
The National Library of Medicine's Native American outreach portfolio: a descriptive overview*

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Objectives: This paper provides the most complete accounting of the National Library of Medicine's (NLM's) Native outreach since 1995, when there were only a few scattered projects.

Method: The descriptive overview is based on a review of project reports, inventories, and databases and input from the NLM Specialized Information Services Division, National Network Office of the Library Operations Division, National Network of Libraries of Medicine, and Office of Health Information Programs Development of the Office of the NLM Director. The overview focuses on NLM-supported or sponsored outreach initiatives involving Native peoples: American Indians, Alaska Natives, and Native Hawaiians.

Results: The review of NLM's relevant activities resulted in a portfolio of projects that clustered naturally into the following areas: major multisite projects: Tribal Connections and related, Native American Information Internship Project: Sacred Root, tribal college outreach and tribal librarianship projects, collaboration with inter-tribal and national

organizations, participation in Native American Powwows, Native American Listening Circle Project, Native American Health Information, and other Native American outreach projects.

Implications: NLM's Native American Outreach reached programmatic status as of late 2004. The companion paper identifies several areas of possible new or enhanced Native outreach activities. Both papers highlight the importance of solid reporting and evaluation to optimize project results and programmatic balance and priorities.

INTRODUCTION AND OVERVIEW

Over the past eight years or so, the National Library of Medicine (NLM) has gradually evolved from sponsoring an occasional Native American outreach project to a more programmatic approach that includes diverse types of projects and activities. An earlier trans-NLM outreach review in 1995 concluded that Native American outreach warranted more intensive attention [1].

The attention to Native Americans is driven in part by the significant health disparities experienced by the Native American community and, thus, the importance of health information outreach projects that can directly or indirectly help reduce health disparities for Native Americans [2–6]. In its broadest sense, NLM through its Native American outreach is attempting to encourage access to and use of health information by health providers, patients, and the general public in Native American communities. Additionally, based on learning in the early Native American and related projects, NLM is striving to give greater emphasis to building community-based partnerships—in this case, for example, working with and empowering local health professionals and community-based organizations in Native communities.

NLM's overarching goal is to strive to make a difference—to help Native Americans make better and more effective use of health information to address their own and their communities' health issues. This implies a commitment to improved efforts to measure the impacts of NLM's Native American outreach activities. The purpose of evaluating the work is to build a knowledgebase, so that outreach staff can do better in the future and make best use of the scarce available resources.

In this paper, the authors present a complete description and project-specific evaluative commentary, where possible, of each of the major groupings of NLM-conducted or sponsored Native American outreach projects over the past eight years (see the accompanying paper for an overall evaluation of these programs).

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MAJOR MULTISITE PROJECTS: TRIBAL CONNECTIONS

Tribal Connections I, II, and III

The Tribal Connections (TC) program emerged in part from NLM's 1996 review of its outreach programs. The review concluded that Native Americans had not received adequate priority in NLM's overall efforts to address the needs of minority and underserved communities. The importance of Tribal Connections was initially reinforced through project advisory committee meetings, feedback from other governmental and nonprofit organizations with an interest in this area, and input received as part of NLM's long-range planning process.

Objectives. TC I and II were primarily intended to improve Internet connectivity for participating American Indian reservations and Alaska Native villages. At the time, connectivity was a major issue for most tribes and villages, and the digital divide was very real. Also, TC I and II were designed to include a collaborative needs assessment at the local tribal or village level: the local community helped establish the technical and infrastructure priorities for improving connectivity. Finally, TC I and II were intended to provide health information training primarily for health and related professionals at the participating tribes and villages.

TC III involved going back to a small number of the original TC I and II tribes to explore community-based approaches to delivery of Regional Medical Library (RML) services. TC III was intended to provide only a small increment of additional technical support, building instead on the prior efforts, with greater emphasis in TC III on learning how a community-based approach to providing services might influence the RML's work. An innovation in TC III was building an evaluation component into the project from the start and including an evaluator as a core member of the project team.

Approach. TC I, II, and III were implemented by the Pacific Northwest Regional Medical Library (PN RML) in partnership with, and funded by, NLM's Office of Health Information Programs Development (OHIPD). Roy Sahali served as project manager, with support from PN RML technical and librarian staff. In TC III, a team approach was tried, with Sahali serving as the tribal community outreach coordinator, assisted by an

outreach librarian and an outreach evaluator. In TC I and II, Sahali made most site visits on his own, while in TC III the entire three-person team usually visited the participating tribes. The PN RML was selected for a lead role in TC in large part because of the strong leadership and interest of the PN RML director, Sherrilynne Fuller, FMLA, and the PN RML's history of outreach projects involving Native Americans in the Pacific Northwest.

Implementation status. TC I, II, and III have been completed. TC I was implemented in fifteen of the original sixteen tribal sites, including three Alaska Native sites, two sites in Montana, one site each in Idaho and Oregon, and eight in the state of Washington. One site was not fully implemented because of a tribal reorganization and changed priorities. The project began in 1998 and was completed in 2001. TC II was implemented in four sites in the Pacific Southwest (two in New Mexico and one each in Arizona and Nevada/Idaho). TC II began in 2000 and was completed in 2002. TC III was implemented with three of the original TC I sites (one each in Idaho, Oregon, and Washington), starting in 2001 and finishing in 2003.

Outcomes and evaluations to date. TC I and II did not have formal evaluation plans at the outset of the projects. After-the-fact evaluation was conducted [7]. TC I and II were very successful in conducting the local technical needs assessments at the participating tribes and villages and quite successful in helping the tribes and villages implement the identified technical and infrastructure improvements needed to upgrade Internet connectivity. TC I and II were also successful overall in helping the tribes and villages develop partnerships with other organizations to leverage scarce resources and build for long-term sustainability.

TC I and II were less successful in health information training, in part due to the large geographic coverage of the participating sites. In TC I, however, the PN RML did conduct 1 or more training sessions for health professionals and tribal staff at 15 of the 16 sites—a total of 28 on-site training sessions with a combined attendance of about 340. But the TC staff found that 1 or 2 training sessions spread over the course of a year or 2 was perhaps insufficient to have the desired impact. Immediate participant feedback on the training was largely positive. A long-term follow-up found that most of the TC I technical investments were still being used, but it proved difficult to discern the impact of the training, in part because of high turnover in the tribal staff.

