Worksite and Community-Based Quality Improvement Projects Table of Contents

ABSTRACT:

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Introduction

Abstracts in this section describe diabetes education, screening, and treatment interventions that were developed and implemented as worksite programs or collaborative community partnerships.

The American Association of Health Plans (AAHP) conducted a search of the published literature and reviewed articles to identify effective community and worksite diabetes intervention strategies. The literature review included publications from the past ten years. The searches were refined and articles were evaluated for appropriateness and soundness of methodology before inclusion in the Compendium. The evaluation form is included in the Appendix.

All article abstracts and evaluation forms were reviewed by AAHP staff and a representative of the American Diabetes Association for appropriateness and thoroughness. Articles were evaluated based on the following questions:

- Was the project population well described (by time, place, and person)?
- Were there selection bias issues that should be considered when the results are evaluated?
- Was the intervention well described (including what was accomplished, how, where, and who was targeted)?
- Were the quality indicators valid and reliable process or outcomes measures?
- Was appropriate statistical analysis conducted?
- Did the study control for design effects in the statistical model?
- Were there problems with data analysis that should be considered when the results are evaluated?
- Did the authors identify and discuss potential biases or unmeasured confounders?
- Are there any other issues that limit the ability to interpret the results of the study or that should be considered in an evaluation of the results?

In addition to providing information about replicable programs, these articles have also been selected to offer details about the planning and development of collaborative community and worksite interventions. Because the initial stages of development are crucial to the long-term success of these types of initiatives, several articles were included that provide insight on pre-implementation organizational structure and the elements of successful project planning.

The vast majority of the articles identified in the original literature search did not present descriptions of actual interventions—of either community or collaborative partnerships or of worksite education or screening programs. Many offered examples of population-based screening or education interventions which occurred within community settings, but unless these were conducted as actual collaborative initiatives between multiple organizations, they were not abstracted for inclusion in the Compendium.

The literature search and review identified gaps in the existing published literature. While there are many articles describing population-based health strategies for promoting diabetes education, treatment, or screening, the number of peer-reviewed articles describing and/or evaluating collaborative community initiatives or worksite education or screening programs targeted at people with diabetes is very small.

A number of initiatives in New Zealand, Australia, and Canada (particularly addressing native and minority populations) have been identified through this literature search, yet similar program descriptions do not appear in the published literature in the United States. Anecdotal information from informal conversations with health plan, public health, and community representatives indicates that there are a variety of programs that exist in the community and worksite, yet details of these programs are largely unpublished in this country.

Summary Table

Overview of Projects

Abstract Number	First Author & Year	Interventions	Patients/Subjects	Setting	Measures	Page Number
1.	Burrus B, 1998	Community education about a diabetes research study. Community education through a community organizer, community advisory board, and a community outreach mailer	African-Americans	African-American households in Wake County, North Carolina	Household screening rate, survey and medical exam response rate	3–5
2.	Burton W, 1998	Employee diabetes education at noontime seminars by a diabetes educator	Diabetics working for a large corporation	Employer facilities in Chicago, Illinois	Lipids, blood glucose, HbA1c	3–6
3.	Engelgau M, 1998	Health promotion, outreach, and diabetes care	African-American diabetics	Raleigh, North Carolina	Intervention evaluations, change in medical practices, eye exams, foot exams, HbA1c	3–7
4.	Harris S, 1998	Patient education through: community health workers, radio programs, incentives for participation in physical activities, and an elementary school program	Native Americans: Ojibwa-Crees and Mohawks	Ontario and Quebec, Canada	Knowledge and participation levels, measures of obesity, and food purchase patterns	3–8
5.	Humphry J, 1998	Train community health care workers, case management by community health care workers	Residents of Hawaii, about half Caucasian and about half Native or part Hawaiian	Community-owned and –operated comprehensive health center in a community of 40,000	Blood glucose, blood pressure, weight, patient satisfaction	3–9
6.	Levine D, 1992	Develop community task force, community outreach, and a secondary prevention program	African-Americans with chronic diseases	Community in East Baltimore, Maryland	Hypertension control, hospital admissions, and mortality. Additional measurements added as new project phases are added.	3–10
7.	Simmons D, 1992	Community education by a Pacific Islander community health worker; exercise sessions	Hospital staff, 64% were Pacific Islanders	Two hospitals in South Auckland, New Zealand	Weight, height, exercise, diabetes knowledge, satisfaction	3–11
8.	Vest G, 1997	Alternative health practices: acupressure and stress management	12 diabetics	Rural medical clinic in Southern New Mexico	Blood glucose and health status measures	3–12
9.	Wang C, 1998	Surveys and educational programs in Chinese	75 Chinese individuals with diagnoses of diabetes and/or hypertension	A diabetes center run by the Chinese Community Association of Honolulu, Hawaii	Blood glucose and blood pressure	3–13

