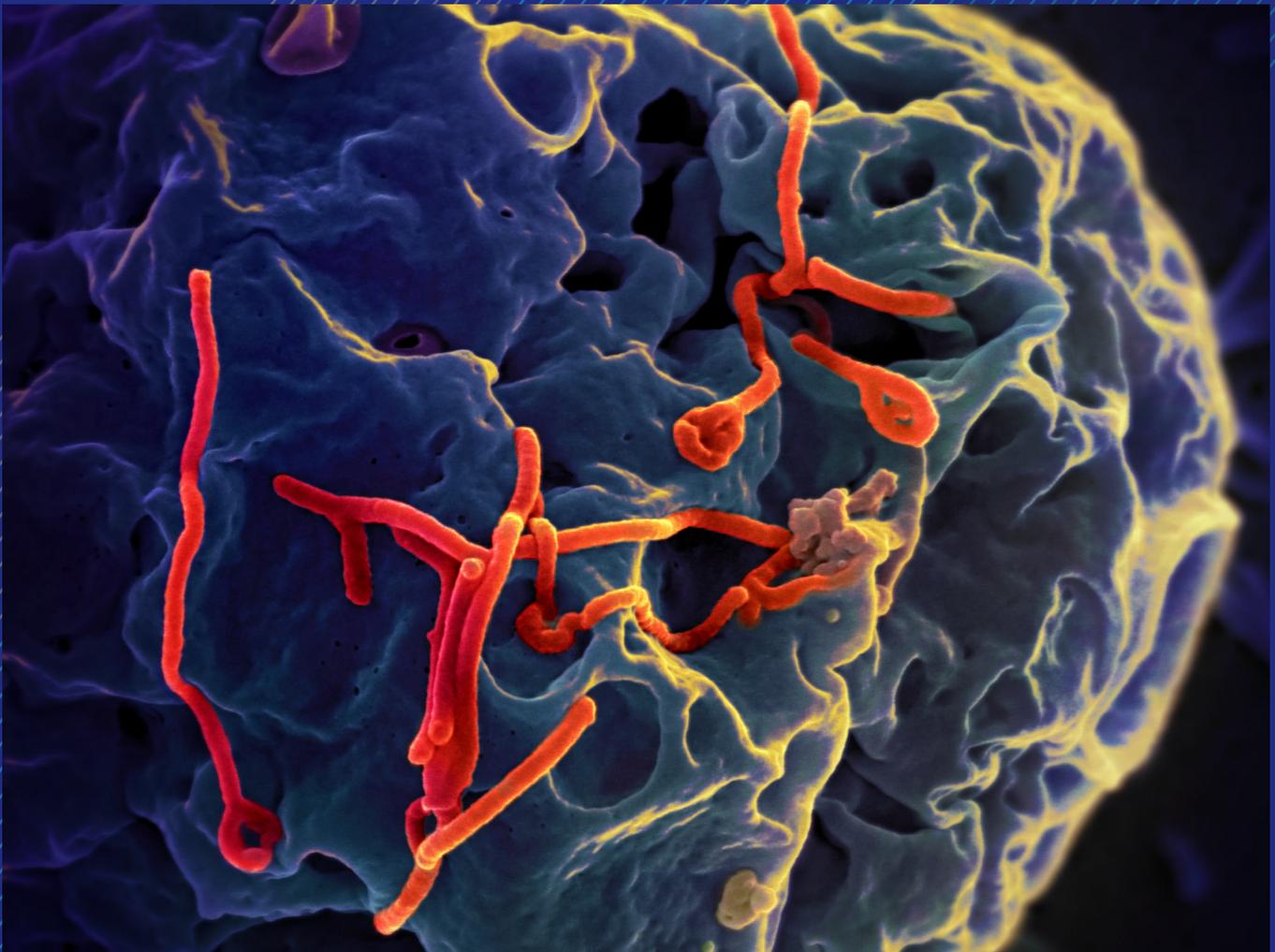


Challenges of Infectious Diseases

Environmental Health Information Partnership



Proceedings
March 16-17, 2015

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

**ENVIRONMENTAL HEALTH
INFORMATION PARTNERSHIP**

PROCEEDINGS

National Library of Medicine
Bethesda, Maryland
March 16–17, 2015

CHALLENGES OF INFECTIOUS DISEASES

Prepared for
Division of Specialized Information Services
National Library of Medicine

Prepared by
Oak Ridge Institute for Science and Education

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Cover Photo: National Institute of Allergy and Infectious Diseases

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**NATIONAL LIBRARY OF MEDICINE
ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP**
Theme: Challenges of Infectious Diseases
**Board of Regents Room
Mezzanine, Bldg. 38
March 16–17, 2015
Ann Barbre, PhD, Presiding**

AGENDA

MONDAY, MARCH 16, 2015

- | | |
|-------------------------|---|
| 8:30 a.m. – 9:00 a.m. | Registration |
| 9:00 a.m. – 9:05 a.m. | Meeting Opening and Welcome
Ann Barbre, PhD
Chairman, EnHIP |
| 9:05 a.m. – 9:15 a.m. | Welcome and Remarks
Donald A.B. Lindberg, MD
Director, National Library of Medicine |
| 9:15 a.m. – 9:25 a.m. | Introductions
Ann Barbre, PhD |
| 9:25 a.m. – 9:50 a.m. | Keynote Address: Ebola — What It Is Like in the Hot Zone
Gavin Macgregor-Skinner, BVSc, MSc, MPH, MRCVS
Elizabeth R. Griffin Research Foundation |
| 9:50 a.m. – 10:00 a.m. | Discussion and Q&A
Facilitated by Steven Phillips, MD |
| 10:00 a.m. – 10:30 a.m. | NLMs Role in Ebola: DIMRC Resources
Siobhan Champ-Blackwell, MSLIS
Health Sciences Librarian
Specialized Information Services, National Library of Medicine |
| 10:30 a.m. – 10:40 a.m. | BREAK |
| 10:40 a.m. – 11:30 a.m. | Vaccines for Cytomegalovirus and Epstein-Barr Virus
Clifford M. Snapper, MD
Uniformed Services University of the Health Sciences
Department of Pathology |
| 11:25 a.m. – 11:30 a.m. | Discussion and Q&A
Facilitated by Doris Withers, EdD |

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

AGENDA

- 11:30 a.m. – 12:15 p.m. **Ebola and the Electronic Health Records**
Kenneth D. Mandl, MD, MPH
Professor, Harvard Medical School
- 12:15 p.m. – 12:25 p.m. **Discussion and Q&A**
Facilitated by Arlene Montgomery, PhD
- 12:30 p.m. – 1:45 p.m. **LUNCH**
A Tribute to Donald A.B. Lindberg, MD
Led by Bailus Walker, Jr., PhD, and Ann Barbre, PhD
- 1:45 p.m. – 2:15 p.m. **EnHIP Group Picture**
Ernie Branson, Photographer, NIH
History of Medicine Reading Room, Bldg. 38
- 2:15 p.m. – 2:50 p.m. **Emerging Infectious Diseases/Public Health
Department Report**
Virginia A. Caine, MD
Director, Marion County Health Department
Indianapolis, Indiana
- 2:50 p.m. – 3:00 p.m. **Discussion and Q&A**
Facilitated by Bailus Walker, Jr., PhD
- 3:00 p.m. – 3:15 p.m. **BREAK**
- 3:15 p.m. – 4:45 p.m. **Panel — Climate Change and Emerging Diseases:**
*The Full Range of Human Health Issues Associated
with Climate Change*
- Daniel Wildcat, PhD, Haskell Indian Nations University, *Panel Moderator*
 - Kristina Peterson, PhD, University of New Orleans
 - John C. Topping, JD, Climate Institute
 - Sally Valdes, PhD, Environmental Protection Agency, Department of Interior, Department of State, (Retired)
- 4:45 p.m. – 5:00 p.m. **Wrap-up and Day 2 Overview**
Ann Barbre, PhD

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

AGENDA

TUESDAY, MARCH 17, 2015

- 8:30 a.m. – 8:45 a.m. Registration
- 8:45 a.m. – 9:00 a.m. **Welcome and Preview of the Day’s Events**
Ann Barbre, PhD
Chairman, EnHIP
- 9:00 a.m. – 9:30 a.m. **Overview of NLM Resources: Climate Change and Environmental Justice**
Laura Bartlett, MLS
Technical Information Specialist
Specialized Information Services, National Library of Medicine
- 9:30 a.m. – 10:00 a.m. **K-12 Animations: Bridging Health and Literacy**
Queen Alike
Contractor
- 10:00 a.m. – 10:15 a.m. BREAK
- 10:15 a.m. – 10:30 a.m. **The Contracting Process for Outreach Awards**
Robin Hope
Contracting Officer
National Library of Medicine
- 10:30 a.m. – 11:00 a.m. **EnHIP Outreach Awards Presentations**
Stephanie Bauer, PhD, University of Alaska Anchorage
Jill A. Ziemann, PhD, Colorado Mountain College
- 11:00 a.m. – 11:30 a.m. **Closing Remarks and Plans for EnHIP 2016**
Ann Barbre, PhD

**DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
NATIONAL LIBRARY OF MEDICINE®**

**PROCEEDINGS OF THE ENVIRONMENTAL HEALTH
INFORMATION PARTNERSHIP (EnHIP) MEETING
March 16–17, 2015**

The Environmental Health Information Partnership (EnHIP) convened for its first session on March 16, 2015, at 9:00 a.m. in the National Library of Medicine (NLM®) Board of Regents Room, National Institutes of Health (NIH), Bethesda, Maryland. EnHIP Chairman Dr. Ann Barbre, Professor and Associate Dean of Pharmacy, Xavier University of Louisiana, presided. The theme of the meeting was “Challenges of Infectious Diseases.” Representatives convened again March 17, 2015, at 8:30 a.m. in the Board of Regents Room until adjournment at 11:30 a.m.

