

Innovations in diabetes screening and interventions for Asian Americans, Native Hawaiians, and Pacific Islanders



May 4, 2016

The findings and conclusions in this webinar are those of the presenters and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



National Diabetes Education Program

A program of the National Institutes of Health and the Centers for Disease Control and Prevention

Introduction



Judith McDivitt, Ph.D.

Director

National Diabetes Education Program

Division of Diabetes Translation

Centers for Disease Control and Prevention



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- To receive credit:
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Webinar Objectives

- Describe the American Diabetes Association's (ADA) 2015 diabetes screening guidelines for Asian Americans and the science behind them
- Explain the "Screen at 23" campaign to increase awareness and action among health care providers who treat Asian American, Native Hawaiian, and Pacific Islander (AANHPI) individuals, health authorities, and the general public
- Describe culturally-appropriate tools and strategies for preventing and managing diabetes in AANHPI populations



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Today's Presenters



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María Rosario (Happy) Araneta, PhD

THE “SKINNY” ON THE AMERICAN DIABETES ASSOCIATION’S NEW SCREENING GUIDELINES FOR ASIAN AMERICANS



Testing for Type 2 Diabetes in Asymptomatic Individuals, ADA 2015 Guidelines

- Type 2 diabetes testing

- All adults who are overweight or obese (BMI ≥ 25 or ≥ 23 in Asian Americans) who have ≥ 1 diabetes risk factor
- Test starting at age 45, especially if overweight or obese
- If normal results: repeat testing in ≤ 3 -yr intervals

Diabetes Risk Factors

- Physical inactivity
- First-degree relative with diabetes
- High-risk race/ethnicity
- Women who delivered a baby > 9 lb or were diagnosed with GDM
- HDL-C < 35 mg/dL \pm TG > 250 mg/dL
- Hypertension ($\geq 140/90$ or on therapy)
- A1C $\geq 5.7\%$, IGT, or IFG on previous testing
- Conditions associated with insulin resistance: severe obesity, acanthosis nigricans, PCOS
- CVD history



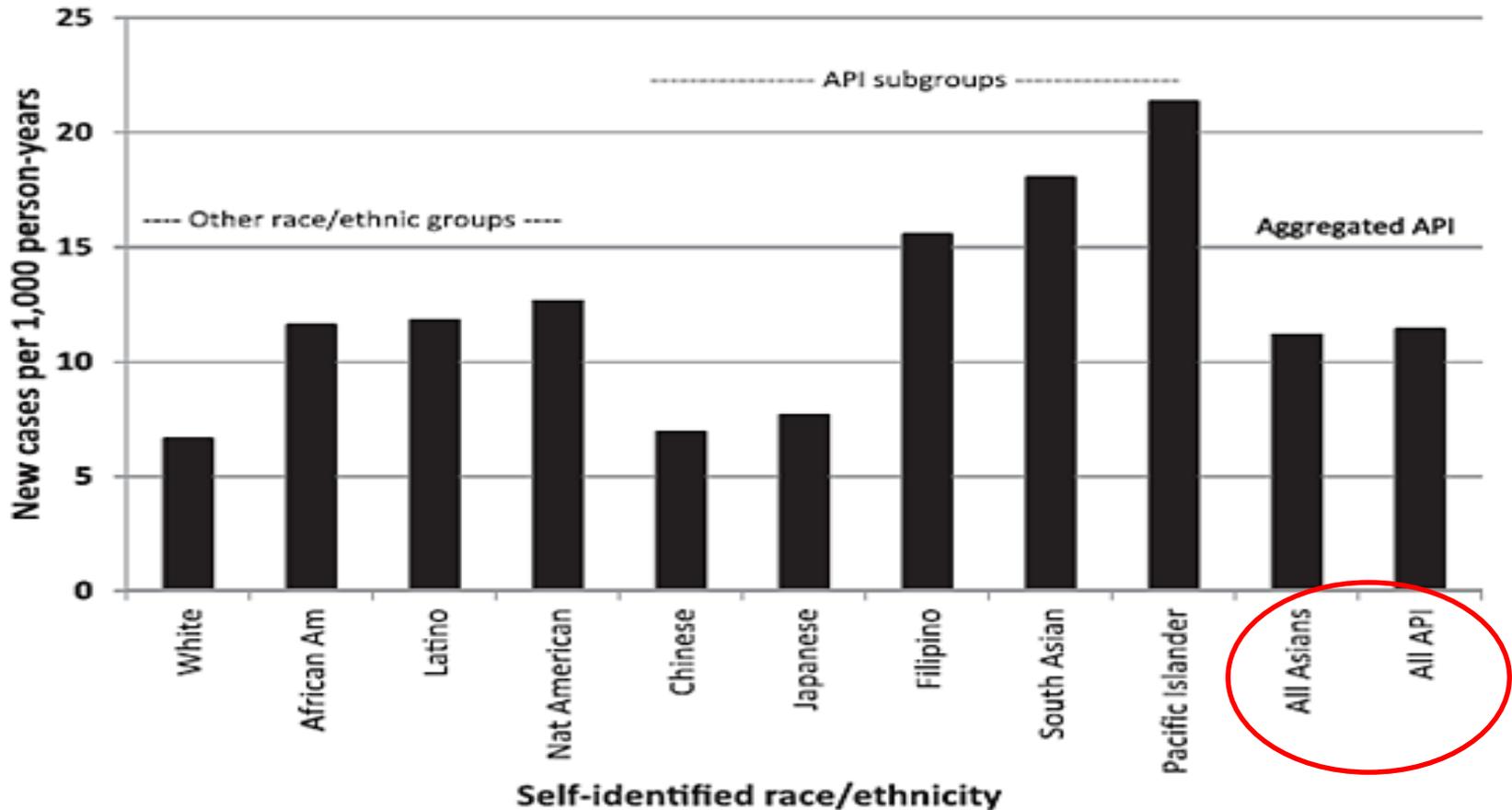
Prevalence of Type 2 Diabetes Among 2,123,548 Adult Members of Northern California Kaiser Permanente Hospitals in 2010

<u>Race /Ethnicity</u>	<u>Prevalence (%)</u>
Pacific Islander	18.3
Filipino	16.1
South Asian	15.9
Latino	14.0
African American	13.7
Native American	13.4
Southeast Asian	10.5
Japanese	10.3
Vietnamese	9.9
Korean	9.9
Chinese	8.2
White	7.3



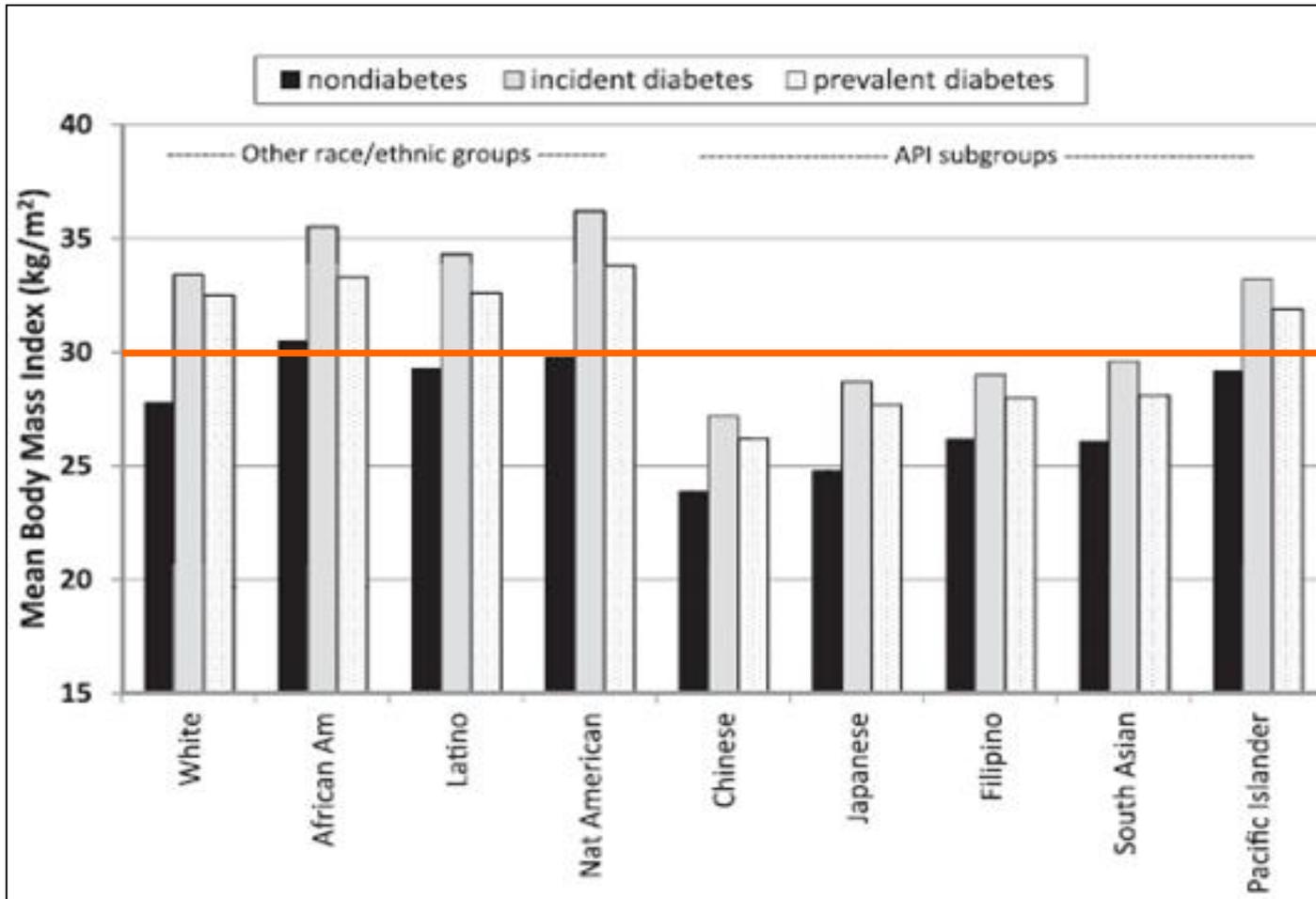
Standardized Diabetes Incidence (per 1,000 Person-years) Among 16,283 Adults Diagnosed with Incident Diabetes in 2010, Kaiser Permanente Northern California

