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Accomplishments of a Training Support Program for American Indian and Alaska Native Health Researchers

Tosha Zaback, Thomas Becker, and Jessica R. B. Kennedy

INTRODUCTION

Increasing the number of American Indian/Alaska Native (AI/AN) researchers with advanced training in social or biological sciences is an essential component of the national agenda to reduce health disparities for AI/AN communities.¹ Yet behavioral, clinical, epidemiologic, and biomedical studies in AI/AN populations do not commonly include AI/AN researchers in principal roles. This lack of involvement is primarily related to the low numbers of AI/AN researchers with adequate training and experience to be engaged in productive research careers. Furthermore, encouragement offered to AI/AN students to orient career goals in the direction of disease etiology or control in AI/AN peoples has not been consistently successful.² As they advance toward independent research careers, AI/AN students encounter multiple financial, institutional, and cultural barriers. Moreover, these challenges continue when young biomedical researchers achieve independence. Young AI/AN researchers in faculty positions frequently sense that their attempt to attain tenure in a university

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setting is in direct conflict with their commitment to their cultural ties.³ The gap between what is considered “minority research” and general “academic research” affects AI/AN faculty in their path to tenure and promotion, and increases the difficulties of living in two worlds.⁴ AI/AN researchers have faced perceptions from others in the field that their work is not as rigorous or broadly applicable as non-minority research, often forcing them to choose non-minority research over research that could directly benefit their own communities of color to advance their careers.

Multiple organizations and expert panels recommend that additional resources be directed to increasing the numbers of qualified AI/AN researchers in biomedical and related sciences.⁵ The March 2009 *American Journal of Public Health Supplement* devoted several articles to the barriers that minorities encounter in pursuing doctoral degrees and strategies to recruit and retain minority researchers.⁶ Important strategies identified for eliminating the barriers to enrollment and future success as a biological or social researcher include increasing AI/AN student enrollment by offering culturally appropriate mentorship opportunities, financial incentives, and scholarship programs.⁷ Providing training and experience in research methods is one mechanism for AI/AN students and health professionals to become involved in researching the efforts of their own communities to decrease the morbidity and mortality among diverse groups of AI/AN people in the United States.⁸

In the federal announcement that solicits applications for the Native American Research Centers for Health (NARCH) training grants, the program personnel noted that opportunities are needed to increase the cadre of AI/AN scientists and health professionals engaged in health research, and to conduct biomedical, clinical, behavioral, and health services research that is responsive to the needs of AI/AN communities.⁹ While the racial or ethnic composition of researchers may not be as critical in bench laboratory settings, in population health disciplines the racial or ethnic affiliation of the investigators may greatly facilitate not only access to populations of similar backgrounds but also engender trust of the research process and outcomes in participating communities or populations. Involving and training people from within the community in areas of health research promotes a better understanding of community health concerns and health research needs. Furthermore, research approaches that empower communities are beneficial both in designing research relevant to communities’ health needs and providing sustainability in addressing those needs with trained researchers from tribal communities. In the Northwest Native American Research Centers for Health training program (NW NARCH), a training program that has been directed toward increasing the number of qualified AI/AN principal investigators in Native communities since 2001, the majority of trainees focus on population health research and aim at successful careers that address tribal health concerns. This paper will present results of an independent evaluation of the NW NARCH program, which operates by providing financial support and mentorship for professional and academic development.

TRAINING PROGRAM DESCRIPTION

The Native American Research Centers for Health (NARCH) training grants, funded by the Indian Health Service and National Institute of Health and housed at the Northwest Portland Area Indian Health Board (NPAIHB), were designed to foster research training and skill development for AI/AN trainees and employees of the NPAIHB who were conducting health research in tribal communities. The trainees were categorized as “faculty,” “fellows,” “scholars,” or “interns.” Faculty award recipients had completed doctoral degrees, fellows were working toward masters or doctoral degrees, scholars were employed at the NPAIHB and continued to hone research skills, and part-time interns worked on research projects housed at the NPAIHB. The NPAIHB conducted NW NARCH training activities for faculty, fellows, scholars, and interns beginning in 2001. During this time, the program supported a total of eighty-one trainees. Seventy (86%) trainees were AI/AN. The remaining twelve were non-Native employees or interns working at NPAIHB. The program’s faculty, fellow, scholar, and intern awards are described below.