ATTENDEES

Representatives from Participating Institutions

Dr. Ann Barbre, Xavier University of Louisiana
Dr. Fatima Barnes, Meharry Medical College
Ms. Dolores E. Caffey-Fleming, Charles R. Drew University of Medicine and Science
Dr. Robert Copeland, Jr., Howard University
Dr. Sandra Harris-Hooker, Morehouse School of Medicine
Dr. Diógenes Herreño-Sáenz, University of Puerto Rico
Dr. Ann Krejci, Oglala Lakota College
Dr. Judith Mazique, Texas Southern University
Dr. Arlene Montgomery, Hampton University
Dr. Milton Morris, Benedict College
Dr. T. Joan Robinson, Morgan State University
Dr. Cheryl Taylor, Southern University and A&M College
Dr. Paul B. Tchounwou, Jackson State University
Dr. Daniel Wildcat, Haskell Indian Nations University
Dr. Doris Withers, Medgar Evers College, CUNY
Ms. Jill Ziemann, Colorado Mountain College

Alternative Representatives

Dr. Cheryl G. Davis, Tuskegee University
Dr. João Ferreira-Pinto, The University of Texas at El Paso
Dr. Melissa Littlefield, Morgan State University
Dr. Shawn Spencer, Florida A&M University
Dr. Stephanie Bauer, University of Alaska Anchorage

Consultants to the EnHIP

Mr. John Scott, Center for Public Service Communications
Dr. Bailus Walker, Jr., Howard University College of Medicine (EnHIP Senior Scientific Advisor)

Speakers

Dr. Donald A.B. Lindberg, Director, NLM
Ms. Queen Alike, Division of Specialized Information Services, NLM (Contractor)
Ms. Laura Bartlett, Division of Specialized Information Services, NLM
Dr. Stephanie Bauer, University of Alaska Anchorage
Dr. Virginia A. Caine, Marion County (Indiana) Health Department
Ms. Siobhan Champ-Blackwell, Division of Specialized Information Services, NLM
Ms. Robin Hope, Office of Acquisitions and Consolidated Operations, NLM
Dr. Gavin Macgregor-Skinner, Elizabeth R. Griffin Research Foundation
Dr. Kenneth D. Mandl, Harvard Medical School
Dr. Kristina Peterson, University of New Orleans
Dr. Clifford M. Snapper, Uniformed Services University of the Health Sciences
Dr. John C. Topping, Jr., Climate Institute
Dr. Sally Valdés, Retired, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service
Dr. Daniel Wildcat, Haskell Indian Nations University
Ms. Jill Ziemann, Colorado Mountain College

Invited Guests

Ms. Yesenia Arreola, Colorado Mountain College
Dr. Troy C. Dildine, National Center for Complementary and Integrative Health
Dr. John W. Downs, Uniformed Services University of the Health Sciences

NLM Staff

Dr. Donald A.B. Lindberg, Director, NLM
Ms. Betsy Humphreys, Deputy Director, NLM
Dr. Milton Corn, Office of the Director, NLM
Dr. Fred Wood, Office of the Director, NLM
Dr. Steven Phillips, Director, Division of Specialized Information Services, Associate Director, NLM
Ms. Gale Dutcher, Division of Specialized Information Services, NLM
Ms. Janice Kelly, Division of Specialized Information Services, NLM
Ms. Cynthia Gaines, Division of Specialized Information Services, NLM
Ms. Queen Alike, Division of Specialized Information Services, NLM (Contractor)
Ms. Cassandra Allen, Division of Specialized Information Services, NLM
Ms. Laura Bartlett, Division of Specialized Information Services, NLM
Ms. Siobhan Champ-Blackwell, Division of Specialized Information Services, NLM
Mr. James Charuhas, Division of Specialized Information Services, NLM
Dr. Pertti (Bert) Hakkinen, Division of Specialized Information Services, NLM
Ms. Robin Hope, Office of Acquisitions and Consolidated Operations, NLM
Ms. Nicole Scott, Division of Specialized Information Services, NLM
Ms. Rose White, Division of Specialized Information Services, NLM

ORISE Staff

Ms. Wilma Templin-Branner, Oak Ridge Institute for Science and Education
Ms. Linda Lange, Oak Ridge Institute for Science and Education

I. Meeting Opening and Welcome

Dr. Ann Barbre, Professor and Associate Dean of Pharmacy, Xavier University of Louisiana, opened the meeting on March 16, 2015, at 9:00 a.m. in the National Library of Medicine (NLM) Board of Regents Room, National Institutes of Health, Bethesda, Maryland. The theme of the meeting was “Challenges of Infectious Diseases.” She welcomed representatives and invited guests and asked all attendees to introduce themselves. Following introductions, Dr. Barbre assured everyone that stimulating topics were on the program.

II. Ebola—What It Is Like in the Hot Zone: Building Resilient Communities: Ebola Response in West Africa

Dr. Barbre introduced the keynote speaker, Dr. Gavin Macgregor-Skinner, Global Projects Manager, Elizabeth R. Griffin Research Foundation. He is Adjunct Professor, Harvard Medical School, and Assistant Professor, Department of Public Health Sciences, Pennsylvania State University Hershey Medical College. He shared insight gained from making three trips to West Africa for the United Nations and U.S. government agencies involved in treating Ebola patients and implementing whole community approaches to care. Dr. Macgregor-Skinner was invited and funded by the Nigerian Government to lead a team from the Elizabeth R. Griffin Research Foundation to conduct risk assessments and training workshops. The team also established hospital Ebola isolation units. One of the first lessons the team learned on arrival was that the whiteness of the personal protective equipment and hospital tents symbolized death to the people of the region.

Dr. Macgregor-Skinner focused on the challenging efforts of building resilient communities in countries with very few medical laboratories, hospitals, and trained personnel. In these circumstances, collecting accurate data was very difficult. The Ebola outbreak is not over, though people have the impression it is waning. Five different Ebola species exist; three have been seen in Africa. The ongoing epidemic involves the Zaire Ebola virus, the most deadly subtype.

Dr. Macgregor-Skinner gave an overview of the human cost to date: 24,000 treated Ebola patients, 9,000 deaths, 15,000 survivors, and 3,700 children in Guinea, Liberia, and Sierra Leone who have lost one or both parents. At present, the fatality rate is below 50%; in previous years, the fatality rate was as high as 88%. Though he expressed gratitude for higher survival rates, he remains distressed by the lack of medical facilities and lack of attention to other health issues. The region in West Africa struck by the Ebola pandemic also battles other severe diseases, such as Lassa fever. During the Ebola crisis, more than 1.5 million children did not receive regular immunizations against infectious childhood diseases. He predicted enormous outbreaks of measles and other diseases will occur this year because immunization programs completely stopped when medical staff shifted resources to fighting Ebola. Patients who survive Ebola often find their families and communities reject them out of fear. The overburdened communities cannot support basic municipal functions, such as public safety. Terrorism threats spread fear and instability among the communities, making Ebola response efforts more difficult and haphazard.

Dr. Macgregor-Skinner explained major issues by saying, “The ongoing epidemic has been exacerbated by several factors: geography and distances, movement of both people and bodies, weak health care infrastructure in affected countries, health care workers who lack experience with Ebola, and communities that do not understand the disease and do not want to cooperate with health officials.”

In discussing mistakes made in West Africa, Dr. Macgregor-Skinner related, “We didn’t mobilize and we didn’t integrate; we didn’t connect with the universities to do community outreach or engagement.” Response teams need to address and manage all components of the disease, including screening travelers at airports, transporting patients and bodies, supervising the health and safety of medical staff, and disposing of used personal protective equipment and other contaminated supplies. Ebola treatment units are typically a cluster of tents or mobile buildings for diagnostic labs, treatment rooms, beds, and cleansing stations with showers.

In West Africa, health care workers and other personnel lacked connectivity because of the different languages spoken in the Ebola-infected regions. Infectious diseases are not held in by tribal borders, but tribal differentiation means a lot when it comes to community mobilization and engagement. Dr. Macgregor-Skinner encouraged medical teams to accept local innovations and solutions for solving problems. By taking responsibility for their communities, citizens use their ingenuity and materials at hand to solve problems, and their attempts should receive full support. Also, he advocated for using video conferencing and text messaging to connect people quickly and share best practices. In previous public health initiatives, Dr. Macgregor-Skinner distributed megaphones, cell phones, and motor bikes to community workers and sent them on outreach campaigns across provinces. This approach could be used to connect districts and build resilience in communities.

In sharing his personal experiences at Ebola treatment units, Dr. Macgregor-Skinner mentioned the sights, sounds, and smells of gravely ill patients. He took precautions and instilled a sense of teamwork. “When you pick your Ebola team, or your highly infectious disease team, you have to pick the right people. There’s no hierarchy. It’s a family,” he said.

III. Discussion and Q&A with Dr. Gavin Macgregor-Skinner

Dr. Steven Phillips, Director, Division of Specialized Information Services (SIS), Associate Director, NLM, praised Dr. Macgregor-Skinner’s presentation and asked what the next 12 to 24 months may bring. Dr. Macgregor-Skinner predicted the upcoming rainy season will make connectivity between communities difficult.

Dr. Sandra Harris-Hooker, Morehouse School of Medicine, asked why successful disease response programs were used in other countries but not in West Africa. Dr. Macgregor-Skinner explained that a lack of management is the root of many problems, not only in Africa but universally. He gave the example of Dallas, Texas, where Thomas Eric Duncan was diagnosed with Ebola at Texas Presbyterian Hospital in November 2014. Dr. Macgregor-Skinner mentioned going there to do the after action review and asking who was managing the event. “And there was hushed silence,” he recalled. Spokespersons from the Centers for Disease Control and Prevention (CDC), the Dallas mayor’s office, and Texas Presbyterian Hospital described their roles, but no one provided the answer Dr. Macgregor-Skinner expected to hear. “If this had been a tsunami, an earthquake, [or] a hurricane, the approach system and the management system would be so different,” he said. He emphasized that overlooked organizations, namely the Federal Emergency Management Agency and the United Nations Office for the Coordination of Humanitarian Affairs, possess very well-trained emergency managers. Dr. Macgregor-Skinner said CDC and the World Health Organization (WHO) possess the skill sets to respond appropriately for medical interventions, and they played a very critical role in mitigating the spread of the disease.

Mr. John Scott, President, Center for Public Service Communications, asked a follow-up question about why disaster risk reduction and response groups were not integrated into management. Dr. Macgregor-Skinner said collaboration hubs have not been set up throughout the world. He said

lessons learned from cholera outbreaks in Haiti and Zambia, and the SARS pandemic showed food security, logistics, and information resources are as important as medical response units. He urged NLM to push for collaboration and connectivity to create a highly functional response network.

IV. NLMs Role in Ebola: DIMRC Resources

Ms. Siobhan Champ-Blackwell, Health Sciences Librarian, Division of Specialized Information Services, NLM, promoted use of the NLM Disaster Information Management Research Center (DIMRC) Web site (<http://disaster.nlm.nih.gov/>). The DIMRC mission is to develop and provide access to health information resources and technology for disaster preparedness, response, and recovery. The resources connect people to high-quality disaster health information and foster a culture of community resiliency.

The DIMRC Web site features Ebola outbreak information resources in the center of the homepage. Ms. Champ-Blackwell pointed to useful resources, such as reports from WHO and CDC. Many of the DIMRC resources were the same as the ones in Dr. Macgregor-Skinner's presentation. The main audiences of the DIMRC Web site are first responders and first receivers as well as the disaster information specialists who serve those two groups.

Ms. Champ-Blackwell noted that more than 1,000 articles on Ebola have been issued since 2014; these are general studies, not scientific studies, because of the short time frame. The Emergency Access Initiative is an important tool from NLM, because it offers temporary free access to full-text articles from major biomedicine titles (<http://eai.nlm.nih.gov>). Access to the publications is only available to those affected by the disaster and those providing assistance to the affected populations.

In disasters, grey literature becomes important because it includes a wide range of material. It is defined as “that which is produced on all levels of government, academics, business, and industry in print and electronic formats, but which is not controlled by commercial publishers.” Grey literature differentiates itself from literature found in PubMed®, which includes only information from authoritative journals that has been reviewed and approved for entry into journals (Pubmed.gov). Social media channels provide critical information; however, users are cautioned to follow only sources considered to be authoritative. Disaster Lit is a database of links to disaster medicine and public health documents. Guidance documents, training tools, webinars, and meeting reports are located at this site. NLM has set up training with hospitals using virtual reality to run drills on handling incidents, such as the care of an Ebola patient.

After the close of Ms. Champ-Blackwell's presentation, Ms. Gale Dutcher, Deputy Associate Director, Division of Specialized Information Services, NLM, commented on the importance of community-based outreach and participation. Dr. Cheryl Taylor, Southern University and A&M College, emphasized the worthwhile inclusion of the public librarian in the process of disaster information management. Mr. John Scott also addressed the topic of community involvement, stating “Ebola is going to be mitigated by community change, by behavior change in the community, and that's outreach.”