TC II was reasonably successful with regard to the needs assessment phase, and some technical improvements were made at each site. However, TC II encountered some further complications because the tribal sites were outside the PN RML region, and, thus, logistics and staffing were even more challenging. Distance can be a big factor in conducting tribal outreach in remote areas of the West. Also, training was more complicated, not just because of distance, but also be-

cause of the need to coordinate between several RMLs and Resource Libraries (RLs).

TC III was the first TC phase to have an evaluation plan built in from the outset and was the first to be able to apply the health information outreach field manual [8, 9]. An American Indian outreach evaluator was hired to be part of the project team. Again, TC III focused on enhancing capacity of both the RML and the tribes in addressing tribal health priorities, based on principles of community capacity and empowerment theories.

The hope for TC III was that, instead of bringing an RML agenda to a tribe, by implementing community assessment techniques, some of the identified tribal health information needs would mesh with RML skills, products, and resources. The project was built on the assumption that the opportunities created as a result of the outreach would be identified, implemented, and evaluated in about a year's time. TC III had mixed results. In all three sites, the tribes were able to identify ways in which RML resources would contribute to their own health information priorities. In two of the three sites, the mutually negotiated objectives and outcomes for the projects were met. At the third site, distance and time constraints impeded full implementation. The aspect of the model that has proved most faulty is the assumption that all the activities could be completed in a year's time. It takes time to form relationships and to learn enough about a community to understand how RML resources might be designed to be of service. Taking time to make connections by visiting or participating in community events builds familiarity and trust. It also provides the connecting communication necessary to understand how to take advantage of opportunities to provide RML services. Connecting is a prerequisite to providing services and should be valued in the same way as product delivery.

TC III was noteworthy in that the project evaluator, Joan LaFrance, was Native American and a core member of the project team. LaFrance or one of her colleagues participated in most of the tribal site visits. This approach contributed to an excellent project evaluation report that exemplifies the type of tribal outreach project evaluation that can be conducted if properly funded, staffed, and viewed as an integral part of the project from the outset [9].

More broadly, TC I, II, and III had a significant positive impact in stimulating interest in Internet connectivity improvements and online access to health information among not only the participating tribes, but also other tribes in the region. This was particularly true in the state of Washington, where the project manager has continued various activities to help empower tribes to make use of the Internet for health and other purposes. Current plans include a new focus on urban Indians and possible collaboration with, for example, the Seattle Urban Indian Center.

The project also resulted in creation of the Tribal Connections Website (see below). TC I, II, and III also led directly or indirectly to significant additional grant

monies (from private foundations) for tribal health-related work in Washington State and in the Four Corners Region (Tribal Health Connections). Finally, the original Tribal Connections project manager participated in the inaugural Tribal Health Writers workshop in 2004, held at the University of New Mexico at Gallup, and is planning a second workshop.

Tribal Connections Special Project: On Eagles' Wings/Piscataway

Objectives. In 2000–2001, NLM and the National Institutes of Health (NIH) Office of the Director collaborated on a Tribal Connections demonstration project with the American Indian Cultural Center/Piscataway Indian Museum located in Waldorf, Maryland. The project was intended to upgrade the technical infrastructure and Internet connectivity of the center and provide related planning and training, so that the local Piscataway Native community could access and utilize health, employment, and other culturally relevant information on the Web.

Approach. The project was part of NLM's broader Tribal Connections activities. At NLM, the project was coordinated by the Office of Health Information Programs Development, with technical and training assistance from NLM's Office of Computer and Communications Systems and end-user training from the Southeast/Atlantic Regional Medical Library (SE/A RML).

Implementation status. The project began in summer 2000, with technical implementation completed during September and October 2000. A ribbon-cutting ceremony took place at the center on November 15, 2000. Natalie Proctor, director of the center, presided over the colorful and inspiring event, which included a presentation and dancing by Native children and youth. Yvonne Maddox, NIH acting deputy director, and Donald A. B. Lindberg, NLM director, gave congratulatory remarks. The activity was covered by Maryland Public Television. NLM and the SE/A RML provided training sessions during 2001. The project formally ended in 2002.

Outcomes and evaluations to date. In total, NLM provided technical support and funding for the installation of eight computers and related networking for the "On Eagles' Wings" Computer Lab, Learning Resource Center, and Main Auditorium. The entire facility was wired with a two-hub local area network, switches, and fiber interconnect. After evaluation of all options for Internet connectivity, an integrated switched digital network (ISDN) was selected and implemented. The ISDN connection performed satisfactorily and reliably. NLM and the SE/A RML provided a total of five training sessions. All training was held at the computer lab. Topics included basic network management, computer software, and end-user Internet training (and train-the-trainer sessions).

From a technical standpoint, the project was very successful. The computer and Internet infrastructure performed well and proved to be sustainable. The training results were mixed. The center staff was able to become largely self-sufficient in managing the network and computer capabilities. Individual staff and community members learned valuable computer and Internet skills and ways to access health information on the Web. But the "train-the-trainer" concept did not work out, due to a shortage of community volunteers. Also the hoped for diverse programmatic uses of the computer lab did not materialize, due to center staffing constraints. The lab was used mostly by students for homework and related purposes, a worthwhile but less ambitious portfolio than originally envisioned. The project highlighted the additional difficulties faced by urban and suburban Indian groups, such as the Piscataway, who do not have federal or state recognition and the associated funding sources and tribal organization.

Tribal Connection IV: Tribal Connections Four Corners

TC IV, better known as Tribal Connections Four Corners (TC4C), is a direct result of the earlier TC I, II, and III work and the Gates Foundation-funded Tribal Health Connections Project, which focused on tribal health outreach in the Four Corners states of Arizona, New Mexico, Utah, and Colorado. While some health libraries in these states had carried out individual tribal health outreach projects, there had never been a regional collaborative effort that crossed both state and RML lines.

Objectives. The primary objective of TC4C is to build tribal outreach collaborative relationships among the health libraries serving the Four Corners region through four specific activities: planning and conducting health information needs assessments with participating tribal health departments, developing a database of tribal health departments and other tribal contacts, identifying and incorporating relevant tribal health services and related information from the Four Corners region into a regional Go Local Website (the project would contribute a tribal health information component of larger Go Local state projects), and identifying and refining lessons learned from Four Corners tribal outreach. Go Local is a Website developed at the local or regional level with health-related information relevant to that specific geographic area. The Go Local Website is directly linked to MedlinePlus, so there is direct connectivity between local and national health information.

