to initially concentrate on providing ways to compare experimental results and to formulate Federal guidelines on the standardization of measurements and tests.

In accordance with these new objectives, the following guidelines on the standardization of measurements and tests were developed by this Project Group.

Federal agencies conducting research in support of efforts to reduce environmentally related disease shall conduct their research according to the following principles:

- The experiment, measurement, or test will be designed and conducted according to appropriate statistical experimental designs and with preset statistical sensitivity.
- To the extent possible, standard test methods will be used. If such methods are unavailable, reliable methods having performance comparable to standard or reference methods will be used.
- All chemicals, such as reagents and carrier materials, will be identified as completely as possible in terms of source, purity, and any other relevant characteristics.
- Documentation will be as clear, unequivocal and complete as the reporting medium permits. If the documentation appears in professional publications in which length and detail are limited, the necessary complete documentation should be available.

Although interagency implementation of these guidelines could be a lengthy process, their development is an important first step toward increasing the reliability and utility of research sponsored by the Federal Government.

#### EDUCATION OF THE PUBLIC AND OF HEALTH PROFESSIONALS

The development of an informed citizenry may be the most useful, long-term strategy for reducing both the costs and risks associated with environmental cancer and heart and lung diseases. The lack of awareness and understanding of environmental factors among health professionals has long been identified as a serious deficiency in the prevention of environmental disease. Recognizing these two factors, a Project Group on the Education of the Public and of Health Professionals was established.

The Project Group classified the public in two broad areas--workers and the general public. The first group consists of unionized and nonunionized workers. The second consists of all members of the public interacting with the environment in nonworkplace conditions, including workers away from their work, housewives, retired persons, and most students. The health professionals area includes physicians, osteopaths, nurses, nurse-practitioners, physician assistants, dentists, health scientists and students in these fields. Within this framework, the Project Group developed the following objectives:

- Classify existing programs for the medical profession and public into categories of information, education, or training
- Identify the material currently directed toward the medical profession both in formative and continuing education programs

- Identify the material currently being disseminated in major newspapers and journals concerning the relation of environmental pollution to cancer and heart and lung diseases
- Identify the available resources and the role of various Federal, state, local and professional organizations and agencies in education of the public and health professionals regarding environmentally related disease
- Determine the status of communication between agencies and organizations involved in environmental education and the extent of duplication or gaps
- Examine documents from environmental education programs and evaluate program results to identify appropriate strategies for educating the public and health professionals.

Highlights of information obtained by the Project Group are presented below.

## Education of the Public

### Workers

The education of workers exposed to occupational hazards is addressed through direct channels. Numerous agencies provide support to both industry and unions in the area of occupational and environmental hazards. Examples of this support are presented below:

- Through a series of contracts funded by NCI, and managed by OSHA, the Cancer Alert Program was developed to inform and alert workers to the risks from known and suspected carcinogenic substances encountered in the workplace. As a result of this program, the National Academy of Sciences developed broad guidelines for a public information program on occupational cancer. In addition, funds provided through the Cancer Alert Program have contributed to the development of educational materials on the recognition and control of occupational cancer hazards for use in training programs with employees and employers at high-risk facilities.

- OSHA, through NCI, awards grants to labor unions, trade associations, educational institutions, and other non-profit organizations to develop capabilities for providing training, education, and related assistance to employees. Within a 5-year period, it is intended that most recipient organizations become centers of competence that can provide an extensive range of workplace safety and health activities and services.
- OSHA, Mine Safety and Health Administration and NIOSH work closely with employee groups and unions to develop safety and health training and awareness programs.
- NIOSH not only develops and disseminates Criteria Documents for substances considered to be a hazard in the workplace, it also publishes a Current Intelligence Bulletin, sent out to industry and labor, dealing with current industrial hazards. Through its Health Hazard Evaluation Program, NIOSH formally advises employees and employers of health hazards in workplaces.
- Research supported by NCI, NIEHS, NIOSH and other agencies is aimed at investigating the exposure of workers to such environmental hazards as asbestos, textile dusts, and printers' ink. This information is often disseminated to the workers by the individual researchers.
- EPA sponsored the development of a modular training program for auto emissions inspection and maintenance mechanics, with the assistance and support of auto manufacturers and unions of auto mechanics. A modular training program is a self-contained instructional unit designed to address the specific requirements of a given population.

#### General Public

A literature search combined with communications and visits to Federal agencies, news media representatives, educational institutions, consumer interest groups, and other organizations revealed that there is much information available to the public on environmental pollution and its relationship to cancer and heart and lung diseases. Segments of this information are disseminated through newspapers and magazines throughout the country,



but access to information by media editors is not systematic. The majority of editors and health writers who were interviewed believe there is a need for an official clearinghouse where they could obtain updated or additional information. Such a clearinghouse could also provide explanations, analyses and summaries of environmental issues. In addition to the materials distributed by the mass media, education material is developed and disseminated to the public through Federal agencies and other organizations such as cancer, heart and lung associations.

### Education of Health Professionals

In assessing educational programs designed for health professionals, the Project Group found that it is impossible to isolate professional education on environmentally induced cancer and heart and lung diseases from the broader category of environmental and occupational diseases. Furthermore, much of the educational material is fragmented or incorporated into more general topics, offered on an informal basis, or classified as elective rather than as part of a core program. Therefore, it is difficult to catalog all ongoing educational programs in the area of environmental cancer and heart and lung diseases. The following examples describe some of the Federal Government's efforts to provide environmental education to health professionals:

- NIOSH funds 12 Educational Resource Centers and awards training grants to other educational institutions having a total of 1472 full-time students in training for FY 1979. Training categories include occupational medicine, occupational health nursing, occupational safety, industrial hygiene, occupational safety and health technician work, and others such as toxicology and epidemiology.

- EPA (Office of Education and Manpower Planning; Office of Pesticide Programs) and DHEW (Health Services Administration) jointly sponsored the development of a modular training program entitled "Pesticide Protection" for specialized health professional groups. The strategy of developing and incorporating modules into the training cycle of health professionals has proven to be effective in the view of those associated with the program.
- DHEW (Health Resource Administration) is developing and implementing occupational/environmental training modules at medical schools for primary care physicians, residents, and medical students. In addition, HRA is awarding special initiative project grants to medical schools to support the development of undergraduate curricula in occupational and environmental medicine.
- DOD is extensively involved in providing education and training in environmental health to its personnel. As an example, the Department of the Air Force provides in-depth training in occupational health and environmental pollution to physicians, nurses, and health technicians.
- NIEHS supports nine university-based Environmental Health Sciences Centers. The staffs of these centers, with their highly specialized and closely related research interests, permit a multidisciplinary approach to research and research training in environmental health sciences. These centers have also proven to be especially effective in attracting and training medical and nonmedical pre- and postdoctoral students for research, academic, and medical careers in environmental health sciences and related areas.

### Workshops

Deficiencies exist in the environmental education of the public and of health professionals as a result of inadequate information dissemination and a lack of understanding of the problem. As a result, the Project Group plans to sponsor workshops aimed at promoting a coordinated approach to educating both the public and health professionals.

The first workshop, scheduled for October 15 and 16, 1979, will be held in Washington, D.C. Workshop participants, representing various health

professional organizations, will be asked to identify the needs of health professionals in environmental medicine and to recommend ways in which the Federal Government and these organizations can work together.

Prior to the workshop, each participant will receive a set of documents consisting of background material, workshop objectives and an agenda. This material will preclude extensive introductory sessions. The planned composition of the workshop includes representation from physician, osteopath, nurse, nurse-practitioner, and health scientist communities. These specialties will be divided into working teams so as to allow a more detailed review and documentation of their perception of the needs of health professionals regarding diagnosis and preventive management of environmentally related diseases. The output of each working team will be shared with the entire group to allow for interaction.

The Project Group believes that this workshop will provide not only a clearer understanding of health professional needs regarding environmental education but will lead to recommendations for a coordinated approach to improve education of health professionals in diagnosis and management of environmentally related cancer and heart and lung diseases.

#### EXPOSURE AND METABOLIC MECHANISMS

Currently, information on human exposure to specific environmental factors associated with cancer and heart and lung diseases is limited. There is even less information on how these substances enter the body and are metabolized. An improved understanding of these areas will also provide the

basis for identification and possible use of early indicators of disease. A feasibility report\* reviewed information on the problems of human exposure by examining the production, use pattern, and environmental transport of four industrial pollutants. It described the metabolic processes for each of these pollutants by considering retention, accumulation, and elimination of these chemicals from the human body. The report identified areas in which information is inadequate and where more research is needed. Specific recommendations were made for each of the four chemicals. The ability to make these recommendations strongly suggested that the approach taken in the feasibility study has a utility for the Task Force. The recommendations of the feasibility report appear in Appendix E.

In reviewing the feasibility report the Task Force recognized that the area of exposure and metabolic mechanisms is important to their responsibilities, and may provide a basis in the future for the identification and use of early indicators of diseases. It recognized that many Task Force agencies are involved in research related to pollutant exposure and metabolic mechanisms and that an interagency approach is desirable.

Therefore, in May 1979, the Task Force established a Project Group on Exposure and Metabolic Mechanisms. The Project Group will identify research needs in the area of exposure and metabolic mechanisms and to propose research strategies to address these needs. The detailed description of the charge appears in Chapter 3.

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\* Piver, W. T., W. Jurgelski, T. Damstra, H. L. Falk, and J. Bernheim. "Exposure and Metabolic Mechanisms of Four Important Industrial Pollutants: Benzene, Toluene, Carbon Disulfide and Methylene Chloride." Prepared for the Task Force on Environmental Cancer and Heart and Lung Disease. NIEHS, Research Triangle Park, NC. December 1978.

## INFORMATION EXCHANGE

Information exchange has been an integral part of the Task Force activities since its establishment. A unified, comprehensive, Federal strategy for dealing with environmental health hazards necessitates the exchange of information concerning research results and regulatory decisions. To more fully utilize information currently available within the Federal Government, the Task Force decided to collect, classify, and disseminate information on the numerous coordinating committees and conferences sponsored by the Government. The Task Force also agreed to review information bases with an initial emphasis on those which are relevant to the three Project Groups.

### Interagency Committees

Many interagency committees and groups within the Federal Government address various aspects of environmentally related disease, ranging from causes of environmental diseases to regulatory action. A directory of such committees is being completed; a summary appears in Table 1.

Two criteria are used to select committees for inclusion in the directory: the committee should be comprised of representatives from two or more Federal agencies, and the committee's mandate should be in the area of environmental health. For each committee, the following information is being compiled and will be periodically updated:

- Title
- Roster of principal (lead) agency members
- Name of Chairman
- Name and telephone number of the Executive Secretary or principal contact

Table 1. Interagency Committees of Relevance to Task Force Work

Committee Name	Authority	Reports to	Chairperson	Information Contact	Members*
Chemical Selection Working Group	Memorandum Agreement to Establish an NCI Working Group	Director of NCI	Herman Kraybill, NCI	A. F. Douglas, NCI (301-496-5591)	NCI, NIEHS, FDA, EPA, NLM, USDA, DOL, CPSC, NIOSH, CDC, DOE, U.S. Army
Purpose is to make selection and recommendations of chemicals for consideration in the bioassay carcinogen testing program.					
Committee on Health and Medicine of the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET)	Subsection 401(b) of the National Science and Technology Policy, Organization and Priorities Act of 1976	Chairperson of FCCSET	Donald S. Fredrickson, NIH	Joseph G. Perlch, NIH (301-496-3152)	NIH, USDA, DOC, DOD, FDA, HCFA, DOE, EPA, EOP, DOL, NASA, NSF, DOS, VA, DHEW
Purpose is to increase the overall effectiveness and productivity of Federal R&D efforts in health and medicine by: (1) addressing interagency issues relating to major national problems concerned with health and medicine; (2) reviewing Federal policies related to biomedical research, health care, and health promotion; (3) facilitating cooperation and coordination among Federal programs and activities relating to health and medicine; and (4) providing reviews, analyses, advice and recommendations to the Chairperson of the FCCSET on Federal policies and programs concerned with health and medicine.					
DHEW Committee to Coordinate Environmental and Related Programs (CCERP)	Directive from DHEW Assistant Secretary for Health, May 1979	DHEW Assistant Secretary for Health	David P. Rall, NIEHS	Raymond E. Shapiro, NIEHS (919-541-3506)	NIEHS, CDC, DHEW, FDA, NCI, NCTR, NIGMS, NIOSH, CEQ, CPSC, EPA, DOE, NSF, NLM, NIH, NIEHS, NIA, NICHD, NHLBI, NINCDS, LOC, NOAA, USDA
Purposes are: (1) to provide a means for interagency information exchange on toxicology and related programs; (2) to coordinate these programs; (3) to enhance the interagency sharing of certain kinds of resources; and (4) to provide advice to DHEW on toxicological issues.					
CCERP Subcommittee on Environmental Mutagenesis	Directive from DHEW Assistant Secretary for Health, May 1979	Executive Secretary of CCERP	Fredrick J. de Serres, NIEHS	Michael Shelby, NIEHS (919-541-3492)	NIEHS, FDA, NCI, NCTR, NICHD, NIGMS, NIH, NLM, CDC, CPSC, DOD, EPA
Purposes are: (1) to define problem areas in environmental mutagenesis; (2) to foster complementary and nonoverlapping programs of research in environmental mutagenesis; (3) to propose mechanisms for effective action to stimulate research and development in important problem areas; (4) to provide a forum for information exchange; and (5) to advise on the utility of new approaches and protocols for mutagenicity testing.					
CCERP Laboratory Chemical Carcinogen Safety Standards (LCCSS) Subcommittee	Directive from DHEW Assistant Secretary for Health, May 1979	Executive Secretary of CCERP	W. Emmett Barkley, NCI	Thomas Wilkenson, NIH (301-496-3261)	NCI, EPA, NIEHS, NCTR, FDA, DHEW, NIOSH, CDC, NIH
Purposes are: (1) to identify specific chemical carcinogens that are used in DHEW laboratories; (2) to review individual Carcinogen Safety Monographs for completeness and accuracy; and (3) to transmit completed Carcinogen Safety Monographs to the Committee to Coordinate Environmental and Related Programs for submission to the Office of Safety, DHEW.					
CCERP Toxicology Information Subcommittee (TIS)	Directive from DHEW Director of Office of Special Health Projects, May 1979	Executive Secretary of CCERP and DHEW Assistant Secretary for Health	Henry M. Kissman, NLM	Henry M. Kissman, NLM (301-496-3147)	NLM, CDC, FDA, NCI, NCTR, NIEHS, NIGMS, NIMH, NIOSH, CPSC, EPA, DOE, DOI
Purpose is the collection, storage, and dissemination of appropriate information on toxicologic and related activities, concentrating in two areas: (1) creation and maintenance of new toxicology information services important to the health and environmental agencies in the government and to the scientific community; and (2) establishment of communication channels through which the participating agencies can keep each other informed about ongoing information activities in toxicology and related fields.					

