

Diabetes Training for Community Health Workers Serving Native Hawaiians and Other Pacific People

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Background:

It has been well documented that Native Hawaiians and other Pacific Peoples (NHPP) are disproportionately affected by type 2 diabetes in the U.S., and particularly in Hawaii.¹ Nationally, community health workers (CHW) have been shown to be effective in delivering diabetes self-management education. They are utilized by clinics and agencies for individual and group education, as well as in case management and outreach. Yet, these CHW are often hired with no formal health education and with limited clinical experience.

In Hawai'i, CHW are used extensively in community health centers (CHC) and throughout the Native Hawaiian Healthcare System (NHHS). A needs assessment of 19 CHC and the NHHS identified the training of CHW in diabetes knowledge as a top priority. To address this need, the Center for Native and Pacific Health Disparities Research at the University of Hawai'i's John A. Burns School of Medicine facilitated the development and implementation of "Diabetes 101," a diabetes education program for CHW serving NHPP. Since the program's inception in 2004, the seminar has been taught 22 times, 17 times across the State of Hawaii and 5 times within the Continental U.S. A total of 303 individuals have attended the training seminars.

Table 1: Demographic characteristics of Diabetes 101 participants, 2008 - 2009.

n = 123	Count (%)
Gender	
Male	30 (24.39)
Female	93 (75.61)
Age	
19 – 30 years	12 (9.76)
30 – 50 years	41 (33.33)
Over 50 years	70 (56.91)
Years Experience in Healthcare	
0 – 1 year	29 (29.59)
1 – 2 years	7 (7.14)
2 – 5 years	11 (11.22)
5 or more years	51 (52.04)

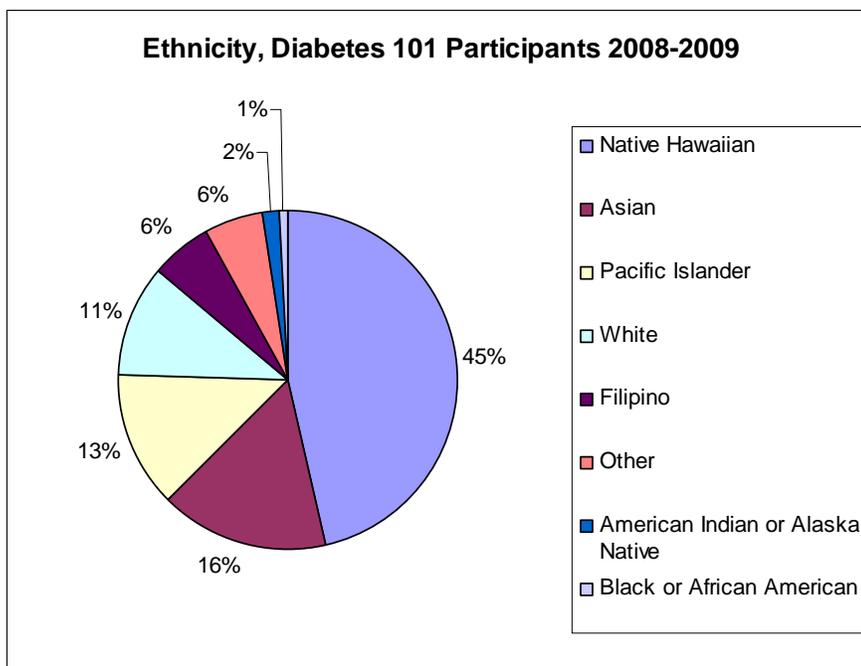


Figure1: Ethnic composition of Diabetes 101 participants, 2008-2009.

Methods:

Diabetes 101 is a 5-hour long seminar taught by a multidisciplinary team. It is delivered in three modules and typically taught over two days. Module 1, "Introduction to Diabetes," is taught by a health educator; Module 2, "Improving the Health and Wellness of Someone with Diabetes," is taught by a clinician, typically a Native Hawaiian physician, nurse, or nutritionist; and Module 3, "Successful Strategies for Caring for a Client with Diabetes," is taught by a senior community health worker. The curriculum combines a PowerPoint guided lecture with interactive class games, group discussions, and role-play scenarios. A student workbook was also supplied to each participant. The

workbook contains the slides from each module, a glossary of diabetes terms, nutritional and dietary information, scientific and popular press articles, a variety of locally developed brochures, and a listing of additional sources for diabetes knowledge.



Figure 2: Diabetes 101 students during post-test.

selected Native Hawaiian. Other groups were Asians at 16% and Pacific Islanders at 13% (Fig. 1).

The initial curriculum for Diabetes 101 was developed in collaboration with three community organizations (Papa Ola Lōkahi, Hawai'i Primary Care Association, and Wai'anāe Coast Comprehensive Health Center) and systematically incorporated aspects of culture-based education. Specific culture-based aspects were: 1) language: recognizing and using native or heritage language, 2) context: structuring the class in culturally appropriate ways, and 3) content: making learning meaningful and relevant through culturally grounded content and assessment.⁴ Other teaching strategies for Diabetes 101 are described elsewhere.⁵

We examined seminar participants from 9 of the most recent classes, April 2008 through November 2009. A total of 124 participants who fulfilled all of the class requirements were included. Forty-five percent of participants identified CHW or outreach worker as their current work position. Medical assistants, peer counselors, and health educators were among the most frequently specified job positions of the remaining 55%. Of all participants 76% were women, and 57% were age 50 or older (Table 1). When asked to specify their ethnicity, nearly half, 45%,

A diabetes knowledge test was given before the seminar, at the very end of seminar, and then at six months post-seminar. All three evaluations were identical in content and consisted of 15 questions—12 multiple-choice and three short-answer questions—developed and validated by the University of Michigan's Diabetes Research and Training Center.^{2,3} The six-month post-training evaluations were first sent out electronically via email. Up to three reminder emails were sent to participants who were not responsive, with a final hard copy mailed 26-weeks post-training. Participants received a small incentive upon completion of the 6-month post-training follow-up evaluations. Participants were also asked to complete a demographic survey.