Approach. TC4C grew out of the original TC concept, with a regional emphasis and as a direct result of a meeting held in Salt Lake City in 2001. At the meeting, Wayne J. Peay, FMLA, director of the MidContinental RML, recognized the importance of the TC approach to the Four Corners region, in part because of the large presence of Native reservations and populations in the

Four Corners states. The following year a workshop held in Tucson produced a consensus for a TC4C project and an agreement in principle between the RMLs and NLM. TC4C is a collaboration between three RMLs—MidContinental (University of Utah), South Central (Houston Academy of Medicine), and Pacific Southwest (UCLA)—and four RLs—University of Arizona–Tucson, University of New Mexico–Albuquerque, University of Colorado–Denver, and University of Utah–Salt Lake City. The project is funded primarily by NLM (OHIPD), with contributions from participating RMLs and RLs, and managed by Claire Hamasu of the MidContinental RML. The project has four work groups, one for each of the four major objectives (needs assessment, contacts database, input to Go Local, and lessons learned) and a project administration group headed by Jeanette McCray of the University of Arizona Health Sciences Library. The project conducts monthly or bimonthly teleconferences, as well as various work group teleconferences as needed.

Implementation status. TC4C has been under way for a little more than a year. As expected, this has been a learning experience, as this is by far the largest regional collaborative project in NLM's tribal outreach history (and perhaps of any NLM-sponsored outreach). Substantial progress has been made in developing the collaborative arrangements between libraries, both at the level of participating librarians and the respective library directors. Status of work on the four objectives is as follows:

- needs assessment: assessment instrument has been developed and pretested and is ready for implementation
- contact database: a database software has been selected, and database training has begun
- Go Local: a work group has started to identify relevant information
- lessons learned: a national repository has been selected as the repository for TC4C lessons learned

Outcomes and evaluations to date. It is premature to report or assess project outcomes. However, from a process evaluation perspective, considerable progress has been made: A TC4C tribal liaison staff position has been filled (Patricia Bradley, at the University of New Mexico Health Sciences Library), funded in part through NLM support and in part through support from the participating libraries. A TC4C project evaluator has been selected and hired (Mary Belgarde, at the University of New Mexico School of Education) and funded through NLM support. A cross-section of Four Corners tribes has been tentatively selected to participate in the project, and TC4C teams have made initial site visits to some tribal sites and participated in the 2004 Navajo Nation Fair. The monthly or bi-monthly project teleconferences continue to be productive, with teleconference minutes and other project materials archived and available via QuickPlace (a Web-based information- and document-sharing software). Overall, it would appear that the groundwork

has been laid and that the next phases of TC4C project implementation can now move ahead. As noted, evaluation is a key component of the TC4C.

As part of TC4C, the MidContinental RML has developed a blog focused on Bringing Health Information to the Community <<http://medlib.med.utah.edu/blogs/BHIC/>>. The blog was developed in response to a need to keep TC4C members, RML staff, and communities up to date with community health information, including relevant articles, conferences, scholarship and grant opportunities, and Websites. QuickPlace and the blog appear to be useful ways to share project-related information without overloading email or library Websites.

NATIVE AMERICAN INFORMATION INTERNSHIP PILOT PROJECT: SACRED ROOT

Objectives. The Native American internship project began in 2002 and is intended to help provide training and education for mid-level professionals from participating Native communities. The main objective is to develop and strengthen important professional skills needed to sustain health information programs in tribal communities. The sub-objectives are to provide interns with an understanding of NLM's and NN/LM's programs and services, training in the use of electronic health information resources, instruction in managing health information outreach projects, information about potential funding opportunities, and connections and networking with people and programs that might provide support and assistance in the future.

Implementation status. The internship project is now moving into its fourth year of implementation. Two interns are selected each year from one tribal or Native organization. To ensure acceptance of the NLM internship in the Native community, the interns are identified by their tribal or community authority, such as a tribal council. The interns need to have the support of the tribal council or tribal or community leadership to participate in the internship program and in the implementation of a health information access project on the reservation or other tribally approved location. The intent is that two interns with complementary backgrounds in health and information technology will participate from each tribe.

The yearlong internship begins with two weeks at NLM and includes health information training classes and meetings with a wide variety of staff. During the year, the interns continue their professional duties with their respective tribes or organizations but also have an opportunity to attend conferences, meetings, and training programs throughout the country. The specific conferences and training activities are selected based on the interests of the interns and the needs of their tribe or community. The interns also visit their RMLs to establish a relationship for long-term support of health information access when they return home. At the end of the internship year, the two interns develop an information-related project for their tribe or

community. NLM works with them on the proposal development and then funds the project (up to \$50,000). NLM will continue to monitor the projects developed by the interns and help them continue to develop the capacity of their organizations.

Outcomes and evaluations to date. This project was given the name Sacred Root by the National Congress of American Indians President's Task Force on Health Information and Technology because from such a root a strong plant will develop. NLM's intent is to implement this pilot project in a number of the tribes represented on the task force. To date, three sets of interns have been involved in the project from the following groups: Three Affiliated Tribes, Ft. Berthold, North Dakota (2002); Nez Perce Tribe, Lapwai, Idaho (2003); and Native Hawaiians, Papa Ola Lokahi (2004). Alaska Native interns will start participating in 2005. The task force provides guidance to NLM on the project, and an evaluation of the project will include discussions with task force members, interns, and tribal leaders.

The intern projects to date are summarized briefly below:

- Three Affiliated Tribes (Mandan-Hidatsa-Arikara [MHA] Nation) interns carried out a project on the reservation that included developing a computer training lab and providing training to members of the tribe. NLM funded a follow-up project intended to enable the tribe to set up another training facility in conjunction with the Boys and Girls Club in New Town, North Dakota, for computer access and training. The Boys and Girls Club staff will be trained by Judith Rieke of the University of North Dakota Health Sciences Library. The staff will then work with the young people who frequent the Boys and Girls Club and with their families.

- Nez Perce Tribe intern (one intern left the program to attend dental school) has started a personal digital assistant (PDA) computer project, which addresses the need for mobile information access by clinic providers (including the ability to read digital images and obtain lab results) and enables patients to utilize the Internet before or after being seen by the health care provider. The use of online information that is wireless, secure, and available to the provider at any given moment will help improve the standard of care provided to the Nez Perce Tribe.

