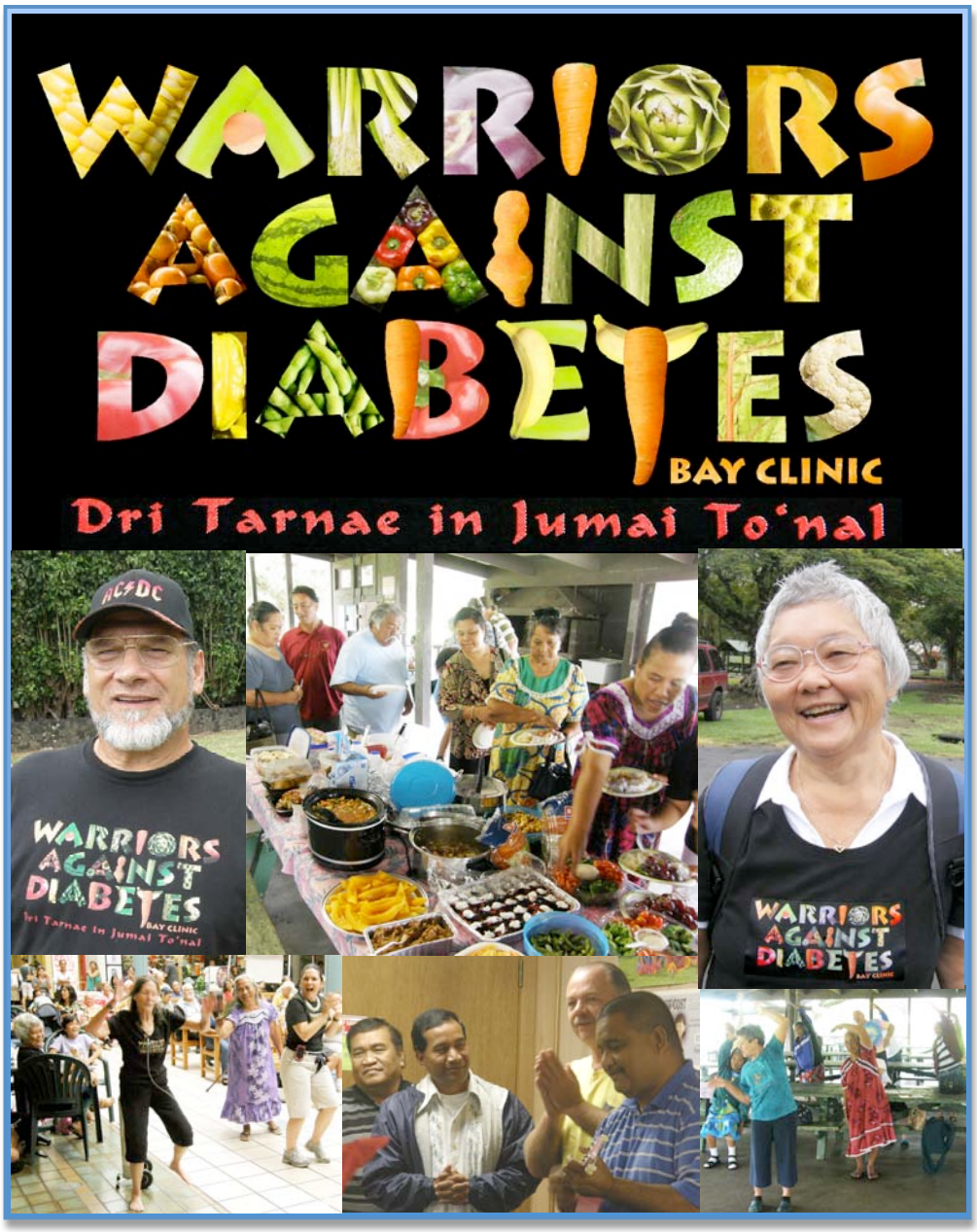
The Development of a Diabetes Self-Management Education Program at the Bay Clinic, Inc.: A Program Study



By **Tom Whitney, Charlotte Grimm, APRN, Stacy Haumea, RD, MPH, CDE,** and **Monica Adams, MS**

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Bay Clinic, Inc., is a multi-site network of Federally Qualified Community Health Centers on Hawai'i Island

Acknowledgment with Gratitude for this Diabetes Project

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DVD Contents

1. The Development of a Diabetes Self-Management Education Program at the Bay Clinic, Inc.: A Program Study (*This is the print document.*). *61 Pages.*
2. Procedures and Forms. *70 Pages*.
3. 2006 Quality Improvement Plan
   with 2009 notes starting on page 7. *25 Pages.*
4. AlohaCare Grant Final Report 2006. *16 pages.*
5. AlohaCare 4th Quarter Report 2007. *16 Pages.*
6. Bay Clinic Brochure. *12 Pages.*
7. Basic Diabetes Library. *4 Pages.*
8. Internet Resources for Diabetes. *5 Pages.*

9. Articles about the Bay Clinic Diabetes Program
   - Be a Warrior, Fight Diabetes, AlohaCare Magazine, Fall 2009
   - Diabetes Warriors Prepare for Battle Saturday, Hilo Tribune-Herald. Aug. 8, 2008
   - 'Ono Kine, Big Island Weekly, Nov. 21, 2007
   - Whoa! Diabetes! article by Bay Clinic diabetes patient Tom Whitney

10. PowerPoint Presentations
    - Faces of the Rainbow
    - Hilo Diabetes Collaborative
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    - Diabetes Mellitus Collaborative
    - Pacific West Cluster Report
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11. Vegetable Alphabet & Graphics
    - Warriors poster
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12. Videos produced by the Warriors Against Diabetes
    - Dr. Richard Jackson of the Joslin Diabetes Center answering a range of questions from the Warriors and health providers
    - Dr. Djon Lim, Cardiologist, talking about heart disease with Charlotte Grimm, APRN, of the Bay Clinic, Inc.

One-Page Summary of Program Highlights

1. This document and the Bay Clinic Diabetes DVD offer a blueprint of the diabetes program developed at Bay Clinic, Inc., that could be applied in other multi-cultural communities.
2. Bay Clinic, Inc., is a nonprofit, Federally Qualified Community Health Center on Hawai‘i Island. Bay Clinic is part of the national health safety net for low income, uninsured and medically under-served populations.
3. In 2009, the federal government ranked the Bay Clinic first among 44 rural facilities nationwide, including one run by the Mayo Clinic, for its service to people with diabetes. During Fiscal Year 2009, the rural clinics joined a health care quality improvement initiative run by the Health Resources and Services Administration’s Division of Rural Policy. The Bay Clinic ranked first because its patients had the most improvement in HbA1C blood glucose percentage from 8.1 to 7.8 across all patients for the year.
4. Community health centers are among the most cost-effective federal programs. They are good at keeping medical costs low while delivering excellent evidence-based health care while meeting top national standards.
5. Bay Clinic supplements brief acute-care, one-on-one doctor patient interactions with a team of health care providers focused on empowering patients to take control of managing disease, especially chronic disease. This is a big shift in health care for chronic illness.
6. For diabetes, the Bay Clinic approach is to offer 11 weeks of classes followed by long-term support groups. Participants can interact with providers after each session if they wish, about any health problem.
7. One of the support groups is the “Warriors Against Diabetes” which includes participant advocates who reach out to involve the public in monthly meetings in a beautiful local park with the theme: “Living the Sweet Life Healthy – and having fun doing it!” The program has been successful in engaging hard-to-reach Pacific Islander populations.
8. The Bay Clinic is operating the program effectively with non-physician health care providers: Advance Practice Registered Nurses, Physician Assistants, Registered Dietitians and Behavioral Health staff. A physician “champion” is available for consulting.
9. One of the program’s goals is financial sustainability through revenue collected for services rendered. To achieve this, programs must become certified by the American Diabetes Association. Grant funding helps sustain program costs until certification is received.

Brief Outline of Initial Steps to Implement a Program Similar to the Bay Clinic Diabetes Program

To establish a self-supporting diabetes education program like the Bay Clinic's, an entity must become certified by the American Diabetes Association (ADA). When this is achieved, all health insurers are likely to allow billing for diabetes *education* services. While the ADA application process is underway, health providers will be able to bill for medical consultation services that are provided after the diabetes classes. Becoming certified requires applying to the ADA and beginning to deliver a diabetes self-management program consistent with the ADA policies. Local funding will be needed to support the education program, a dietitian and the food purchases until it can exist entirely by billing for services. This will involve obtaining grants and assistance from local health insurers, pharmaceutical companies, foundations and food stores.

1. Apply to the ADA. The website for complete information for organizations seeking recognition by the American Diabetes Association to operate Diabetes Self-Management Education programs is: http://professional.diabetes.org/Recognition.aspx?typ=15&cid=57996

2. Item 2 on the Bay Clinic Diabetes DVD with this paper contains the Procedures and Forms the Bay Clinic has developed to implement the program. This is a detailed guide to create a program, along with the narrative that follows here.

3. This new approach to chronic disease management is different than typically brief acute-care sessions. It requires adjustment by all health care providers to include the patient as the most important part of the health care team. An excellent introduction to this is provided in the book "The Art of Empowerment," by Bob Anderson, EdD, and Martha Funnell, MS, RN, CDE.

Equally important is becoming familiar with the Chronic Care Model. A good place to start is the Institute for Healthcare Improvement website: http://www.ihi.org/IHI/Topics/ChronicConditions/Diabetes/HowToImprove/

4. Use grant-writing resources for fund development. There are many useful papers published by the Grantsmanship Center in Los Angeles, important for both fund raising and obtaining grants from foundations and the federal government. The Center also offers highly regarded training in cities around the country. Many funding sources have adopted and approve of the Center's methods. Visit the Center's website: http://www.tgci.com/about.shtml. For their publications go here: publications@tgci.com.

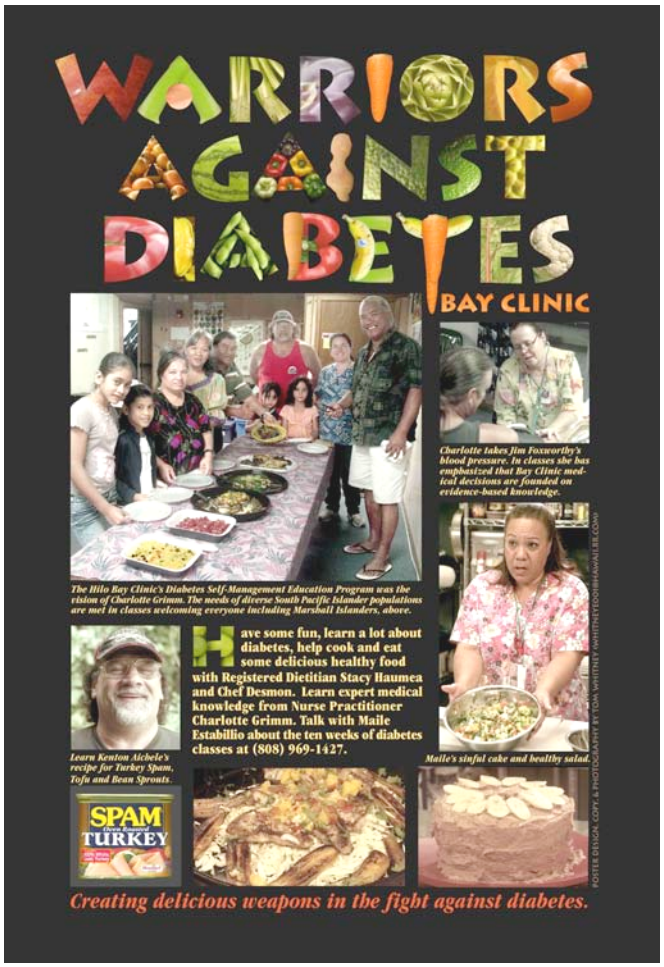
The Development of a Diabetes Self-Management Education Program at the Bay Clinic: A Program Study

By **Tom Whitney**[1]**; Charlotte Grimm, APRN, Family Practice**[2]**; Stacy Haumea, RD, MPH, CDE**[3] and **Monica Adams, MS**[4]

Introduction

Diabetes is a serious, complex, costly and increasingly common disease. It is the most frequent cause of blindness among working-age adults, the leading cause of nontraumatic lower-extremity amputation and end-stage kidney disease. It is also a principal cause of cardiovascular disease, premature mortality and disability. People with diabetes are also at increased risk for stroke, heart disease and neuropathy. Diabetes is costly, not only in terms of the economic burden it imposes on society, but also in relation to the profound human suffering it causes.

There are 72,000 to 100,000 people who now have diabetes in Hawai'i. More than 900 people in the state die every year of diabetes-related complications.[5] *The burden of diabetes and its complications is great, disproportionately*



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[1] Award-winning writer, photographer and graphic designer who is a diabetes support group participant at the Hilo Family Health Center of the Bay Clinic, Inc.

[2] Director of Clinical Operations at the Bay Clinic, Inc.

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[4] Director of Development, Bay Clinic, Inc.

Address correspondence, DVD and reprint requests to Monica Adams, madams@bayclinic.org.

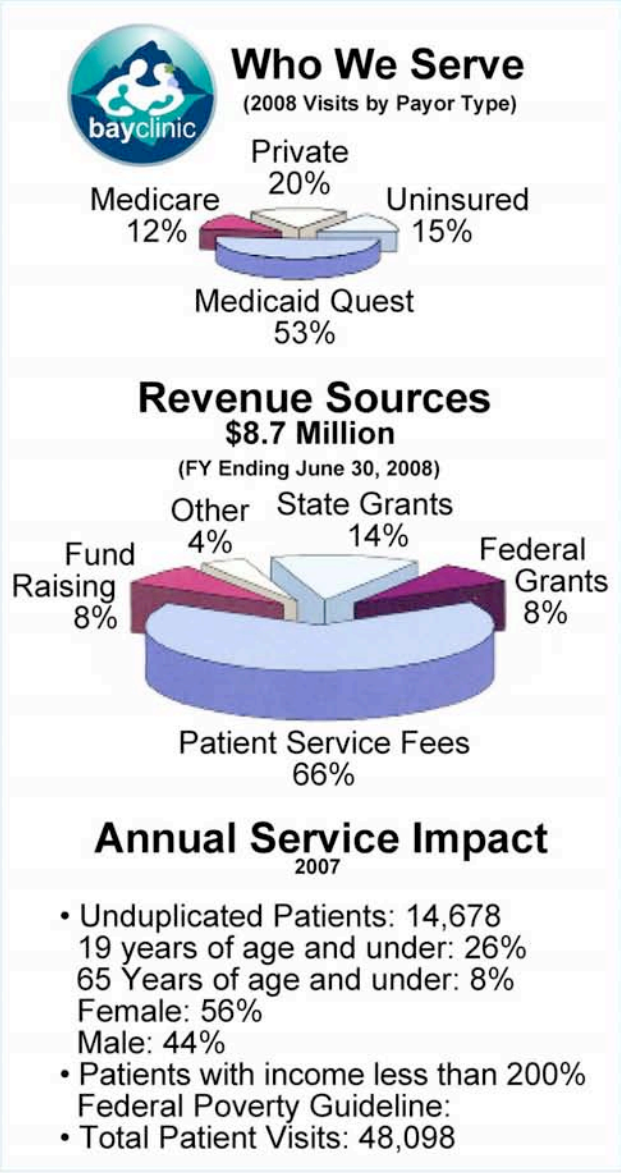
Funding for this study was provided by the Charitable Mentor Fund, Boston, Massachusetts.

[5] Hirokawa R, Huang T, Pobutsky A, Noguès M, Salvail F, Nguyen, HD. Hawaii Diabetes Report, 2004. Honolulu, HI: Hawaii State Department of Health; 2004. p. 7, 20. Available from: http://hawaii.gov/health/family-child-health/chronic-disease/diabetes/pdf/diabetesreport.pdf.

affecting minority populations and the elderly. It is also becoming increasingly prevalent.

Traditional acute-care treatment models have not been effective in treating diabetes and other chronic diseases.

We are now seeing the spread of a different approach that is including people with the chronic diseases as important members of the team fighting the disease. It is not replacing the acute care model; it is providing a different way to handle chronic care that focuses on empowering patients to manage their own illnesses. This new treatment is called Diabetes Self-Management Education. This paper tells the story of how the Hawai'i-based Bay Clinic, Inc. has implemented this new approach and added its own contributions to the treatment options available.

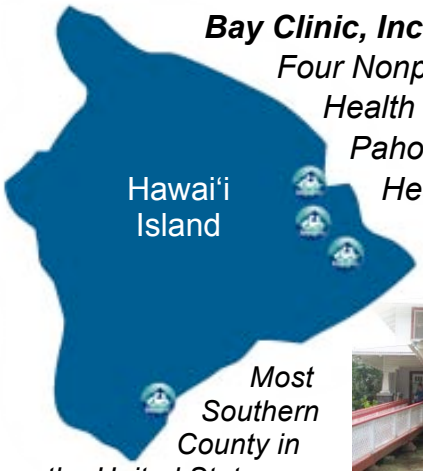


Background

Community health centers (CHCs) provide the safety net for the United States health care system. They are designed to meet the needs of the under-served: those who are low income, have cultural and language barriers to receiving care, are uninsured and live in areas and communities that do not have enough medical and health care providers. "The Bay Clinic never says no, as many other medical practices do," says Dr. Tony Brown of the Bay Clinic. "We take everybody and the numbers keep growing – and the number of people who don't have anything in their wallets also keeps growing." CHCs strive to meet the growing need for a rising low-income population in the United States.