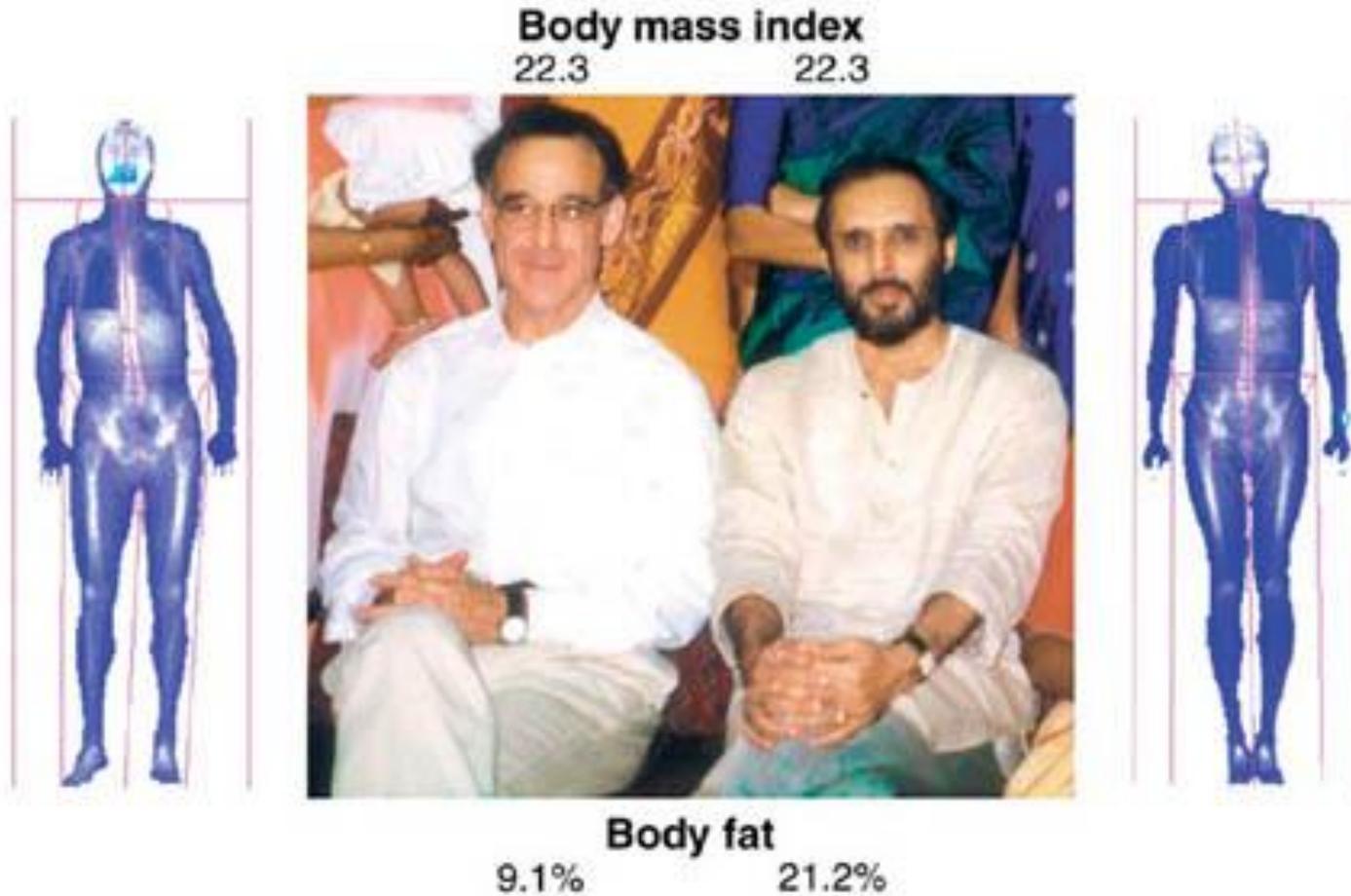
Elevated rates of diabetes in Asian subgroups





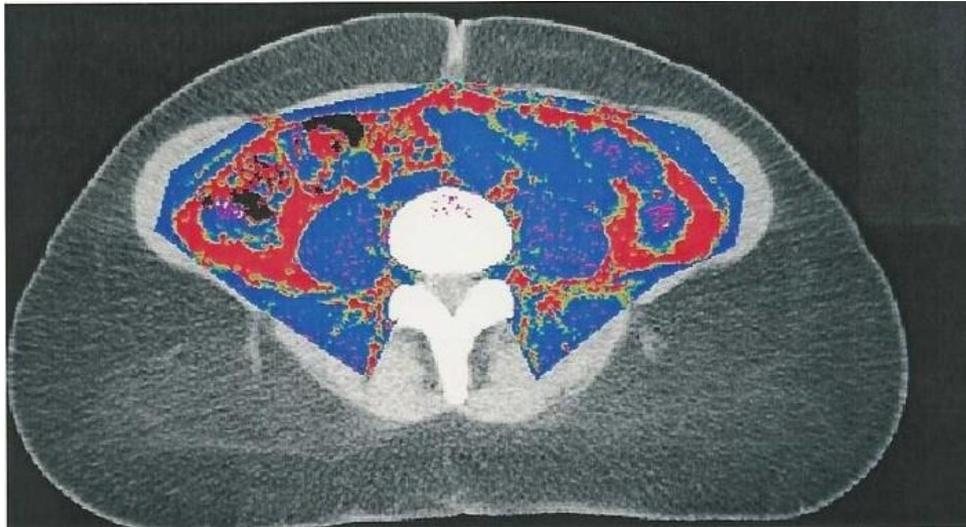
Body Mass Index (BMI) Among 1,704,363 Adult Members, by Race and Diabetes Status, Kaiser Permanente Northern California, 2010



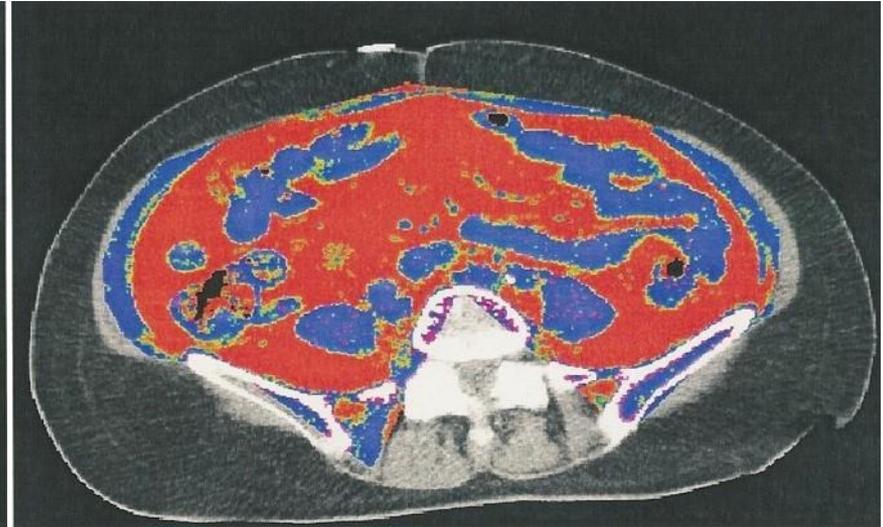


JS Yudkin and CS Yajnik, Lancet 2004; 363:157-63

Visceral Adipose Tissue (VAT) by Computed Tomography African American vs Filipina Women



African-American, 62 yo
 Weight: 160 lbs, Height: 5'7"
 BMI=25 kg/m² **VAT: 25.4cm³**



Filipina-American, 69 yo
 Weight: 115 lbs, Height: 5'4"
 BMI=20 kg/m² **VAT: 84.0 cm³**



2015 ADA Guidelines for Asian Americans

- **Background**
 - Previous ADA guidelines recommended type 2 diabetes screening for asymptomatic adults, ages ≥ 45 years, with BMI ≥ 25 kg/m² and one known risk factor, including Asian ethnicity.
 - A sizeable proportion of Asian Americans develop type 2 diabetes at BMI < 25 kg/m² and might not be screened.
- **Objective**
 - Identify optimum BMI cut points for type 2 diabetes screening among Asian-American adults (≥ 45 years) without a prior type 2 diabetes diagnosis



Methods: Study Population

- 1663 participants from
 - The UCSD Filipino Health Study in San Diego, CA
 - The North Kohala Study on the island of Hawaii
 - Mediators of Atherosclerosis among South Asians Living in America (MASALA) Study in San Francisco, CA and Chicago, IL
 - Seattle Japanese Diabetes Community Study in Seattle, WA



Methods: Study Population

- Self-reported Filipino, Japanese, South Asian, Chinese, Korean, and mixed Asian ancestry, without non-Asian admixture
- Ages \geq 45 years
- No prior diagnosis of type 2 diabetes
- Concomitant measures of BMI and 75 gram two-hour Oral Glucose Tolerance Test (OGTT)
- Hemoglobin A1c (HbA1c) except among Filipino men (San Diego), Japanese (Seattle)



Methods: Clinical Measures

- 75 gram OGTT after 8 hour fast
- Fasting and 2-hour glucose by glucose oxidase method
- HbA1c by high performance liquid chromatography
- Height, weight
- Demographic characteristics:
 - Age, sex, self-reported ethnicity and admixture
- Type 2 diabetes by ADA 2010 criteria:
 - HbA1c ≥ 6.5 % or FPG ≥ 126 mg/dl or PPG ≥ 200 mg/dl



Methods: Statistical Analysis

- Receiver operating characteristic (ROC) curve analysis
- Calculated sensitivity, specificity, and positive predictive value
- Review of optimal BMI cut points included the following considerations:
 - Youden's index: $(sensitivity + specificity - 1)$
 - Misclassification rate:
 - False positive rate + False negative rate
 - Sensitivity ~ Specificity
 - Targeted sensitivity = 80%

