Selective Screening of Type 2 Diabetes for Washoe County's Hispanic Population

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Running head: SELECTIVE SCREENING OF TYPE 2 DIABETES

ABSTRACT

Hispanic Americans with unrecognized, asymptomatic diabetes are more likely to experience poor quality of life and diabetic complications such as heart, eye and kidney disease than non-Hispanic whites of similar age. Multiple factors, such as cultural beliefs, lack of knowledge and limited access to health care, contribute to the fact that one-third of total diabetes among Hispanic Americans is undiagnosed. For Washoe County, Nevada, the actual percentage of adult Hispanics with diabetes may be almost 12%. In 2003, the Defeat Diabetes Screening Project provided three screenings targeting the Hispanic population in Reno and Sparks. Seventy-one percent of 348 screened were Hispanic. The purpose of the screenings was to identify and provide persons at high risk for diabetes with early diagnosis and health care. Defeat Diabetes identified 11 new cases of diabetes, a 32% yield that is within the historical range of 5 to 40% for selective screening.

KEYWORDS: diabetes, selective screening, Hispanic

Diabetes in Hispanic Americans is a serious health challenge because of the increased prevalence of diabetes in this population, the greater number of risk factors for diabetes in Hispanics and the greater incidence of several diabetes complications. On average, Hispanic Americans are 1.9 times more likely to have diabetes than non-Hispanic whites of similar age. Hispanic Americans have higher rates of being overweight and physically inactive and experience eye and kidney disease more frequently than non-Hispanic whites. About one-third of total diabetes among Hispanic Americans is undiagnosed. (National Institute of Diabetes and Digestive and Kidney Diseases, 2002).

For 2003, 18% (n=43,789) of Nevada's Washoe County residents over the age of 17 were Hispanic. According to Washoe County's Behavioral Risk Factor Surveillance Survey, 1996-2000, almost 9% of Hispanics over the age of 17 reported they have been diagnosed with diabetes by a physician (Brus, D., Vol.3, No.3, 2002). Based on the national estimate, the actual percentage of adult Washoe County Hispanics with diabetes may be one-third higher or 11.7% (n= 5123). This is a rate of 117 cases of diabetes per 1000 adult Hispanics in Washoe County per D. Brus, Public Health Epidemiologist for Washoe County District Health Department in Reno, Nevada (personal communication, May 21,2004).

Because of these known facts, Washoe County's Defeat Diabetes Project provided free diabetes screenings and access to diabetes care targeting the Hispanic community in 2003. The project's goal supported the Healthy People 2010 Objective of increasing the proportion of adults and children with diabetes whose condition has been diagnosed (*Healthy People 2010*, 2000).

BACKGROUND

A Community-based Approach

The objectives of the 2003 Defeat Diabetes Project were: 1) to provide three screenings targeting the Hispanic community in the Reno/Sparks area, 2) screen 200 individual per event based on limited supplies and manpower, 3) conduct follow-up and encourage those referred with a positive screening test and/or risk factors to seek and obtain appropriate follow-up diagnostic testing, and 4) develop a master database of those screened and referred and to determine the project's outcomes.

The project's team players and their contributions were:

- Abbott Labs provided test strips and machines.
- Health Access Washoe County (HAWC) provided manpower for one screening, sponsored the van, and conducted follow-up of referrals.
- Nevada Diabetes Association for Children and Adults served as liaison with Sak' N Save grocery store and Abbott Labs, provided worksheets, handout, and manpower, and administered the mini-grant from the Alliance to Washoe County Medical Society.
- Reno Host Lions Club provided chairs, recruited two Spanish-speaking volunteers and sponsored the van.
- Sak'N Save Grocery provided gift certificates and space for tables and the van.
- Saint Mary's Health Network (Saint Mary's Foundation, Take-Care-a-Van, Community Outreach and Nell J. Redfield Health Center) provided supplies and a Certified Diabetes Educator (CDE) for all three screenings.
- St. Therese Little Flower Church provided space for the van and tables and included write-up in church bulletin.

- Three volunteers served as bilingual interpreters.
- Washoe County District Health Department (WCDHD) provided a health educator to facilitate project planning and implementation, bilingual staff to assist with all three screenings and sponsored the van.
- Washoe Enhancement Services, Diabetes Wellness Program provided a CDE for all three screenings.

