

# Environmental Health Information Partnership

Children's  
Health  
and the  
Environment

March 27-28, 2012  
Proceedings





**NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE**

**ENVIRONMENTAL HEALTH  
INFORMATION PARTNERSHIP**

**PROCEEDINGS**

National Library of Medicine  
Bethesda, Maryland  
March 27–28, 2012

*Children's Health and the Environment*

Prepared for  
Division of Specialized Information Services  
National Library of Medicine

Prepared by  
Health Promotion and Outreach Group  
Oak Ridge Institute for Science and Education

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ORISE is a U.S. Department of Energy institute focusing on scientific initiatives to research health risks from occupational hazards, assess environmental cleanup, respond to radiation medical emergencies, support national security and emergency preparedness, and educate the next generation of scientists.

## NEWEST MEMBERS OF THE ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP

The National Library of Medicine (NLM) Environmental Health Information Partnership (EnHIP) is a collaboration between NLM and Historically Black Colleges and Universities (HBCUs), a Predominately Black Institution (PBI), Hispanic-Serving Institutions (HSIs), Tribal Colleges and Universities, and an Alaska Native-Serving Institution. The newest institutions to participate in the Partnership are Florida Memorial College and the University of Alaska Anchorage.

The addition of these two institutions complements the multi-diverse Partnership and further enhances the Partnership's Mission among minority-serving academic institutions to reduce health disparities through the access, use, and delivery of environmental health information on their campuses and in their communities.

### **Florida Memorial University**



Florida Memorial University, one of the oldest academic centers in Florida, is the only historically black institution of higher learning in the southern region of the state. It was founded in 1879 as the Florida Baptist Institute in Live Oak, Florida. In 1941, the Institute merged with Florida Normal and Industrial Institute, a school established as Florida Baptist Academy. At that time, the school changed from a junior college to a four-year liberal arts institution. The first four-year class was graduated in 1945. The school's name was changed in 1950 and again in 1963. Florida Memorial College relocated to Northwest Miami in 1968. The school celebrated its 100th anniversary in 1979 and later changed its name to Florida Memorial University.

Florida Memorial University offers 41 undergraduate and four graduate degree programs through its six academic schools. It is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools, Association of Collegiate Business Schools and Programs, and National Council for Accreditation of Teacher Education. It is ranked second in Florida and ninth in the United States for graduating African-American teachers. Florida Memorial is a member of the National Association of Intercollegiate Athletics and the Florida Sun Conference.

### **University of Alaska Anchorage**



The University of Alaska Anchorage (UAA) is the state's largest post-secondary institution. Located in the heart of Alaska's largest city, UAA is comprised of six teaching units at the Anchorage campus: the colleges of Education, Health and Social Welfare, Arts and Sciences, Business and Public Policy, the Community and Technical College, and the School of Engineering. Community campuses are Matanuska-Susitna College, Kenai Peninsula College, Kodiak College, and Prince William Sound Community College.

The University offers many career pathway programs leading to associate, baccalaureate, and master's degrees, as well as, vocational and professional certificates in more than 190 study areas. Research is one of UAA's main missions. Undergraduate students have opportunities for hands-on, active learning that goes beyond the classroom and introduces them to a global community of scholars. Graduate research is done in conjunction with UAA's master's and doctoral programs, as well as, collaborative PhD programs with the University of Alaska Fairbanks, the University of Washington Medical School, and other institutions.

Anchorage is the state's primary hub for transportation, communications, health care, engineering, trade, service, and finance. One of UAA's top priorities is to work with its community partners to create programs that help meet the needs of these career fields in Alaska.

UAA is fully accredited by the Northwest Commission on Colleges and Universities. UAA began in 1954 as Anchorage Community College. It became a four-year institution in 1976.

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**NATIONAL LIBRARY OF MEDICINE  
ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP MEETING**

**Board of Regents Room  
Mezzanine, Building 38  
March 27–28, 2012  
Ann Barbre, PhD, Presiding**

AGENDA

**TUESDAY—MARCH 27, 2012**

8:30 a.m. – 9:00 a.m.	<b>REGISTRATION</b>
9:00 a.m. – 9:10 a.m.	<b>Meeting Opening and Welcome</b> Ann Barbre, PhD Chairman, EnHIP
9:10 a.m. – 9:20 a.m.	<b>Remarks and Introductions of New Chair</b> Donald A.B. Lindberg, MD Director, NLM
9:20 a.m. – 9:30 a.m.	<b>Introductions</b> Ann Barbre, PhD Chairman, EnHIP
9:30 a.m. – 9:45 a.m.	<b>Evaluating Risks to Children Using the USEPA Assessment Paradigm</b> Michael Sullivan, PhD California State University, Northridge
9:45 a.m. – 10:15 a.m.	<b>The National Children’s Study</b> Yvonne Maddox, PhD Deputy Director, National Institutes of Child Health and Human Development
10:15 a.m. – 10:30 a.m.	<b>Discussion and Q&amp;A</b> Facilitated by Bailus Walker, Jr., PhD
10:30 a.m. – 10:50 a.m.	<b>BREAK</b>
10:50 a.m. – 11:30 a.m.	<b>Nanomedicine: Emerging Therapeutics for the 21st Century</b> Tarun K. Mandal, PhD Director, Center for Nanomedicine and Drug Delivery Xavier University of Louisiana

**NATIONAL LIBRARY OF MEDICINE  
ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP MEETING  
Board of Regents Room  
Mezzanine, Building 38**

AGENDA

- 11:30 a.m. – 12:00 p.m.      **Update on Disaster Meeting in Israel**  
Steven Phillips, MD  
Associate Director, SIS, NLM
- 12:00 p.m. – 1:30 p.m.      LUNCH
- 1:30 p.m. – 2:00 p.m.      **EnHIP Group Picture**  
Michael Spencer, Photographer, NIH  
Lobby of Building 38 (or outside near totem pole)
- 2:00 p.m. – 2:40 p.m.      **Lessons from New Orleans on the Role of Environment in  
Children’s Health Disparities**  
Howard Mielke, PhD  
Research Professor  
Tulane University
- 2:40 p.m. – 3:05 p.m.      BREAK
- 3:05 p.m. – 3:20 p.m.      **Overview of Exhibition, Remarks, and Video**  
Donald A.B. Lindberg, MD  
Director, NLM
- 3:20 p.m. – 5:00 p.m.      **Tour of Exhibition — Native Voices: Native Peoples’ Concept  
of Health and Illness**  
Led by Erika Mills, BA  
Community Outreach Coordinator, Exhibition Program, NLM
- 5:00 p.m. – 5:10 p.m.      **Wrap-up of Day 1**  
Ann Barbre, PhD  
Chairman, EnHIP

NATIONAL LIBRARY OF MEDICINE  
ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP MEETING  
**Board of Regents Room**  
**Mezzanine, Building 38**

AGENDA

**WEDNESDAY—MARCH 28, 2012**

8:30 a.m. – 9:00 a.m.	REGISTRATION
9:00 a.m. – 9:05 a.m.	<b>Welcome and Introductions</b> Ann Barbre, PhD Chairman, EnHIP
9:05 a.m. – 9:20 a.m.	<b>Overview of Disaster Information Management Research Center</b> Cindy Love, MLS Technical Information Specialist Disaster Information Management Research Center, SIS, NLM
9:20 a.m. – 9:30 a.m.	<b>Discussion and Q&amp;A</b> Facilitated by Steven Phillips, MD Associate Director, SIS, NLM
9:30 a.m. – 10:00 a.m.	<b>From Science to Outreach: The Housing and Health Connection</b> Jonathan Wilson, MPP Deputy Director National Center for Healthy Housing
10:00 a.m. – 10:30 a.m.	<b>EnHIP Outreach Awards Presentations</b> <ul style="list-style-type: none"><li>• Judy Kramer, MPH, NLM, presenting for <i>Diné College</i></li><li>• Doris Holeman, PhD, RN, <i>Tuskegee University</i></li></ul>
10:30 a.m. – 10:45 a.m.	BREAK
10:45 a.m. – 11:15 a.m.	<b>Continuation of EnHIP Outreach Awards Presentations</b> <ul style="list-style-type: none"><li>• Doris Withers, EdD, <i>Medgar Evers College, CUNY</i></li><li>• Arlene Montgomery, PhD, <i>Hampton University</i></li></ul>
11:15 a.m. – 11:45 a.m.	<b>New Chair's Vision for EnHIP</b> Ann Barbre, PhD Chairman, EnHIP
11:45 a.m. – 11:50 a.m.	<b>Children's Health and the Environment Summary</b> Ann Barbre, PhD
11:50 a.m. – 12:00 p.m.	<b>Closing Remarks</b> Ann Barbre, PhD



**DEPARTMENT OF HEALTH & HUMAN SERVICES  
NATIONAL INSTITUTES OF HEALTH  
NATIONAL LIBRARY OF MEDICINE**

**PROCEEDINGS OF THE ENVIRONMENTAL HEALTH  
INFORMATION PARTNERSHIP MEETING  
March 27–28, 2012**

The Environmental Health Information Partnership (EnHIP) convened on March 27, 2012, at 8:30 a.m. in the National Library of Medicine (NLM) Board Room, Building 38, National Institutes of Health (NIH), Bethesda, Maryland. Newly appointed EnHIP Chairman Dr. Ann Barbre, Professor of Pharmacy Administration, Xavier University of Louisiana, presided. The theme of the meeting was “Children’s Health and the Environment”. Representatives convened again March 28, 2012, at 8:30 a.m. in the Board Room until adjournment at 12:30 p.m.

