

NCEH Highlights

[1980](#) [1981](#) [1982](#) [1983](#) [1984](#)

[1985](#) [1986](#) [1987](#) [1988](#) [1989](#)

[1990](#) [1991](#) [1992](#) [1993](#) [1994](#)

[Abbreviations Expanded](#)

Return to:

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1980 Highlights

- Center for Environmental Health is established. It includes the former Environmental Health Services Division, Bureau of State Services; Chronic Disease Division, Bureau of Epidemiology; and Clinical Chemistry Division, Bureau of Laboratory.
- Spearheads the federal public health response to the eruption of the Mt. St. Helens volcano in Washington.
- Investigates a cluster of metabolic alkalosis among infants. Results (1) show that the cause is an infant formula deficient in chloride and (2) lead to the passage of the Infant Formula Act.
- Begins studies of 12 waste sites that are potential sources of human exposure to [PCBs](#). Results show that, in general, living near the sites did not lead to increased serum levels of PCBs.
- Studies people who live in log cabins treated with pentachlorophenol and finds excessive blood levels of the toxicant. Pentachlorophenol was phased out of commercial products.
- As a special project for the Secretary, [HHS](#), determines the amount of paraquat in marijuana.
- Serves as central laboratory for [NHANES](#). These surveys provide extensive information for public health practitioners and researchers. NHANES III will end in 1994.
- Through the [BDMP](#), monitors one million births for U.S. trends in birth defects.
- Develops 12 analytic methods for measuring toxic metals in blood and urine, applies these methods to exposure and health studies, and publishes reports on the results. Program began in 1978.
- Develops and operates national quality assurance programs for state laboratories that use dried blood spots to screen for metabolic disorders. Examples include congenital hypothyroidism (1976), phenylketonuria (1983), galactosemia (1988), and maple syrup urine disease (1991). Ongoing program since 1976.
- Assigned responsibilities under [CERCLA](#) (Superfund).
- Standardizes cholesterol measurements for about 20 major epidemiologic studies and clinical trials that identified cholesterol as a significant risk factor for coronary heart disease (1971-1990).

- Serves as the central laboratory for the Early Treatment of Diabetic Retinopathy Study being conducted by [NEI](#) (1978-1988).

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1981 Highlights

- At the request of the Spanish government, assists with the investigation into [TOS](#). Results show that aniline concentrations in rapeseed oils were highly correlated with illness-related oil.
- Assigned responsibility for devising plans to implement the health aspects of the Superfund legislation.
- Studies Bendectin. Results indicate that this antinausea medication does not cause birth defects.
- Begins study of Vietnam veterans' risk of fathering babies with birth defects. Results published in 1984.
- Publishes a method for measuring pentachlorophenol in blood.
- Publishes results of a study of human exposure to DDT in Triana, Alabama. Found highest levels of [DDT](#) ever reported. Best predictors of DDT exposure were amount of fish consumed and age of consumer.
- On the basis of 12,000 blood lead measurements made for [NHANES](#), identifies lead in gasoline as an important source of human exposure to lead.
- Demonstrates in Michigan that as commercial [PBB](#) mixture degraded in sunlight, its dioxin-like activity increased.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1982 Highlights

- In collaboration with [ATSDR](#) and the state of Missouri, begins an evaluation of risks from dioxin in Times Beach and other contaminated sites in Missouri.
- Using data from [BDMP](#), leads the International Clearinghouse study of valproic acid, a drug used to control seizures. Results show an increased risk for spina bifida among children of women who used valproic acid.
- Investigates premature breast development among young girls in Puerto Rico. Results eliminate hormones in meat as the likely cause, thereby reducing public concern on this issue.
- Coordinates the [CDC/NICHHD](#) workshop, held in Atlanta, on using vitamin supplements to prevent [NTDs](#).
- Develops method for measuring urinary protoporphyrins.

- Works with [EPA](#) to enact regulations for removing lead from gasoline. Decision to remove lead was based largely on data compiled by [NCHS](#) and [CEH](#).

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1983 Highlights

- Congress mandates that the [CEH](#) group handling [CERCLA](#) (Superfund) activities be formed into a separate agency: Agency for Toxic Substances and Disease Registry (ATSDR).
- Enters into an agreement with the [VA](#) to design and conduct epidemiologic studies related to the use of Agent Orange in Vietnam.
- Develops a method for measuring total [PCBs](#) and chlorinated hydrocarbon pesticides in serum.
- Studies lead exposure among children living near smelters in Kellogg, Idaho, and Helena, Montana. The Kellogg site was declared an [EPA](#) Superfund clean-up site. Although smelters are closed, children in both areas are still
- Assigned responsibility for coordinating [CDC](#)'s emergency response plans.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1984 Highlights

- Publishes Vietnam Veterans' Risk for Fathering Babies with Birth Defects, which indicates that Vietnam veterans are not at higher risk than other veterans or nonveterans of having children with birth defects.
- Begins [MADDS](#). Develops a method of conducting developmental disabilities surveillance by using school records. Produces first population-based prevalence data for mental retardation, epilepsy, cerebral palsy, and hearing
- Begins study to find causes of very-low-birth weight babies in Georgia.
- At the request of the Indian Government, acts as consultant in the aftermath of the Bhopal chemical release, one of the worst industrial disasters in history.
- Convenes, in Atlanta, the First National Environmental Health Conference.
- Develops a method of measuring dioxin in adipose tissue.
- Determines that unexplained deaths occurring in Pakistan were due to ingestion of endrin-contaminated food.
- Evaluates mercury exposure among people living with someone who works at a thermometer plant in Vermont.
- Evaluates lead exposure among people living near a secondary lead smelter in Idaho.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1985 Highlights

- In collaboration with the California State Department of Health Services, investigates the exposure of some 400 people to a heroin substitute called [MPTP](#), which was found to cause Parkinson's disease.
- Assigned responsibility within [HHS](#) (1) for reviewing the Army's plans for disposing of lethal chemical weapons and (2) for making recommendations for protecting public health and safety during disposal.
- Begins study of fetal damage caused by mothers' use of retinoic acid, a derivative of vitamin A used for skin problems. Results led manufacturer to begin more education programs for physicians and to institute surveillance for adverse reproductive outcome
- Develops a method for measuring dioxin in serum.
- Studies human exposure to [PCBs](#) in New Bedford, Massachusetts. Finds that fish consumption is not a significant problem.
- Collaborates with Montana Department of Health and Environmental Sciences on an exposure assessment of children living near a copper smelter.
- Participates in the Laboratory Standardization Panel of [NCEP](#) to develop national standards for improving measurements of cholesterol in clinical laboratories (1985 through 1990).

