hazardous substances & Public Health

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Health Effects and Hazardous Waste Sites

As many as one in four Americans may be at risk of exposure to hazardous substances at U.S. hazardous wastes sites, ATSDR's chief biomedical officer for public health practice, Maureen Lichtveld, MD, MPH, told more than 700 participants at the first International Congress on the Health Effects of Hazardous Waste held in Atlanta, Georgia, May 3-6, 1993.

Speaking at the plenary session, Dr. Lichtveld said, "Forty-one million people live within a 4-mile radius of a hazardous waste site, and about 3,325 people live within a 1-mile radius of a hazardous waste site in the United States."

Studies show that exposure to heavy metals, volatile organic compounds (VOCs), and other hazardous substances can increase the risk of developmental disabilities; growth retardation; kidney, liver, and blood disorders; hypertension; adverse reproductive outcomes; increased frequency of some cancer types; and increased respiratory and neurological illness.

"To prevent or mitigate such exposures, ATSDR makes approximately 1,200 health-based recommendations per year," said Dr. Lichtveld. Through 1992, ATSDR conducted 103 health studies, 29 epidemiologic studies, and 52 investigations, and maintained 4 long-term health registries. A registry is established to study any adverse health effects potentially related to human exposure to hazardous substances in the environment.

The U.S. Environmental Protection Agency (EPA) currently includes 38,000 sites on its inventory of uncontrolled hazardous waste sites. Of that number, 1,374 sites are currently listed on or proposed for EPA's National Priorities List (NPL), which represents the sites posing the greatest threat to public health and the environment. The list continues to grow; EPA added 23 sites to the NPL during fiscal year 1991 and 30 sites in fiscal year 1992.

ATSDR conducts public health assessments for all NPL sites and responds to petitions from citizens for public health assessments. To date, ATSDR has conducted more than 1,500 public health assessments, affecting an average of 1,900 people at each site. A public health assessment is the evaluation of data and information on the release of hazardous substances into the environment to assess any current or future impact on public health, develop health advisories or other health recommendations, and identify studies or actions needed to evaluate and mitigate or prevent human health effects. The results of these assessments indicate that human exposure has occurred or is currently occurring at 40% of hazardous waste sites.

Public health-related findings associated with U.S. hazardous waste sites have led to an array of health-based research efforts and other activities. For instance, a hundred or more different toxic chemicals can be found at a single waste site in widely varying

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry

combinations; such mixtures may be much more toxic than any of the individual chemicals. Future directions involve research into how these chemical mixtures affect humans.

Findings . . . Health Studies

Adverse health effects potentially related to exposure to hazardous substances in the environment:

- **developmental disabilities**
- **growth retardation**
- **kidney, liver, blood disorders**
- **hypertension**
- **adverse reproductive outcomes**
- **increased frequency of some cancer types**
- **increased respiratory and neurological illness**

Environmental Health Education for Nurses

As the role of nurses in health care expands, more attention is being paid to their role in environmental health and their need for environmental health knowledge, skills, and education opportunities. Many health advocates believe that primary-care nurses can help combat the nation's toughest health care delivery problems — high prices and a shortage of primary-care physicians, particularly in rural areas and inner cities. Hazardous waste sites are most prevalent in these underserved areas, and residents may be at risk of exposure to toxic substances. To explore the nurses' role in environmental health, the Institute of Medicine, National Academy of Sciences (IOM/NAS) has announced a study of environmental health content in nursing practice.

The nursing practice is being viewed as a way to cut costs while expanding access to health care. In some states, more than 30% of the population is underserved. New York State has more than 80 sites on the National Priorities List (hazardous waste sites believed to represent the greatest threat to public health and the environment) located in rural and urban areas that are 20.8% medically underserved. The American Nurses Association estimates that 400,000 of the nation's 2.1 million registered nurses already are delivering primary-care services. (Sources: National Association of County Health Officials, *National Priorities List Sites in U.S. Counties,* February 1992, and National Association of Community Health Centers.) To address issues related to environmental health and nursing practice, IOM/NAS, sponsored by ATSDR, and co-sponsored by the Health Resources and Services Administration, Division of Nursing, the National Institute of Environmental Health Sciences and the National Institute of Nursing Research, National Institutes of Health, will conduct a full-scale study entitled *Enhancing Environmental Health Content in Nursing Practice.* The study is a corollary to a 1988 IOM report, *Role of the Primary Care Physician in Occupational and Environmental Medicine,* which identifies the need to increase environmental health education for health professionals.

