

**Toxicology Information Outreach Project  
(TIOP)  
Assessment Report**

Prepared for

The National Library of Medicine  
Specialized Information Services

Prepared by

John C. Scott  
Center for Public Service Communications  
Arlington, Virginia

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# TIOP ASSESSMENT REPORT

## I. Executive Summary

In 1991 the National Library of Medicine's Specialized Information Services (SIS)<sup>i</sup> Division commenced a one-year pilot initiative referred to as TIOP (the Toxicology Information Outreach Project). Its modest but important mission was to strengthen the capacity of Historically Black Colleges and Universities (HBCUs) to train health professionals to use NLM's Toxicology and Environmental Health Information Program databases. Representatives of eight HBCUs attended the first TIOP meeting, held at NLM in August of that year.

In the ten years since its inception, the project has strengthened the link between NLM and HBCUs to a point where by the year 2000 nearly 80 minority institutions have received training under the TIOP program. The initiative has also grown in breadth and scope as well as in size. In addition to its initial focus on toxicology and environmental health, other health disparities have been added representing a broader perspective of minority health.

The colleges and universities comprising TIOP are preeminent, and the librarians, faculty and administrators who have served on the panel are key personalities within their respective institutions and within the minority health community at large.

For ten years the success of this program has been a well-kept secret. To mark TIOP's tenth anniversary SIS conducted a review of the program with the objective of assessing the positive effect TIOP has had on the access to health information at participating schools and to explore ways in which TIOP might modify or otherwise improve its effectiveness. This report is the result of that assessment. It begins with an historical perspective that provides the context for where TIOP fits, at NLM and within the community at large. Information used in the preparation of the report came primarily from personal interviews and group discussion with TIOP members. A review of literature was conducted and yearly TIOP reports were also consulted.

## II. Historical Perspective

### In the Community...

In 1980, Congress created the Agency for Toxic Substances and Disease Registry (ATSDR)<sup>ii</sup>, within the Public Health Service, to implement the health-related sections of laws that were established to protect the public from hazardous wastes and environmental spills of hazardous substances. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)<sup>iii</sup>, commonly known as the "Superfund" Act, provided the Congressional mandate to remove or clean up abandoned and inactive hazardous waste sites and to provide federal assistance in toxic emergencies. With the passage of the Superfund Amendments and Reauthorization Act of 1986 (SARA), ATSDR received additional responsibilities in environmental public health.

This act broadened ATSDR's responsibilities in the areas of public health assessments, establishment and maintenance of toxicological databases, information dissemination, and medical education.

In 1983 the Minority Health Professions Foundation (MHPF)<sup>iv</sup> was established as a non-profit organization with the mission to provide for professional education, research and community service to promote optimum health among poor and minority people. Its objectives include: promoting and supporting research that contributes to the advancement of knowledge and treatment of disease, disabilities, and adverse health problems that disproportionately affect African-Americans and other minority and underserved populations. It also aspired to identify and facilitate new directions in the area of minority health by supporting scholarly exchange of scientific and clinical knowledge. MHPF members included the preeminent minority health education programs of the country.

The environmental justice movement also took shape in the early 1980s, questioning inequities in the distribution of toxic waste sites that activists asserted were disproportionately located in minority and other low-income areas. In 1987, the United Church of Christ published a study, *Toxic Waste and Race in the United States*,<sup>v</sup> calling attention to the association between hazardous waste facilities and the racial/socioeconomic composition of the communities hosting such facilities. The study reported that while economic status played an important role in the nationwide location of commercial hazardous waste facilities, the race of the residents proved to be a more significant determinate.

In 1990, then-Governor Clinton of Arkansas organized a group of seven governors to assess the state of the environment in the Delta Region covering 219 counties between Illinois and the Gulf of Mexico. A result of this initiative was the Mississippi Delta Project, an objective of which was to create partnerships among government, academia, private sector organizations, and community residents. Through these partnerships efforts were made to identify key environmental hazards, promote environmental quality, and reduce and, where possible, prevent these hazards from impacting on health and the environment. Emphasis was placed on affected persons in underserved communities.