\* See page iv for a list of abbreviations of agencies and organizations.

(Continued)

Table 1. Interagency Committees of Relevance to Task Force Work (Continued)

Committee Name	Authority	Reports to	Chairperson	Information Contact	Members*
CCERP Subcommittee to Coordinate Polybrominated Biphenyls within the PHS	Directive from DHEW Assistant Secretary for Health, May 1979	Executive Secretary of CCERP	Clark Heath, CDC	Clark Heath, CDC (404-329-3961)	CDC, NIOSH, NIEHS, FDA, NCI, NIAMDD, NINCDs, NICHD, NIAID, HSA, EPA, USDA, OSHA
Purposes are: (1) to provide national focus for Federal efforts on the PBB problem; (2) to provide a means for coordination between the lead agencies responsible for generating scientific information needed to understand and evaluate effects reported in exposed individuals; (3) to provide an overview of the operational aspects of each area of research; and (4) to determine what addition areas of research may have to be explored and to recommend necessary action to the Assistant Secretary for Health through the Chairman, CCERP.					
CCERP Subcommittee to Coordinate Asbestos/"Asbestiform" Research within the PHS	Directive from DHEW Assistant Secretary for Health, May 1979	Executive Secretary of CCERP	Raymond Shapiro, NIEHS	Raymond Shapiro, NIEHS (919-541-4506)	DOI, EPA, FDA, DOL, NIH, CDC, NIOSH, NCI, CPSC, NIAMDD, NHLBI, OSHA, HUD
Purposes are: (1) to identify means by which interagency cooperation can be furthered within the Public Health Service concerning research into the health effects of asbestos; and (2) coordinate interagency investigations of such effects.					
Executive Committee of the National Toxicology Program (NTP)	Directive from DHEW Secretary for Health, Nov. 15, 1978	Secretary of Health	Eula Bingham, OSHA	Eula Bingham, OSHA (202-523-9362)	NIEHS, FDA, OSHA, CPSC, EPA, NIOSH, NIH, NCI, NCTR
Purposes are: (1) to strengthen HEW's activities in the testing of chemicals of public health concern; and (2) to promote the development and validation of new and better integrated test methods.					
Federal Interagency Committee on Education's Subcommittee on Environmental Education	Executive Order No. 11761, Jan. 21, 1974	Secretary of DHEW	Walter Jeske, USDA	William Oliveri, DHEW (202-245-8220)	USDA, DOC, DOD, CEQ, DOE, DHEW, ADAMHA, NIH, HUD, DOI, DOS, EPA, NASA, NSF, SI, OASH and others
Purpose is to: (1) identify the needs and objectives of Federal programs in environmental education; (2) provide advice and recommendations on Federal educational policies and program planning activities; (3) improve coordination, cooperation, and information exchange among agencies; and (4) act as a linkage and exchange mechanism among Federal groups in environmental education.					
Federal Interagency Committee on the Health and Environmental Effects of Energy Technologies	President's Environmental Message of May 23, 1977	The President	Not Designated	Richard D. Brown Mitre Corp. (703-827-6217)	EPA, DOE, HEW/NIOSH, HEW/NIEHS
Purpose is to review and identify specific health and environmental issues and potential problems associated with the development and commercialization of conventional and advanced energy technologies, to identify the research information required to resolve the uncertainties of assessing relevant impacts, and to specify potential future research prospects to provide such information.					
Interagency Collaborative Group on Environmental Carcinogens (ICGEC)	National Cancer Act of 1971	Scientific Coordinator for Environmental Cancer of NCI	Herman Kraybill, NCI	Inge Blackwood, NCI (301-496-1625)	NCI, FDA, EPA, NIOSH, NIH, CPSC, USDA, DOC, DOD, DOE, DHEW, CDC, NCHS, NIEHS, NLM, DOI, DOL, DOS, DOT, NASA, NOAA, NSF, SI
Purpose is to establish a forum to provide for the coordination of information exchange among Federal agencies concerned with environmental health and environmental carcinogens issues.					

\* See page iv for a list of abbreviations of agencies and organizations.

(Continued)



Table 1. Interagency Committees and Relevance to Task Force Work (Continued)

Committee Name	Authority	Reports to	Chairperson	Information Contact	Members*
Interagency Regulatory Liaison Group (IRLG)	Interagency Agreement, October 1977	Congress	Allen Helm, FDA	Susan Guenette, CPSC (202-634-4350)	FDA, CPSC, EPA, OSHA, FSQS
Purpose is to improve the regulation of threats to the public health through interagency sharing of information avoiding duplication of effort, and developing consistent regulatory policies. Eight working groups foster these overall objectives in the areas of: (1) compliance and enforcement; (2) education and communications; (3) epidemiology; (4) information exchange; (5) regulatory development; (6) research planning; (7) risk assessment; and (8) testing standards and guidelines.					
Interagency Task Force on Environmental Data and Monitoring	The President's Environmental Message of May 23, 1977	The President	John D. Bussington, CEQ	John D. Bussington, CEQ (202-395-5760)	CEQ, USDA, NRC, DOI, DOE, EPA, HUD, DHEW, NOAA
Purposes are to review present environmental monitoring and data programs, and to recommend improvements that would make these programs more effective.					
Interagency Technical Committee on Heart, Blood Vessel, Lung and Blood Diseases and Blood Resources	Section 416 of Pub. Law 92-423, The Public Health Service Act	Secretary of Health	Robert Levy, NHLBI	Daniel Rubin, NHLBI (301-496-5031)	DHEW, NIMH, USDA, VA, NSF, SSA, HRA, DOE, HSA, NIH, DOT, CDC, EPA, NASA, FDA
Purpose is to coordinate aspects of all Federal health programs and activities related to heart, blood vessel, lung and blood diseases and blood resources to assure the adequacy and technical soundness of all programs; and to provide full communication and information exchange for maintaining adequate coordination of such activities.					
Interagency Toxic Substances Data Committee (ITSDC)	Sect. 10(b)(1) and 25(b) of Pub. Law 94-469, The Toxic Substances Control Act	Administrator of EPA and Chairman of CEQ	Marilyn C. Bracken, EPA Carol L. Bastian, CEQ	Roger M. Connor, EPA (202-755-9336)	EPA, CEQ, OSHA, DOT, DOC, NIEHS, OSTP, CPSC, ACDA, FDA, ITC, DOE, NLM, NIOSH, DOI, NCHS, NIH, NCI, DHEW, NAVY/DOD
Purpose is to design, establish, and coordinate an efficient and effective system within the Environmental Protection Agency for the collection, dissemination to other Federal departments and agencies, and use of data submitted to the Administrator, EPA, under the Toxic Substances Control Act.					
ITSDC Chemical Substances Information Network Subcommittee	Chairman of ITSDC	Chairman of ITSDC	Sidney Siegel, EPA	Roger M. Connor, EPA (202-755-9336)	EPA, CEQ, OSHA, DOT, DOC, NIEHS, OSTP, CPSC, ACDA, FDA, ITC, DOE, NLM, NIOSH, DOI, NCHS, NIH, NCI, DHEW, NAVY/DOD
Purpose is to develop and coordinate a network of online information systems to: (1) identify chemical information on substances' composition, structure, nomenclature; (2) access bibliographic abstracts of published materials on chemical substances; (3) track information on government regulatory activity; (4) make available information on laboratory experiments; (5) provide data on production and uses of chemicals.					
PHS Health Statistics Coordinating Committee's Environmental Health Statistics Subcommittee	Public Law 95-623, The Health Statistics and Health Care Technology Act of 1978	PHS Committee	Paul E. Leaverton, NCHS	Jeffery Perlman, NCHS (301-436-7135)	FDA, ADAMHA, HRA, HSA, NIOSH, CDC, NIH, NCI, NCHS, NIEHS, NHLBI, OASH
Purpose is to collect and coordinate statistical and epidemiological data from PHS agencies on the effects of the environment on health and to study the feasibility of linking PHS agency data bases.					

\* See page iv for a list of abbreviations of agencies and organizations.

(Continued)

Table 1. Interagency Committees of Relevance to Task Force Work (Concluded)

Committee Name	Authority	Reports to	Chairperson	Information Contact	Members*
Task Force on Environmental Cancer and Heart and Lung Disease	Sect. 402 of Pub. Law 95-95. The Clean Air Act Amendments of 1977; and Section 9 of Pub. Law 95-623, Health Statistics and Health Care Technology Act of 1978	Congress	Douglas M. Costle, EPA	George R. Simon, EPA (202-426-2275)	EPA, NCI, NHLBI, NIOSH, NIEHS, CDC, NCHS, FDA
Purpose is to (1) recommend a comprehensive research program to quantify the relationship between environmental pollution and human cancer and heart and lung diseases, (2) recommend strategies to eliminate the risks of cancer or such other diseases, (3) recommend research and other measures to prevent or reduce the incidence of these environmentally related diseases, (4) coordinate and stimulate cooperation between EPA, HEW, and other Federal agencies, and (5) report to Congress on the problems and progress of the Task Force.					
Toxic Substances Strategy Committee	The President's Environmental Message of May 23, 1977	The President	Gus Speth, CEQ	Nathan J. Karch, CEQ (202-395-4980)	CEQ, USDA, DOC, CPSC, EPA, DOE, DHEW, FDA, NCI, NIEHS, NIOSH, DOI, NSF, OSHA, DOT, DOS, NRC
Purpose is to develop a coherent Federal approach for (1) eliminating overlaps and filling gaps in the collection of data on toxic chemicals; and (2) coordinating Federal research and regulatory activities affecting the collection of such data.					
TSCA Interagency Testing Committee	Sec. 4(e) Pub. Law 91-469, The Toxic Substances Control Act	Administrator of EPA	Carter Schuth, NSF	Walter Rosen, EPA (202-755-4891)	NSF, EPA, CEQ, DOC, NCI, NIEHS, OSHA, CPSC, DOD, DOI, FDA
Purpose is to make recommendations to the Administrator, Environmental Protection Agency, concerning chemical substances to be given priority consideration for test rules under Section 4 of the Toxic Substances Control Act.					

\* See page iv for a list of abbreviations of agencies and organizations.

- Charter, authority or justification for committee existence
- Purpose and responsibilities
- Major activities, accomplishments and products
- Schedule of meetings
- Information on operating funds, when available.

### Calendar of Events

Conferences and workshops serve as important tools for the exchange of information. A calendar designed to provide a synopsis of meetings, symposia, conferences, seminars, courses and workshops related to environmental cancer and heart and lung diseases is being issued monthly by the Task Force. The purpose of this calendar is to keep Federal agencies informed of when and where these events are being held and how to obtain more detailed information on them.

### Information Bases

#### Data Bases on Federal Research Programs

Initial information on programmatic data bases used for program planning and related activities was compiled during the past year. A summary of these data bases, including the type and extent of information available, is presented in Table 2. Data bases listed here describe scope, schedule, staff and funding of ongoing federally sponsored programs. Efforts to assess information on future research plans were also initiated during the past year, but the feasibility of obtaining and disseminating such information has not yet been fully explored.