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1986 Highlights

- Convenes, in Denver, the Second National Environmental Health Conference.
- Participates on a panel to evaluate newly declassified data on radioiodine releases during the 1940s near the Hanford Nuclear facility in Washington. Panel recommends a study of thyroid disease in the area and a dose reconstruction project for all radionuclides for each year the facility operated.
- Establishes [ERCG](#) to focus on planning for, and responding to, natural or technologic disasters and to act as interagency coordinator of federal agencies' responses to emergencies.
- Establishes [VSP](#) to meet [CEHIC](#)'s new responsibility for conducting sanitation inspections on cruise ships.
- Assigned responsibility, under The National Environmental Policy Act, for reviewing and commenting on federal Environmental Impact Statements on projects that have the potential to affect public health.
- Finds high correlation between serum dioxin levels and adipose dioxin levels across a wide range of human exposures to dioxin.
- Develops method for measuring mycotoxins in urine.

- Conducts health study of people exposed to dioxin in Missouri. Results show higher than background exposure but no persistent health effects. Exposure varies according to the source of exposure.
- Completes study of exposure to pesticides at the Hollywood Dump waste site in Tennessee. Finds no excessive exposure.
- Evaluates human exposure to heptachlor in Arkansas. Finds that residents who consumed dairy products had some elevated serum levels of heptachlor-related compounds.
- Studies children's exposure to chlorinated phenol near a chemical plant in Arkansas. Results show that study children did not have higher levels than a control group of children.
- Determines that unexplained deaths occurring in Sierra Leone were due to parathion-contaminated flour.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1987 Highlights

- [CEH](#) renamed Center for Environmental Health and Injury Control.
- Given responsibility for nonoccupational injury control programs within the Public Health Service.
- Enters into an agreement with [ARC](#) to develop the Health Impact Surveillance System for Natural Disasters.
- Begins study with [NIOSH](#) on morbidity and mortality among people occupationally exposed to dioxin.
- Establishes the [ME/C](#) Information Sharing Program to improve the quality of data on death certificates and to increase the availability of those data for scientific research.
- Restructures [VSP](#) as a cooperative effort between industry and government. Publishes fee schedule for inspections in the Federal Register.
- Publishes study results that show a possible relationship between mothers' periconceptional use of multivitamins and a decrease in the risk for neural tube defects among their offspring.
- Publishes preliminary results of a study of Ranch Hands (veterans who sprayed Agent Orange in Vietnam). Some were unduly exposed to [TCDD](#). Study continues to 2002.
- Discovers that the half-life of TCDD in humans is more than 7 years.
- Evaluates the lead exposure of people living near mine tailings from a lead processing and smelting site in Colorado. Results show that 30 of the 259 whole blood samples tested had lead levels of 15 g/dL or higher.
- Develops and implements a quality assurance program for laboratories that use dried blood spots to screen newborns as part of the multiyear [HIV](#) seroprevalence survey among childbearing women.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

1988 Highlights

- Division of Chronic Disease Prevention joins with other components of [CDC](#) to form what is now the National Center for Chronic Disease Prevention and Health Promotion.
- Convenes, in New Orleans, the Third National Environmental Health Conference.
- Assigned responsibility for a newly mandated disabilities prevention program.
- Awards the first [DPP](#) grants to nine states and four institutions for projects to prevent secondary disabilities.
- Contracts with [IOM](#) for a study on the nature of disability in America and methods of preventing disability.
- Congress asks [NRC](#) to review the injury control pilot program; NRC commends the accomplishments of the Division of Injury Epidemiology and Control and recommends that Congress provide more resources.
- Congress authorizes funds directly for the injury control program at CDC.
- Participates in CDC's new [WHO](#) Collaborating Center for Emergency Preparedness and Response.
- CDC formally adopts the emergency response plan developed by [CEHIC](#).
- Develops a course on the medical management of chemical exposures and presents it to health care personnel in areas surrounding facilities that contain lethal chemical weapons.
- Coordinates, with international experts, the standardization of diagnostic criteria for Rett syndrome.
- Releases reports on the physical, psychological, and reproductive health of U.S. Vietnam veterans (Vietnam Experience Study). Finds that conditions such as post-traumatic stress disorder, alcohol abuse, and depression are somewhat more prevalent .
- Develops method for measuring coplanar polychlorinated biphenyls in serum.
- Begins ongoing studies with Italian Government on human exposure to dioxin among the population in Seveso, Italy, where an industrial explosion had occurred. Results to date show highest levels of dioxin ever measured in people. Except for chloracne, adverse health effects are not apparent. The possibility of cancer being a long-term outcome of such high exposure is still under evaluation.
- Investigates unexplained deaths of 23 young people in Malaysia. Finds that the cause is linked to aflatoxins associated with consumption of noodles.
- Establishes a network of cholesterol reference laboratories (10 domestic and 4 international) to improve the accuracy and precision of cholesterol measurements. Goal is to achieve the Healthy People 2000 objectives.
- Develops an immunology laboratory and also standards and standardization procedures to enable flow cytometry results from different laboratories to be directly compared and interpreted (continues to 1991).