The National Library of Medicine was one of the federal agencies and institutes cooperating in the Mississippi Delta Project. In particular, NLM was actively involved in supporting the efforts of MHPF in the Lower Mississippi Delta. Other federal representation included the Environmental Protection Agency's Office of Solid Waste and Emergency Response (OSWER), the National Institute of Environmental Health Sciences/National Institutes of Health (NIH), the National Institute for Occupational Safety and Health/CDC, the National Center for Environmental Health/CDC, the Office of the Associate Director for Minority Health/CDC, and ATSDR.

## At NLM...

In 1967 NLM had created the Toxicology Information Program in response to the growing need to coordinate and standardize the collection of computerized toxicological information. During the next twenty years NLM developed TOXLINE, CHEMLINE, the Toxicology Data Bank (the forerunner of the present Hazardous Substances Data Bank), and the TOXNET system.

In 1988, a U.S. Senate Appropriations Committee amendment to NLM's funding authorization mandated that NLM's mission be expanded "...to reach all American health professionals, wherever located, so that they will be able to take advantage of the library's information services." In response to this directive, a 1989 report of an NLM planning panel chaired by Dr. Michael E. DeBaKey recommended that NLM focus on four areas in its outreach program:

- The individual and the Regional Medical Library Network (since renamed the National Network of Libraries of Medicine (NN/LM));
- Strengthening hospital access to national information sources;
- Training in health information management; and
- A new generation of information products and services

The five objectives of the NLM outreach program begun in 1989 are to: 1) increase health professionals' awareness of NLM's products and services; 2) facilitate health professionals' access to and use of biomedical information; 3) provide training to health professionals about searching electronic databases; 4) assist health professionals in implementing new information-seeking behaviors; and 5) help improve the quality of services provided by health professionals to their clients.

In 1991 NLM created the Toxicology Information Outreach Panel described in detail below. This focused effort on the part of NLM predates by three years the Executive Order issued in February 1994 by then President Clinton, requiring all federal agencies to develop a comprehensive strategy for making environmental justice a part of their decision-making and operations.<sup>vi</sup>

### **III. Creation of the Toxicology Information Outreach Program (TIOP)**

Though attention was overdue, the timing for TIOP could not have been better. Energized by the environmental justice movement, the Association of Minority Health Professions Schools (AMHPS), the MHPF and the United Negro College Fund had begun to raise awareness within their member-institutions of the importance of toxicological issues. This energy, however, lacked focus, and scarce resources were available to implement projects. Also missing was the awareness of and ability to use communication technologies and information tools, many of which had been developed

by NLM (MEDLINE, 1971, TOXLINE 1972, TOXNET, 1985, Toxic Chemical Release Inventory, 1989).

In 1990 Dr. Spann, then Chief of the Biomedical Information Services Branch at NLM, drafted a proposal entitled Courseware Development for Toxicology-Related Information: An Opportunity for NLM Outreach. This proposal envisioned collaboration between NLM and HBCUs to establish a demonstration training program. Instructional resources were to be developed to support academic programs such as: 1) educational tools to increase awareness of information resources available, 2) instructional tools for teaching students and faculty how to use these information resources, and 3) a new mechanism to reach minority and underserved communities to increase their understanding of risks associated with exposure to toxic and hazardous chemicals<sup>vii</sup>.

Dr. Spann reasoned that most health disparities were within minority communities and that these communities were representative of a group "...that otherwise would not likely get exposure to [NLM's] valuable information resources." Project partners, primarily HBCUs, were also considered one of the high priority groups within NLM's outreach efforts<sup>viii</sup>. NLM was in a unique position to empower the minority institutions to address the problems by themselves. To this point no one else had taken this step.

The original panel held its first meeting in August 1991.<sup>ix</sup> It consisted of thirteen members, representing nine AMHPS schools, the National Science Foundation (NSF), National Agency for Toxic Substances and Disease Registry (NATSDR), and National Institute for Occupational Safety and Health (NIOSH). The University of Arkansas at Pine Bluff was also included largely because of its graduating health professionals stayed to work within the Mississippi Delta area.