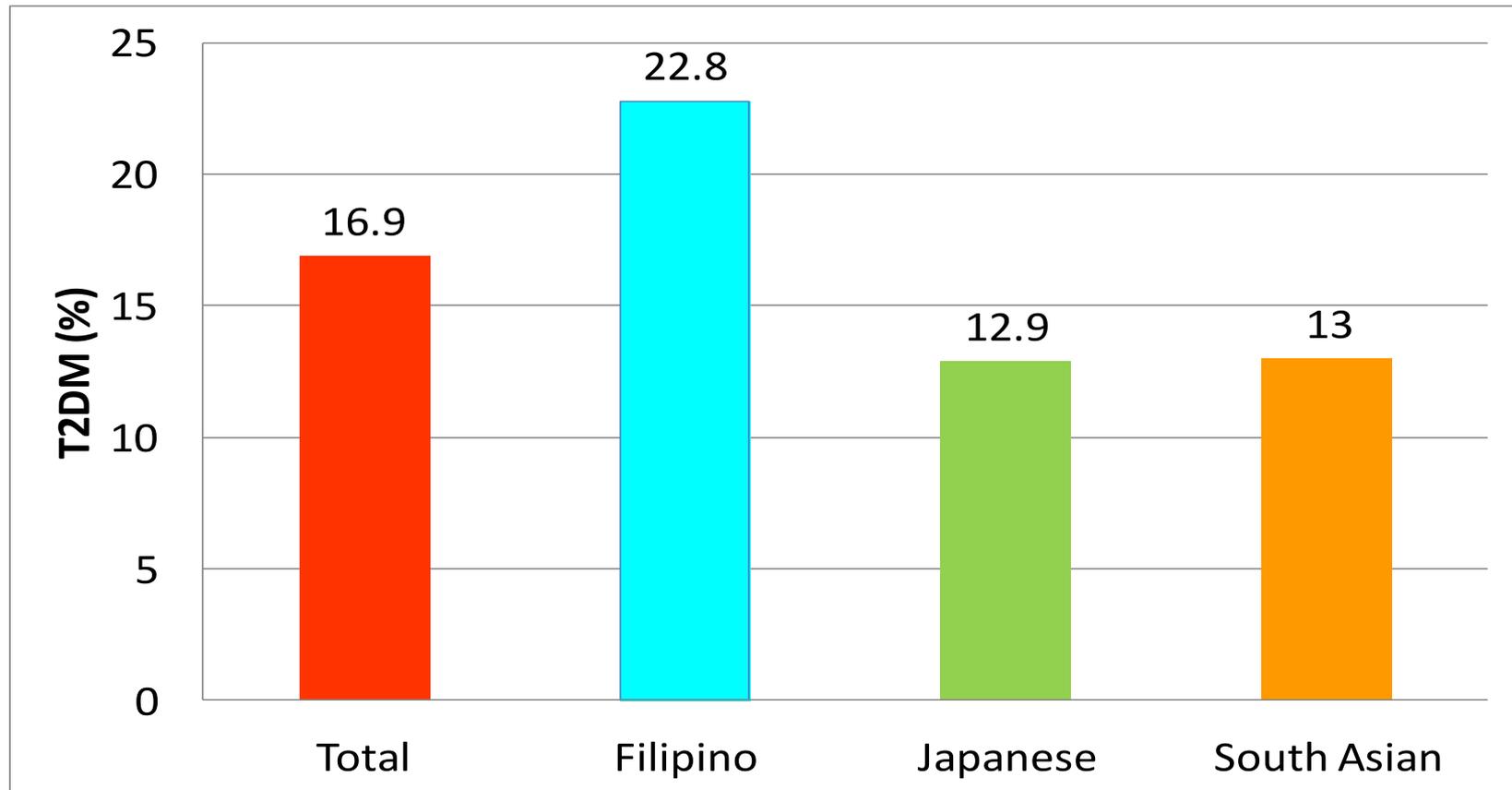


Demographic Characteristics

	N	%
Men	698	42%
Women	965	58%
Filipino (San Diego, Hawaii)	536	32%
South Asian (San Francisco, Chicago)	609	37%
Japanese (Hawaii, Seattle)	500	30%
Other Asian (Hawaii)	18	1%
	Mean	Standard Deviation
Age (years)	59.7	9.2
BMI (kg/m²):	25.4	4.0
HbA1c (%)	5.7	0.84
Fasting plasma glucose (mg/dl)	100.5	19.3
2 hour plasma glucose (mg/dl)	148.1	58.3