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

1989 Highlights

- Establishes national surveillance and conducts epidemiologic studies of the national epidemic of [EMS](#), which was linked to the ingestion of a food supplement containing L-tryptophan.
- Charged with directing the Congressionally mandated study of thyroid disease in Hanford, Washington.
- Assists in investigations in Puerto Rico and South Carolina after Hurricane Hugo. Results show that most deaths occur before a hurricane (from drownings due to flooding) or after a hurricane during clean-up (from, for example, puncture wounds, chain-saw lacerations, or electrocutions).
- Studies [ME/C](#) data in South Carolina after Hurricane Hugo. Results show that no universally accepted definition of a hurricane-related death was used.
- Assigned [CDC](#)'s responsibility as the chief health agency for a national grant program to prevent childhood lead poisoning.
- [HHS](#) Secretary's Advisory Committee on Injury Prevention and Control is established.
- Sponsors first annual workshop for new state and local disability prevention projects.
- Is instrumental in establishing methods for monitoring Lewisite, a lethal chemical agent.
- Publishes results of a study on cocaine use during early pregnancy as a risk factor for congenital urogenital anomalies among offspring.
- Publishes results of a study, begun in 1985, of embryopathy caused by mothers' use of Accutane (a skin medication) during pregnancy.
- Releases report of the Agent Orange Validation Study, which showed no association between serum dioxin levels among U.S. Vietnam veterans and their various estimated levels of exposure while in Vietnam.
- Convenes, in San Antonio, the Fourth National Environmental Health Conference.
- With the California State Department of Health Services, investigates the possibility that food is contaminated with dioxin as a result of an industrial fire.
- Investigates human exposure to mirex near a chemical company in Ohio. Results show that consumption of farm products and employment at the chemical company are associated with higher-than-background levels of mirex.
- Studies chlordane exposure among people who consumed fish from areas for which fish consumption advisories had been issued. Eating such fish was not a major predictor of blood chlordane levels.
- Begins work to determine exposure to 12 pesticides of 1,000 people with no known exposure: a component of the Priority Toxicant Reference Range Study.
- Begins work to determine exposure to 32 [VOCs](#) of 1,000 people with no known exposure: another component of the Priority Toxicant Reference Range Study.
- With [ATSDR](#), [ASTHO](#), and other CDC organizational units, cosponsors the National Conference on Clustering of Health Events (Atlanta).

- Evaluates the significance of lead exposure from acid rain in Hawaii.
- Evaluates the effects of lead exposure from leaky mining trucks in Alaska. No children had blood lead levels higher than 15 g/dL, the standard for lead poisoning at that time.
- With [CAP](#), conducts a collaborative study that identifies matrix effects as a major problem for clinical laboratories that measure blood cholesterol levels.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1990 Highlights

- Publishes results of The Selected Cancers Study, which show that Vietnam veterans appear to be at increased risk for non-Hodgkin's lymphoma but not for other forms of investigated cancers. Increased risk does not appear to be due to exposure to Agent Orange.
- Convenes a colloquium on preventing secondary disabilities among people with spinal cord injuries. Proceedings become a landmark document on rehabilitation and secondary-disabilities prevention.
- Investigates the impact on human health of the worst tornado in northern Illinois history. Results suggest that old houses are more protective than new houses and one-story houses are more protective than multistory houses.
- Studies the adverse effects of mercury in indoor paint. Results lead to stopping the use of mercury in paint.
- Awards its first grants for the prevention of childhood lead poisoning to six states and one major city.
- Begins a new program to study radiation and its effects on human health.
- Evaluates exposure to dioxin and dioxin congeners among New Zealand sprayers of [2,3,4-T](#). Finds a high correlation between sprayers' current serum levels and their number of years of spraying.
- Investigates human exposure to chemicals after an industrial explosion in Thailand. Helps design a better epidemiologic and laboratory emergency response system.
- Determines that more than 100 deaths in Nigeria were due to ingestion of acetaminophen contaminated with di-ethylene glycol.
- Uses data from [BDMP](#) and [MADDS](#) as the basis for year 2000 objectives for the prevention of mental retardation and [FAS](#).
- Collaborates with New Jersey Department of Health in a study of workplace exposure to chromium from groundwater seepage.

Return to:

[Top of Page](#)

1991 Highlights

- National added to center name. Now the National Center for Environmental Health and Injury Control.

- Cosponsors, with [NCD](#) and [MHPE](#), the National Conference on the Prevention of Primary and Secondary Disabilities.
- [IOM](#) completes disabilities study and publishes Disability in America: Toward a National Agenda for Prevention. Results show that 35 million Americans have disabling conditions; 9 million have conditions that prevent them from working; minorities, the elderly, and socioeconomically disadvantaged people have a disproportionate share of disabilities; and the annual disability-related costs for the nation are \$170 billion.
- Assists the Massachusetts Department of Public Health in an investigation of an outbreak of hypervitaminosis D, which was related to overfortification of milk with vitamin D.
- Assumes responsibility for energy-related analytic epidemiologic research at [DOE](#) nuclear facilities.
- Develops the Strategic Plan for the Elimination of Childhood Lead Poisoning, which is released by [HHS](#).
- Revises and releases [CDC](#)'s statement Preventing Lead Poisoning in Young Children.
- Begins new program to study air pollution and respiratory health.
- Establishes a working agreement with the Central U.S. Earthquake Consortium to assist in training and developing emergency response plans in the 15 member states.
- Sponsors the first national conference on FAS: Fetal Alcohol Syndrome and Other Congenital Alcohol Disorders: A National Conference on Surveillance and Prevention.
- Publishes Interim CDC Recommendations for Folic Acid Supplementation for Women Who Have Had an Infant or Fetus with Spina Bifida, Anencephaly, or Encephalocele.
- Studies a cluster of [NTDs](#) among infants in Brownsville, Texas. Results show that the rate of NTDs in Brownsville is high when compared with the NTD rate for the United States but not when compared with NTD rates in Central and South America or in a heavily Hispanic area of California.
- Begins a study in China of the effectiveness of maternal consumption of folic acid in preventing NTDs among offspring.
- Cosponsors the Third National Injury Control Conference.
- Inspector General of HHS finds that the Division of Injury Control performs an important role in transforming research results into injury prevention and control programs.
- Evaluates exposure to dioxin among Australian sprayers of [2,4,5-T](#). Finds that the concentration of dioxin in the 2,4,5-T used was the best predictor of current levels of serum dioxin among sprayers.
- Works with the Army to evaluate the exposure of ground troops in Kuwait to VOCs as a result of oil fires. Finds that ground troop exposure levels were not above background levels for the general U.S. population.
- Begins pharmacokinetic studies of the half-life of VOCs in blood. Initial results show multicompartmental decays; most VOCs are eliminated in minutes to hours, but some may accumulate in adipose tissue.
- Investigates VOC exposure of fire fighters involved in putting out oil fires in Kuwait. Finds that their levels of many VOCs were higher than background levels.
- Develops a statistical method for quality control of simultaneously measured analytes and applies it to the NHANES III survey.