Nine institutions were initially selected to participate in what was characterized at the time as a "pilot" Toxicology Information Outreach Project. These institutions were:

- Charles R. Drew University
- Florida A&M University
- Howard University
- Meharry Medical College
- Morehouse School of Medicine
- Texas Southern University
- Tuskegee University
- University of Arkansas at Pine Bluff
- Xavier University

Bailus Walker, Jr., Ph.D., MPH, then professor and dean of public health at the University of Oklahoma Health Sciences Center, was appointed Chair of the TIOP Panel. Dr. Walker continues to chair the panel and is now associate director for environmental and occupational oncology at the Howard University College of Medicine.

With the start-up of the new TIOP project there was a need for support to conduct training programs in the use of information technologies at member-institutions. The required support was found at the Oak Ridge Institute for Science and Education (ORISE) in Oak Ridge, Tennessee. Contracting with ORISE in 1991 for TIOP training support was made easy because of an existing interagency agreement between NLM and Oakridge National Laboratories with whom ORISE is associated. ORISE continues to support TIOP today.

In 1991 each of the participating institutions received personal computer workstations and by the end of the year thirteen participants received three-day introductory classes in use of NLM resources, including CHEMLEARN, TOXLEARN, MEDTUTOR, and ELHILLLEARN.

In 1992, a year after TIOP was created, and resulting in large part from the encouragement of Dr. Charles Walker, then a senior advisor to NLM and former chancellor of the University of Arkansas at Pine Bluff, ATSDR committed funds to support training in the use of NLM databases at additional HBCUs. By the end of that year, an additional eighteen participants and fifteen instructors had been trained<sup>x</sup>.

Also in 1992 ATSDR entered into a cooperative agreement with the Minority Health Professions Foundation. Funding was provided through this agreement to support the research of six TIOP member-institutions: Charles R. Drew University of Medicine and Science, Florida A&M University College of Pharmacy and Pharmaceutical Sciences, Meharry Medical College, Morehouse School of Medicine, Texas Southern University College of Pharmacy and Health Sciences, Tuskegee University School of Veterinary Medicine, and Xavier University of Louisiana College of Pharmacy. The focus of this initiative was to 1) conduct research to fill identified data needs for priority hazardous substances, and 2) enhance existing disciplinary capacities in the institutions to conduct research in environmental health.<sup>xi</sup>

Additional funding was also provided to train United Negro College Fund (UNCF) schools through a cooperative agreement with EPA's Office of Environmental Justice. (See chart of TIOP training programs in Appendix 2.)

#### **IV. Measurements of TIOP's success**

The charge to the panel and participating institutions was not necessarily easy to accomplish, but it was simple:

To develop strategies to strengthen the capacity of HBCUs to use the toxicological, environmental and occupational resources developed by NLM<sup>xii</sup>.

Did TIOP strengthen capacities of the participating institutions and create opportunity? Yes, and there are specific programs -- many of them larger than NLM could have envisioned at the time the pilot was launched -- that can illustrate the success of this

objective. An inexhaustive list of these, offered unabashedly by the panel's members<sup>xiii</sup> includes the following:

- Creation of both the public health program and the Ph.D. program in Environmental Toxicology Sciences at FAMU
- Creation of the masters program in public health and the creation of the Division of Information Technology at Morehouse University (with an institutional investment of over \$2 million covering personnel, computers, Internet connectivity and other information infrastructure)
- Development of Xavier University's Deep South Center for Environmental Justice
- Selection, by the Governor of the State of Florida, of FAMU as the site for the states Birth Registry
- Establishment at Drew University of the President's Advisory Panel for Community Outreach
- Creation of the Ph.D. program in Public Policy Toxicology and Environmental Health Management at Texas Southern University
- Creation of the Ph.D. program in Toxicology at Meharry University
- Establishment of new libraries at Xavier, FAMU and Howard universities
- The bachelor's degree program in regulatory science at University of Arkansas at Pine Bluff. This is the only degreed program in the country offering programs in pollution and waste management, environmental biology, and industrial health and safety that rely heavily on the resources provided through TIOP.
- In the four years since Hampton University has been a member of TIOP the university has been transformed from an institution with limited access to Internet to a rank of number 72 on America's Most Wired Colleges 2000, and is one, of only two HBCUs, on the list of top 100 universities.