Free diabetes community-based screenings were offered, one each, in March, June and September 2003. The March and June screenings were most successful in terms of numbers screened **(see Table 1).** The March screen was held in the community hall of St. Therese's Church in Reno on a Sunday following three morning Masses, of which one was said in Spanish. The screening was advertised in St. Therese's Church bulletin (in Spanish and English) and announced during Masses two consecutive Sundays before the screening date. Flyers were posted on the church's entrance doors the day of the screening. Saint Mary's Take-Care-a-Van was situated about 10 feet outside one of the doors adjacent to the community hall. Stations for initiating the diabetes screening worksheet, taking blood pressure, measuring waist circumference, and doing a glucose fingerstick were performed inside the community hall. The very last step in the screening process was when the participants were directed to the van where a nurse evaluated and interpreted their screening worksheet and made referrals.

For the June screening, the Hispanic media was contacted since the screening location was at Sak' N Save Food Store in Sparks where members of the Hispanic community routinely shop. A press release followed by a phone call was faxed to Spanish-speaking radio and TV stations and one newspaper. The *Ahora-Spanish English News* did a write-up and a reporter from one of the TV stations came to the screening. A week after the screening, KUVR 68, Aztexa American, interviewed three WCDHD staff that has diabetes or a family member with diabetes for a 30-minute show. All measurements were performed *inside* Sak N' Save grocery. After their finger stick glucose, participants were escorted to the van to see a nurse. The van was situated in front of the store.

September's screening had the fewest participants due to several contributing factors. Held at another Sak' N Save in Reno, all screening stations (except for seeing the nurse) were set up *outside* the store. The van was hidden in the corner of the parking lot which was a significant walking distance from Sak' N Save's front doors. The screening was also part of the store's special celebration that included music, food and other attractions. The celebration began at noon whereas the screening started at 10 a.m. and ended at 2 p.m. In spite of staff's onsite efforts to inform shoppers about the screening, the poor location of the van, the walking distance to the van, and timing of the screening proved to be major barriers.

Table 1. Number of Participants Screened for 2003

Date	Number Screened	Location	Female	Male	Unknown
March 20	124	St.Therese Little Flower Church, Reno	73	50	1
June 28	151	Sak'N Save, Sparks	102	49	
Sept. 20	73	Sak'N Save, Reno, celebration	47	25	1
Total	**348**		**222**	**124**	**2**

Screening Process

The Informed Consent and the Authorization to Disclose Information forms and the Diabetes Screening Worksheet were available in Spanish and English. Two bilingual staff explained the purpose of these forms and assisted individuals in answering questions in Steps 1 and 2 of the **Diabetes Screening Worksheet**.

Parameters for taking blood pressure measurements were established after the March screen to streamline the screening process. Persons age 10 and older were offered a full screening. Children less than 10 years of age whose family expressed concern or who had a family history of diabetes, only a fingerstick glucose was taken. If a digital blood pressure reading was high, the blood pressure was rechecked manually and recorded on the worksheet. Another improvement made after the March screen was providing a bilingual interpreter for each nurse. An interpreter per nurse enhanced the

nurse's consultative effectiveness and expedited the flow of the screening process.

The waist circumference was taken with a non-stretchable tape measure behind a privacy screen in the church hall and inside the van. The participant was asked to raise their arms high enough to allow staff to position the tape horizontal around their waistline. The tape was pulled snugly before reading the measurement on the person's right side of waist. During the last two screenings, the reading was taken at the top of the person's iliac crest on the right side.

The majority of those referred for further diagnostic screening received some health education from the nurses. The most common teaching points were: eat smaller more frequent meals throughout the day, increase water intake, stay active, increase exercise, have annual checkups, get screened yearly and stop smoking. The nurses provided one educational handout **(Attachment C)** adapted from the s***mall steps big rewards Prevent type 2 Diabetes Campaign*** written in English and Spanish that contained three messages: know your diabetes risk, eat less fat and fewer calories (pass up the extra helping) and start walking at least five times per week (National Diabetes Education Program, 2003).

A copy of the completed worksheet was given to those who were referred/encouraged to see their primary care provider (PCP) or to go to HAWC or Saint Mary's Health Center for further diagnostic testing. The participating clinics also received worksheet copies of those referred to their clinic to initiate the follow-up. After the March screening, 11 participants with an established PCP were called to ascertain if they had made an appointment to see their doctor or if they intended to call their doctor. Due to a lack of manpower and phone numbers obtained, this time-consuming effort to follow-up with those with PCPs was not pursued after the June and September screenings.