- Serves as the central laboratory for the Eye Disorders Case Control Study with NEI (1988-1991).
- Develops and implements a national performance evaluation program to support the states' newborn screening tests for sickle cell disease and other hemoglobinopathies.

Return to:

[Top of Page](#)

1992 Highlights

- Division of Injury Control becomes a separate center: the National Center for Injury Prevention and Control.
- Center renamed the National Center for Environmental Health.
- Publishes Recommendations for the Use of Folic Acid to Reduce the Number of Cases of Spina Bifida and Other Neural Tube Defects.
- Sponsors the 25th anniversary of the Metropolitan Atlanta Congenital Defects Program.
- Sponsors the Conference and Workshop for State-Based Birth Defects Surveillance Programs.
- Collaborates with other CDC centers and other federal health agencies on a follow-up study of polio survivors.
- Participates in the [PHS](#) Task Force on Improving the Medical Criteria for Disability Determination.
- Increases the number of state disability prevention projects to 28 and adds 5 university- or hospital-based demonstration projects.
- Inspects the incinerator that destroys lethal chemical weapons at Johnston Island and ensures that no detectable agent is released during the destruction of 682,000 pounds of nerve and mustard gases.
- Assists in hurricane-associated emergencies in Florida, Louisiana, Hawaii, and Guam. Through the Emergency Storm Relief Grant, awards \$7.5 million for recovery operations.
- With support from an [NCEH](#) grant program, 31 state or local health agencies screen one million children for lead poisoning.
- In collaboration with the Michigan Department of Public Health, conducts a recharacterization study of people who were exposed to [PBB](#) s in 1973 and who have been observed since 1976.
- Convenes, in Atlanta, the Fifth National Environmental Health Conference. The theme is the health of environmental health.
- Convenes, in Atlanta, the First National Conference on Childhood Lead Poisoning Prevention.
- Begins a study of residents in Jacksonville, Arkansas, before and after the incineration of waste containing dioxin.
- Investigates the exposure to [VOC](#)s of fire fighters who worked on putting out an oil fire in Uzbekistan.
- Begins a study of human exposure to a new oxygenated gasoline in Alaska. Results show new human exposure to [MTBE](#).

- Determines that U.S. diplomats in Indonesia have not been unduly exposed to pesticides as a result of their houses being sprayed.
- Begins a multicenter study on risk factors for birth defects.
- Begins programs in five states to prevent [FAS](#).
- Begins a research program to identify an effective means of preventing FAS.
- Begins a program to evaluate the effectiveness of folic acid recommendations in preventing spina bifida and anencephaly.
- Awards grants for planning studies to determine the effectiveness of a program to prevent poverty-associated mental retardation.
- Develops an analytical method for measuring cotinine (a metabolite of nicotine) in serum. Cotinine levels indicate the amount of exposure to smoke from active smoking or from passive exposure to environmental tobacco smoke.
- Develops a urinary cotinine assay to validate self-reporting of smoking status. The assay's use in the smoking cessation programs of three states showed a clear need for laboratory verification of smoking status to assess the effectiveness of interventions.
- Establishes a cooperative research and development agreement with a company to develop stable standards for flow cytometric measurements for immunophenotyping tests. Product now patented.
- Develops a method to screen for cocaine and marijuana use by analyzing blood from dried blood spots.
- In collaboration with [ATSDR](#), evaluates environmental exposure to, and ingestion of, fish in Samoa. Attributes elevated urine arsenic levels to heavy fish consumption.
- Results of a study on the causes of birth defects show that traditional socioeconomic risk factors that predict very-low birth weight for infants of white women are not successful in predicting very-low birth weight for infants of black women.

Return to:

[Top of Page](#)

1993 Highlights

- Determines that the prevalence rate of developmental disabilities among U.S. children is approximately 17%.
- Begins a research program to examine the prevalence of fragile X syndrome among children in special education classes in metropolitan Atlanta.
- Provides funds to two additional states (Hawaii and South Carolina) to plan Project BEGIN, a program to improve the cognitive and social development of children whose mothers have not completed high school.
- Begins surveillance programs in South Carolina and Texas to find women who had pregnancies affected by an [NTD](#). All women found may enroll in a program that provides supplements of folic acid, which has been shown to decrease their risk of having another NTD-affected pregnancy.