V. Vaccines for Cytomegalovirus and Epstein-Barr Virus

Dr. Clifford M. Snapper, Professor of Pathology, Uniformed Services University, discussed the Cytomegalovirus and Epstein-Barr virus. Many people are exposed to these viruses; they remain latent in the body as long as the immune system is intact. A disruption to the immune system can lead to disease. No licensed vaccines for these viruses are available at this time.

Burkitt lymphoma, a malignancy of the lymphocytes, is endemic in Africa. Children present with disfiguring jaw tumors. Studies of this malignancy led to findings related to Hodgkin's disease; its malignant cells harbor the Epstein-Barr virus. Patients who become immune-suppressed are at risk of developing a B cell proliferative disorder driven by the Epstein-Barr virus.

About 200,000 malignancies worldwide are caused by the Epstein-Barr virus. Vaccines exist to protect against other cancer viruses, such as the human papillomavirus and the hepatitis B virus. Dr. Snapper emphasized that researchers know cancer vaccines are possible and they can have a dramatic impact on the development of cancer. Among the reasons for developing a vaccine are the implications that the Epstein-Barr virus is linked to multiple sclerosis, lupus, and Sjögren's syndrome.

The cytomegalovirus is the leading nongenetic cause of hearing loss and a significant cause of neurodevelopmental delay, including intellectual disabilities. In the United States and Europe, 30% to 50% of women of childbearing age are susceptible to primary cytomegalovirus infection. Dr. Snapper cited the Institute of Medicine's standpoint that development of a cytomegalovirus vaccine should be a high priority because of the virus' resulting disabilities and the cost of congenital infections. The last clinical trials done for the vaccine occurred in 2009. Dr. Snapper and his collaborators are developing and testing proteins for use in clinical trials for vaccines. He expressed confidence that vaccines will be developed for both viruses in the near future.

VI. Discussion and Q&A with Dr. Clifford M. Snapper

Dr. Snapper's presentation was well received and led to a question-and-answer session facilitated by Dr. Doris Withers, Medgar Evers College, CUNY. Dr. Withers asked Dr. Snapper about the risk to unborn children of pregnant women who have been exposed to the cytomegalovirus. Dr. Snapper responded that about one third of women (30% to 35%) who become infected with cytomegalovirus for the first time during a pregnancy will pass the infection to their infant. If a woman is infected with cytomegalovirus before becoming pregnant, the risk of passing the virus to her fetus is about 1 in 100 (1.4%).

Dr. Ann Krejci, Oglala Lakota College, asked about mutation of the viruses, and Dr. Snapper said the Epstein-Barr virus is fairly stable, while the cytomegalovirus is variable. They are unlike the human immunodeficiency virus, which is highly mutable. In response to a follow-up question by Dr. Bailus Walker, Jr., EnHIP Senior Scientific Advisor, Dr. Snapper said the possibility of the viruses mutating and escaping the vaccine does not seem to be a significant problem. He related that the hepatitis B virus vaccine and the human papillomavirus vaccine are phenomenally successful in terms of public health and long-term protection.

Dr. Paul B. Tchounwou, Jackson State University, asked about any population differences with regard to the sensitivity to the vaccines. Dr. Snapper responded that populations considered to be socioeconomically underprivileged tend to contract the Epstein-Barr virus and the cytomegalovirus earlier in life than other populations. As a result, populations in the developing world should receive the vaccine in infancy.

VII. Ebola and the Electronic Health Records

Dr. Kenneth D. Mandl, Professor, Harvard Medical School, and Director, Boston Children's Hospital Informatics Program, explained how researchers and technology developers are bringing big data to the point of care by creating the app store for health. He focused on creative ways to use the data now available through social media, such as Twitter. Dr. Mandl gave the Washington-

area earthquake of 2011 as an example. Google experienced a surge in earthquake-related search terms, so in a sense, Google became an “earthquake detector.” He noted many other electronic information resources could be linked to patient care. Despite the federal government’s investment of \$48 billion into the health information technology, barriers still exist and innovations do not reach the point of care. Data is entered into the system, but it is not necessarily analyzed and used effectively.

Dr. Mandl addressed the Ebola incident at Texas Presbyterian Hospital, the health care facility where Thomas Eric Duncan was diagnosed with Ebola in November 2014. At first, the mishandling of Mr. Duncan’s care was blamed on the electronic medical record, but this was retracted. “The electronic medical record did what it was supposed to do. It took the history, it took the fever, and it buried it deep into its data core never to be seen again,” Dr. Mandl said.

Dr. Mandl informed representatives about a \$15 million grant from the Office of the National Coordinator for Health Information Technology to create an application programming interface for health care. He worked with mobile app developers to design tools to collect and connect medical data from different sources and make it more useful for health care providers and patients. He noted the very short development time for applications and the multitude of uses, which include providing user-friendly medication instructions, charting blood pressure readings, and sending reminders for immunizations.

Dr. Mandl is working with Eli Lilly and Company to create a clinical trials matching application with an interface to the NLM resource ClinicalTrials.gov. Once operational, the application would match patients to clinical trials at their point of care. Organizations, including SureScripts and HCA, the largest for-profit health care system in the United States, are collaborating with Dr. Mandl to use applications to enhance electronic record-keeping and health monitoring.

VIII. Discussion and Q&A with Dr. Kenneth D. Mandl

Dr. Arlene Montgomery, Hampton University, facilitated a discussion and asked about long-term security measures to protect data in mobile applications. Dr. Mandl said the applications he mentioned will run in the context of the electronic medical record. Applications running on servers outside a medical facility would need an agreement addressing privacy and security concerns. The U.S. Food and Drug Administration is developing protections related to the accuracy of content and decision support. However, at this time no quality regulations exist for health applications in terms of privacy protection.

Dr. Tchounwou asked about the possible impact of environmental interactions in terms of predicting risk related to population migration. Dr. Mandl said researchers need to take into account the risk associated with geography, and he predicted huge advancements in the field of genomics. Dr. Virginia A. Caine, Director, Marion County (Indiana) Health Department, expressed her interest in geographic information system mapping of air pollution for industry. She asked about possible linkages of electronic medical records to ascertain higher rates of pediatric asthma hospital admissions in areas where pollution is high. Dr. Mandl said the technology is almost available for utilizing geographic data to “paint a complete risk picture for the patient.”

IX. A Tribute to Donald A.B. Lindberg, MD

Dr. Barbre gave a tribute to Dr. Donald A.B. Lindberg, Director, NLM, for his many years of service and devotion to EnHIP. She recalled attending the first meeting and highlighted the growth of the Partnership. “We are forever indebted to Dr. Lindberg for his great kindness, his great forethought, and the resources that he dedicated to us,” said Dr. Barbre.

On behalf of all EnHIP member schools, Dr. Barbre presented a crystal eagle sculpture on a cherry wood base to Dr. Lindberg. “We hope you’ll treasure it as we’ve treasured you,” she said. A plaque on the base listed the names of all EnHIP member schools and held the engraved inscription: “In heartfelt appreciation for your efforts in building enduring partnerships with minority serving and tribal institutions.”

Dr. Barbre also presented Dr. Lindberg with an oversized basket filled with special keepsakes gifted by representatives. Many gift items and shirts displayed the emblems of EnHIP member schools. Treats, such as Virginia peanuts, Puerto Rican coffee, and Louisiana pralines, reflected the regional heritage of member schools.

Dr. Lindberg thanked the representatives for the sculpture, gift basket, and their kind thoughtfulness. He expressed appreciation for the Partnership’s many achievements. He encouraged representatives to keep building national awareness of environmental and social issues and to embrace change and take advantage of advancements in science and technology.

Dr. Walker praised Dr. Lindberg’s far-reaching accomplishments at the National Library of Medicine. “He has moved this Library from Rockville Pike out into the community, and he has done a marvelous job,” said Dr. Walker, recognizing Dr. Lindberg’s efforts to make NLM accessible by promoting community outreach. These efforts have cascaded from cities and states across the United States to many nations across the globe. “I think history will be incomplete if it fails to recognize the contributions that Dr. Lindberg has made, not only to our group but to many groups across the country and across the world. So, Dr. Lindberg, thanks very much for your work,” said Dr. Walker.

Dr. Daniel Wildcat, Haskell Indian Nations University, thanked Dr. Lindberg for his leadership and his dedication to minority serving and tribal colleges and universities. He also acknowledged the actions taken by Dr. Lindberg to include tribal institutions as EnHIP member schools. Dr. Wildcat highlighted “Native Voices: Native Peoples’ Concepts of Health and Illness,” an exhibition directed by Dr. Lindberg, and thanked him for recognizing the value and contributions of Native peoples. Dr. Wildcat presented Dr. Lindberg with a silver and turquoise bolo tie on behalf of the Board of Regents and President of Haskell Indian Nations University. The bolo tie was handcrafted by traditional Navajo Dine’ jewelry makers. “The core of their philosophy and much of their ceremonial cycles is ‘May you walk in beauty with blessings.’ So I hope you will wear this and remember that we’re thankful that you’ve helped so many of our people walk in beauty,” remarked Dr. Wildcat.

X. Emerging Infectious Diseases/Public Health Department Report

Dr. Virginia A. Caine, Director, Marion County (Indiana) Health Department, said the people of the world are in a new era in fighting infectious diseases because of globalization as a public health challenge and the role of international travel and commerce. She is Associate Professor of Medicine for the Infectious Disease Division of the Indiana University School of Medicine and the President of the American Public Health Association.

“You are just a plane ride away from any infection in any country,” said Dr. Caine, explaining how diseases spread quickly through air travel and other transportation connections. Disease prevention is cost effective, but it requires constant global vigilance.

Dr. Caine emphasized the urgent need for preventive action against six emerging infectious diseases: measles, chikungunya, meningococcal B, hepatitis C, tuberculosis, and diseases caused by carbapenem-resistant Enterobacteriaceae.

Measles infections spread through coughing and sneezing; people are contagious four days before the rash develops. Ninety percent of people who lack immunity and are exposed to measles will become infected. About one in four people in the United States who get measles will be hospitalized. About one in 1,000 who get measles will develop encephalitis; the disease can lead to convulsions and can leave a person deaf or with intellectual disability. About one in 20 children with measles will get pneumonia; it is the most common cause of death from measles in young children.

The measles vaccine is safe and effective. However, some parents refuse to vaccinate their children because they have heard the measles, mumps, and rubella (MMR) vaccine is associated with autism. Referencing the widely circulated article in *The Lancet* in 1998 on a study conducted by Dr. Andrew Wakefield, Dr. Caine commented, “He falsified all of his research, he lied, and his license was removed from him.” Despite these accusations of fraudulent research, some parents continue to avoid securing the vaccine for their children.

Chikungunya is a viral disease most prevalent in the Caribbean, South America, Africa, and Asia. In years past, travelers who became infected in other countries returned home to the United States and carried the disease with them. Now chikungunya is emerging as a dangerous new threat within U.S. borders. The infection is transmitted by Asian tiger mosquitos. The disease causes intense joint pain, muscle aches, headaches, and rash, usually within 10 days.

Meningococcal B can cause infection in the brain (meningitis) or blood stream. High-risk groups are infants, adolescents, young adults, college students living in dormitories, and military recruits living in barracks. The infections progress rapidly—24 to 48 hours—so it is very important to diagnose and start antibiotics quickly. Current meningococcal vaccines do not cover all strains of meningococcal infection. Two vaccines for meningococcal B, a rare strain, were recently approved by the U.S. Food and Drug Administration.