RESULTS

Demographics of Participants Screened

Table 2 describes who participated in all three screenings based on ethnicity and age. The majority (71%) of those screened were Hispanic. Sixty percent of those screened were between ages 30 and 59.

Table 2. Ethnicity of Participants

	Total	%	Female	Male
Hispanic	**248**	**71**	**163**	**84**
Pacific Islander	8	2	4	4
African American	8	2	4	4
American Indian	8	2	7	1
Asian American	15	4	9	6
Caucasian	26	8	13	13
Other	3	1	1	2
No answer	32*	10	22	10

Note: * 31 of the "no answers" were from the March screen. The most likely reason for those who did not answer the ethnicity question is due to the question's format and location on the worksheet. The screening worksheet was reformatted after the March screen to enhance its readability and the collection of information.

Self-report of Participants' Risk Factors

Forty-one percent of the participants indicated they had a family history of diabetes. The majority of all female participants (81%) had no history of having a big baby (over nine pounds) at birth or gestational diabetes. History of high cholesterol was indicated by 23% of all participants. However, 63% of the "unknown" responses (n=46) were Hispanic. This high percentage of unknown responses may equate with the 216 participants who reported "no" history because many Hispanics do not obtain a fasting lipid profile due to lack of health insurance, health education, and lack of symptoms. Obtaining a lipid profile is also considered a preventive screening measure. The majority of all participants (75%) reported no history of high blood pressure that may be attributed to the relatively young Hispanic population with an average age range of 30 to 49.

Description of Participants' Screening Measurements Blood Pressure

The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (U.S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung and Blood Institute, May 2003) provides a new guideline for hypertension prevention and management. Individuals with a systolic blood pressure (SBP) of 120-139 mmHg or a diastolic blood pressure (DBP) of 80-89 mmHg should be considered prehypertensive and require health-promoting lifestyle modifications to prevent cardiovascular disease. Individuals with prehypertension are at increased risk for progression

to hypertension; those in the 130-139-/80-89 mmHg blood pressure range are at twice the risk to develop hypertension as those with lower values.

A normal blood pressure is a SBP less than 120 *and* a DBP less than 80. The goal blood pressure for individuals with diabetes is less than 130/80. For the Defeat Diabetes screenings, a blood pressure of 130/85 was considered abnormal. Only 17% of all participants had a diastolic pressure greater than 85 mmHg.

Participants with Systolic Pressure >130 AND Diastolic Pressure >85 (13%, N=339) Compared to Self-reported History of High Blood Pressure

Reported History of High Blood Pressure	Number of Participants
Yes	22
No	19
No answer	2
Unknown	1
Total	**44**

Waist Circumference

The screening participants' waist circumference was measured for several reasons. A wide waist is associated with metabolic syndrome and is considered an independent risk factor for serious diseases, similar to factors such as weighing too much and high blood pressure. According to Dr. George Blackburn, associate director of the division of nutrition at Harvard Medical School, waist circumference is "an absolute vital sign in determining your health." People with wide girths are more likely to have large amounts of deep-hidden belly fat around their organs, which is linked to high cholesterol, high insulin, high triglycerides and high blood pressure.

Saint Mary's and HAWC Health Centers use Body Mass Index (BMI), a measure of weight relative to height. Combining both waist circumference and BMI with information about the person's additional risk factors gives the health care provider a more accurate picture of the person's risk for developing obesity-associated diseases. The tables below describe the BMI scores and abnormal waist circumference values for both men and women.

	BMI
Underweight	Below 18.5
Normal	18.5-24.9
Overweight	25-29.9
Obesity	30 & above

Abnormal Waist Circumference Values

Females >34 inches
Males > 40 inches

Seventy percent of the 214 females (n=149) measured had a waist circumference greater than 34 inches. The range for the majority of these women was 35-43 inches. For the males, 26% had a waist circumference greater than 40 inches, with the majority ranging from 41-44 inches. The health centers' new and established adult patients had a BMI value in the overweight or obesity range (**See Tables 3 and 4**).

Finger stick glucose

A finger stick glucose reading greater than 126 mg/dL was considered abnormal. Sixteen percent of all participants (N=348) had a fingerstick glucose greater than (>) 126 mg/dL. Forty-nine of the 57 with fingerstick glucose greater than 126 were Hispanic and were from the September screen.

PROTOCOL FOR DIABETES SCREENING REFERRALS

The protocol used to make appropriate referrals for further diagnostic testing was based on a group of abnormalities associated with metabolic syndrome. Three or more of the abnormalities listed below puts a person at increased risk of developing diabetes mellitus and cardiovascular disease.