- In China, begins enrolling couples in the community intervention program for preventing NTDs. Women who enroll are given a supply of folic acid tablets ($0.4 \mu\text{g}$ per day). A surveillance program will monitor the occurrence of birth defects among the offspring of enrolled couples.
- [CDC](#) Folic Acid Working Group (staffed by [NCEH](#) and [NCCDPHP](#)) sends policy paper to [FDA](#) recommending that cereal grain products be fortified with folic acid at a level of $350 \mu\text{g}$ per 100 g of cereal grain in order to prevent NTDs.
- Begins data collection for Birth Defects Risk Factor Study. First reports expected in 1997.
- Investigates the birth of infants with heart defects to three nurses who work at the same hospital in Akron, Ohio. Finds no common risk factors.
- Investigates a possible cluster of NTDs in three service units of [IHS](#) in South Dakota. Determines that background rates were higher than [MACDP](#) rates and that the possible cluster may be a normal statistical variation of the high background rates.
- Begins collaborative study with NCCDPHP and the Georgia Department of Human Resources to evaluate the use of fetal death certificates for birth defects surveillance and epidemiologic studies.
- [CDC/CRMLN](#) certifies 33 instrument systems used by clinical laboratories: these 33 systems (85% of those available) performed acceptably, and results were traceable to the NCEH accuracy base for measurements of total cholesterol.
- [FDA](#) requires documented traceability to the NCEH cholesterol accuracy base before approving diagnostic products that measure cholesterol.
- CDC CRMLN laboratory evaluates the first device approved by FDA for home cholesterol testing.
- Coordinates a major study for [CAP](#) to evaluate lyophilized proficiency- testing materials for problems related to measuring total and [HDL](#) cholesterol. As a result, CAP selected one of six vendors to provide proficiency testing materials for the 1994 Comprehensive Chemistry Surveys in which nearly 6,000 clinical laboratories will participate.
- Cosponsors with the [AHA](#) and the [AACC](#) a national conference to review recent advances in basic science, measurement technology, epidemiologic and clinical research, and public health practice in order to better define current understanding about lipid and lipoprotein disease.
- In collaboration with [NEI](#), begins baseline analyses for the multicenter Age-Related Eye Disease Study in order to evaluate the clinical course of, and risk factors for, cataracts and age-related macular degeneration, the leading causes of blindness among elderly people.
- To ensure measurement quality, collaborates on standardizing lipid measurements with 140 national or international laboratories involved in research on coronary heart disease. These laboratories collaborate in more than 100 major federal- or state-funded clinical trials and epidemiologic studies of risk for cardiovascular disease and of the relationships between (1) such risk and genetic or nutritional factors and (2) such risk and other chronic diseases such as diabetes.
- Plans the laboratory phase of the Toxicity of Lead in Children Trial sponsored by [NIEHS](#). The study will evaluate the effectiveness of treating children who have moderate lead poisoning with the drug succimer in addition to removing lead from their environment; by 1997, NCEH will have analyzed 19,000 blood specimens for lead.
- Begins, in collaboration with [NCHS](#), statistical analyses of selected results (e.g., blood lead levels) from the first half of [NHANES IV](#).

- Develops a new, more rapid method for measuring chlorinated hydrocarbon pesticides and [PCB](#) s in human serum.
- Develops a method for measuring brucine in serum; brucine is a biomarker associated with ingestion of hair spray.
- Assesses the exposure of people living along the U.S.-Mexico border to [VOC](#) s, chlorinated hydrocarbon pesticides, and nonpersistent pesticides. Follow-up assessments are planned for 1994 and 1995.
- Measures dioxin in the blood of residents of Seveso, Italy. This study follows up on one conducted after an industrial explosion in 1976; its purpose is to assess the persistence of dioxin in people. Results are expected in 1994.
- In collaboration with the U.S. Air Force, assesses the body burden of dioxin in Ranch Hand veterans during their third medical examination in 1992. A full analysis of the relationship between dioxin levels and adverse health effects will be completed in 1994.
- Assesses the exposure of Faroe Island residents to PCB s and dioxin. The analysis focuses on the relationship between toxicant levels and neurotoxic health effects. Results are expected in 1994.
- Assesses levels of [MTBE](#) (a gasoline additive) in the blood of residents of Anchorage, Alaska, and Stamford, Connecticut, in order to evaluate the relationship between MTBE levels and possible health effects. Results are expected in 1994.
- As part of a large study on toxic exposure and resulting adverse health effects in the Great Lakes region, assesses the exposure of residents and charter boat captains to dioxins, nonpersistent pesticides, chlorinated hydrocarbon pesticides, and PCBs.
- Assesses the exposure to mirex and other chlorinated hydrocarbon pesticides of a population near a contaminated creek in Ohio. Results are expected in 1994.
- Assesses the exposure of residents of Oak Ridge, Tennessee, to PCBs. Results are expected in 1994.
- For a [NIOSH](#) study, assesses the PCB exposure among workers in New Jersey. Results are expected in 1994.
- Responds, on behalf of CDC, to the 1993 Midwest flood, which had a significant impact on public health in nine states.
- Sponsors a National Academy of Sciences Workshop on Radiation Dose Reconstruction for Epidemiologic Uses.
- Convenes a Workshop on the Feasibility of Community Epidemiologic Studies near the Department of Energy facility at Fernald, Ohio.
- Awards grants for extramural radiation studies: (1) a report on historical dose reconstruction and epidemiologic studies and (2) uncertainty analysis in dose reconstruction.
- Develops criteria for selecting sites for future radiation dose reconstruction studies.
- Awards contracts to eight American Indian tribes in the Northwest for collecting and analyzing data on radiation exposure due to emissions from the [DOE](#) facility at Hanford, Washington.
- Develops a plan to involve the public in dose reconstructions and epidemiologic studies at nuclear facilities.

- Assists [DOD](#) in assessing the health-related complaints reported by some Gulf War veterans.
- Completes studies of human exposure to a new oxygenated gasoline in Alaska, Connecticut, and New York. Results show new human exposure to MTBE.
- Investigates health effects associated with exposure to spray leather conditioners; the investigation results in the recall of a commonly used spray leather conditioner.
- Assists in investigating a new hantaviral illness linked to exposure to rodents.
- Evaluates a surveillance system for unintentional carbon monoxide deaths in New Mexico. Investigates the indoor carbon monoxide levels at tractor pulls and finds that the levels are elevated.
- Begins six new childhood lead poisoning prevention grant programs.
- With support from an NCEH grant program, 29 state and 8 local health agencies screen more than 1.7 million children for lead poisoning and find nearly 75,000 children with elevated blood lead levels.
- Assists 10 state health departments in developing laboratory-based surveillance systems for elevated blood lead levels in children.
- Increases collaboration between [HUD](#) and CDC by assigning a public health advisor to headquarters.
- Participates in the Federal Interagency Lead-Based Paint Task Force, which includes representatives from 16 federal agencies.
- Supports studies designed to provide a sound scientific basis for childhood lead screening and lead poisoning prevention efforts.
- Awards the New York City Medical Examiner's Office \$190,000 to improve its data collection system.
- Investigates an alleged cluster of methadone-related deaths in Harris County, Texas.
- Using data from [ME/C](#) s, studies heat-related deaths in three cities and cold-related deaths in one.
- Consults with ME offices and shares technical expertise on matters of data collection and management.
- Produces annual report for the Office of the Medical Investigator, New Mexico.
- Conducts a study of hairspray ingestion and toxic hepatitis among American Indians on the Sioux Reservation in North Dakota.
- Investigates risk factors for death and injury associated with the World Trade Center explosion and fire in New York City.
- Conducts an epidemiologic investigation of heat-related illnesses in Philadelphia; data are being analyzed.
- Conducts a study to determine mercury exposure among the Miccosukee Indians in Florida; finds no significantly elevated levels of mercury in the study population.
- Converts the data system used in the long-term study of possible adverse health outcomes from a 1973 [PBB](#) poisoning of Michigan residents to a system easier for researchers to use.
- In collaboration with the Alaska Department of Health, IHS, and [NIH](#) , conducts a study of breast cancer related to exposure to organochlorine pesticides.