- Native Hawaiian interns are in the planning phase but expect to carry out a project exploring the use of GIS technology to map the locations of environmental hazards and the demographics of the Native Hawaiian population. Another project being explored is a health information training project in select Pacific Islands besides Hawai'i (such as Guam, American Samoa, and the Northern Mariana Islands).

TRIBAL COLLEGE OUTREACH AND TRIBAL LIBRARIANSHIP PROJECTS

The thirty-two tribal colleges in the United States offer a good opportunity for NLM to partner with higher

educational institutions primarily located on or near Indian reservations in the lower forty-eight states. Most of these are two-year colleges similar to community colleges; a handful have four-year programs. Some have health-related curricula and programs.

Environmental health tribal outreach

Recognizing the concern about environmental hazards in minority communities, in late 1991, NLM established a special outreach project to strengthen the capacity of historically black colleges and universities (HBCUs) to train medical and other health professionals in the use of toxicological, environmental, occupational safety and health, and hazardous wastes information resources available through NLM.

In an assessment of the HBCU program in 2001, panel members were of the opinion that HBCUs could "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 program were strengthened and broadened in scope" [10]. As a result, the project's scope was expanded to include health disparities, and representation was expanded to include Hispanic-serving educational institutions and tribal colleges.

The three tribal colleges currently involved in the project are the Oglala Lakota Tribal College (Kyle, South Dakota), Diné College (Shiprock, New Mexico, and Tsaile, Arizona), and Haskell Indian Nations University (Lawrence, Kansas). NLM has provided support for the nursing department at the Oglala Lakota Tribal College to acquire computers to use for accessing nursing programs and health information resources, while the school has provided feedback to NLM on various products under development. Diné College has received funding to purchase computers and software to support faculty development of important new resources, including the creation of a small atlas of human anatomy in the Navajo language. All three of the tribal colleges have also received funding for small community outreach activities as part of this NLM program.

This outreach project is managed by NLM's Specialized Information Services (SIS) Division, with attention both to the SIS environment-related and special-populations databases and Websites, as well as to NLM's general health information Websites.

Tribal college library outreach

NLM and the Greater Midwest RML are currently supporting tribal college library outreach projects in both North and South Dakota.

In North Dakota, the University of North Dakota Health Sciences Library has completed a phase I outreach project involving tribal librarians at all five of the state's tribal colleges. Each tribal college received computer equipment, intensive on-site training in health information resources, and other health information-related assistance. Based on site visits by project and NLM staff, it appears that the tribal librarians

and tribal communities were quite appreciative of this outreach.

In phase II, the University of North Dakota Health Sciences Library is reinforcing its relationships with the North Dakota tribal college librarians and extending the outreach effort to tribal health care providers. The hope is to provide complementary and reinforcing ways for tribal health providers and, ultimately, tribal members and families to access and use health information relevant to their own health situations.

In South Dakota, the University of South Dakota Health Sciences Library has been funded to replicate the North Dakota model, but with a focus on tribal colleges in South Dakota and with adaptations as needed to best meet South Dakota tribal college needs. This project is just getting started.

Both the North Dakota Phase II project and the South Dakota project are in part direct results of the Dakotas/Lakotas Listening Circle that was held on the Standing Rock Indian Reservation in August 2003 (see below).

Tribal College Librarian Institute

From time to time in recent years, NLM and the PN RML have participated in the Tribal College Librarian Institute convened annually by Montana State University. This institute typically runs for one week, with a full program on diverse topics relevant to tribal librarians and with several dozen participants drawn from tribal colleges throughout the United States. On a rotating basis, the institute includes a program segment on health information of special relevance to NLM and NN/LM.

Tribal librarianship project

NLM is funding the University of Arizona Health Sciences Library (AHSL), in a partnership with the Knowledge River (KR) <<http://knowledge.river.arizona.edu>> program of the School of Information Resources and Library Science (SIRLS) at the University of Arizona (UA), to offer internships in health sciences librarianship to two Hispanic and/or Native American students accepted in the KR program. The goal of this project is to expose Knowledge River students to career opportunities in health sciences librarianship by providing working internships at AHSL. An additional benefit of this project is to enrich the ongoing services and outreach projects of AHSL by leveraging the cultural and language-skill expertise of the KR interns to enable AHSL staff to meet the health information needs of these two minorities in Arizona. NLM's purpose in funding this project is to attract minority populations to the library profession and to increase outreach services to underserved minority populations. The overall goal is to present health sciences librarianship as an attractive option for these students. To further solidify the interns' interest in health sciences librarianship, they will be given the opportunity to attend a regional or national meeting of the Medical Library Association.

The KR program focuses on library and information issues from the perspectives of Hispanics and Native Americans. It is funded by the Institute of Museum and Library Services with support from the university and offers these students a way to look at any aspect of information or librarianship from their cultural perspective.

Hispanics and Native Americans are currently the most underrepresented groups in the library and information professions. Figures compiled by the American Library Association in 1999 indicate that Hispanics comprise 1.8% of academic librarians and 3.0% of public librarians. Native Americans make up 0.57% and 0.25%, respectively, of these 2 professional groups [11]. Hispanics are the largest minority in the Southwest now and are projected to be the largest minority nationally by 2010. Native Americans constitute 4.8% of the Arizona's population. Arizona is home to several tribal Nations, including, the Tohono O'odham, Hopi, and Navajo. These tribes are statistically among the poorest and least educated people in the United States. They need services and support of all kinds to improve their standard of living. Knowing how to find and use information resources about opportunities and services is key to their well-being, their utilization of the education system, and their participation in community life.

COLLABORATION WITH INTERTRIBAL AND NATIONAL ORGANIZATIONS

NLM and NN/LM members participate in the annual meetings of some national tribal organizations, such as the Association of American Indian Physicians and the National Tribal Environmental Council, through exhibits and presentations. Occasional participation in such meetings dates to at least the mid-1990s. Also, in 2002, NLM began collaboration with the National Congress of American Indians (NCAI) by providing support for the NCAI President's Task Force on Health Information and Technology established by Chairman Tex Hall. NLM has provided support for meetings of the task force and has participated in task force meetings to report on Native American outreach activities and receive input on the needs of these communities.