Community health centers had their origins as part of President Lyndon Johnson's War on Poverty programs that began in the mid-1960s. The first clinics opened in 1965. Today there are over a thousand federally qualified health centers around the country.

Bay Clinic, Inc. (BCI) was founded in 1983 as a grass-roots health clinic in Hilo, Hawai'i, mainly focused on the needs of women. It achieved non-profit status in



Bay Clinic, Inc.
Four Nonprofit Family Health Centers, the Pahoa Women's Health Clinic and the Dental Van

Most Southern County in the United States. Clinic coverage area Is 2,000 square miles.


Hilo


Pahoa


Ka'u


Kea'au


Pahoa Women's Health Clinic

1986. It became a federally qualified community health center around 1991. Between 1991 and 2001, it opened three more "Family Health Centers" that serve the needs of people of all ages in rural East and South Hawai'i Island in Kea'au, Ka'u and Pahoa. A Women's Health Center and a mobile dental van were added in 2009 to serve this rural, southernmost county in the United States with a service area covering approximately 2,000 square miles.

In 2007 the Bay Clinic provided comprehensive health care for 14,678 low-income and under-served people with 48,098 visits. In 2008, it had a staff of 130 and revenues of $8.7 million. It is one of the largest employers and the largest nonprofit on Hawai'i Island.

One of the strengths of federally qualified community health centers is a requirement that their non-profit boards must be composed of more than fifty percent of patient volunteers to ensure that the boards are representing community needs.

Bay Clinic's ethnic distribution of clients

Asian	1,487
Native Hawaiian	2,866
Other Pacific Islander	249
Asian/Pacific Islander	4,602
Black/African American	117
American Indian/ Alaska Native	64
White	4,337
Hispanic or Latino	444
Unreported	775

Community health centers have an enviable record of good service.

- In 2009, the federal government has ranked the Bay Clinic first among 44 rural facilities nationwide, including one run by the Mayo Clinic, for its service to people with diabetes. During Fiscal Year 2009, the rural clinics joined a health care quality improvement initiative sponsored by the federal Health Resources and Services Administration's Division of Rural Policy. The Bay Clinic ranked first because its patients had the most improvement in HbA1C blood glucose percentage from 8.1 to 7.8 across all patients for the year.

- The National Association of Community Health Centers describes how the centers meet or exceed nationally accepted practice standards for treatment of chronic conditions.[6] "In fact," says their 2008 Fact Sheet, "the Institute of Medicine and the Government Accountability Office have recognized health centers as models for screening, diagnosing, and managing chronic conditions such as diabetes, cardiovascular disease, asthma, depression, cancer, and HIV."

Hawai'i County Councilwoman Emily Naeole, Tanya Aynessazian, Chair of the Bay Clinic Board, Roxanne Estes, APRN, CNM, the Pahoa Women's Health Center Director and Lohelani Keliihoomalu, receptionist, celebrate the opening of this clinic that is much in need in the rural Puna area. It was a happy time celebrating the opening and the Clinic's 25th year of operation.

Board Chair Aynessazian is a Bay Clinic patient and helps fulfill a requirement for federally qualified health centers that their volunteer boards must be composed of more than fifty percent of patients to ensure that they are representing community needs.

- Community health centers' efforts have led to improved health outcomes for their patients, as well as lowered the cost of treating patients with chronic illness."[7]
- The White House Office of Management and Budget has ranked community health centers as one of the 10 most effective government programs, a designation earned by only six percent of federal programs.[8]
- Community health centers lower medical costs to state governments.[9]
- In Hawai'i, annual wasted expenditures on avoidable emergency department visits in 2006 were estimated at $55,098,405.[10]
- In Hawai'i, the savings for uninsured care by community health centers amounted to $29 million in 2007.[11]

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[6] National Association of Community Health Centers, Inc. Fact Sheet #0808

[7] South Carolina Budget and Control Board, 2004

[8] http://www.whitehouse.gov/omb/expectmore/summary/10000274.2007.html

[9] Proser M. Deserving the Spotlight: Health Centers Provide High-Quality and Cost-Effective Care. *Journal of Ambulatory Care Management* 28(4):321-330, Oct. – Dec. 2005

[10] NACHC 2006 Databook. Available from: www.nachc.com/research/ssbysdat.asp.

[11] Beth Giesting is chief executive officer of the Hawai'i Primary Care Association. She wrote this in a commentary for The Honolulu Advertiser, 1/09/2009.

Charlotte Grimm, an Advanced Practice Registered Nurse (APRN), is responding to questions posed by members of a diabetes class. Grimm is the Director of Clinical Operations of the nonprofit Bay Clinic, Inc. and helped create the diabetes program. In front of her on the table are many healthy diabetes-friendly foods created by class members that were brought for the once-a-month potluck. Participants in the classes have access to many different health care professionals on a regular basis and after class may consult with them privately if they wish.

Getting the Diabetes Program Started

The Bay Clinic's program began when the Federal Health Resources and Services Administration (HRSA) recommended that the Bay Clinic participate in one of their quality improvement programs. The Bay Clinic joined the Western Region's Health Disparities Collaborative and focused on diabetes. The goal of the Bay Clinic's program is to prevent complications related to diabetes such as blindness, amputations, kidney and organ failure and premature death among people with diabetes, including Native Hawaiian, Asian American and Pacific Islanders, who are at higher risk for diabetes complications than other populations.

The federal Health Resources and Services Administration's (HRSA) Bureau of Primary Health Care launched the Collaboratives in 1998 to improve care offered in federally qualified community health centers.[12] The Robert Wood Johnson Foundation and the Institute for Healthcare Improvement have also fostered this approach. HRSA collaboratives promoted the adoption of the Chronic Care Model, and use of the Improvement Model (described on page 51) for chronic diseases such as diabetes, heart disease, depression and asthma.

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[12] See this website for a large selection of Health Disparities Collaboratives resources: http://www.healthdisparities.net/hdc/html/home.aspx

Chronic Care Model The focus of the Diabetes Collaborative was applying the Chronic Care Model[13] with those who have been diagnosed with diabetes. The model's creator Ed Wagner[14] stated that with this approach, "Patients gain the ability and interest in managing their own condition." The key to the whole approach is medical staff becoming teammates with patients to empower patients to take more control over their illnesses.

Wagner defines chronic illness broadly: "any condition that requires ongoing activities and response from patients and their personal caregivers, as well as a

The six stages of the Chronic Care Model

*This information can be found on the web site of the **Institute for Healthcare Improvement**, a valuable resource for agencies and individuals: http://www.ihi.org/IHI/Topics/ChronicConditions/AllConditions/Changes/*

Self-Management
Effective self-management is very different from telling patients what to do. Patients have a central role in determining their care, one that fosters a sense of responsibility for their own health.

Decision Support
Treatment decisions need to be based on explicit, proven guidelines supported by at least one defining study. Health care organizations creatively integrate explicit, proven guidelines into the day-to-day practice of the primary care providers in an accessible and easy-to-use manner.

Delivery System Design
The delivery of patient care requires not only determining what care is needed, but clarifying roles and tasks to ensure the patient gets the care; making sure that all the clinicians who take care of a patient have centralized, up-to-date information about the patient's status; and making follow-up a part of standard procedure.

Clinical Information System
A registry — an information system that can track individual patients as well as populations of patients — is a necessity when managing chronic illness or preventive care.

Organization of Health Care
Health care systems can create an environment in which organized efforts to improve the care of people with chronic illness take hold and flourish.

Community
To improve the health of the population, health care organizations reach out to form powerful alliances and partnerships with state programs, local agencies, schools, faith organizations, businesses, and clubs.

[13] The Institute for Healthcare Improvement website is a valuable resource for agencies and individuals. Available from: http://www.ihi.org/IHI/Topics/ChronicConditions/.

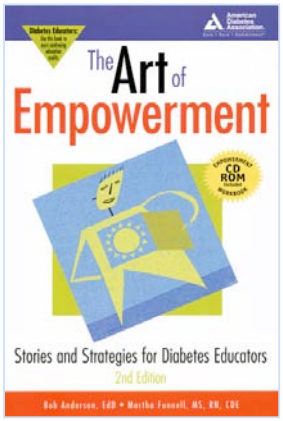
[14] Ed Wagner, M.D., M.P.H., delivered his comments in a Chronic Care Model presentation at the 2004 Epidemiology, Biostatistics and Clinical Research Methods Summer Session, cosponsored by the Seattle VA Epidemiologic Research and Information Center (ERIC) and the University of Washington. Available from: http://www.improvingchroniccare.org/index.php?p=The_Model_Talk&s=27.

response from the medical care system. This includes the traditional physical chronic illnesses, but also chronic mental disorders, and behavioral disorders like attention deficit disorder in children."

Implementing the Chronic Care Model "requires a total transformation of the organization."[15] This is different from the brief one-on-one interactions of doctor/provider and patient in the acute care model. The Chronic Care Model provides a new framework to create practical, supportive, evidence-based interactions between patients and providers, all playing important roles and becoming teammates together in managing the disease.

There are six main parts of the Model: the community and its resources and policies; the health care system; self-management support; delivery system design; decision support; and clinical information systems. These all are focused on creating informed, active patients who are empowered to become actively involved in their own health care.

Note: *A detailed description of how the Bay Clinic has implemented each aspect of the Chronic Care Model" can be found on the DVD in "3. Quality Improvement Plan with 2009 Notes" starting on page 7 of that paper.*



A book that provides a fundamental understanding of patient empowerment is "The Art of Empowerment[16]," by Bob Anderson, EdD and Martha Funnell, MS, RN, CDE. Funnell is the primary author of "Life with Diabetes," the text used in the Bay Clinic program. The "Art of Empowerment" is written for diabetes educators and the authors recommend that people discuss it with some trusted colleagues as they study it. The book is filled with stories that illustrate the new approach they developed after twenty years in the diabetes field trying to understand why the traditional approaches were not working. They say in the introduction "the assumption underlying the traditional approach to diabetes care and education – that the health care professional is in charge – does not work for diabetes. The patient is in control."

One of the early steps in implementing the Chronic Care Model is to train and prepare the medical staff. The next step is to initiate some Diabetes Self-Management Education classes for patient self-empowerment.

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[15] Lewis A, St. Andre C, Co Chairs, Buttress S, Chaufournier R, Hupke C, Langley J, Sevin C, Yee R. A Leaders' Guide to Creating the Business Case for Planned Care, A Toolkit. Finance and Redesign Pilot Collaborative, Health Resources Services Administration, May 2006, page 9. Available from: http://www.norc.org/6275/Module8/Leader's%20Guide%20to%20Creating%20the%20Business%20Case%20for%20Planned%20Care.pdf.

[16] Anderson R, Funnell MM. The Art of Empowerment, Stories and Strategies for Diabetes Educators, 2nd Edition, © 2000, 2005, American Diabetes Association.

At first, Bay Clinic received funds from a drug company to pay a certified diabetes educator to conduct once-a-month classes. That was the first money received to support the project. Then program development staff started looking for more. The question was, Charlotte Grimm said, “How are we going to bring in revenue so that the classes are not downtime for me and other providers, and staff costs would be covered?” Grimm is an Advanced Practice Registered Nurse who helped start the program and is the Director of Clinical Operations at the Bay Clinic.

At every local gathering in Hawai‘i food is an important part of the event. Once a month diabetes class members have a potluck and bring healthy dishes they have learned to cook. In classes it is an area of great interest to participants with diabetes and keeps their attention.

The lessons of the three “W”s are emphasized over and over: eliminate white flour, white sugar and white rice.

Staff identified their needs and applied for grants. AlohaCare, which is run by community health centers (whose CEOs form their board) was offering a request for proposals for quality improvement program projects based on the number of AlohaCare patients. For the Bay Clinic that meant $126,000. “This is when we started to really build the program,” Grimm said.

Early on, Bay Clinic staff learned some lessons. One was, if they had classes once a month, people often would not remember the dates of future classes so there was always confusion. With the AlohaCare grant, the Clinic switched to weekly classes, making it easier for people to remember the same time and place every week.

“Then we learned about the food. In every local gathering here in Hawaii, food is important,” Grimm said with a smile. Food donations from community sponsors helped encourage patients to develop interest in attending the classes.

They worked with more partners in the community bringing in speakers from the Keaukaha exercise program and students from the Kea‘au Youth Business Center. They brought in guest speakers from many different community organizations.

With the AlohaCare grant one goal was to look at the data of all the patients who were diagnosed with diabetes in the Bay Clinic system. How many attended class? How many people completed the program? In addition, how many patients have not? And overall, what have been the changes in their health indicators because of participation?

One of the major goals of the grant was to get the Bay Clinic to the point of becoming certified and proving the efficacy of the program to develop sustainable support from health plans.

The American Diabetes Association (ADA) Certification Process Studies are showing that Diabetes Self-Management Education works in reducing costs to the overall health system, but an initial investment of staff time and money without a clear revenue stream to cover the costs is necessary. Startup grants, like the one received by BCI from AlohaCare are necessary.

A few years after the program began; Charlotte Grimm spoke at a federal Health Resources and Service Administration conference about the diabetes program and how it started. During the talk, she said that Bay Clinic's ultimate goal was to become ADA credentialed so that Bay Clinic program could then sustain itself financially. Someone in the audience stood up and said a Community Health Center can never become ADA credentialed because it could never get the funding to get to that point, because ADA credentialing takes about 18 months to two years. Grimm said, "That got my back up so I said to myself 'don't tell us that we can't do something!'"

Someone in the audience stood up and said a community health center can never become ADA credentialed because they could never get the funding to get to that point. That got my back up . . . so I said to myself 'don't tell us we can't do something!'

The American Diabetes Association developed the first program to certify health centers with Diabetes Self-Management Education programs that adhere to national standards. The Association will credential sites, not an organization itself, which has its drawbacks for an entity like the Bay Clinic that operates nonprofit community health centers at five sites. It *is* a complex process. Fifteen people need to complete the whole program at each site, so it would be a good idea to have more people in it initially to allow for dropouts. Currently there is a one-time application you complete on line, and if you have one part missing, you lose the whole $1,100 application fee.

Note: *Complete current information about the certification process is available from the American Diabetes Association.*[17]

To become certified, the Bay Clinic needed to pay for the diabetes program

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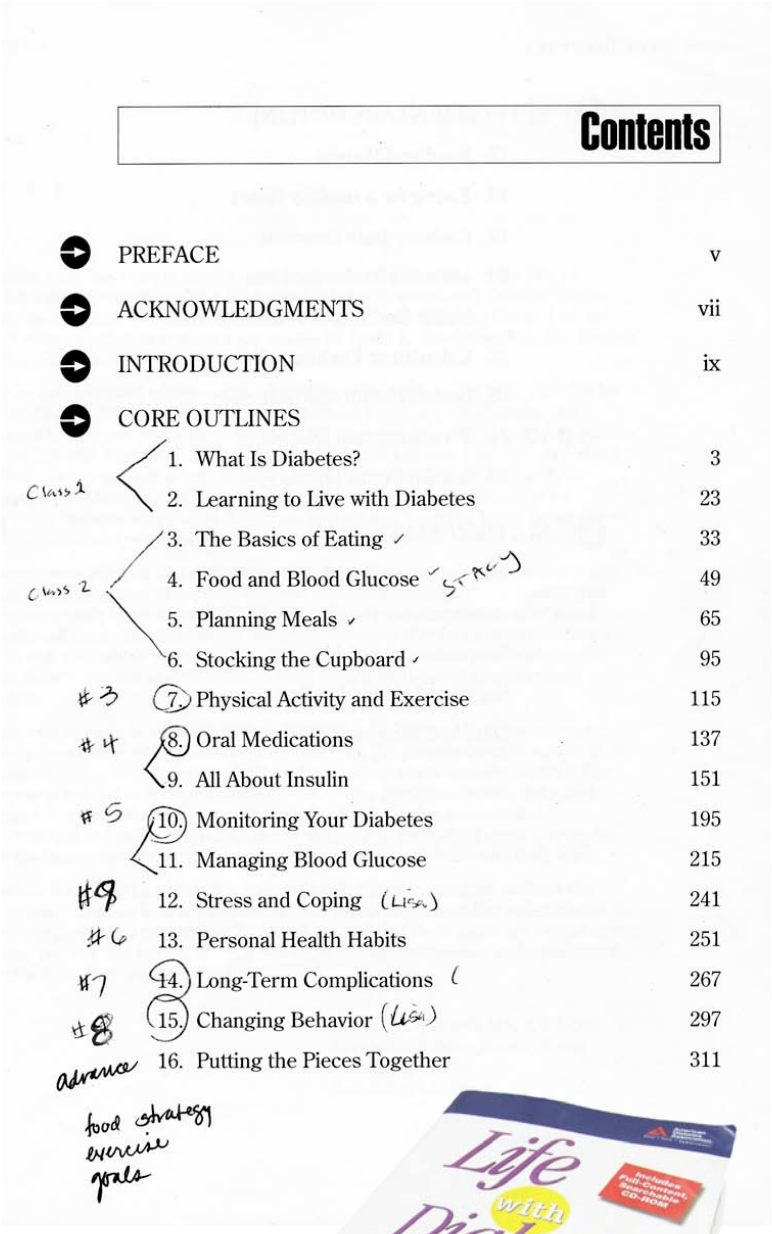
[17] ADA: Professional Resources Online. Applying for Recognition [Internet]. Alexandria, VA. American Diabetes Association. 2008. Available from: http://professional.diabetes.org/Recognition.aspx?typ=15&cid=57996.

through the 18-month period. The AlohaCare grant had helped to get started but more money was needed in order to provide this program for all people with diabetes who needed it.