**ATTENDEES**

**Representatives from Participating Institutions**

Dr. Ann Barbre, Xavier University of Louisiana  
Dr. Robert Copeland, Jr., Howard University  
Dr. Sandra Harris-Hooker, Morehouse School of Medicine  
Dr. Diógenes Herreño-Sáenz, University of Puerto Rico  
Dr. Doris Holeman, Tuskegee University  
Dr. Henry Lewis, III, Florida Memorial University  
Dr. Patricia Matthews-Juarez, Meharry Medical College  
Dr. Judith Mazique, Texas Southern University  
Dr. Arlene Montgomery, Hampton University  
Dr. Doris Withers, Medgar Evers College, CUNY

**Alternate Representatives**

Dr. Stephanie Bauer, University of Alaska Anchorage  
Ms. Theresa Bettelyoun, Oglala Lakota College  
Ms. Dolores Caffey-Fleming, Charles R. Drew University of Medicine and Science  
Dr. João Ferreira-Pinto, The University of Texas at El Paso  
Dr. Marlon Honeywell, Florida A&M University  
Dr. Melissa Littlefield, Morgan State University  
Ms. Verena Serafin, Diné College  
Dr. Michael Sullivan, California State University, Northridge  
Dr. Helene Tamboue, Benedict College  
Dr. Cheryl Taylor, Southern University at Baton Rouge

**Consultants to the EnHIP**

Dr. Melvin L. Spann, NLM, Retired (EnHIP Executive Secretary)  
Dr. Bailus Walker, Jr., Howard University College of Medicine (EnHIP Senior Scientific Advisor)

### **Speakers**

Ms. Judy Kramer, Public Health Education Specialist, NLM  
Ms. Cindy Love, Medical Librarian, NLM  
Dr. Yvonne Maddox, Deputy Director, National Institute of Child Health and Human Development  
Dr. Tarun Mandal, Director, Center for Nanomedicine and Drug Delivery, Xavier University of Louisiana  
Dr. Howard Mielke, Research Professor, Tulane/Xavier Center for Biomedical Research, Tulane University  
Ms. Erika Mills, Community Outreach Coordinator, Exhibition Program, NLM  
Dr. Steven Phillips, Director, Division of Specialized Information Services,  
Associate Director, NLM  
Dr. Michael Sullivan, Associate Professor, California State University, Northridge  
Mr. Jonathan Wilson, Deputy Director, National Center for Healthy Housing

### **NLM Staff**

Dr. Donald A.B. Lindberg, Director, NLM  
Ms. Betsy Humphreys, Deputy Director, NLM  
Dr. Fred Wood, Office of the Director, NLM  
Ms. Cassandra Allen, Division of Specialized Information Services, NLM  
Ms. Laura Bartlett, Division of Specialized Information Services, NLM  
Mr. James Charuhas, Division of Specialized Information Services, NLM  
Ms. Gale Dutcher, Division of Specialized Information Services, NLM  
Ms. Cynthia Gaines, Division of Specialized Information Services, NLM  
Dr. Michael Huerta, Office of Health Information Programs Development, NLM  
Ms. Janice Kelly, Division of Specialized Information Services, NLM  
Ms. Jamie Peacock, Division of Specialized Information Services, NLM  
Mr. Andrew Plumer, Division of Specialized Information Services, NLM  
Ms. Rose White, Division of Specialized Information Services, NLM

### **ORISE Staff**

Ms. Rose Foster, Oak Ridge Institute for Science and Education  
Ms. Mona Carrasco, Oak Ridge Institute for Science and Education  
Ms. Linda Lange, Oak Ridge Institute for Science and Education

## **I. Meeting Opening and Welcome**

Dr. Henry Lewis, III, President, Florida Memorial University, and EnHIP immediate past Chairman, opened the meeting and introduced newly appointed EnHIP Chairman Dr. Ann Barbre, Professor of Pharmacy Administration, Xavier University of Louisiana. Dr. Barbre welcomed representatives and invited guests and asked all attendees to introduce themselves.

## **II. Remarks**

Ms. Betsy Humphreys, Deputy Director, NLM, stated the Partnership is in very capable hands under the leadership of Dr. Barbre. Through active involvement and outreach efforts she has proved to be an inspiration to the Partnership, her institution, and her community. Over the years, the Partnership has benefited from the distinguished leadership of Dr. Lewis and Dr. Bailus Walker, Jr., Senior Scientific Advisor, EnHIP, and Professor, Howard University College of Medicine. Ms. Humphreys announced that the EnHIP Executive Committee made the decision to rotate the chairmanship every four years. She praised the achievements and efforts of the Partnership in promoting NLM resources at affiliated institutions and in surrounding communities for many years.

### **III. Protecting Children Using Health Risk Assessment**

Dr. Michael Sullivan, Professor of Environmental and Occupational Health, California State University, Northridge, outlined ways to evaluate health effects on children using the paradigm proposed by the U.S. Environmental Protection Agency (EPA). The Human Health Risk Assessment involves four steps: hazard identification, dose response assessment, exposure assessment, and risk characterization. Dr. Sullivan cited examples of how the EPA paradigm's usage helps people understand risk assessment. Children are more vulnerable to environmental exposures than adults because their body systems are developing; they eat, drink, and breathe more in proportion to their body size, and they have certain behaviors that increase exposures. An effort is made to incorporate the unique activities and characteristics into the risk assessment process.

Protecting children's health from environmental risk is fundamental to the EPA mission. "Under the EPA paradigm, we look at hazard, which is the presence of chemicals. We look at exposure, which is the exposure to those chemicals, and it's only through those two things together, do we gain an understanding of where there is a potential health risk associated with those," said Dr. Sullivan. Calculations are adjusted to account for the difference between children and adults in body size, such as in skin surface areas and in lung capacity. Often children's exposures and risks are between 30 to 100 times higher than adults' exposures and risks. Dr. Sullivan pointed out exposure differentiation for children younger than 2 years of age and children between 2 and 16 years of age.

Dr. Sullivan emphasized that human risk assessment is an important tool in the protection of children, and he encouraged everyone to protect children from all unnecessary exposures. He said more research is needed to ensure the assessments are accurate and complete. Following his presentation, attendees asked questions related to EPA's perspective of comprehensive exposures, impurities in herbal medicine, and the safety of bottled water.

### **IV. The National Children's Study**

Since 1995 Dr. Yvonne Maddox has served as Deputy Director, National Institute of Child Health and Human Development, NIH. Dr. Barbre introduced Dr. Maddox by calling her "a champion of issues related to women and children".

Dr. Maddox leads two teams of international scientists as part of a U.S./India partnership to improve reproductive health and maternal and child health and serves as co-chair of the NIH working group to develop a strategic plan to eliminate health disparities in several African nations. She has served as co-chair of a U.S. Department of Health & Human Services initiative to reduce infant mortality in minority communities.

Dr. Maddox explained the mission of the Institute is to see that all children are born wanted, that they are born free from disease and disabilities, and that they grow to be healthy and productive adults. A second part of the mission is to see that women experience no adverse events associated with reproductive processes.

Dr. Maddox gave five reasons why it is important to study children: (1) Children have increased vulnerability to environmental exposures. (2) They have "windows of vulnerability" during their growing years from fetus to adult. (3) They have immature detoxification and protection mechanisms. (4) They differ from adults in metabolism and behavior. (5) They have fetal antecedents to adult diseases.

The National Children’s Study will examine the multiple effects of environmental influences and biological factors on the health and development of about 100,000 children across the country by following them from before birth until age 21. It is the largest and most ambitious study of its kind ever undertaken in the United States. The overall goal is to improve the health and well-being of children and to identify antecedents of healthy adulthood.

Of the 100,000 children, researchers expect an estimated 30,000 will be overweight (17,000 obese), 12,000 will be born preterm (before 37 weeks), 5,000 will have learning disorders, 5,000 will have asthma, 1,000–3,000 will have autism spectrum disorders, 320 will develop childhood cancer, 125 will have Down syndrome, and 50 will have Fragile X syndrome.

Dr. Maddox emphasized that a large scope of the project will be to examine children’s physical environment. “We’re talking about the quality of the neighborhood as well as the quality of the home. We all know that one of the biggest influences is whether a woman gets good prenatal care and gets it early. People don’t think of that as an environmental influencer, but it is because oftentimes that care is dictated by the woman’s economic status and her neighborhood where there’s an access to a hospital,” explained Dr. Maddox. The United States is ranked 24th in the world among developed countries based on an infant mortality rate of about 6.9 per 1,000 live births. With African-American children, or minority children in general, the number climbs to 14 in Detroit, Michigan, and 22 in Biloxi, Mississippi.

About 100 rural and urban counties were selected for the study to be representative of the whole country. The counties were identified by a preliminary Vanguard Study. Begun in 2009, the study involved 4,000 children at 40 diverse sites and was designed to inform the main study about the science, logistics, and cost. It showed the importance of public involvement, medical professionals’ involvement, and media attention as key factors for recruiting participants. As the main study moves forward, the sampling approach will use populations covered by health care plans as the primary source of participants. “We are definitely going to enhance recruitment through oversampling to ensure that there’s the right diversity and that health disparity mandates have been addressed,” Dr. Maddox remarked. Annual funding for the study peaked in 2012 with a \$194 million allocation; the 2013 budget request is \$165 million. The formative research of the study will inform many other research efforts.

The launch date for the main study is 2013. “We will look at children’s health as they grow and mature into adulthood. We’ll be able to link their biological development and their physiological development to environmental influences and exposures. A lot of people want this study, but a lot of people are questioning the study. We need the community to help us. It cannot be successful without the help of the community,” Dr. Maddox indicated. In closing her presentation, Dr. Maddox encouraged active participation from the Partnership, affiliated institutions, and their communities.