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The study is a result of focus groups and workshops held in 1991 and 1992, composed of nursing representatives from key organizations that identified a need and interest for nurses in the field of environmental health and nursing practice, and identified environmental health problems nurses encounter in their practice.

The IOM will form a 15-member panel consisting of practicing nurses in public, community, and occupational health; faculty and administrators of schools of nursing; environmental health experts; and professional nursing organizations. Attention will be given to gaining knowledge about existing environmental health nursing practice and to developing, strengthening, and revising an environmental health curriculum as needed. A focus on nursing research and research training will be included.

The committee will identify environmental health issues that require attention from the nursing community. The issues address the need for developing an environmental health curriculum. Essential competencies in environmental health will be identified; methods and resources from nursing faculty will be recommended; and strategies for enhancing nursing training and methods for evaluating the effectiveness of the curriculum will be developed. Other issues include the need for integrating environmental and occupational issues into a research agenda, and the need to improve dissemination of environmental health and nursing practice information.

Dissemination efforts will target the following audiences: American Nurses Association, American Association of Colleges of Nursing, Association of Community Health Nursing Educators, National League of Nursing, National Organization of Nursing Practitioner Faculties, State and Territorial Directors of Nursing for Public Health, American Public Health Association Nursing Section, Association of Occupational Health Nurses, and others.

For more information about environmental health education for nurses, contact Diane Narkunas, ATSDR, Division of Health Education, 1600 Clifton Road, NE, Mailstop E33, Atlanta, Georgia 30333; telephone (404) 639-6205; fax (404) 639-6207.

States with the Highest Percentage of "Medically Underserved Persons"

1.	Mississippi	33.3%
2.	Louisiana	31.8%
3.	West Virginia	29.7%
4.	Alabama	27.6%
5.	Arkansas	27.6%
6.	District of Columbia	25.4%
7.	Oklahoma	23.6%
8.	New Mexico	22.9%
9.	California	21.5%
10.	Texas	21.3%
11.	New York	20.8%
12.	Georgia	20.2%

Source: National Association of Community Health Centers

First Responders Get Help Planning For Hazardous Materials Emergencies

Earlier this year, more than 1,700 people became ill after a valve on a railway tank car failed, and a cloud of toxic sulfuric acid was released in Richmond, California. Part of Interstate 80 through the area was closed to eastbound traffic for about an hour. Most victims developed breathing problems, nausea, and skin irritations, and the county health director reported that a small number of people could suffer from bouts of asthma lasting weeks or months. Unfortunately, such events are not extraordinary. How can emergency workers and doctors identify the toxic substance(s) and determine what treatment measures to take? How will they know whether victims should be decontaminated before being treated?

Researching the answers to these questions has often been a lengthy and frustrating process for the health professional. Access to this information has particularly been a problem during an emergency response incident, when time is critically important to saving lives. To help emergency planners, first responders, and hospital personnel prepare for and respond to these situations, ATSDR developed a three-volume guide entitled *Managing Hazardous Materials Incidents.* Volumes 1 and 2 of the guide, *Emergency Medical*

Welcome to APHA!

Barry L. Johnson, PHD, Assistant Surgeon General
Assistant Administrator, Agency for Toxic Substances and Disease Registry

Welcome to San Francisco and the American Public Health Association's 1993 meeting. We at the Agency for Toxic Substances and Disease Registry (ATSDR) look forward to the opportunity to meet our colleagues in public health and to discuss with you some of the current issues in environmental health.

As you may know, Congress has initiated hearings on the reauthorization of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund). We anticipate some changes in the health section of CERCLA as a result of reauthorization. In 1986, when Congress last reauthorized Superfund, it was clear that the statute's health section was strengthened, and it was equally clear that Congress envisioned a partnership between states and ATSDR in implementing these health provisions. ATSDR's key partners in conducting our work are the U.S. Environmental Protection Agency and state and local health departments. One main purpose of our support to state and local health departments is to improve the ability of health agencies to respond to the health concerns of communities around Superfund sites and other areas of pollution. Their legitimate health concerns need the coordinated response of government at all levels.