The Bay Clinic staff decided to use the curriculum of the American Diabetes Association's "Life with Diabetes[18]" to aid in meeting ADA certification standards.

For longer term sustainability, the Bay Clinic made separate contracts with HMSA so they could bill for primary care *and* for diabetes education through their HMO program and the Quest low income health insurance program. That allowed the Clinic to just bill HMSA. This helped them to move along, financially. None of the other insurers would allow billing until the Clinic had ADA credentials.

Dr. Tony Brown became the physician "champion" of the diabetes program to advocate for the program in the community, with medical professionals, and organizationally.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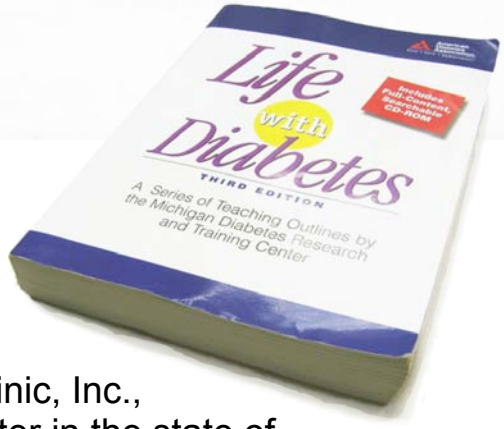

Bay Clinic staff nurses and providers dedicated 3 months toward completing the ADA credentialing application. In February of 2008, the Bay Clinic received ADA recognition. Today, the Bay Clinic, Inc., is the only federally qualified community health center in the state of Hawai'i with this designation. Once the Bay Clinic had this designation it applied for Medicare billing status for the Diabetes Education Program. Once that had been attained, then all the other insurers allowed billing.

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[18] Funnell MM, Arnold, M, Barr P, Lasichak A. Life With Diabetes: A Series of Teaching Outlines by the Michigan Diabetes Research and Training Center, Third Edition, (05/01/04) McGraw-Hill Item Number: MCGRA040205

The billing process is complex and each insurance company around the country is different. HMSA is the largest one in Hawaii. They allow for diabetes education; however, one has to establish a different contract for the education. So the Clinic signed separate contracts for their PPO Plan (the preferred provider plan for individuals), their HMO group plan and their Quest plan. Each Clinic provider needed to qualify for an HMSA provider number, and a "G" number for education.

What is interesting about HMSA was that staff did not have to be Certified Diabetes Educators,[19] (CDE), but they had to be "eligible" to be CDEs. Any registered nurse, doctor, registered dietitian, physician assistant, advanced practice registered nurse and pharmacist is eligible. This new arrangement from HMSA gave the Bay Clinic's diabetes program the ability to bill for education by a Registered Nurse, a Registered Dietitian, a Medical Doctor and an Advanced Practice Registered Nurse. Years later, at the time this report was written, Stacy Haumea, who is the Director of Diabetes Education at the Bay Clinic and is a Registered Dietitian and has become a Certified Diabetic Educator.

Patient Intake Procedures

A patient arrives at the Bay Clinic for any number of reasons from a cough, to not having a doctor, to a serious illness that might be diabetes related. If a provider suspects a patient has diabetes they will test for the disease.

For many who are not aware that they have diabetes, it can be discovered after a Basic Metabolic Panel (BMP) blood test is ordered as part of an annual health examination or if a patient has various indicators during any Clinic visit that such a test should be ordered. These indicators blood relatives with a history of diabetes, high blood pressure, being over age 45, overweight or obese, and physically inactive or have a family background that is Asian American, Hiapanic/Latino, Hawaiian or Pacific Islander. The BMP measures blood glucose (sugar) level, kidney function, liver function and electrolyte and fluid balance in the body.

The item of particular current clinical interest in the BMP for diagnosing diabetes is the fasting blood plasma glucose test. This requires fasting for 8 hours, then a blood sample is taken. If it is high it is re-ordered, and if still over 126 milligrams per deciliter (mg/dL) this confirms a diabetes diagnosis. Other items include creatinine (that tells how well your kidneys are working), albumin (that can tell how well the liver and kidneys are functioning) and the lipids, that look at the risk for coronary heart disease, heart attack and stroke, measuring

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[19] A Certified Diabetes Educator is a health professional who has undergone years of training and personal experience in diabetes education and passed a formal examination by the National Certification Board for Diabetes Educators. For more information, go to the National Certification Board for Diabetes Educators website: http://www.ncbde.org/.

cholesterol and triglycerides, which may be linked to atherosclerosis. Another diagnostic indicator is a random blood sugar over 200 mg/dL.

Beyond the initial diagnosis, the glycated hemoglobin test or A1C, is reputed to tell the average concentration of glucose in one's blood over the past three-month period. In on-going diabetes management, this has become a primary criterion to indicate the level of success in managing diabetes. The range in people without diabetes is approximately 4 to 6. The American Diabetes Association recommends that A1C levels be brought to 7 or lower. The American College of Endocrinology recommends a value of 6.5% or lower.

Neither of the tests mentioned above are able to consistently detect what is called "pre-diabetes," a term to describe people who have higher blood sugar levels than normal that over time can lead to heart attacks and stroke and to Type 2 diabetes. There are millions of people in this category in the United States. The definitive test for this is the oral glucose tolerance test that is more complicated than the others. It requires fasting for 8 hours, and then a blood plasma glucose sample is taken. After this a person drinks a liquid containing 75 grams of glucose dissolved in water. Two hours after that another blood sample is taken, then processed. A glucose level of 139 mg/dL or below is normal; 140 to 199 indicates prediabetes; 200 and above indicates diabetes if confirmed by repeating the test on a different day.

Following the Algorithm To diagnose diabetes, Bay Clinic primary care providers follow the Clinic's diabetes protocol, which is to consult guidelines contained in the latest update of the Diabetes Consensus Algorithm.[20] Representatives of the American Diabetes Association and the European Association for the Study of Diabetes created this set of recommendations for the management of diabetes. They are the most current and widely accepted guidelines regarding the treatment of diabetes and they are regularly updated.

The Algorithm contains discussions evaluating the evidence regarding medications that will lower blood sugar levels most effectively in combination with "lifestyle changes."

What are lifestyle changes? A sedentary lifestyle and obesity are two of the major environmental factors that increase the risk of Type 2 diabetes. The Algorithm tells us that "Theoretically, effective weight loss . . . should be the most cost-effective means of controlling diabetes - if it could be achieved and maintained over the long term . . . . However, the limited long-term success of lifestyle programs to maintain glycemic goals in patients with Type 2 diabetes

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[20] Management of Hyperglycemia in Type 2 Diabetes: A Consensus Algorithm for the Initiation and Adjustment of Therapy, A consensus statement from the American Diabetes Association and the European Association for the Study of Diabetes. *Diabetes Care* 32:193-203, 2009

suggests that the large majority of patients will require the addition of medications over the course of their diabetes."[21]

Lifestyle changes involve changes in people's diets to eat more vegetables and fruit, choosing whole wheat and whole grain flour, brown instead of white rice, less bread and more green leafy vegetables, eliminating soda pop and the white and high fructose sugars we find in so many food products from candy to peanut butter, cutting salt intake, etc. The time of day you eat is important: eating big in the morning, less at noon and light in the evening, or if on insulin, eating balanced meals five times day. Regular exercise for thirty minutes per day is important as is reducing stress. Drinking plenty of water is very important.

The "consensus is that lifestyle interventions should be initiated as the first step in treating new-onset Type 2 diabetes," says the Algorithm. "These interventions should be implemented by health care professionals with appropriate training - usually registered dietitians experienced in behavioral modification - and be sensitive to ethnic and cultural differences among populations. Moreover, lifestyle interventions to improve glucose, blood pressure, and lipid levels, and to promote weight loss or at least avoid weight gain, should remain an underlying theme throughout the management of type 2 diabetes, even after medications are used."[22]

The ADA recommends that people participate in "Diabetes Self-Management Education." There are many different program designs for this that involve what are called "group visits." There are many definitions of this. The terms refer to sessions where people with diabetes or other diseases are invited to a medical office in

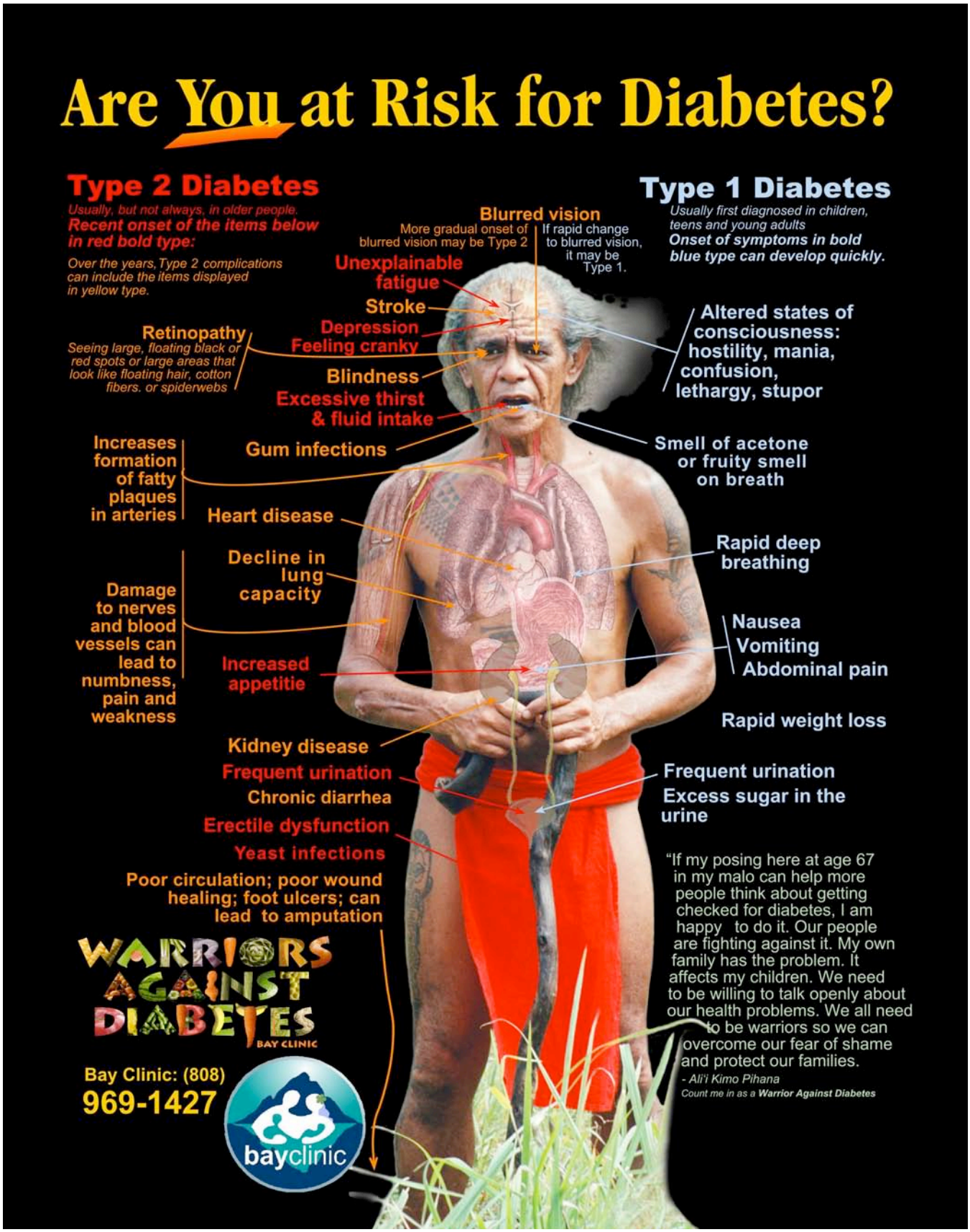
We have a dream *The other day a few of us had an opportunity to talk with a writer for AlohaCare magazine and I told her that we Warriors have a dream – that someday a restaurant will open that offers exclusively diabetes-friendly foods.*

The program has helped me lose 36 lbs; lower my serum glucose from 500+ to under 100; lower the number of times I need to test my blood glucose from 4 times a day to 2 times a day. My A1C was once 13; it is now 6. It has helped me increase the amount of exercise I do which helps me feel better and decreases my blood glucose. I also no longer need to take insulin

– Pearl Kadota

[21] Ibid

[22] Op cit



This graphic has been enlarged to 2' x 4' and is used to attract attention to the Bay Clinic's table at health fairs. It seems complex but is a great conversation starter as people look it over.

groups of various sizes, from two or three up to twenty and receive some education, usually from the medical provider and also some individual medical counseling from providers if that is desired. The number of sessions in various iterations have varied from one or two two-hour sessions, half-day clinics, monthly and quarterly meetings for a year, etc.

Grimm said two Family Practice Management journal articles were especially helpful when she was setting up the program. Suzanne Houk, Charles Kilo and John C. Scott authored "Group Visits 101"[23] in a May 2003 article. It describes the group visit format, tells how to prepare for it, gives the text of a sample invitation to patients, tells how to code the billing and cites some good research that shows group visits are effective. Steven Masley, Julia Sokoloff and Collene Hawes wrote "Planning Group Visits for High-Risk Patients."[24] They suggest some of the conditions that can be effectively addressed in group visits include asthma, congestive heart failure, coronary artery disease, depression, diabetes, gastro esophageal reflux disease, irritable bowel syndrome and obesity. They give a guide to planning for and documenting the visit, and pitfalls to avoid.

A five year study found that "Adults with type 2 diabetes can acquire specific knowledge and conscious behaviors if exposed to educational procedures and settings tailored to their needs."

"There are many views on what group visits are," Charlotte Grimm said. "Physicians tend to have a more clinical orientation – they talk and patients listen – as opposed to the interactive empowerment approach we are using where everybody has an equal voice."

A five year study[25] found that "Adults with type 2 diabetes can acquire specific knowledge and conscious behaviors if exposed to educational procedures and settings tailored to their needs." In that study the group met every three months over the five-year period while the control group had traditional one-on-one care. "Traditional one-to-one care, although delivered according to optimized criteria, is associated with progressive deterioration of knowledge, problem solving ability, and quality of life," the study indicated. Like the study just mentioned, the Bay

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[23] Houck S, Kilo C, Scott JC. Improving Patient Care: Group Visits 101 [Internet] *Family Practice Management*, May;10(5):66-8, 2003. Available from: http://www.aafp.org/fpm/20030500/66grou.html.

[24] Masley S, Sokoloff J, Hawes C. Planning Group Visits for High-Risk Patients. *Family Practice Management*, Jun;7(6):33-7, 2000. Available from: http://www.aafp.org/fpm/20000600/33plan.html.

[25] Trento M, Passera P, Borgo E, Tomalino M, Bajardi, M, Cavallo F, Porta M. A 5-Year Randomized Controlled Study of Learning, Problem Solving Ability, and Quality of Life Modifications in People With Type 2 Diabetes Managed by Group Care, *Diabetes Care* 27: 670-675. Available from: http://care.diabetesjournals.org/content/27/3/670.full.pdf+html

Clinic's program allows participants ongoing group interactions to enhance and reinforce their knowledge and retain learned new behaviors over time.

Diabetes Self-Management Education at the Bay Clinic

Stacy Haumea, Registered Dietitian, Master of Public Health, Certified Diabetes Educator, is the Director of Diabetes Education at the Bay Clinic. Space is crowded as the class meets in a small lunch room. The red container on the table is the receptacle for the waste from the glucose testing that students do when they first come to class.

One thing Haumea said she previously spent quite a bit of time talking about were the food product labels. Not any more. She said she realized that people don't really use them much, and they are more complex than they should be. She said she talks in more general terms that are easier for people to grasp.

The Bay Clinic's Diabetes Self-Management Education program focuses on lifestyle changes in a framework approved and certified by the American Diabetes Association. The Bay Clinic has gone beyond what usually occurs in implementing a Diabetes Self-Management Education program by expanding the treatment options to include long-term support groups, of which the Bay Clinic has four, one of which has lasted for four years.

A series of eleven two-hour classes is offered in which a whole health *team* will talk to patients at different times about their diabetes. The 11th class is added when there are pregnant women attending.

This team concept is being applied to many chronic diseases. It is involves a staff physician "champion" but is mostly carried out at the Bay Clinic by staff in the non-physician health professions like Physician Assistant, Advanced Practice Registered Nurse, Licensed Practical Nurse, Registered Dietitian and Behavioral Health specialists. Stacy Haumea, the program director is a Certified Diabetes Educator. Involving participants in managing their own illnesses by sharing knowledge and skills and working with participants to be their own personal expert to manage their own disease is at the core of "self management." The whole experience is an unusual one for many clinic patients and has required a rethinking of roles among providers, nurses and certified diabetes educators as well.