## **V. Discussion and Q&A with Dr. Yvonne Maddox**

Dr. Maddox’s presentation was well received and led to an extended question-and-answer session facilitated by Dr. Walker. Dr. Doris Withers, Vice President for Assessment Planning and Accountability, Medgar Evers College, CUNY, asked about the collection of DNA samples. Dr. Maddox explained that about 100 advisory groups have been involved in designing protocols for the entire study, adding that the biomedical research community will determine appropriate measures for the DNA sampling. Dr. Stephanie Bauer, Assistant Professor, University of Alaska Anchorage, asked about ethical issues related to consent. Dr. Maddox indicated the federal advisory committee has created a steering committee to focus on ethics issues. Dr. Walker recognized the difficulties in setting up long-term studies and asked what lessons have been learned that are applicable to future epidemiological studies. Dr. Maddox emphasized that a study such as this one needs to be driven by the hypothesis and by a clear understanding of what is to be learned. Early



in the planning, project leaders need to develop communication strategy, trust with community leaders, and a harmonization of the language and the data. Dr. Patricia Matthews-Juarez, Associate Vice President and Professor, Meharry Medical College, asked about the inclusion of minority populations living in rural communities. Plans call for strong, organized efforts to include hard-to-reach populations and to utilize nurse practitioners and general practitioners at community health centers. Dr. Cheryl Taylor, Interim Dean, Director, Office of Nursing Research, Southern University at Baton Rouge, expressed hope that the study would show how to best serve the needs of families at community health centers.

## **VI. Nanomedicine: Emerging Therapeutics for the 21st Century**

Dr. Tarun K. Mandal, Director, Center for Nanomedicine and Drug Diversity, Xavier University of Louisiana, began his presentation by giving a definition of nanotechnology: the design, production, characterization, and application of structures, devices, and systems by controlling shape and size at nanometer scale. In medicine, nanotechnology relates to the interaction of cellular and molecular components and engineered materials (smaller than 100 nm). “How small is it? The diameter of a human hair is about 50 micrometers, so we are talking about a particle that is 1,000 times smaller than a human hair,” said Dr. Mandal.

Nanotechnology in medicine is used for diagnosis and drug delivery purposes. Nanoparticles can be formulated to target specific cells, such as cancer cells, and to release the drug on a schedule, such as a few hours, weeks, or months. This approach can help ease side effects and increase efficiency of drugs. Dr. Mandal explained that development is under way for a transcutaneous vaccine using nanoparticles. The ultimate goal is to make a vaccine that can be delivered on bandages applied to the skin.

Safety concerns focus on the interaction of the nanoparticles with tissues and cells. As particles get smaller, they gain access to tissues and cells bypassed by larger particles. Questions to address are how long do they remain, how are they cleared, and what effects do they have on cellular and tissue functions? Historically, no safety concerns related to particle size have been reported. “There are still a lot of unknown factors. We need to evaluate those things,” explained Dr. Mandal, who is part of a drug delivery research team affiliated with several institutions, including Xavier University, Tulane University, and Louisiana State University Health Sciences Center.

Dr. Lewis asked about U.S. Food and Drug Administration approval for drugs that are already on the market but receive new formulation with nanotechnology. Approval time is shorter because a safety study is not required, answered Dr. Mandal. Questions about bioavailability were raised by Dr. Walker and Dr. Robert Copeland, Jr., Associate Professor, Howard University College of Medicine. Dr. Mandal explained several challenges were related to absorption. Dr. Sandra Harris-Hooker, Vice President and Senior Associate Dean, Morehouse School of Medicine, asked about the interaction between nanoparticles and the endothelial cell line. Dr. Mandal and his collaborators at Tulane are studying the environmental toxicity related to nanoparticles, noted Dr. Mandal. Dr. Mandal emphasized that most of the advanced nanomedicines are composed of biodegradable polymers and lipids. These polymers and lipids have been on the market for the last 10 to 15 years and are considered safe. Dr. Mandal mentioned that further studies are under way to determine the long term safety. “If you have a synthetic polymer material, which is not biodegradable, it may end up causing cancer or some other serious problems,” he emphasized.

## **VII. Update on Disaster Meeting in Israel**

Dr. Steven Phillips, Director, Division of Specialized Information Services, Associate Director of NLM, gave an update on developments at the Disaster Information Management Research Center (DIMRC). He reviewed the usability of the digital pen, a device that collects and transmits information. It is suitable for

collecting triage data in emergency situations. He discussed information and communication efforts by DIMRC staff members in collaboration with the University of Tel Aviv, the Gertner Institute, and the Israeli National Center for Trauma and Emergency Medicine Research.

Dr. Phillips informed attendees of his participation in a radiological drill in Israel held in January in conjunction with the Second Israeli International Conference on Healthcare System Preparedness and Response to Emergencies and Disasters. The drill, set up to respond to a radiological dispersal device, was held at Haifa's Rambam Health Care Campus, an 800-bed hospital with a fully equipped command and control center. The Radiation Emergency Medical Management (REMM) tool was tested for use by first responders, first receivers, nurses, and physicians. This Web-based system provides management algorithms, dose estimators, and triage systems to advise personnel on initial life-saving activities.

At the conference, Dr. Phillips served as co-chair of presentations for Information Management and Communications in Emergencies sessions. Ms. Gale Dutcher, Deputy Associate Director, SIS, NLM, reported on DIMRC resources, tools, and information services at conference sessions in Israel.

### **VIII. Lessons from New Orleans on the Role of Environment in Children's Health Disparities**

Dr. Howard Mielke focused his presentation on the environment and children's health disparities in New Orleans, Louisiana. He is a research professor in the Department of Pharmacology, Tulane University, and has spent many years teaching and conducting research in the areas of urban geochemistry and toxicology, particularly on urban levels of lead and its effect on children. In his presentation, Dr. Mielke also noted studies conducted in other metropolitan areas that have similarities to studies done in New Orleans.

The U.S. Centers for Disease Control and Prevention blood lead level guideline is 10 micrograms (equal to or greater than 10 micrograms of lead per deciliter of blood is considered too high). Dr. Mielke expects that rating to change in the near future because CDC also states there is no safe level for exposure to lead. Lead exposure, even at low levels, is associated with major chronic impairments, including irreversible fetal brain damage, learning disabilities, Alzheimer's disease, schizophrenia, hypertension, increased frequency of cataracts, cardiovascular disease, kidney disease, diabetes, and bone diseases.

The main sources for lead contamination are lead-based paint, dust from the removal of lead-based paint by sanding, and very fine lead particles from the use of leaded gasoline. Through exhaustive measurement and field work in New Orleans, Dr. Mielke has established an estimate of the amount of lead in the environment. Lead dust generated by automobiles from 1950 to 1985 was much larger than the amount of lead dust potentially available from paint. Highways through cities act as a toxic substance delivery system. Lead continues to be introduced into the environment through the grinding of lead weights attached to automobile wheels. He showed data from 90 cities in the United States listing quantities of lead in the atmosphere during years of leaded gasoline consumption.

About 5,500 soil samples collected from the New Orleans metropolitan area were analyzed. Dr. Mielke used state data garnered from blood samples drawn from about 55,550 children organized by census tract. Through mapping, he identified the association between soil lead content and children's blood lead content. Findings revealed a negative margin of safety for children in New Orleans. In high-lead neighborhoods, residences have small lots and children play in areas near house foundations or near the streets. In terms of health disparities, the white population is generally living in the low-lead areas of the city, and the African-American population has very high exposures in its neighborhoods. "This has an enormous impact on the children and behavior in the city of New Orleans," emphasized Dr. Mielke. Through further research he identified the association between soil lead content and issues related to behavior, learning, health, and

violence. “If we are looking at learning and full-scale achievement, what we are seeing in New Orleans is that the interior parts of the city where blood lead levels are high, are also the same parts of the city where the achievement test scores are very low,” he explained.

Dr. Mielke sought a proactive remedy to harmful lead dust exposure. He set about changing the environment through the Recovering New Orleans Project and made child care centers his primary focus. The project applies geotextile over contaminated soil at play areas. Geotextile is an inexpensive covering that allows rainwater to soak through yet provides a barrier for the lead in the soil. A six-inch layer of clean soil is spread on top of the geotextile. Testing has shown that interior areas, such as floors in hallways, are more likely to maintain safe levels once the geotextile is in place. Ten child care centers have received this soil intervention upgrade. He compared the cost of the geotextile cover and soil emplacement (about \$2 per square foot) to other environmental treatments and found the geotextile upgrade to be cheaper and less time-consuming to install.

Dr. Mielke spoke of a paradigm shift from reactive to proactive medicine in New Orleans. “Children need a proactive way to prevent exposure to environmental toxins that must include a margin of safety,” he remarked. “The mission for New Orleans is to promote a more environmentally just, healthy, humane, and sustainable society.”

Dr. Mielke’s presentation was followed by questions about the validity of studies showing a link between high exposure to lead during childhood and violence (aggravated assault) during early adulthood. He indicated four sets of studies have shown the same relationships between lead exposure and violence. Very similar studies were conducted in other cities, including Detroit and Baltimore, and the same pattern emerged.

Dr. Copeland and Dr. Lewis asked about lead in the water supply, and Dr. Mielke responded that numerous problems exist because many old pipes contain lead. Several questions related to the long-term protection provided by geotextile and dealing with lead buildup in the soil over many generations. Dr. Sullivan questioned whether any notation is made on property deeds regarding placement of geotextile. Dr. Mielke responded at this time there are no notations on deeds, but maps of lead contamination are widely available for public use.