In 1987, the Agency committed itself to a goal of building or enhancing state health departments' capacity in environmental health. From fiscal year 1987 through 1992, about $40 million in funds was provided to states through a series of cooperative agreement programs. This figure represents approximately 15% of ATSDR's total budget during this period—a substantial figure, given other budgetary demands on the Agency.

We have also continued to strengthen our focus on community involvement as an integral part of conducting our activities. During the past year, Agency personnel made approximately 8,000 personal contacts with members of communities near hazardous waste sites.

Community assistance panels have been found to be an effective means of fostering communication between ATSDR and site communities. A community assistance panel has three primary purposes: 1) to facilitate communication between ATSDR and the affected community; 2) to provide an ongoing series of community-based meetings to ensure community involvement throughout the public health assessment process; and 3) to provide information to ATSDR on the community's health concerns for inclusion in the public health assessment.

ATSDR also is increasing its use of public availability sessions—informal, drop-by meetings at which community members can meet one-on-one with ATSDR staff to discuss health and site concerns. Other site-specific community involvement activities that we have found useful include small group briefings for key community leaders, a practice that enables ATSDR to solicit information from grassroots leaders about how best to interact with their constituents and to address their concerns, and to provide up-to-date information about ATSDR activities in their community.

Although ATSDR has learned a great deal in the 7 years since Superfund was reauthorized, we have a long way to go. We need to know a lot more to improve the prevention of adverse health effects in affected communities. Health officials and scientists are unable to answer many significant questions about the impact on public health of hazardous wastes. We invite your participation as we work to meet the many future challenges of improving environmental public health.

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Services: A Planning Guide for the Management of Contaminated Patients and *Hospital Emergency Departments: A Planning Guide for the Management of Contaminated Patients*, are intended to help first responders plan for hazardous materials emergencies.

Volume 3, *Medical Management Guidelines for Acute Chemical Exposure*, a new publication, provides information on managing acute exposures resulting from chemical incidents. Intended to supplement the education and training of emergency medical technicians and others who respond to chemical emergency incidents, the *Medical Management Guidelines* serve as a resource for information about the toxicity and health effects of hazardous exposures and information about personal protection and decontamination.

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The Medical Management Guidelines *offer treatment information to health professionals who respond to acute exposure incidents involving hazardous chemicals.*

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The *Medical Management Guidelines* focus on 27 chemicals that are found at hazardous waste sites or that commonly cause death or injury when people are exposed during emergencies. Topics discussed include clinical symptoms, prehospital care (decontamination, triage, and transportation), hospital care (including specific procedures to manage treatment of the patient), chronic exposure information, patient information, and follow-up instructions. The documents will be distributed to members of the American College of Emergency Physicians, which comprises approximately 15,000 practitioners of emergency medicine.

For more information on Volumes 1 and 2, contact Scott Wright, ATSDR, Division of Toxicology, Mailstop E57, 1600 Clifton Road, NE, Atlanta, Georgia 30333; telephone (404) 639-6360; fax (404) 639-6315. For information on Volume 3, contact Patricia Poindexter, ATSDR, Division of Health Education, 1600 Clifton Road, NE, Mailstop E33, Atlanta, Georgia 30333; telephone (404) 639-6205; fax (404) 639-6207.

Medical Management Guidelines Topics

acrylonitrile
ammonia
aniline
arsine
benzene
chlordane
chlorine
ethylene oxide
formaldehyde
gasoline
hydrogen chloride
hydrogen cyanide
hydrogen fluoride
hydrogen peroxide
hydrogen sulfide
methyl bromide
methylene chloride
nitrogen oxides
parathion
phenol
phosgene
phosphine
sodium hydroxide
toluene
toluene diisocyanate
trichloroethylene
xylene

ATSDR Implements Education Programs in Risk Communication

Many health problems require sustained individual behavior change, change of community values and priorities, and policy and environmental change. What motivates and activates individuals and communities? How can health messages and approaches be crafted so that they are congruent with individual and community values and priorities? Effective risk communication depends on the recipient's understanding the message, being motivated by it, and having the opportunity to act on it. Therefore, ATSDR recognizes risk communication as an integral component of all its programs, which are designed to prevent or mitigate adverse human health effects and diminished quality of life resulting from exposure to hazardous substances in the environment.