Though it cannot be said that TIOP was wholly responsible for creating a library or a PhD program, the institutional representatives of participating HBCUs traced the lineage of these significant achievements to the TIOP program. It was evident in their stories that NLM had made a major contribution when it decided to empower HBCUs to address the issues of health disparity as they determined appropriate. As Mel Spann said, "NLM provided the tools. The institutions determined how the tools were applied." As simple as this approach may seem now, it had not been the common practice before TIOP was created.

The TIOP program has other, no less profound, legacies. For ten years the TIOP program has been a significant and enabling component of many important minority health programs and initiatives.

During the TIOP assessment meeting in Atlanta in May 2001 Dr. Ann Barbre, associate professor at Xavier University, shared an experience that was common to most TIOP institutions. Before NLM created the TIOP program, use of information technology and access to toxicological databases was a theoretical discussion in classrooms at Xavier. Practical applications and hands on training were by and large not possible. Where

online access was available the cost for connectivity was often prohibitively high. Before TIOP, all faculty and students at Xavier had access to only one librarian who could do electronic searches for them. Students, who had little money to begin with, had to pay for their own searches. Faculty, too, had to pay for searches and when the limited departmental money ran out no searches were possible unless faculty paid from their own pocket, which many of them did. Dr. Barbre explained that this had an effect on the quality and currency of teaching. Faculty who couldn't afford searches could not incorporate the latest material in their curricula and students suffered.

This situation existed not only in "the dark ages" before the program was created. Until the time that Hampton University joined TIOP in 1997, Kathy Block, Assistant Professor in the School of Nursing, in order to conduct a simple electronic information search, would have to drive home and use her own personal computer (because her department did not have one). She logged on to her personal AOL account and, at her own expense, searched the desired database, printed out the results and then drove back to campus.

By providing personal computers, free training in the use of the environmental and toxicology databases and free access to the databases this procedure changed. In the short time since Hampton University joined TIOP, Ms. Block has demonstrated the value of electronic access to NLM databases and other health information. Today the School of Nursing has an electronic classroom with full access to the Internet for all students and faculty. Health informatics is now a critical component of every course within the school.

Dr. James Webster, chairman of the Department of Biomedical Sciences, School of Veterinary Medicine at Tuskegee University and Dr. Henry Lewis, dean of the College of Pharmacy and Pharmaceutical Science at Florida A&M University (and former chair of the board of directors of the Minority Health Professions Foundation) also discussed the dramatic improvement in the ability to access timely information about competitive grants. Both agreed that if a search could be conducted to compare the number of grants applied for by their universities before and after TIOP there would be a significant increase after TIOP. Morehouse School of Medicine, for example, credits involvement with TIOP as being instrumental in receiving the largest number of individual R-01 research grants in its history. Publications at participating institutions have also increased. Access to information via the Internet and the ability to collaborate on-line have made publishing easier. Dr. Lewis guessed that if he could compare publications at TIOP institutions from 1981 to 1991 and from 1991 to 2001, he would find that publications probably tripled in the latter decade.

Dr. Lewis also spoke about the relationship of the TIOP project to recruitment at HBCUs. In the late 1980s, before TIOP, Dr. Lewis said that minority institutions were "not in the ballpark" when it came to competitiveness in recruitment. He explained that TIOP came about at the same time as the environmental justice movement that catapulted the issues of toxicology and environmental health to national importance. The whole country was becoming aware of the disparity of health services in minority communities. A byproduct of this awareness was improved recruitment, of both faculty and students, at

HBCUs. Mr. Edward Fontenette, director of the Watson Memorial Library at the University of Arkansas at Pine Bluff agreed. He said that, before TIOP, HBCUs had never been at the decision-making level because they were limited in their access to information. By using the NLM information resources, though participation in TIOP, minority health schools became major players in the environmental justice movement. Illustrative of the increased status of HBCUs, Dr. Lewis reported a particularly dramatic increase in graduate student enrollment at FAMU, reaching an all-time high of 102 students for the 2000-2001 academic year.