Abstract Number: 1

Burrus B, et al. Maximizing participation by black Americans in population-based diabetes research: The project DIRECT pilot experience. Journal of Community Health 1998;1:15-27.

Objective: To evaluate the impact of a community-sponsored Community Advisory Board (CAB) on the introduction of a community assessment focused on diabetes.

Design: A pilot population-based research survey which examined rates of diabetes among individuals in Wake County, North Carolina as well as responsiveness to Project DIRECT (Diabetes Interventions Reaching and Educating Communities Together), a proposed community-based education and awareness program.

Setting: The community of Wake County, in North Carolina.

Patients: A survey sample of households in Wake County, North Carolina.

Interventions: Recognizing the importance of community buy-in, particularly for federally funded research in the African-American community, researchers first hired a community organizer, a local black health educator who was known and respected in the community. She served on the Community Advisory Board (CAB) which oversaw the project. The CAB was responsible for mobilizing the community behind the research project and increasing awareness of the upcoming survey. This was accomplished through multifaceted community outreach and the mailing of a single lead letter announcing the survey.

The survey, which was administered under the auspices of the CAB, consisted of a one-hour survey and a blood sample. People with diabetes or high blood glucose were also required to submit to a four-hour physical examination (a control group also participated in the physical examination).

Main outcome measures and results: Survey and medical exam response rates were evaluated, as well as source of awareness of the survey.

1,884 households were successfully screened for an 89% response rate. The overall weighted response rate to both the survey and medical exam was 77%. Of all eligible black respondents, 81% completed the survey and 80% the exam (compared to 76% and 77% respectively for other racial and ethnic groups). Response rates for both survey and exam for people with diabetes (regardless of race) were 89% for those with and 77% for people without.

22% of black households (72 of 315) and 10% of other racial households (69 of 699) had heard about the survey through sources other than the lead letter, reflecting the success of the community outreach coordinated through the CAB.

At the conclusion of the pilot survey, results were presented to the CAB and media, and the majority of the CAB expressed a desire to remain involved in the future development and implementation phases of Project DIRECT and other diabetes-related community activities.

Conclusions: By involving and engaging the community in health education and awareness projects from their initial research and planning phases, it is possible to develop successful community coalitions which will provide valuable support for project implementation. As Project DIRECT moves forward with the support of the community behind it, outreach will likely expand beyond the scope of the pilot interventions and into the community at large.

Abstract Number: 2

Burton W, Connerty C. Evaluation of a worksite-based patient education intervention targeted at employees with diabetes mellitus. Journal of Occupational and Environmental Medicine 1998;8:702-6.

Objective: To evaluate a worksite educational program for diabetes mellitus that aimed to provide employees with information to improve self-management skills and to educate them as to the importance of optimal diabetes management.

Design: A five-month educational intervention with evaluative data collected at three months.

Setting: A corporation of over 35,000 employees in downtown Chicago, Illinois.

Patients: Employees with type I and type II diabetes mellitus were identified using data from the employer's integrated health data warehouse. Each of the employees was contacted by an occupational health nurse who described the program and invited them to participate. 53 employees participated in the baseline laboratory testing and educational program. Of these, 44 employees were remeasured at three months and serve as the basis of analysis. Their mean age was 45.4, 52% were female, and their average duration with diabetes was 8.8 years (range <1 to 31 years). 9% of participants were smokers. At baseline, most participants reported their current diabetes control as average or above (34% “average,” 37% “good,” 9% “very good”).