The Agency has undertaken a number of training activities to educate health care professionals about risk communication in communities around Superfund sites. These endeavors range from participation at the Public Health Service (PHS) level in the Committee To Coordinate Environmental Health and Related Programs (CCEHRP) to production of ATSDR publications devoted to the topic of risk communication.

Continued

PHS Committee Participation

ATSDR Assistant Administrator Barry Johnson, PhD, serves as chairperson of the Public Health Service's CCEHRP Subcommittee on Risk Communication and Education and recently submitted a report compiled by ATSDR. Entitled *Recommendations To Improve Health Risk Communication*, this report summarizes the Subcommittee's first assignment: an analysis of risk communication policies and procedures across PHS agencies, with the goal of developing recommendations on improving risk communication.

The purpose of this report is to help public health professionals understand the basic principles that will assist them in fulfilling their responsibilities to provide to—and receive from—the general public needed environmental health information about environmental exposures and disease. The report suggests fundamental principles drawn from a series of case studies from PHS agencies about how best to plan and carry out risk communication activities.

Cooperative Agreements

- **Association of State and Territorial Health Officials (ASTHO)**

ATSDR has a cooperative agreement with ASTHO to address the need to improve information exchange and transfer between state and federal agencies and among state agencies. Risk communication workshops are offered by ASTHO to public health professionals (e.g., state health officers, senior risk managers, deputy commissioners, technical staff, physicians, epidemiologists, toxicologists, sanitarians, health educators, and local health directors). In FY 1993, 288 participants attended the 1- to 2-day ASTHO risk communication training programs.

- **Federal Facilities**

Risk communication is also prominently featured in the training programs ATSDR offers the armed forces. Through ATSDR cooperative agreements in 1991 and 1992, risk communication training sessions were conducted for Air Force personnel in Salt Lake City, Utah; Atlanta, Georgia; Dayton, Ohio; and San Antonio, Texas; and for Army personnel at the Army Environmental Hygiene Agency, Aberdeen Proving Ground, Maryland.

- **National Association of County Health Officials (NACHO)**

Training in risk communication is offered to state and local health officials through ATSDR's cooperative agreement with NACHO. In the current fiscal year, 222 participants have been trained in short courses offered by NACHO.

- **National Governors' Association (NGA)**

To help governors prepare for the types of environmental crises that require their response, NGA produced *A Governor's Guide to Environmental Risk Response* through a cooperative agreement with ATSDR. This 24-page handbook describes the experiences of six governors in handling environmental problems that demanded their involvement. Some of the situations required the governor to respond because community concern turned to outrage as a result of negative publicity. In other situations, the governor was called upon to act before community concerns escalated. As a followup to the report, NGA is now soliciting views of governors' immediate staff in planning a risk communication workshop for governors' staffs and advisors to be held December 15-16, 1993, in Charleston, South Carolina.

Public Health Conference Support Grant Program

Through a conference grant program, ATSDR supports state, local, academic, national, and international health efforts to prevent or reduce illness, disability, and premature death due to exposure to toxic substances. In June 1993, the Florida Department of Health and Rehabilitative Services offered "Risk Communication for Environmental Health Personnel" to 200 participants. This 1-day course preceded the National Environmental Health Association annual conference. Participants learned (1) how communities see risk; (2) how to earn trust and credibility with the public in risk issues; (3) how to determine the means of releasing information to the public; (4) ways to interact with communities in risk issues; and (5) how

to explain risk to the public, including common pitfalls in risk communication.

Also through the ATSDR grant program, the Texas Department of Health sponsored the "Texas-Mexico Border Conference on Health Effects of Toxic Substances and Risk Communication." The goals of this 1½-day conference in August 1993 were to (1) develop an understanding of possible human health effects from toxic substances; (2) create an understanding of epidemiologic methods used in evaluation of affected populations; (3) encourage the involvement of Hispanics in issues regarding the environment; (4) bring together public health officials, regulators, researchers, and industry to improve communication and cooperation; and (5) encourage cooperation and information-sharing between Mexico and the United States.

Curriculum Development

ATSDR is also involved in developing risk communication curriculum modules. Through the Association of Schools of Public Health, ATSDR has a cooperative agreement with the Tulane University School of Public Health and Tropical Medicine to develop programs and curricula in environmental medicine and health assessments. In FY 1992, Tulane developed plans for 1-hour training modules on environmental epidemiology, environmental toxicology, risk communication, and the public health assessment process.