The TIOP program has also been instrumental in enabling institutions to link with communities. Examples<sup>xiv</sup> of the affect of the program on community outreach include:

- At Hampton University, sharing knowledge of NLM's Toxicology and Environmental Health Program databases with nursing students has enabled them to provide support on best practices to community environmental investigators. Efforts went toward developing a household vulnerability assessment and conducting informational seminars, community training and workshops.
- Howard University's School of Medicine has used the TIOP "train-the-trainer" model for its involvement with the Mississippi Delta Project, to educate nurse and other health professionals in the Delta Region about environmental hazards. Howard's College of Medicine also recently began a partnership with the District of Columbia's Public Library in conjunction with the Mayor of Washington, D.C., geared to promote total community wellness.
- Using NLM databases, Meharry Medical College has provided support to members of the Tennessee Environmental Council, lawyers seeking help on case research, and for in-service training for physicians and nurses. Also, through NLM's TOXNET, Meharry introduced EPA's Toxicology Release Inventory database as an environmental health resource to the 219 counties of the Mississippi Delta region.
- Xavier University reports that it regularly uses NLM databases, made possible through the TIOP program, in preparing its quarterly Xavier University Drug Information newsletters and in its support to Pharmacy and Therapeutics Committees at various local hospitals. Patient education and out research activities, including articles for health and fitness news columns in local newspapers and the provision of drug information to dentists, nurses, members of the lay public and drug wholesalers have also been made possible through the availability of NLM resources. Faculty and students at Xavier also use NLM databases to provide environmental information to community groups to assist them in their efforts to seek equitable resolution to their environmental health problems.
- FAMU established the program to train local pharmacists to use the NLM databases in order to better provide consumer information to neighborhood consumers
- Drew University provided training to local students enrolled in the National Science Foundation sponsored Minority High School Student Research Apprentice Program

## **V. Challenges**

There seems to be no doubt, on the part of NLM and the TIOP members, that TIOP has been a successful program. There are, however, areas where the program might have been more effective.

As discussed earlier in this report, TIOP was a new kind of program for NLM. NLM's funding for the program covered purchase of basic information technology, free dial-up access (subsequently Internet connectivity), and logistical arrangements for training and annual panel meetings. It was expected that the panel members would step forward to identify and pursue a scope of work for the program that had only the broadest of objectives at the outset. The linking of TIOP to the significant achievements discussed earlier in the report speaks for itself as to the commitment of the panel members and their respective institutions. However, little was done by TIOP members to define and pursue a measurable course of action to institutionalize training in use of technology and the application of NLM information tools within participating schools and, through the schools, into the community. NLM may have been able to provide even greater resources and those provided may have been more effectively used if the TIOP panel had developed a set of clear and measurable objectives.

TIOP was originally developed as a pilot program. Its approach to train trainers and its 'lessons learned' were envisioned to be models that would be used in other programs. This plan would be effective on a broad scale only if the TIOP experiences were to be shared. Often this sharing did not occur. For example, a web search and a review of traditional medical literature provided scant references to TIOP outside of those originating at NLM. It would not have been difficult for TIOP Panel members to publish material on the TIOP program or to present papers, for example, at meetings of the National Medical Association. TIOP Panel members fell short of what was hoped for in the area of sharing its experience with others.

Formal interactions between the TIOP Panel and NLM were neither as frequent nor as substantive as they might have been. NLM wished for more. This might not have been the case if regular exchanges of information had been specifically identified in the scope of work. The result of this shortcoming was that NLM might have missed opportunities to better shape its outreach programs or to develop new information "products". Not capitalizing on the experience and insight of TIOP members was a disappointment.

Finally, the TIOP program might well have moved earlier to be more inclusive of other minority communities. It wasn't until recently, for example, that the panel included in its membership a Tribal College and a Hispanic Serving Institution.

## **VI. NLM Perspective**

From NLM's perspective the relationship with TIOP has been a positive and a successful experience. Because of NLM's limited experience working with African American and other minority communities before the TIOP program was begun, TIOP made possible to NLM opportunities that had not previously existed for community outreach. Working

with participating HBCUs, and with their guidance, SIS also took an active role in the environmental justice movement that resulted in greater visibility for NLM's databases, consumer information and other resources. Also through its association with TIOP, NLM became a key player of the Mississippi Delta Project that opened other avenues for training and making toxicology and environmental health information available to minority communities.

Because of the increased recognition of NLM's contributions in this area, Mel Spann was asked to be a member of the Environmental Justice Subcommittee of the Department of Health and Human Services Environmental Health Policy Committee, a body that set policy for the Department and advised President Clinton on various environmental justice initiatives.