Each participant was assigned a unique ID# and pre-, post-, and 6-month post-test scores were analyzed using JMP software, a SAS-based statistical analysis software program. Paired t-tests compared differences in the mean values for baseline (pre-seminar) and post-seminar to measure knowledge gained from the training, and subsequent paired t-tests compared the mean values for baseline and 6-month



Figure 3: Diabetes 101 students during group discussion.

follow-up measured the retention of knowledge following training. Individuals without all three data points were excluded from the analyses. Participants from the island of O'ahu and the Continental U.S. were classified into the urban group, while those from Hawai'i's lesser developed outlying islands were categorized into the rural group. Comparisons of the individual groups were conducted to identify any differences in study results.

Results:

Of the 139 individuals who attended the nine classes examined, 124 had complete sets of usable data (demographic survey, pre-test, and post-test). Both urban and rural groups demonstrated improvements in diabetes knowledge from pre-test to post-test, each with statistical significance. In total, participants showed a 26.07%

Table 2: CHW test scores for Urban, Rural, and All participants who completed only pre- & post-seminar tests, 2008-2009.

		Urban	Rural	Total
Only Pre & Post	n	97	27	124
	Mean Pretest Score	10.00	10.22	10.05
	Mean Posttest Score	12.71	12.52	12.67
	Mean Difference (SD)	2.71 (0.29)	2.30 (0.59)	2.62 (0.26)
	P value	< .0001	.0003	< .0001

increase in mean test scores ($P < 0.0001$) (table 2). In total, retention of diabetes knowledge gained (Fig. 2). The group of individuals who submitted complete sets of data including 6-month post-seminar test ($n=31$), displayed improved mean test scores from pre-seminar test (10.45 pts.) to post-seminar test (13.1 pts.), and from pre-seminar test to 6-month post-seminar test (13.26). There were limited differences between urban and rural groups.

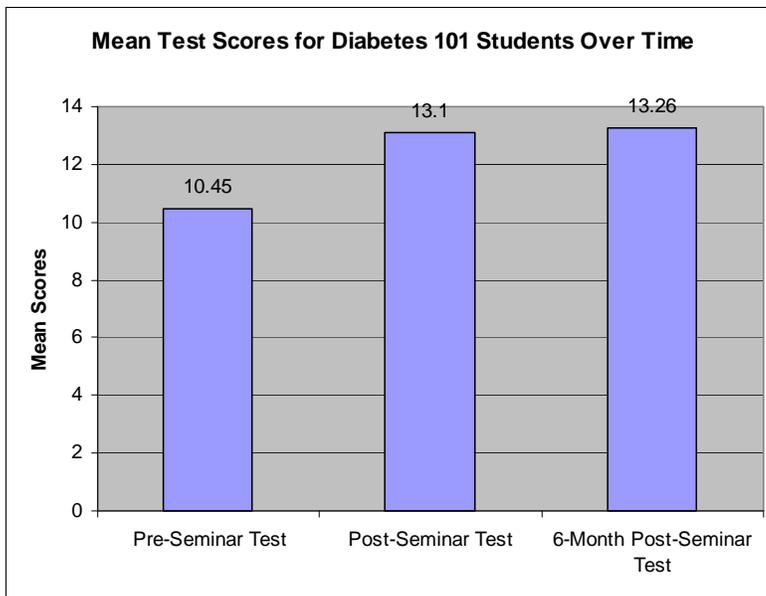


Figure 4: CHW test scores for all participants who completed pre-, post-, and 6-month post-seminar tests, 2008-2009. ($n=31$; $P < 0.0001$ for change in test score from pre-seminar to post-seminar, and from pre-seminar to 6-month post-seminar.)

seems to foster strong student engagement.

A significant limitation to this evaluation was the lack of a control group. The collection of more detailed demographic information would also be useful in future analyses. Similar to diabetes, cardiovascular disease continues to affect NHPP at a disparate rate, therefore we have also developed a similar curriculum for increasing the knowledge base of CHW about heart disease. Our newest training seminar, Heart 101, has been taught three times and has created community demands for more trainings throughout the State of Hawai'i and within the Continental U.S. Data from Heart 101 is currently being gathered for future analysis.

Literature Cited:

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Discussion:

This evaluation has shown Diabetes 101 to be an effective tool for educating CHW in diabetes knowledge. Diabetes 101 provides training participants with a sufficient foundation for continued growth in their diabetes knowledge, and offers CHW the skills to build on their ability to deliver diabetes self-care and management information to NHPP.

Based on instructor and participant feedback, we believe that the success of Diabetes 101 can be attributed to the training's culturally relevant curriculum, team teaching approach, and interactive class activities. These three teaching strategies seem to provide non-traditional students with a diabetes education that is conducive to their learning preferences. The program's incorporation of practical knowledge, group cohesion, and emphasis on personal connections to the disease

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