Training is also being developed for pharmacists, who are usually the first point of contact in the health care system for residents of minority and disadvantaged neighborhoods. Three historically black colleges of pharmacy (Xavier University of Louisiana, Texas Southern, and Florida A&M) have been working to develop risk communication training for retail pharmacists through an ATSDR cooperative agreement awarded to the Association of Minority Health Professions Schools.

Publications

Risk communication was the special topic of the August 1993 issue of ATSDR's *Hazardous Substances and Public Health* (vol.3, no.3). In addition, a proposal for a quarterly publication on risk communication is being developed.

In-House Training

Officials at ATSDR, as well as their colleagues at the state and local level, are confronted with the challenge of communicating risk to communities around hazardous waste sites. Professional development in risk communication will help ATSDR work toward building and supporting Agency capacity to effectively design, deliver, and evaluate risk communication campaigns, materials, and messages targeted to diverse audiences. Preliminary efforts have begun to assess the risk communication needs of ATSDR staff. Development of a 1-day ATSDR risk communication training course will continue into FY 1994.

For more information on ATSDR's risk communication activities, contact Max Lum, EdD, Director, Division of Health Education (404/639-6204) or Tim Tinker, MPH, Health Education Specialist, Division of Health Education (404/639-6206) at ATSDR, 1600 Clifton Road, NE, Mailstop E33, Atlanta, Georgia 30333.

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Table 1. Growth and Development of ATSDR's Risk Communication Activities

Community involvement
• Public health assessment workshops, public availability sessions, public meetings, small group meetings, fact sheets, news releases: 1990 to present
• Health risk communication training: 1991 to present
• Community assistance panels (CAPS): 1991 to present
Publications
• *Toxicological Profiles*: 1985 to present
• *Public Health Statements*: 1985 to present
• *A Governor's Guide to Environmental Risk Response* (National Governors' Association): 1993
• *Case Studies in Environmental Medicine* (risk communication issue forthcoming)
Training courses
• "Clues To Unraveling the Association Between Illness and Environmental Exposure" course: 1990 to present
• National Association of County Health Officials (NACHO) short courses: 1990 to present
• Association of State and Territorial Health Officials (ASTHO) risk communication training: 1992 to present
• State cooperative agreements (educational programs and materials development): 1990 to present
• Federal Facilities training (Department of Army and Air Force): 1991 to 1992
• Department of Energy (DOE) training: 1993
Emergency response
• Telephone technical assistance information: 1990 to present
• 24-hour voice information system: 1992 to present
Curriculum development
• Preventive medicine residency: 1991

ANNOUNCEMENTS

David Satcher Named New Administrator of ATSDR and Director of CDC

David Satcher, MD, PhD, president of Meharry Medical College, has been selected by U.S. Department of Health and Human Services Secretary Donna E. Shalala, to serve as administrator of the Agency for Toxic Substances and Disease Registry (ATSDR) and director of the Centers for Disease Control and Prevention (CDC).

"David Satcher brings world-class professional stature, management skills, integrity, and preventive health care experience to his new role," said Secretary Shalala. "President Clinton has directed this administration to place special emphasis on disease prevention, and we can think of no better person to lead our prevention efforts than Dr. Satcher."

Assistant Secretary for Health Philip R. Lee, MD, head of the Public Health Service, also expressed his pleasure at Dr. Satcher's appointment to the public health team. "Dr. Satcher is a world leader in medicine and public health. His vision of public health for the 21st century will enhance the 'health' in health care reform." At Meharry, Dr. Satcher led fund-raising efforts for the historically black medical college and formed links with Vanderbilt Medical School in Nashville, Tennessee.

He recently carried forward the merger of Meharry's Hubbard Hospital with the Nashville General Hospital. Under his leadership, Meharry in 1989 established an Institute on Health Care for the Poor and Underserved.

Dr. Satcher was born in Anniston, Alabama. He received the bachelor of science degree from Morehouse College in Atlanta, Georgia, in 1963, and advanced degrees in cytogenetics from Case Western Reserve University in Cleveland, Ohio, in 1970. He performed

his residency work in the joint medicine-pediatric program at Strong Memorial Hospital of the University of Rochester in New York. At Morehouse, he was elected to Phi Beta Kappa and at Case Western Reserve to the Alpha Omega Honor Medical Society.