Participation in Native American powwows

Each year, hundreds of Native American powwows are held across the country. Until relatively recently, NLM-sponsored or supported participation was limited to occasional ad hoc participation of an RML or Resource Library in a local powwow. Starting three years ago, the NIH Native American Powwow Initiative has provided NLM with an opportunity for more sustained and focused powwow participation.

Objectives. The initial objectives of the Powwow Initiative were minority recruitment (in particular of Native American candidates for NIH jobs) and health information outreach. Today, health information outreach to the Native American community is the pri-

mary goal, with job recruitment a secondary consideration. Another objective is to provide a job enrichment experience for NLM staff who would like to develop skills in outreach and in provision of database searching, demonstration, and training to the general public and to have exposure to a wide range of members of the public, including Native Americans and other minorities who attend powwows in the mid-Atlantic region. The primary focus has been on mid-Atlantic powwows, due to relative proximity to NIH. Select powwows in other regions are being added.

Approach. NLM's corporate powwow participation is in partnership with the NIH Office of Equal Employment Opportunity and Diversity Management (OEODM); Hilda Dixon and Jennifer Haley coordinate the NIH-wide activity. George Franklin coordinates the NLM involvement, with general oversight by Elliot Siegel, Frederick B. Wood, and Susan Buyer. In past years, NLM staff participants have been drawn from various offices on the mezzanine (NLM's "front office"). The intent now is to expand the participation to include interested and qualified staff from other NLM units.

Powwows usually take place on weekends, and most participating NLM staff members are compensated either through comp time or overtime, plus travel expenses, which are generally nominal for powwows in the mid-Atlantic area. In the first two years, staff training was limited and ad hoc. Starting in year three, each new NLM staff participant has been required to take the "NIH Powwow Orientation" class offered by NIH at the beginning of the powwow season. The training covers powwow history and culture, etiquette, logistics, team assignments, and outreach. In addition to the NIH orientation, each new NLM staff participant has been asked to take an NLM training class on the major Websites, including MedlinePlus, PubMed, ClinicalTrials.gov, and the SIS population-specific Websites relevant to Native Americans.

Implementation status. NLM has participated in about twenty-five powwows over the past three years. Most of these powwows were held in Virginia and Maryland, with the rest at scattered locations in North Carolina, Delaware, New Jersey, and Pennsylvania; only one was held farther away (Gathering of Nations, in Albuquerque, New Mexico). Each powwow has been staffed by three to five NLM staff plus a roughly equal number of staff from other NIH units. NLM intends to continue participating but has determined that it is necessary to broaden the base of NLM staff participation. Also, NLM and the NIH OEODM are considering increasing the participation in powwows in Indian Country.

Outcomes and evaluations to date. No formal evaluation has been conducted. However, the number of people visiting the NLM exhibit booth over the past 3 years is estimated conservatively at 36,000. NLM staff has observed that the powwow attendees by and large

are very open to and interested in health information and are appreciative of NLM's (and NIH's) efforts to reach out to the community. The powwows seem to be fertile ground to build awareness of health information available from NLM and NIH. Also, where a viable Internet connection exists, NLM has provided online demonstrations of MedlinePlus and other Websites. The online demonstrations have proved to be popular.

The powwows are as much general health information outreach activities as they are Native American outreach activities, especially in the mid-Atlantic region. In the mid-Atlantic, perhaps 5% to 10% of powwow attendees are Native American, whereas at the Gathering of Nations and other major powwows out West in Indian Country, as many as 80% to 90% of powwow attendees may be Native American. Either way, NLM has observed a sustained interest in health information among powwow attendees.

Powwows are thought to be one of the more effective ways to reach the public interested in health information. The online demonstrations and varied handouts are intended to reinforce the availability of health information from NLM Websites. The hope is that powwow attendees will remember the uniform resource locators (URLs) and try these Websites from their home computers or computers at schools, community centers, or libraries when in need of health information. A viable way to actually capture and record the health information-seeking behaviors of powwow attendees has not yet been identified.

Beyond the NIH Powwow Initiative, several of the RMLs and RLs participate in powwows in their respective regions on an ad hoc basis. NLM is considering ways to share lessons learned and the accumulated powwow experience among interested health sciences libraries in NN/LM.

Native American Listening Circle Project

Objectives. Listening circles are a traditional Native American way of encouraging dialogue and discussion and developing trust among various parties, in this case NLM and representatives of tribes and Native groups. The objectives of the Native American Listening Circles Project are to promote open dialogue between NLM and tribal leaders, share perspectives on each other's capabilities and needs, and identify opportunities for collaborative projects. The idea of listening circles was brought to NLM's attention by Ted Mala, a member of the original Tribal Connections advisory committee, former president of the Association of American Indian Physicians, currently director of Traditional Healing Program for the Southcentral Foundation, and a current member of the NIH Council of Public Representatives. The Listening Circles are consistent with Department of Health and Human Services (DHHS) and White House guidance on federal agency consultation and coordination with tribal governments.

Approach. NLM contracted with Cindy Lindquist and the National Indian Women's Health Resource Center (NIWHRC) to assist with planning and organizing a series of three listening circles. Mala serves as a senior advisor. The NIWHRC in turn involved local tribal and Native groups in organizing each listening circle, working in collaboration with the NLM/OHIPD.

Implementation status. During 2003–2004, three listening circles were planned, organized, and implemented: one in the Dakotas (with American Indians), Hawai'i (with Native Hawaiians), and Alaska (with Alaska Natives). The NLM delegation for all three Listening Circles was led by Lindberg, who was accompanied by Siegel, Wood, Gale A. Dutcher, and Robert Logan. Lindquist and Mala, working with local Native organizations were the key facilitators.

The first listening circle was held on August 26, 2003, at Ft. Yates, North Dakota, tribal center of the Standing Rock Lakota Indian Reservation. Tribal participants included representatives from eight tribes in North and South Dakota. The Dakotas listening circle was preceded by a day of site visits to the Sitting Bull Tribal College and other tribal offices of the Standing Rock Nation, which straddles the border between North and South Dakota, and to the United Tribes Technical College, which is a tribal college in Bismarck, North Dakota.

The second listening circle was held on January 27, 2004, at the University of Hawai'i's Center for Hawaiian Studies in Manoa. Papa Ola Lokahi served as the host organization and arranged site visits to Native Hawaiian health clinics and communities on the Big Island and O'ahu before the listening circle. Listening circle participants included representatives of various Native Hawaiian health, community, and social service organizations.