Abnormalities of Metabolic Syndrome

1. Waist circumference greater that 40 inches in men and 34 inches in women.
2. Serum triglyceride level of at least 150 mg/dL.
3. High-density lipoprotein cholesterol level less than 40 mg/dL in men mg/dL in women.
4. Blood pressure at least 130/85 mm Hg.
5. Serum glucose level of at least 110 mg/dL.

The nurses noted their recommended referral for diagnostic testing on the worksheet if the participant had a combination of three or more of the risk factors listed below:

- Family history of diabetes
- Abnormal waist circumference
- History of high blood cholesterol and/or blood sugar and/or take medication for either condition
- Finger stick glucose > 126 mg/dL
- Belong to ethnic group (Hispanic, Native American, African-Americans, Asian/South Pacific Islanders).

The referred participants were asked whether they currently had a doctor or wanted to be seen at one of the community health centers. Those who had a PCP were encouraged to make an appointment to see their PCP. Those who had no established doctor were given the phone number of their preferred health center to make an appointment. A copy of the screening worksheet was given to the participants and to the respective community health centers soon after the screenings so clinic staff could initiate phone follow-up.

The March screen had the highest referral rate of 45% (n=56 participants). The majority of these participants went to Saint Mary's Community Health Center or their established health care provider. In June, of the 36% referred (n=54), the majority indicated they had an established primary care provider (54%). The September screen had 27 referrals that were distributed almost equally among the two health centers and a primary care provider.

Several inconsistencies were noted in the nurses' referral process during the review of the screening worksheets and the development of the project's master database. Several participants who had three or more risk factors and indicated they had a PCP were not referred (**Y** or **N** was not circled in Step C of the worksheet). For the purpose of data analysis, these individuals were registered in the database as a PCP referral because in most cases the nurses wrote in the PCP's name.

About 45 participants with three or more risk factors and no PCP were not referred. The most likely reason for not making these referrals was due to an oversight of not counting ethnicity as a risk factor. Numerical values such as an abnormal blood pressure, glucose, or waist circumference and risk factors, i.e., family history of diabetes or history of high cholesterol or glucose were more obvious than ethnic background. Another possible reason was the participants may have been established patients with HAWC or Saint Mary's Health Center. Based on this observation, the protocol for referral needs to be reviewed and possibly modified for future selective screening.

DESCRIPTION OF THE FOLLOW-UP PROCESS

A major difference existed between the two community health centers. HAWC is a federally funded community health center where anyone is eligible to receive care when they walk through the door. Payment of services is based on the client's ability to pay (sliding scale). For Saint Mary's Health Center, a new patient must set up an appointment to establish their eligibility status for health care reimbursement sources such as Medicaid and Medicare before seeing a health care provider. Staff assists persons in applying for assistance. This additional clinic appointment to establish eligibility most likely was a significant hurdle for some referred participants. Referrals who did not follow through with a scheduled eligibility appointment did not see a health care provider.

Twelve of HAWC's 29 referrals from the three community screens made clinic appointments, five were no shows and five refused an appointment. Of the 29 referrals, six became new patients and 11 were established HAWC patients. Saint Mary's Community Health Center had a total of 47 referrals, eight were established patients and eight became new patients. Fifteen participants made and came to their

clinic appointment. However, twelve participants did not make or keep their appointment to establish eligibility.

When one looked at the time lag between the screening date and the date of the first clinic appointment, both clinics demonstrated similar time frames. For HAWC, most appointments were made one month after the screening date. For Saint Mary's Health Center, appointments were made one to two months after the screening date. Both health centers made an additional effort to call some of the referred participants two months after the screening date.

OUTCOMES FOR NEW AND ESTABLISHED PATIENTS

HAWC and Saint Mary's Nell J. Redfield Health Center followed the American Diabetic Association protocol for diagnostic testing. The first clinic visit included a review and confirmation of the person's risk factors based on the community screening worksheet, measurement of blood pressure and height/weight (to calculate Body Mass Index), finger stick glucose, and a tentative diagnosis. For most referrals, the second step was a trip to an outpatient lab to have a fasting blood sugar and lipid profile drawn. The client's second clinic visit included a review of the lab work and a diagnosis. Unfortunately, these first three visits can take a considerable amount of time to complete. Multiple factors such as appointment availability, lack of time, work conflict, fear and lack of transportation kept many clients from following through with this protocol in a timely manner **(See Tables 3 and 4).**