"One of the controversies relating to group visits," Charlotte Grimm explained, "is how do you protect people's privacy with their health information? Basically

you can't in a class situation because everybody knows they are there for the same type of disease. So you always have to invite people to participate in a group with the understanding that others in the room will know they have the same diagnosis. You must have them sign a release saying they understand this before the group starts. Whatever they choose to share after that is up to them. For most people with diabetes this is not a problem. But for people with AIDs or Hepatitis C, it is a big problem because of fear of stigma."

As participants come into the Bay Clinic's lunchroom for their weekly sessions starting at 9 a.m. they check their own blood sugar levels, weigh themselves and record the figures in their diabetes health record paper folders.

Note: *All the forms used in the diabetes program can be found on the Bay Clinic Diabetes DVD in Section 2. Procedures and Forms.*

Then when they have been sitting for five minutes in order to get an accurate blood pressure reading, they trade off taking each others' blood pressures. This process and greeting of fellow class members takes about half an hour.

Diabetes Curriculum in 2009 at the Bay Clinic: An eleven-week series of classes

1. **Diabetes Disease Process**
   a. What is Diabetes
   b. Learning to Live with Diabetes
   c.
2. **Nutritional Management**
   a. The Basics of Eating
   b. Food and Blood Glucose
   c. Planning Meals
   d. Stocking the Cupboard
3. **Physical Activity and Exercise**
4. **Diabetic Medications**
   a. Oral Medications
   b. All About Insulin
5. **Blood Sugar Monitoring**
   a. Monitoring Your Diabetes
   b. Managing Blood Glucose
6. **Personal Health Habits**
   a. S/S of infection
   b. Dental Care
   c. Skin and Foot Care
7. **Preventing Serious Complications**
   a. Long-Term Complications
8. **Goal Setting and Problem Solving**
   a. Changing Behavior
9. **Psychological Adjustment**
   a. Stress and Coping
10. **Cardiovascular & Diabetes Risk Prevention**
11. **Pregnancy and Diabetes**

The curriculum is drawn from **"LIFE WITH DIABETES, 3rd EDITION"** published by the American Diabetes Association

After blood pressure readings, the first teaching/learning/question and answer session will occur for half an hour or an hour. Different providers can bill for different lengths of time. Typically there is a medical provider at each session who is available to see participants on a one-on-one basis after the class if the participant requests it.

There is plenty of time for questions, which are heartily encouraged. The providers explain in detail, in various sessions, about how to measure daily blood sugar levels, understand the importance of the A1C test that gives an approximately three-month average blood sugar level, checking feet every day for sensation on the bottom of the toes. They explain the importance of controlling blood pressure, keeping cholesterol low, and about other complications. Participants often bring questions to the sessions.

Here Steve Koshel, Physician Assistant, is talking about a recent seminar he attended about how to become a better teacher. The board reflects in blue some of what he learned. On the right side of the board is the schedule of times when support group members were going to show up to attend the Bay Clinic booth at the opening of "Take It Off Hawai'i," a yearly weight-loss project. On the left is a list of the dishes members will be bringing to the next potluck in the park that is open to the general public.

During each class a Registered Dietitian helps people learn new ways to choose and prepare healthy foods. At the Bay Clinic, the Registered Dietitian is Stacy Haumea. She has created many local gourmet dishes for people with diabetes and she shares the recipes with the classes. The food component is very important for the class members who often share their recipes. People learn early to omit white flour, white sugar and white rice. The focus is also on lowering salt intake and alcohol.

The Registered Dietitian does describe the food content labels and how to interpret those labels. But Haumea's method is to teach the more general concepts of moderation and variety of healthy food choices as they are more likely to be remembered by class participants.

One elderly class member described the present state of the food labels as they appear on products on grocery store shelves: "You have to have the memorization skills of a spelling bee champion, the patience of a saint, the visual

Lenard Allen, M.A., is a Behavioral Health specialist and is leading an introductory class discussion on goal setting. He will lead the next session as well, talking with the class about stress and coping.

During the session above, Allen talked about how goals differ for each person. Some involve dietary changes, exercise, movement, or self-education. Someone might set a goal like "over the next three months I want my glucose levels to steadily become lower, from say 200 to 140 or 160." Each individual has very different goals. Some are interpersonal goals, for example to find someone with whom they can share their confidences and frustrations about having a chronic illness.

"Being sensitive to cultural issues is an important part of our program," Allen said. He talked about the Marshallese group. "We have an interpreter who repeats everything for those who do not speak English. Some of the Marshallese persons' goals involve how they can incorporate traditional foods their family eats into a healthier diet plan. The question is how to maintain their cultural traditions but do it in a way that benefits their health."

acuity of a Top Gun fighter pilot and a Ph.D. in accounting to keep all the numbers straight, and heaven help you if you are color blind or visually impaired." This participant and others share their frustration about the complexities of learning new ways to control eating and using tools that are meant to help them on this journey.

One teaching tool is a thick red syrup held in a jar used to show graphically and memorably the thick, sweet, sticky, slow-flowing blood that results from the higher sugar levels and can result in lower blood flow to extremities and eyes.

This tool was developed by the BCI's Physician Assistant Steve Koshel, a skilled health educator. Koshel said that when he became a physician assistant thirty years ago he felt that one of the most valuable roles he would play was as a health educator. For him that is finally becoming true.

"You can't just ask anybody to fill a slot in our program. The professionals working in the program need to be passionate about it," Charlotte Grimm emphasizes.

A Behavioral Health specialist like Lenard Allen might talk about the mood swings and depression that people experience. He leads classes in Goal Setting and Coping with Stress. Generally, people become more comfortable talking about diabetes in the group situation, which is good, so people don't feel isolated.

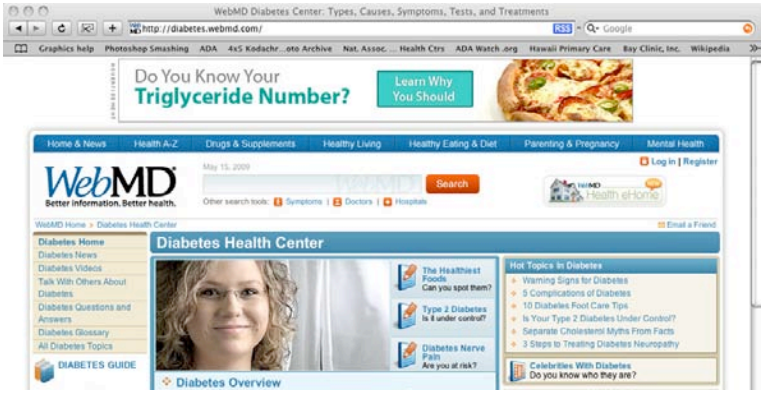
Charlotte Grimm might explain the best web sites she uses from which the patients also can learn more. The idea of a partnership with the patient grows with these kinds of discussions. She answers questions and promises to get

back with answers next time if she doesn't know something. The back and forth makes the sessions engaging.

There is much attention given by the dietitian and the behavioral health staff regarding setting goals for improvement. Goal setting is very important. It helps patients choose realistic goals that can help them feel confident about their achievements as they make small changes in their lifestyle.

How does this work? Charlotte Grimm explained: "When you are helping someone set a goal, you set a scale from 1 to 10 and ask people to pick a goal and then choose a number indicating how likely they think they will be in meeting the goal. Say 10 is 100% and zero is no way. Studies have shown that if the interval is under seven they are probably not going to be successful. You always want a higher likelihood they could achieve a goal. If they feel strongly, you can go along with it, but also suggest that they try another goal they are likely to be successful in.

"What happens when you achieve your goal? You'll come to the next meeting. If you don't achieve it you won't. You want to set people up for success," Grimm said.



Many web sites have useful information as explained by providers during the classes:

www.WebMD.com is a good site for general medical infor-mation. www.UpToDateOnline.com is the site used by providers at the Bay Clinic.

The American Diabetes Association website is: www.diabetes.org . It includes a diabetes risk test, recipes, book reviews and diabetes news.

A good site for individuals is www.bloodsugar101.com. This site was created by Jenny Ruhl, a business writer who was diagnosed with diabetes in 1998. She shows to value of on-line support for people with diabetes and backs up her comments with evidence-based studies she finds.

An important aspect of the classes is the psychological bonding experience and peer support that people experience. Joking and sharing of worries and embarrassments helps foster group cohesion and trust.

Kenton Achiele is seen here taking Jim Foxworthy's blood pressure.

There is also role-model reinforcement at Bay Clinic's classes. Jim Foxworthy is a role model to some participants. He goes walking every day for about four miles with a female neighbor. He shared how he feels it is essential that one find an exercise buddy. Also, one person talked about how the support group classes were the most important

thing going on in his life right now. Another participant says he is impressed by the role modeling of a couple of people in the class. One woman in the class who lost over 30 pounds and was able to stop taking insulin. A man has lost close to 50 pounds. Both are inspirations to him, he said.

As the classes come to an end, participants have a nice potluck and receive certificates.

Visitors to the Bay Clinic Diabetes Program

Dr. Richard Jackson of the Joslin Diabetes Center and Harvard University visited the Bay Clinic diabetes program when he was brought there in 2008 by Julia Zee, of University of Hawaii Extension Service. The Joslin Center is the world's largest diabetes research center. Jackson patiently asked people what questions they had about diabetes and proceeded to answer them while sharing many stories and useful insights

Dr. Richard Jackson spoke to the Warriors Against Diabetes. Jackson's talk was video taped by Natec of the Keaau Youth Business Center and is being made available with the Bay Clinic Diabetes DVD.2.

He shared a helpful acronym to assist people in thinking about the diabetes tests they need to keep revisiting on a yearly basis. **B.L.A.M.E**. **B** is for the blood pressure test, extremely important to keep low; **L** is for lipids, to measure the amount of cholesterol in the blood stream, important for heart health; **A** is for the A1C test measuring blood glucose level over the past few months; **M** is for the micro albumin test that is measures kidney function; and **E** is for the yearly retina exam.

When asked about the use of cinnamon and bitter lemon, he said the evidence is not there to show they are effective for treating diabetes. He said that often when people try such things and swear they are helping, what is really happening is that the people are also doing many more things like paying more attention to what they eat more and perhaps exercising, and that the combination of all those things are bringing the improvements. He did say that there is good evidence that omega-3 fatty acids from fish and flax seed oil help to lower triglyceride levels.

Dr. Djon I. Lim is a cardiologist in Hilo, Hawai'i. He was interviewed by Charlotte Grimm, APRN, and talked about the relation between heart disease and diabetes. The interview was video taped and is available on a Bay Clinic Diabetes Diabetes DVD.2.

These are just a few items from his fascinating discussion with the group, available on the Bay Clinic Diabetes DVD.2.

Stacy Haumea came up with the name for the group and participant Tom Whitney designed the logo using photographs of vegetables in the letters.

Bay Clinic recommends that all graduates of the 10-week core curriculum continue with the program in an advanced, long-term support group.

The Warriors Against Diabetes: Advanced Classes

When the first ten-week class was completed in 2005, the class group had formed a bond and wanted to keep meeting. At that time, the Clinic was expanding to a once-a-month class in Ka'u and three classes per week at Hilo due to increased grant funding. The grant made the advanced classes possible.

The on-going support group was born as staff responded to the participants' desires to continue meeting. It slipped into an open space in the program that had not originally been planned. Further along, it became apparent that they were on the track toward something very valuable. As reported in a Bay Clinic 2007 AlohaCare 4th Quarter grant project update,[26] the graduates' class provides those who received the basic education on disease process and management with additional tools to maintain their reduced A1Cs for the long term.

Guest speaker Dr. Richard Jackson from the Joslin Diabetes Center and Harvard University in Boston is talking at a session of the Warriors Against Diabetes support group at the Bay Clinic in Hilo, Hawai'i. Jackson was brought to the meeting by Julia Zee, County Extension Agent at the University of Hawaii at Hilo. Zee is currently working on the Diabetes Detection and Prevention Project in Hawaii and Nutrition Education for Wellness.

[26] 5. AlohaCare 4th Quarter Report, 2007, Bay Clinic Diabetes DVD, page 5.

The Warriors long-term support group likes to put on events in public. One of the ideas they have offered is that these events can be fun and people don't have to adopt a grim attitude if they have diabetes. Everyone has the terminal disease called life, so we might as well make the most of it, they say. The events can teach people about how to deal with and share information with chronic diseases, and they can also feature events that are fun for anyone to experience.

One of the Warriors, Sue Ann Regules, coined the phrase above to be the theme for the annual Warriors event. The phrase has become a major theme for all the once-a-month-in-the-park outings that the group sponsors. Sue Ann recently "changed her address" as people in Hawai'i say, due to complications with cancer. The Warriors were happy that she was able to have some fun dancing near the end of her life at a big 2008 diabetes event the Warriors and the Bay Clinic sponsored at a local mall.

Bay Clinic "Studies show that once a patient's A1Cs are reduced, it takes a significant effort and behavioral changes to maintain that reduction across the remainder of the patient's life," the AlohaCare update states. "For patients who stop attending the classes after graduation from the core classes, these patients are more likely to experience increases in their A1Cs again. Therefore we are now recommending that all graduates of the 10-week core continue the program on the advanced level."[27]

This is reinforced by the Algorithm's reminder that lifestyle changes are not likely to last more than a year for most people. The long-term classes are the Bay Clinic's answer to that situation.

The advanced program class allows patients additional support to continue on the successful path to long-term management and control of their diabetes.

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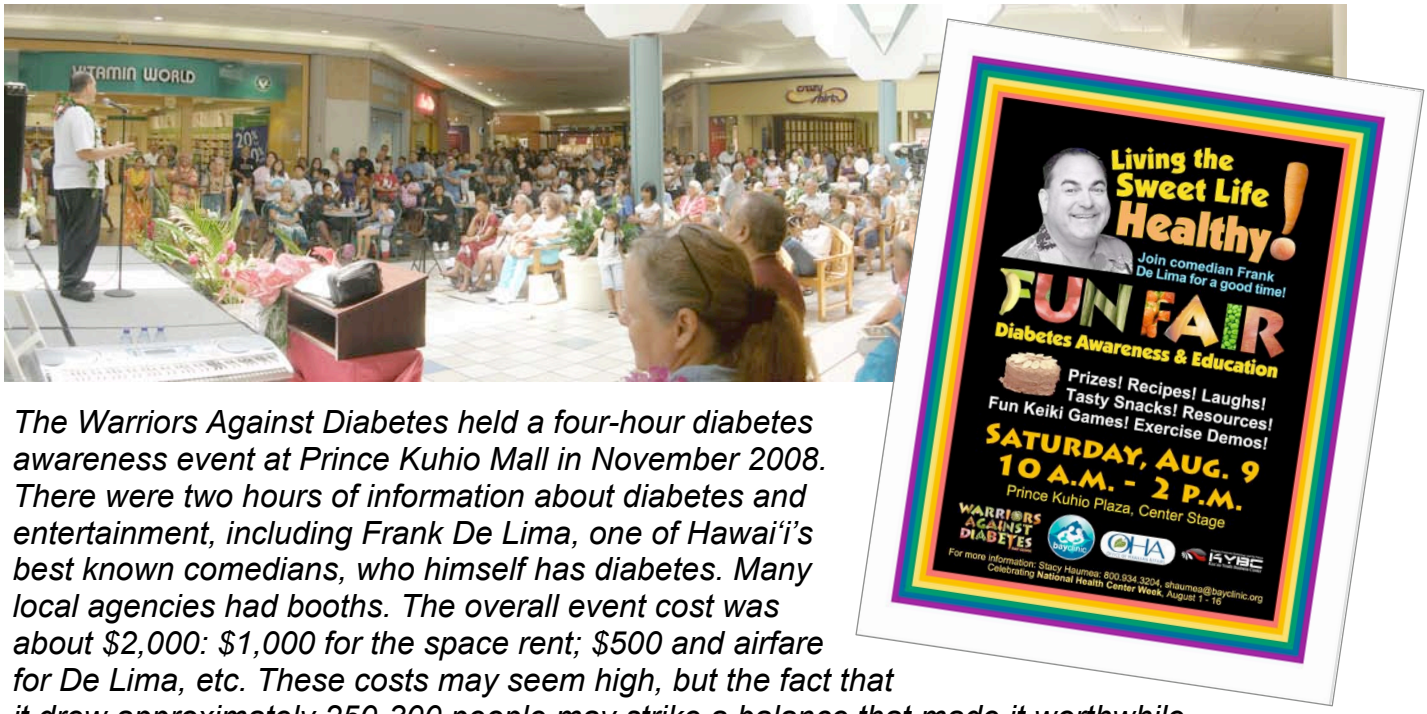
[27] ibid.



The Warriors Against Diabetes held a four-hour diabetes awareness event at Prince Kuhio Mall in November 2008. There were two hours of information about diabetes and entertainment, including Frank De Lima, one of Hawai'i's best known comedians, who himself has diabetes. Many local agencies had booths. The overall event cost was about $2,000: $1,000 for the space rent; $500 and airfare for De Lima, etc. These costs may seem high, but the fact that it drew approximately 250-300 people may strike a balance that made it worthwhile.