Interventions: Employees participated in a series of five educational modules, presented as noontime seminars, on the topics of meal planning/nutrition, exercise, medications, preventing diabetic complications, and stress management. The modules were offered at monthly intervals. Each was presented by a certified, trained diabetes educator, and lasted approximately one hour.

Main outcome measures and results: Lipid levels, blood glucose, glycosylated hemoglobin, and hemoglobin A1c (HbA1c) were all tested at baseline and at the three-month interval. Participants were asked to rate their current diabetes control on a scale of “very good,” “good,” “average,” “poor,” or “not sure.”

All laboratory values were measured at baseline and at the third month. The mean fasting blood glucose values at baseline and three months were 197.8 mg and 179.6 mg respectively ($p=0.12$), a 9.2% decrease. Average glycosylated hemoglobin levels were 11.5% and 10.1% respectively ($p<0.001$), and average HbA1c values were 9.0% and 8.3% respectively ($p<0.001$). 77% of participants had three-month glycosylated hemoglobin and HbA1c levels greater than 7.0% (the American Diabetes Association (ADA) standard for optimal diabetes control is 7.0% or less), and 59% had levels greater than 8.0%.

Conclusions: A targeted, worksite-based education intervention for diabetes mellitus can achieve improved control of blood glucose, glycosylated hemoglobin, and HbA1c levels in as little as three months. Despite the improvements in these levels and participants’ perception that they were in better than average control of their diabetes, many participants were still beyond the ADA standard values for optimal disease control, indicating that more education is needed.

Abstract Number: 3

Engelgau M, et al. A project to reduce the burden of diabetes in the African-American community: Project DIRECT. Journal of the National Medical Association 1998;10:605-13.

Objective: To design an intervention that responds to the excessive, unnecessary burden of diabetes among African-Americans in the United States.

Design: Multi-year community diabetes demonstration project.

Setting: The community located in the southeast section of Raleigh, North Carolina.

Patients: *This is a description of a planned pilot project. As of the time of publication, nothing has been initiated. The following is a description of the targeted portion of the community in which the project will be implemented. It is based on a baseline survey of 1,113 members of the community.

45% of the people interviewed in the community were African-American. 52% of these African-Americans were physically inactive (defined as participating in light or no physical activity during most weeks), 51% were overweight (males >27.8 kg/m2; females >27.3 kg/m2), and prevalence of diabetes was higher than among other races (diagnosed – 5.2% vs. 2%; undiagnosed – 5.7% vs. 1.1%). The African-American population in this community is more likely to have uncontrolled hypertension and to smoke, and less likely to have a single health care provider. All persons with diabetes in the community reported low levels of preventive care in the previous year (42% had eye examinations and 50% had their feet examined).

Interventions: This is a description of a planned pilot project. As of the time of publication, nothing has been initiated. The following is a description of the planned intervention components.

There are three main intervention areas: health promotion, outreach, and diabetes care. The aim of the health promotion component is to reduce modifiable risk factors for the development of diabetes in the general population by focusing on increasing participation in regular physical activity and reducing fat intake. The outreach component seeks to raise awareness about diabetic risk factors and the importance of screening especially for those at risk, and to increase the percentage of diagnosed diabetics who receive ongoing diabetes care. The diabetes care component seeks to improve self-care practices, increase access to care, and improve quality of care.

Main outcome measures and results: There will be internal and external components to the evaluation of the project. The internal evaluation will assess process outcomes. It will include intervention-specific evaluations for each of the three components: health promotion—physical activity participation rates, estimates of media coverage for promotion of physical activities and low-fat cooking/meal-planning; outreach—proportion of the at-risk population who were screened for diabetes, proportion of patients who complete their subsequent referral for follow-up testing and professional care, media coverage of the project; and diabetes care—medical record reviews to examine changes in medical practice, the use of flow sheets to track diabetes care in medical records, participant assessment of self-management classes, and percentage of people receiving annual dilated eye examinations, foot inspections, and measurements of HbA1c.

Conclusions: This is a description of a planned pilot project. As of the time of publication, there are no results.

Abstract Number: 4

Harris S. What works? Success stories in type 2 diabetes mellitus. Diabetic Medicine 1998;15:520-3.

Objective: This article describes two population-based interventions for the primary prevention of Type II diabetes and its complications in Native Canadian populations.