Tuberculosis manifests in the lungs, but it can cause disease in other parts of the body. Active tuberculosis causes coughing, fever, fatigue, and chest pain. Multi-drug-resistant tuberculosis requires longer drug therapy. Drugs are expensive and may cause more side effects or adverse reactions.

Incidence of tuberculosis is very low in the United States compared with many other parts of the world. However, incident rates among foreign-born residents in the United States are climbing and causing alarm because these individuals frequently carry the extensively drug-resistant (XDR) tuberculosis. Dr. Caine urged representatives to examine policies at their colleges and universities and implement tuberculosis screening for all students.

An estimated 3.2 million people in the United States are living with chronic hepatitis C, and most of them are unaware of it. All people born between 1945 and 1965 need hepatitis C screening because they may have become infected in the 1970s and 1980s when rates of hepatitis C were the highest. They may have gotten infected from contaminated blood and blood products before universal screening precautions were adopted, or they may have become infected from injecting drugs.

The disease is primarily transmitted through blood entering an uninfected person, making intravenous drug users a high-risk category. The new surge in heroin addiction is causing a sharp rise in acute hepatitis C. Hepatitis C can also be contracted through use of contaminated instruments used for tattooing and body piercing.

Within the African-American community, chronic liver disease—often hepatitis C related—is a leading cause of death among people 45 to 64 years of age. About 6% of infants born to infected mothers will get hepatitis C. Of the people with chronic infection, 1% to 5% will die as a result of a hepatitis C virus infection.

Diseases caused by carbapenem-resistant Enterobacteriaceae, more commonly written as CRE, are a growing concern. Infections are difficult to treat because of the organisms' high rates of antibiotic resistance. Bacteria *Escherichia coli* (abbreviated as *E. coli*) are the most common cause of bladder and kidney infections. Bacteria *Klebsiella* cause pneumonia. CRE are found in urine, sputum, blood, bile, and other bodily fluids.

High-risk groups include immunocompromised people, patients in hospitals (especially those with devices such as ventilators or urinary catheters), and residents of nursing homes or extended care facilities. Medical equipment, all surfaces, and entire rooms must be properly disinfected after use by a patient with diseases caused by CRE.

XI. Discussion and Q&A with Dr. Virginia A. Caine

Dr. Caine's presentation was well received and led to a question-and-answer session facilitated by Dr. Walker. Dr. Judith Mazique, Texas Southern University, asked why the rate for African-Americans with XDR tuberculosis is higher than for other population groups. Dr. Caine said social determinants are to blame: a higher rate of homelessness, higher rate of HIV infections, and higher rate of exposure to people with tuberculosis.

Dr. João Ferreira-Pinto, The University of Texas at El Paso, asked about clinical trials for a new hepatitis vaccine. Results of the clinical trials are not available yet; however, several drugs to cure hepatitis C are available. The expense of the \$85,000-per-person treatment is a deterrent. Dr. Caine compared this high treatment cost to the very much higher costs associated with liver cancer or transplants—possible outcomes of untreated hepatitis C. Also, she noted that treating patients minimizes the possibility of transmitting the disease to others. Dr. Caine answered questions on preventing chikungunya through mosquito environmental control programs and preventing meningitis through vaccination programs on college campuses.

XII. Panel—Climate Change and Emerging Diseases: The Range of Human Health Issues Associated with Climate Change

Dr. Daniel Wildcat, Professor, American Indian Studies, Haskell Indian Nations University, served as moderator for a panel discussion about climate change and its profound effects on our existence. "It is hard to imagine any part of our health and our well-being that will not be affected by climate change," said Dr. Wildcat. He cautioned that robust forces are actively engaged in disinformation. He urged representatives to be vigilant and exert even greater effort to deliver accurate information effectively.

The challenge is to connect the science with people living in communities. "You can have the information, you can have the knowledge, but how do you transform that into meaningful action?" asked Dr. Wildcat.

He introduced the first speaker on the panel, Dr. Kristina Peterson, Assistant Professor, University of New Orleans. He praised her efforts in the coastal communities of Southeast Louisiana. She facilitates the Lowlander Center, a nonprofit organization that helps create solutions through education, research, and advocacy. It maintains a strong focus on social and environmental justice.

In traditional cultures, populations are rooted in place and supported by human relationships and heritage. Communities share resources and reciprocate support. In Southeast Louisiana, a series of disasters, ranging from hurricanes to the BP oil spill in 2010, have torn apart people's life balance and resilience. Land is being lost in the Mississippi Delta at an alarming rate; the region has the fastest disappearing wetlands in the world. As an example, Dr. Peterson mentioned, "There's a field not far from my home where cattle roamed. The cattle are no longer there, and it is now being fished."

The natural resources of the bayous provided a healthy lifestyle for local people for generations. An abundance of fish, game, fruits, and vegetables afforded communities with sufficient food. The changing environment presents new challenges, yet support during this transition is difficult to obtain. Southeast Louisiana community leaders have written more than 100 grant applications, but only about 15 of those have come to fruition, with the average being \$10,000. Most communities and Native American tribes have no independent budget for dealing with these cultural and environmental changes. Dr. Peterson is helping community leaders to converse with academic partners and government agencies about establishing a national policy for resettlement of communities. "It is about passing values and knowledge and building bonds," said Dr. Peterson, emphasizing the value of resettling communities so the tightly knit social fabric remains intact for generations to come.

The panel's next speaker, Dr. Sally Valdés, shifted the focus from small communities to a national and international perspective, particularly how climate change might affect vectors of disease and food security. Dr. Valdés is a retired fish and wildlife biologist who previously worked in various agencies of the federal government, including the Bureau of Ocean Energy Management, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and U.S. Department of State. She administered programs to restore and conserve wildlife habitats.

Dr. Valdés repeated the observation of Dr. Margaret Chan, Director-General, World Health Organization (WHO): "For public health, climate change is the defining issue for the 21st century. Climate change and weather variables affect the air people breathe, the food they eat, the water they drink, and the chances that they will be infected with a life-threatening disease." Dr. Valdés emphasized, "It's not something just in the future. We have to deal with it now. We cannot put it off."

An increase in heat levels changes precipitation patterns. Patterns documented in the past will not be reliable indicators of the future. Vector-borne diseases (infections transmitted by the bites of infected arthropods such as mosquitoes, fleas, and ticks) are likely to shift and expand their range because of changes in temperatures and precipitation patterns. Some diseases associated with tropical climates will make their way into higher latitudes.

Increases in average temperatures will cause issues related to food insecurity. Competition will grow for water resources. The range of weeds and pests will expand, leading to a greater use of pesticides. The greatest decreases in crop yields will occur in dry and tropical regions. Population migration to other food-producing regions is sure to follow, but these shifts and adaptations will cause stresses in social fabric. "These changes will be most difficult for the poorest and most vulnerable regions and populations," cautioned Dr. Valdés.

Dr. John C. Topping, Jr., President and Chief Executive Officer, Climate Institute, examined the effect of black carbon (soot and other particulate matter) on climate change. By reducing air pollution, people can improve population health and reduce warming trends in the Arctic region. He called on the public health community in the United States to work with colleagues

abroad, particularly in developing countries, and take strong steps to reduce particulate emissions. “If we can do that, we can make a big difference for future generations and really see something in our lifetime that will slow the rate of climate change and the melting of the Arctic,” said Dr. Topping.

Seven million people around the world die from air pollution, according to WHO data. Most of the deaths are particulate-related. Extreme weather events, such as heat spells, are becoming more common in regions not accustomed to high temperatures. In 2003, 35,000 people died during a heat wave in Northern Europe. Projections by climate scientists indicate major heat events will occur every two to four years in the approach to 2100, and cold weather events will decrease sharply during that time. As populations move to urban areas, they create heat islands. These emerging heat zones will create major public health issues unless steps are taken to mitigate health problems before they happen.

XIII. Discussion and Q&A with Panel

The panel’s presentations sparked a lengthy question-and-answer session moderated by Dr. Wildcat. Mr. John Scott addressed mental health issues that may arise from relocation, food insecurity, and changing behavioral habits. Dr. Peterson replied that community members are discussing elements of their lives that are slipping away, and often this realization creates a cultural reinvigoration. As a coping mechanism, they reunite with their historical roots, languages, and rituals. These activities fortify residents to move forward and adapt. Other communities cope less well, and their members show problems of abuse, suicide, and other issues. Dr. Wildcat observed that in areas of economic inequality, young people sometimes feel hopelessness because of the lack of opportunities. “They don’t have anything to look forward to and they usually make very bad choices,” he noted.

Further discussion of population resettlement was prompted by a question asked by Dr. Stephanie Bauer, University of Alaska Anchorage. Alaska Native communities and Yukon River communities are faced with resettlement, but federal, state, and local policies have not addressed how the resettlement will be funded. Dr. Peterson described possible monetary allocations by the federal government to buy blocks of land. She acknowledged that costs of relocation create huge social justice issues.

Dr. Cheryl Taylor commented that elderly people are often overlooked, but they are the real carriers of hope. They need to train a new generation of community leaders to differentiate legitimate information from misinformation.

Dr. Milton Morris, Benedict College, sought more information about vectors, particularly the mosquito, and changes to the environment. Dr. Valdés said modes of transportation and interchanges between communities also expand the habitats of vectors. Without native predators in new environments, vector populations explode and cause many problems. These are issues separate from those related to climate change.

XIV. Wrap-up and Day 2 Overview

Dr. Barbre praised the excellent presentations of the morning and afternoon sessions. “They gave us some perspectives that perhaps we did not have before; they made us think about some things differently,” she said. Presentations for Tuesday, March 17, 2015, will supply a wealth of resources for engagement and research. Also, the EnHIP Outreach Awards presentations will highlight two outstanding projects.

Before the close of the meeting, Dr. Tchounwou distributed fliers announcing the 12th International Symposium on Recent Advances in Environmental Health Research. The symposium is slated for September 13–16, 2015, in Jackson, Mississippi. A pre-symposium workshop on NLM Web-based resources for environmental health and biomedical research will be held September 13, 2015.

Day 2

XV. Welcome and Preview of the Day's Events

EnHIP reconvened March 17, 2015, at 8:30 a.m. in the NLM Board of Regents Room. EnHIP Chairman Dr. Ann Barbre, Professor and Associate Dean of Pharmacy, Xavier University of Louisiana, presided. She welcomed representatives and invited guests and asked new attendees to introduce themselves.

Dr. Barbre expressed sincere gratitude to Ms. Cynthia Gaines, Project Officer, Division of Specialized Information Services, NLM, for lining up excellent speakers and coordinating the meeting. Dr. Cheryl Taylor, Southern University and A&M College, asked that all PowerPoint presentations from the meeting be made available to representatives.

Dr. Taylor praised the vision and involvement of Dr. Donald A.B. Lindberg, Director, NLM, and asked what his upcoming retirement means for the Partnership. Ms. Janice Kelly, Chief, Outreach and Special Populations Branch, SIS, NLM, informed representatives about the working group established by Dr. Francis S. Collins, Director, National Institutes of Health. The working group is collecting information about programs, staffing, budgets, and most importantly, the vision for the future. Dr. Steven Phillips, Director, SIS, Associate Director, NLM, was a strong advocate for EnHIP when he presented to the working group recently. Recruitment for a new NLM Director is expected to take one year. Ms. Betsy Humphreys, Deputy Director, NLM, will serve as the Acting Director after the retirement of Dr. Lindberg.