Table 2. Data Bases on Federal Research Programs

Agency	Contact/Title	Name of Data Base	Information Provided by Data Base													Key Word System Used	Frequency of Update	Interface with Other Data Bases	Information to SSIE/NTIS	Online Printouts
			Principal Investigator	Performing Agency	Project Type	Dept./Spec.	Total Funds	Funds Expended by FY	Future Funds Committed	Personnel Cost	Personnel by GS Level	Equipment and Supplier	Facilities	Milestones	Symposia, etc.					
EPA	A. Pines Chief of ORDIS	ORDIS	X	X	X	X	X	X	X	X	+	X	X	X	+	Inhouse & SSIE	Daily for FY 79	No	Yes	Limited
NCI	H. Canter, Chief Research Analysis Branch	GENIUS	X	X	X	X	+	+	+	+	+	+	+	X	X	Inhouse & KWIC	Annual or on Renewal	No	Yes	Yes
	J. Schneider Director, International Cancer Research Data Bank	CANCERPROJ (CANCERLINE)	X	X	X	X	X	X	X	-	-	-	-	-	-	Free Text & hierarchical classification	Quarterly	MEDLARS SSIE	Yes	Yes
NHLBI	D. Saunders MIS Coordinator	Modified IMPAC*, * CRISP* & GMF	X	X	X	X	X	X	X	X	X	X	X	-	-	None	Annual or on Renewal	No	Yes via IMPAC	Yes
			X	X		X	-	X	-	-	-	X	X	X	-					
NIOSH	J. Bainbridge Chief, Program Planning and Evaluation Branch	NIOSH TIC	X	X	X	X	X	X	X	X	X	X	X	X	X	Inhouse	Monthly	MEDLARS TOXLINE	Yes	Yes
NIEHS	T. Clemmer Biometry Branch	IMPAC* CRISP*	X X	X X	X X	X X	X -	X X	X -	X -	X -	X X	X X	- X	- -	Inhouse	Monthly	SSIE	Yes	Limited
CDC	S. Von Allmen Bureau of Epidemiology	PEDS	X	X	X	X	X	X	X	X	X	-	-	X	-	Inhouse	Quarterly	No	No	In FY 79
FDA	B. Bell, Head Management Systems & Policy	IMPAC* CRISP*	X X	X X	X X	X X	X -	X X	X -	X -	X -	X X	X X	- X	- -	Inhouse	Monthly	MEDLARS TOXLINE	Yes	Limited

\* Systems of the Division of Resource Grants, NIH.

X Available.

+ Supplied by tape from a financials branch.

- Not available.

### Environmental Health Data Bases

During this past year, the Task Force worked with NCHS in its development of a plan for the collection and coordination of statistical and epidemiological data on effects of the environment on health. The plan is to be submitted to Congress by DHEW by January 1980 in accordance with Public Law 95-623. Task Force members provided assistance to NCHS in evaluating gaps and deficiencies in current environmental health data and in developing a comprehensive plan for the collection and coordination of statistical and epidemiological effects of environment on health. Task Force members and staff also worked with NCHS in its presentation of a workshop in May 1979, where professionals from government and private sectors reviewed work in progress and made recommendations.

### RISK ASSESSMENT

Assessment of the risk related to adverse effects of environmental agents on human populations has a central role in the development of strategies to protect public health. As such, it is of major importance to the Task Force. Recognizing that the Interagency Regulatory Liaison Group (IRLG) had ongoing activity in this area, a representative from the IRLG work group on Risk Assessment was invited to brief the Task Force.\* Subsequent to this briefing, the Task Force has been reviewing a report\*\* by the IRLG Work Group on Risk Assessment. The specific conclusions of the IRLG Work Group, in addition to

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\* Presentation by Dr. Elizabeth Anderson of EPA on activities of the IRLG Risk Assessment Working Group at the Task Force Working Group meeting, November 3, 1978.

\*\* Interagency Regulatory Liaison Group. Scientific Bases for Identifying Potential Carcinogens and Estimating Their Risks. February 7, 1979.

the positions taken by the various IRLG agencies in response to the issuance of this report, have been relevant to the Task Force's concerns. It intends to closely coordinate its activities with work being done by IRLG, the National Toxicology Program, and others in this field.

#### FUNDING OF FEDERAL EFFORTS

For identifying and classifying the levels of funding, the Task Force examined the broad scope of relevant ongoing and planned research programs and projects of its member agencies. A scheme was developed for classifying and quantifying Federal activities directed toward the reduction of risk of disease under 15 categories. These are listed as follows:

##### Quantification of Relationships Between Environmental Pollution and Disease

1. Determination of biological effects and dose-response relationships
2. Understanding mechanism or mode of biological effects
3. Identification and monitoring of environmental pollutants
4. Identification and analysis of sources
5. Environmental transport and transformation analysis
6. Development of sampling, analytic and monitoring methods
7. Collection of health statistics
8. Human exposure estimation
9. Establishment of cause-and-effect association
10. Population risk assessment

### Reduction of Risk and Incidence

11. Estimation of costs of environmentally related illness
12. Estimation of costs of control and prevention
13. Preventive health measures
14. Education of the public and of health professionals
15. Pollutant-control measures.

A description of the type of activity included under each of these categories appears in Appendix F. This appendix also includes detailed tables of the expenditures of each agency\* for fiscal years 1978, 1979 and 1980. A table summarizing expenditures of Task Force agencies for 1978 by the 15-category classification scheme is given in Table 3.

The seven agencies spent a total of approximately \$270 million in 1978 on research and strategy planning relevant to Task Force objectives. A summary of the distribution of these expenditures by agency and disease appears in Table 4.

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\* Due to its observer status, the Food and Drug Administration was not included.



Table 3. 1978 Summary of Funds by Categories for the Task Force Agencies (in thousands of dollars)

Category	Cancer	Heart Disease	Lung Disease	Nonspecific (includes cancer, heart and lung)	Total
1. Determination of Biological Effects and Dose-Response Relationships	22,332	1,185	5,228	3,046	31,791
2. Understanding Mechanisms or Mode of Biological Effects	49,234	1,885	7,671	2,477	61,267
3. Identification and Monitoring of Environmental Pollutants	5,761	73	857	7,990	14,681
4. Identification and Analysis of Sources	1,076	103	2,602	14,067	17,848
5. Environmental Transport and Transformation Analysis	554	75	700	7,282	8,611
6. Sampling, Analytic and Monitoring Methods	2,773	389	3,231	15,313	21,706
7. Collection of Health Statistics	10,675		586	3,793	15,053
8. Human Exposure Estimation	2,097	141	1,325	2,570	6,133
9. Establishment of Cause-and-Effect Association	10,723	271	4,238	1,749	16,981
10. Population Risk Assessment	4,548	420	2,069	6,845	13,882
11. Estimation of Costs of Environmentally Related Illness			10	12	22
12. Estimation of Costs of Control and Prevention	55		15	2,641	2,711
13. Preventive Health Measures	1,774	172	3,198	13,739	18,883
14. Education of the Public and of Health Professionals	3,303		34	8,913	12,250
15. Pollutant-Control Measures	424		6,568	21,087	28,079
TOTAL	115,329	4,714	38,332	111,523	269,898

Table 4. 1978 Summary of Funds by Task Force Agencies (in thousands of dollars)

Disease	Agency							Total
	EPA	NCI	NHLBI	NIOSH	NIEHS	CDC	NCHS	
Cancer	12,678	85,837		6,458	10,356			115,329
Heart	1,348		443	227	2,696			4,714
Lung	16,946		3,852	8,832	8,702			38,332
Nonspecific (Cancer, Heart, Lung)	79,059			25,018	4,178	268	3,000	111,523
Total	110,031	85,837	4,295	40,535	25,932	268	3,000	269,898

Chapter 3  
TASK FORCE PLANS

## Chapter 3

### TASK FORCE PLANS

#### THE APPROACH TO STRATEGY DEVELOPMENT

The development of strategies to protect public health consists of identification and selection of measures to reduce the risks of environmentally related cancer and heart and lung diseases. The development and recommendation of these strategies is the major responsibility of the Task Force. This was the significance of placing strategies to protect public health at the apex of the pyramidal structure of six areas of special concern.

The selection of specific approaches for reduction of risk requires an assessment of health risks in the light of benefits, costs and feasibility of potential measures. In this context, research efforts directed toward a better understanding of environmental disease relationships have their principal utility as support for the assessment of health risk and the selection of measures for risk reduction. These concepts are expressed schematically in Figure 1.

The real process of selecting strategies to protect the public health does not follow so simple and sequential a course. Available scientific information does not permit full determination and quantification of the relationships between environmental pollution and most diseases. Results of research now underway to improve our knowledge will become available only in future years.

The selection of strategies to protect public health is an ongoing process and must necessarily proceed on the basis of partial knowledge. The

implementation of protective measures cannot wait for full knowledge of disease risks; these measures will be modified and reevaluated as new information is developed.

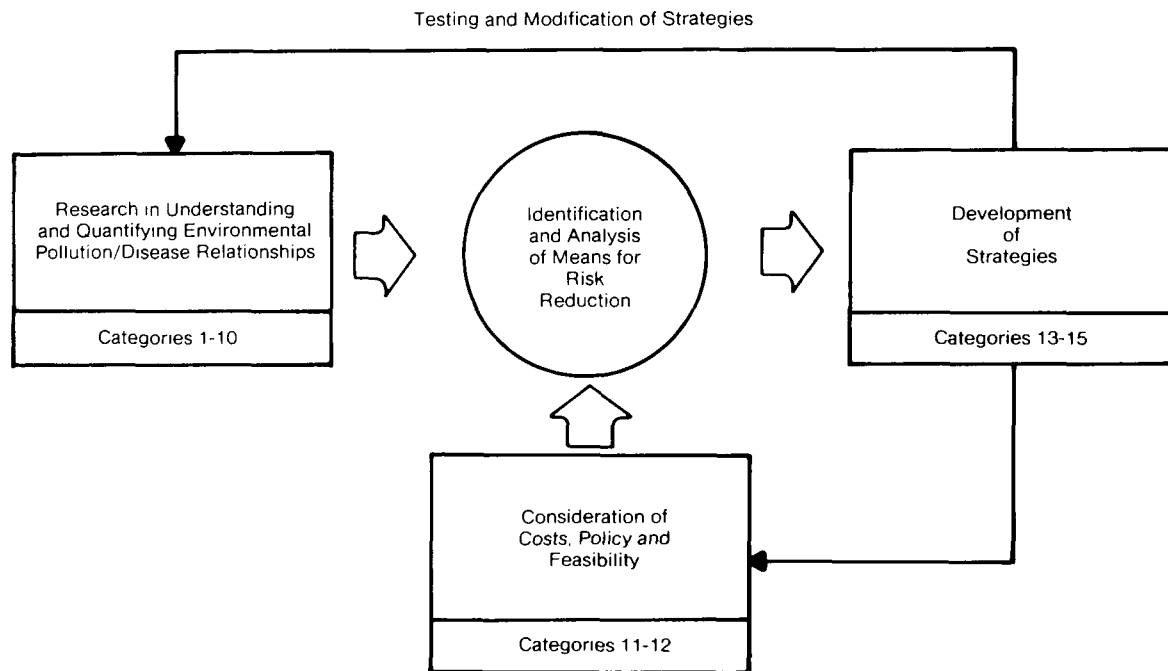


Figure 1 Elements of Development of Strategies to Reduce Risks of Environmental Disease

Task Force actions described in Chapters 1 and 2 are elements that lead to a coherent approach to the development of comprehensive strategies. This approach began with an initial assessment of the problems to be addressed by the Task Force. Other early aspects of the approach included delineation of objectives to be attained through interagency efforts, and development of Task Force roles and capabilities.