The Sandy Lake Health and Diabetes Program: To determine the prevalence of diabetes and associated risk factors in the Ojibwa-Cree community.

The Kahnawake Schools Diabetes Prevention Project: To reduce the prevalence of obesity, reduce high-calorie and high-fat diet, and increase physical activity in elementary school-aged children.

Design: The Sandy Lake Health and Diabetes Program: Qualitative and quantitative survey study with a multiphasic, multifaceted educational campaign focusing on diet and exercise.

The Kahnawake Schools Diabetes Prevention Project: Three-year, community-based primary prevention intervention program targeting children at elementary schools.

Setting: The Sandy Lake Health and Diabetes Program: The Native Ojibwa-Cree community of Sandy Lake, Northern Ontario, Canada (population 1,600).

The Kahnawake Schools Diabetes Prevention Project: A Mohawk community outside Montreal, Quebec, Canada (population 6,750).

Patients: The Sandy Lake Health and Diabetes Program: Approximately 100 out of 300 Native Ojibwa-Cree community households have been targeted and enrolled in the program. There has been a 72% community participation rate during the first phase of the program.

The Kahnawake Schools Diabetes Prevention Project: 458 children aged 6-12 years were targeted for the intervention. There has been an 87% community participation rate to date.

Interventions: The Sandy Lake Health and Diabetes Program: The program includes six home visits by trained community workers who provide diabetes education focusing on diet and exercise to each participating family. Community-wide activities include weekly radio programs, educational programs, and incentives for participation in physical activity programs. The program also offers dietary demonstrations of healthy eating habits and grocery store tours, and a school curriculum program for children age 7-11 years which focuses on the importance of lifelong healthy eating and exercise habits.

The Kahnawake Schools Diabetes Prevention Project: A health education program was developed. It included a new curriculum containing 10 lessons per school year (with different features for each of the three program years) which addressed nutrition, fitness, diabetes, and healthy lifestyles. The program is also targeted community-wide at parents, teachers, families, and the general community.

Main outcome measures and results: The Sandy Lake Health and Diabetes Program: pre- and post-intervention knowledge and awareness of levels of obesity, determination of "stages of change," participation in intervention-related activities, anthropometric measurements (including body mass index, bioelectrical impedance analysis, and skinfold thickness), and food purchase patterns.

Both programs are still operational and researchers are in the midst of data collection and outcome analysis.

Conclusions: Incorporating traditional culture and beliefs into comprehensive community-wide education and awareness programs which are collaborative in nature and emphasize partnership between the researchers and the community are important elements of promoting lifestyle change and healthy behavior in native populations.

Abstract Number: 5

Humphry J, et al. Overcoming social and cultural barriers to care for patients with diabetes. Western Journal of Medicine 1997;167:138-44.

Objective: To design an intervention that will establish regular medical contact for previously non-compliant diabetic patients and to test the ability of this approach to improve diabetes management in terms of blood glucose levels, weight, and hypertension control.

Design: 3.5 year demonstration project.

Setting: A community-owned and operated comprehensive health center in Hawaii that provides medical and support services to a community of over 40,000 people, 48% of whom are Native or part Hawaiian.

Patients: Patients with repeated missed appointments and resultant poor metabolic control, pregnant women diagnosed with diabetes, and children potentially requiring insulin were eligible for referral to the program by primary care physicians and public health nurses. 94 patients took part in the program; 19 were discharged before project termination for reasons including death, relocation, and refusal of service. Of the 75 remaining patients, data were collected on 52 nonpregnant adults and 18 pregnant patients (two patients became pregnant while enrolled and so were counted in both categories). 56 of the 75 were female, the majority of patients were 41-60 years old, and 61% were Native/part Hawaiian.

Interventions: Community health care workers (medical assistants or paraprofessionals) underwent a 20-week formal training program consisting of college-level curriculum, preceptorship, community-based training with a public health nurse, and were also required to participate in monthly ongoing continuing education activities. These workers were the principal coordinators of patient care services and served as case managers for participating patients. They interacted with the patients to provide medication adjustments, nutrition and diabetes education, and case management/social support in order to reduce obstacles to care.