Dr. Barbre urged representatives to inform NLM staff about their outreach efforts. NLM staff members want to know about the impact EnHIP makes at their educational institutions and in their communities.

In providing a preview of the meeting's upcoming speakers, Dr. Barbre said they will provide information on NLM resources to facilitate learning opportunities for university students and community leaders. The EnHIP Outreach Awards presentations will highlight outstanding projects and provide examples for fellow representatives to consider.

XVI. Overview of NLM Resources: Climate Change and Environmental Justice

Ms. Laura Bartlett, Technical Information Specialist, Outreach and Special Populations Branch, SIS, NLM, heartily recommended the use of the abundant NLM resources related to climate change. The extensive collection covers a full range of topics. Articles on climate change are indexed in PubMed (bibliographic database) by using a controlled vocabulary thesaurus known as Medical Subject Headings (MeSH®). The MeSH term "climate change" was introduced in 2010, and MeSH has many climate-related terms, such as "greenhouse effect" and "global warming."

Environmental Health Links is a comprehensive, Web-based bibliography of environmental health and toxicology topics (sis.nlm.nih.gov/pathway.html). Much of the information comes from NLM resources. Links outside of NLM are evaluated to ensure that information is relevant, objective, and credible. The Climate Change and Human Health page offers more than 70 links to major reports and perspectives from federal and state government agencies and major national and international

organizations (sis.nlm.nih.gov/enviro/climatechange.html). The page highlights specific areas of interest, such as agriculture, extreme weather, infectious diseases, and population displacement.

NLM collaborates with the University of Alaska Anchorage to develop and maintain the Arctic Health Web site (<http://arctichealth.nlm.nih.gov/>). The Web site provides a portal to information on diverse aspects of the whole Arctic environment—not only Alaska—and the health of Northern peoples. It has much information about chemical accumulations, climate change, and their impacts on inhabitants' lives. The portal offers links to observations from scientific/research and traditional knowledge points of view. Much information originates from the publications and research database of the University of Alaska.

Climate change entries in Tox Town[®] relate to connections among chemicals, the environment, and health (toxtown.nlm.nih.gov/). Tox Town is a resource for the general public; information is translated into the Spanish language. The Environmental Health Student Portal provides information and activities for middle school students and teachers (kidsenvirohealth.nlm.nih.gov/). It focuses on the health impact of water pollution, climate change, chemicals, and air pollution. MedlinePlus[®] resources help make the association between climate change and human health (medlineplus.gov). The resource offers links to current, easy-to-read material from many agencies and organizations.

Resources related to environmental justice are indexed under the medical subject heading “social justice” because there is no specific “environmental justice” MeSH term. Ms. Bartlett suggested several search strategies for retrieving records to address environmental justice topics. Combining the search terms “social justice” and “environmental health” yields reports from major federal agencies and academic institutions (<http://www.nlm.nih.gov/mesh/MBrowser.html>). The search results show much community-based participatory research. Glossaries, law, policy, regulations, and education materials are available along with extensive NLM resources.

NLM is working with the Association of Nurses for Healthy Environments, an outreach effort involving the development of an electronic textbook for nursing students. The textbook will contain a wealth of NLM resources and be available to the public.

XVII. Discussion and Q&A with Ms. Laura Bartlett

In the discussion that followed Ms. Bartlett's presentation, questions were raised about the absence of effective MeSH search terms for environmental justice. Mr. John Scott, President, Center for Public Service Communications, mentioned the term “human rights in climate change.” Other useful search terms were “resilience,” “sustainability,” and “risk vulnerability.” Dr. Phillips suggested representatives make recommendations for medical subject headings related to environmental justice, or they may use an EnHIP Outreach Award to identify keywords and create terminology. Dr. Fatima Barnes, Meharry Medical College, agreed to assist with the recommendations.

XVIII. K-12 Animations: Bridging Health and Technology to Increase Health Literacy

Ms. Queen Alike, contractor and former intern, SIS, NLM, advocated using animation to increase and improve health literacy. Health literacy is defined as the ability to receive, process, and understand basic health information and services needed to make appropriate health decisions. Limited health literacy disproportionately affects specific populations: low socioeconomic status, elderly, people of color, vulnerable immigrant populations, and individuals with English as a second language.

Animations accommodate short attention spans; they often use humor and visuals to engage the audience. Animations can make complex topics easier to understand, be tailored to a particular audience, and use current cultural references and language.

“Research shows animations are a helpful vehicle to retain information. They address individuals’ attitudes, values, and beliefs. They promote self-efficacy,” said Ms. Alike. She emphasized the importance of disseminating health information effectively by using various emerging outlets, such as Twitter, Facebook, and animations.

While an intern at NLM, Ms. Alike developed an animation for middle and high school students. The process began with background research and creation of a storyboard. A storyboard served as the animation’s blueprint. It provided the script for voice narration and closed captioning. Ms. Alike used the tool GoAnimate[®] and the voice recording software Audacity[®]. These tools made the animation inexpensive to produce.

Following her remarks, Ms. Alike presented “A Zest for Pests,” an entertaining 12-minute animation about pesticides (available for viewing on YouTube at [youtube.com/watch?v=dVloHYIwIY8](https://www.youtube.com/watch?v=dVloHYIwIY8)).

XIX. Discussion and Q&A with Ms. Queen Alike

During the discussion period, Dr. Milton Morris, Benedict College, asked about the balance between education and entertainment. Ms. Alike said decisions were made while writing the storyboard. She established the main points of the animation, and then looked for ways to add humor, commentary, and entertainment.

Dr. Barnes endorsed the use of audiovisual technology, such as animation, for teaching purposes, and she suggested that students be assigned animation projects related to health communications topics. Dr. Melissa Littlefield, Morgan State University, said content creation is an important strategy for engaging students. Students gain knowledge about the subject matter and about using technologies, such as mobile applications and animation.

XX. The Contracting Process for Outreach Awards

Robin Hope, Branch Chief and Contracting Officer, Office of Acquisitions and Consolidated Operations Acquisitions Center, NLM, presented an overview of the contracting process. In FY2014, NLM awarded about 820 contracts totaling more than \$150 million. NLM has funded and continues to fund many outreach initiatives. Most initiatives are through the Division of Specialized Information Services.

Addressing representatives, Ms. Hope said, “You are very important to us because you offer a unique opportunity to possibly impact the environment and human health of the American minority population.”

In her presentation, Ms. Hope advised representatives about maximizing opportunities for federal funding for contracts. She noted the difference between contracts and grants. A contract is an award instrument establishing a mutually binding legal relationship between the federal government and the organization or educational institution. A grant is primarily financial assistance, and the assistance is not tied to deliverables. Under a contract, an invoice has to be sent along with the required deliverable in order to trigger payment. Educational institutions sometimes do not get paid because they have not sent invoices. She urged representatives to work closely with their contracting officers to ensure payments are received.

Ms. Hope outlined ways to respond to requests for proposals, submit capability statements, and partner with small businesses. Contracts are awarded based on which proposal provides the best value for the federal government. She said rules are constantly changing, and contracting can

be a complicated process. Announcements, detailed instructions, and contact information for contracting officers are posted on the Web site of NLM Office of Acquisitions.

XXI. 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. Nine institutions were awarded the EnHIP Outreach Awards. For summaries of all the 2014–2015 projects, see Appendix G.

University of Alaska Anchorage, Anchorage, Alaska

Alaskan Voices: Negotiating Concepts of Health and Illness in the Next Generations

Presented by Dr. Stephanie Bauer

Dr. Stephanie Bauer said she was inspired to do this project by the innovative undertaking developed under the leadership of Dr. Donald A.B. Lindberg, Director, NLM. The exhibition “Native Voices: Native Peoples’ Concepts of Health and Illness” captured viewpoints of many Native populations, including those of Native Alaskan and Native American populations in Alaska. The traveling “Native Voices” exhibition, displayed in the University of Alaska Anchorage College of Health building, attracted much attention and encouraged discussion on campus and in the community.

Following the exhibition’s precedent of interactive displays and video clips, participants in the EnHIP Outreach Award project are tasked with video and audio recording interviews about their cultural values regarding health and illness. Interviewees are asked to reflect on how they have negotiated these values within competing cultural contexts.

Dr. Bauer said the project will create more student awareness and enthusiasm for NLM online resources. Students will build skills in applied ethics research. They will gain a better understanding of conflicts in merging different value systems and will gather for a panel presentation within the broader community.

Dr. Lindberg advised Dr. Bauer to clearly and carefully state the purpose of the interviews. Based on his experience with interviewing Native populations, he emphasized the importance of gaining their trust.

Colorado Mountain College, Glenwood Springs, Colorado

Empowering Valley Settlement Mentors Towards Health Careers

Presented by Ms. Jill Ziemann and Ms. Yesenia Arreola

Ms. Yesenia Arreola gave a brief overview of Colorado Mountain College, an educational institution with 11 instructional sites serving a student population covering 12,000 square miles in north central Colorado. In this region, 40% of students in kindergarten through 12th grade are Hispanic or Latino. Colorado Mountain College is the only postsecondary institution in the region.

The EnHIP Outreach Award project was done in partnership with the Valley Settlement Project. The multigenerational focus of the Valley Settlement Project relates to school readiness and economic stability. The project empowers families, reduces educational achievement gaps, provides early childhood education, builds parent mentors in school districts, and addresses barriers to adult education.

“This partnership is valuable to us because the program helped families come out of the shadows,” said Ms. Arreola, describing parents’ noninvolvement in their children’s education. “They did not know how to navigate, and they were not empowered enough to know that they can be actively engaged in their education,” she added. Much has changed since parents have become leaders in the community, and they advocate for needed services and resources.

Ms. Jill Ziemann said a huge need for bilingual home health aides exists in the region, so it was fortunate that the EnHIP Outreach Award provided funding for 18 participants to attend a personal care attendant course. Classroom instruction improved literacy, incorporated environmental health information, provided job skills, and taught safety and caregiving skills. The course included significant training in NLM digital resources to promote healthier lifestyle choices. A short video presentation followed Ms. Ziemann’s remarks and gave representatives a glimpse of students in training.

Dr. Lindberg congratulated Ms. Ziemann and Ms. Arreola on the success of the EnHIP Outreach Award project. He asked about the inclusion of computers and remote learning in their development plans for the future. Ms. Arreola said the younger student population is technologically savvy. Great efforts are being made to equip the parents and older adults with computer skills. Ms. Ziemann said computer job skills workshops are offered free of charge. However, information access is not readily available to this population because of language barriers and other factors.

In closing, Ms. Arreola said the EnHIP Outreach Award, together with the Valley Settlement Project partnership, made a big difference in enhancing the skills and lives of immigrant families in their communities.

XXII. Challenges of Infectious Diseases Summary

Dr. Barbre thanked everyone for participating in discussions and activities. The intent of the meeting was to provide EnHIP representatives with factual information about the challenges of infectious diseases.

Special appreciation was extended to keynote speaker Dr. Gavin Macgregor-Skinner for his energetic presentation on the Ebola response in West Africa. Dr. Barbre praised the thoughtful presentation of Dr. Virginia A. Caine about emerging infectious diseases. She thanked Dr. Clifford M. Snapper for the update on virus vaccines and Dr. Kenneth D. Mandl for information about electronic health records and mobile applications. Representatives learned many climate change facts from the panel of experts coordinated and moderated by Dr. Daniel Wildcat. Dr. Kristina Peterson, Dr. Sally Valdés, and Dr. John C. Topping, Jr., shared their knowledge generously. Dr. Barbre extended gracious acknowledgements to Ms. Siobhan Champ-Blackwell, Ms. Laura Bartlett, Ms. Queen Alike, Ms. Robin Hope, Dr. Stephanie Bauer, Ms. Jill Ziemann, and Ms. Yesenia Arreola.