To attain its goal, the Task Force is moving forward in three parallel lines of activity:

- Development of information exchange among Task Force agencies

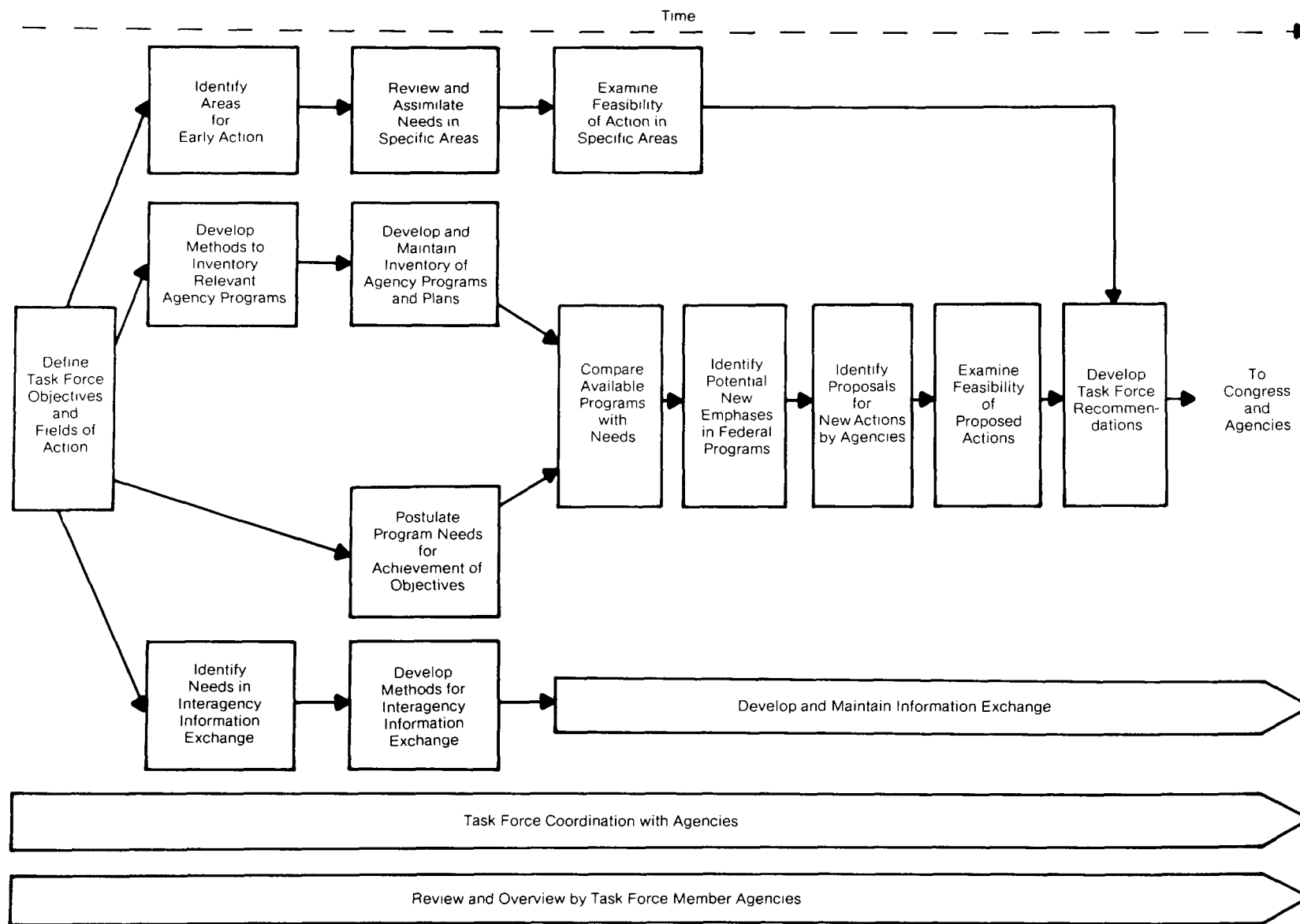
- Concerted agency actions to describe existing agency programs relevant to Task Force objectives
- Development of Task Force initiatives for action in significant problem areas.

Actions planned in these specific areas for the next year are described in some detail beginning on page 31. In subsequent years, the Task Force will address the following additional major steps:

- Build upon the initial inventory of Federal programs, and upon the statement of Task Force objectives, to identify areas needing further knowledge of pollutant/disease risks and means that can be useful in reduction of risks.
- Compare these needs with the inventory of the present programs and their anticipated outcomes, in order to identify potential gaps and overlaps in existing and planned programs. The Task Force will describe options which would improve prospects for environmental disease risk reduction.
- Analyze these options in the light of risks, costs, benefits and public policy, to identify the most effective choices for new Federal initiatives. Recommendations for the implementation of these options will be made to Congress and to the agencies.

These actions, requiring several years for their performance, will complete the formal approach being taken by the Task Force for the carrying out of its mandate in Section 402 of Public Law 95-95.

The main steps of this approach are shown schematically in Figure 2. Time flows from left to right in this diagram and several years are represented. The actions undertaken in each box of this diagram are continuing processes; no specific calendar dates can be assigned to them. The resulting recommendations for a comprehensive research program and for risk-reduction strategies will be completed as rapidly as the identification and analysis of alternative options will permit.



## ACTIONS FOR THE NEXT YEAR

During the year which begins in August 1979, the Task Force will move forward in its approach to strategy development with special attention to information exchange, concerted agency efforts to inventory existing programs, and action in significant special problem areas. The planned activities in these areas are described in the following.

### Information Exchange

Numerous other Government groups are working with separate mandates and missions on aspects of the general problem of understanding and reducing the risks of environmental disease. The accomplishments and objectives of these groups are relevant to Task Force strategy planning. Information relevant to Task Force objectives must be exchanged within the Task Force member agencies and with these other groups. To further these aims during the next year the Task Force will:

- Publish a directory of interagency groups concerned with environmentally related disease and periodically update the directory.
- Continue to issue a monthly calendar of meetings, conferences, and workshops of interest to the Task Force.
- Review information bases relating to the following areas and conduct feasibility studies on:
  - Plans, goals and schedules for current research activities of the Task Force agencies
  - Plans, goals and schedules for future research activities of the Task Force agencies
  - Areas of expertise of researchers and scientists
  - Specialized research facilities and capabilities of laboratories



- Results of selected relevant research projects
- Environmental health data bases.
- Review the work of the National Academy of Sciences Institute of Medicine and the Department of Health, Education, and Welfare resulting from their jointly sponsored 1978 conference on Health Promotion and Disease Prevention, now the subject of a forthcoming report and recommendations from the Office of the Assistant Secretary for Health.
- Expand its awareness of the activities of, and exchange information with, such other interagency groups and programs in the environmental health field as the Interagency Regulatory Liaison Group and the National Toxicology Program.

#### Concerted Agency Efforts in Program Inventory

The Task Force will develop a descriptive inventory of ongoing agency programs in the area of environmentally related cancer and heart and lung diseases. The programs to be included in this inventory are those which have been defined in terms of funding in the 15 categories.\* The following suggests one approach that has been considered by the Task Force, which it will refine and revise as necessary.

Each agency will provide for major agency organizational units at the program and subprogram levels, information about:

- Objectives and mandated responsibilities
- Activities
- Resources applied
- Research and resource needs.

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\* See Appendix F for category definitions.

The information will be obtained in response to a questionnaire to be developed by the Task Force Working Group. Information concerning each major unit will be assembled within the agency by its Task Force representatives and other senior staff.

The assembly of this information in a common frame of reference presents a challenge. Each agency has its own independent mandates and philosophy. Each approaches the Task Force mandate from its special point of view. The programs resulting from these varied points of view must be brought together in a common approach without losing the values, insights and independence of thinking which each agency brings to the effort.

In order that each agency has the opportunity to present its program in a manner appropriate to its own mandate and research orientation, each agency organization unit will be asked to consider aspects of its mission and program in a matrix such as that of Figure 3.

	A	B	C	D
	Class of Substances	Route of Exposure	Population Group at Risk	Disease Endpoints
Elements of Research for Quantification of Relation- ships and Risk				
Elements of Development of Strategies to Reduce Risk				

Figure 3. Program Information Collection Matrix

The rows of this matrix could be some or all of the 15 categories of research and strategy development. The columns represent four principal ways of addressing the problems of environmental disease. Agencies differ substantially in their orientation to these problems. For example, much of EPA's work is concerned primarily with the control and behavior of pollutants; planners and researchers in such work approach their problems in terms of Columns A and B of this matrix, but there are also groups within EPA whose concerns address primarily population groups in Column C. NIOSH, primarily concerned with worker health, orients much of its work to populations at risk, Column C. The environmental aspects of NHLBI programs are oriented strongly toward disease etiology as seen from the viewpoint of Column D. The matrix thus recognizes that there are important differences in agency approaches to a common problem, and provides a context in which each agency or entity can be encouraged to describe its work in terms most appropriate to its viewpoint.

After each agency has described its program, the Task Force will assemble the results in a common format to produce an initial inventory of relevant ongoing, planned and needed actions as described by Task Force representatives from the member agencies. This initial inventory will provide the first systematic picture of agency efforts at a level of detail adequate to permit its use in approaches to a general coordination and development of strategies. Subsequent refinement and maintenance of this inventory will become a continuing Task Force action in the future.

## Actions in Special Problem Areas

The Task Force plans the following actions in the coming year:

### Standardization of Measurements and Tests

- Continue to identify and maintain liaison with other Federal committees having relevant missions.
- Continue to collect and review documents and other materials on standardization; distribute key material for interagency review and potential use.
- Synthesize this information to assess current efforts and to identify areas which require greater emphasis on standardization.
- Explore applications of quality control and assurance in improving data intercomparability.
- Identify interagency approaches to address the above areas.
- Report to the Task Force on findings and recommendations.

### Education of the Public and of Health Professionals

- Organize and conduct workshops to identify and assess the needs of health professionals in environmental education
- Continue to collect and review information on relevant education programs
- Examine program contents and determine areas in consultation with health professionals where additional emphasis may be needed
- Analyze feasibility and effectiveness of various approaches for reaching different audiences
- Evaluate results of the workshops and other activities and prepare recommendations for review by the Task Force.

### Exposure and Metabolic Mechanisms

- Describe the importance and utility of this area with reference to the Task Force's responsibility and concerns.
- Identify other committees and groups which are actively working in this and associated areas, and initiate and maintain liaison with such groups.
- Review the approach of the feasibility report, earlier submitted to the Task Force, to determine if it is appropriate and optimum for determining research needs, especially considering
  - The feasibility of using this approach on a chemical-by-chemical basis
  - The feasibility of grouping chemicals
  - The ranking of chemicals or their groups in order of priorities.
- Develop and recommend preliminary research strategies and interagency approaches to address the research needs.

### Risk Assessment

- Continue to review and assimilate information on risk assessment developed by various organizations and interagency groups such as the Office of Science and Technology Policy, the National Academy of Sciences Board of Toxicology and Environmental Health Hazards, the Interagency Regulatory Liaison Group, and the National Toxicology Program.
- Evaluate the relevance of this work to the Task Force's mandate, recognizing that much of the prior work deals with risk assessment in the setting of specific standards for establishing permissible levels of toxic substances, especially carcinogenic substances.
- Consider the need for new approaches in risk assessment for the less-studied areas of environmentally related heart and lung diseases.

- Consider alternative approaches to risk assessment for their potential utility in the development of broad strategies to protect public health.
- Consider ways of sequentially using risk assessment and benefit-cost analysis of environmental disease control measures in development of strategies.

#### Development of Recommendations

The Task Force has not yet made any formal recommendation to the Congress or to the agencies under its mandate of Section 402 of Public Law 95-95. The preparation of a groundwork for the development of a consensus of approach has been the major thrusts of work to date. The Task Force is very cognizant of the need to make recommendations within the framework of its activities and is addressing its efforts in both general and special action areas toward that end.

## Appendix A

PERTINENT SECTIONS OF PUBLIC LAWS 95-95 AND 95-623

## Appendix A

### PERTINENT SECTIONS OF PUBLIC LAWS 95-95 AND 95-623

#### PUBLIC LAW 95-95

#### Clean Air Act Amendments of 1977

##### "INTERAGENCY COOPERATION ON PREVENTION OF ENVIRONMENTAL CANCER AND HEART AND LUNG DISEASE

Sec 402.(a) Not later than three months after the date of enactment of this section, there shall be established a Task Force on Environmental Cancer and Heart and Lung Disease (hereinafter referred to as the 'Task Force'). The Task Force shall include representatives of the Environmental Protection Agency, the National Cancer Institute, the National Heart, Lung, and Blood Institute, the National Institute [for] Occupational Safety and Health, and the National Institute [of] Environmental Health Sciences, and shall be chaired by the Administrator (or his delegate).

(b) The Task Force shall--

- (1) recommend a comprehensive research program to determine and quantify the relationship between environmental pollution and human cancer and heart and lung disease;
- (2) recommend comprehensive strategies to reduce or eliminate the risks of cancer or such other diseases associated with environmental pollution;
- (3) recommend research and such other measures as may be appropriate to prevent or reduce the incidence of environmentally related cancer and heart and lung diseases;
- (4) coordinate research by, and stimulate cooperation between, the Environmental Protection Agency, the Department of Health, Education, and Welfare, and such other agencies as may be appropriate to prevent environmentally related cancer and heart and lung diseases; and
- (5) report to Congress, not later than one year after the date of enactment of this section and annually thereafter, on the problems and progress in carrying out this section."



Health Services Research, Health Statistics, and Health Care Technology  
Act of 1978

"STUDY OF COSTS OF DISEASES AND ADVERSE EFFECTS ON HUMANS WHICH  
ARE ENVIRONMENTALLY RELATED

Sec. 7. Section 304 (as amended by Section 3(d)) is amended by adding at the end the following:

'(e) (1) The Secretary and the National Academy of Sciences (acting through the Institute of Medicine and other appropriate units) shall, jointly and in cooperation with the Administrator of the Environmental Protection Agency, the Secretary of Labor, the Consumer Product Safety Commission, the Council of Economic Advisers, the Council on Wage and Price Stability, the Council of Environmental Quality, and other entities of the Federal Government which the Secretary determines have the expertise in the subject of the study prescribed by this paragraph, conduct, with funds appropriated under section 308(i) (2), an ongoing study of the present and projected future health costs of pollution and other environmental conditions resulting from human activity (including human activity in any place in the indoor or outdoor environment, including places of employment and residence). In conducting the study, the Secretary and the National Academy of Science (hereinafter in this subsection referred to as the 'Academy') shall, to the extent feasible--

'(A) identify the pollution (and the pollutants responsible for the pollution) and other environmental conditions which are, or may reasonably be anticipated to be, responsible for causing, contributing to, increasing susceptibility to, or aggravating human diseases and adverse effects on humans;

'(B) identify each such disease and adverse effect on humans and specifically determine whether cancer, birth defects, genetic damage, emphysema, asthma, bronchitis, and other respiratory diseases, heart disease, stroke, and mental illness and impairment are such a disease or effect;

'(C) identify (on a national, regional, or other geographical basis) the source or sources of such pollutants and conditions and estimate the portion of each pollutant and the extent of each condition which can be traced to a specific type of source;

'(D) ascertain (i) the extent to which the pollutants and conditions identified under subparagraph (A) are, or may reasonably be anticipated to be, responsible, individually or collectively, for causing, contributing to, increasing susceptibility to, or aggravating the diseases and effects identified under subparagraph (B), and (ii) the effect upon the incidence or severity of specific diseases and effects of individual or collective, as appropriate, incremental reductions in the pollutants and changes in such conditions; and

'(E) quantify (i) the present and projected future health costs of the diseases and effects identified under subparagraph (B), and (ii) the reduction in health costs which would result from each incremental reductions and change referred to in subparagraph (D) (ii).