## **IX. Overview of Exhibition, Remarks, and Video**

Dr. Donald A.B. Lindberg, Director, NLM, introduced representatives and other attendees to the NLM exhibition “Native Voices: Native Peoples’ Concepts of Health and Illness” located in the Library. It examines concepts of health and medicine among contemporary American Indians, Alaska Natives, and Native Hawaiians. He noted the three elements these populations have in common: (1) individuals are responsible for their health, (2) people have a strong sense of community, and (3) Native peoples were mistreated by the U.S. government. Dr. Lindberg shared his personal experiences in interviewing more than 100 individuals to learn about the interconnectedness of wellness, illness, and cultural life. “Their attitudes are interesting, they are relevant, and there is something to be learned from them,” remarked Dr. Lindberg. He praised the work of the Southcentral Foundation, an Alaska Native health care organization in Anchorage. Medical doctors practice Western medicine, but also refer patients to native healers. He described an interview with a Navajo code talker who used the Enemy Way Ceremony to heal from the war experience and regain the balance of life.

Ms. Dutcher praised Dr. Lindberg’s dedication to the exhibition, saying he really put his heart and soul into the project and made sure Native peoples were well represented. He was ably assisted by Dr. Fred

Wood, Science Program Leader, Office of Health Information Programs Development, NLM, and many other members of the NLM staff. A short video about the exhibition was shown: <http://www.nlm.nih.gov/nativevoices/overview.html> (see Appendix G).

#### **X. Tour of Exhibition “Native Voices: Native Peoples’ Concept of Health and Illness”**

Ms. Erika Mills, Community Outreach Coordinator, Exhibition Program, NLM, led a tour of the exhibition. Ms. Mills explained how native cultures are using a combination of traditional healing and Western medicine to address their health needs. In addition to providing an overview of the artifacts, art work, descriptive panels, and multimedia features, Ms. Mills highlighted the 10-foot model of the Hōkūle‘a voyaging canoe displayed in the lobby and the healing totem pole installed outside in front of NLM. The exhibition opened in October 2012 and marked the 175th anniversary of NLM.

#### **XI. Wrap-up of Day 1**

Dr. Barbre thanked the guest speakers for their insightful, stimulating presentations. She noted the many opportunities where the Partnership can make meaningful contributions. She encouraged representatives to find ways to collaborate and involve their communities in The National Children’s Study. Dr. Barbre closed the afternoon session at 5:15 p.m.

#### **Day 2**

#### **XII. Welcome and Introductions**

EnHIP reconvened March 28, 2012, at 8:30 a.m. in the NLM Board Room. Newly appointed EnHIP Chairman Dr. Ann Barbre, Professor of Pharmacy Administration, Xavier University of Louisiana, presided. She welcomed representatives and invited guests and asked new attendees to introduce themselves. Attendees received information about the 11th annual United Negro College Fund Special Programs/National Library of Medicine Historically Black Colleges and Universities Access Meeting, slated for June 11–14, 2012, in Bethesda. Institutions planning to submit proposals must have representatives attend the meeting. Dr. Barbre asked NLM to submit contact information to Dr. Yvonne Maddox for their participation in The National Children’s Study.

#### **XIII. Overview of Disaster Information Management Research Center**

Ms. Cindy Love, Medical Librarian, DIMRC, SIS, NLM, explained the many tasks carried out by DIMRC: organize disaster health literature, develop emergency response tools for first responders and first receivers, develop partnerships with other federal agencies and nonfederal agencies, conduct research, and cultivate and train librarians. Librarians are very useful in emergency situations because they are typically service-oriented people who are motivated to connect people and information. They know how to organize materials.

Ms. Love demonstrated Web sites helpful to disaster preparedness specialists, such as the Radiation Emergency Medical Management Web site. DIMRC uses the disaster outreach Listserv to encourage networking among its 760 subscribers. One-fourth of the people on the Listserv are nonlibrarians who work in emergency management or the disaster field in some capacity.

DIMRC funded seven outreach projects this year to assist partnerships between libraries and disaster response agencies. Five courses on social media monitoring will be taught by September 2012. DIMRC is

developing virtual world disaster training called Second Life to help hospital personnel form partnerships for disaster response. Second Life uses 3-D mapping to show a hospital disaster operations center. Users perform the tasks required during a real emergency. This virtual training is more realistic than classroom exercises and cheaper than an actual drill. It is available to hospital personnel via an Internet connection. DIMRC also has a new tracking tool named ReUnite to help family members find each other and loved ones following a mass casualty event. A tablet or iPhone app connects immediately to a Web site. The Patient Tracking and Locating System was tested recently when a hospital closed and patients were relocated to another hospital. The portable, electronic system provides real-time information on the number of incoming patients, the severity of their injuries, and their location within the hospital so key personnel can quickly make strategic decisions about patient care and safely share patient information when victims are moved from one hospital to another. The innovative tool was named one of six finalists in the HHS *Innovates* contest sponsored by the U.S. Department of Health & Human Services. Update: HHS Secretary Kathleen Sebelius selected the NLM entry as one of three winners of the coveted HHS *Innovates* award.

#### **XIV. Discussion and Q&A with Ms. Cindy Love**

Dr. Steven Phillips facilitated a question-and-answer session following Ms. Love's presentation. Discussion topics included the international scope of the Listserv, training courses slated for the 2012 Medical Library Association meeting, social media's usefulness, medical ethics dilemmas in crisis care situations, and translation of materials into Spanish.

#### **XV. From Science to Outreach: The Housing and Health Connection**

Mr. Jonathan Wilson, Deputy Director, National Center for Healthy Housing, gave an overview on the organization that has evolved from the National Center for Lead-Safe Housing into its current status over a 20-year period. Health professionals have realized the connection between housing and health for more than 100 years.

The National Center for Healthy Housing is committed to practical solutions and offers tools, training, and technical assistance. The Center seeks to address all the pollutants and hazards that exist in housing. It has subject matter experts who develop evidence-based policy. The Center advocates for healthy housing for all, with special emphasis on children and seniors—the most vulnerable populations. Many seniors spend 90% of their time in their homes; young children spend 70% of their time in their homes.

The American Housing Survey tracks major deficiencies in plumbing, heating, electrical systems, and upkeep. “We are pushing to add some things to the American Housing Survey that will allow us to track more closely and understand how many unhealthy housing [units are] in this country,” Mr. Wilson noted. Commonly overlooked problems are mold, moisture, lead-based paint, rodents and other pests, and broken structures (steps, foundations, doors).

Addressing disparities, he noted that Native American and Alaska Native populations have unhealthy housing rates 60% higher than white, non-Hispanic populations have, and 30% higher than black, non-Hispanic populations have. “We have serious inadequacies. When we talk about health disparities in this country, we have to think ‘What are the causes?’ and housing is truly a major cause,” he explained.

Non-Hispanic black children are three times more likely to suffer from lead poisoning than non-Hispanic white children. Hospitalization and death related to asthma are three times more likely for African-American populations than white populations. Fifty percent of asthma cases are allergic-asthma. Asthma triggers are moisture (mold), dampness (dust mite), pests (cockroach, cockroach feces, mice feces), and tobacco smoke.

Healthy housing interventions are cost effective. “If you put in \$1 to address lead hazards, you are getting \$17 to \$220 back in benefits,” Mr. Wilson said, citing the avoidance of issues related to learning disabilities and medical care. For asthma, the return is \$36 for every \$1 invested. Effective interventions include lead hazards control, multifaceted asthma interventions, mold and moisture control, smoking bans, drinking water standards, and smoke alarms. Training centers across the country are teaching the Healthy Homes Principles: Keep it dry, clean, ventilated, pest-free, safe, contaminant-free, and maintained. Healthy Homes Training Center partners offer courses for community health workers/educators and owners/managers/residents of public housing. The organization also serves nurses who visit residents in their homes, directors and managers of local government agencies and community organizations, and housing and health professionals.

In the discussion following Mr. Wilson’s presentation, Dr. Bailus Walker, Jr., Senior Scientific Advisor, EnHIP, and Professor, Howard University College of Medicine, asked about the impact of housing code administration. Mr. Wilson indicated that fire protection, electrical system, and plumbing work dominate housing codes. The National Center for Healthy Housing seeks to expand the discussion to include other crucial areas of improvement. Community-based organizations are forming a groundswell to increase healthy homes in the United States and diminish health disparities. Funding through a grant from the Kresge Foundation has promoted the growth of grassroots support.

Responding to a question from Dr. Henry Lewis, III, President, Florida Memorial University, Mr. Wilson explained much funding for lead poisoning prevention was lost when the U.S. Centers for Disease Control and Prevention proposed the combining of lead and asthma programs. Mr. Wilson foresees a de-emphasis of lead poisoning prevention, not an equal partnership. Dr. Walker explained the difficulties of conducting research in a residential environment and asked, “How do you pin down that this asthmatic problem is due to housing and not due to the ambient environment, or not due to some other patient exposure?” Mr. Wilson agreed that all factors of a neighborhood are important to consider, and he summed up the discussion with the simple truth “where you live matters.”

## **XVI. EnHIP Outreach Awards Presentations**

The mission of EnHIP is to enhance the capacity of minority-serving academic institutions to reduce health disparities through the access, use, and delivery of environmental health information on their campuses and in their communities. To further this aim, NLM provides funding to support member institutions for training and other outreach activities. Thirteen institutions were awarded the EnHIP Outreach Awards. For summaries of all of the 2011–2012 awards, see Appendix F.