XXIII. Closing Remarks and Plans for EnHIP 2016

Dr. Barbre thanked Dr. Lindberg for his participation during both days of the EnHIP meeting and for his long-term support of the Partnership's projects and outreach efforts. She wished him well-deserved relaxation during his retirement.

Dr. Lindberg said the Partnership is doing great work, and he asked Dr. Steven Phillips to inform representatives about the broad-based working group recently established by Dr. Francis S. Collins, Director, National Institutes of Health. Dr. Phillips explained the working group will write a report for Dr. Collins' advisory committee. Senior staff and division heads of NLM are informing the working group about the Library's vision, strengths, and areas for improvement. Ms. Betsy Humphreys, Deputy Director, NLM, said the very distinguished members of the working group are from within and outside of NIH. Dr. Eric D. Green, Director, National Human Genome Research Institute, and Dr. Harlan M. Krumholz, Professor of Medicine, Yale University, serve as cochairmen.

The current strategic plan covers 2016. Ms. Humphreys said the NLM Board of Regents had begun preparations for the next long-range strategic plan, but it will not launch until the new director is in place. Dr. Barbre thanked Ms. Humphreys for her insight into the leadership transition and her participation at the EnHIP meeting.

Dr. Barbre indicated the meeting was very informative. She expressed optimism about the many ongoing projects of EnHIP member schools that are researching infectious diseases and preparing the next generation of scientists to address these global issues. Dr. Barbre urged EnHIP representatives to initiate dialogue on their campuses and in their communities so the public can be better informed. She emphasized the importance of the Partnership and challenged all representatives to find ideas and ways EnHIP can best combine its particular talents and resources.

Dr. Barbre thanked representatives for their participation and wished them a safe and pleasant journey home. The meeting was adjourned at 11:30 a.m.

APPENDIX A

Environmental Health Information Partnership Meeting—March 16–17, 2015

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

APPENDIX A

Environmental Health Information Partnership Meeting—March 16–17, 2015

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.

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: NLMs Long Range Plan 2006–2016*; 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 organized into four working group, 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 (2004 – 2011)

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.

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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>).

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.

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- 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.

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

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DIRECTORY OF SPEAKERS

Queen Alike

NLM Contractor
1 Grotto Court
Germantown, MD 20874
E-mail: queenalike@gmail.com

Laura Bartlett, MLS

National Library of Medicine
6707 Democracy Boulevard
Bethesda, MD 20817
TEL: 301.496.3147
E-mail: laura.bartlett@nih.gov

Virginia A. Caine, MD

Director
Marion County Health Department
3838 North Rural Street
Indianapolis, IN 46205
TEL: 317.221.2301
E-mail: vcaine@marionhealth.org

Siobhan Champ-Blackwell, MSLIS

National Library of Medicine
6707 Democracy Boulevard
Bethesda, MD 20817
TEL: 301.496.2742
E-mail: siobhan.champ-blackwell@nih.gov

Robin Hope

National Library of Medicine
6707 Democracy Boulevard
Bethesda, MD 20817
TEL: 301.496.6546
E-mail: robin.hope@nih.gov

**Gavin Macgregor-Skinner, BVSc, MSc,
MPH, MRCVS**

Global Projects Manager
Elizabeth R. Griffin Research Foundation
Assistant Professor
Department of Public Health Sciences
The Pennsylvania State University
A210 Public Health Sciences
Hershey Medical Center
Hershey, PA 17033
TEL: 717.531.6280
E-mail: gum13@psu.edu

Kenneth D. Mandl, MD, MPH

Professor, Harvard and Chair in Biomedical
Informatics and Population Health
Boston Children's Hospital
300 Longwood Avenue
Boston, MA 02115
TEL: 617.355.4145
E-mail: kenneth.mandl@childrens.harvard.edu

Kristina Peterson, PhD

Assistant Professor
University of New Orleans
2000 Lakeshore Drive
New Orleans, LA 70148
TEL: 504.280.3845
E-mail: kjpeters@uno.edu

Clifford M. Snapper, MD

Professor of Pathology
Uniformed Services University of the Health
Sciences
4301 Jones Bridge Road, C1094
Bethesda, MD
TEL: 301.295.3450
E-mail: clifford.snapper@usuhs.edu

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John C. Topping, JD

President and CEO

Climate Institute

900 17th Street, NW, Suite 700

Washington, DC 20006

TEL: 202.552.0163

E-mail: jtopping@climate.org

Sally Valdés, PhD

EPA, Department of Interior, Department of

State (Retired)

TEL: 703.823.8386

E-mail: sallyvaldes@gmail.com

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NATIONAL LIBRARY OF MEDICINE ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP

Theme: Challenges of Infectious Diseases

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BIOGRAPHIES

Donald A.B. Lindberg, MD, *National Library of Medicine*, a Distinguished Professor of pathology and the founding father of the discipline now known as “medical informatics,” pioneered in applying computer technology to medicine at the University of Missouri, nurtured the discipline to its present eminence, and in 1984 translated his professional and organizational skills to a national level in leading the National Library of Medicine and opening up its vast information resources to all via the World Wide Web. He has a strong commitment to extending the benefits of health information technology to all sectors of society, especially in rural, remote, minority, and underserved communities. Dr. Lindberg has received awards from many professional organizations, including the Presidential Senior Executive Rank Award, the American Medical Association’s Outstanding Member of the Executive Branch, and the U.S. Surgeons General’s Medallions. He is the author of three books and numerous chapters and journal articles.

Ann Barbre, PhD, *Xavier University of Louisiana*, is the Associate Dean for Administration and Academic Support and the W. Emile and Alitia D. Coleman Professor of Pharmacy at Xavier’s College of Pharmacy. Dr. Barbre earned a bachelor of science degree in pharmacy at Xavier University, a master of science degree in pharmacy at the University of Wisconsin–Madison, and the doctor of philosophy degree in health care administration at the University of Mississippi. She maintains licensure as a registered pharmacist in Louisiana and Illinois. Dr. Barbre also holds the position of Research Advisory Council, Symposium Chair for the Association of Minority Health Professions Schools, Inc.

Dr. Barbre has been a member of the College of Pharmacy faculty at Xavier for more than 25 years. Her teaching responsibilities have centered on pharmacy management, behavioral pharmacy, professional communications, and pharmaco-economics. Her interests include medication use in the elderly, psychosocial factors associated with health and medicine use, compliance, and medical anthropology. Dr. Barbre has also served as the faculty adviser for Kappa Epsilon pharmacy fraternity for women for many years.

Queen Alike, *contractor*, is a former intern at the National Library of Medicine. She recently graduated cum laude from the University of Maryland with a bachelor of science degree in community health. Ms. Alike is passionate about reducing racial and ethnic health disparities and improving nutritional eating behaviors among children and adolescents. During her internship, she developed environmental health animations for middle and high school students. She intends to conduct nutrition-related research and pursue a master of public health degree.

Laura Bartlett, MLS, *National Library of Medicine*, is a Technical Information Specialist for the Outreach and Special Population Branch, Division of Specialized Information Services, National Library of Medicine. She works primarily with the information resource development for specific population groups, project/program management, and training. She earned a master of library science degree from the University of Maryland–College Park in 2007.

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Virginia A. Caine, MD, *Marion County (Indiana) Health Department*, is an Associate Professor of medicine for the Infectious Disease Division of the Indiana University School of Medicine. She is the Director of the Marion County Health Department and is active in several professional medical societies. She is president of the American Public Health Association, the nation's oldest and largest public health organization.

Dr. Caine has served as a member of several professional organizations, including the Executive Board of the American Public Health Association, the American Venereal Disease Association, National Academy of Science Institute of Medicine's Committee on Prevention and Control of STDs, National Committee for Quality Assurance, and U.S. Department of Health & Human Services, Disease Prevention and Health Promotion. Dr. Caine has received awards from many professional and community organizations, including the American Public Health Association's New Leadership Award. She earned a bachelor's degree from Gustavus Adolphus College in Minnesota and a medical degree at New York Upstate Medical Center in Syracuse.

Siobhan Champ-Blackwell, MSLIS, *National Library of Medicine*, is a Health Sciences Librarian, working at the National Library of Medicine Disaster Information Management Research Center. She manages the Disaster Lit: Resource Guide for Disaster Medicine and Public Health, a database of disaster medicine grey literature for first responders and receivers. Ms. Champ-Blackwell provides training and presentations about locating credible disaster health information in preparation for, response to, and recovery from a disaster. She also manages the external communication tools of the project, including biweekly electronic alerts, use of social media, and partnership development.

Prior to working at the National Library of Medicine, Ms. Champ-Blackwell worked at the National Network of Libraries of Medicine, MidContinental Region (NN/LM MCR) as a Community Outreach Liaison, where she trained a variety of health care professionals, librarians, and community members on National Library of Medicine resources. In this role, she also developed programs to help increase access to health information for underserved populations. She has been published in the *Journal of the Medical Library Association* and *American Libraries* magazine, and she contributed a book chapter to *Leadership in Interprofessional Health Education and Practice*.

Robin Hope, *National Library of Medicine*, is a Branch Chief and Contracting Officer in the Office of Acquisitions and Consolidated Operations Acquisitions Center, National Library of Medicine. She joined the National Institutes of Health in 2001 and has more than 12 years of experience in federal government contracting. Ms. Hope has a bachelor of science degree in business administration from Washington Adventist University (formerly Columbia Union College).

Gavin Macgregor-Skinner, BVSc, MSc, MPH, MRCVS, *Elizabeth R. Griffith Research Foundation*, is Global Projects Manager. He is an assistant professor in the Department of Public Health Sciences at Pennsylvania State University Hershey Medical College and teaches three graduate courses on Public Health Preparedness for Disasters and Terrorist Emergencies. He is an adjunct professor at Harvard Medical School and teaches graduate students in the Beth Israel Deaconess Medical Center Emergency Management Fellowship program.

Dr. Macgregor-Skinner was invited by and funded by the Nigerian government to lead a team from the Elizabeth R. Griffin Research Foundation to conduct risk assessments and training workshops and to establish Hospital Ebola Isolation Suites. At the invitation of the U.S. State Departments of Health, he has conducted on-site biological risk management assessments for Ebola and preparedness evaluations and workshops at hospitals in California, Georgia, Florida, Pennsylvania, Alabama, and Tennessee. He made three trips to West Africa for U.S. government agencies and

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the United Nations to treat Ebola patients and implement whole community approaches in Liberia and Nigeria. He has provided expert opinions on Ebola in interviews on CNN, BBC, Aljazeera, C-SPAN Canada CTV, and Australia ABC television.

Kenneth D. Mandl, MD, MPH, *Harvard Medical School*, is a Professor at Harvard Medical School in Pediatrics and the Center for Biomedical Informatics. He is a chaired faculty member at Boston Children’s Hospital, where he directs the Intelligent Health Laboratory within the Children’s Hospital Informatics Program. He is a member of the affiliated faculty at Harvard-MIT Division of Health Sciences and Technology. Dr. Mandl has pioneered and published extensively in the areas of personal health records and biosurveillance. He coleads the SMART Platforms project, a U.S. Department of Health & Human Services initiative, which seeks to create an “app store” for health. He received the Barger Award for Excellence in Mentoring at Harvard Medical School and the Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the U.S. government to outstanding scientists and engineers.