The third listening circle was held on July 14, 2004, in Anchorage, Alaska, at facilities of the Southcentral Foundation, which also served as the host Alaska Native organization. The Southcentral Foundation is the Alaska Native health organization serving Alaska Natives in the Cook Inlet area, including Anchorage; the foundation also manages the Alaska Native Medical Center. Related Alaska activities included site visits to Kotzebue, an Alaska Native town above the Arctic Circle, and to Buckland, a small Alaska Native village in the Alaskan bush country; tours of the Alaska Native Medical Center and the Southcentral Foundation's Primary Care Facility; a visit to the Alaska Native Cultural Center; and meetings with various organizations that focus on Alaska Native health care needs.

Outcomes and evaluations to date. An evaluation of the overall Native American Listening Circle Project is still in process. However, from the perspective of the NLM participants, all three listening circles and associated site visits vastly increased NLM's understanding of Native perspectives on health and community issues and Native needs for addressing those issues. Also, at the three listening circles, the importance of

Native views on health, the role of spirituality and traditional healing, and the interconnectedness of individual, community, and tribal health came through clearly. Community health clinics and community health aides or the equivalent appeared to be an important part of the frontline health system for American Indians, Alaska Natives, and Native Hawaiians alike.

The listening circles are consistent with the Executive Branch and DHHS guidance for consultation with tribes and emphasis on projects with special populations with significant health disparities such as Native Americans. Also, the listening circles are fully responsive to the April 2004 NIH Council of Public Representatives (COPR) report, Enhancing Public Input and Transparency in the NIH Research Priority-setting Process [12], which in fact highlighted NLM's listening circle program in connection with its recommendation 6, to "Ensure that senior decision makers receive and fully consider public input."

Finally, the listening circles identified a number of possible future collaborative projects, with NLM working closely with Native American organizations in the Dakotas, Hawai'i, and Alaska. Several of these collaborations are now under way, although still in the formative stages:

- North Dakota: University of North Dakota Health Sciences Library (through the Greater Midwest RML), phase II of health information outreach to North Dakota tribal colleges and tribal health providers (see earlier discussion)
- South Dakota: University of South Dakota Health Sciences Library (through the Greater Midwest RML), project to extend health information outreach to South Dakota tribal colleges and health providers (see earlier discussion)
- North Dakota: Cankdeska Cikana Community College (through the Greater Midwest RML), Spirit Lake Nation, Ft. Totten, North Dakota, project to develop a health-related educational program at the community college and associated improvements in the technical and information resource infrastructure at the tribal library
- North Dakota: MHA Systems, a tribal enterprise of the MHA Nation, economic development project to provide outreach assistance to a tribal information technology company that would ultimately result in jobs created on the reservation (in this case, the Ft. Berthold Indian Reservation, home to the MHA Nation, also known as the Three Affiliated Tribes); the project is intended to improve the competitive capabilities and posture of MHA Systems and to refine, test, and strengthen the company's core scanning services through a pilot test of scanning materials provided by NLM (see the next section for further discussion)
- Hawai'i: Papa Ola Lokahi (via the Pacific Southwest RML), two Native Hawaiian community health education projects:
 - Community of Miloli'i, Hawai'i (the Big Island): This project is intended to increase community mem-

bers' knowledge about available health information and health resources by providing appropriate computer hardware and software to the community's library. It will also provide training for the librarian and other community members, increase multimedia resources at the Miloli'i Community Library, and support community-based initiatives that have their foundation in the Hawaiian concepts of health (which involves a balance between body, mind, and spirit).

— Waimanalo Health Center, O'ahu (Windward side): This project's goal is to increase the knowledge of community members about health information resources, so that they can better understand their own health conditions or the health conditions of family members; this will enable more effective self-management and more informed communication with health service providers, to be achieved by providing training and access to Web-based sources of health and medical information.

■ Alaska: Buckland Alaska Native Village (through Pacific Northwest RML), project to improve the health information infrastructure at the village school and/or health clinic, including needs assessment, technical upgrades, and associated training and outreach

■ Tribal Telemedicine (Alaska/Hawai'i): NLM has previously supported major telemedicine projects in Alaska. These projects helped lay the groundwork for the current Alaskan operational telemedicine network that now reaches almost all Alaska Native villages. NLM met with Alaska Native and federal telemedicine representatives on July 16, 2004, as an adjunct to the July 14 Alaska Native listening circle. The meeting participants will follow up with NLM regarding ideas for future telemedicine research projects. Interest in telemedicine was also expressed at the Native Hawaiian listening circle.

NLM continues to review the varied ideas generated at the listening circles and related meetings and is identifying additional project ideas for longer-term follow-up.

Tribal economic development and job creation

Objectives. The primary objective of this project is the development of a healthy tribal community, in part through outreach assistance to a tribal information technology company that would create jobs on the reservation (in this case, the Ft. Berthold Indian Reservation, home to the MHA Nation). Given the high unemployment rates on Indian reservations, the National Congress of American Indians recognizes job creation as one of the top priorities for addressing the underlying causes of many tribal health issues.

Implementation status. To achieve the primary purpose of tribal economic development, the project includes six tasks that address several main components of successful small business development: effective planning and scheduling, strong technical infrastructure (hardware and software), well-trained management and staff, proven track record in core business,

well-tested and accurate pricing models, and reliable reporting and accountability. Together, the tasks as a whole are intended to improve MHA Systems' competitiveness.

■ Task 1: Prepare Detailed Project Plan and Schedule: This will include comprehensive consideration of options for use of the available funds for equipment, training, and other investments in MHA Systems to enhance the competitiveness of the company in the scanning and related information technology markets and, thus, the ability of the company to create jobs for members of the MHA Nation. This also will include a detailed plan, to be developed in consultation with NLM, for scanning materials to be provided by NLM.

■ Task 2: Purchase Hardware and Software for MHA Systems: This will include the purchase of the hardware and software identified in task 1 that would improve MHA Systems' competitiveness.

■ Task 3: Arrange Professional Training for MHA System. Staff: This will include arranging a variety of training courses and classes for MHA Systems staff and management, with a general goal of increasing their technical and management skills to enhance the overall capacity and competitiveness of MHA Systems.