Main outcome measures and results: Blood glucose levels (good = <165; fair = >165 and <250; poor = >250), blood pressure/presence of hypertension (hypertension = blood pressure >140/90), and weight gain/loss were monitored for all patients. Patient satisfaction was evaluated by an independent evaluator using a subjective rating scale (always, sometimes, never, don't know).

The 52 nonpregnant adults lost an average of 5.4 pounds; 13% lost >25 pounds, 37% lost 10–24 pounds, and 21% gained >10 pounds. The average decrease in blood glucose for this group was 49.8 mg/dl. 40% improved their blood glucose control (average change -117mg/dl), 40% remained the same (average change -6mg/dl), and 20% saw a decline in control (average change +99mg/dl). 17 adults initially had hypertension. The average systolic drop of the entire group was 20/5 mmHg (range of -5.0 to -57 mmHg); average diastolic drop was 6.1 mmHg (range of +19 to -20/5).

Of the 18 pregnant women, 12 presented with pregestational diabetes or a first trimester blood glucose elevation consistent with pregestational diabetes. All but one of the women required insulin therapy during pregnancy. None of the women achieved pregestational diabetes control. Nine of the women delivered via C-section, seven delivered vaginally, and two moved out of the area before delivery. Two infants were delivered prior to 36 weeks gestation; one weighed less than 2,500 g and the other more than 4,500 g. None of the women or babies experienced delivery-related complications. HbA1c specimens were not routinely obtained during the study period.

43 patients met criteria for inclusion in the satisfaction survey (either in the program for more than 1 year or receiving >20 visits from community health workers). 24 patients were interviewed (the remainder were lost to follow up, refused to participate, or failed to show up for the interview). 83% of the patients were "always" satisfied with the care the community workers provided; 9% reported "sometimes," 1% reported "never," and 7% "didn't know." 54% reported they were "always" satisfied with the project in general; 14% reported "sometimes," 7% reported "never," and 8% "didn't know."

Conclusions: By focusing on establishing positive relationships between patients and community health workers who provided direct service, this intervention project provided a viable alternative to improving health care delivery in a group of previously non-compliant/non-adherent patients.

Abstract Number: 6

Levine D, et al. Narrowing the gap in health status of minority populations: A community-academic medical center partnership. American Journal of Preventive Medicine 1992;5:319-23.

Objective: To examine the impact of a population-based intervention program jointly administered by Johns Hopkins Medical Institutions and community leaders and organizations.

Design: A 15-year collaborative program between the Johns Hopkins Medical Institutions and an African-American community providing education on health risk and outcomes.

Setting: An African-American community in East Baltimore, MD with the highest rates of premature disease, disability, and death in Maryland.

Patients: The community was 90% African-American (approximately 150,000 individuals). Median age was 25, and 53% were female. Average years of education were 10, and almost 50% had incomes below the national poverty level. 33% of eligible adults were unemployed.

Interventions: An initial assessment targeted the community as a high-risk area. The program then proceeded in phases. The first phase (1974-1979) consisted of the development of a coordinated task force composed of representatives from the community and Johns Hopkins.

The task force oversaw the implementation of a randomized intervention trial of a targeted secondary prevention program with a sample of 400 patients with hypertension. The intervention combined medical care with behavioral and educational components.

In phase two (1979-1987), the intervention was used to develop a wider, community-based public health program which was directed by the task force. A key element of this phase was the training (through Johns Hopkins) of community residents who served as certified health workers and provided outreach, linkage, and monitoring services. The community workers worked within community health centers, urban service centers, schools, emergency rooms, churches, and local health centers.

Phase three (1987 and beyond) is ongoing. Community outreach efforts are being broadened and have expanded beyond the control of hypertension to include efforts at improvement in other chronic health conditions including: earlier identification and control of diabetes, obesity, hyperlipidemia, and asthma; smoking prevention and cessation; and control of substance abuse and cervical and breast cancer.

Main outcome measures and results: Outcomes varied according to the phase of the program in question. Details are provided below.

Results of the phase one intervention trial: Over five years, patients in the intervention group doubled their rate of control of hypertension (38%–79%), with an associated 36% decrease in hospitalizations and 65% decrease in mortality from uncontrolled hypertension.

Results of the phase two community roll-out: The community health workers enhanced services provided through the program, as well as patient outcomes. Particularly, there was an improvement in the community rate of high blood pressure control in men (12%–40%).