In the back row, left to right are Warriors Jesusa Fernandez, Amy Nelson, Stacy Haumea, Kenton Achiele, Aurora Wela, Rosa Camero, Melonie Leopoldo; front row, Bernardette Roberts, Sue Ann Regules, Helen and Alan Galiza-Somalpong, Maile Estabillio, Jim Foxworthy, Charlotte Grimm and Tom Whitney.

These graduates now have the basic understanding of the disease process and medication management; the focus then turns to an emphasis on major behavioral and diet changes.

Some of the activities these patients have engaged in are cooking and nutrition classes through a partnership with Hawai'i Community College and the Kea'au Teen Center's Culinary Arts program. This is an intergenerational project teaching cooking skills, healthy eating, and a nutrition program that allows the teen students and patients to work together to create healthy meals to promote healthy lifestyles and prevent chronic disease.

Since Hawai'i has a strong culture related to family (in Hawaiian, the beloved name for family is "'ohana") and food, this is a culturally appropriate activity enjoyed by all participants. Stacy and Desmon Haumea, her husband, an instructor at the Culinary Arts program, have coined the term "Polynesian Diet" as a model for Hawaiian communities.

Participants also learn to adapt “local” style foods into healthier options. For example, there is a widely popular dish called the “loco-moco” that was created by some economy-minded Hilo boys in 1949. The classic version starts with a heap of white rice on which a hamburger patty is placed, then a couple of fried eggs and perhaps some other ingredients as well that are smothered with gravy to top it off. The challenge is to substitute low-fat, low-sodium meats, egg whites alone, and brown rice to make a healthy loco-moco.

Every Tuesday at nine a.m. the “advanced” group meets in the small lunch room in the Hilo Family Health Center on Kinoʻole Street in Hilo. People gather from nine to nine thirty, take their vital signs and record them, check their blood sugars, take each others’ blood pressures, pour some coffee, say hello to friends and sit back for the presentation of the day.

The programming is eclectic. Some days the group plans their next public activity. One time the group took a field trip to the Hilo Medical Center’s kidney dialysis unit, which was a sobering experience. There, people who have end-stage renal disease come to the unit. Their kidneys have stopped working, caused by high blood pressure and diabetes (which account for more than half of the cases), cancer, drug use, or other causes. The nurses insert syringe needles into a vein and an artery, tape them in place and the patients sit from two to four hours while their blood is filtered through a machine called a dialyzer that is in effect an artificial kidney. This is a treatment that will continue a few times per week for the rest of their lives or until they receive a kidney transplant. This, and other weekly activities as well as advocacy, further engage the group, making it easier for them to maintain long-term lifestyle changes.

The Warriors ask: “How can stores group foods together that are good for diabetes and heart patients?” The group is working on is a way to convince

On the left, Bernie Roberts, Alan and Helen Galiza-Somalpong examine the small type on the containers, searching for ingredients that fit their diets. In the middle photo Rose Camero reaches high to the second-to-the-top shelf as Melonie Leopoldo examines another package. On the right, Jim Foxworthy points to one healthy product almost hidden among the others on the shelf as Stacy Haumea looks on.

supermarkets to group their diabetes-friendly foods in more accessible locations on the shelves. Thus far, the Warriors have taken a few field trips to local markets to survey them from this perspective.

One of the Warriors found a paper written by a French professor of retailing who talks about market basket analysis – looking at the items people buy and urging retailers to cluster products in one area of a store around consumer buying habits, thus making it easier for seniors, people with disabilities and those who have difficulty reading the fine print on product labels to shop.[28] The Warriors have been researching statistics about the large percentage of the population who have diabetes and heart disease, to build their case that healthy foods should be grouped together whereas now they are scattered all over.

Above and Beyond: Community Advocacy by Program Participants At one class Bob Rohret from the nonprofit Five Mountains Hawai'i spoke to the Warriors about his organization's Healthy Grindz project. Rohret said research showed that more than 33% of meals are eaten out, so the items available on menus can greatly affect a person's health. They found a dietitian to run their project to accomplish three things in as many North Hawaii restaurants as they could. That area is sixty to eighty miles from Hilo.

They wanted to restaurants to: 1) offer whole grain products instead of refined ones, 2) offer vegetables or a vegetable salad instead of the starch on plated meals, 3) the last was to offer smaller size meals. They got 27 restaurants to cooperate with their program in North Hawai'i. The Warriors have expressed an interest in doing a similar project in the Hilo area.

One day, the group heard from Bob Rohret from the Five Mountains Foundation in Waimea, Hawai'i, who created a program that convinced dozens of local restaurants to include diabetes-friendly dishes on their menus. The Warriors are considering promoting the program in the Hilo area. On the right above, Pharmacy professor Anita Ciarleglio spoke to the Warriors about the use of alternative medicines.

Warrior Pearl Kadota said at one time, "We have a dream that a restaurant will open that is selling mostly dishes that are good for people with diabetes." She noted that when Rohret came to talk with the group, there were few food places locally that offered anything but white rice. After Rohret spoke, Pearl asked her aunt, who owns a drive-in, to consider serving

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[28] Borges A. Toward a New Supermarket Layout: from Industrial Categories to One Stop Shopping Organization through a Data Mining Approach. Reims Management School. Reims, France. Available from: industrial.betsa.googlepages.com/supermarketlayoutdatamining.pdf.

brown rice. Kadota reported that, months later, her aunt does, now, offer brown rice and other local restaurants do, as well, so perhaps the health message is coming through

Alternative and Cultural Methods for Controlling Blood Sugar Another day, Anita Ciarleglio, Ph.D., R.Ph., talked to the Warriors about alternative medicines. She is an Assistant Professor in the College of Pharmacy at the University of Hawai'i Hilo and periodically over-sees pharmacy students who are spending some time at the Bay Clinic.

The Warriors group is very interested in the use of bitter melon to help lower blood sugar. Some members use it. Its use is especially popular locally among the Filipino, Chinese and South Asian communities.

Charlotte Grimm said that the Bay Clinic's attitudes toward herbal medicines will be determined by the evidence. "Just as we use UpToDate for our evidence-based reference to Western medicine," Grimm explained, "We now have subscribed to a web site that references the evidence and risks and benefits of herbal medicines. We want to have an evidenced-based discussion with a participant. Not to tell them don't do it, but 'Here is the evidence. Let's talk about it. In your case, is the risk or benefit better?' It will vary from patient to patient."

Stacy Haumea, Director of Diabetes Education at the Bay Clinic.

The website Grimm mentioned is the Natural Medicines Comprehensive Database. The consumer version is available at this website: <http://www.naturaldatabase.com/>. The more complete information requires a fee to subscribe to the site. Bay Clinic participants can ask their provider for the information.

Community gatherings The Warriors invite the public once a month to Wailoa River State Park for health events and potluck gatherings. This an example of community advocacy conducted by the Warriors to not only help the Warriors but to help the community to have access to healthier foods. Originally it was a one-time event, planned by Director of Diabetes Education Stacy Haumea. After that, because it was such a success, Warriors wanted to have the event on a regular schedule and they had to lobby repeatedly for some months before staff agreed. These events now benefit potentially hundreds more people through classes alone, thus the staff efficiency is improved. It was Stacy's idea to offer the whole series of classes at the events, a different one each month. It also

allows the Clinic to reach out to their potential patient base by pursuing community involvement, fulfilling one of the Bay Clinic's goals listed in its mission statement: "Bay Clinic's mission is to provide high quality, patient-centered, comprehensive health care that is accessible, affordable, coordinated, culturally competent, and community directed for all." (Underlining added.)

The Drum Circles event got people involved who tend to sit back and not say or participate much - and brought smiles to their faces.

The Marshallese group prepared an original song about the difficulties of dieting and eating just healthy foods that was a riot of fun for everybody. The man in the white shirt is holding a tiny carrot in his hand and singing his tale of woe about getting healthy. The whole event was enough to bring tears of happiness to one community organizer's eyes.

The Warriors know there are many people who may not feel like they are sick enough to go to the Clinic, but if invited by family and friends, they might come to events in the Park. If there is an activity of general interest going on at the event, others might come as well – and benefit by the health screenings and talks that are part of it. Attractive flyers are prepared for each outing and notices are placed in the local newspapers.

The group wants to show that people can have some fun while dealing with chronic disease. Warrior Sue Ann Regules came up with the slogan "Living the Sweet Life Healthy – and having fun doing it!" Warriors members say that is the underlying theme of the events in the park.

The Warriors help plan the activities and decide on the talks and educational seminars for the monthly event. The Warriors call upon community members who have diabetes and other chronic diseases to bring their talents and participate. The Warriors would like to see a transition into a peer support group to assure the longevity of the support at minimal cost. Now the main cost is the monthly park rental fee of $75. There is a $100 refundable deposit. These costs are built in to the overall program budget.

The Park events attract talented volunteers. Marina Clifton of Drum Circles brought dozens of drums and shakers and music makers – including an ocean drum and thunder tubes – to a park event in May. She said that she thought "Fun and food will save people, whether they want to be saved or not." The Drum Circle was announced as part of the event in the newspaper and drew people who just came for the drum-ming – and also learned more about diabetes.

These photographs show Hannah Hedrick, Ph.D., at age 70 leading exercises during a Warriors Against Diabetes monthly outing in Wailoa River State Park. These events occur the first Wednesday of each month from 9 to 11:30 a.m.

The drummers vowed to come back, another possibly important partnership in the community to continue to fuel interest and participant engagement.

Exercise instruction is also provided by Hannah Hedrick, who has volunteered to lead the exercises on a regular basis. She makes it fun and starts out with a routine where she tells every-one to “slap yourself silly,” and shows participants how to stretch muscles that are under-used. The Warriors are going to be working with Hedrick to produce a video of the exercise routine that the 70-year old activist has created. Hedrick is a member of a local branch of a state-wide group, the Nutrition and Physical Activity Coalition. That Coalition has been sponsored by the State Health Department that created a plan[29] complete with recommendations and strategies to promote public policies that increase opportunities for healthy living.

Recommendations in that State Plan propose integrating physical activity and healthy eating into our daily lives. Essentially the plan promotes good nutrition and exercise – a substantial part of the answer to successfully managing diabetes.

Bay Clinic’s efforts are bridging cultural gaps. The Bay Clinic translated its flyers for the Park events into the Marshallese language at the suggestion of Advisory Board member Becky Stubbs, with the assistance of interpreter Dr.

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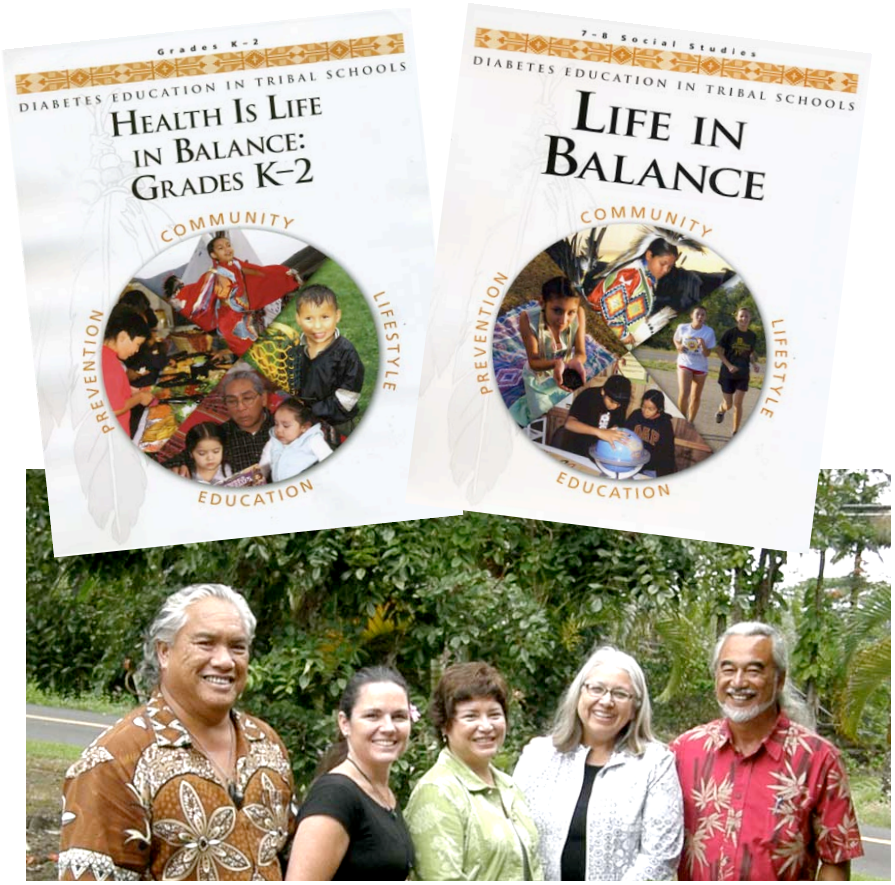
[29] Hawaii Physical Activity and Nutrition Plan, Hawai‘I State Department of Health, 2008

Keola Downing. In addition, the Warriors added a line to their t-shirt with Warriors Against Diabetes translated into the language of the Marshall Islands.



Desmon Haumea, Stacy Haumea, RD, MPH, Carolee Dodge Francis, Ed.D., Dr. Kelly Moore and Dr. Dane Silva. All five gave presentations at the seminar for teachers.

Cultural training opportunities for participants and staff was also provided by Carolee Dodge Francis of the Oneida Nation in Wisconsin, and pediatrician Dr. Kelly Moore of the Muscogee Creek Nation of Oklahoma. They described a seven-year project they participated in to create a Kindergarten through 12th grade curriculum for "Diabetes Education in Tribal Schools." It has been extensively and successfully tested not only on reservation schools but in other public schools attended by Native American youth, and is ready to be rolled out further.[30]

Francis talked briefly about diabetes support groups on reservations, where they are called "diabetes talking circles." Learning about other methods to provide culturally competent care is important in planning for the future of the Bay Clinic program.

Betsy Whitney participated in a few Warriors classes as the wife of a participant. Whitney is a successful business executive who is blind, who is also board chair of a statewide organization, Centers for Independent Living. There are many Internet support groups about diabetes for people who are blind, she told the group. She favors the term "participants" over "patients" for people in the Bay Clinic's diabetes groups. People with disabilities hate being described as patients, she said. She also suggested that "people-first" language would be a good habit to adopt. "Don't talk about people as diabetics, talk about 'people with diabetes,'" she urged. "People are

[30] Contact Carolee Dodge Francis: carolee.dodgefrancis@unlv.edu

In the photograph on the left, the Vision Van is parked in front of the Hilo High School Cafeteria where the Lions held a diabetes conference on August 29, 2009. From left is Bernardette Roberts, Kenton Achiele, Stacy Haumea and Tom Whitney, who all assisted the Lions in staffing the Bus.

people first." A caution she advised, as the Clinic does outreach to people who speak languages other than English, was that the Clinic needs to be prepared to identify and employ translators for each of those languages, as it has started to do.

Project Vision Van Members of the Warriors Against Diabetes assisted the Lions Club and the Retina Institute of Hawaii in their recent project to bring the Project Vision bus to the Big Island. The bus offered free eye exams in a number of locations. The mobile screening unit was created by Oahu vitreoretinal surgeon Dr. Michael Bennett in 2007. Inside is a setup in which volunteers can be easily trained to take photographs of the retinas of people's eyes. Examination of these by qualified medical personnel on Oahu can detect diabetic retinopathy, macular degeneration, glaucoma and cataracts. Letters are then sent to the people participating. If abnormalities are noted people are counseled to see their eye care doctor. 560 people were screened at the multiple locations visited by the Project Vision Van on this first trip to the Big Island. Bringing the project to this island was the project of Lion Tracy Aruga. It was also partially sponsored by the American Diabetes Association.

Re-training oneself to adopt a new lifestyle after a lifetime of bad habits is very hard work. In the photograph here, each sheet on the table in front of Pearl Kadota represents her activity for that day, tracking what she eats, what it weighs, when and how long she exercises and what her daily blood sugar levels and weight are.

Many might think that is too much work, and it is true that not many will do this, but for some who are determined to overcome the challenge of diabetes and minimize the use of medications it is a stage they must pass through. It is not something one needs to do for a very long time. Periodically doing it for a while enables people to understand better what their habits are. Kadota has done a remarkable job in losing 36 pounds and bringing her A1C down from 12 to 6 and getting off insulin. It has not been an easy thing to accomplish.

Getting Teens Involved with Entrepreneurship & Diabetes

The Entrepreneurship Program in the Culinary Arts is a program jointly sponsored by the Hawai‘i Community College, Kea‘au Middle College High School, the Kea‘au Youth Business Center and Bay Clinic, Inc. Students were taught how to prepare foods that are friendly for people with diabetes. At times students interacted with older members of the Warriors Against Diabetes who explained their own recipes and showed students how they prepare them. At times the sessions were videotaped for broadcast on the local public channel.

Left, Desmon Haumea speaks with people about the new mobile kitchen. Haumea is the instructor for the Culinary Arts Entrepreneurship Program and creator with Stacy Haumea of the mobile kitchen concept. The mobile kitchen contains a stove, refrigerator, counter space and a sink. At right, Desmon Haumea is watching as his students are videotaped preparing healthy, diabetes-friendly foods for a local public cable channel program.