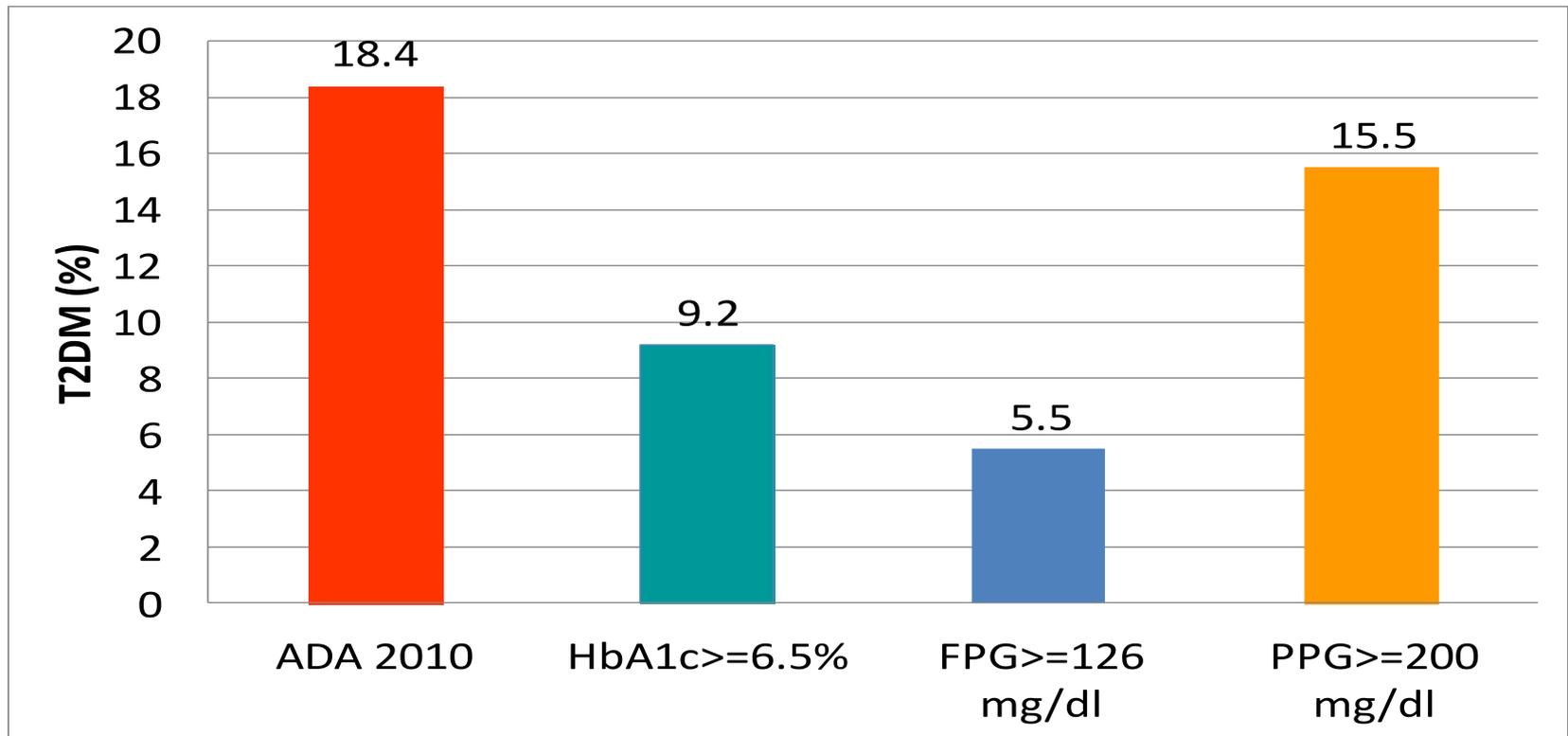


Age-adjusted Type 2 Diabetes Prevalence by Ethnicity





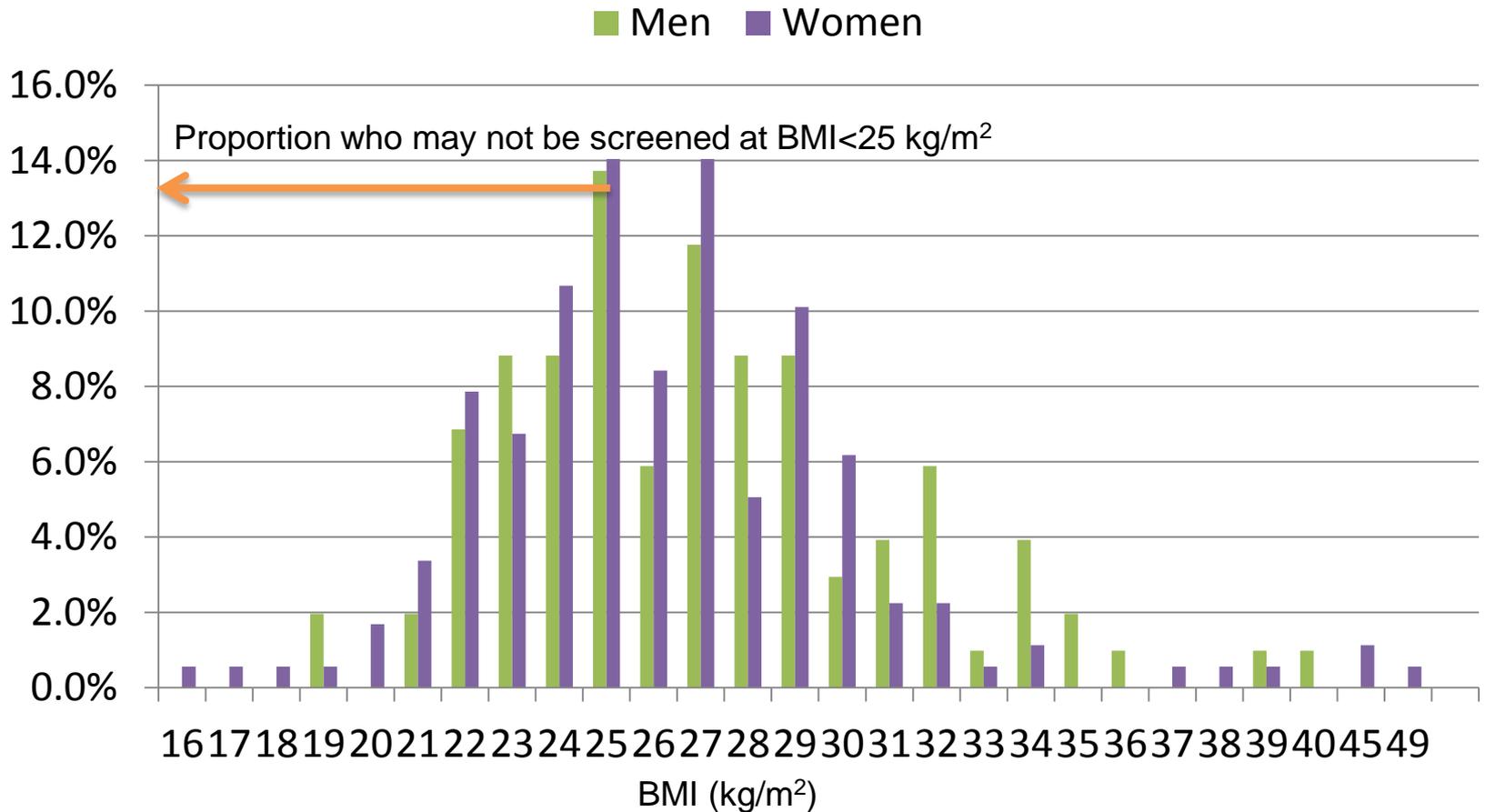
Age-adjusted Type 2 Diabetes Prevalence by Diagnostic Method (n=1214)



If screening limited to HbA1c and fasting glucose, almost half (44%) of Asian Americans with type 2 diabetes will be undiagnosed



Percent distribution of Asian-Americans with newly diagnosed Type 2 Diabetes by Body Mass Index



37% of women and 21% of men with T2DM had BMI < 25 kg/m²



Type 2 Diabetes by BMI ≥ 25 kg/m² Cut Point

BMI (kg/m ²)	Type 2 diabetes	No diabetes	Total
≥ 25	179	730	907
< 25	102	652	756
Total	281	1382	1663

36% (n=102) of Asian Americans with type 2 diabetes might be undiagnosed if screening is limited to BMI ≥ 25 kg/m²

Sensitivity: $179/281 = 64\%$ **Specificity:** $652/1382 = 47\%$

Youden's index: $(64\% + 47\%) - 1 = 11\%$

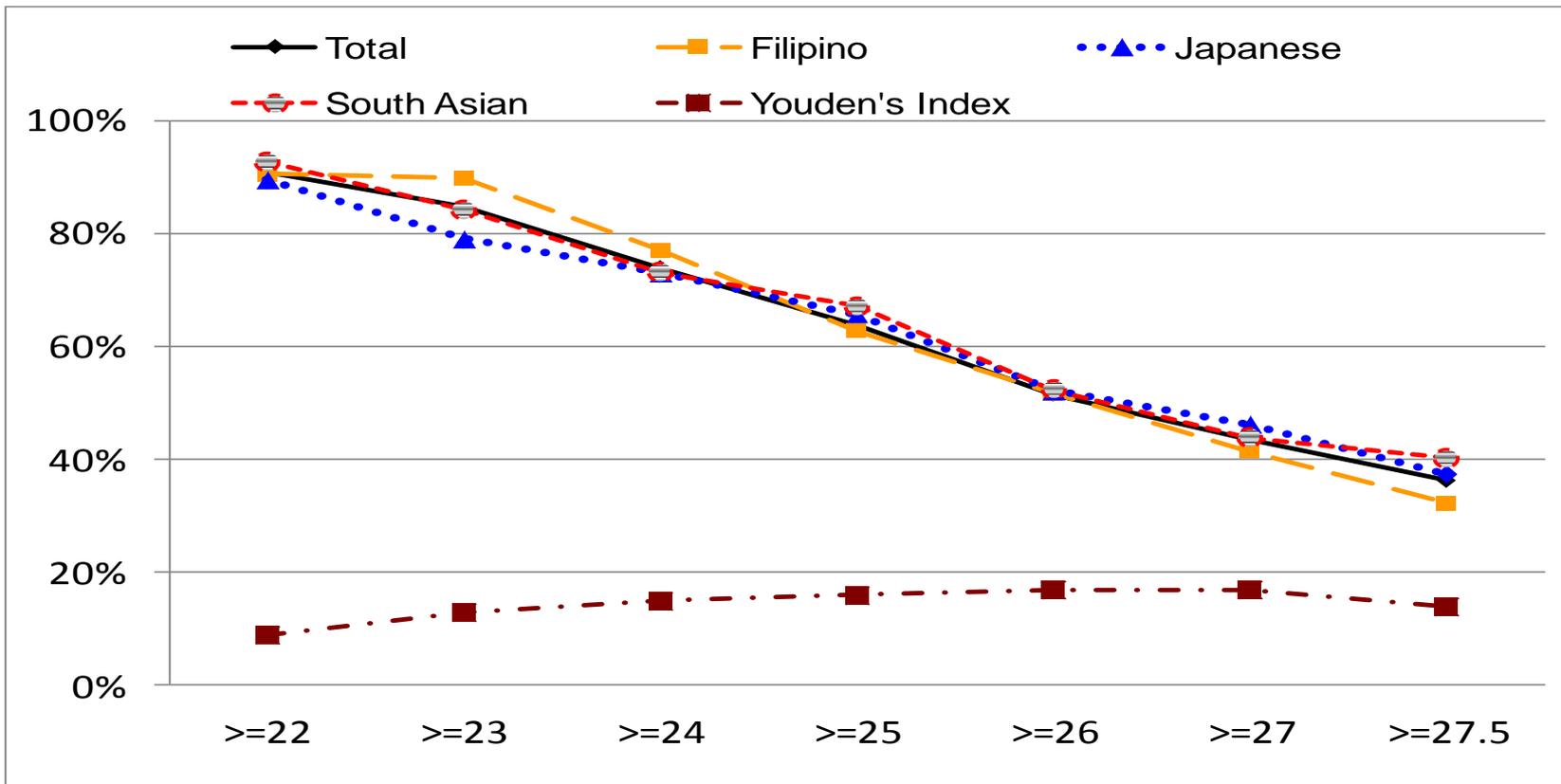
Misclassification rate: $102 / 281 + 730 / 1382 = 89\%$



Type 2 Diabetes Prevalence, Sensitivity, and Specificity by BMI Cut Point, Asian-Americans, Ages ≥ 45 Years

BMI (kg/m ²)	Diabetes (%)	Sensitivity (%)	Specificity (%)	Misclassification Rate (%)
≥ 23	238 (14.3)	84.7	28.8	0.87
≥ 24	208 (12.5)	74.0	40.7	0.85
≥ 25	179 (10.8)	63.7	52.8	0.84
≥ 26	145 (8.7)	51.6	65.3	0.83
≥ 27	122 (7.3)	43.4	73.6	0.83
≥ 27.5	102 (6.1)	36.3	77.8	0.86

Sensitivity at Selected BMI Cut Points



Diabetes screening at a lower cut point of BMI ≥ 23 kg/m² should be considered and will enable early diagnosis and management



Optimal BMI Cut Points at Targeted Sensitivity of 80%

	BMI (kg/m ²)	Sensitivity (%)
Total	23.5	80.3
Men	23.5	79.2
Women	23.5	78.9
Filipino	23.6	79.5
South Asian	23.4	79.4
Japanese	22.8	80.9

With a targeted sensitivity of 80%, the optimal BMI cut point is 23.5 kg/m²



Optimal BMI Cut Points at Targeted Sensitivity of 80%

T2DM diagnosis by:	BMI (kg/m ²)	Sensitivity (%)
HbA1c $\geq 6.5\%$	24.0	78.9
FPG ≥ 126 mg/dl	23.4	79.1
PPG ≥ 200 mg/dl	23.2	81.8



Summary and Conclusions

- Previous guidelines to screen adults with BMI ≥ 25 kg/m² fail to identify 1 of 3 of Asian-Americans with newly diagnosed type 2 diabetes.
- A BMI cut point of ≥ 23 kg/m² may be most practical for Asian Americans.
- Limiting screening to HbA1c and fasting glucose measures may fail to identify nearly half of Asian Americans with diabetes.



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American Diabetes Association Revised Screening Guidelines, Effective January 2015

Diabetes Care Volume 38, January 2015

BMI Cut Points to Identify At-Risk Asian Americans for Type 2 Diabetes Screening

Diabetes Care 2015;38:1–9 | DOI: 10.2337/dc14-2391

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ASIAN AMERICAN POPULATION

According to the U.S. Census Bureau, an Asian is a person with origins from the Far East (China, Japan, Korea, and Mongolia), Southeast Asia (Cambodia, Malaysia, the Philippine Islands, Thailand, Vietnam, Indonesia, Singapore, Laos, etc.), or the In-



Strengths and Limitations

Strengths:

- Population/community based samples
- Type 2 diabetes ascertained by HbA1c and OGTT among all participants

Limitations:

- Not representative of all Asian Americans (no OGTT measures among Chinese, Korean, Vietnamese cohorts)



Acknowledgements

The authors thank the study participants for their time and commitment, and their clinical research teams.