'(2) The Secretary shall enter into appropriate arrangements with the Academy under which the Secretary shall be responsible for expenses incurred by the Academy in connection with the study prescribed by paragraph (1).

'(3) The first report on the study prescribed by paragraph (10) shall be made to the Committee on Human Resources of the Senate and the Committee on Interstate and Foreign Commerce of the House of Representatives by the Secretary and the Academy not later than eighteen months after the date of the enactment of this subsection. Subsequent reports on the study shall be made by the Secretary and the Academy every two years after the date the first report is submitted. Each report shall (A) identify deficiencies and limitations in the data on the matters considered in the study and recommend actions which may be taken to eliminate such deficiencies and limitations, (b) include such recommendations for legislation as the Secretary determines appropriate, (C) include recommendations for facilitating studies of the effects of hazardous substances on humans, and (D) include a description of any administrative action proposed to be taken by the Secretary, the Administrator of the Environmental Protection Agency, the Secretary of Labor, and the Consumer Product Safety Commission to reduce the costs which have been quantified under paragraph (1) (E) (i). In conducting the study, the Secretary and the Academy shall seek assistance from public and private health financing entities in securing the data needed for the study.

'(4) For purposes of paragraph (1), the term 'health costs of pollution and other environmental conditions' means the costs of human diseases and other adverse effects on humans which pollution and other environmental conditions are, or may reasonably be anticipated to be, responsible for causing, contributing to, increasing susceptibility to, or aggravating, including the costs of preventing such diseases and effects,

the costs of the treatment, cure, convalescence, and rehabilitation of persons afflicted by such diseases, costs reasonably attributable to pain and suffering from such diseases and effects, loss of income and future earnings resulting from such diseases and effects, adverse effects on productivity (and thus increases in production costs and consumer prices) resulting from such diseases and effects, loss of tax revenues resulting from such decreases in earnings and productivity, costs to the welfare and unemployment compensation systems and the programs of health benefits under titles XVIII and XIX of the Social Security Act resulting from such diseases and effects, the overall increases in costs throughout the economy resulting from such diseases and effects, and other related direct and indirect cost."

"INFORMATION ON EFFECTS ON HEALTH OF THE ENVIRONMENT AND  
EMPLOYMENT CONDITIONS

Sec. 8. (a) Section 306 (as amended by section 5) is amended by inserting after subsection (k) the following new subsection:  
'(1) (1) The Secretary, acting through the Center, shall develop a plan for the collection and coordination of statistical and epidemiological data on the effects of the environment on health. Such plan shall include a review of the data now available on health effects, deficiencies in such data, and methods by which existing data deficiencies can be corrected. The Secretary shall submit such plan to the Congress not later than January 1, 1980.

'(2) (A) The Secretary, acting through the Center, shall establish, not later than two years after the date of the enactment of this subsection, guidelines for the collection, compilation, analysis, publication, and distribution of statistics and information necessary for determining the effects of conditions of employment and indoor and outdoor environmental conditions on the public health. Guidelines established under this subparagraph shall not (i) authorize or require the disclosure of any matter described in section 552(b) (6) of title 5, United States Code, and (ii) authorize or require the disclosure of any statistics or other information which is exempt from disclosure pursuant to subsection (a) of section 552 of title 5, United States Code, by reasons of subsection (b) (4) of such section. The guidelines shall be reviewed and, if appropriate, revised at least every three years after the date they are initially established. Guidelines shall take effect on the date of the promulgation of the regulation establishing or revising the guidelines or such later date as may be specified in the guidelines.

- '(B) The guidelines shall be designed-
- '(i) to improve coordination of environmental and health studies, statistics, and information, and to prevent overlap and unnecessary duplication with respect to such studies, statistics, and information;
  - '(ii) to assure that such studies, statistics, and information will be available to executive departments responsible for the administration of laws relating to the protection of the public health and safety or the government;
  - '(iii) to encourage the more effective use by executive departments of such studies, statistics, and information;
  - '(iv) to improve the statistical validity and reliability of such studies, statistics, and information; and
  - '(v) to assure greater responsiveness by the Department of Health, Education, and Welfare and other executive departments in meeting informational and analytical needs for determining the effects of employment and indoor and outdoor environmental conditions on public health.
- '(C) In establishing and revising guidelines under subparagraph (A), the Secretary shall take into consideration the plan developed pursuant to paragraph (1).
- '(D) The Center shall serve as a clearinghouse for statistics and information with respect to which guidelines have been established under subparagraph (A) and shall assist executive departments in obtaining such statistics and information for purposes of administering laws under their jurisdiction relating to environmental health protection or the safety and health of employees.
- '(E) (i) Each executive department shall comply with the substantive and procedural requirements of the guidelines.
- '(ii) The President shall by Executive order require each executive department to comply with requests, made in accordance with the guidelines, by the Secretary, the Administrator of the Environmental Protection Agency, the Consumer Product Safety Commission, or the Secretary of Labor for statistics and information.
- '(iii) The President may by Executive order exempt any executive department from compliance with a requirement of the guidelines respecting specific statistics or other information if the President determines that the exemption is necessary in the interest of national security.
- '(F) In carrying out his duties under this paragraph, the Secretary, acting through the Center, shall insofar as practicable, provide for coordination of his activities with those of other Federal agencies and interagency task forces relating to the collection, analysis, publication, or distribution of statistics and information necessary for determining the effects of conditions of employment and indoor and outdoor environmental conditions on the public health.

'(G) For purposes of this paragraph, the term 'guidelines' means the guidelines, either as initially established or as revised, in effect under this paragraph.

'(3) The Secretary, acting through the Center, shall conduct a study of the issues respecting, and the recommendations for, establishing a Federal system to assist, in a manner designed to avoid invasion of personal privacy, Federal, State, and other entities in locating individuals who have been or may have been exposed to hazardous substances to determine the effect on their health of such exposure and to assist them in obtaining appropriate medical care and treatment. In conducting such study, the Secretary may consult with any public and private entity which it determines has expertise on any matter to be considered in the study. Not later than one year after the date of the enactment of this subsection, the Secretary shall complete the study and report to the Congress the results of the study and any recommendations for legislation or administrative action.

'(4) In carrying out paragraphs (1), (2), and (3), the Secretary shall consult with and take into consideration any recommendations of the Task Force on Environmental Cancer and Heart and Lung Disease, the Administrator of the Environmental Protection Agency, the Secretary of Labor, the Consumer Product Safety Commission, the Council on Environmental Quality, the National Committee on Vital and Health Statistics, and the National Academy of Sciences (including the Institute of Medicine and any other unit of the Academy)."

"(b) The first sentence of subsection (d) of section 308 is amended by inserting after "unless authorized" the following: by guidelines in effect under section 306 (1) (2) or...."

#### "TASK FORCE ON ENVIRONMENTAL CANCER AND HEART AND LUNG DISEASE

Sec. 9. The Director of the National Center for Health Statistics and the head of the Center for Disease Control (or the successor to such entity) shall each serve as members of the Task Force on Environmental Cancer and Heart and Lung Disease established under section 402 of Public Law 95-95."

## Appendix B

MEMBERS OF THE TASK FORCE, WORKING GROUP AND PROJECT GROUPS

## Appendix B

### MEMBERS OF THE TASK FORCE, WORKING GROUP AND PROJECT GROUPS

#### TASK FORCE

<u>EPA</u>	Douglas Costle, Administrator Stephen Gage, Assistant Administrator for Research and Development	Chairman Alternate
<u>NCI</u>	Arthur Upton, Director Herman Kraybill, Scientific Coordinator for Environmental Cancer	
<u>NHLBI</u>	Robert Levy, Director Claude Lenfant, Director, Division of Lung Diseases Manning Feinleib, Associate Director for Epidemiology and Biometry, Division of Heart Diseases	
<u>NIOSH</u>	Anthony Robbins, Director Ralph Yodaiken, Senior Medical Officer, Office of Extramural Coordination and Special Projects (OECSP)	
<u>NIEHS</u>	David Rall, Director Raymond Shapiro, Assistant Director for Toxicology Coordination	
<u>CDC</u>	William Foege, Director Clark Heath, Director, Chronic Disease Division	
<u>NCHS</u>	Dorothy Rice, Director Paul Leaverton, Associate Director for Research	
<u>FDA</u>	Donald Kennedy, Commissioner Joseph Rodericks, Deputy Associate Commissioner for Health Affairs	
<u>EPA</u>	George Simon, Senior Health Science Administrator Health Effects Division	Coordinator

## WORKING GROUP

<u>EPA</u>	George Armstrong, Director, Health Effects Division George Simon, Senior Health Science Administrator, Health Effects Division	Chairman
<u>NCI</u>	Herman Kraybill, Scientific Coordinator for Environmental Cancer John Munn, Assistant to Scientific Coordinator	
<u>NIEHS</u>	Raymond Shapiro, Assistant Director for Toxicology Coordination	
<u>NIOSH</u>	Ralph Yodaiken, Senior Medical Officer, OECSP Jean French, Health Scientist, OECSP	
<u>NHLBI</u>	Claude Lenfant, Director, Division of Lung Diseases Hugh Stamper, Division of Lung Diseases, Interstitial Lung Diseases Branch Sydney Parker Division of Lung Diseases, Prevention, Education and Manpower Branch Manning Feinleib, Associate Director for Epidemiology and Biometry, Division of Heart Diseases Richey Sharrett, Division of Heart Diseases, Epidemiology Branch	
<u>CDC</u>	Clark Heath, Director, Chronic Diseases Division Philip Landrigan, Chief, Special Studies Branch, Chronic Diseases Division	
<u>NCHS</u>	Paul Leaverton, Associate Director for Research Jeffery Perlman, Office of Statistical Research	
<u>FDA</u>	Joseph Rodericks, Deputy Associate Commissioner for Health Affairs Constantine Zervos, Director, Scientific Liaison Staff	



## PROJECT GROUPS

### Education of the Public and of Health Professionals

<u>NIOSH</u>	Ralph Yodaiken, OECSP Paul Pedersen, Division of Training and Manpower Development, Robert A. Taft Laboratories Bernadine Kuchinski, Division of Training and Manpower Development, Robert A. Taft Laboratories	Chairman
<u>EPA</u>	Jack Keeve, Health Effects Division Karen Morehouse, National Workforce Development Staff Mary Averett Seelye, Office of Public Awareness	
<u>NCI</u>	Margaret Sloan, Division of Cancer Control and Rehabilitation	
<u>NIEHS</u>	Wilford Nusser, Associate Director for Extramural Programs	
<u>NCHS</u>	Jeffery Perlman, Office of Statistical Research	
<u>DOL</u>	Edward Bergin, Office of the Assistant Secretary for Policy, Evaluation and Research Quita Mullan, Office of the Assistant Secretary for Policy, Evaluation and Research Earl Heath, Director, Office of Training and Education	
<u>HEW</u>	Max Lum, Health Resources Administration Louis Steinberg, Health Resources Administration William Holland, Health Resources Administration Helen Nowlis, Director of Alcohol and Drug Abuse Education Program, Office of Education	

### Standardization of Measurements and Tests

<u>EPA</u>	Robert Medz, Monitoring Technology Division	Chairman
<u>NIAMDD</u>	Cyrus Creveling, Laboratory of Biorganic Chemistry	
<u>NCI</u>	Robert Hoover, Environmental Epidemiology Branch Gerald Ward, Tumor Pathology Branch Cipriano Cueto, Toxicology Branch, Carcinogenesis Testing Program	
<u>NIOSH</u>	Judd Posner, Robert A. Taft Laboratories Jean French, Office of Extramural Coordination and Special Projects	

<u>NIEHS</u>	Phillip Albro, Environmental Chemistry Branch
<u>CDC</u>	David Bayse, Clinical Chemical Division
<u>NCHS</u>	Jeffery Perlman, Office of Statistical Research
<u>FDA</u>	Constantine Zervos, Scientific Liaison Staff

Exposure and Metabolic Mechanisms

<u>NCI</u>	John Munn, Assistant to Scientific Coordinator	Chairman
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(Project Group being formed)

Appendix C  
MEETING DATES

Appendix C  
MEETING DATES

Task Force

September 25, 1978  
February 6, 1979  
June 11, 1979

Working Group

September 15, 1978  
November 3, 1978  
January 17, 1979  
March 14, 1979  
April 23, 1979  
May 23, 1979  
July 11, 1979

Project Group on Education of the Public and  
Health Professionals

October 25, 1978  
December 1, 1978  
March 15, 1979  
April 12, 1979  
May 29, 1979

Project Group on Standardization of Measurements and Tests

January 26, 1979  
March 30, 1979

# PROPOSED MEETING DATES

<u>Meeting</u>	<u>Day and Date</u>	<u>Agency</u>	<u>Location</u>
Working Group	Wednesday, August 29, 1979	EPA	Washington, D.C.
<u>Task Force</u>	Thursday, Oct. 18, 1979	EPA	Washington, D.C.
Working Group	Wednesday, Nov. 14, 1979	NCI	Bethesda, MD
Working Group	Wednesday, Jan 16, 1980	NIOSH	Rockville, MD
<u>Task Force</u>	Wednesday, Feb. 13, 1980	NHLBI	Bethesda, MD
Working Group	Thursday, March 6, 1980	CDC	Atlanta, GA
Working Group	Tuesday, April 15, 1980	NIEHS	Research Triangle Park, NC
Working Group	Thursday, May 15, 1980	NHLBI	Bethesda, MD
<u>Task Force</u>	Thursday, June 12, 1980	NIOSH	Rockville, MD
Working Group	Tuesday, July 1, 1980	NCHS	Hyattsville, MD

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\* Time, date and place will be confirmed approximately 2 months prior to each meeting.