Warrior Abe Guevarra is demonstrating to students at the Kea‘au Teen Center Culinary Arts program how he makes bitter melon soup. It is believed by many in the Filipino and Chinese communities that bitter melon is useful in lowering blood sugar levels.

Ono Kaukau Lapa'au

“Ono kau kau lapa‘au means “delicious healing foods.”

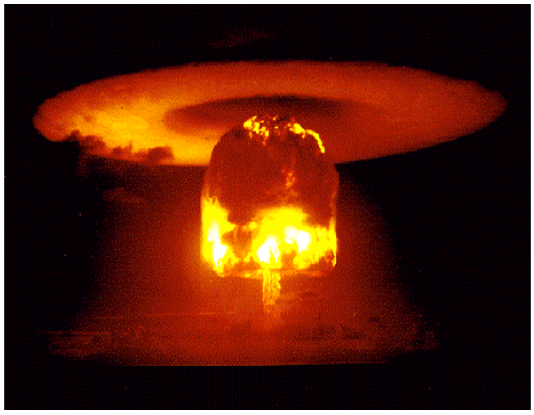
The name MAPS International grew out of a geography class as students were studying recipes from many countries. The students came up with the name and the logo.

Marshallese Class Goes Beyond Diabetes

In 2006, Bay Clinic staff found that Marshallese patients were not staying with the program and their diabetes symptoms were not improving. An interpreter was found and a special class began in 2007. The social support generated within the class has been important in helping these patients continue with the program.

Bay Clinic staff received specialized training in the unique cultures of the Micronesian islands to better reach this large immigrant group.

The Marshallese class is also a long-term support group. There is a core group of about a dozen who attend regularly. There are many people in Hawai‘i from the Pacific island nations of the Marshall Islands, the Federated States of Micronesia, the Republic of Palau, other islands including Chuuk (formerly Truk), Kosrae, Pohnpei and Yap, who have moved to Hawai‘i. Citizens of these islands have a special “Compact” relationship with the United States, because they were allied with this country during World War II and are parties to a special compact or agreement between their islands and the United States due to the history of nuclear testing conducted by the United Sates in Micronesia.



Legacy of the H-Bomb is felt in the Bay Clinic in Hilo, Hawai‘i in 2009 in that the Clinic has many patients from the islands near where the bombs were detonated and the patients receive medical benefits because of this. This U.S. Department of Defense photograph shows an explosion over Bikini Island in the Marshall Islands that was estimated at 1,000 times more powerful than the bomb dropped on Hiroshima. It occurred in May 1956.

Bay Clinic experiences many challenges in meeting the needs of Compact of Free Association migrant groups, including lack of federal funding to assist this growing population and their complex and serious health care needs.

Charlotte Grimm says that after the Marshallese diabetes class she often sees 10 or 15 participants, one after another, going beyond diabetes to consult on a variety of their ills. “Because the interpreter is there they are able to communicate their needs about a range of things. Most of them are 45 to 65 and they are in an age group where they have other chronic problems.

“There are many social complications for our culturally diverse patients,” Grimm says. If they cannot collect food stamps or they don’t have good teeth so they can’t chew the food being recommended that they eat, Clinic providers feel they have to help fix that. Grimm said that “Right now I have to write a letter for a Chuuckese patient to go to the dentist who will send the bill to the insurer, and the Bay Clinic is going to say it is a medical necessity that this patient get dentures, because his insurer doesn’t normally pay for dentures. The patient

A translator at work at the Hawai'i Bay Clinic's Diabetes Self-Management Education Program

Dr. Keola Downing, Ph.D., in the yellow shirt, is listening to the nuances of a song by people from the Marshall Islands in the top two photographs. He translates the song into English successfully in the next four photos, and then everyone smiles at the result at the bottom. The group was attending classes in the Diabetes Self-Management Education Program at the Bay Clinic in Hilo, Hawai'i. In the photographs from left to right, are Keta Henry, Rev. Johnson Jetton, Keola Downing, and Wanne Konelios. All are members of Micronesians United – Big Island. Downing learned Marshallese, the language of the Marshall Islands, when he was in the Peace Corps in the late 1960's. (In 2009, a separate dabetes class was started for people who speak Chuukese from the island of Truk in the South Pacific.)

Photographs by Tom Whitney <whitneye001@hawaii.rr.com>

needs them to chew the food that we are recommending he eat to control his blood sugar."

"This group struggles to navigate the Western health care system," says Grimm. "That is why we feel the behavioral health part of the program is important. We also work on housing issues, food stamp issues, disability issues. We work on getting them to specialty care with a translator so that they can understand what the specialist is saying, and the specialist can ask questions of them. Many of these other issues I just mentioned are addressed by Bay Clinic staff because we are required to by virtue of being a Federally Qualified Community Health Center. Through those staff counselors we further provide the safety net for low income and uninsured citizens.

Bay Clinic works to provide culturally competent "out of the box" care as determined by the disease and the unique needs of individual patients.

Tips from the field:

- Do whatever you can to help a patient understand your message.
- Know that if the patient uses a translator, the patient may actually not be receiving the message you hope to send. A Medical Interpreter is preferred so that the patient can understand the meaning of what you want the patient to hear.

Charlotte Grimm, APRN, on the right, is talking to a group of people from the Marshall Islands about Bay Clinic procedures for giving flu shots. Her words are being translated into the Marshallese language by Dr. Keola Downing.

- Use body language and other methods to communicate; ask the patient to repeat back to you the important and key messages you want them to understand such as medication, doses, etc.
- Offer education in print and in their native language.
- Suggest patients bring family members to help interpret.

In a variety of ways, the Bay Clinic has made an effort to reach out to its clients. Roxanne Estes, APRN, CNM, who is the director of the Bay Clinic's Pahoa Women's Health Center, said the Marshallese mothers have very much appreciated the more informal décor of the new clinic including the wall murals like the one in the photograph on the left by Patricia Leo.

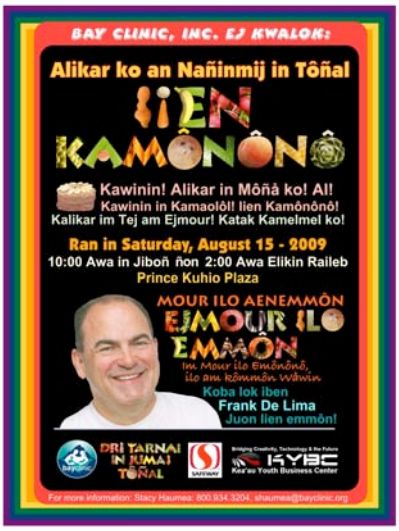
- Be open to new ideas and learn about the cultures you serve.

Local University Nursing and Pharmacy Program Students Assist Students from the University of Hawai'I Nursing Program have contributed to the program as has Danita Henley of the Pharmacy Program. Kim Takaz and Hope Kalei created an information display. In addition, they created a two-fold letter size brochure for

the Bay Clinic's diabetes program. Their "Diabetes 2-fold brochure" can be seen on the Bay Clinic DVD in "11. Vegetable Alphabet & Graphics folder."

A section on a vegetable alphabet may seem odd in this document dealing with medical issues, but it is not, because it is a staff time saver, thus an agency money-saver. It can enable staff to fairly easily make up attractive, professional-looking, attention-getting flyers for events as the Bay Clinic does for its monthly park events open to the public. It demonstrates the creativity that can occur with involving patients in the program.

Note: *On the Bay Clinic Diabetes DVD in section "2. Procedures and Forms" is a discussion of the uses of the Vegetable Alphabet (on pages 28 – 30) that was created by Warriors Against Diabetes group member Tom Whitney. The letters of the alphabet are contained in "11. Vegetable Alphabet & Graphics Folder." There are directions on the "Accessing letters in the Vegetable Alphabet" sheet within the Vegetable Alphabet folder.*



From left to right, are Ersa DeBrum, Lilly Enne, Rose Henry, Kare Enne, Keta Henry, Kenton Aichele, Temoananuiahiva Haumea, Kukui Haumea, Stacy Haumea and Desmon Haumea.

Creating Diabetes-Friendly Gourmet Cuisine

When you have diabetes, changing your diet is a big part of dealing with it. Does this have to be a bad thing, a big hassle? Desmon and Stacy Haumea are here to tell us “no.”

“We can live healthy and still maintain our lifestyles. We’ve raised the bar,” Desmon Haumea said. “In fact, we are creating a gourmet cuisine for people with diabetes right here in Hilo,” he said. “We grow our regional cuisine right in our own backyards, and every week Stacy and I are coming up with new ways to create tasty, healthy meals.”

The Haumeas work with the Hilo Bay Clinic’s Diabetes Self-Management Education Program and Kea‘au Youth Center, where Desmon is teaching high

Ono kau kau lapa‘au. Delicious healing foods.

school students basic skills in the culinary arts as well as how to work together. Working in a kitchen is like being on the crew of a canoe, Haumea said, and he is “trying to teach the students the meaning of the Hawaiian proverb: ‘A canoe is heavy when carried by one.’” Teamwork is the answer. Desmon is a chef whose family has a long history in the restaurant business. Stacy has a Master’s in Public Health from the University of Hawai‘i at Manoa, and she is a Registered Dietitian.

With help from the participants, they created a low-cost mini banquet of healthy food at a recent diabetes cooking class held at the Hilo Bay Clinic for people from the Marshall Islands. Classes are open to any diabetes patients of the Bay Clinic. The items on this menu bear out Desmon’s theme for the cooking efforts: Ono kau kau lapa‘au. Delicious healing foods.

- **Ahi and Mango Salsa with Sautéed Bananas** Ahi is sautéed in olive oil for about five minutes with some added coconut milk, garlic and oregano for flavor. The Marshallese often drink coconut milk that is high in sugar and fat, and not good for diabetics, so this recipe fries the fish in it to give a taste of coconut, and by disposing of the coconut milk afterward the quantity actually consumed is limited.

Ahi and Mango Salsa with Sautéed Bananas

  Slice the small apple bananas in half the long way and sauté them in olive oil. Sprinkle lightly with cinnamon and sauté until lightly browned.

  The mango salsa, which can also be made with papaya, has Maui onion, tomato, cilantro, basil (pelik in Marshallese) and garlic.

  A bed of chopped cabbage is placed on the serving tray first; the ahi is arranged on top. Bananas are arranged around the edges and the salsa is placed on top of the fish.

- **Iik Fu Young with Chop Sui Veggies** Iik is the Marshallese word for fish. Moonfish is sautéed in olive oil and put aside. The chop sui veggies are warmed in the frying pan, then the fish is placed back in the pan and the eggs are added. Sautéed spinach and a dash of olive oil are served on top.

- **Sashimi, Marshallese style** Ahi (tuna) is often served with chopped onion and coconut milk.

- **Tofu, bean sprouts and Turkey Spam** This was a recipe created by Kenton Aichele. It uses a can of Turkey Spam, low in fat, that is sliced in one-quarter-inch by one-quarter-inch by two-inch slices. These are fried in olive oil along with a couple of shakes of Braggs Liquid Aminos. Kenton uses a lot of pepper that takes the place of salt for him. After the Spam is fried, he then puts in the bean sprouts until they get a little wilted and trans-parent, then he adds the diced tofu and sautés it all until the tofu is browned.

Kenton Aichele has created a practical low-cost, low fat dish full of protein that meets the needs of diabetic Spam gourmets, of which there are many in Hawai'i. Residents of Hawai'i, Guam and the Northern Mariana Islands consume the most Spam per capita in the United States. Kenton says his adult son now hates Spam because he ate it so much as a child. Kenton still loves it as do most people who try his dish.

- **Pumpkin casserole** This is made with steamed, mashed pumpkin. Mix in cooked brown rice rinsed canned kidney beans, cooked broccoli, cauliflower and carrots.

- **Sautéed purple sweet potatoes** Sautéed in olive oil and used in place of rice, noodles or other carbohydrates.

- **Edamame salad** *Program Coordinator Maile Estabillio created this salad.* Ingredients include edamame (shelled soybeans), a one- pound package; firm tofu, diced, half of a package; 3 Roma tomatoes or one package of grape tomatoes, sliced round; one yellow bell pepper, one-half, diced; spinach, stems removed and sliced, one-half package; Wakame Chazuke (rice seasoning), one-third bottle or less; salad dressing (Asian or oriental, one-quarter cup or less).

- **Chicken and bitter melon soup**
  Retiree Abe Guevarra's recipe for one person.
  Garlic, 3 cloves; ginger, about 3 to 4 inches worth; bay leaf, only 2; black pepper; garlic salt, a pinch; bitter melon, the leaves only (shown here), or a young shoot, amount to taste; chicken, chopped up, washed, rubbed with Hawaiian salt and let to sit for five to ten minutes, then washed again.

This is what a bitter melon leaf looks like. You can buy them at the Farmer's Market in Hilo.

Here Abe Guevarra is making soup for a group at the Kea'au Youth Center.

  Put the chicken in a pot with a little water and bring it to a boil for five minutes, then throw away the fat. Then put more water in the pot.

  Then put in the ginger and cook until tender, about ten minutes. Then put the rest of the ingredients in, until it tastes good. Then put in the bitter melon leaf, cover and leave it for one or two minutes. Then it is time to eat.

  Bitter melon is well known in the Filipino and Chinese communities for its capacity to lower blood sugar. However, it should not be eaten by children, nor by pregnant women, as it can cause a miscarriage.

- **Chocolate angel food cake**
  Maile Estabillio's almost sinful cake.
  2 Boxes sugar-free instant chocolate pudding; sugar-free Cool Whip, 2 small or 1 large container; 1 eight inch angel food cake (white or chocolate); 3 cups skim milk; two or 3 bananas sliced.
  Mix the milk and pudding together, let it set.
  Add Cool Whip to the pudding and mix. Break the cake into bite-size pieces or slice in thirds horizontally. Layer the pudding mix, bananas and Cool Whip in a bowl. If using slices, layer with pudding mix and bananas on each layer.
  Top with Cool Whip.

- **Delicious steamed veggies sprinkled with butter, Braggs Liquid Aminos and breadcrumbs.** *Tom Whitney's former-vegetable-hater's invention.* Steam a bowl of frozen Normandy Blend vegetables (cut broccoli, cauliflower florets, squash and cut carrots) for twenty minutes. Take a frozen stick of butter or margarine and use a flat grater with the large holes and lightly coat the veggies on the plate with butter, one to two tablespoons worth. Sprinkle a few drops of Braggs Liquid Aminos all over. This is a substitute for salty soy sauce and contains many amino acids reputed to be healthy. It has its own tangy good taste. Finally, sprinkle Italian-style bread crumbs lightly over the creation. For a main meal throw in some frozen fish, even some frozen fruit. Whitney's favorite fish is salmon. Total work time to fix: about five minutes.

Diabetes and Depression

As the Bay Clinic's Behavioral Health Staff set up chronic disease management, they built in behavioral modification components. There is a lot of information about this on the excellent website created by the Behavioral Diabetes Institute in San Diego: http://www.behavioraldiabetes.org/

Lenard Allen, MA, is one of the behavioral health professionals on the staff of the Bay Clinic, Inc. He shares the following depression symptom list with patients who are participating in Diabetes Self-Management Education classes.

Feeling down once in a while is normal. But some people feel a sadness that just won't go away. Life seems hopeless. Feeling this way most of the day for two weeks or more can be a sign of depression. At any given time, most people with diabetes do not have depression. But studies show that people with diabetes have a greater risk of depression than people without diabetes. There are no easy answers about why this is true. The stress of daily diabetes management for some can build over time, creating a sense of self-care fatigue and frustration regarding continued self-monitoring.

If you face diabetes complications such as nerve damage, or if you are having trouble keeping your blood sugar levels where you'd like, you may feel like you're losing control of your diabetes. Tension between you and family members, the health care system, the economy, and getting older, may make you feel frustrated, frightened, listless, or sad. Depression can get you into a vicious cycle and become a barrier to good diabetes self-care. The low-energy effects of depression can result in a lack exercise which may aid in increased sugar levels or reduced circulation. This in turn can result in individuals not monitoring daily blood sugar levels. If you feel anxious it may cause nervous eating which causes weight gain affecting your health. You may not feel like eating at all which will affect your blood sugar levels. Disease treatment compliance, if not addressed, can have a domino effect of inter-related parts that either stand tall or topple based on the behavior of the individual.

What to do?

Spotting depression is the first step. Getting help is the second. If you have been feeling really sad, blue, or down in the dumps, check for these symptoms:

- **Loss of pleasure** You no longer take interest in doing things you used to enjoy.

- **Change in sleep patterns** You have trouble falling asleep, you wake often during the night or you want to sleep more than usual, including during the day.

- **Early to rise** You wake up earlier than usual and cannot to get back to sleep.

- **Change in appetite** You eat more or less than you used to, resulting in a quick weight gain or weight loss.

- **Trouble concentrating** You can't watch a TV program or read an article because other thoughts or feelings get in the way.

- **Loss of energy** You feel tired all the time.

- **Nervousness** You always feel so anxious you can't sit still.

- **Guilt** You feel you "never do anything right" and worry that you are a burden to others.

- **Morning sadness** You feel worse in the morning than you do the rest of the day.

- **Suicidal thoughts** You feel you want to die or are thinking about ways to hurt yourself.

If you have two or more of these symptoms and have been feeling bad for two weeks or more, it's maybe time to get help.