- Assists in conducting a rapid assessment and a public health surveillance after the Northridge earthquake in Los Angeles, California.
- Provides epidemiologic and other public health assistance to Iowa, Kansas, and Missouri after catastrophic floods during the summer of 1993. Analysis of flood-related morbidity is in progress.
- In cooperation with [EPA](#) , supports an environmental health-monitoring pilot project along the U.S.-Mexico border.
- Collaborates with the National Weather Service to develop a reporting system that describes more accurately the circumstances surrounding weather-related deaths and injuries.
- Collaborates with the Cuban Ministry of Public Health and [PAHO](#) to investigate a major epidemic of optic neuropathy in Cuba. Laboratory analysis focuses on assessing affected people's exposure to toxicants and measuring their nutritional status. Results will be released in late 1994.
- Working with the Ministry of Public Health in Spain, investigates further the cause and health effects of environmental exposure to toxic oil. Identifies a possible etiologic agent associated with [TOS](#).
- In cooperation with Emory University Schools of Medicine and Public Health, develops and introduces a fellowship program in disaster medicine.
- Contributes chapters to Emergency Planning, the manual of the Emergency Preparedness Program, World Health Organization.
- Represents [HHS](#) on the Federal Interagency Subcommittee for Natural Disaster Reduction, which produced a report on U.S. accomplishments in reducing the adverse health effects of natural disasters for the World Conference on the International Decade for Natural Disaster Reduction.
- Assesses the state of preparedness for chemical and toxicologic disasters in India, Thailand, and Mexico.
- Conducts a course on disaster epidemiology in Manila for the Field Epidemiology Training Program in the Philippines.
- Conducts public health surveillance after volcanic eruptions in Nicaragua; a summary of the findings will be available in late 1994.
- Conducts public health surveillance after an earthquake in Egypt.
- Assesses the health status of the population displaced by volcano- related landslides near Mt. Pinatubo in the Philippines.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

1994 Highlights

- Conducts a multistate case-control study of the presence of birth defects among infants whose mothers underwent CVS. Results showed a six-fold increase in the risk for deformed or missing fingers and toes among infants whose mothers underwent the procedure during the 8th through 12th week of pregnancy.

- Collaborates with 17 state health departments on study of trends related to Down syndrome. Results show an overall prevalence of 9.2 cases per 10,000 live-born infants. The rate for Hispanics was 11.8; for whites, 9.2; and for blacks, 7.3.
- Completes the Alaska Fetal Alcohol Syndrome Prevalence Study. Findings show an overall FAS prevalence of 0.8 per 1000 live births for 1977-92. The overall rate for Alaskan Natives is 3 per 1000; for the rest of the Alaskan population, it is 0.2 per 1000.
- Studies the prevalence of mental retardation among 10-year-old children living in the five-county metropolitan Atlanta area in the mid-1980s. Findings indicate that, among black children, the prevalence of both mild mental retardation and severe mental retardation is two to three times higher than among white children. Further study indicates that about half the increased prevalence of mild mental retardation among black children correlates with their mothers being more likely than the mothers of white children to have sociodemographic risk factors such as lower economic status and lower education levels. Full results published in the American Journal of Public Health, March 1995.
- In collaboration with NCCDPHP, Emory University, the Pan American Health Organization (PAHO), and the Cuban Government, studies an epidemic of optic neuropathy in Cuba.
- Using banked serum of Native Alaskan women, collaborates with IHS, NCI, and the Alaska Area Native Medical Center in a study of the association between breast cancer incidence and DDE/DDT levels.
- In collaboration with ATSDR, EPA, and state and county health departments, monitors clean-up of methyl parathion to which more than 200 residents of Lorain, Ohio, were exposed.
- In collaboration with FDA and EPA, completes an investigation of Peace Corps Volunteers' exposure to pesticides in Turkmenistan and Uzbekistan.
- Collaborates with the U.S. Geological Survey and the Hungarian Joint Committee on a cooperative project to assess the relationship between gastric cancer and [?nitrates in drinking water].
- With HUD, supports the Neighborhood-Based Childhood Lead Primary Prevention Program. This program is the first to fund neighborhood attempts to find and demonstrate ways that government, community organizations, and others can work together to keep children from becoming poisoned by lead. Uses NHANES III data to produce the only nationally representative estimate of blood lead levels in the United States' population in more than 10 years.
- Awards 37 continuation State- and Community-Based Childhood Lead Poisoning Prevention Grants. More than 1,500,000 children are screened for elevated blood lead levels. Of those screened, more than 54,000 were confirmed to have elevated blood lead levels and were referred for medical and environmental interventions.
- With other federal agencies and the National Alliance to End Childhood Lead Poisoning, cosponsors the National Childhood Lead Poisoning Prevention Conference.
- With the support of ATSDR, HUD, and EPA, sponsors the first National Childhood Lead Poisoning Prevention Education Conference.
- In conjunction with EPO and the Office of the Director, HIV/AIDS, issues the final report of a year-long investigation in Harris County, Texas, of deaths of people in whom methadone had been detected.
- Works with 50 counties in Georgia that were affected by the 1994 flooding to compile and publish data on flood-related mortality.
- Releases findings of dose-estimate reports for the air and for Columbia River pathways from the Hanford Environmental Dose Reconstruction Project in the State of Washington. Radiation doses to the thyroid

glands of infants and children who lived directly downwind of Hanford and who drank milk from 1945 through 1951 were probably much higher than radiation doses occurring naturally in the environment.