Links with HBCU faculties made possible through TIOP were also valuable when expert advice and representation was needed from toxicologists, chemists and pharmacologists and other scientists for important NLM committees. These included the LISTRIC Committee, responsible for reviewing literature available through Medline, and the Scientific Review Panel for the Hazardous Substance Data Bank.

NLM also gains from association with the successful ventures of its TIOP partners. For example, Dr. Bailus Walker, TIOP's chair and associate director for environmental and occupational oncology at the Howard, is also chair of the District of Columbia Mayor's Public Health Advisory Committee. As mentioned earlier, Howard College of Medicine is involved in a partnership with the District of Columbia's Public Library and the Office of the Mayor to promote total community wellness using, in part, insights provided by NLM.

As the significance of the health disparities within minority communities grows in importance throughout the nation, the lessons learned from NLM's ten-year effort with TIOP might serve as a paradigm for similar and expanded endeavors at NLM and in the community at large.

## Appendix 1

### Opportunities

During interviews with TIOP panel members a shared belief was expressed that TIOP long ago accomplished its initial objective to establish a mechanism to train health professionals at HBCUs to utilize NLM's toxicology environmental and hazardous waste databases. It is also believed that access to NLM's databases and training programs continue to positively impact participating schools – even on a daily basis. However, TIOP panel members are in universal agreement that more can and should be accomplished with additional administrative and financial support and a broader mandate.

All panel members are of the opinion that they can better respond to NLM's desire for increased awareness and increased use of NLM resources -- while at the same time better serving their own institutional missions -- if the TIOP program were strengthened and broadened in scope. Using Dr. Taylor's terminology, a "portfolio", or scope of work, needs to be developed at the panel level, with administrative and financial support, that will then promote and coordinate the development of initiatives at the institutional level.

Other related issues that the panel would like to explore include the following:

- Expanding the objectives to the panel to include health disparities: The name Toxicology Information Outreach Panel does not reflect the panel's primary focus on minority communities. It also currently mis-identifies the panel as being concerned solely with toxicological information when, not long after the group was constituted, the focus was expanded to include environmental health. In recent years the nation has committed itself to the broader goal of eliminating racial disparities in health and the panel would like its role to be reflective of this objective. Panel members have begun to consider ways in which they can focus the attention of their respective institutions on the objectives of the Department of Health and Human Services Initiative on Race. These include promoting research dedicated to a better understanding of the relationships between health status and different racial and ethnic minority backgrounds with the objective of acquiring new insights into eliminating the disparities.
- Expanding of the participating institutions to include greater representation from Hispanic Serving Institutions and Tribal Colleges and Universities: Although TIOP's membership has recently grown to include the University of Puerto Rico Medical School in San Juan, Puerto Rico and the Oglala Lakota College in South Dakota, the panel would like to discuss and implement a greater and more active participation of other minority schools.
- Improving and making more regular the contact between the Panel and NLM: For ten years the panel has met formally with its NLM sponsors only once a year. The panel would like to consider exploring future collaboration that might include

providing more regular input and support to the Specialized Information Services Division by regularly reviewing SIS databases and other information products and by proactively recommending research topics or identifying outstanding needs within minority communities. Another collaboration with SIS might be working with minority community outreach efforts regarding awareness of and participation in clinical trials. TIOP panel members suggested other ways member-institutions could support NLM including hosting NLM interns, collaborating on the development of NLM Public Service Announcements and the convening of community focus groups to discuss minority health issues.

Members of the TIOP panel were in agreement that using electronic technology such as video conferencing and Internet listservs that promote discussion and the sharing of information could facilitate this type of improved communications.