Getting Help

If you are feeling symptoms of depression, don't keep them to yourself. First, talk them over with your provider. There may a physical cause for your depression. Diabetes that is in poor control can cause symptoms that look like depression. During the day, high or low blood sugar may make you feel tired or anxious. Low blood sugar levels can also lead to hunger and eating too much. If you have low blood sugar at night, it could disturb your sleep. If you have high blood sugar at night, you may get up often to urinate and then feel tired during the day.

Other physical causes of depression can include:

- alcohol or drug abuse

- thyroid problems
- side effects from some medications

Don’t stop taking a medication without telling your doctor/provider. Your provider will be able to help you discover if a physical problem is at the root of your sad feelings. If you and your provider rule out physical causes, they will most likely refer you to a specialist. You might talk with a licensed psychiatrist, psychologist, psychotherapist, or social worker. In fact, your doctor may already work with behavioral health professionals on a diabetes treatment team.

Behavioral health professionals can guide you through the rough waters of depression. In general, there are two types of treatment. One is psychotherapy, or counseling. The other is antidepressant medication. Psychotherapy with a well-trained therapist can help you look at the problems that bring on depression. It can also help you find ways to decrease symptoms and improve your functioning. Therapy can be short term or long term depending on the needs of the individual. You should feel at ease with the therapist you choose so you’re able to discuss personal issues which may be barriers to your taking good care of yourself. If medication is advised, you will need to consult with a behavioral health professional who is able to provide a diagnosis which will be a predictor of which medications may be most effective to get you on the road to feeling better and living a fuller life.

Evidence-Based Improvement of Service at the Bay Clinic and the Improvement Model

"We have to make sure we are using evidence-based research to justify our primary care decisions," says Charlotte Grimm emphatically. "We have to make sure evidence is not anecdotal. We have to make sure our data is sound and that the articles are peer-reviewed."

Grimm, the Manager of Clinical Operations at the Bay Clinic, recommends that Clinic providers use the *UpToDate* website because it is an evidence-based, peer-reviewed information source.

Beyond that, when it comes to improving the procedures at the Clinic, attention turns to using the Improvement Model developed by Associates in Process Improvement[31] to develop evidence to guide changes. This includes the "Plan, Do, Study, Act" process[32] that is used to develop a continuous program of improvement. The diagram below illustrates the concept.

Also part of the model are three fundamental questions:

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make that will result in an improvement?

The process has an interesting history. Many community health centers are using the procedure for "continuous

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[31] Langley GL, Nolan KM, Nolan TW, Norman CL, Provost LP. The Improvement Guide: A Practical Approach to Enhancing Organizational Performance. San Francisco, CA, USA: Jossey-Bass Publishers; 2009. Discussion of the guide can also be found on the Institute for Healthcare Improvement's site that also has extensive information about the Chronic Care Model: http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/

[32] The Plan-Do-Study-Act (PDSA) cycle was originally developed by Walter A. Shewhart of Bell Laboratories as the Plan-Do-Check-Act (PDCA) cycle. W. Edwards Deming, who was inspired by Shewart, modified Shewhart's cycle to PDSA, replacing "Check" with "Study." This is described in Deming's book: The New Economics for Industry, Government, and Education. Cambridge, MA: The MIT Press; 2000.

improvement" developed by W. Edwards Deming.[33] Deming helped the United States improve industrial production during WWII. After the war, he famously counseled Japanese companies for years and helped them improve the design and service of their products. The production of quality goods that resulted led to increased worldwide sales. He was regarded as having more impact on improving Japanese manufacturing than any other non-Japanese person and was honored with a medal from the Japanese government for his efforts.

One of Deming's many teachings[34] is well known and applied today in many U.S. industries and in community health centers as the Plan-Do-Study-Act (PDSA) process. Charlotte Grimm is a staunch advocate of this process. The PDSA idea, Grimm says, is to take a very small area, do a test cycle for a week or less and study it to see if it will work. If it does, implement it on a larger scale. "This process has really made change a lot more possible. Instead of trying to move a whole battleship, you try and move something smaller, and if it works then you spread it." Because these cycles are going on all the time, this is what is meant by continuous quality improvement.

"Our staff is competent, and we are lean and mean, which we have to be," Grimm says. "What our leadership team has always said is this: 'We are going to do the best job we can to provide quality care for our patients, but we constantly ask ourselves what we can do to have no fat in our organization and then the chips will fall where they fall. We are not going to be the cause of our own demise because of over-staffing.' We are looking at every piece of the process within our organization the whole way through. When a person walks in through the door, we are asking how we can cut back on expenses, and improve quality of care, and do that so we are here for the ever-increasing amount of people who need our services. We need to be smarter and faster, thinking about things ahead of time, being proactive and looking forward rather than being reactive, which is the way we used to be."

Grimm is busy every day using the PDSA method to solve problems. She says that her background in accounting helps her to be constantly aware of balancing the improvement of the quality of care to the patients, which is her first concern, with improving efficiency and cost-effective approaches to providing care.

PDSA is a common sense and practical approach to problem solving.

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[33] http://www.12manage.com/methods_demingcycle.html See also: http://www.absoluteastronomy.com/topics/PDCA

[34] There is a fascinating description of "The Deming System of Profound Knowledge" on Wikipedia on the Internet. Its name sounds presumptuous but Deming has been widely recognized as a certifiably brilliant management consultant. His System contains many wise guidelines for effective management in any organization.

Grimm explains that in her work she is always dealing with “what are the problems, what are the barriers and what are the systems that are not working? “Often we have patients telling us something and we start working on it. For example, they might say they waited three hours, or they couldn’t get their medicine, or urgent care is calling them because they don’t have a referral, etc.”

Examples of Plan-Do-Study-Act Procedures at the Bay Clinic

High Provider turnover Years ago when the Clinic was starting the diabetes collaborative program the two-person staff held in-service training sessions to educate staff providers about the program. No sooner would they finish a session than a provider or two would leave.

Staff pondered this for a while and decided to hold classes for patients. That way they could be sure that the patients were getting the knowledge they needed, not providers who were soon gone. The first class series was held and the patients’ health indicators improved. This set the pattern for classes that have continued from 2005.

A nurse taking vital signs was disruptive There was one nurse assigned to the diabetes class. To keep patient charts current the nurse was pulling people out of the class to take their vital signs, weigh them and test their blood sugar, and while doing this, people were missing part of the class.

Staff thought about it and planned a different approach. What would happen if they taught the patients to do their vital signs themselves. This was done and it worked out perfectly. Not only did it solve the problem, staff realized it became a learning tool so there was an extra benefit. So now during the first half- hour, patients are doing this and filling in their charts. “It became an empowerment tool for them. They have more control,” Grimm notes, “and this is what diabetes self-education is all about.”

Patients would call the Clinic for prescription renewal of their diabetes medications and leave often garbled phone messages. Nurses would spend as much as three to four hours a day verifying with patients and calling in prescriptions.

Someone at the Pahoa Health Center suggested that the Clinic should set up a procedure so the patients would call the pharmacy and have them fax in the requests to the Clinic. Staff ran a test cycle; it worked, and then staff implemented it throughout the whole organization.

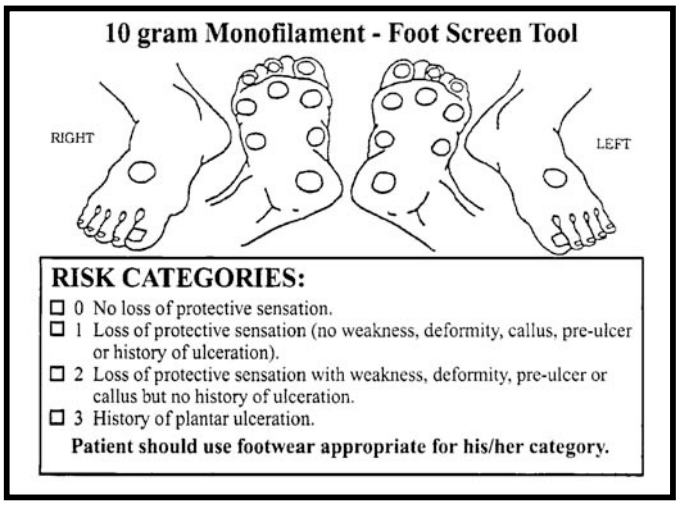
With the pharmacy faxing the requests, there were less numerical errors in transcription, less spelling errors, and much nursing time was saved. With the new method providers can check if patients are picking up their medications regularly, and now that all of the prescription information is being computerized,

providers can push a button to renew prescriptions that are sent by Internet to the pharmacy.

Foot check testing procedure

The Bay Clinic was having problems acquiring low cost monofilaments to do foot checks for its diabetic patients.

Staff went on the Internet with colleagues and companies looking for answers. In one of the responses they received, someone suggested using fishing lines cut at 2-3 inches in length to test for lower extremity neuropathy.



This idea was implemented by the director of nurses who used a cribbage board with two pegs separated at three inches. She wrapped the fishing line around the pegs then cut them to size. Using the fishing line was a fine idea and they were disposable at a fractional cost.

A related staff idea was to test whether the removal of patients' shoes and socks and the ready availability of microfilaments in the exam room would increase the number of diabetes patients who received a foot exam by a provider. This was tested on ten Hilo Bay Clinic diabetic registry patients. Charts were reviewed after the patient/provider encounters were completed. All of the diabetes patients who removed their shoes and socks, and where a micro-filament was available, received a documented foot exam. This became a standard procedure for all diabetes patients. The process took three months to become fully implemented.

Electronic Health Records

A constant problem for providers over the years has been the accumulating mass of information on patients, and the difficulty of accessing this information in a comprehensive, efficient and timely manner during an office visit.

Early in the development of the Bay Clinic's diabetes program, there were many iterative revisions of paper diabetes flow sheets that were used in paper charts.

Then in 2006, with grant funds, the Clinic was able to begin the implementation of an electronic health record system. Thus began a time-consuming process that included the adoption of NextGen software. Staff had various problems with it in that they wanted to be able to include more information about diabetes and the patient self-management progress. Jason Ferreira, the Clinic's Information Technology Manager, found programmers who could modify it, and a $12,000 investment in programming modifications was completed in May 2009.

Medical records are needed for many purposes. They are needed to enable providers to efficiently look at all the important information in a person's record in a short period. They are needed need to keep providers and patients on track with the routines of care for their particular illness, for example, when their regular follow-up blood tests are required, or a foot check is needed, etc. They are also needed when there is a request to send them out to someone else if there is a referral to a specialist and there need to be notes of each provider/patient visit in the record. What you see on the following pages is just a template.

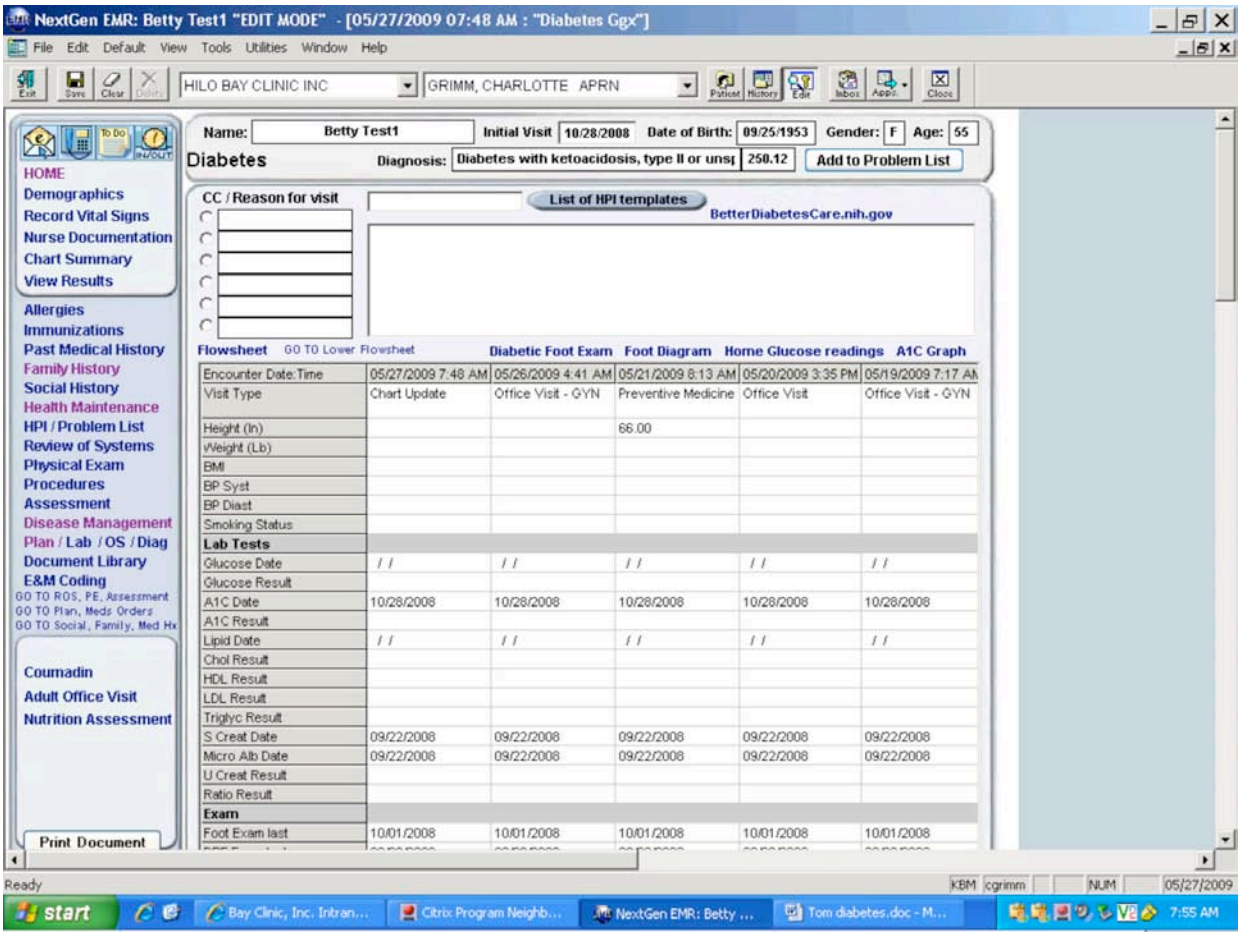
Charlotte Grim gave the following overview of how she as a clinical provider uses the system.

Family history First you look at the family history, and for example, if a person has a blood relative with a history of diabetes, that puts someone at a higher risk for getting diabetes. We can look at relatives and see cause of death and age of death, and all this gives us a better picture. We can see if cancer runs in the family, etc.

There are some items at the top. These screens come up for every visit with a patient. If a provider updates the history and clicks 'Detailed document,' the whole history will print out in the note for that day. If the provider clicks "Reviewed, no changes," it will just say 'Family history reviewed.' When a patient is new, very often providers go back into the family history, the social history and past medical history. That's a lot of information for anyone to remember at one time, so we keep returning to it.

Social history This includes age, languages spoken, whether they are right or left handed, education, employment, military experience, marital status, who do

you live with, family, social network, tobacco and alcohol usage and attempts to quit, caffeine, substances, a religious question. Sometimes this list changes.

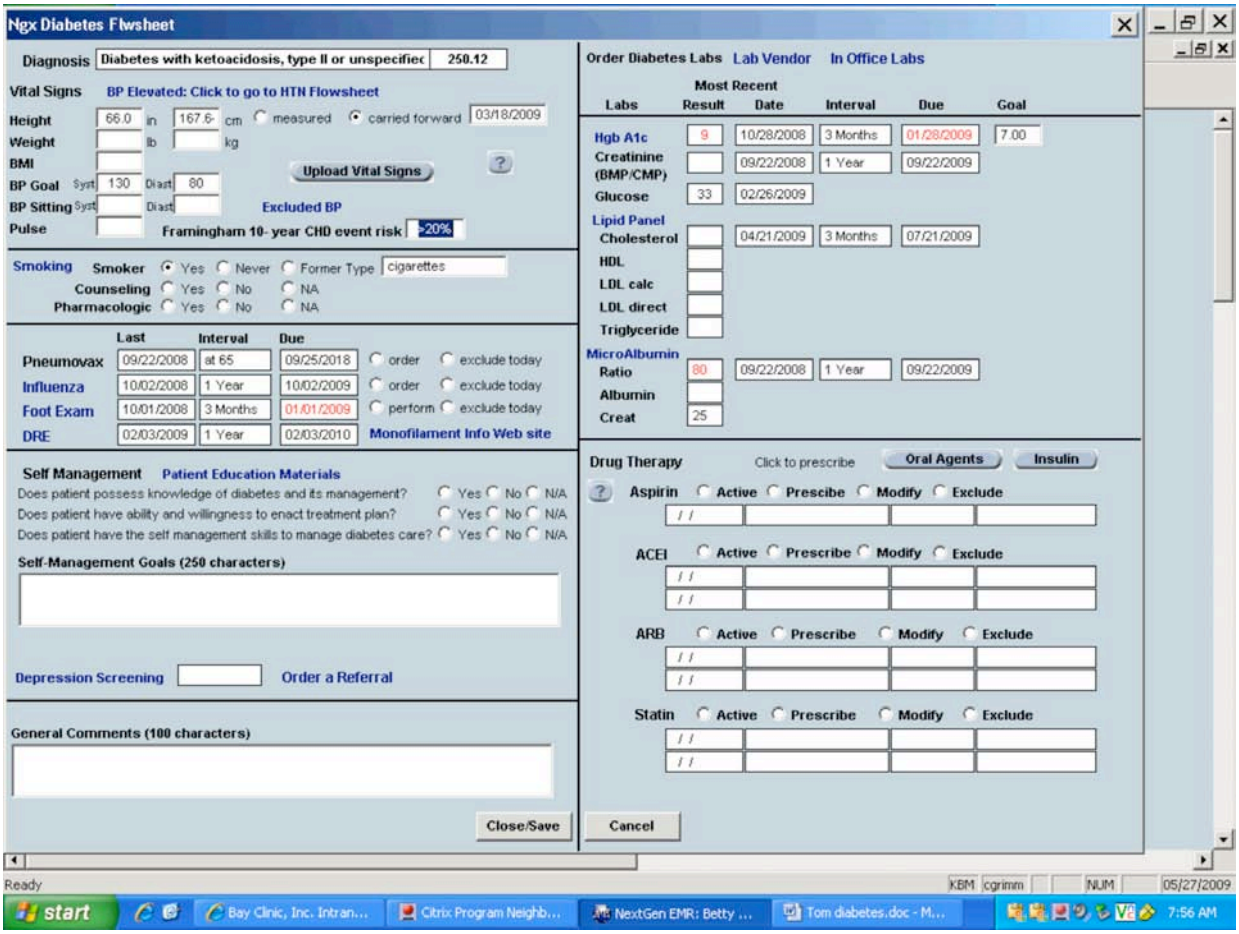


Active Problem List and Past Medical history This contains diagnostic medical history, gynecological history for women, and chronic problems are also listed. When you see somebody for the first time you ask, 'Have you ever been hospitalized overnight?' 'Have you had any surgery?' etc., etc. Thus you start building that record. Each previous medical issue and test has a report. Now we just have the summaries we have to type into the record; but in the future, we will be able to call up the complete reports on many of these items.