Faculty Award Recipients

The overall goal of supporting AI/AN faculty award recipients was to increase the research capabilities of postdoctoral AI/AN trainees to carry out well-designed research projects in AI/AN communities. Coursework and one-on-one mentorship were designed to build on seminars and workshops with the ultimate goal of increasing fundable research and subsequent dissemination activities for faculty award recipients in their area of expertise. Recruitment of faculty award recipients began in 2004 and included junior AI/AN faculty affiliated with various research hospitals and departments nationwide. Faculty award recipients were provided with mentors through formal coursework, seminars, and workshops. Upon request, faculty award recipients were matched and provided with one-on-one mentorship with academically established faculty with expertise in their field of study; some faculty award recipients had established relationships with mentors on their own. Training and mentorship included financial support to attend and participate in professional development activities through the NPAIHB as well as other relevant courses that developed conceptual scientific skills in research methods, grant applications skills, and scientific writing for conferences and manuscripts.

Fellow Award Recipients

The overall goal of supporting the fellow award recipients was to ensure graduation in their field of study by providing financial assistance and mentorship through assigned research projects. The NARCH principal investigator led recruitment of masters and doctoral students enrolled in social and biological science academic programs across the nation. Fellows received stipends totaling \$28,000 to \$37,000 per year, depending upon the level of academic program.

Scholar Award Recipients

Scholar award recipients were NPAIHB Native and non-Native employees who sought additional career-related research skills. Financial support in the amount of

\$5,000 per year was awarded to NPAIHB researchers to support career development activities. Recipients used these funds to pay tuition for additional academic coursework to expand their skill set or earn additional degrees and/or certificates. Others used the scholarships to attend and present at national meetings, attend workshops and seminars, and purchase research-related textbooks and software.

Intern Award Recipients

Intern award recipients were medical and public health students wanting to work on short-term research projects that both served the tribal communities' short-term needs and provided opportunities for the interns to gain research skills. Interns were paid an hourly wage. Most intern projects lasted approximately two months, but a few lasted up to six months. Interns were assigned to a mentor and/or principal researcher and assisted with data management, data cleanup, data analysis, reports, manuscript preparation, and preparing oral presentations at national meetings.

METHODS

We evaluated training award recipients' progress using a mixed-methods approach that focused on collecting indicators of progress. Trainees were enrolled on a continuous basis. In order to have enough time for trainees to demonstrate evidence of progress, indicators varied from community level to national level. Data from the following sources were included: (1) program staff reviewed documents to assess recipient progress and accomplishments; (2) trainees self-reported by completing an electronic survey; and (3) curriculum vitae (CVs) were systematically reviewed to verify self-reported trainee progress.

Program Staff Assessment of Recipient Progress

Program staff (program manager, principal investigator) described to the independent program evaluator each individual trainee's role (intern, scholar, fellow, or faculty) and their academic or professional development goal on entering the program. Some trainees had multiple roles over the years; in these cases we reported using their most recent role. Program staff and the program evaluator were asked to assess each trainee's individual progress toward their academic or research goal (exceeds, as expected, or slower than expected) independently of each to provide reliability in assessing records. Differences in individual assessments (n=8, 10% overall) were discussed between the principal investigator and program evaluator until consensus was reached.

Electronic Survey

Data were collected on training award recipients' accomplishments using a self-administered electronic questionnaire. Fifteen questions were developed to assess accomplishments, including oral and poster presentations, publications, grant monies awarded, degrees earned, and professional positions. Training award recipients were also asked to share other accomplishments they thought were important including leadership roles, fellowships and/or scholarships, attendance at scientific conferences,

and recognition awards. Many of the training award recipients were early in their careers and may not have had publications and/or grants awarded at this early stage, so the additional accomplishments were a way for them to highlight those successes, as evidence, that they felt was partially attributable to their funding.

Requests to complete the electronic questionnaire were made to all past and present NW NARCH training award recipients (n=81) by weekly electronic mail over a two-month period. For those who did not respond, searches were conducted to obtain a valid electronic mail address. Searches included telephone calls to listed home, work, and mobile numbers as well as searches on the Internet. Once valid contact information was obtained, we telephoned recipients who did not complete the survey and requested valid email address and their participation. Sixty-two (77%) award recipients completed the entire questionnaire, and an additional five partially completed questionnaires. Seven recipients who were successfully contacted did not complete the questionnaire, and eight recipients could not be contacted.

Systematic Review of Curriculum Vitae

Curriculum vitae (CVs) were collected from training award recipients who reported publications as first or second author and/or served as principal or co-investigator on a funded grant. CVs were reviewed and compared to responses on the electronic questionnaire to validate their responses regarding first and second authorship and funded grants. When discrepancies were noted, training award recipients were contacted for further documentation or clarification. If verification was not possible, the response was not included in the assessment.