- Releases results from the pilot study for the Hanford Thyroid Disease Study. These results indicate that a full epidemiologic study of thyroid disease and exposure to radioactive iodine emissions from the DOE Hanford Nuclear Facility is feasible and should include 3,200 people who were born near the facility from 1941 through 1946.
- Conducts a cost-effectiveness analysis of residential radon screening for preventing lung cancer. Results indicate that, on the basis of current EPA recommendations for universal radon testing and mitigation, the cost of preventing one death due to radon-related lung cancer will be \$3.7 million.
- Begins a cooperative project with the Republic of the Marshall Islands to conduct an epidemiologic evaluation of thyroid disease associated with exposures to radioactive fallout from the U.S. Atomic Weapons Testing program conducted in the Pacific from 1946 through 1958.
- With NIOSH and ATSDR, cosponsors a conference on community involvement in public health activities at DOE nuclear weapons facilities. As a result of a community involvement workshop, an implementation plan to address the concerns of culturally diverse populations is developed.
- Develops a novel statistical approach that enables researchers to estimate environmental disease rates in small enough areas to allow for meaningful evaluation of potential exposure effects. This approach circumvents the problem of assessing potential health effects in areas with a small number of inhabitants.
- Develops a series of rigorous mathematical methods with which to estimate the sample size required for epidemiologic studies in which exposure estimates are subject to substantial error. Such methods are particularly relevant to studies of populations exposed to environmental radiation.
- Begins the third class of the Native American Public Health Practice Training Program in Seattle, Washington. This program is sponsored through NCEH's Hanford activities and is conducted in collaboration with eight Native American Tribes and Nations of the Northwest, the Indian Health Service, and the Region X Office of PHS.
- Develops and applies sensitive analytical methods for measuring more than 200 toxicants in people, including lead, cadmium, mercury, uranium, thorium, many other metals, 144 dioxins and furans, environmental tobacco smoke, 20 polychlorinated biphenyls, 42 pesticides, 32 volatile organic compounds, and 19 polyaromatic hydrocarbons.
- Blood lead levels measured in NHANES show major success of public health efforts to reduce lead in gasoline and lead in soldered food cans, resulting in a dramatic 78% decrease in blood lead levels for the U.S. population. The percentage of children with blood lead levels at or above 10 ug/dL also fell sharply, from 88% in NHANES II (1976-1980) to 8.9% in NHANES III, Phase 1 (1988-1991).
- Serves as Central Laboratory for the Toxicity of Lead in Children (TLC) Clinical Trial sponsored by NIEHS involving more than 1,300 children to examine the usefulness of Succimer for reducing the lead burden in children with blood lead levels between 20 ug/dL and 44 ug/dL, and for NEI's Age-Related Eye Disease Study, a randomized, placebo-controlled clinical trial of nutritional supplements for the prevention of macular degeneration in 1,200 elderly people. Both RCTs are ongoing.
- Supports a study of lead exposure among Peace Corps volunteers in Eastern Europe, Asia, and the former Soviet states; researchers find no evidence of significant exposure. Study is ongoing.
- Provides laboratory support for a study of lead exposure among 371 people from Micronesia; finds that 18% of children have elevated lead levels.

- Measurements for an ATSDR study of blood lead and blood cadmium levels in 42 people in the Palmerton, PA show no differences before and after lead abatement efforts
- A collaborative study with the Toxicon Consortium finds 53 of 164 natives of the Amazon Basin in Brazil to have elevated blood mercury from exposure to nearby gold-mining activities.
- A collaborative project with the Illinois Department of Health to assess urine levels of arsenic and cadmium and blood lead levels in 171 people living in the East St. Louis area of the "lead belt" finds no significant elevations.
- Urine levels of arsenic, antimony, and tin and blood lead in 128 people who may have been exposed to tin-mining operations and waste in Bolivia found elevations of tin, antimony and lead.
- In collaboration with the Arkansas Department of Health and ATSDR, measures 2,3,7,8-TCDD levels in 232 serum specimens and PCB levels in 180 specimens from people living near a chemical plant and an incinerator. Study is ongoing.
- In collaboration with the Wisconsin Department of Health and ATSDR, measures levels of chlorinated phenols, selected nonpersistent pesticides, dioxins, and furans in 32 Great Lakes charter-boat captains and their spouses, all of whom consume large amounts of fish. Study is ongoing.
- In collaboration with ATSDR and Odense University in Denmark, analyzes PCBs and chlorinated hydrocarbon pesticides in the umbilical cords of children born in the Faroe Islands and suspected of having been excessively exposed. The children are undergoing neurobehavioral and cognitive testing.
- In collaboration with the Illinois Department of Health and ATSDR, analyzes serum from 100 workers and residents in La Salle who may have been exposed to PCBs from a local electrical transformer facility. Data are being analyzed.
- As a follow-up to previous MTBE exposure studies in Alaska, Connecticut, and New York, collaborates with EPA to evaluate the pharmacokinetics of MTBE (a gasoline additive) and its primary metabolite, TBA, after subjects were exposed in a specially designed chamber. Finds that MTBE has a short half-life but that TBA blood levels rise and decline more slowly. A study of 169 people indicates that 2,5-dimethylfuran has a 95% sensitivity and a 97% specificity as a marker for active smoking.
- In collaboration with the California Department of Health Services, completes a preliminary study of adverse reproductive outcomes associated with exposure to ETS indicating associations between women's exposure to ETS and their risk of having low birth weight babies.
- In a collaborative study involving CDC, NIH, Emory University, PAHO, and the Cuban Ministry of Health as an urgent response to epidemic optic neuropathy affecting more than 50,000 people in Cuba, analyzes urine and serum samples of 300 people for biochemical markers of their nutritional status, smoking status, and health status, and for markers of exposure to heavy metals and organic toxicants. Findings indicate that poor nutrition and smoking are associated with this disease
- In collaboration with the Ohio Department of Health, measures urine pesticide levels and provides laboratory consultation for an investigation of a cluster of pulmonary hemosiderosis and pulmonary hemorrhage among infants in the Cleveland, Ohio. The cause of this serious illness is unknown and this investigation continues.
- Assists in evaluating suspected exposure to methyl parathion, which was sprayed in the homes of some low-income families living in Lorain County, Ohio. Analyzes urine samples for p-nitrophenol, a metabolite of methyl parathion. Many residents are exposed; some have high urinary concentrations compared with the reference range established by NCEH.