### **Diné College, Shiprock, New Mexico**

*Tox Town® U.S. Southwest Scene*

Presented by Ms. Judy Kramer

Diné College was funded to develop a scene reflective of their community for the interactive Tox Town® Web site <http://toxtown.nlm.nih.gov/flash/southwest/flash.php>. The U.S. Southwest Scene documents region-specific environmental health risks and serves as a learning tool. It offers the Navajo Nations an opportunity to promote their passion for their land and the importance of environmental health in this region. Ms. Yvonne Manybeads, who shared the community’s environmental health concerns at the 2011 EnHIP meeting, prepared the original graphic. It served as the foundation of the new U.S. Southwest Scene. A Web team designed a photorealistic version, added links to high-quality sources of information, and included text in English and Spanish. Ms. Kramer, a Public Health Education Specialist who is responsible

for content management, development, and promotion of the Tox Town® Web site, has worked to promote this new scene in coordination with Ms. Melanie A. Modlin, Deputy Director, Office of Communications and Public Liaison, NLM.

**Tuskegee University, Tuskegee, Alabama**

*Promoting Health Disparity Research and Educational Interventions in Alabama Black Belt Counties*

Presented by Dr. Doris Holeman

The purposes of the project are to address health disparity issues in the African-American communities in selected Black Belt Counties in Alabama and to increase scholarship productivity of faculty in the School of Nursing and Allied Health. A mentor was brought in to strengthen the faculty's understanding of research fundamentals and evidence-based practices. Two workshops led by a Tuskegee University librarian familiarized faculty with NLM databases for the necessary literature reviews. The final step will be to write proposals for research on identified health disparities. Focuses of research include childhood obesity, adult obesity, HIV/AIDS, and mental health. It is hoped that by the end of this project, faculty members will have at least three articles published in professional journals.

**Medgar Evers College, CUNY, New York, New York**

*Genomics Education and Outreach Project: Human DNA Variation, Health, and the Environment*

Presented by Dr. Doris Withers

The objectives of the Genomics Education and Outreach Project are to increase knowledge about the human genome and to encourage student interest in genomic science careers. Community outreach efforts involved schools, church genealogical societies, an environmental organization, and the Brooklyn public libraries. A main focus was a community-based National DNA Day. Started in 2008, the African Americas Diaspora Diversity Project helps people understand, share, and make connections with their DNA ancestry results. Activities during Black History Month were a seminar and presentation.

**Hampton University, Hampton, Virginia**

*Stimulating Youth Through Immersion in Biomedical Informatics and Library Science Careers*

Presented by Dr. Arlene Montgomery

Career opportunities in biomedical informatics and library science will be discussed with secondary education students, their teachers, and college students. The Hampton University Career Counseling and Planning Center will sponsor a career fair in the fall, and a spring career fair will be sponsored by the project's community partners, Daughters Are You Listening and the Youth Connection of Hampton Roads. Also, students will develop biomedical informatics and library science career projects and present them to their peers. Participation and the number of projects will be evaluated. Plans are in place for long-term tracking of students to show the impact this project has on college career paths.

**XVII. New Chairman's Vision for EnHIP**

Dr. Barbre, who began her four-year term as EnHIP Chairman this year, outlined her vision for the growth and success of the Partnership. She encouraged active participation by all representatives and urged them to work together as partners. She recommended they make extensive use of the valuable NLM databases and continue their efforts to minimize health disparities. She reminded them to work in alignment with the EnHIP Strategic Plan.

### **XVIII. Children’s Health and the Environment Summary**

In a call to action, Dr. Barbre requested EnHIP involvement in The National Children’s Study, outlined by Dr. Maddox earlier in the meeting. Dr. Barbre asked representatives to find ways to assist in this important study. “What I want is your commitment to a true partnership, and the first task in that commitment is going to be for us to go back to our institutions in our communities that we serve and begin to figure out how we can participate in providing sources of information and patient data to Dr. Maddox’s project,” she remarked.

### **XIX. Closing Remarks**

Dr. Barbre inquired about representatives’ priorities and areas of interest. She asked representatives to assist in the selection of meeting themes and speakers. She sought the following:

- More opportunities to network with each other during the EnHIP meeting and throughout the intervening months
- Disciplinary and interdisciplinary ways to train students, faculty, social workers, and others
- Real commitment to erase health disparities
- More partnering among institutions in order to leverage talents, resources, and funds
- More use of electronic channels of communication to expand opportunities for partnerships

In the discussion that followed her remarks, representatives sought the following:

- More ways to communicate and connect, perhaps through a Web portal other than the existing Listserv, in order to receive information about grants, projects, and activities
- More recognition of successful projects (funded by Outreach Awards)
- More inclusion of Native Americans to help build diversity in the work force
- More encouragement for research among graduate students
- A redesigned Web page to secure identity, gain synergy, and increase sustainability

Dr. Barbre praised the speakers for their interesting presentations and indicated the meeting had been productive. She emphasized the importance of a partnership and urged all representatives to find ideas and ways the organization can best combine its particular talents and resources. She thanked representatives for their participation and wished them a safe and pleasant journey home. The meeting was adjourned at 12:30 p.m.



## APPENDIX A

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National Library of Medicine  
Division of Specialized Information Services  
Environmental Health Information Partnership

### ***Charting a Course for the 21st Century***

*Environmental Health Information Partnership Strategic Plan*

## **INTRODUCTION**

### **Environmental Health Information Partnership**

The Environmental Health Information Partnership (EnHIP) was established by the National Library of Medicine (NLM) in 1991 as the Toxicology Information Outreach Panel (TIOP). This group was started at a time in which the issue of racial and ethnic health disparities in a myriad of conditions had been elevated into sharp visibility. There was also concern about disparities in potential and real exposure to environmental toxicants and their contribution to disparities in morbidity and mortality. At the same time there was an increase in the complex literature of toxicological science. The Panel then evolved into the Environmental Health Information Outreach Program and subsequently refined into the current state, the Environmental Information Outreach Partnership. This Partnership reflects a broader focus on the multiple dimensions of environmental health, the environmental health sciences, and health disparities. The objective is to assist in addressing disparities among academic institutions in access to information technology and related pedagogical and research resources.

In this context, it was increasingly recognized that modern instruction, research, and service to communities, students, and professions—the core mission of academic institutions—were nearly impossible without computers and related technologies. Indeed, evidence abounds that the addition of computer science and bioinformatics to the arsenal of environmental health, biomedical, social, behavioral, and clinical research holds enormous promise and continues to stir considerable excitement among researchers, academicians, practitioners, and the entire health services community.

These were among the developments that prompted the NLM to initiate a series of programs and services specifically designed to expand and strengthen its partnership with Minority-Serving Institutions (MSIs) and, in the process, enhance the efforts of these schools to increase the number of racial and ethnic minorities in the environmental health, biomedical research, and health care workforce. The NLM was also interested in ensuring that, through planned outreach efforts, both lay and professional groups were aware of, had ready access to, and utilized the NLM rapidly expanding collections of medical and health information. Working together, the NLM and the participating colleges and universities continue to apply themselves to these efforts as the 21st century becomes the digital era, creating a better and a more innovative and collaborative future.

### **Rationale and Process**

The Environmental Health Information Partnership has made substantial progress during the past decade in achieving its initial objectives. A prominent feature of this progress has been information sharing, including regular NLM staff reports on the continuous expansion of the Library databases and programs, as well as presentations from other National Institutes of Health (NIH) Institutes and Centers on development in other areas of the NIH, which supports research and discovery that ultimately improves the methods and outcomes of public health services and personal health care. These discussions have added to the substrate of information which academicians need to bring to full fruition the core functions of academic institutions.

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The challenge for the Partnership is not only to maintain its role as a progressive component of NLM outreach efforts, but to advance to even higher levels of productivity consistent with the NLM Long Range Plan (2006–2016) (*Charting a Course for the 21st Century: NLM Long Range Plan 2006–2016*; [http://www.nlm.nih.gov/pubs/plan/lrp06/NLM\\_LRP2006\\_WEB.pdf](http://www.nlm.nih.gov/pubs/plan/lrp06/NLM_LRP2006_WEB.pdf)). That plan includes four overall objectives that serve as the reference frame for the Partnership strategic planning process.

The process began with a number of discussions within the Executive Committee, the administrative arm of the Partnership. These discussions, by teleconference as well as face-to-face interactions at the Library on the NIH campus, culminated in a comprehensive review of the NLM Board of Regents-endorsed new 10-year Long Range Plan.

Later, in meetings at the Library, the Partnership was organized into four working groups, consistent with the NLM plan's four goals. Each group was charged with sorting from the 66-page Library plan challenges and strategies for the partnership—all within the context of the overarching mission of the Library. The outcome was a report of each working group's deliberations. As with any broad-ranging discussion among multidisciplinary academicians with differing perspectives, numerous important and relevant topics were discussed, a number of which were beyond the boundaries of NLM statutory responsibilities. The Executive Committee attempted to capture the key themes of all of the working group reports. The results of that effort are reflected in the plan that follows.

Henry Lewis, III, Professor and Dean  
College of Pharmacy and Pharmaceutical Sciences  
Florida A&M University, Tallahassee, Florida  
Chairman, National Library of Medicine Environmental Health Information Partnership

### **VISION**

EnHIP will be a strong, stable, and effective partner of NLM as the Library becomes even more central to scientific discovery and treatment and prevention of disease. Through this partnership, NLM programs and services, adapted to 21st century health and health sciences developments, will further strengthen the capacity of MSIs to perform three important and fundamental functions within the public health and health care system. These are: (1) educate and train health professionals; (2) conduct basic and applied research in disciplines pertinent to biomedicine, health services, health care, and health disparities; and (3) engage in community, public, and professional services.