RESULTS

Program staff reported that most training award recipients made progress toward their academic and research goals. Training award recipients' academic goals were reported as: attainment of master's degree (n=19); doctor of philosophy/doctorate (PhD or DrPH) (n=17); research experience (n=16); medical doctorate (MD) (n=10); MPH/PhD (dual degree) (n=6); career advancement courses (n=5); bachelor's degree (n=3); MPH/MD (dual degree) (n=2); research experience/MPH (n=2); certificate program (n=2); and research experience/PhD (n=1). Thirty-one training award recipients completed their academic programs. Other training award recipients are expected to complete degree programs by the end of 2014 (n=7) and 2015 (n=11). Two additional award recipients are expected to complete their second degree, one in 2015 and one in 2016. Five training award recipients completed dual degree programs and another two training award recipients are currently enrolled in a second degree program.

Table 1 describes the most current trainee role and assessment of their progress. Note that some trainees had multiple roles throughout their professional development. For the purposes of this report, we reported on their most current role.

TABLE 1. PROGRAM STAFF ASSESSMENT OF TRAINEE PROGRESS

Progress Toward Meeting Academic and Research Goals (n=81)

	Exceeds Expectations	As Expected	Slower Than Expected	Failure	Total
Faculty	4 (44%)	3 (33%)	2 (22%)	0 (0%)	9
Fellow	5 (19%)	14 (54%)	5 (19%)	2 (8%)	26
Scholar	6 (20%)	12 (40%)	10 (33%)	2 (7%)	30
Intern	2 (13%)	13 (81%)	1 (6%)	0 (0%)	16
Total	17 (21%)	42 (52%)	18 (22%)	4 (5%)	81

Training Award Recipient Self-Reported Accomplishments

Sixty-seven out of eighty-one award recipients (83%) responded. Of the sixty-seven who responded, sixty-two completed the entire questionnaire. A total of twenty-nine respondents provided their CVs.

Table 2 represents the total number of presentations that the training recipients completed since enrollment in the NW NARCH. The questionnaire included local and national settings in the types of presentations that respondents could include. Respondents had various responses to presentation type, ranging from none to multiple presentations.

TABLE 2. PRESENTATIONS SINCE ENROLLMENT IN THE NW NARCH PROGRAM

Please list how many of each type of presentation you have conducted since enrollment in the NW NARCH program. Total respondents (n=64)

	Faculty	Fellow	Scholar	Intern	Total
Local community setting; workshops; health fairs	28	108	138	27	301
Tribal Health Board; IRB; tribal or regional conference or workshop	44	77	107	21	249
Abstract presentation at national conference	30	26	85	10	151
Posters presentation at national conference	12	21	51	21	105
Total	114	232	381	79	806

Table 3 represents the total number of publications by training award recipient role completed since enrollment in the NW NARCH. Respondents had various responses to publication type, from none to multiple publications. When respondents reported publications in peer-reviewed journals or book chapters, a request was made for a copy of their CV to verify their responses. No discrepancies were found between the respondents' answers on the questionnaire and their CVs when reporting on first or second authorship.

TABLE 3. PUBLICATIONS SINCE ENROLLMENT IN THE NW NARCH PROGRAM

Please list how many of each type of publication you have conducted since enrollment in the NW NARCH program. Total respondents (n=64)					
	Faculty	Fellow	Scholar	Intern	Total
Book chapters; co-author of article published in peer-reviewed journal	11	18	14	3	46
First or second author of article published in peer-reviewed journal	8	19	30	4	61
Non-peer-reviewed manuscripts; article in a newsletter; fliers; educational or program brochure	6	74	187	46	313
Total	25	111	231	53	420

Table 4 represents the total number of grants by type that training recipients were awarded since enrollment in the NW NARCH. Respondents had various responses to award type, from none to ten local foundation grants, six national foundation grants, two multi-year entry-level grants, ten co-investigators on federal grants, and seven as a principal investigator on federal grants. When respondents reported that they had received grant awards, a request was made for a copy of their CV to verify their responses on grants awarded to them. Discrepancies (n=2) were investigated and not included in the total count. In both cases, respondents were support staff on a grant that was awarded to their supervisor.

Finally, optional open-ended questions on the electronic questionnaire were included so that training award recipients could highlight accomplishments that they felt were important to share. Thirty-nine respondents described committee or leadership roles, thirty-one respondents listed fellowships and/or scholarships, and fifteen respondents listed professional recognition awards.

TABLE 4. GRANTS AWARDED SINCE ENROLLMENT IN THE
NW NARCH PROGRAM

Please list the total amount of each type of grant you have received since enrolling in the NW NARCH. Total respondents (n=62)					
	Faculty	Fellow	Scholar	Intern	Total
Funded grants from local foundations	0	8	14	2	24
Funded grants from national or international foundations	2	4	9	0	15
Funded multi-year; entry level federal grant	2	2	6	0	10
Funded as a co-investigator on federal grant	10	1	20	0	31
Funded as principal investigator on federal grant	2	1	7	0	10
Total	16	16	56	2	90

Demonstrated Expertise in Indian Health

Review of trainee responses and CVs provided insight into the development of varied expertise in Indian health and research, including trainees who have multiple (n=6) interests in Indian health, such as cross-cultural health communication with a variety of chronic diseases and prevention efforts. Other trainees focused on developing their expertise in Indian health topics that included cancer (n=4), behavioral sciences related to health research in tribes (n=3), research methods and validation of methods (n=3), psychology and psychiatry (n=4), child health (n=2), dental health (n=2), diabetes (n=1), metabolic and genetic disorders (n=1), and American Indian health professionals workforce (n=1). Some trainees did not show any specific theme area of expertise; however, other trainees represent an extensive expertise in Indian health. Figures 1 and 2 are examples of two NARCH faculty recipients.