This work was supported by the National Institutes of Health (DK-31801, R03-DK-60575, HL-093009, K24-HL-112827, DK-31170, DK-02654, DK-02860, DK-48152, DK-50703, DK-55460, DK-17047, DK-55460, DK-35876, HL-07028, HL-49293, RR-00037, HL-29393, U01-HL-079163, and G12-RR-03061) and the Department of Veterans Affairs.



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DIABETES IN ASIAN AMERICANS – “SCREEN AT 23”



Who Are We, the Asians?

- In 2014, we represented about 5.9% of the US population (about 18.5 million of 314.1 million) and are the fastest growing racial/ethnic group driven by immigration.
- The term “Asian” refers to a person with origins in the Far East, Southeast Asia, or the Indian subcontinent and includes, but is not limited to, Asian Indians, Cambodians, Chinese, Filipinos, Hmong, Japanese, Koreans, Pakistanis, and Vietnamese.
- The largest Asian American subpopulation is Chinese (23%), followed by Filipino (20%), Asian Indian (18%), Vietnamese (10%), and Korean (10%).



Countries with Highest Estimated Diabetes Cases – WHO 2000 and 2030

2000			2030		
		millions			millions
1.	India	32	1.	India	79
2.	China	21	2.	China	42
3.	US	18	3.	U.S.	30
4.	Indonesia	8	4.	Indonesia	21
5.	Japan	7	5.	Pakistan	14
6.	Pakistan	5	6.	Brazil	11
7.	Russian Fed	5	7.	Bangladesh	11
8.	Brazil	5	8.	Japan	9
9.	Italy	4	9.	Philippines	8
10.	Bangladesh	3	10.	Egypt	7



Diabetes Prevalence in the U.S.

	Total (%)	Diagnosed (%)	Undiagnosed (%)	Prediabetes (%)	Mean BMI (kg/m ²)
Overall	14.3	9.1	5.2	38.0	28.7
White	11.3	7.5	3.8	38.2	28.4
Asian	20.6	10.0	10.6	32.2	24.6
Black	21.8	14.9	7.0	39.6	30.8
Hispanic	22.6	12.5	10.1	36.8	29.7



10 Leading Causes of Death in 2009 in the U.S.

Caucasians

1. CVD
2. Cancer
3. Respiratory disease
4. Cerebrovascular disease
5. Accidents
6. Alzheimer's
- 7. Diabetes**
8. Influenza/pneumonia
9. Kidney disease
- 10. Suicide*

Asian/Pacific Islander

1. CVD
2. Cancer
3. Cerebrovascular disease
4. Accidents
- 5. Diabetes**
6. Influenza/pneumonia
7. Respiratory disease
8. Kidney disease
9. Alzheimer's disease
10. Suicide



Conclusions

- The science shows that, when it comes to diabetes, Asian Americans ARE different.
- The guidelines now reflect this reality.
- Screening practices must change to reflect these guidelines.



“Screen at 23” Campaign



- Purpose is to increase awareness and action among physicians, health authorities, and the general public of the screening guideline
- Organized by the AANHPI Diabetes Coalition (a coalition of over twenty diabetes research and advocacy organizations)
- Supported by National Council of Asian Pacific Islander Physicians, ADA and Joslin Diabetes Center



“Screen at 23” Campaign

- First launched in San Francisco in October 2015
- Shared with and presented to different national, regional and local organizations across the country
- Developed a tool kit for physicians, *Diabetes in Asian Americans*
- Developed a tool kit for patients/community residents, *The Eight Steps to Avoid, Control or Reverse Diabetes*





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For Additional Information



www.screenat23.org

Ho Luong Tran, MD, MPH
National Council of Asian Pacific Islander
Physicians

www.ncapip.org



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Angela Sun, MPH, PhD

CULTURALLY TAILORED STRATEGIES AND APPROACHES IN DIABETES PREVENTION AND MANAGEMENT FOR ASIAN AMERICANS



Asian American (AA) Population in the U.S.

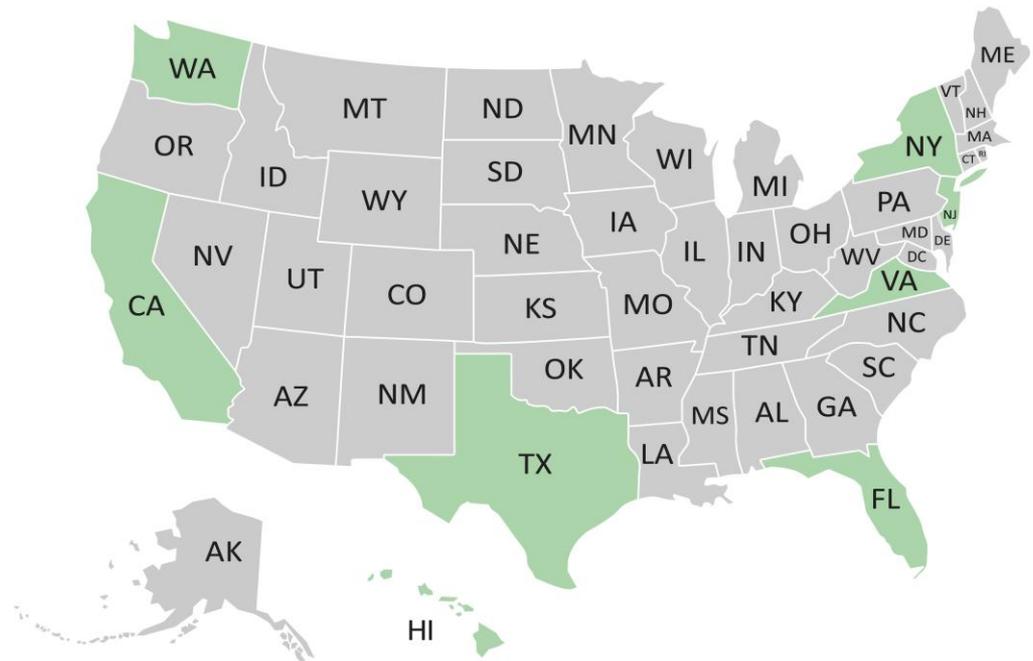
- *AAs make up 5.4% of the total U.S. population*

Source: US Census Bureau, Population Estimates 2014

- *Top AA Population in the U.S.*

Source: US Census Bureau, 2010

California
New York
New Jersey
Texas
Hawaii
Washington
Virginia
Florida





The 18 Largest U.S. Asian Groups by Country of Origin

(based on self-described race or ethnicity)



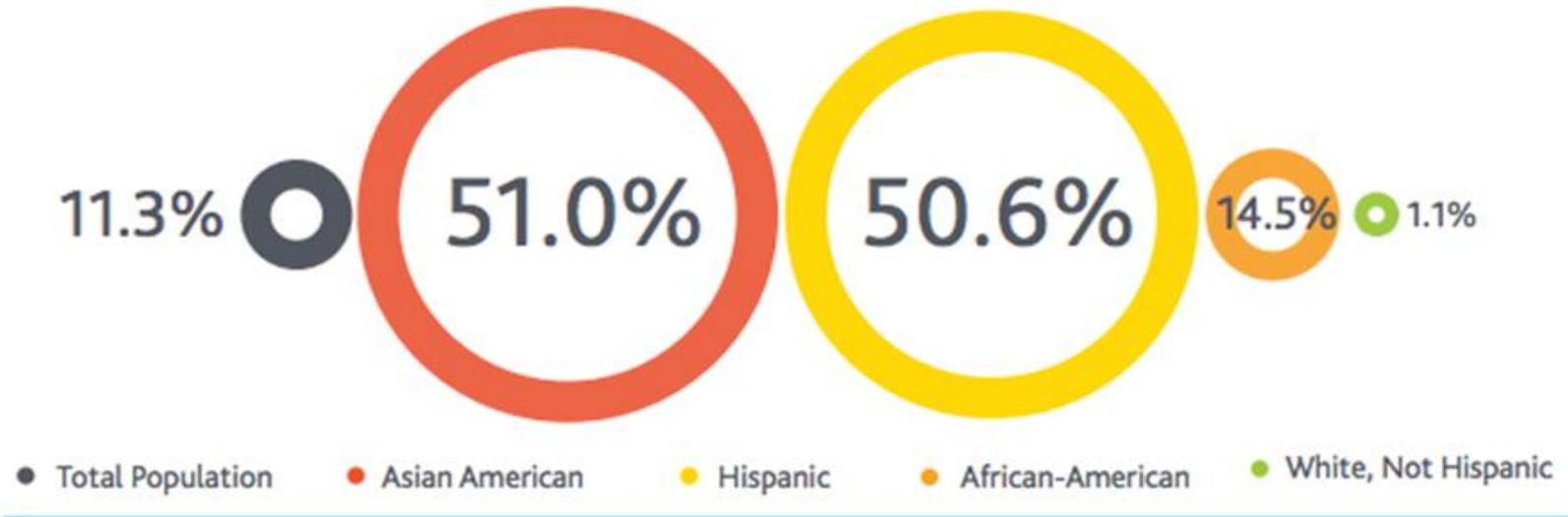
#1 Chinese 4,347,014 22.2%	#2 Filipino 3,648,933 18.6%	#3 Asian Indian 3,461,017 17.7%	#4 Vietnamese 1,907,256 9.7%	#5 Korean 1,768,644 9.0%	#6 Japanese 1,433,105 7.3%	#8 Pakistani 480,585 2.5%	#9 Cambodian 322,605 1.6%	#11 Hmong 286,211 1.5%	#12 Thai 274,899 1.4%
		#13 Laotian 261,324 1.3%	#14 Taiwanese 173,087 0.9%	#15 Bangladeshi 170,145 0.9%	#16 Indonesian 112,005 0.6%	#17 Sri Lankan 54,412 0.3%	#18 Malaysian 31,54,412 0.2%		

NOTE: #7 Not Specific 529,170 2.7%; #10 Other Asian 311,573 1.6%

Source: 2013 American Community Survey 1-Year Estimates, Asian Alone or in Any Combination