### **MISSION**

The mission of the Environmental Health Information Partnership is to enhance the capacity of minority serving academic institutions to reduce health disparities through the access, use and delivery of environmental health information on their campuses and in their communities. Assumptions: Environmental health refers to the impact of chemical, microbial, physical, and radiological agents on the health of living organisms. Minority serving educational institutions are those served by programs funded under Title III Historically Black Colleges and Universities, American Indian Tribally Controlled Colleges and Universities, Alaska Native and Native Hawaiian Serving Institutions, and Title V Hispanic Serving Institutions. (Reference: U.S. Department of Education, <http://www.ed.gov/about/offices/list/ope/index.html>).

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### **STRATEGIC GOALS**

#### **Goal 1. Seamless, Uninterrupted Access to Expanding Collections of Biomedical Data, Medical Knowledge, and Health Information**

##### **Objectives of the Partnership for Achieving Goal 1**

- Assess the current capacity of MSIs to access NLM databases and related Library resources that can enhance efforts of these colleges and universities to carry out their fundamental mission.
- Use the above-cited assessment to develop a program that will address the deficiencies revealed in the survey.
- Expand and intensify efforts to ensure that MSI faculty and students are thoroughly knowledgeable of detailed aspects of NLM collections of health and biomedical information.
- Provide technical assistance and related resources to aid MSIs in increasing knowledge and use of NLM programs and services by lay and professional groups within their surrounding communities.
- Initiate appropriate action to include selected MSI libraries in the National Network of Libraries of Medicine (NN/LM).
- Initiate the necessary administrative and logistical procedures to ensure that future NLM exhibits are available for display in MSI communities.
- Convene a seminar, first at NLM and then at MSIs, on the “hows and whys” of disaster management information.
- Determine the extent of instruction in disaster management at MSIs and potential interest in disaster management information research consistent with the research agenda that may emerge from the NLM Disaster Information Management Research Center (DIMRC).

#### **Goal 2. Trusted Information Services That Promote Health Literacy and the Reduction of Health Disparities**

##### **Objectives of the Partnership for Achieving Goal 2**

- Structure a program (i.e., internships) to provide opportunities for interested students from MSIs to gain “field experience” in the operational aspects of NLM, including the management of the expansive databases and related activities.
- Initiate discussions with consumer advocacy groups in MSI communities to plan an intensive consumer awareness campaign designed to increase the number of consumers who are aware of and use NLM free high quality consumer information resources.
- Develop specific recommendations for increasing the number of underrepresented minorities in the library sciences workforce.
- Convene a symposium on research advances in environmental health, climate change effects, and the animal-human connection as it relates to disease, designed to enhance the understanding of librarians of the multiple dimensions of the confederations of disciplines that comprise the environmental health sciences and the implications of these advances for both NLM programs and services and for those of local library services.
- Emphasize and promote the importance of MSI community high school teachers’ and students’ understanding of environmental health, climate change, and the animal-human connection as it relates to disease, as well as knowledge and use of NLM environmental health databases.

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### **Goal 3. Integrated Biomedical, Clinical, and Public Health Information Systems That Promote Scientific Discovery and Speed the Translation of Research into Practice**

#### **Objectives of the Partnership for Achieving Goal 3**

- Determine the extent of electronic medical records use by physicians, hospitals, and clinics in MSI communities.
- Use data from the preceding objective as [a] basis for a seminar/discussion on the development of electronic health records, including presentations of case studies in which health records were [an] essential source of data.
- Increase MSI faculty members' awareness of the value of electronic health records in environmental health and related research.
- Enhance MSI faculty involvement in translation of public health research findings and knowledge to evidence-based practice.
- Expand Partnership understanding of the NLM online resources and their relevance to the mission of MSIs. Increase MSI students' and communities' knowledge of [the] hows and whys of the NLM online resources and their relevance to consumer and academic services.
- Attract new students to the field of environmental health research, including the study of climate change effects, comparative medicine, and vector-borne diseases.
- Play a leadership role in encouraging community engagement in research activities of MSIs.
- Increase research productivity and, in the process, increase contributions of MSI faculty members to professional journals.

### **Goal 4. A Strong and Diverse Workforce for Biomedical Informatics Research, Systems Development, and Innovative Service Delivery**

#### **Objectives of the Partnership for Achieving Goal 4**

- Increase NLM/Partnership visibility in MSI communities.
- Increase Partnership knowledge of NLM programs and services designed to shape biomedical informatics education and training.
- Play a leadership role in initiating discussions of career opportunities in biomedical informatics and library science, including the promotion of interest in these careers.
- Ensure a prominent role for the NLM/Partnership in "career day" or similar programs at MSIs.

Attract new MSI students to health sciences librarianship through NLM postgraduate Associate Fellowship Program.

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### ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP MEETING

March 27–28, 2012

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### ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP DIRECTORY OF CURRENT REPRESENTATIVES 2011–2012

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### ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP 2011–2012

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### ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP

#### **EnHIP PROJECTS 2011–2012**

##### **University of Alaska Anchorage, Anchorage, Alaska**

*Exploring a Framework for Assessing the Moral Health of Anchorage, Alaska, through the Lenses of Health, Food, Environmental, Social, Economic Justice (respectively) and Deliberative Ethics: A Pilot Project*

The project will challenge students in an environmental ethics class with a service learning component to investigate how they can help the many and diverse communities in Alaska build capacity to address the health, social, economic, food security, and environmental conditions that shape their well-being as it pertains to climate change in Alaska. Students will interact with scientists, policy makers and lay persons to address ethical questions related to this topic. This multidisciplinary undertaking will require students to employ their major field expertise in combination with diverse areas of philosophical reasoning. They will come to understand the difficulties in apprehending, posing, framing, and debating specific concerns about climate change. Students will elaborate on the possibilities and limits of dealing with ethics in a participatory setting that prioritizes citizen input and deliberative discourse.

Students will help to plan and convene two public forums that will feature guest speakers from the National Library of Medicine (NLM), Ohio State University, and the University of Montana. Social media will be employed as a publicity vehicle and dissemination tool.

The project responds to EnHIP Strategic Plan in several ways including enhancing the visibility, use, and distribution of NLM resources to faculty, staff, students, and community partners. It will focus on promoting health literacy and highlight the connection between health and other moral concerns impacting Alaska's vulnerable communities. The project will show students how libraries can contribute to moral and democratic deliberation and discourses.

##### **Benedict College, Columbia, South Carolina**

*Utilization of National Library of Medicine Resources to Better Understand Animal-Human Connections of Zoonotic Diseases*

Students affiliated with the Student Environmental Health Association will use NLM online databases for research related to diseases transmitted between animals and humans. Students will work in teams and make presentations within seminar classes. They will be evaluated and will compete for awards. About 300 sophomores, juniors, and seniors majoring in biology, chemistry, environmental health, and public health will take part in this project.

These training exercises build on a foundation established through previous EnHIP Outreach Awards. This project responds to the EnHIP Strategic Plan directive to expand students' knowledge of NLM collections. Also, it promotes the importance of students' understanding of environmental health topics.

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### **Charles R. Drew University of Medicine and Science, Los Angeles, California**

#### *Environmental Health Outreach and Education Project*

The goals of the project are to increase awareness, provide instruction, and enhance the use and distribution of NLM online resources. About 300 professional staff, other employees, and students will take part in training sessions. Participants are affiliated with Charles R. Drew University, Martin Luther King, Jr. Multi-Service Ambulatory Comprehensive Center, and other agencies serving the south Los Angeles area.

Participants will be instructed in toxicology, environmental health, and informational and instructional technology. Topics will include TOXNET®, Haz-Map®, Tox Town®, and scientific literature in the fields of medicine, nursing, dentistry, and health care systems.

By using questionnaires and conducting interviews, the project will be evaluated based on the number of participants and the increase in interest in the use of NLM online resources. These trainings build on the foundation established through previous EnHIP Outreach Awards.

This project is responsive to the EnHIP Strategic Plan's directive to expand students' knowledge of NLM databases and resources.

### **The University of Texas at El Paso, College of Health Sciences, El Paso, Texas**

#### *Home Environment Determinants of Fall-Related Injuries among Elderly Hispanics*

While substantial research exists about risk factors and prevention strategies of fall-related injuries, little research addresses the issues in relation to the Hispanic population, specifically Hispanics of Mexican origin. The objective of the project is to examine falls by ethnicity, taking into consideration language barriers, poverty, and lack of health insurance. The project will offer insight into how cultural factors may affect the incidence of falls. (For example, persons of Mexican descent often live within multigenerational family settings where they are unable to make environmental changes, such as installing handrails. Also, they may live in dwellings that are structurally unsound due to poverty.) Interviews will be conducted with elderly Hispanic residents who have experienced a fall. Interviews with family caregivers will help verify accuracy of information. An analysis of medical charts will yield demographic and medical risk information.

The intent of UTEP faculty, working in collaboration with the El Paso Falls Prevention Coalition, is to use the findings of this project to develop a culturally sensitive falls prevention program for elderly Hispanic persons. This project responds to the EnHIP Strategic Plan's directive to enhance faculty involvement in translation of public health research findings and to increase knowledge of evidence-based practice. It also highlights the roles of NLM and EnHIP in providing funding of pilot projects that support research and interventions for minority populations.



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### **Florida A&M University, College of Pharmacy and Pharmaceutical Sciences, Tallahassee, Florida** *Improving Health Literacy and Access to National Library of Medicine Resources in Disadvantaged Communities*

Students enrolled in the College of Pharmacy and Pharmaceutical Sciences will gain experience in communicating health literacy techniques to people living in a socioeconomically disadvantaged community. They will learn the operational aspects of NLM databases and then work alongside registered pharmacist faculty members to instruct community members in using NLM resources. Knowledge about medical terminology and risk factors for disease will be shared in addition to information about medication management and basic patient self-care skills. Also, pharmacy students will collaborate with medical staff at local indigent health centers to support greater use of NLM databases by patients so they might gain medical knowledge and greater access to quality health information.