Appendix D

A RESPONSE TO THE FIRST ANNUAL REPORT  
FROM CONGRESSMAN PAUL G. ROGERS

Chairman, Subcommittee on Health and the Environment  
U.S. House of Representatives,  
The Ninety-Fifth Congress

PAUL S. ROGERS, FLA., CHAIRMAN

DAVID E. SATTERFIELD III, VA.  
RICHARDSON PREYER, N.C.  
JAMES W. SYMINGTON, MO.  
JAMES H. SCHUEER, N.Y.  
HENRY A. WAXMAN, CALIF.  
JAMES J. FLORIO, N.J.  
CHARLES J. CARNEY, OHIO  
ANDREW MAGUIRE, N.J.  
HARLEY O. STAGGERS, W.VA.  
(EX OFFICIO)

TIM LEE CARTER, KY.  
JAMES T. BROYNILL, N.C.  
H. JOHN HEINZ III, PA.  
EDWARD R. MADIGAN, ILL.  
SAMUEL L. DEVINE, OHIO  
(EX OFFICIO)

**Congress of the United States**  
**House of Representatives**

**Subcommittee on Health and the Environment**  
**of the**

**Committee on Interstate and Foreign Commerce**

**Washington, D.C. 20515**

September 8, 1978

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

Dear Doug:

I wish to congratulate you and your associates on the Task Force -- personally and on behalf of the Subcommittee -- on the First Annual Report of the Task Force on Environmental Cancer and Heart and Lung Disease. It is an excellent report and we are pleased to note that it was submitted on schedule.

Environmentally caused cancer, heart and lung disease is one of the most important health problems facing the Nation today. I am delighted that the Task Force, under your Chairmanship, has begun to address this scientifically difficult problem. Additionally, I note the interagency cooperation that is reflected in this report. I feel certain that the Task Force will make a worthwhile contribution to direct the Federal effort in reducing the incidence and severity of environmentally caused cancer, heart and lung diseases.

The First Annual Report of the Task Force appears to be a useful beginning toward solving the problem of environmental cancer, heart and lung disease. The Task Force has shown prudence in considering a relatively narrow scope of the problem initially. The resulting recommendations of six areas for early interagency cooperation, as described on pages 59-62 of the report, should result in important progress toward problem resolution. We look forward to reports of the working groups to be established in these areas.

I want to emphasize several specific concerns and questions raised by the First Annual Report:

- ° As the report notes on p. 2, quantitative information on the role of environmental factors in causing cancer, heart and lung diseases is one of the major concerns of

Section 402 of P.L. 95-95. We hope that the Task Force will be able to address the question of the relative contributions of different etiological factors to these diseases. This would assist in setting priorities and directing resources.

- ° Agency funding tables summarizing current Federal effort in a common format appear to be very useful. Is the distribution of funds among the various categories optimum? How should the amount and distribution of funds change in the future?
- ° What are the costs of illnesses to the Nation which are specifically related to environmentally caused diseases? We in Congress share your belief, as expressed on p. 13, that major health cost savings to the American public could be achieved by preventive measures in environmental health. But, the funding tables on pages 46-50 indicate that none of the Task Force agencies are investigating the critical area of the direct and indirect costs (and potential cost savings) involved in environmentally related cancer, heart and lung disease.
- ° What approaches are available to reduce the incidence of these diseases? Which ones would be most productive? What would their costs be to individuals and to society? (No category in the funding summaries seems to address this question.)
- ° Recognizing that our scientific understanding of the problem is less than ideal and will never be complete, are there any preventive health measures that can be considered and applied now or in the near future? What are these measures?
- ° What are the needs of informational systems which can assist the Task Force in carrying out its mission efficiently? We welcome the initiative suggested on p. 63 for the organization of a Task Force information management system. A very valuable purpose would be served if this system can produce not only technical data for agency scientists but can also produce summaries, maps and graphic displays of problems and progress in environmental disease questions for the use of Congress and for the general public. The need for reliable, accurate yet simply presented data for nontechnical decision makers is urgent.



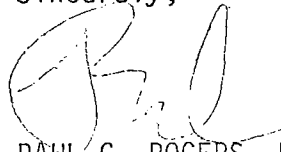
The Honorable Douglas M. Costle  
September 8, 1978  
Page 3

- ° Early expansion of the scope of the Task Force to include areas of nutrition, radiation and noise pollution, as noted on p. viii of the Summary is, in my view, critically important.

I recognize that for some or many of the above questions we may not have answers yet. But, I feel that efforts to find these answers must continue and be significantly strengthened.

In closing, I want to again congratulate you and other members of the Task Force. I believe we are off to a good start. We look at the Task Force as a crucial element in the effort to prevent and reduce environmentally related diseases.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Paul G. Rogers', with a large, stylized initial 'P' and 'R'.

PAUL G. ROGERS, M.C.  
Chairman, Subcommittee on  
Health and the Environment

PGR:cew

## Appendix E

### SUMMARY OF RECOMMENDED RESEARCH IN EXPOSURE AND METABOLIC MECHANISMS OF FOUR TOXIC CHEMICALS\*

## Appendix E

### SUMMARY OF RECOMMENDED RESEARCH IN EXPOSURE AND METABOLIC MECHANISMS OF FOUR TOXIC CHEMICALS\*

#### BENZENE AND TOLUENE

- Studies are needed to identify the best animal model for benzene metabolism in the human.
- The metabolism, disposition, and time course-concentrations of benzene and its metabolites in bone marrow during benzene intoxication should be further defined and characterized.
- Once the compounds present in bone marrow at the time of benzene intoxication are fully identified and quantitated, their effects on bone marrow activity should be determined in an effort to identify the active metabolite(s).
- Further and more detailed studies should be conducted on the synergistic and inhibitory effects on benzene metabolism of chemicals to which humans may be exposed coincident with exposure to benzene.
- A precise metabolic index for the level of human exposure to toluene should be developed. The currently used rate of hippuric acid excretion is not a quantitative measure of exposure.
- The pharmacokinetics of toluene requires further definition.
- Further and more detailed studies should be conducted on the synergistic and inhibitory effects of toluene on other chemicals to which humans may be exposed coincident with exposure to toluene.

#### CARBON DISULFIDE

Although it has been shown that CS<sub>2</sub> or its metabolites can interfere with several metabolic processes, neither the biochemical basis underlying the

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\* From "Exposure and Metabolic Mechanisms of Four Important Industrial Pollutants," prepared by W. T. Piver, W. Jurgelski, T. Damstra, H. L. Falk and J. Bernheim, National Institute of Environmental Health Sciences, Research Triangle Park, NC, December 20, 1978.

toxic effects of chronic exposure nor the metabolism of CS<sub>2</sub> and its derivatives is fully understood. Further information is needed on:

- The dermal absorption of CS<sub>2</sub>.
- The reactions of CS<sub>2</sub> with hydrogen sulfide and ethylene dibromide.
- The reactions of CS<sub>2</sub> metabolites with metals and metal-dependent enzymes.
- The metabolic fate of dithiocarbamates and other CS<sub>2</sub> metabolites.
- The nature of the bond between CS<sub>2</sub> sulfur and macromolecules of *microsomes*.
- Species comparisons of the tissue distribution, pharmacokinetics, and excretory pathways of CS<sub>2</sub> and its metabolites.
- The development of specific and quantitative indicators of early exposure to CS<sub>2</sub>. It may be possible to predict an individual's susceptibility to CS<sub>2</sub> by determining how efficiently a single dose of disulfiram (a drug apparently metabolized by the same enzyme system as CS<sub>2</sub>) is metabolized and excreted.
- The reproductive, endocrine, and cardiovascular effects of CS<sub>2</sub> in humans and animals.

#### METHYLENE CHLORIDE

The mechanisms involved in the formation metabolites of inhaled methylene chloride have been studied. It is of considerable interest that other dihalomethanes may be more readily metabolized to CO and may react more effectively with cofactors or enzymes, but the studies reported so far do not give a uniform picture.

It may be prudent to carry out additional research in the following areas:

- To elucidate the  $P_{450}$  dependent metabolism of dihalomethanes and the inhibitions of that system by the end product, CO.
- To study the  $P_{450}$  independent inducible enzyme system that can convert dihalomethanes to CO.
- To clarify the toxicity of plasma-CO for cytochrome systems and myoglobin compared to the toxicity of high saturation with COHb.
- To get a clearer picture of the effects of dihalomethane resp. COHb on the CNS in causing toxicity.
- To find out whether fluorine substitution in dihalomethanes produces changes in metabolism, storage, and toxicity.

## Appendix F

### CATEGORIZATION AND FUNDING OF FEDERAL PROGRAMS

## Appendix F

### CATEGORIZATION AND FUNDING OF FEDERAL PROGRAMS

#### INTRODUCTION

The work of Task Force agencies directed toward quantification and reduction of the risks of environmental cancer, heart and lung disease has been classified in 15 categories. This appendix contains descriptions of these categories. It also contains tables summarizing agency funds expended in each category in FY 1978, and planned expenditures in FY 1979 and FY 1980, for programs relevant to cancer and heart and lung diseases.

#### CATEGORIZATION SCHEME

Chapter 2 describes a scheme for categorizing Federal expenditures. That categorization scheme is shown in Figure F-1 as a flow chart embracing all Federal activities required to accomplish Task Force objectives. Although no attempt has been made to show a comprehensive flow, some of the important links among the various categories are displayed.

#### DESCRIPTIONS OF CATEGORIES

##### 1. Determination of Biological Effects and Dose-Response

Relationships includes research which identifies the nature and range of biological effects associated with pollutants and research concerned with the quantitative characterization of the relationship between varying dosages of pollutants and the biological effects of such dosages. Studies in this category are typically laboratory in nature.

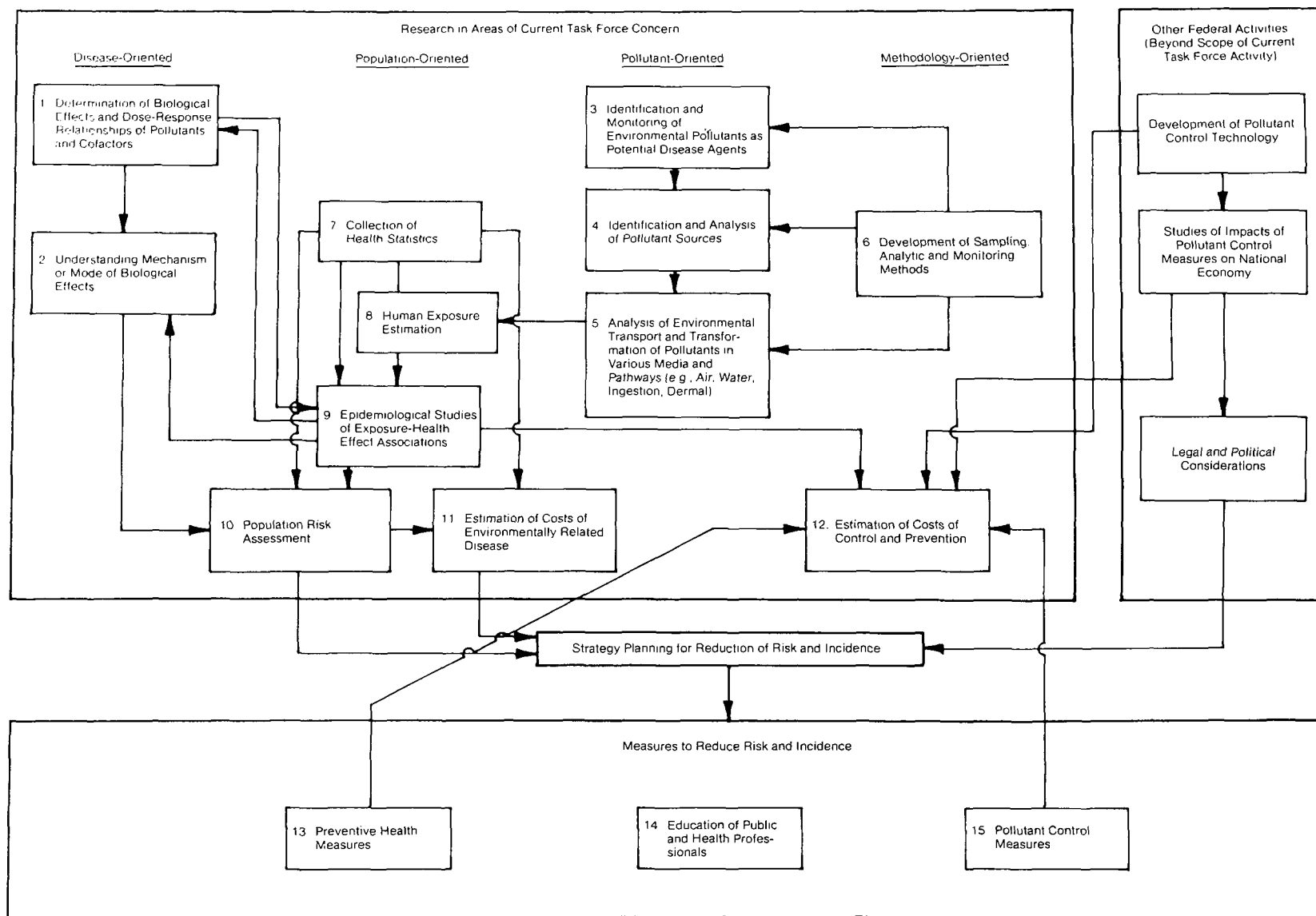


Figure F-1 Flow of Research, Strategy and Control — Federal Efforts with Respect to Environmental Cancer and Heart and Lung Disease