■ Task 4: Scanning Pilot Study Part I: This will include the scanning by MHA Systems of the first half of materials to be provided by NLM. The exact nature, specifications, and volume of these materials will be determined in consultation with NLM as part of developing the detailed project plan. While this work is to be undertaken as an economic development outreach activity, MHA Systems will develop and apply pricing algorithms to be finalized in the detailed project plan. This scanning pilot study will, in effect, test whether the pricing algorithms are accurate or need adjustment, as well as the relationship of pricing to volume, type of materials, quality control levels, etc. The scanning pilot study will also consider other elements, such as quality control, economies of scale, and complexity of input materials. The products of the scanning pilot study will include actual scanned work (volume and production rates to be determined as part of the detailed plan) in the form of portable document format (PDF), extensible markup language (XML), or standard generalized markup language (SGML) electronic files. The required scanning and output format(s) and quality assurance standards will be specified by NLM.

■ Task 5: Scanning Pilot Study Part II: This will include MHA Systems' scanning by of the second half of materials to be provided by NLM. As with part I, the nature, specifications, and volume of these materials will be determined in consultation with NLM as part of developing the detailed project plan.

■ Task 6: Final Project Report: This report will include a summary of the overall project results, summative evaluation of the scanning pilot study, implications for future scanning capabilities and competitiveness of MHA Systems, problems encountered, lessons learned, implications for job creation and employment

on the Ft. Berthold Indian Reservation, and implications for tribal future economic development outreach initiatives sponsored by NLM and others.

Outcomes and evaluations to date. This project is just getting under way. MHA Systems is finalizing the detailed project plan. NLM is finalizing the list of materials that will be provided to MHA Systems for scanning. The project will continue through fiscal year 2005 and into fiscal year 2006.

NATIVE AMERICAN HEALTH INFORMATION

NLM provides health information relevant to Native Americans through several NLM-sponsored or supported Websites. These include the Native American health page of MedlinePlus, the specialized population Websites supported by the SIS Division, and the Tribal Connections Website supported through the PN RML.

MedlinePlus

MedlinePlus <www.medlineplus.gov> has a Native American Health page <www.nlm.nih.gov/medlineplus/nativeamericanhealth.html> with news, current research, consumer-friendly information, relevant clinical trials, directories, and links to numerous other related Websites.

Special populations Websites

The American Indian Health Website <<http://americanindianhealth.nlm.nih.gov>> was launched in 2004 and provides links to health and medical information for and about Native Americans. Further development of the content of this site will be carried out through partnerships in the Native American community. A user group of Native Americans is being created to help identify new resources to include as well as to help identify ways to make the Website more responsive to the needs of users.

The Arctic Health Website <<http://www.arctichealth.org>> is being developed in partnership with the University of Alaska in Anchorage, where a user group has been established that includes Alaska Natives as well as scientists and information specialists.

NLM is partnering with a Native Hawaiian health organization to develop a similar Pacific Islander health Website. It is essential that these Websites, intended for use by specific ethnic groups, be responsive to the information needs of those groups. NLM has also provided direct support to Papa Ola Lokahi, a Native Hawaiian health organization, to enable them to develop their own Website as well as Websites for three of the five Native Hawaiian health systems: Ke Ola Mamo, the health system for the island of O'ahu; Hui No Ke Ola Pono, the health system for the island of Maui; and Hui Malama Ola Na O'iwi, the health system for the island of Hawai'i.

Tribal Connections

The Tribal Connections Website <<http://www.tribalconnections.org>> originated as a project-specific Website supporting TC I (see above for information about Tribal Connections). It has now evolved into a Website with a broader mission and provides a cross-section of tribal health-related information and Websites. The TC Website emphasizes information, links, and Native health perspectives intended to complement, not duplicate, the other NLM-supported Native American-oriented Websites. The TC Website will also be the archival home to the Tribal Health Connections Website that was developed to support the project of the same name funded by the Gates Foundation. The Tribal Connections Website is currently emphasizing collaborations with tribal writers, in the hopes of encouraging better understanding and coverage of NLM-sponsored or supported health information Websites in Native American communities.

NLM recently sent to press a revised version of the NLM Bookmark on Health Information for Native Americans. This is one of the series of NLM bookmarks that cover all major NLM programs and Websites. The original version of this bookmark, issued about two years ago, has proved to be very popular for use in tribal outreach projects and at Native American powwows, conferences, and meetings and for use by RMLs and RLs for general distribution and outreach in their respective geographic areas. The revised version specifically lists all of the above-mentioned NLM-sponsored or supported Websites that have a focus on Native American health information and related topics. NLM is encouraging the Web managers for these sites to develop more refined mission statements that clarify the complementary and reinforcing relationships among the various Websites and to explore further opportunities for cross-linking and partnerships.

OTHER NATIVE AMERICAN OUTREACH PROJECTS

NLM supports, sponsors, or partners in a variety of other Native American outreach projects.

Community Drum Project

Community Drum is an Alaska Native/Rural Alaska AIDS information community outreach project (Anchorage, Alaska). The Alaska Native Tribal Health Consortium (ANTHC) is the largest tribal health care organization in the United States, formed in December 1997 to manage the statewide health services component of the Alaska Native health care system. The purpose of this project is to improve education and information access to high-quality HIV/AIDS information and to establish an online community for Alaska Native HIV/AIDS patients, affected family members, and the community. The online community will help Alaska Native HIV/AIDS patients form a continuing-support network through communication with other Alas-

ka Natives and families coping with similar diseases. This consortium is developing an Alaska Native informational Website for use by HIV-positive Alaska Natives and rural Alaskans including a message board, personal stories, and links to other credible HIV/AIDS Website resources. In addition to the Website, the consortium is creating a CD for use by clients without Internet access and for distribution to regional health organizations. They are also developing a database of area HIV/AIDS service providers and resource centers. Oversight is provided by the ANTHC Consumer Advisory Board, and project funding and staff support are provided by NLM's SIS Division.

Sacred Breath Project

Sacred Breath is a diabetes management project of the National Congress of American Indians President's Task Force on Health Information; it is funded through the Department of Defense. A disproportionately high percentage of American Indians, Alaska Natives, and Native Hawaiians suffer from diabetes. Many of them live in isolated, remote areas where effective health care is not accessible. The task force selected MyCareTeam, an interactive health information technology application developed by the Imaging Science and Information Systems (ISIS) Center at Georgetown University as a tool to help individuals with diabetes better manage their illness. The goal of this initiative is to deploy MyCareTeam into a number of clinical environments to improve the effectiveness of various diabetes management programs for Native communities. Using MyCareTeam through secure communications, patients can electronically transmit their blood sugar readings from their glucose meters to a secured database; patients and their care providers then have access to the data and other valuable health information through standard Web-browsing technology. NLM is collaborating with the task force and will provide training classes at each participating site in the evaluation and use of electronic health information.