Conclusions: The implementation of a community-directed partnership has demonstrated significant positive impact on the health outcomes of a targeted, traditionally under-served, high-risk, minority population. Community "ownership" of the program has been a central component of its success.

Abstract Number: 7

Simmons D, et al. A pilot diabetes awareness and exercise programme in a multiethnic workforce. New Zealand Medical Journal 1996;109:373-6.

Objective: To evaluate the acceptability and impact of a diabetes education and exercise program in a workforce largely composed of Pacific Islands people.

Design: Approximately a six-month education and exercise program.

Setting: Two hospital work sites in South Auckland, NZ.

Patients: Participants were recruited from the household, dietary, pharmacy, and sterilizing supplies staff from the two hospitals (one intervention and one control). The intervention group participants were between 20 and 58 years of age (average age was 41) and were mainly of Pacific Island ethnicity (64% respectively). The ratio of male to female was 7:101. 29% had a family history of diabetes and 4% had diabetes. The control group was similarly characterized. The average age was 39, they were mainly of Pacific Island descent (65%), the male to female ratio was 5:94, 34% had a family history of diabetes and 4% had diabetes. There were no differences in baseline diabetes knowledge between the two groups.

Interventions: All activities were held within the intervention hospital site. Each participant was invited to attend an educational session of 5-15 participants convened by a community diabetes educator who was also a Pacific Islander. During the session, participants viewed a 17-minute diabetes awareness video, as well as a one-hour presentation by the diabetes educator. Low-impact exercise sessions initially met once a week for the last 15-30 minutes of the workday and were conducted by a physiotherapist. As the intervention progressed, sessions increased to five per week for up to one hour (including 30 minutes of work time and 30 minutes of non-work time).

Main outcome measures and results: Weight and height were measured. Diabetes knowledge was measured using a tool with four open and 31 closed questions addressing the nature, symptoms, complications, treatment, risk factors, and prevention of diabetes and the identification of high-fat and high-sugar foods. Exercise was evaluated for number of occurrences and length of occurrences per week based on a scale of "vigorous" (an activity causing sweating and hard breathing) or "moderate" (such as brisk walking). Happiness was measured on a seven-point scale with one as "very happy" and seven as "very unhappy." Fitness was assessed using a 10-minute test on a Japanese bicycle ergociser.

The initial assessments/questionnaires were completed by 207 workers at the two worksites. 94 of the intervention participants and 89 of the control group were resurveyed regarding their diabetes knowledge after the intervention had been completed (representing response rates of 87% and 90% respectively). During the baseline survey, 65% of the combined participants were unable to provide an accurate/descriptive answer to the question "what is diabetes?" Upon completion of the intervention, only 46% of the intervention group vs. 56% of the control group answered this question incorrectly. Initially, only 37% of the combined group was able to provide at least one correct symptom of diabetes. Upon completion, 76% of the intervention group were able to, compared to only 43% of the control (repeat control vs. intervention, $p<0.001$). The overall score of the entire awareness questionnaire was 26 for the combined group pre-intervention. This score rose to 35 in the intervention group, but remained at 26 in the control group (repeat control vs. intervention, $p<0.001$).

Exercise testing was carried out in 88 individuals in the intervention group. Initially, 27% were unable to complete the test, 49% were graded as poor, and 24% were graded average to excellent. Among those who completed the post-intervention questionnaire, the proportion following the recommendations of the awareness sessions and exercising at least three times per week for at least 30 minutes per day increased from 33% to 35% in the intervention group, but decreased from 51% to 42% in the control population ($\chi 2=3.88$, $p<0.05$). No reduction in weight or body mass index was recorded.

Conclusions: A culturally-sensitive and tailored approach to diabetes awareness and exercise can be a successful means of educating nondiabetic individuals about the disease and of increasing exercise activity among a population unlikely to participate in regular physical activity.

Abstract Number: 8

Vest G, et al. Alternative health practices in ethnically diverse rural areas: A collaborative research project. Health and Social Work 1997;2:95-100.

Objective: To study the impact of alternative health practices (particularly the "15-Minute Stressout Program") on a Hispanic population with diabetes.

Design: A pre-experimental one-group, pre-test/post-test design.