Table 3. Outcomes for Saint Mary's New and Established Patients (V1= first clinic visit, L2= lab visit, V3= second clinic visit)

Patient Status	V1 BS	V1 systolic	V1 diastolic	V1 BMI	L1 Diagnosis	L2 FBS	L2 Tchol	L2 HDL	L2 LDL	V3 Diagnosis
New	109	180	110	39	Morbid obesity		201	39	135	Has not f/u
New	97	120	58		Osteoarthritis		195	87	108	Has not f/u
New	227	172	82	30	Diabetes	202				
New	152	132	70	28	Diabetes	166	207	50	134	Diabetes, leg pain
New	166	150	84	32	Diabetes	196	220	43	149	Diabetes
New	244	150	80	26	Diabetes & hypertension	276	212	37	139	Seen by dietitian 8/20
New	346	104	60		Uncontrolled diabetes	345	247	40	182	Diabetes
New		140	86	40	Post menopause	93	220	43	160	10/23 visit for strep throat
New		90	60	28	Adult exam	90	162	51	100	Depression
Established	215	160	100	36	Diabetes improved control, B/p variable but overall better		268	41	41	
Established		100	80		Bronchitis					Cervical strain
Established		104	56	19	5yr well child clinic	97				depression
Established		90	60		Epigastric pain, GERD					
Established	143	122	80	34	R/o diabetes, asthma		271	44.2	180	Diabetes
Established	238	140	70	33	Diabetes, hypertension	265	226	49.8	162	Increased blood sugar
Established	175	130	80	33	Diabetes	165	192	51.6	110	Diabetes

Table 4. Outcomes for HAWC's New and Established Patients (V1= first clinic visit, V2= lab visit, V3= second clinic visit)

Patient Status	V1 BS	V1 systolic	V1 diastolic	V1 BMI	V1 Diagnosis	L2 FBS	L2 Tchol	L2 HDL	L2 LDL	V3 Diagnosis
New	171	130	80	29	HTN, hypercholesterolemia	171	277	37	400	No show for follow-up
New	87	110	80	31	Family History of diabetes	87	177	50	106	No show for follow-up
New	348	110	70	28	Diabetes	174	227	55	137	Diabetes
New	94				Hemochromatosis					Return to clinic 1 month
Established	106				Obesity	95	155	43	98	
Established	94	130	90	45	Prediabetic		166	41	92	
Established	94	110	70	28	Glaucoma	94	199	60	129	Glaucoma/depression
Established					Hypothyroid					
Established	219				Diabetes					Diabetes
Established					Bronchitis	87	127	36	68	Bronchitis
Established					Hypertension		238	48	140	Hypertension/ hypercholesterolemia
Established	240				Diabetes		166	46	73	Diabetes

LESSONS LEARNED

1. Having the same bilingual interpreters (from the WCDHD) and nurses (from Saint Mary's and Washoe Enhancement Services) provided continuity from one screening to the next. Providing staff with a review of the screening process (educational points, measurements and worksheet) and referral protocol prior to each screen would further enhance the screening process and collection of data.

2. Nurses added credibility to the screening and referral process by providing assessment and health education. They contributed to the project's planning phase and process improvements.

3. The project achieved its goal of providing diabetes screening to its targeted population by holding them in locations where the Hispanic population frequently visited (Sak ‘N Save grocery caters to the Hispanic population and most Hispanics are Catholic).

4. Use of Saint Mary's Take-Care-a-Van added significant credibility to the screening project. "On the road" in Reno/Sparks since 1995, it is a highly visible, well-known symbol of accessible and reliable health care, health information and referrals.

5. To obtain buy-in, enhance the follow-up of clinic referrals, and obtain better data outcomes, one must be knowledgeable about the clinics' protocol and include appropriate clinical staff in the planning and evaluation phases of the project.

6. Having staff direct and oversee the flow of the screening process and escort participants from the finger stick glucose station to the nurse in the van ensured that every participant completed the entire screening process. Only one person out of 348 did not see the nurse.

7. Most staff wore T-shirts that indicated their affiliation with a participating community-based organization. If nothing else, it was a subtle way of showing the team players and the community the collaboration involved in this effort.

8. To be most productive and effective, community screening should not be combined with other special events such as a cultural celebration or organizational fundraiser. However, if a similar venue as in the September screening is considered again, then the times for screening should fall within the hours of the event.