2. Understanding Mechanism or Mode of Biological Effects includes research which evaluates the mode and extent of entry of environmental pollutants into the human body, their body pathways, toxin endpoints, and residence time. Studies of mechanisms of cellular or subcellular interactions with pollutants are also included.

3. Identification and Monitoring of Environmental Pollutants includes characterization, chemical analyses and monitoring of pollutants for research studies. Operational monitoring for regulatory purposes or for the fulfillment of legislative mandates is not considered to be within the purview of Task Force concerns at this time and is excluded from this definition. Research on measurement of the presence and concentrations of pollutants in various media and various environmental settings is the principal aspect of work performed in this category.

4. Identification and Analysis of Sources refers to investigations of sources of environmental pollutants which may impact on human health. These studies are either pollutant-specific or source-specific. The former includes research addressed to identifying and characterizing various sources from which a specific pollutant is emitted. The latter addresses the type, amount, and manner of release of various contaminants from a single source or type of source.

5. Environmental Transport and Transformation Analysis studies predict environmental concentrations of a pollutant based on understanding of its transport processes and the physical or chemical changes that occur during such transport. Primary tools in such studies are analytical or physical

models of environmental transport and transformation. Included in this category are studies which attribute concentrations of pollutants in the ambient environment to sources.

6. Development of Sampling, Analytic, and Monitoring Methods is aimed at developing better environmental sampling techniques, laboratory analysis methods and monitoring equipment.

7. Collection of Health Statistics consists of all programs which involve the gathering of health information in order to create data bases of general utility. Morbidity, mortality and health status data collected for the purpose of providing baseline information are included in this category. The objective of these programs is often the reporting of statistics, in contrast to using them in assessment of cause-and-effect association and other research projects. (A separate category for cause-and-effect association is included below.)

8. Human Exposure Estimation involves studies which estimate the magnitude of the level of exposure of individuals to pollution through various pathways over defined periods of time. Precise estimation of human exposures requires modeling or monitoring of ambient, residential, and occupational environments.

9. Establishment of Cause-and-Effect Association encompasses epidemiological studies of disease incidence. This category of study seeks to associate variation in environmental exposure with the prevalence of disease while controlling for other factors which may influence the prevalence of disease.

10. Population Risk Assessment studies integrate the results of various studies included in the categories defined above for estimation of risk to the population due to a particular pollutant or type of source. These studies can assist in the establishment of priorities for research and for regulation of environmental pollutants.

11. Estimations of the Costs of Environmentally Related Illness include studies which evaluate the direct and indirect economic impact of environmental pollution on human health. This category includes evaluations of human morbidity costs attributable to environmental pollution, and estimation of future health care costs which would be avoided if pollution could be reduced by specified amounts.

12. Costs of Control and Prevention studies estimate and evaluate the economic costs of implementing pollutant control programs. This category includes studies involved with the estimation of costs of control and prevention as well as cost-benefit analyses related to the implementation of specific pollution control programs.

13. Preventive Health includes a range of programs aimed at the avoidance or minimization of harmful effects of pollutant agent exposure. Programs which are specifically directed toward education and pollution control (discussed below) are excluded. An example of a preventive health program is the screening of workers with potential cardiovascular problems from work environments particularly hazardous to such persons.

14. Education of the Public and of Health Professionals consists of programs directed toward improving the capability of the medical professional

in recognizing and treating environmental disease, efforts to educate the general public about environmental hazards as a means of prevention of environmentally caused illness, and programs to educate the public in environmental disease awareness. Grant programs to health professional training institutions which have these objectives appear in this category.

15. Pollutant Control Measures include efforts which establish or evaluate measures of control and the development of pollutant control methodologies. This category includes research programs directed at improving control devices to reduce pollutants released into the environment as well as programs directed toward reducing exposure to pollutants by alteration of source or receptor patterns.

#### AGENCY FUNDING OF PROGRAMS IN ENVIRONMENTAL CANCER AND HEART AND LUNG DISEASE

The remainder of this appendix includes a summary of research funding and a brief narrative for each agency for FY 1978, 1979, and 1980. The funding information is classified by the 15 categories and by disease classes (Tables F-1 through F-7). Headings of Cancer, Heart Disease and Lung Disease refer to programs relating wholly or principally to one of those diseases. Expenditures listed under the heading of Nonspecific are for programs which are substantially relevant to more than one of the major disease classes.

## SUMMARY OF RESEARCH FUNDING

Table F-1. Summary of Funds for EPA (in thousands of dollars)

Category	Cancer			Heart			Lung			Nonspecific (includes cancer, heart, and lung)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
1. Determination of Biological Effects and Dose-Response Relationships	2,296	7,900	12,913	89	315	580	667	1,616	900	1,497	16,716	22,770
2. Understanding Mechanisms or Mode of Biological Effects	2,424	6,219	3,659	143	100		756	891	2,848	1,169	6,854	9,335
3. Identification and Monitoring of Environmental Pollutants	1,378	4,121	4,406	73			371			7,549	26,858	14,934
4. Identification and Analysis of Sources	577	1,321	810	100			2,535			13,250	7,134	6,648
5. Environmental Transport and Transformation Analysis	300	413	866	75			645			7,097	18,675	20,579
6. Sampling, Analytic and Monitoring Methods	1,261	2,155	3,530	389	73		2,330	600	885	13,808	13,517	15,522
7. Collection of Health Statistics	163	1,000	1,000				76			271	77	750
8. Human Exposure Estimation	191	2,774	3,010	138	40		1,296			2,163	2,141	3,255
9. Establishment of Cause-and-Effect Association	1,251	2,865	3,461	25	301	1,450	665	744	200	639	5,373	13,236
10. Population Risk Assessment	2,837	1,335	2,600	316			1,348	111		6,266	4,725	10,192
11. Estimation of Costs of Environmentally Related Illness							10			12		
12. Estimation of Costs of Control and Prevention							15		70	2,641	2,776	2,731
13. Preventive Health Measures							210			1,175	800	1,000
14. Education of the Public and of Health Professionals		130	150		250	60	2			621	69	90
15. Pollutant-Control Measures			940				6,020	16,146	25,240	20,901	25,013	21,566
TOTAL	12,678	30,233	37,345	1,348	1,079	2,090	16,946	20,108	30,143	79,059	130,728	142,608

The Environmental Protection Agency (EPA) was established in the Executive Branch as an independent agency pursuant to Reorganization Plan No. 3 in 1970. It was created to protect and enhance the quality of the environment through the development of a comprehensive, coordinated attack on environmental pollution in the areas of air, water, solid waste, radiation, noise and toxic substances. Much of the environmental legislation that Congress has recently enacted has broadened EPA's mission. As a result, the Agency is now a preventive public health agency as well as an environmental one, and is thus greatly concerned with the problem of environmental cancer and heart and lung diseases. The Agency is specifically charged with protecting human health and the environment through the promulgation and enforcement of standards and regulations. To accomplish these goals, the Agency is organized into the following major offices: the Office of Air, Noise, and Radiation, the Office of Toxic Substances, the Office of Water and Waste Management, and the Office of Research and Development.

Research at EPA is managed through the Office of Research and Development (ORD) which is responsible for providing a sound scientific base for the promulgation, enforcement and review of environmental standards and regulations. The major objectives of ORD are to characterize pollution threats; define the health and ecological dangers from pollutant sources; and develop, test and evaluate appropriate means to control pollution. Overall, since 1978, the emphasis in the ORD budget has been shifting away from the identification, analysis, and monitoring of pollutants in the environment to health effects research, and long-range, anticipatory research.

The focal point of EPA's increased emphasis on the health effects of pollutants is the 1980 "public health initiative" which totals \$37 million. This money, which is divided among the air, drinking water, toxics and radiation media focuses on the following research and development activities that are of concern to the Task Force:

1. The development of short-term and screening tests to permit the rapid, inexpensive detection of toxic pollutants;
2. The development of exposure assessment techniques to help predict the concentrations of toxic pollutants as they reach man through various routes of exposure and are absorbed, transformed or accumulated in the body; and
3. The conduct of epidemiological studies to validate and improve the predictive capabilities of animal tests and exposure models.

To supplement ORD's public health initiative, the Agency will continue to support a program of anticipatory research. This small basic research program will almost double in size from FY 1979 to FY 1980. It is designed to develop better exposure assessment methods and models, and support data on the transport and transformation of pollutants. It is also designed to permit exploration of long-term research needs in areas such as the relationship between the incidence of cancer and exposure to ambient environmental pollution.

Table F-1 summarizes EPA's research and development efforts in the areas of environmental cancer and heart and lung diseases. It should be noted that the figures in this table do not represent EPA's total budget, and that the figures for FY 1979 and FY 1980 are only proposed expenditures.

Table F-2. Summary of Funds for NCI (in thousands of dollars)

Category	Cancer			Heart			Lung			Nonspecific (includes cancer, heart, and lung)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
1. Determination of Biological Effects and Dose-Response Relationships	13,037	19,432	28,294									
2. Understanding Mechanisms or Mode of Biological Effects	42,496	38,231	33,871									
3. Identification and Monitoring of Environmental Pollutants	3,817	3,378	2,387									
4. Identification and Analysis of Sources	480	686	675									
5. Environmental Transport and Transformation Analysis	51	56	62									
6. Sampling, Analytic and Monitoring Methods	127	111	125									
7. Collection of Health Statistics	9,792	11,632	12,339									
8. Human Exposure Estimation	1,786	1,761	1,000									
9. Establishment of Cause-and-Effect Association	8,353	9,059	8,965									
10. Population Risk Assessment	1,171	1,359	1,097									
11. Estimation of Costs of Environmentally Related Illness												
12. Estimation of Costs of Control and Prevention	55	107	105									
13. Preventive Health Measures	1,345	2,936	7,850									
14. Education of the Public and of Health Professionals	3,287	3,681	3,765									
15. Pollutant-Control Measures	40	45	45									
TOTAL	85,837	92,474	100,580									



## NCI

The majority of the National Cancer Institute (NCI) monies for environmental cancer programs were from the Division of Cancer Cause and Prevention. Support for such activities also resides in the Divisions of Cancer Biology and Diagnosis, Cancer Treatment, Cancer Control and Rehabilitation, and Cancer Research Resources and Centers. Monies allocated for activities such as smoking and health, diet and nutrition, and co-carcinogenesis (viral chemical) were excluded by limits of definition as set forth by the Task Force.

In the Summary of Funds table for the first annual report to Congress, 15 categories were used to determine the general nature and distribution of support for environmental cancer activities of NCI. The table further showed that only about half of the categories represented major activities for expenditure of funds. Of these areas, the largest amounts were committed to studies on the mechanisms or mode of biological effects. Work on the determination of biological effects, surveillance (collection of health statistics in this report) and cause-and-effect associations were next in order of importance. Table F-2 in this report shows that these same categories remained as principal areas for expenditures of funds.

The dollar figures reflected in this report are somewhat reduced for years 1978 and 1979 from those reported last year. While last year's figures were derived from Program Managers, the present table was developed by coordinating the budget for these activities through NCI budget channels. The figure reported for 1978 represents actual obligations. Results from only two of the three NCI Council Meetings are reported for 1979. Figures for 1979 and 1980 are estimates based upon the 1980 President's budget.