Dr. Satcher is expected to assume his new position in January 1994.

Neurobehavioral Symposium To Be Held in Cairo, Egypt, December 1994

The Egyptian Society of Pesticides Hazards and Cairo University are hosting the Fifth International Symposium on Neurobehavioral Methods and Effects in Occupational and Environmental Health, in Cairo, Egypt, December 3-7, 1994. The symposium is being organized with the cooperation of the Scientific Committee on Neurotoxicology and Psychophysiology of the International Commission on Occupational Health. Submission deadlines are as follows: for abstracts, February 28, 1994; for full papers, October 31, 1994. For more information, please contact the regional secretariat for the Americas: Barry L. Johnson, PhD, Office of the Assistant Administrator, Agency for Toxic Substances and Disease Registry, 1600 Clifton Road, NE, Atlanta, GA 30333 USA; telephone (404) 639-0700; fax (404) 639-0744.

Courses

University of North Carolina

The North Carolina Occupational Safety and Health Educational Resource Center in Chapel Hill, North Carolina, is offering the following training opportunities.

Supervising Lead Abatement Programs, November 8-11, 1993. This course is designed for those responsible for designing, planning, or conducting lead-based paint, soil, or dust abatement. Emphasis will be placed on safe removal techniques for steel structures and residential and commercial buildings.

Building Inspection for Lead Abatement, November 15-17, 1993. This course is designed for those responsible for inspecting commercial and residential buildings or steel structures for lead-based paint. Emphasis will be placed on inspection techniques, including regulations, identification, and sampling.

For more information about these and other available courses, contact the Occupational Safety and Health Educational Resource Center, University of North Carolina, 109 Conner Drive, Suite 1101, Chapel Hill, North Carolina 27514; telephone (919) 962-2101; fax (919) 966-7579.

University of Utah

The Rocky Mountain Center for Occupational and Environmental Health, University of Utah, Salt Lake City, is offering the following training opportunities.

Hazardous Substances: Basic Evaluation, Management, and Control, November 1-5, 1993. This is a 5-day course for professionals who manage or oversee hazardous materials projects. Note: This is not a 40-hour Hazwopper course; it does meet the 24-hour requirements under 1910.120.

Introduction to Industrial Toxicology, December 6-10, 1993. This is a 4½-day course for health, safety, and environmental professionals who desire a basic understanding of toxicological principles and their application to the industrial environment.

For more information about these and other available courses, contact the Rocky Mountain Center for Occupational and Environmental Health, Building 512, University of Utah, Salt Lake City, Utah 84112; telephone (801) 581-5710.

University of Washington

The Northwest Center for Occupational Health and Safety in Seattle, Washington, is offering the following course for environmental health professionals, industrial hygienists, occupational health professionals, epidemiologists, toxicologists, engineers, and attorneys.

Community Air Quality, January 12, 1994. This course offers a review of current epidemiologic data and the associations between inhalation of fine airborne particles and hospital admissions, lung function decrements, medication use, and mortality. Fee: $95.

For more information on this and other available courses, contact the Northwest Center for Occupational Health and Safety, Department of Environmental Health, SC-34, University of Washington, Seattle, Washington 98195; telephone (206) 543-1069.

CALENDAR

OCTOBER

Oct. 30-Nov. 3: **American Academy of Pediatrics,** Washington, DC. *Contact:* Marisa Goldberg, American Academy of Pediatrics, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, Illinois 60009-0927; telephone (708) 228-5005; fax (708) 228-5088.

NOVEMBER

Nov. 1-3: **The Fourth National Research Conference on Pesticides,** Richmond, Virginia. *Contact:* Dr. Diana L. Weigmann, Virginia Water Resource Center, Virginia Polytechnic Institute and State University, 617 North Main Street, Blacksburg, Virginia 24060-3397; telephone (703) 231-5624.

Nov. 30-Dec. 2: **HMCRI/Superfund '93 Conference and Exhibition,** Washington, DC. *Contact:* Hazardous Materials Control Resources Institute, 7237 Hanover Parkway, Greenbelt, Maryland 20770-3602; telephone (301) 982-9500; fax (301) 220-3870.

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