He is chairman of the Board of Scientific Counselors of the National Library of Medicine. Dr. Mandl has published more than 130 papers and was elected to the American Society for Clinical Investigation, the Society for Pediatric Research, the American College of Medical Informatics, and the American Pediatric Society.

Kristina Peterson, PhD, *University of New Orleans*, facilitates the Lowlander Center, a nonprofit organization that helps create solutions through education, research, and advocacy. It serves the people and places in the Louisiana bayous and maintains a focus on social and environmental justice. Dr. Peterson has 30 years of community redevelopment experience related to mitigating vulnerabilities, enhancing existing systems, and developing new systems to serve the public. She was a founding board member of the National Hazards Mitigation Association, collaborator with FEMA’s Project Impact, and national coordinator with Church World Service Disaster Services.

Dr. Peterson is an assistant professor and an anthropologist who earned a PhD in urban and regional planning from the University of New Orleans as well as a master of sacred theology degree and a master of divinity degree from United Theological Seminary. She received the William Gibson Environmental Award in 2010, the Rural Sociology Society’s 2014 Service to Rural Communities Award, and a citation from the State of Maryland for work on social and economic justice.

Clifford M. Snapper, MD, *Uniformed Services University of the Health Sciences*, is a Professor of pathology in the Department of Medicine. He received a medical degree from Albany Medical College of Union University, Albany, New York. He joined the Department of Pathology in 1988 and now serves as Director of the University’s Institute for Vaccine Research. He was named Outstanding Biomedical Graduate Educator in 2006. His research has appeared in numerous publications.

John C. Topping, JD, *Climate Institute*, has served as President and CEO of the Climate Institute since its founding in 1986. It is based in Washington, D.C. From 1989 to 1990, he served as editor of the portions of the *Intergovernmental Panel on Climate Change First Assessment Report* concerning impacts of climate change on human settlement, industry, transport, energy, human health and air quality, and impacts of climate and UV interactions. He has written widely on climate change and the impacts on human settlement, industry, and transport.

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He was the former Staff Director of the Office of Air and Radiation of the U.S. Environmental Protection Agency under the Reagan administration. He holds a bachelor of arts degree from Dartmouth College and a juris doctor degree from Yale University. In 2002 he received Dartmouth's first Dr. Martin Luther King, Jr., Social Justice Award for Lifetime Achievement.

Sally Valdes, PhD, *retired scientist*, spent most of her career working for the federal government with various agencies, including the Bureau of Ocean Energy Management, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and U.S. Department of State. After she received a PhD in aquatic ecology from Cornell University in 1985, she pursued endangered species conservation, coastal restoration, environmental assessment of offshore wind, toxic sediment management, and water and sanitation issues of developing countries. She was a fish and wildlife biologist for the U.S. Fish and Wildlife Service and coordinated the National Coastal Wetlands Conservation Grant Program. She administered programs to restore and conserve wildlife habitats.

Daniel Wildcat, PhD, *Haskell Indian Nations University*, is a Yuchi member of the Muscogee Nation of Oklahoma. He is director of the Haskell Environmental Research Studies Center and acting Dean of the College of Natural and Social Sciences at Haskell Indian Nations University in Lawrence, Kansas. He has taught at Haskell for 25 years.

Dr. Wildcat has been an invited speaker on American Indian worldviews at Goddard Space Flight Center, National Museum of the American Indian, Harvard Medical School, Creighton University, University of Kansas Medical School, Kansas State University, University of California Riverside, and many other institutions of higher education. Dr. Wildcat speaks frequently to community groups and organizations on the issue of cultural diversity. Dr. Wildcat helped organize an American Indian educational program to celebrate the 25th anniversary of Earth Day. Also, he helped design a video series about land, air, water, and biological issues related to environmental science and policy issues facing Native nations. He is developing the American Indian and Alaska Native Climate Change Working Group, a tribal college-centered network of individuals and organizations working on climate change issues. He is the author and editor of several books.

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ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP DIRECTORY OF CURRENT REPRESENTATIVES 2014–2015

Dr. Ann Barbre, PhD, Chairman

Professor and Associate Dean of Pharmacy
Xavier University of Louisiana
1 Drexel Drive
New Orleans, LA 70125
TEL: 504.520.7439
E-mail: arbarbre@xula.edu

**PARTICIPATING HISTORICALLY BLACK COLLEGES AND UNIVERSITIES,
HISPANIC-SERVING INSTITUTIONS, ALASKA NATIVE-SERVING INSTITUTIONS
and TRIBAL COLLEGES**

Raymond Anthony, PhD

Department of Philosophy
University of Alaska Anchorage
3211 Providence Drive
Anchorage, AK 99508
TEL: 907.786.4459
E-mail: afrxa@uaa.alaska.edu

Fatima Barnes, EdD, MPH, MSIS

Library Director
Associate Vice President, Instructional
Technologies
Meharry Medical College
LRC, S.S. Kresge Building
1005 Dr. D.B. Todd, Jr. Boulevard
Nashville, TN 37208
TEL: 615.327.5770
E-mail: fbarnes@mmc.edu

Dolores E. Caffey-Fleming, MS, MPH

STEP-UP and Project STRIDE Program
Coordinator
Charles R. Drew University of Medicine
and Science
1748 East 118th Street, Room N153
Los Angeles, CA 90059
TEL: 323.249.5716
E-mail: deefleming@cdrewu.edu

Robert Copeland, Jr., PhD

Associate Professor, Department
of Pharmacology
Howard University College of Medicine
520 W Street NW, Room 3408
Washington, DC 20059
TEL: 202.806.6311
E-mail: rlcopeland@howard.edu

Kathleen A. Curtis, PT, PhD

Dean, College of Health Sciences
The University of Texas at El Paso
1101 North Campbell Street
El Paso, TX 79902
TEL: 915.747.7201
E-mail: kacurtis@utep.edu

Sandra Harris-Hooker, PhD

Vice President and Senior Associate Dean
Research Affairs
Morehouse School of Medicine
720 Westview Drive SW
Atlanta, GA 30310-1495
TEL: 404.752.1725
E-mail: sharris-hooker@msm.edu

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Diógenes Herreño-Sáenz, PhD

Associate Professor, Department of
Pharmacology and Toxicology School
of Medicine
University of Puerto Rico
P.O. Box 365067
San Juan, PR 00936-5067
TEL: 787.758.2525, Ext 1005
E-mail: diogenes.herreno@upr.edu

Doris Holeman, PhD, RN

Associate Dean and Director of Nursing
College of Veterinary Medicine, Nursing,
and Allied Health
Tuskegee University
Basil O'Connor Hall
Tuskegee, AL 36088
TEL: 334.727.8382
E-mail: dholeman@mytu.tuskegee.edu

Brett Koontz, PhD

Faculty, Department of Environmental and
Occupational Health
California State University, Northridge
18111 Nordhoff Street
Los Angeles, CA 91330
TEL: 818.677.7918
E-mail: brett.koontz@csun.edu

Ann Krejci, PhD, MA

Instructor, Department of Nursing
Oglala Lakota College
P.O. Box 861
Pine Ridge, SD 57770
TEL: 605.867.5856, Ext 18
E-mail: akrejci@olc.edu

Judith Mazique, JD, MPH

Assistant Professor, Environmental Health
College of Pharmacy and Health Sciences
Texas Southern University
3100 Cleburne Street
Houston, TX 77004
TEL: 713.313.4335
E-mail: mazique_jx@tsu.edu

Arlene Montgomery, PhD, RN

Associate Professor, School of Nursing
Hampton University
110 William Freeman Hall
Hampton, VA 23668
TEL: 757.727.5672
E-mail: arlene.montgomery@hamptonu.edu

Milton Morris, MPH, DAAS, CFSP

Director, Department of Environmental
Health Sciences
Benedict College
1600 Harden Street
Columbia, SC 29204
TEL: 803.705.4608
E-mail: morrism@benedict.edu

Donald K. Robinson, Jr., PhD

Chairman, Science and Physical Education
Division
Diné College
One Circle Drive
Tsaile, AZ 86556
TEL: 928.724.6719
E-mail: dkrobinson@dinecollege.edu

T. Joan Robinson, PhD

Vice President, International Affairs
Morgan State University
1700 East Cold Spring Lane
Montebello D207
Baltimore, MD 21251
TEL: 443.885.4031
E-mail: joan.robinson@morgan.edu

Cheryl Taylor, PhD, RN, FAAN

Chairperson, Graduate Nursing Programs
Director, Office of Nursing Research
Southern University and A&M College
J.K. Haynes Building 170, Swan Street
P.O. Box 11794
Baton Rouge, LA 70813
TEL: 225.771.2632
E-mail: cheryl_taylor@subr.edu

APPENDIX E

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Paul B. Tchounwou, ScD, MSPH, MSc
Associate Dean and Distinguished Professor
College of Science, Engineering, and
Technology
Jackson State University
P.O. Box 18540
Jackson, MS 39217
TEL: 601.979.3321
E-mail: paul.b.tchounwou@jsums.edu

Michael Thompson, PharmD, BCNSP
Dean, College of Pharmacy
and Pharmaceutical Sciences
Florida A&M University
1415 South Martin Luther King, Jr. Boulevard
Tallahassee, FL 32307
TEL: 850.599.3301
E-mail: michael.thompson@famuc.edu

Daniel Wildcat, PhD
Professor, American Indian Studies
School of Arts and Sciences
Haskell Indian Nations University
155 Indian Avenue
Lawrence, KS 66046-4800
TEL: 785.832.6694
E-mail: dwildcat@haskell.edu

Doris Withers, EdD
Vice President, Assessment Planning
and Accountability
Medgar Evers College
City University of New York
1650 Bedford Avenue
Brooklyn, NY 11225
TEL: 718.270.5020
E-mail: doris@mec.cuny.edu

Jill A. Ziemann, MS Ed
Director, Go2Work Programs
Gateway/Women In Transition/GarCo Sewing
Works
Colorado Mountain College
802 Grand Avenue
Glenwood Springs, CO 81601
TEL: 970.384.8518
E-mail: jziemann@coloradomtn.edu

NLM CONSULTANT

John Scott
President, Center for Public Service
Communications
10388 Bayside Drive
Claiborne, MD 21624
TEL: 703.307.3260
E-mail: jcscott@cpssc.com

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EXECUTIVE COMMITTEE

Ann Barbre, PhD

Chairman

Professor and Associate Dean of Pharmacy
Xavier University of Louisiana
1 Drexel Drive
New Orleans, LA 70125
TEL: 504.520.7439
E-mail: arbarbre@xula.edu

Steven J. Phillips, MD

Associate Director

Division of Specialized Information
Services
National Library of Medicine
6707 Democracy Boulevard, Suite 510
Bethesda, MD 20892
TEL: 301.496.3147
E-mail: sphillip@mail.nlm.nih.gov

Gale Dutcher, MLS, MS

Deputy Associate Director

Division of Specialized Information
Services
National Library of Medicine
6707 Democracy Boulevard, Suite 510
Bethesda, MD 20892
TEL: 301.496.5082
E-mail: dutcherg@mail.nlm.nih.gov