Setting: A rural medical health clinic in southern New Mexico.

Patients: 46 announcements describing the intervention were sent to randomly selected clinic patients with diabetes. 41 follow-up calls were made and 17 patients with diabetes were scheduled to participate in the six weekly sessions. 12 of the 17 kept their appointments, six completed all six sessions (five women, one man), four completed five sessions, and two completed four sessions.

Interventions: Through the 15-Minute Stressout Program, the intervention leader (the "giver") engages the patient (the "receiver") in a holistic program using acupressure, breathing techniques, and stress management. In the program the giver and receiver maintain a focus on balanced breathing, while the giver also uses acupressure (touch) to address pressure points on the body and encourage stress reduction and relaxation.

Main outcome measures and results: Blood glucose level, self-perception of well-being (including measures of quality of life, feelings, and daily activities), and persistence of physical symptoms (including measures of level of pain, physical fitness, and change in health status) were all evaluated over six-weeks. A pre-to-post change in score of 2 points or more was considered noteworthy for the physical symptoms measures.

On average, fasting blood sugar dropped from 170 to 154 points after the intervention. Seven of the 12 participants experienced a decline in blood glucose value. The greatest drop was 284 points (from 385 to 101). The largest increase noted in the remaining five patients was 95 points (from 212 pretest to 307 post). All patients reported a drop in average scores for the physical fitness, level of pain, and change in health status measures pre- to post-intervention. The level of pain chart registered the highest number of notable change scores, with four participants dropping between three and four points.

Conclusions: Despite the lack of strong statistical evidence (largely due to the small sample size, lack of a comparison group, and non-traditional nature of the intervention which meant that statement of direct impact was difficult) the use of non-traditional therapies for reducing stress-related complications appears to hold promise in reducing blood glucose levels in this population of people with diabetes.

Abstract Number: 9

Wang C, Abbott L. Development of a community-based diabetes and hypertension preventive program. Public Health Nursing 1998;6:406-14.

Objective: To establish preventive diabetes and hypertension programs within the Chinese population residing in Honolulu, Hawaii's Chinatown.

Design: A pre-test/post-test descriptive study.

Setting: The Chinese Community Association, a community "diabetes center" in Chinatown, Honolulu, Hawaii.

Patients: 200 Chinese individuals were recruited for the study from individuals who responded to preventive programs for hypertension and diabetes. 75 individuals with either type II diabetes, hypertension, or both were enrolled in the program. 36 were male and 39 were female, and the median age of participants was 71.76 (range=51-96 years, SD=9.58).

Interventions: Preventive care surveys and educational programs were presented in Chinese. All participants consulted with a diabetes nurse educator who helped them develop individualized and culturally sensitive meal, exercise, and preventive care (for hyper- and hypoglycemia and foot care) plans.

Main outcome measures and results: Serum blood glucose levels and blood pressure were measured at baseline and biweekly for one year after education (compared at conclusion of the project using t-tests with a statistical significance of $p<0.05$). Medication use and monthly diet and exercise logs were also measured. Family support for people with diabetes was measured using the Family Behavior Checklist which determines relationships between family members and patient as well as patient's perceptions of those relationships/that support. The checklist was presented in Chinese.

Participants' blood glucose levels at baseline ranged between 126–277 mg/dL (mean=198.4762, SD=44.985). After participating in the program, they ranged between 85–226 mg/dL (mean=140.6190, SD=37.906). This difference was significant ($t=4.51$, $p<0.001$). Systolic blood pressure before participation ranged between 140–220 mmHg (mean=155.0667, SD=15.908) and diastolic ranged between 88–100 mmHg (mean=93.076, SD=4.212). After the program, systolic ranged between 120–170 mmHg (mean=142.800, SD=15.284) and diastolic between 70–92 mmHg (mean=83.076, SD=5.809). The difference in mean systolic and diastolic was significant at $p<0.05$.

All but one participant perceived positive family support. Family support combined with education improved control of blood glucose ($p<0.001$) and blood pressure ($p<0.001$).

Conclusions: Diabetes nurse educators, working with public health nurses and the community to present culturally appropriate education and disease prevention programs, can have a positive impact on the health of culturally diverse elderly individuals with diabetes and hypertension.