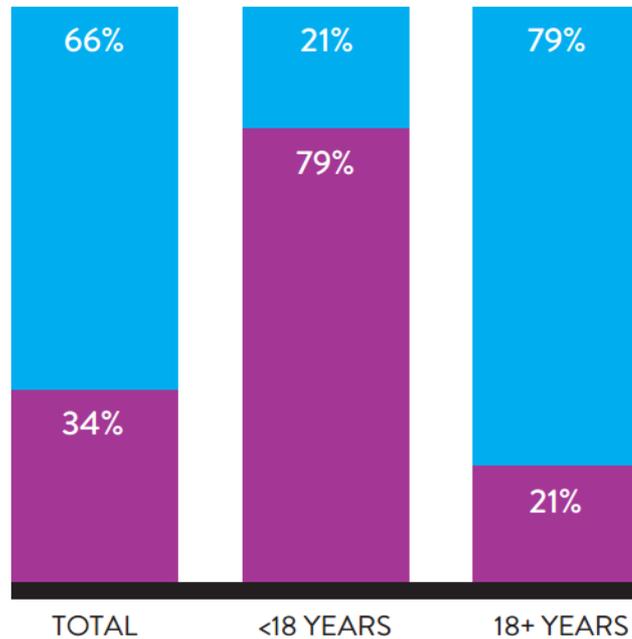
Growth Rates from 2000-2012



Source: U.S. Census Bureau, Population Division, "Annual Estimates of the Resident Population 2013 (Race Alone or in Combination)"
Graphic Source: Nielsen, 2012



ASIAN-AMERICAN NATIVITY



● U.S. BORN ● FOREIGN BORN

Source: U.S. Census Bureau
American Community Survey 2013, five-year estimates

Graphic Source: Nielsen 2015

Foreign-Born by Country of Origin 2010

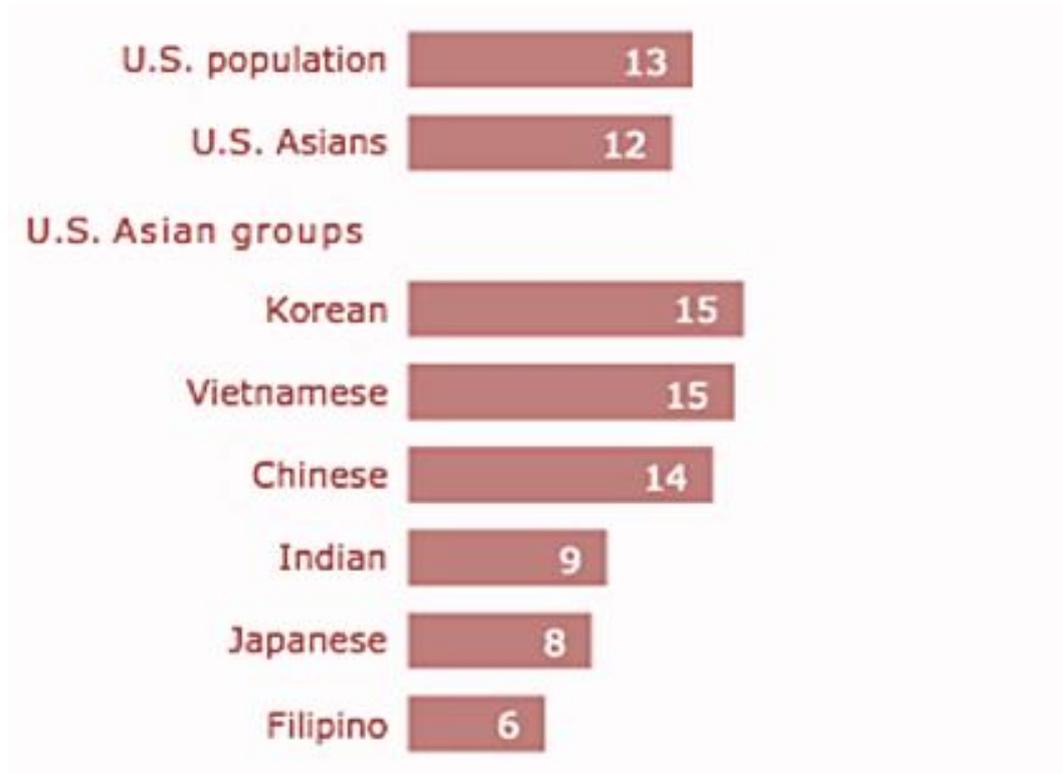
Asian American Segment	Foreign-Born Percentage
Chinese	76%
Filipino	69%
Indian	87%
Vietnamese	84%
Korean	78%
Japanese	32%

Source: U. S. Census 2010

Graphic Source: Nielsen 2012



Adults in Poverty, 2010



Source: Pew Research Center (2013) analysis of 2010 American Community Survey, Integrated Public Use Microdata Sample (IPUMS) files
Graphic adapted from Pew Research Center 2013



Educational Attainment & English Proficiency of Asian Adults, 2010 (%)

	U.S. Total	U.S. Asians	U.S. Chinese	U.S. Filipinos	U.S. Indians	U.S. Vietnamese	U.S. Koreans	U.S. Japanese	U.S. Other Asians
Educational attainment (ages 25+)									
Less than high school	14.4	13.9	18.0	7.7	9.2	29.7	7.7	4.8	18.8
High school or more	85.6	86.1	82.0	92.3	90.8	70.3	92.3	95.2	81.2
Bachelor's degree or more	28.2	49.0	51.1	47.0	70.0	25.8	52.6	46.1	36.8
Language									
Speaks English "very well"	90.4	63.5	51.9	77.7	76.2	40.5	54.0	81.8	64.0
Speaks English less than "very well"	9.6	36.5	48.1	22.3	23.8	59.5	46.0	18.2	36.0

= highest

= lowest

Source: Pew Research Center (2013) analysis of 2010 American Community Survey, Integrated Public Use Microdata Sample (IPUMS) files
Graphic adapted from Pew Research Center 2013



Diversity within the Asian American Communities

1st Generation Immigrant

- Monolingual
- Low Technology Literacy
- Low SES
- High Asian cultural influence

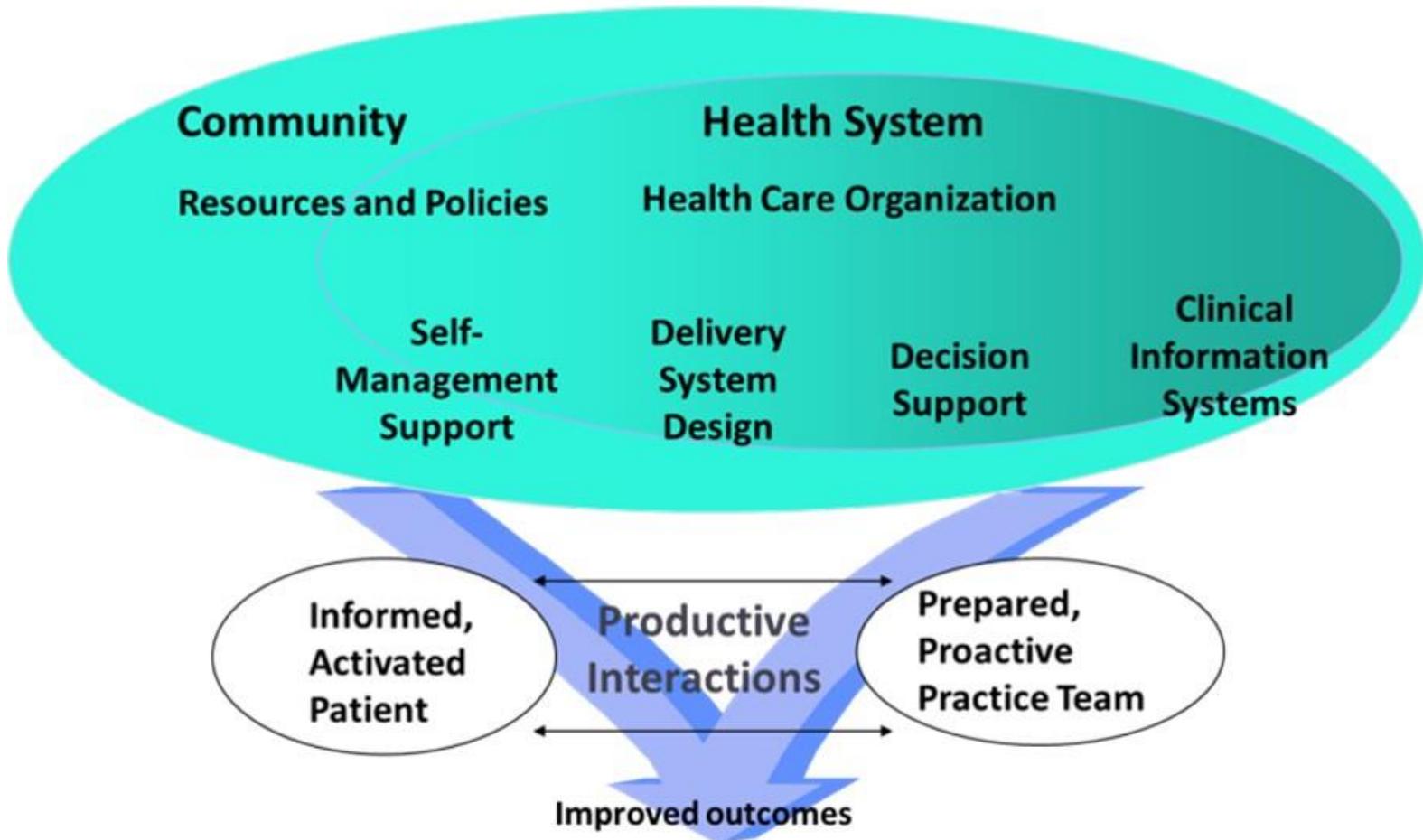
- Bilingual
- Moderate-High Technology Literacy
- Moderate – High SES
- High Asian cultural influence

2nd Generation Immigrant

- Primarily English-speaking
- High technology Literacy
- Ranging SES status
- Moderate-High Asian cultural influence

- Only English-speaking
- High technology Literacy
- Ranging SES status
- Low Asian cultural influence

Chronic Care Model





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Challenges and Barriers

- Language
- Cultural and generational gaps
- Body concepts and image
- Stigma associated with diseases





Challenges and Barriers

Concept of Health and Disease Prevention

- Eastern medicine concept vs Western
 - Eastern emphasizes harmony, respect, yin-yang balance, collectiveness and community (Ino & Gliken, 1999; Spector, 1991)
 - Western medicine encourages forwardness, independence and autonomy in individual decision making (Ma, 1999)
- Diseases considered preventable or controllable only by maintaining balanced energy levels (Hoeman et al., 1996)
- Medication compliance/management: herbal med vs. western med



Challenges and Barriers

Dietary Practice



The Balance of Yin and Yang

COOL & COLD FOODS



seaweed



burdock root



asparagus



broccoli



celery



corn



eggplant



lettuce



winter melon



lotus root



potato



watercress



tomato



barley



tofu



carrot



banana



grape fruit



watermelon



tea



honeysuckle



pork



crab



clam



- Clear heat
- Reduce anxiety
- Improve digestion
- Increase appetite

Source: Jun Wang Ph.D. C.M.D. L.Ac.