DISCUSSION

The evaluation provided evidence that the majority of training award recipients were making progress toward their academic goal of degree completion and development of expertise in AI/AN biomedical and social science research. Data indicate successful support of professional development in research for NW NARCH faculty award recipients as they launched their research careers. Several AI/AN graduate student fellow award recipients and intern award recipients were supported in acquiring advanced degrees and relevant research experience. In addition, scholar award recipients employed by the NPAIHB continue to pursue advanced degrees, certificate



FIGURE 1. NARCH Faculty Recipient. Dr. Teshia Solomon, Choctaw Nation, is associate professor and director of the Native American Research and Training Center at the University of Arizona. After completing her PhD, she focused on chronic disease prevention and was instrumental in developing new research thrusts in Indian health. Among many roles, she serves as a mentor to many junior faculty and students and has become a leader in Native American health research and training in the country.



FIGURE 2. NARCH Faculty Recipient. Dr. Priscilla R. Sanderson, CRC, Navajo, is a tenured associate professor at Northern Arizona University. After her PhD, she completed postdoctoral training at the University of Arizona, concentrating her efforts on colorectal cancer screening among Navajo people. She has been awarded grant funds to pursue her research interests and is a strong collaborator, along with Dr. Solomon, in a cancer prevention consortium among Northern Arizona University, University of Arizona, and several Arizona tribes.

programs, and career advancement courses. Furthermore, the data indicate that several NW NARCH training recipients will soon graduate and pursue health research careers in the future.¹⁰

The strengths of the NW NARCH program include the successful recruitment and retention of very promising young AI/AN students who aspire to research-related careers in biomedical sciences. The number of trainees and program graduates has increased over the years, in part due to generous scholarships, but also through mentoring of trainees toward completion of their degrees. Many of the trainees/graduates reported joining national organizations such as the Native Research Network, and hopefully will benefit from the professional opportunities that have derived from their membership. The principal investigator reported that program graduate trainees have become role models for younger cohorts of AI/AN trainees including the development of high school, undergraduate, and early graduate-school trainees.

The limitations of these findings include: lack of trainees' and mentors' perspectives on the program, and input from those who are engaged with other forms of research leadership that may not be reflective of the indicators chosen for this report, such as those that lead policy efforts, advocacy, and administration. Trainees are engaged in a wide variety of fields, from bench laboratory-related fields to population sciences; the

investigators and program staff are primarily population scientists. The weaknesses of the program include funding limitations that result in lack of funds to (1) encourage and recruit new mentors to be aggressively involved in trainee development, and (2) support collection of pilot data for grant applications. Future assessments should include a qualitative component that assesses facilitators and barriers to success and how to improve on the program. In addition, the training program was not set up as a cohort study, and detailed data that are amenable to sophisticated analysis have not been collected, such as prediction models. Nonetheless, tracking of participants for indicators of successful entry into their research careers continues.

There are other research development programs in the United States that also are aimed at increasing the numbers of independently funded biomedical researchers with tribal affiliations. The national NARCH program funds at least seven other programs with a similar thrust, although the various programs focus upon trainees at different levels of development than the NW NARCH program. The NW NARCH program is unique in including learners at multiple levels: AI/AN faculty members, graduate students, medical students, and tribal organization employees who seek additional professional experiences to build their skill sets and their professional portfolios. Combined with the Summer Research Training Institute for AI/AN Health Professionals, also housed at the Northwest Portland Area Indian Health Board,¹¹ the program is diverse in opportunities for trainees who are at various levels of research experience who are seeking additional research “tools for their toolboxes.”

The most significant contributing factor of success for the NW NARCH program is the financial support provided for trainees for consecutive years, coupled with experienced mentors and internships. This assessment suggests that continuing with this model should further accelerate trainee development and increase the numbers of AI/AN researchers in the biomedical workforce. Funding agencies must remain committed to the development of junior biomedical researchers who are AI/AN. The National NARCH program provides an essential addition to other efforts to build capacity for health research in the underserved AI/AN community by recognizing the importance of the federal thrust to train tribal researchers to conduct high-quality research in their own tribal communities.

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