CONCLUSIONS AND IMPLICATIONS

The purpose of the Defeat Diabetes Screening Project was to identify Hispanic persons at high risk for unrecognized, asymptomatic diabetes and provide early diagnosis and initiate health care to prevent complications and improve health outcomes. It is one of many selective screening programs that would be evaluated on its ability to detect undiagnosed cases. Historically, yields for selective screening have ranged from 5 to 40% compared to yields for population screening of 4-72% (Engelgau, Michael M., Venkat Narayan, K.M., & Herman, W.H., 2000). Defeat Diabetes detected 11 new cases of diabetes that is a 32% yield.

Michael Engelgau, et al (2000) has reviewed the evidence for and against screening asymptomatic adults for diabetes. Screening costs versus benefits are a major issue. Screening inevitably misses some individuals with disease because many people do not present themselves for screening. To fully address the problem of undiagnosed disease, screening programs must be ongoing. For ongoing community screening to occur, there must be a commitment to develop and sustain screening activities that includes program coordination, support and evaluation. All this takes considerable resources. Another significant cost is the burden on the health care system, i.e., HAWC and Saint Mary's Health Centers, in terms of patient load and an "opportunity cost" of taking on a new activity (screening). The Defeat Diabetes Screening Project, an opportunistic screening conducted outside of usual clinical care, had obvious logistical barriers.

The National Diabetes Detection Initiative, launched in November 2003 by the Department of Health and Human Services and Centers for Disease Control and Prevention, is pilot testing selective screening in specific states using an organized health communications approach and coordination of health systems and community intervention. Hopefully, this initiative will provide more concrete evidence on the costs and benefits of selective screening and identify a more cost-effective approach to community screening. The success of this initiative would potentiate the likelihood of federal funding and resources for communities, such as Washoe County, to perform ongoing screenings. No doubt, the Defeat Diabetes Screening Project strengthens Nevada's statewide Diabetes Control and Prevention Program.

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References

Brus, D. (Vol. 3., No.3, 2002). Diabetes in Washoe County. *Chronic Disease & Injury Epi-Letter*. Washoe County District Health Department, Reno, NV.

Engelgau, Michael M., Venkat Narayan, K.M., & Herman, W.H. (2000). Screening for Type 2 Diabetes, *Diabetes Care*, 23, 1563-1580).

National Diabetes Education Program. (2003), *small steps big rewards Prevent type 2 Diabetes* Retrieved January 2003 from http:// www.ndep.nih.gov/diabetes/prev/prevention.htm

National Institute of Diabetes and Digestive and Kidney Diseases. (2002, Dec. 01, 2003). National Diabetes Information Clearinghouse (2002). *Diabetes in Hispanic Americans*. (Statistics, Hispanic Americans). Retrieved from **www.niddk.nih.gov/health/diabetes/pubs/hispan/hispan.htm**

Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services (2000). *Healthy People 2010*. Retrieved November 2003 from **http://www.healthypeople.gov/Document/tableofcontents.htm#volume1**

Attachment B1

Diabetes Screening Worksheet Date: 28 Jun 03

Step 1. Date of Birth: ______________ **Gender: ___ Male ___ Female**

I consider myself (check one): ____ Hispanic ____ Asian American
____ Pacific Islander ____ Caucasian
____ African American ____ other _____________
_____ American Indian

Step 2. Know your risk for diabetes by answering the following statements. Answer **Yes** or **No**.

	Yes	**No**	**Don't know/ Not sure**
1**. Females only**. I had a baby weighing more than nine pounds at birth or had diabetes during pregnancy.			
2. I have a parent (s), sister, or brother with diabetes.			
3. I have been told I have a high blood sugar level**.**			
4. I have been told by a doctor, nurse or other health care professional that my cholesterol is high?			
5. I smoke?			
6. Any past history of high blood pressure?			

Do not write below this line.
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Step A.
Blood pressure: ____ /____ **Waist circumference: _______inches**

Step B. Date & time of last meal: _______date ______time
Finger stick blood sugar: _______

Step C. Nurse reviews worksheet. Recommendations made:

Referred for further *diabetes* testing (circle): Y or N **If** Yes**, circle the provider the person says they are most likely to see**:
_____Saint Mary's Clinic
_____ HAWC Community Health Center
Personal Doctor's Name: ________________________

<u>If referred for further testing, obtain Participant's name for follow-up:</u>
Name: ____
Address: ____
____
Phone number: ____
E-mail address: ____