Graphic source: <http://www.thegutsygourmet.net/post-shellfish.jpg>



Challenges and Barriers Dietary Practice



The Balance of Yin and Yang

WARM & HOT FOODS



beef



chicken



freshwater fish



shrimp



turkey



ginger



garlic



pepper



red jujubes



danggui



longon



astragalus



walnuts



chestnuts



cilantro



green onion



coffee



brown sugar



wine



rice-vinegar



- Nourish Yang
- Replenish the blood
- Strengthen body

Source: Jun Wang Ph.D. C.M.D. L.Ac.

Graphic source: <http://www.thegutsgourmet.net/post-shellfish.jpg>



Challenges and Barriers

- Common health myths
(e.g., eating sugar/sweets may cause diabetes)
- Access to care - high deductible and co-pay



Challenges and Barriers Health-Seeking Pathway





Promoters

- Cultural competency/humility
- Linguistic appropriateness
- Communication Style: verbal vs non-verbal
- Family involvement



Strategy/Approach

- **Providing culturally-appropriate practical services/programs/tools**
 - Nutrition counseling
 - Patient navigation
 - Support groups



Strategy/Approach

- **Example**

Diabetes Management Support Group (2006)

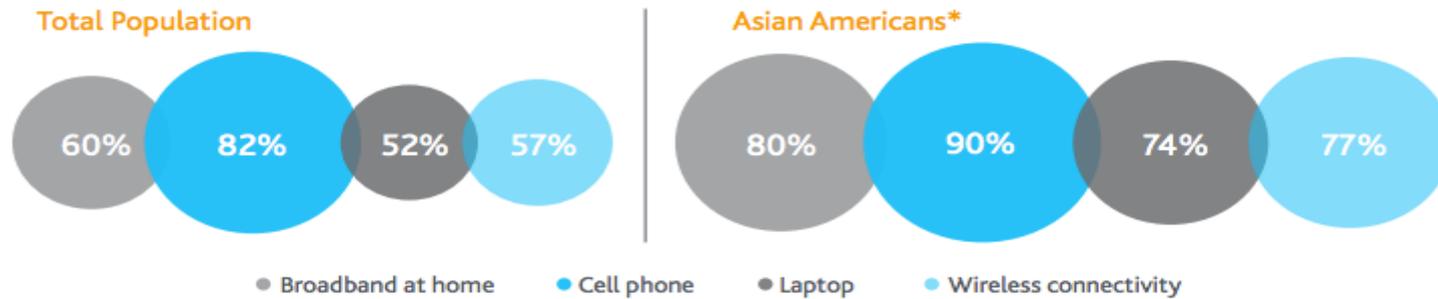
To assess the efficacy of support group on the understanding & management of diabetes among participants

- **Findings**

Average improvement of participants' knowledge on diabetes was 18%.

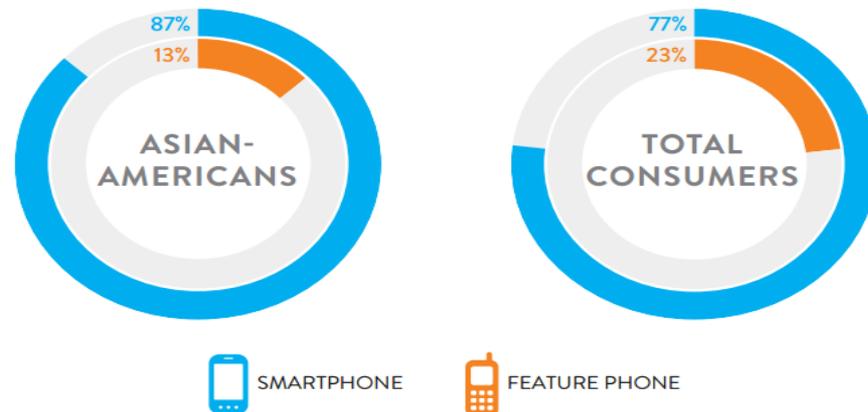
Average reduction in HbA1c from baseline was 2%.

Strategy/Approach - Utilizing Technology



*English-speaking

Source: Pew Report "Exploring the Digital Nation" Dec. 2010; Graphics source: Nielsen, 2012



Source: Nielsen Total Audience Report, Q4 2014
Graphic source: Nielsen, 2015

A survey in 2013 of 403 Chinese American immigrants age 50 to 75

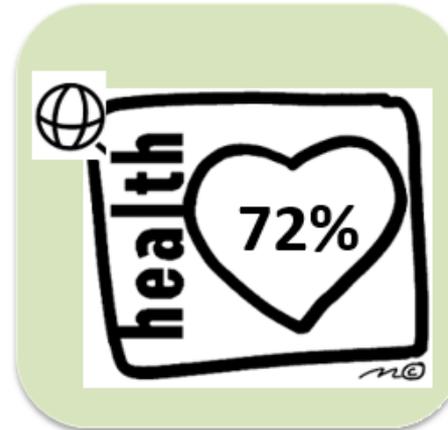
we found that:



had smartphones



had Internet access at home



used the Internet for health info



would like to learn how to use smartphones to improve their health



Strategy/Approach - Using Culturally Appropriate Tools

Example

The screenshot shows the website for the Asian Alliance for Health (AAFH). The main navigation bar includes links for Multilingual Health Info, Multi-Media & Tools, Violence Prevention, Idea Exchange & Forum, CBPR Match & Research, Trainings & Conference, Job/Internship Postings, and Online Store. The 'Multi-Media & Tools' section is highlighted, featuring a map of Asia and the Pacific Islands. The text in this section reads: 'We are proud to offer a variety of educational tools and materials in multiple Asian languages and a wide range of formats from books to iPhone applications. Our resources are intended to help keep the Asian and Pacific Islander community informed on pressing health topics in a culturally relevant and linguistically competent manner. Please visit the links below to learn more about multimedia materials and educational tools from AAFH member agencies:'. Below this, a 'Tools' section lists various resources: 'STOP smoking 戒烟' (Stop Smoking - only in Chinese), 'Needs Assessment - Online Stop Smoking Resource', 'Body Mass Index - Adults', 'Body Mass Index - Children', 'Calorie Counter', 'Healthy Choices- Grocery Shopping Tips', 'Nutrition & Physical Activity', 'Nutrient Analysis', 'Pregnancy Due Date', 'Stress Management/Bullying & Depression', and 'Target Heart Rate Calculator'. The left sidebar contains the AAFH logo, navigation buttons for 'Giving to AAFH', 'Get Involved', and 'Become a member', social media icons for Facebook and Twitter, and logos for 'ASIAN AGAINST VIOLENCE (A division of AAFH)' and 'CHINESE COMMUNITY HEALTH RESOURCE CENTER 華人社區健康資源中心'. At the bottom left, there is a 'TEEN HEALTH' section with an image of a smartphone displaying 'Brave Little Panda 勇敢的小熊貓'.



Strategy/Approach - Utilizing Ethnic Media

Growth of Asian Media Outlets

	1999	2010
Print	68	409
TV	16	136
Radio	18	140
Digital	0	554
TOTAL	102	1239

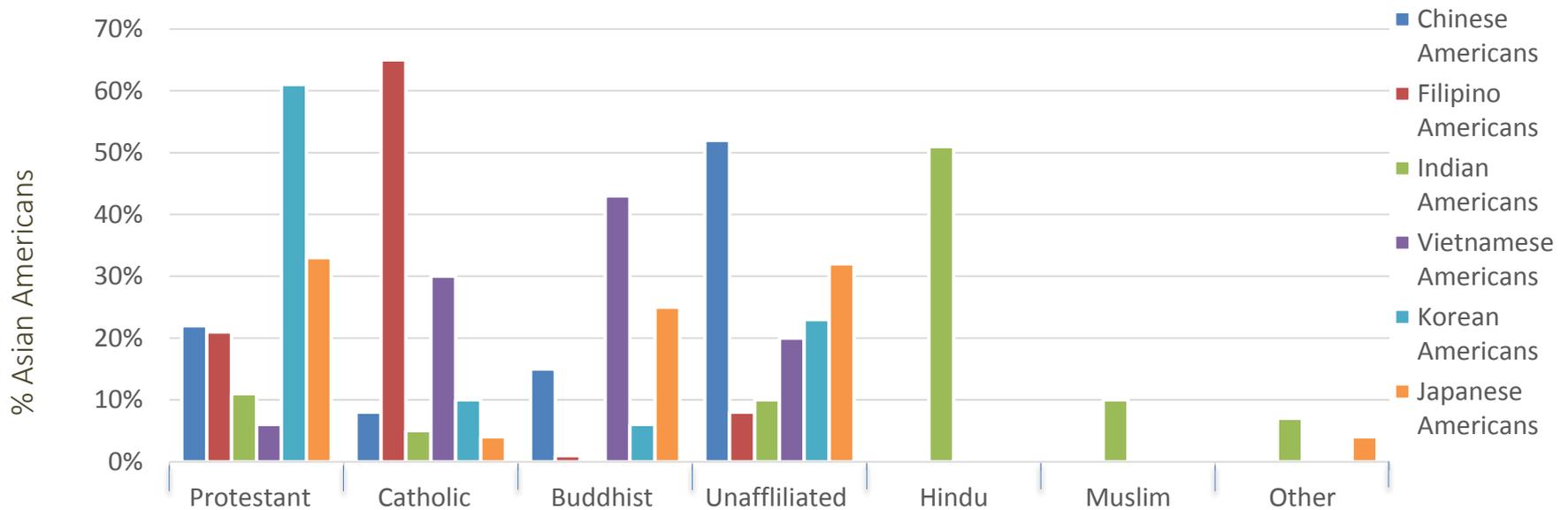
(1115% increase from 1999-2010)