Table F-3. Summary of Funds for NHLBI (in thousands of dollars)

Category	Cancer			Heart			Lung			Nonspecific (includes cancer, heart, and lung)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
1. Determination of Biological Effects and Dose-Response Relationships							426	436	434			
2. Understanding Mechanisms or Mode of Biological Effects				292	346	371	2,068	1,932	1,431			
3. Identification and Monitoring of Environmental Pollutants							96	96	121			
4. Identification and Analysis of Sources												
5. Environmental Transport and Transformation Analysis												
6. Sampling, Analytic and Monitoring Methods							118	119	129			
7. Collection of Health Statistics												
8. Human Exposure Estimation												
9. Establishment of Cause-and-Effect Association				56	65	55	613	620	642			
10. Population Risk Assessment				95	65	55	349	234	272			
11. Estimation of Costs of Environmentally Related Illness												
12. Estimation of Costs of Control and Prevention												
13. Preventive Health Measures							150	148	129			
14. Education of the Public and of Health Professionals							32	29	30			
15. Pollutant-Control Measures												
TOTAL				443	476	481	3,852	3,614	3,188			

## NHLBI

The Division of Lung Diseases of the National Heart, Lung and Blood Institute (NHLBI) is responsible for planning, administering, coordinating and evaluating all extramural activities concerned with diseases of the lung and respiratory disorders. The Division's program encompasses basic research, targeted research, clinical trials and demonstration, National Pulmonary Centers, technological development, and application of research findings. Research on the effects of the environment upon the respiratory system is continuing, through the regular research grant mechanism, with a total commitment of \$3,852,000 in 1978. The projection for 1979 is similar, \$3,614,000 already committed as of June 1979, which does not include the funds which will be committed as a result of investigator-initiated grants during the rest of FY 1979. Similarly, the Division has already committed \$3,188,000 for research on environmental effects on the respiratory system in 1980. It is anticipated that this amount will be increased with the approval and funding of investigator-initiated grants awarded before the end of 1980.

The Division of Heart and Vascular Diseases at NHLBI has funded research related to Task Force activity that has emphasized understanding the mechanism or mode of the biological effects induced by environmental agents that impact on heart disease. Project funding for cardiovascular research has included development of models for estimation of disease risk, as well as basic research on the etiology and development of heart disease relevant to environmental factors. The FY 1978 and 1979 funding represents projects paid or committed, and the FY 1980 figures represent estimates.

Table F-4. Summary of Funds for NIOSH (in thousands of dollars)

Category	Cancer			Heart			Lung			Nonspecific (includes cancer, heart, and lung)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
1. Determination of Biological Effects and Dose-Response Relationships	1,629	2,286	2,880	43	60	79	1,025	1,437	1,729	528	741	934
2. Understanding Mechanisms or Mode of Biological Effects	378	531	660				1,645	2,307	2,810	148	208	268
3. Identification and Monitoring of Environmental Pollutants	503	705	1,450				256	359	735	274	384	795
4. Identification and Analysis of Sources	16	23	47									
5. Environmental Transport and Transformation Analysis												
6. Sampling, Analytic and Monitoring Methods	1,362	1,381	1,738				491	498	626	1,259	1,278	1,609
7. Collection of Health Statistics	720	731	1,619				510	518	1,142	442	449	993
8. Human Exposure Estimation							12	12	41	354	359	457
9. Establishment of Cause-and-Effect Association	659	669	844	3	3	4	1,390	1,411	1,778	900	910	923
10. Population Risk Assessment	362	368	1,043	9	10	31	162	164	467	117	118	1,045
11. Estimation of Costs of Environmentally Related Illness												
12. Estimation of Costs of Control and Prevention												
13. Preventive Health Measures	429	436	556	172	175	221	2,838	2,880	3,626	12,551	12,739	16,043
14. Education of the Public and of Health Professionals	16	16	16							8,259	10,783	10,783
15. Pollutant-Control Measures	384	390	487				503	511	646	186	188	238
TOTAL	6,458	7,536	11,340	227	248	335	8,832	10,097	13,600	25,018	28,157	34,088

## NIOSH

The National Institute for Occupational Safety and Health (NIOSH) is responsible for conducting research aimed at minimizing health and safety risks to employees from exposures to hazardous chemical and physical agents in the workplace. Research priorities are established through Congressional mandates, the needs of the standards development program, National Toxicology Program priorities, Occupational Safety and Health Administration/Mine Safety and Health Administration short-term research requests, and priorities defined by NIOSH researchers.

Since FY 1977 NIOSH has accelerated its research to identify new workplace hazards and to define more adequately the scope of hazards that were already suspected or clearly recognized. For FY 1980 NIOSH has requested additional funding of approximately \$12,000,000 over the FY 1979 level for four programs which will allow for a substantial increase in cancer and lung disease research. These project areas are: metal and nonmetallic mining, health hazard evaluations, occupational health and safety data collection, and synergistic and additive effects of tobacco smoke coupled with work-related exposure to toxic chemicals.

### Cancer

Since its initiation in FY 1975 NIOSH's Occupational Carcinogenesis Program has increased significantly. In FY 1975 \$1,800,000 was expended on NIOSH's cancer-related activities while in FY 1980 it is expected that over \$10,700,000 will be expended. In 1977 projects were implemented in three major areas of concentration which have continued to be expanded: recognition (surveillance and assessment), evaluation (epidemiological and laboratory studies) and control (engineering, medical and technology transfer).

### Lung Disease

Funding for research concerning occupationally induced lung diseases is expected to increase approximately 75 percent from FY 1977 through FY 1980. The largest percent increase in funding is in the area of risk assessment where retrospective mortality and industrial hygiene studies are targeted to specific industries (e.g., coal mining) and agents (e.g., silica). Laboratory and clinical studies are aimed at determining the etiology and subsequent control mechanisms of various occupational lung diseases. Also, emphasis has been placed on defining biological effects, devising sensitive and specific diagnostic tests and sampling procedures, and developing and strengthening dose-response relationships.

### Heart Disease

The amount of funds available for research concerning heart disease is expected to increase to \$335,000 in FY 1980. In addition to mortality and morbidity studies, NIOSH also plans to fund research projects through its grant program concerning the cause and prevention of occupationally induced cardiovascular disease.

Table F-5. Summary of Funds for NIEHS (in thousands of dollars)

Category	Cancer			Heart			Lung			Nonspecific (includes cancer, heart, and lung)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
1. Determination of Biological Effects and Dose-Response Relationships	5,370	5,868	5,590	1,053	1,078	1,059	3,110	3,420	3,210	996	1,361	1,136
2. Understanding Mechanisms or Mode of Biological Effects	3,936	4,280	4,108	1,450	1,484	1,456	3,202	3,522	3,333	1,160	1,416	1,458
3. Identification and Monitoring of Environmental Pollutants	63	68	63				134	147	134	107	116	107
4. Identification and Analysis of Sources	3	4	4	3	4	4	67	73	67	759	828	760
5. Environmental Transport and Transformation Analysis	203	220	203				55	61	55	185	202	185
6. Sampling, Analytic and Monitoring Methods	23	25	23				292	321	292	144	157	144
7. Collection of Health Statistics										79	86	79
8. Human Exposure Estimation	120	130	120	3	4	4	17	18	17	53	58	54
9. Establishment of Cause-and-Effect Association	460	498	465	187	194	191	1,570	1,727	1,576	210	229	210
10. Population Risk Assessment	178	193	180				210	231	214	439	479	439
11. Estimation of Costs of Environmentally Related Illness												
12. Estimation of Costs of Control and Prevention												
13. Preventive Health Measures										13	15	13
14. Education of the Public and of Health Professionals										33	35	33
15. Pollutant-Control Measures							45	49	45			
TOTAL	10,356	11,286	10,756	2,696	2,764	2,714	8,702	9,569	8,943	4,178	4,982	4,618

## NIEHS

The work of NIEHS, relevant to prevention of environmentally related cancer and heart and lung diseases, addresses research over a wide spectrum of topics ranging from identification of environmental pollutants to studies of health hazards and epidemiology. There is also an emphasis upon development of environmental health science resources through extramural grants and an Institute and grant training program.

The funding levels for FY 1978 for the three disease categories reported in the Task Force's first annual report were quite accurate. However, the current estimate for FY 1979, in most cases, reflect about a 10 percent increase over FY 1978 estimates that were made last year. These increases were made possible by modest increases over FY 1978 in the intramural program budget. After correcting for inflation, the actual level of research effort in the activities described in the narrative would be about the same as for FY 1978. Likewise, it can be noted that there is no increase in level of funding for FY 1980 over FY 1979 reflecting current and short-term budgetary constraints. (The 1980 funding information is based on the 1980 President's budget.)

In case of the disease category "nonspecific," there are significant increases from last year's submission which can be attributed to a large research contract associated with the National Toxicology Program. This program will be examining a broad spectrum of pathological outcomes (including cancer and cardiopulmonary disease) which may result from both perinatal and life-time exposure of animals to a variety of environmental chemicals.

Table F-6. Summary of Funds for NCHS (in thousands of dollars)

Category	Cancer			Heart			Lung			Nonspecific (includes cancer, heart, and lung)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
1. Determination of Biological Effects and Dose-Response Relationships												
2. Understanding Mechanisms or Mode of Biological Effects												
3. Identification and Monitoring of Environmental Pollutants												
4. Identification and Analysis of Sources												
5. Environmental Transport and Transformation Analysis												
6. Sampling, Analytic and Monitoring Methods												
7. Collection of Health Statistics										3,000	3,400	4,400
8. Human Exposure Estimation												
9. Establishment of Cause-and-Effect Association												
10. Population Risk Assessment												
11. Estimation of Costs of Environmentally Related Illness												
12. Estimation of Costs of Control and Prevention												
13. Preventive Health Measures												
14. Education of the Public and of Health Professionals												
15. Pollutant-Control Measures												
TOTAL										3,000	3,400	4,400



## NCHS

The National Center for Health Statistics (NCHS), through its many data systems, routinely produces data on disease incidence, including cancer and heart and lung diseases. These data systems frequently provide the basis for research carried out by other Federal agencies and are aimed at determining and quantifying the relationships between cancer and heart and lung diseases and environmental pollutants.

Environmentally related activities within NCHS include three major projects. Under Public Law 95-623, NCHS was mandated by Congress to determine the feasibility of establishing a central clearinghouse for environmental and health data systems and research within the Federal Government. This mandate also includes the identification of duplication of research between agencies as well as any existing gaps. A workshop was recently held in response to the mandate, and it resulted in recommendations by the members which would strengthen the area of environmental health research if implemented.

NCHS is currently in the process of producing the first United States Atlas of Mortality. Separate maps for white males, white females, nonwhite males, and nonwhite females will be produced. Age will be accounted for by age-adjustment using 1940 as the standard population making these data comparable with other NCHS data. Each major cause of death will be mapped, indicating the geographic distribution of mortality. This project has environmental implications since several of the diseases have strong associations with environmental factors.

The third project under progress involves calculating age-adjusted morbidity rates from the Health Interview Survey (HIS) for the 31 largest Standard Metropolitan Statistical Areas. The years 1973-1977 will be used, as well as the years 1963-1967. This enables comparisons to be made between cities and between time periods for individual cities. Both chronic and acute disease information will be used. However, at present only chronic disease age-adjusted rates for 1973-1977 have been calculated. Once all the calculations are made, the information will be incorporated into the Council on Environmental Quality's UPGRADE system. The data can then be linked to EPA water (STORET) and air (SAROAD) data already within the system.

Table F-7. Summary of Funds for CDC (in thousands of dollars)

Category	Cancer			Heart			Lung			Nonspecific (includes cancer, heart, and lung)		
	1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
1. Determination of Biological Effects and Dose-Response Relationships										25	42	45
2. Understanding Mechanisms or Mode of Biological Effects		11										
3. Identification and Monitoring of Environmental Pollutants										60	115	126
4. Identification and Analysis of Sources										58	195	215
5. Environmental Transport and Transformation Analysis												
6. Sampling, Analytic and Monitoring Methods										102	209	220
7. Collection of Health Statistics												
8. Human Exposure Estimation												
9. Establishment of Cause-and-Effect Association		146										
10. Population Risk Assessment										23	200	94
11. Estimation of Costs of Environmentally Related Illness											56	
12. Estimation of Costs of Control and Prevention											6	
13. Preventive Health Measures		30										
14. Education of the Public and of Health Professionals												
15. Pollutant-Control Measures												
TOTAL		187								268	823	700

## CDC

The Center for Disease Control (CDC) is involved in studies related to the understanding and prevention of environmentally related diseases. Collaborative studies with other Federal agencies and state health departments in the area of environmental disease reduction are also undertaken by CDC.

A substantial amount of funding for the Chronic Disease Division is related to category 9, the establishment of cause-and-effect associations. This category includes the cancer surveillance and epidemiologic-oriented investigations conducted by the Division. The funding information for FY 1978 and FY 1980 has not been included, but a slightly upward level of expenditure is anticipated in FY 1980 for this Division.

The Bureau of Laboratories is engaged in identification, monitoring and analysis of sources of environmental pollutants, and in risk assessment studies. The funding information for this Bureau is reported in Table F-7 under the column "nonspecific."