Janice Kelly, MLS

**Chief, Outreach and Special Populations
Branch**

Division of Specialized Information
Services
National Library of Medicine
6707 Democracy Boulevard, Suite 510
Bethesda, MD 20892
TEL: 301.443.5886
E-mail: janice.kelly@nih.gov

Cynthia Gaines

Project Officer

Division of Specialized Information
Services
National Library of Medicine
6707 Democracy Boulevard, Suite 510
Bethesda, MD 20894
TEL: 301.496.3669
E-mail: gainesc@mail.nlm.nih.gov

Melvin L. Spann, PhD

Executive Secretary

National Library of Medicine (retired)
11525 Lovejoy Street
Silver Spring, MD 20902
TEL: 301.593.7364
E-mail: melspann7@aol.com

Bailus Walker, Jr., PhD, MPH

Senior Scientific Advisor

Professor of Environmental and
Occupational Medicine and Toxicology
Howard University College of Medicine
520 W Street NW
Washington, DC 20059
TEL: 202.806.4477
E-mail: bwalker@howard.edu

Wilma Templin-Branner, MS

Project Advisor

Health Promotion and Outreach Group
Oak Ridge Institute for Science
and Education
P.O. Box 117, MS-37
Oak Ridge, TN 37831-0117
TEL: 865.576.2021
E-mail: wilma.templin@ornl.gov

APPENDIX F

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ALTERNATE REPRESENTATIVES

Seth Y. Ablordeppey, PhD

Professor and Division Director
College of Pharmacy and Pharmaceutical
Sciences
Florida A&M University
1415 South Martin Luther King, Jr.
Boulevard
Tallahassee, FL 32307
TEL: 850.599.3301
E-mail: seth.ablordeppey@famuc.edu

Mark C. Bauer, PhD

Senior Instructor, Public Health Department
Division of Science and Physical Education
Diné College, Shiprock Campus
P.O. Box 580
Shiprock, AZ 87420
TEL: 505.368.3589
E-mail: mcbauer@dinecollege.edu

Peter Bellin, CIH, PhD

Professor and Chairman, Department of
Environmental and Occupational Health
California State University, Northridge
18111 Nordhoff Street
Los Angeles, CA 91330
TEL: 818.677.4719
E-mail: peter.bellin@csun.edu

Jose Condé, MD, MPH

Associate Professor, Division of Graduate
Studies, School of Medicine
University of Puerto Rico Medical Sciences
Campus
P.O. Box 365067
San Juan, PR 00936-5067
TEL: 787.763.9401
E-mail: jose.conde1@upr.edu

Bertha L. Davis, PhD, RN, FAAN, ANEF

Professor, School of Nursing
William Freeman Hall
Hampton University
Hampton, VA 23668
TEL: 757.727.5780
E-mail: bertha.davis@hamptonu.edu

Cheryl G. Davis, DHA

Associate Dean for Administrative and
Resource Development
Tuskegee University
Patterson Hall, Room 301
Tuskegee, AL 36088
TEL: 334.724.4178
E-mail: davis@mytu.tuskegee.edu

Charles desBordes, PhD

Professor, Department of Biology
Medgar Evers College
City University of New York
1150 Carroll Street
Brooklyn, NY 11225
TEL: 718.270.6207
E-mail: desBordes@mec.cuny.edu

João Ferreira-Pinto, PhD

Associate Research Professor
Director of Research and Special Projects
College of Health Sciences
The University of Texas at El Paso
1101 North Campbell Street
El Paso, TX 79902
TEL: 915.747.7295
E-mail: joao@utep.edu

Jean Hampton, PhD

Associate Professor Department of Health
Sciences
Texas Southern University
3100 Cleburne Street
Houston, TX 77004
TEL: 713.313.7377
E-mail: hampton_JM@tsu.edu

Amy Hindman, ND

Chairperson, Department of Nursing
P.O. Box 861
Pine Ridge, SD 57770
TEL: 605.867.5856 Ext 11
E-mail: ahindman@olc.edu

APPENDIX F

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Kathleen Kennedy, PharmD

Associate Dean, College of Pharmacy
Xavier University of Louisiana
1 Drexel Drive
New Orleans, LA 70125
TEL: 504.520.7421
E-mail: kkennedy1@xula.edu

Melissa Littlefield, PhD

Associate Professor, School of Social Work
Morgan State University
1700 East Cold Spring Lane, Jenkins
Building
Baltimore, MD 21251
TEL: 443.885.4300
E-mail: melissa.littlefield@morgan.edu

Safiya Omari, PhD

Associate Professor and Director, Southern
Institute for Mental Health Advocacy,
Research, and Training
Jackson State University
350 West Woodrow Wilson Avenue
Jackson, MS 39213
TEL: 601.979.1530
E-mail: safiya.r.omari@jsums.edu

Jackie Pflaum, DNSc, RN

Associate Vice Provost for Health Programs
University of Alaska Anchorage
3211 Providence Drive
Anchorage, AK 99508
TEL: 907.786.4574
E-mail: afjsp@uaa.alaska.edu

Janet Rami, PhD, RN

Dean, School of Nursing
Southern University at Baton Rouge
P.O. Box 11794
Baton Rouge, LA 70813
TEL: 225.771.2166 or 225.771.3266
E-mail: janet_ami@subr.edu

Thomas E. Smith, PhD

Professor, Department of Pharmacology
College of Medicine
Howard University
520 W Street NW, Room 3408
Washington, DC 20059
TEL: 202.806.6289
E-mail: tsmith@howard.edu

Jonathan Stiles, PhD

Professor, Microbiology, Biochemistry, and
Immunology
Morehouse School of Medicine
720 Westview Drive, SW
Atlanta, GA 30310
TEL: 404.752.1585
E-mail: jstiles@msm.edu

Mary Stuckey, JD

Instructor, School of Business
Haskell Indian Nations University
Kiva Hall
155 Indian Avenue
Lawrence, KS 66046
TEL: 785.749.8491, Ext. 491
E-mail: mstuckey@haskell.edu

Helene Tamboue, PhD

Professor, Chemistry/Chair Biology,
Chemistry, and Environmental Health
Science Department
Benedict College
1600 Harden Street
Columbia, SC 29204
TEL: 803.705.4740
E-mail: tamboue@benedict.edu

Peter Tom, PharmD

Assistant Professor, Pharmacy
Charles Drew University of Medicine and
Science
1748 East 118th Street
Los Angeles, CA 90059
TEL: 323.568.3365
E-mail: petertom@cdrewu.edu

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ALTERNATES TO THE ALTERNATES

Stephanie Bauer, PhD

Department of Philosophy
University of Alaska Anchorage
3211 Providence Drive
Anchorage, AK 99508
TEL: 907.786.4677
E-mail: slbauer@uaa.alaska.edu

Theresa Bettelyoun, MLS

Librarian, Branch Library User Services
Oglala Lakota College
490 Three Mile Creek Road
Kyle, SD 57752
TEL: 605.455.6066
E-mail: tbettelyiun@olc.edu

ALTERNATE VACANCIES

VACANT

Colorado Mountain College

VACANT

Meharry Medical College

APPENDIX G

Environmental Health Information Partnership Meeting—March 16–17, 2015

ENVIRONMENTAL HEALTH INFORMATION PARTNERSHIP

EnHIP PROJECTS 2014–2015

Benedict College, Columbia, South Carolina

Improving Minority-Serving Institutions' Knowledge of National Library of Medicine Resources Through Competitive Student Presentations

Teams or individuals from the Benedict College Student Environmental Health Association will research and present findings about a topic that is a focus of the Environmental Health Information Partnership and the National Library of Medicine (NLM). Students will conduct extensive research using NLM databases, and they will make presentations on their findings.

California State University, Northridge, Northridge, California

Department of Environmental and Occupational Health: Increasing Visibility of NLM Environmental Health Databases with High School Teachers in the San Fernando Valley

The purpose of this project is to increase the visibility and use of NLM databases among high school science teachers working near California State University. Project staff will conduct informational sessions with science teachers at schools with significant populations of underserved individuals. Special attention will be given to NLM resources related to climate change. At the conclusion of the sessions, teachers will be provided with a sample exercise to show how NLM materials can be integrated into the science curriculum.

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

Environmental Health Education and Outreach Project

Project staff will expand efforts to train about 250 students, faculty, and staff at Charles R. Drew University of Medicine and Science and community organizations within the Service Planning Area on NLM health and biomedical information databases and resources. Also, they will convene a symposium for high school and college students, teachers, and members of community organizations on research advances in environmental health as they relate to disease.

Colorado Mountain College, Glenwood Springs, Colorado

Empowering Valley Settlement Mentors Towards Health Careers

Twelve Hispanic women will enroll in a home health aide course to become certified as personal care attendants. The course will include significant training in NLM digital resources for consumers to promote healthier lifestyle choices. Students will be participants of the Valley Settlement Project's parent mentoring program.

Florida A&M University, Tallahassee, Florida

Improving Access to Health Information Through NLM Databases

This program is designed to improve competency and utilization of NLM health information resources in three select groups affiliated with Florida A&M University's health sciences programs: local high school students, community health ambassadors, and clinical staff at a community medical center. The pilot project will be used to formulate a model for proliferation of this training program throughout the community.

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Jackson State University, Jackson, Mississippi

Strengthening Biomedical and Environmental Health Research and Education Through the Use of NLM Web-Based Resources

The goal of this project is to continue to enhance environmental health and biomedical sciences research and education at Jackson State University and around the world by organizing and implementing a pre-symposium workshop on NLMs Web resources for biomedical and environmental health research. The workshop will be held in conjunction with the 12th annual International Symposium on Recent Advances in Environmental Health Research.

Medgar Evers College, City University of New York, New York, New York

Genomics Education and Outreach Program: Human DNA Variation and Health Curriculum Development

This project will engage students in discussions and educational activities related to the human genome, human diversity, and genetic variation. Also, it will cover methods and resources for study. Curriculum materials will be developed and tested with high school and college students; the materials will be reviewed by high school teachers. Project activities will include a workshop and an introduction to DNA human variation and online information sources. Participants will be biology majors, other science majors, and selected high school students.

University of Alaska Anchorage, Anchorage, Alaska

Alaskan Voices: Negotiating Concepts of Health and Illness in the Next Generations

The project will create student awareness of NLM online resources. Arctic Health and the NLM Web sites and applications related to “Native Voices” are of particular interest. Students will build skills in researching ethical questions by interviewing fellow students about their cultural values regarding health and illness. Interviewees will be asked to reflect on how they have negotiated these values within competing cultural contexts. Students will video and audio record interviews. In some cases, students may document a dialogue to demonstrate how cultural values around health are discussed.

The University of Texas at El Paso, El Paso, Texas

Building Knowledge and Skill at UTEP and in the Local Community for the Use of National Library of Medicine’s Health and Biomedical Information Collections

The project will develop an approach that will build expertise for a master’s level public health student in the uses of National Library of Medicine resources. The student will develop a student-relevant tutorial for peers detailing the “whys” and “hows” of information access, and the student will use the tutorial to conduct peer-to-peer training sessions in undergraduate classes. Sessions will also be held for community leaders. At the end of the project, the revised and tested tutorial and lessons-learned report will be placed in the UTEP library for use by other student leaders who can provide peer-to-peer tutorial services. By developing the expertise of students, the child environmental toxicology research program will benefit because students will improve their efficiency and productivity. With these new skills, students can hasten the development of critical educational materials for parents and the community regarding child heavy-metal exposure.



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