## Appendix 2

### Summary of TIOP Training Programs: 1995-May 2001<sup>xv</sup>

TITLE	LOCATION	DATES	PARTICIPANTS HBCU / Other		TOTAL
<b>1995</b>					
Delta Connection	Howard Univ (Wash., DC)	May 16-18, 1995	13	1	14
<b>1996</b>					
Delta Connection	Howard Univ (Wash., DC)	May 14-16, 1996	15	3	18
<b>1997</b>					
Delta Connection	Texas Southern Univ (Houston)	Mar 24-26, 1997	17	1	18
Making the Connection	Univ of PR (San Juan)	Jul 30–Aug 1, 1997	17	3	20
<b>1998</b>					
Librarians MTC	Univ of PR (San Juan)	Jan 21-22, 1998	18	-	18
Adv Healthcare Info Tech	Dillard Univ (New Orleans LA)	Feb 3-5, 1998	14	1	15
TEHIP on the Web	Univ of PR (San Juan)	Nov 17, 1998	23	2	25
<b>1999</b>					
*TEH Inf Res on the Web	Swissotel (Atlanta GA )	June 21, 1999	2	23	25
TEHIP on the Web	Xavier Univ (New Orleans LA)	Jun 29-30, 1999	11	16	27
*TEH Inf Res on the Web	Jackson St Univ (Jackson MS)	Jul 12, 1999	1	22	23
<b>2000</b>					
TOXNET on the Web	Xavier Univ (New Orleans LA)	Aug 24-25, 2000	13	4	17
TOXNET on the Web	MHPF for TIOP Schools	Oct 9-10, 2000	17	-	17
TEH Databases	UT Memphis Health Sci Ctr	Oct 12-13, 2000	1	13	14
<b>2001</b>					
Delta Connection	Jackson St Univ (Jackson MS)	Feb 28-Mar 1, 2001	14	3	17
NLM's TEH Databases	Univ of Puerto Rico (San Juan)	Apr 3-4, 2001	9	1	10
NLM's TEH Databases	Hampton Univ (Hampton VA)	May 10, 2001	18	-	18
<b>TOTALS:</b>			<b>203</b>	<b>93</b>	<b>296</b>

“Other” includes CBO and state/local government representatives, faculty/staff of majority institutions, and other concerned citizens.

\*Part of the *Faculty Development in Environmental Health Workshops* - sponsored by the University of Maryland School of Nursing in partnership with Howard University College of Pharmacy, Nursing and Allied Health and funded by the Kellogg Foundation. NLM participated as a sponsoring agency. These were 3-hour demonstration courses (no hands-on).

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## References

- <sup>i</sup> <http://sis.nlm.nih.gov/index.html>
- <sup>ii</sup> <http://www.atsdr.cdc.gov/>
- <sup>iii</sup> United States Code, Title 42 - The Public Health and Welfare, Chapter 103 - Comprehensive Environmental Response, Compensation, and Liability (1980)
- <sup>iv</sup> <http://www.minorityhealth.org/>
- <sup>v</sup> United Church of Christ Commission on Racial Justice, 1987. *Toxic Wastes and Race in the United States*, New York: United Church of Christ.
- <sup>vi</sup> Executive Order 12898, Federal Actions To Address Environmental Justice In Minority Populations And Low-Income Populations, President William J. Clinton, February 11, 1994
- <sup>vii</sup> Courseware Development for Toxicology-Related Information: An Opportunity for NLM Outreach, Melvin Spann, 1990, Page 1
- <sup>viii</sup> Ibid, page 1
- <sup>ix</sup> Report of the First Meeting, National Library of Medicine Toxicology Information Outreach Panel, Bailus Walker, Jr., PhD, MPH, Chair, August 1991
- <sup>x</sup> The National Library of Medicine's HBCU Toxicology Information Outreach Program. No author or date cited (provided by Cynthia Gains, NLM)
- <sup>xi</sup> Environmental Health and Toxicology Research Program: Meeting Environmental Health Challenges through Research, Education, and Service. Minority Health Professions Foundation. Page 5. undated
- <sup>xii</sup> Report of the First Meeting, August 15-16, 1991, National Library of Medicine Toxicology Information Outreach Panel, Bailus Walker, Chair. Page 2.
- <sup>xiii</sup> This list was compiled from presentations by TIOP members during the TIOP assessment meeting in Atlanta, Georgia in May 2001 and in subsequent interviews of TIOP members by the author of this report
- <sup>xiv</sup> These examples were compiled from presentations by TIOP members during the TIOP assessment meeting in Atlanta, Georgia in May 2001 and in subsequent interviews of TIOP members by the author of this report
- <sup>xv</sup> Compiled for this report by the Oak Ridge Institute for Science and Education (ORISE), Oak Ridge, Tennessee, August 2001