These efforts build on a foundation established through previous EnHIP Outreach Awards. This project responds to the EnHIP Strategic Plan's directive to enhance the capacity of minority-serving institutions to engage in their community and work toward eliminating health disparities.

### **Hampton University, School of Nursing, Hampton, Virginia** *Stimulating Youth through Immersion in Biomedical Informatics and Library Science Careers*

The objectives of the program are to increase NLM and EnHIP visibility in communities with minority-serving institutions; lead discussions of professional opportunities in biomedical informatics and library science; promote these career paths at special events, such as Career Day; and track decisions about career paths among minority participants.

Activities planned to carry out the project include a one-day forum for middle school, high school, and college students and participation at two career fairs. The Hampton University Career Counseling and Planning Center will sponsor a career fair in the fall, and a spring career fair will be sponsored by the project's community partners, Daughters Are You Listening and the Youth Connection of Hampton Roads. Also, students will develop a biomedical informatics and library science career project.

This partnership project will increase the capacity of the faculty and students to engage in community service by enhancing the development of a diverse health care workforce. Also, the activities will disseminate information about the goals and objectives of NLM.

### **Jackson State University, Jackson Mississippi** *NLM Web-Based Resources: A Catalyst for Biomedical and Environmental Health Research and Education*

The goal of this project is to continue to enhance health and biomedical sciences research and education at Jackson State University and around the world by organizing and implementing a pre-symposium workshop in conjunction with the Eighth International Symposium on Recent Advances in Environmental Health Research. The workshop will be designed to meet the needs of scientists, researchers, and policy makers who need information on health issues related to exposure to environmental substances and agents

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known to induce illnesses. Activities of the workshop will involve classroom lectures and computer practice sessions to learn how to access and use NLM resources. Major emphasis will be placed on navigating through the TEHIP's TOXNET® (Toxicology Data Network) databases and related resources.

Attendees of the pre-symposium workshop, slated for September 2011, will include faculty and students who are involved in biomedical sciences and environmental health research, as well as students, faculty, and scientists from around the world who will be participating in the symposium. The project fully supports EnHIP's mission of "enhancing the capacity of minority serving institutions to reduce health disparities" by providing training and developing skills of faculty, students and staff, and other scientists.

### **Medgar Evers College, CUNY, New York, New York**

#### *Genomics Education & Outreach Program: Human DNA Variation, Health, and the Environment*

The Genomics Education and Outreach Program of Medgar Evers College is in its fifth year of operation. The program maintains a partnership with the Brooklyn Public Library's Human Genome Project Community Conversations Committee to increase genetic literacy among people in the community. The goal is to increase the genetic literacy of individuals, school children, and community groups in urban settings by informing them about the Human Genome Project and the 21st century science of genetics. Through information and education, the project strives to empower individuals to make informed genetics-related decisions and to enhance the quality of their lives. Activities include DNA Day @ BPL, November Family Health History Month, and a series of workshops for science majors on DNA ancestry.

The target audience will be students majoring in biology at Medgar Evers College, students in the MEC Collegiate Science and Technology Entry Program, and other students, faculty, staff, and community members. Community members include people who use the Brooklyn Central Public Library and its branches.

These efforts build on a foundation established through previous EnHIP Outreach Awards. This project responds to the EnHIP Strategic Plan's directives by increasing students' and communities' knowledge of NLM online resources and their relevance to consumer and academic services. It expands efforts to ensure faculty and students are thoroughly knowledgeable of NLM collections of health and biomedical information.

### **Meharry Medical College, Nashville, Tennessee**

#### *Promote the Use of NLM Resources with Faith-Based and Civic Organizations*

The goal of the project is to engage local organizations to develop an alliance focused on disaster preparedness. The alliance made up of churches and civic organizations will place emphasis on reducing health disparities emerging out of disasters, such as floods and tornadoes.

Funding will be used to support meetings and trainings to promote use of NLM resources. Community leaders will develop a coordinating committee to support members of the community in managing health issues and preparing for disaster situations. Participants connected with four churches will learn about consumer health information, health literacy, health disparities, electronic medical records, and disaster preparedness. Trainings will be conducted with assistance from librarians from the metro public libraries.

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In addition, two individual trainings and one joint training will benefit two civic organizations. Training on NLM databases will be presented to Les Gemmes, a group that mentors teen girls in a medically underserved community, and the Witness Program, a church-based cancer survivorship program.

All trainings will be promoted through traditional and social media channels to encourage wide participation. These efforts build on a foundation established through previous EnHIP Outreach Awards. This project responds to the EnHIP Strategic Plan's directive to enhance the capacity of minority-serving institutions to engage in community, public, and professional services that improve information and knowledge of electronic access and availability.

### **Morehouse School of Medicine, Atlanta, Georgia**

#### *Project Environmental Health and You*

The goal of the project is to increase awareness and use of NLM consumer health/environmental databases among target audiences: master of public health professors and their students, high school science teachers and their students, and librarians in the public and academic sectors. Interactive presentations will be given in environmental health classes, design projects related to NLM databases will be assigned, and evaluations will be completed to measure database preferences and use.

Those receiving training are

- Two MPH professors at Morehouse School of Medicine and 10 graduate students,
- Four high school science teachers and 300 students within the Atlanta Public School System's Health and Research Small Learning Community at Booker T. Washington High School, and
- Two Atlanta Fulton Public Library staff and two Morehouse School of Medicine library staff.

This project responds to the EnHIP Strategic Plan's directives by increasing students' proficiency with NLM databases. This initiative expands into the community so others can use the online resources of NLM with equal fluency.

### **Morgan State University, Baltimore, Maryland**

#### *Project 3E+: Enable, Engage, and Empower Morgan State University Students and Community Partners with Health Information Technology*

The purpose of this project is to provide students and community partners with an integrating experience that will increase knowledge and proficiency on public health issues through access to resources and databases. Six or more sessions will be conducted with students. At least one session will be conducted with community partners. A kiosk in the library will be equipped for easy access to NLM databases.

An evaluation will show the success of the project. It will measure attendance, satisfaction with presentations, assignments, and materials. The project reinforces EnHIP's Strategic Goal of increasing the awareness, understanding, and use of NLM programs and services by lay and professional groups surrounding the Morgan State University community.

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### **University of Puerto Rico, Medical Sciences Campus, San Juan, Puerto Rico**

*UPR—Medical Sciences Campus: Outreach Project in Environmental Health Information, 2011–2012*

The goal of the project is to reduce inequality in health literacy and in access to health information. Trainings in the use of NLM resources will be offered to a broad spectrum of students and community members in order to reach minority and underserved groups.

At the University of Puerto Rico, trainings will be directed toward graduate students in the programs of pharmacy, nursing, and basic sciences (microbiology, anatomy, toxicology, biochemistry). Trainings will also be extended to biology and pre-med students. In addition, training will be provided to a group of faculty, librarians, and graduate students affiliated with private universities in the San Juan area.

At-risk students enrolled at an alternative high school (CASA project) will learn how to use NLM resources for studies related to health and environment. The focus will be resources on the topics of sexually transmitted diseases and HIV, and alcohol and drug abuse. In addition, teachers and students at middle schools and high schools will receive training in searching environmental databases.

Elderly residents of the communities of Carolina, Mayaguez, and Ponce will receive training related to health issues. Training on women's health issues will be given to groups of women. The emphasis will be on identifying credible health sites, and retrieving and understanding information.

The project supports EnHIP's mission of "enhancing the capacity of minority serving institutions to reduce health disparities" by providing access and training on the use of NLM databases and resources for faculty, students, and members of their communities.

### **Tuskegee University, School of Nursing and Allied Health, Tuskegee, Alabama**

*Promoting Health Disparity Research and Educational Interventions in Alabama Black Belt Counties*

Through research, this project will address health disparities in African-American communities in selected Black Belt Counties of Alabama. Faculty members will use NLM databases and other resources to compile and summarize information in three areas: sexually transmitted infections in adolescents, cardiovascular diseases in African-American women, and prostate cancer in African-American men. They will use these findings to guide or modify nursing practices and to prepare manuscripts for publications about health disparities present in African-American populations.

The primary aim of this project is to increase faculty capacity in the area of scholarship (grant writing, research, and publication). The reference librarian in the College of Veterinary Medicine, Nursing and Allied Health, will familiarize faculty members with the NLM databases, other databases, and reference materials. A research consultant will assist with the integrative review methodology, establish criteria for selection of research studies, and aid with research proposal development.

This project responds to the EnHIP Strategic Plan's directive to enhance faculty involvement in translation of public health research findings and knowledge into evidence-based practice. The project is designed to prepare faculty to conduct basic and applied research, apply quantitative and qualitative data, and deliver information for the development of comprehensive health education programs for African-American communities.

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# NATIVE VOICES

NATIVE PEOPLES' CONCEPTS  
OF HEALTH AND ILLNESS

The Library opens  
an exhibition  
examining  
concepts of health  
and medicine among  
contemporary American  
Native populations.



### The Healing Totem

Healing totem pole installed in front of the National Library of Medicine. It was carved by Lummi Nation master carver Jewell James—sculptor of the totem poles honoring the September 11th victims.

A new exhibition examining concepts of health and medicine among contemporary American Indians, Alaska Natives, and Native Hawaiians, is open and free to the public at the National Library of Medicine, part of the National Institutes of Health.

Native Voices: Native Peoples' Concepts of Health and Illness, explores the connection between wellness, illness, and cultural life through a combination of interviews with Native people, artwork, objects, and interactive media.

“This is a unique exhibition, dedicated to raising awareness of the historical and contemporary concepts of health and wellness among American Indians, Alaska Natives, and Native Hawaiians.”