HIV/AIDS Prevention in the Pacific

The HIV/AIDS Prevention in the Pacific is a new project of Pacific Resources for Education and Learning (PREL) that will provide skill building and information retrieval through training sessions for public librarians, educators, and community members. The goal is to improve access to HIV/AIDS online resources. The project targets residents of American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Guam, the Republic of the Marshall Islands, and the Republic of Palau. In addition to working to develop online retrieval skills, the project will develop educational and informational materials that are culturally and linguistically appropriate. PREL is a member of NN/LM and has experience working with libraries, ministries of health, and community organizations.

Other National Library of Medicine-supported projects

NLM supports a variety of other individual projects that are intended in whole or in part to address the health information needs of Native Americans. A sampling of these projects is listed below:

- Hawaii Health Portal: Statewide Pathway to Electronic Health Information, Hawaii Medical Library, Honolulu; goal: creation of the Hawaii Health Portal, development of an online guide to the use of the portal, and training for public librarians, the public, and Native Hawaiian educators, health professionals, and community members (funded through NN/LM, Pacific Southwest RML)
- Digital Reference Live across North Dakota and Hawai'i, University of North Dakota (Health Sciences Library), Grand Forks, and Hawaii Medical Library, Honolulu; goal: connect eight libraries and campus sites in North Dakota and Hawai'i to provide 24/7 reference services to clients of both libraries' organizations (funded through Internet Access to Digital Libraries Grant, Extramural Programs)
- Hawai'i Access to Computerized Health (HATCH), University of Hawai'i at Manoa (John A. Burns School of Medicine), Honolulu; goal: improve health of underserved communities using telecommunications with citizens and providers, connect community care centers with videoconferencing, develop community-sensitive information, and train users in twenty-five community centers (funded through Information Systems Grant, Extramural Programs)
- Partners for Access to Consumer Health Info (PACHI), Lovelace Sandia Health System (Medical Library), Albuquerque, New Mexico, and New Mexico Tribal Health Care Alliance, Albuquerque; goal: establish a partnership between a medical library and a community-based tribal clinic that will assist in retrieving and disseminating consumer health information (NN/LM funded)
- Access to Health Information for Arizona's Tribal Nations, Arizona Health Sciences Library, University of Arizona, Tucson; goal: improve access to health information resources for Native Americans in Arizona and to develop sustainable working partnerships between the AHSL tribal representatives and other organizations (NN/LM funded)
- Cherokee Nation Health Systems Internet Upgrade, Tahlequah, Oklahoma; goal: upgrade and enhance the throughput speed to the Internet by being able to dedicate ports and connectivity size, thus allowing quicker access to information (Internet Connections Grant, Extramural Programs)
- Internet Connection of Rural Alaska Public Health Centers, Alaska State Department of Health, Juneau; goal: connect six of the outlying remote rural public health centers to the statewide wide area network and ensure that users are well trained in Internet use (Internet Connections Grant, Extramural Programs)
- Ben Archer Health Center Internet Connection Project, Hatch, New Mexico; goal: broadening Internet ac-

cess in the Hatch, Truth or Consequences, and Las Cruces sites of the Ben Archer Health Center (Internet Connections Grant, Extramural Programs)

As noted, individual projects such as these and the projects presented earlier are supported by the Internet Connections Grants (now called the Internet Access to Digital Libraries) of the NLM Extramural Programs; individual RMLs through their own discretionary outreach funds and outreach program solicitations issued by the NN/LM National Network Office; and special outreach projects supported by NLM's Office of Outreach and Special Populations, SIS Division, and NLM's Office of Health Information Programs Development of the Office of the NLM Director.

CONCLUSIONS

In 1995, NLM completed a review of its overall outreach program [1]. One of the conclusions was that Native American outreach was underrepresented. Up to that time, NLM had supported or sponsored only a small handful of Native American outreach projects. NLM decided in 1996 to ramp up its Native American outreach by co-initiating with the PN RML the original Tribal Connections Project. Since then, NLM has strengthened and diversified its Native American outreach activities to a level that might reasonably be called a program.

NLM's Native American Outreach activities now span several NLM divisions and offices, with most activities concentrated in the SIS Division, National Network Office of the Library Operations Division, and Office of Health Information Programs Development of the Office of the NLM Director. In addition, many projects involve to varying degrees one or more of the NN/LM RMLs and RLs. NN/LM is a key partner in the overall NLM-sponsored or supported Native American outreach.

As noted in many of the project descriptions, NLM has also increasingly partnered and collaborated with a variety of Native leaders, organizations, and community activists. These partners have proved essential to the success of NLM's outreach to Native Americans. The current emphasis, consistent with NLM's outreach commitment and mandate and Executive Branch guidance, is on consulting with Native communities and on identifying project needs and responding to the extent possible to these needs as perceived and defined by the Native communities themselves.

The ability of NLM to prepare this descriptive overview was vastly enhanced by the various Native American outreach projects that have had some type of evaluation component. Our experience has been that it is usually through evaluation that data and understanding of a project's successes, limitations, impacts, and lessons can be captured, for the benefit of current and future generations of project and program managers. NLM began to intensify its emphasis on outreach evaluation in the late 1990s, with a particular focus initially on Native American outreach. That effort has matured and includes a greater emphasis on the im-

portance of building an appropriate level of evaluation into all outreach projects. However, we have continued to emphasize appropriate evaluation models for outreach to minority and underserved populations and communities through pilot applications, first for Native American outreach and now for Hispanic outreach as well. The results to date, while mixed, have, on the whole, been quite positive and give us optimism that further progress is well within reach.

The authors hope that this descriptive overview has been helpful not only in informing the Native American outreach assessment presented in the accompanying paper. We believe that this overview will also add to the collective knowledgebase about NLM's Native American outreach among the many partners in and contributors to these varied projects. This is one of several efforts to strengthen the mechanisms for sharing information and learning about Native American (and other) outreach.

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