- Designs a survey study of water contamination in private wells resulting from the 1993 flooding in nine midwestern states and analyzes results. Samples from more than 8,000 wells are analyzed for coliform or E. coli contamination. Preliminary results show that of 5,494 wells, 2,242 have positive coliform counts, and 515 have positive E. coli counts. A follow-up survey is planned.
- Examines specimens for markers of kidney function from 721 persons living near Calvert City Industrial Complex in Kentucky where ground water is contaminated with 1,1-dichloroethane, 1,1-dichloroethene, carbon tetrachloride, and various heavy metals. Study is ongoing.
- Tests 651 people for kidney damage from the area surrounding the McClellan Air Force Base in Sacramento, California where air and ground water are contaminated by VOCs. Study is ongoing. Tests 567 young adults environmentally exposed as children to lead in the Silver Valley of Idaho for kidney damage. Data are being analyzed.
- Develops laboratory methods that may be useful in studies of alcohol abuse, including an immunoassay to measure protein-acetaldehyde adducts, including protein-acetaldehyde adducts, and an immunoassay for antibodies to protein-acetaldehyde adducts that may help in understanding the mechanism of damage caused by alcohol consumption.
- Studies gene variants (polymorphisms) that are candidate risk factors for NTDs in a case-series of 95 specimens from Greenwood, South Carolina. Preliminary results show that the portions of the genes studied did not distinguish case- from control-subjects.
- Coordinates and standardizes the NHLBI-supported Cholesterol Reference Method Laboratory Network and eluates a cholesterol-testing device that results in FDA approval as the first home test for cholesterol. Develops and validates an immunoassay method to measure drugs of abuse in dried blood spots routinely collected from infants and transfers the assay for a metabolite of cocaine to the New York State Department of Health for use in a pilot study of a high-risk population.

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

Abbreviations Expanded

2,4,5-T - 2,4,5-trichlorophenol

2,3,4-T - 2,3,4-trichlorophenol

Return to:

[Top of Page](#)

AACC - American Association for Clinical Chemistry

AHA - American Heart Association

ARC - American Red Cross

ASTHO - Association of State and Territorial Health Officials

ATSDR - Agency for Toxic Substances and Disease Registry

Return to:

[Top of Page](#)

BDDD - Division of Birth Defects and Developmental Disabilities, NCEH

BDMP - Birth Defects Monitoring Program

BDRFS - Birth Defects Risk Factor Study
BLLRS - Blood Lead Laboratory Reference System

Return to:
[Top of Page](#)

CAP - College of American Pathologists
CDC - Centers for Disease Control and Prevention
CEH - Center for Environmental Health
CEHIC - Center for Environmental Health and Injury Control
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CRMLN - Cholesterol Reference Method Laboratory Network

Return to:
[Top of Page](#)

DDT - dichloro-diphenyl-trichloro ethane
DNA - deoxyribonucleic acid
DOD - Department of Defense
DOE - Department of Energy
DPP - Disabilities Prevention Program

Return to:
[Top of Page](#)

EHHE - Division of Environmental Hazards and Health Effects, NCEH
EHLS - Division of Environmental Health Laboratory Sciences, NCEH
EMS - Eosinophilia Myalgia Syndrome
EPA - Environmental Protection Agency
EPO - Epidemiology Program Office, CDC
ERCG - Emergency Response Coordination Group

Return to:
[Top of Page](#)

FAS - fetal alcohol syndrome
FDA - Food and Drug Administration

Return to:
[Top of Page](#)

HDL - high-density lipoprotein
HHS - U.S. Department of Health and Human Services
HIV - human immunodeficiency virus
HUD - Department of Housing and Urban Development

Return to:
[Top of Page](#)

IHS - Indian Health Service
IOM - Institute of Medicine

Return to:

[Top of Page](#)

MACDP - Metropolitan Atlanta Congenital Defects Program
MADDS - Metropolitan Atlanta Developmental Disabilities Study
ME/C - medical examiner or coroner
MHPF - Minority Health Professions Foundation
MPTP - methyl phenyl tetrahydropyridine
MTBE - methyl tertiary butyl ether

Return to:

[Top of Page](#)

NCCDPHP - National Center for Chronic Disease Prevention and Health Promotion
NCD - National Council on Disabilities
NCEH - National Center for Environmental Health
NCEHIC - National Center for Environmental Health and Injury Control
NCEP - National Cholesterol Education Program
NCHS - National Center for Health Statistics
NCIPC - National Center for Injury Prevention and Control
NEI - National Eye Institute
NICHHD - National Institute for Child Health and Human Development
NIEHS - National Institute for Environmental Health Sciences
NHANES - National Health and Nutrition Examination Surveys (an ongoing series)
NHLBI - National Heart, Lung, and Blood Institute, NIH
NIH - National Institutes of Health
NIOSH - National Institute for Occupational Safety and Health, CDC
NPS - National Park Service
NRC - National Research Council
NTD - neural tube defect

Return to:

[Top of Page](#)

PAH - polyaromatic hydrocarbon
PAHO - Pan American Health Organization
PAMM - Program Against Micronutrient Malnutrition
PBB - polybrominated biphenyl
PCB polychlorinated biphenyl
PHS - Public Health Service

Return to:

[Top of Page](#)

TCDD - tetrachlorodibenzo-p-dioxin
TOS - toxic oil syndrome

UNICEF - United Nations International Children's Emergency Fund
VA - Veterans Administration
VOC - volatile organic compound
VSP - Vessel Sanitation Program
WHO - World Health Organization

Return to:

[Top of Page](#)

[A Brief History of NCEH](#)

[About NCEH](#)

[NCEH Home Page](#)

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