Those are the background. For a particular diagnosis, in this case diabetes, you look at the following screens.

Diabetes This shows dates of all the tests, one after another, so you can see if there is improvement over time. For each new visit with a patient after a provider has reviewed the history of the test results, the provider then clicks on 'Flow sheet,' about one third the distance down in the panel.

Flow Sheet This shows vital signs, social history such as smoking, and records of pneumovax shots, flu shots, foot exams, and when those shots are due next.



This panel also looks at self-management goals. It starts by asking three questions:

1. Does the patient possess knowledge of diabetes and its management?
2. Does the patient have the ability and willingness to enact treatment plan?
3. Does the patient have the self-management skills to manage diabetes care?

The possible answers are yes, no, and N/A. These questions help providers calibrate their suggestions to the patients for achievable self-management goals that can be worked on until the next visit.

There is a box to check for depression screening. And below that a box for general comments. Then providers can put in the lab values. Then there is the "Drug therapy" window that is brought over from the medication template. All this information can be pulled into a patient's note.

Also, from various fields, for example A1C blood test scores, providers can generate reports about the whole population of diabetes patients in relation to that field and be able to tell what the average A1C blood level is for all patients, or for those who have attended classes compared with those who have not.

Disease management This panel allows for indication of co-morbid conditions, that are other serious illnesses a patient may have at the same time. This is always important to scan for a routine review of a patient's condition.

Striving Toward Financial Sustainability: from Grants to Revenue

In order to achieve a financially sustainable diabetes education program, one must move from start-up grants to ongoing reimbursement support by insurers. It is recommended that those interested in starting programs meet with each insurance company that provides coverage to their patients and find out their requirements in order to bill. Negotiate contracts to bill for diabetes. Conduct a feasibility study on the program including information gleaned from negotiations. Then seek out start-up grant support. Often drug companies and local foundations are interested in assisting initial funding efforts.

Use grant-writing resources for fund development such as those provided by the Grantsmanship Center in Los Angeles. The Center has information that is important for both fund raising and obtaining grants from foundations and the federal government. The Center also offers highly regarded training in cities around the country. Many funding sources have adopted and approve of the Center's methods. Visit the Center's website: http://www.tgci.com/about.shtml.

Samples of funding received to fund Bay Clinic's first few years are shown below.

- 2004 from Becky Stubbs, APRN, CDE, $750. *These were the first funds the project received.*
- 2006 AlohaCare, $160,000. *AlohaCare is a Hawaii non-profit health plan that initially funded Bay Clinic with a substantial Quality Improvement Initiative grant that greatly helped the Bay Clinic's diabetes program in 2006. This was the substantial front-end investment that got the program off the ground.*
- 2006 Bayer, $3,000 *for purchase of medications.*
- 2007 AlohaCare, $160,000. *"AlohaCare Case Management: Hospital Readmissions," This was a project that looked at AlohaCare patients in the local hospital and examined how Bay Clinic follow up starting with patients in a hospital and continuing at the Bay Clinic could cut later hospital admissions. The grant was successful in demonstrating this was possible.*
- 2007 KTA Stores, $5,000 *for $100 gift cards for graduates from the diabetes classes.*
- 2009 Safeway, $10,000 *for food and supplies.*
- 2009 revenue from HMSA, Medicare and other health plans *through insurance billing.*

Revenue for Service Typically through the first half of 2009 when the classes were given, or for support group sessions, the patients who attended were each billed for the education component, and in addition for one-on-one consultations.

In June 2009, the Bay Clinic stopped billing participants in the long-term support groups for education, but continued to bill if there were one-on-one consultations with a medical provider.

Charlotte Grimm feels that the provider billing for one-on-ones after the regular sessions and the education billing for each series of classes is enough to support the four on-going support group efforts. In addition both the dietitian and the behavioral health person do bill for one-on-one services. The sense is that the program is well-enough established with sufficient people participating and being billed for one-on-one consultations after the support group sessions, that it financially covers support for the education component in the support groups. Billing for the education component of the classes will continue.

On the providers' fee tickets there are two areas for billing, diabetes education and primary care. For education, it is billable in half-hour increments. So Stacy Haumea may do a half hour on nutrition, Charlotte Grimm might do a half-hour on general medical information and answer questions and on another day, Steve Koshel might do a half-hour. Those are billable per head at a certain amount and for a certain length of time. Billing issues are discussed at length on the American Diabetes Association[35] and Medicare[36] web sites listed below.

Bay Clinic has a process to bill for the education component in "Group Visits" in the classes and enter data in individual electronic medical records in an efficient way. A list is built from the participants' session sign-in sheet for each class that also lists each patient's blood pressure, weight and blood glucose reading for that day. The information is entered in each participant's chart before the end of the session and then up-to-the-minute chart can be accessed if a provider sees a patient after the class or support group session.

After the class, the nurse opens the list up of all the participants who attended that day with what is called a group visit template. After each class session the provider creates a note for that class session. The provider uses the section for comments to type in a description of what occurred, often including the questions raised in the class. When finished, the provider presses "Submit" and it goes to the chart of every patient who was in the class. It is a very efficient way of creating a note.

Fiscal year 2008 was the first full year that the program was able to bill for its education and medical treatment from all insurers.

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[35] http://www.diabetes.org/for-health-professionals-and-scientists/recognition/dsmt-mntfaqs.jsp#Q11

[36] http://www.cms.hhs.gov/ContractorLearningResources/downloads/JA4385.pdf

Hawaii Tribune-Herald Friday, September 11, 2009 A7

Feds honor Bay Clinic for outstanding service to diabetics

Isle group outranks 44 rural facilities, including one run by the Mayo Clinic

The federal government has recognized Bay Clinic Inc. for outstanding service to its patients with diabetes.

Last week the Health Resources and Services Administration (HRSA) gave the Big Island organization an award for being the best provider of such services when compared to 44 other rural health care providers, including a rural clinic managed by the renowned Mayo Clinic in Minnesota, said spokeswoman Monica Adams.

"The award was based upon comparing certain health indicators such as blood sugar levels of all patients with diabetes and measuring these indicators over time," said Adams. "Bay Clinic's patients had the most improvements compared to patients from 44 health centers across the United States."

The award was given by the Office of Rural Health Policy, which is a branch of the HRSA.

"Diabetes is one of the most prevalent and devastating diseases that our communities face," said Paul Strauss, CEO of Bay Clinic. "So we are very proud of this award that recognizes us as a provider of high quality care needed to combat this deadly disease."

For more information on Bay Clinic and its diabetes program, please visit www.bayclinic.org or call Adams at 961-4080.

Summary of Bay Clinic Research Findings from 2004 - 2009

Bay Clinic Ranks First among 44 in A1C Improvement

Total population of diabetes patients in Fiscal 2009: A1Cs from 8.1% to 7.8%

In 2009, the federal government ranked the Bay Clinic first among 44 rural facilities nationwide, including one run by the Mayo Clinic, for its service to people with diabetes. During Fiscal Year 2009, the rural clinics joined a health care quality improvement initiative run by the Health Resources and Services Administration's Division of Rural Policy. The Bay Clinic ranked first because its patients had the most improvement in A1C blood glucose percentage from 8.1 % to 7.8 % across all patients for the year.

1st Case Study

60-year-old woman, Type II Diabetes Mellitus, Hypertension, Dyslipidemia

Clinical Measure	***Pre Class Status***	***Post-Class***
HbA1c	13%	7.4%
Triglycerides	121	103
Random sugars range	200-300	
		Started DMSE classes in 7/06
		Walking 2 times daily for 30 minutes
		Eating a low fat diet
		BP 112/84
		Lipids all within normal limits
		Up to date on all annual screenings.

2nd Case Study

65 yr old male, Type II Diabetes Mellitus, Hypertension, Dyslipidemia, Obesity, Metabolic Syndrome

Clinical Measure	***Pre Class Status***	***Post-Class***
HbA1c	8.4%	6.6%
Weight	303 lbs	283 lbs
Triglycerides	260	135
	Annual labs all past due	Annual screenings up to date
	No regular exercise regime	Walking daily 30 minutes
		On ACE, ASA and Statins

Outcomes: Comparing 13 people from their start at the Bay Clinic to their outcomes in October 2009. *All 13 have attended the Diabetes Self-Management Education (DSME) classes and continued as members of the Warriors Against Diabetes long-term support group. Average time in group 30 months; median time is also 30 months.*

Clinical Outcome Measured	Pre-DSME class	Post DSME class + support group from start to September, 2009	Bay Clinic Goals	
HbA1c <7%	45%	**73**%	70%	• Group exceeded Bay Clinic A1C goal.
Average HbA1c	8.11%	**6.42**%	<7%	• Average A1C is below ADA goal of 7% and the 6.5% goal recommended by the American Association of Clinical Endocrinologists.
Median HbA1c	8.4%	**7.4** %	<7%	
Documented Self-Management Goals	–	**92**%	70%	• Now using new form for weekly review of goals.
2 or more HbA1c per year	–	2009: **36**% 2008: 82%	90%	• Less intensity of testing because A1C better controlled.
BP <130/80	31%	**54**%	75%	• Need closer follow-up with high BP patients.
On statin	–	**69**%%	80%	• Some using statin alternatives.
On ACE/ARB	–	**92**%	80%	• The program is helping patients control cardiovascular disease and renal failure risk.
On aspirin	–	**92**%	80%	
Annual micro albumin	–	**62**%	90%	• Need closer follow-up with PCPs for this test.
Annual monofilament foot exam	–	**18**%	90%	• Establishing procedure to regularly do and record this in class and support groups.
Annual retinal exam	–	**83**%	90%	
Annual lipids	–	**54**%%	90%	• Need closer follow-up with PCPs for lipids testing.
Pneumovax vaccine in past 5 years	–	**92**%%	90%	• Lifestyle changes, better eating habits and exercise are key to support group success at lowering A1Cs.
Influenza vaccine	–	**85**%%	90%	
Smokers	**23**%	**0**%	0%	• Hearty recent congrat-ulations were given to the last smoker in group. He used hypnosis to stop smoking.
Average Body Mass Index	28.76	**26.43**	Normal B.M.I. 18.5 – 24.9	
Depressed	–	**0**%	**0%**	

2007 Bay Clinic Diabetes Self-Management Education
Annual Program Review & Plan

OUTCOMES AUDIT: 5/07
THOSE WHO ATTENDED AT LEAST ONE DMSE CLASS

OUTCOME	ACTUAL NUMBER AUDITED	%	BAY CLINIC GOALS
NUMBER OF DM WHO ATTENDED AT LEAST ONE DMSE CLASS	115		
CURRENT SMOKERS	17	15%	0%
HBA1C LESS THAN 7%	22	20%	70%
AVERAGE HBA1C			<7%
MEDIAN HBA1C			<7%
2 OR MORE HBA1C/YR	29	26%	24%
DOC SELF MANAGEMENT GOALS	60	53%	70%
ON STATIN	33	29%	80%
ON ACE OR ARB	33	29%	80%
ON ASA	37	33%	80%
ANNUAL MICROALBUMIN	35	31%	90%
ANNUAL MONOFILAMENT	33	29%	90%
ANNUAL RETINAL EYE EXAM	30	26%	90%
ANNUAL LIPIDS	51	45%	90%
PNEUMOVAX	30	26%	90%
INFLUENZA	38	33%	90%

AlhoaCare Quality Improvement Program

Analysis of nine patients who completed ten Diabetes Self-Management Education Classes in 2005.

Clinical Outcome Measured	Pre DSME class attendance	Post DSME class attendance	
HbA1c <7%	22%	44%	○ HbA1c improvement both average and median. ○ 100% of graduated DMSE participants have documented Self-Management goals and Confidence intervals. ○ Improvement in 3 monthly HbA1c lab work and annual screenings is apparent. ○ One can conclude that the DMSE program is helping patients improve their HbA1c. ○ The DMSE program is assisting patients reduce their risk for CVD complications by recommending ACE/ARB, Statins and aspirin Rx. ○ Reducing risk of renal complications through ACE/ARB's and lifestyle changes. ○ Assisting PCP's by educating and empowering patients to take control of their diabetes management. ○ Assisting PCP's in monitoring for screening needs.
Average HbA1c	9.8%	8.0%	
Median HbA1c	8.4%	7.4 %	
Documented Self-Management Goals	44%	100%	
2 or more HbA1c per year	33%	88%	
BP <130/80	55%	77%	
On statin	55%	88%	
On ACE/ARB	33%	88%	
On aspirin	22%	77%	
Annual micro albumin	33%	66%	
Annual monofilament foot exam	11%	88%	
Annual retinal exam	22%	88%	
Annual lipids	33%	88%	
Pneumovax vaccine	33%	55%	
Influenza vaccine	55%	100%	

The Future

1. **The Bay Clinic is working to consolidate its strong programs** so that they are offered at all five of its clinics. For example, the diabetes program went from one class a month to four in Hilo. The Clinic has started classes in Kea‘au, and Ka‘u and Pahoa. But the Hilo Clinic is the only one with American Diabetes Association accreditation. Charlotte Grimm wants to see the others accredited, and this will take a couple of years.

2. **The Clinic is considering adding classes** that meet in late afternoons and early evenings to enable more working people to participate.

3. **A provider financial incentive program** was introduced in 2009 to encourage providers to take a more active role in getting their whole share of patients to regularly take the necessary tests and become involved in classes. Charlotte Grimm said that the although diabetes program is doing well, she is unhappy that they have not reached more than a quarter of its patients with classes and demonstrated improvements in their health indicators. The incentive program is intended to help this.

4. **Referrals?** “Ideally,” says Grimm, “we want to create an army of people to go out there armed with the knowledge and bring more people to our classes. But the Bay Clinic has a population of 829 people with diabetes out of its client base of 15,000 people as of April 2009, and cannot accommodate external referrals at this time. In the future, it would make sense for sole practitioners to refer patients to these types of programs.

Other health centers could implement this approach for their specific populations. However, in Hawaii it would be virtually impossible for a private physician to make this kind of comprehensive program financially viable because they don’t have access to the comprehensive interdisciplinary team to provide the community safety net that the federal funding supports.

5. **Monthly events at Wailoa River State Park will continue** to reach more potential clients on a slow-enough basis so as not to overwhelm an already stretched staff. Exercise, the whole series of diabetes classes, health screenings, and topics of general interest will continue to be presented.

6. **Community involvement** The Clinic intends to continue its work and coordination with other individuals and organizations in the community to organize and staff community awareness events like the annual Take It Off Hawai‘i weight reduction effort and the Bay Clinic’s annual event at Prince Kuhio

Plaza, a local mall. That attracts dozens of diabetes service-related vendors and hundreds of people. The Clinic also looks forward to participating with Lions Clubs on various diabetes awareness events.

7. **Younger people** The advisory board wants the diabetes program to look at identifying ways the Clinic could relate to younger people with diabetes, from teens to those in their late twenties and thirties.

8. **The work never stops** "I think one of the really important points to realize is that you are never done." Charlotte Grimm says. "It is never over. You are never going to be finished in health care. It is forever changing. And as your population changes you should be able to adapt to that. That is where Western medicine has been completely out of step. Traditionally health providers didn't look at adapting to their patients. That works for some people but what the Chronic Care Model shows us is, this team approach is a more effective way of empowering people with diabetes to manage their chronic illnesses."