—Dr. Yvette Roubideaux, U.S. Indian Health Service

The National Library of Medicine has a history of working with Native communities as part of the Library's commitment to make health information resources accessible to people no matter where they live or work. The Native Voices exhibition concept grew out of meetings with Native leaders in Alaska, Hawaii and the contiguous United States.

“This exhibition honors the Native tradition of oral history and establishes a unique collection of information,” says Donald A.B. Lindberg, MD, director of the National Library of Medicine. “We hope visitors will find Native Voices educational and inspirational, and we hope Native people will view it with pride. The Library is excited to open this exhibition, and to do it during our 175th anniversary year.”

Topics featured in the exhibition include: Native views of land, food, community, earth/nature, and spirituality as they relate to Native health; the relationship between traditional healing and Western medicine in Native communities; economic and cultural issues that affect the health of Native

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### “Native Voices” Exhibition Opens

Guests gather for the ribbon-cutting ceremony to open the National Library of Medicine’s exhibition on “Native Voices: Native Peoples’ Concepts of Health and Illness” on October 5, 2011. From left to right are Ralph Foquera, Executive Director, Seattle Indian Health Board; Maynard Eaken, Alaska Native elder; Katherine Gottlieb, President, Anchorage, Alaska Southcentral Foundation; Yvette Roubideaux, M.D., M.P.H., Director, Indian Health Service; Donald A.B. Lindberg, M.D., Director, National Library of Medicine; Virginia Tanji, Chair, NLM Board of Regents; Cynthia Lindquist, President, Cankdeska Cikana Community College; and Native American dancers.

communities; efforts by Native communities to improve health conditions; and the role of Native Americans in military service and healing support for returning Native veterans.

#### A Dual Vision of Health Care

“As a Harvard-trained physician and a member of the Rosebud Sioux Tribe, I have a dual vision of Native health care,” says Yvette Roubideaux, M.D., M.P.H., Director of the U.S. Indian Health Service, “seeing the importance of both traditional medicine and modern technology in healing and promoting wellness among Native people.”

Although improvements have been made in the health status of American Indians and Alaska Natives, health disparities continue to persist for Native Americans compared to other populations, notes Dr. Roubideaux.

“For instance, life expectancy is still more than five years below that for the general population,” she says. “Diabetes mortality rates are nearly three times higher, and suicide rates are nearly twice as great.

“We are grateful for this exhibit, as it will help to educate the general public, legislators, and researchers about the health challenges in Indian Country and the need for appropriate resources and knowledge to meet those challenges.”



### Dr. Yvette Roubideaux

Yvette Roubideaux, M.D., M.P.H., Director of the U.S. Indian Health Service, was one of the “Native Voices” interviewed about health, wellness, and Native culture for the new exhibition at the National Library of Medicine.

All photos not otherwise credited are from J.S.A. Photography.

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# NATIVE VOICES

NATIVE PEOPLES' CONCEPTS  
OF HEALTH AND ILLNESS



Photo: Sam Low

Nainoa Thompson (above) learned the art and science of non-instrument navigation of ancient double-hulled voyaging canoes that were used for long-distance travel across the Pacific Ocean. Today, the Polynesian Voyaging Society reconnects Native Hawaiian youth to their natural environment by giving them sailing opportunities that reawaken their observational skills, and help them understand the value of nurturing their own spirituality and physical well being.

In 1976, the ancient tradition of voyaging was revived with the 60-foot Hokulea canoe. Pictured with builder Tay Perry (left) is a 10-foot model of the Hokulea that was constructed in Honolulu for the exhibition using authentic Native materials. Located in the lobby of the Library, it serves as the entry point for visitors to the exhibition.

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In the exhibition, learn how diverse lifestyles and shared experiences have helped sustain the health and well being of Native populations for generations.



(Above) A young traditional dancer performs during the dance program at the exhibition's opening at the Library.

### Healing Images

The "Native Voices" exhibition includes interactive touch-screen technology, with interviews conducted by Library Director Dr. Donald A.B. Lindberg, and videos, such as this image from a Native healing ceremony video. Native Voices speak of the responsibilities of individuals and the interconnectedness of communities, of reverence for Nature, tradition, and the Great Spirit. You will also hear about the challenges and opportunities of balancing traditional healing with Western medicine.



### Visit the "Native Voices" Web Site [www.nlm.nih.gov/nativevoices](http://www.nlm.nih.gov/nativevoices)

To make the Native Voices information accessible to people who can't come to the Library, there is an online version of the exhibition at [www.nlm.nih.gov/nativevoices](http://www.nlm.nih.gov/nativevoices). The Library hopes to develop a travelling version consisting of a series of banners with information.

For people interested in Native health issues in general, the Library's collection of free online information contains material on Native health including:

- An American Indian Health portal to issues affecting the health and well being of American Indians (<http://americanindianhealth.nlm.nih.gov/>)
- An Arctic Health Web site with information on diverse aspects of the Arctic environment and health of northern peoples ([www.arctichealth.org/](http://www.arctichealth.org/))
- A Native American Health page on MedlinePlus.gov, the Library's consumer health website ([www.nlm.nih.gov/medlineplus/nativeamericanhealth.html](http://www.nlm.nih.gov/medlineplus/nativeamericanhealth.html))

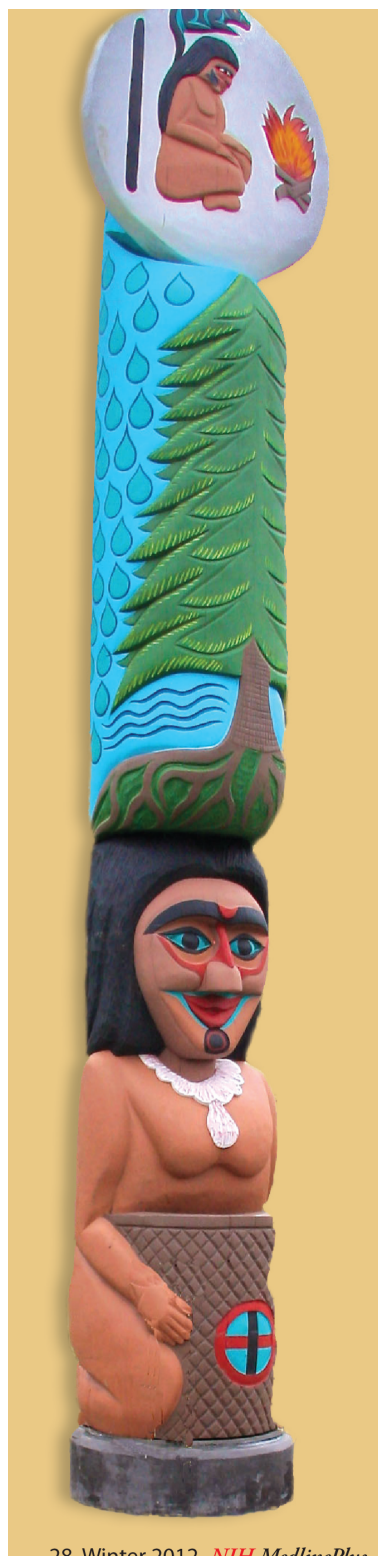


Video: National Library of Medicine



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### Understanding the Healing Totem

**T**he totem outside the National Library of Medicine was designed and carved by master carver Jewell Praying Wolf James. From the time the tree left the forest in Washington State to travel to the Lummi Nation to be carved, and then to its present site in the NLM Herb Garden, it traveled 4,400 miles. Here, on the same campus where doctors and scientists dedicate their lives to solving the questions of medicine, it will fulfill its mission of symbolizing and promoting good health and healing.

The stories depicted on the totem use symbols of the sky (raven, sun, moon, stars, fire), the earth (bear, plants, habitat), water (ocean, river, moon cycles with tides), and the creative power and wisdom of women as leaders and healers. Totems display these symbols to awaken our awareness of the meaning and interconnectedness of life and the environment, and the collective knowledge of all races of humanity.

**The bottom of the totem depicts a woman with a gathering basket.** She represents the women who traditionally gathered plants and herbs to heal human illness.

**The center portion of the totem is a tree, representing the Tree of Life and the forests that provide natural healing medicines.** Nature is the first source of cures for human ailments.

**The top of the totem pole depicts the Algonquin story of the Medicine Woman in the Moon.** The moon is the protector and guardian of the earth by night.

**The colors in the totem pole also have deep meaning:**

- **Red** is the color of blood, representing war or valor
- **Blue** is for the skies and waters, including rivers and lakes
- **White** is for the skies and spacious heavens
- **Yellow** is the color of the sun, bringing light and happiness
- **Green** is the earth with its hills, trees, and mountains
- **Black** represents power.

**More “Native Voices” Stories**  
[www.nlm.nih.gov/nativevoices](http://www.nlm.nih.gov/nativevoices)

**The exhibition and Web site contain many stories related to Native healing, including:**

#### **Ceremony and the Medicine Wheel**

Ceremony is an essential part of traditional Native healing. Because physical and spiritual health are intimately connected, body and spirit must heal together. The ‘Medicine Wheel’ symbolizes health and the cycles of life.

#### **A Continuum of Health Care**

Today, Native Americans can access a continuum of health care practiced by traditional healers and Western-trained physicians. The Waianae Coast Comprehensive Health Center in Oahu, Hawaii, provides a range of traditional healing practices that are overseen by a Council of Elders. The Center is co-located alongside a Western primary medical care clinic offering comprehensive health and wellness services.

The Traditional Healing Center of the Southcentral Foundation in Anchorage, Alaska received an award in 2011 from the Indian Health Service for demonstrating how traditional doctors, elders, and traditional healing practices can work side-by-side with Western medicine.