Number of Asian Media Outlets 2010

	Chinese	Korean	Vietnamese	Filipino	Asian Indian
Print	121	68	76	64	50
TV	37	26	18	14	30
Radio	32	22	34	18	21
Digital	147	84	69	87	94
TOTAL	337	200	197	183	195



Strategy/Approach - Forming Partnership with Faith-based Community





Strategy/Approach - Facilitating Communication Between Provider and Patient

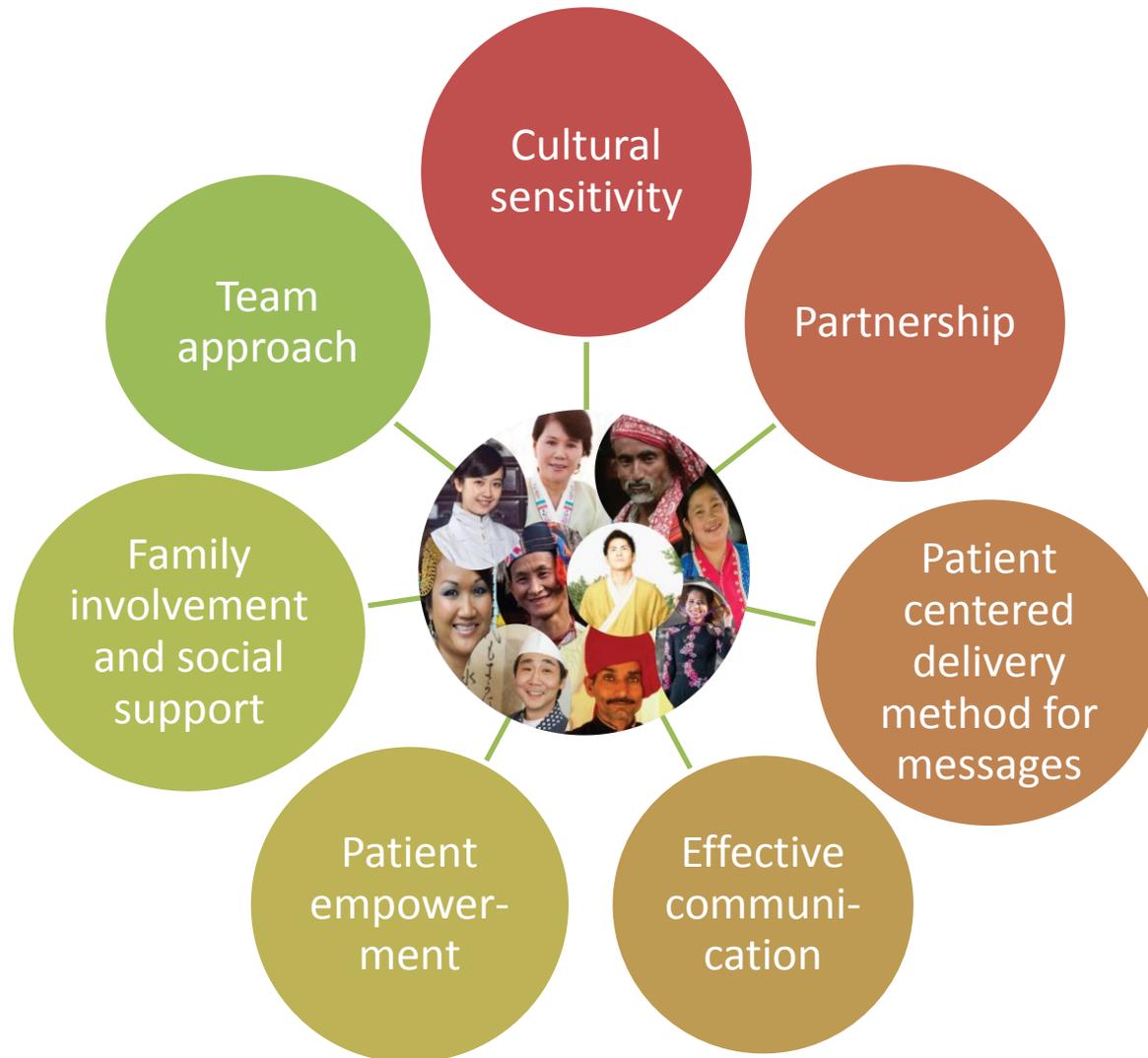
Compared to any other racial-ethnic group, Asian Americans most often cite poor doctor–patient relations because of their race, limited English ability, and low health literacy.

To facilitate communication, use

- Pictures and models
- Translators, if lack of bilingual and bilingual staff
- Language in lay-people’s terms and avoid jargon
- In-language materials
- Demonstrations and ask for returned demonstrations, if apply
- Appropriate body language



Conclusion: Achieving Patient Centered Diabetes Care





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Thank You

Chinese Community Health Resource Center
www.cchrhealth.org

Asian Alliance For Health
www.asiansforhealth.org



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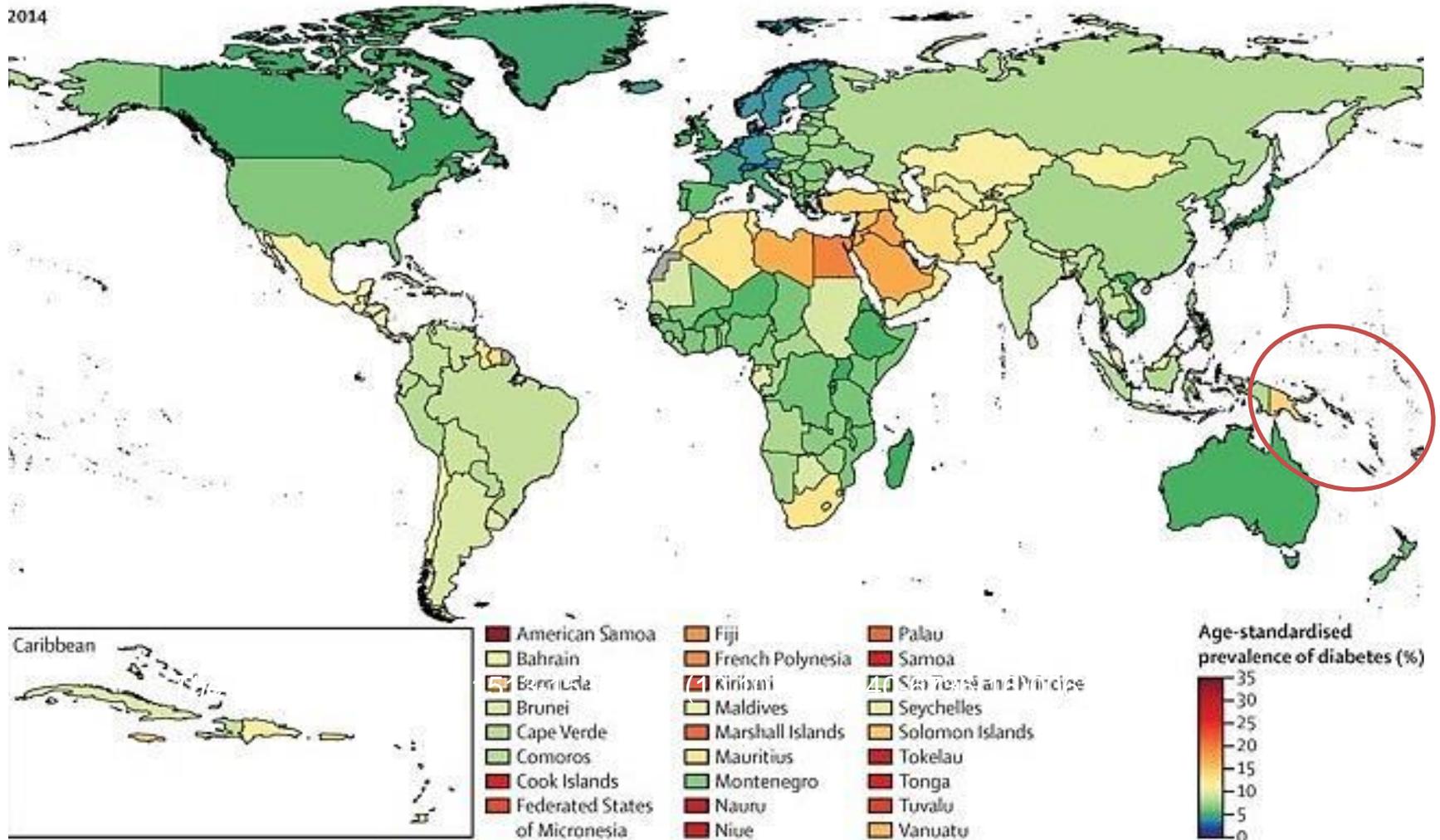
A program of the National Institutes of Health and the Centers for Disease Control and Prevention



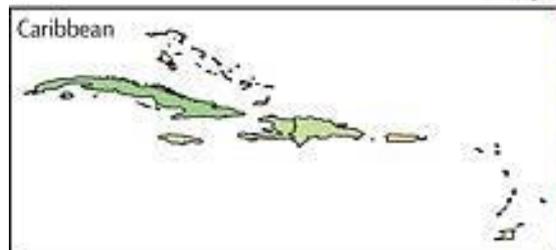
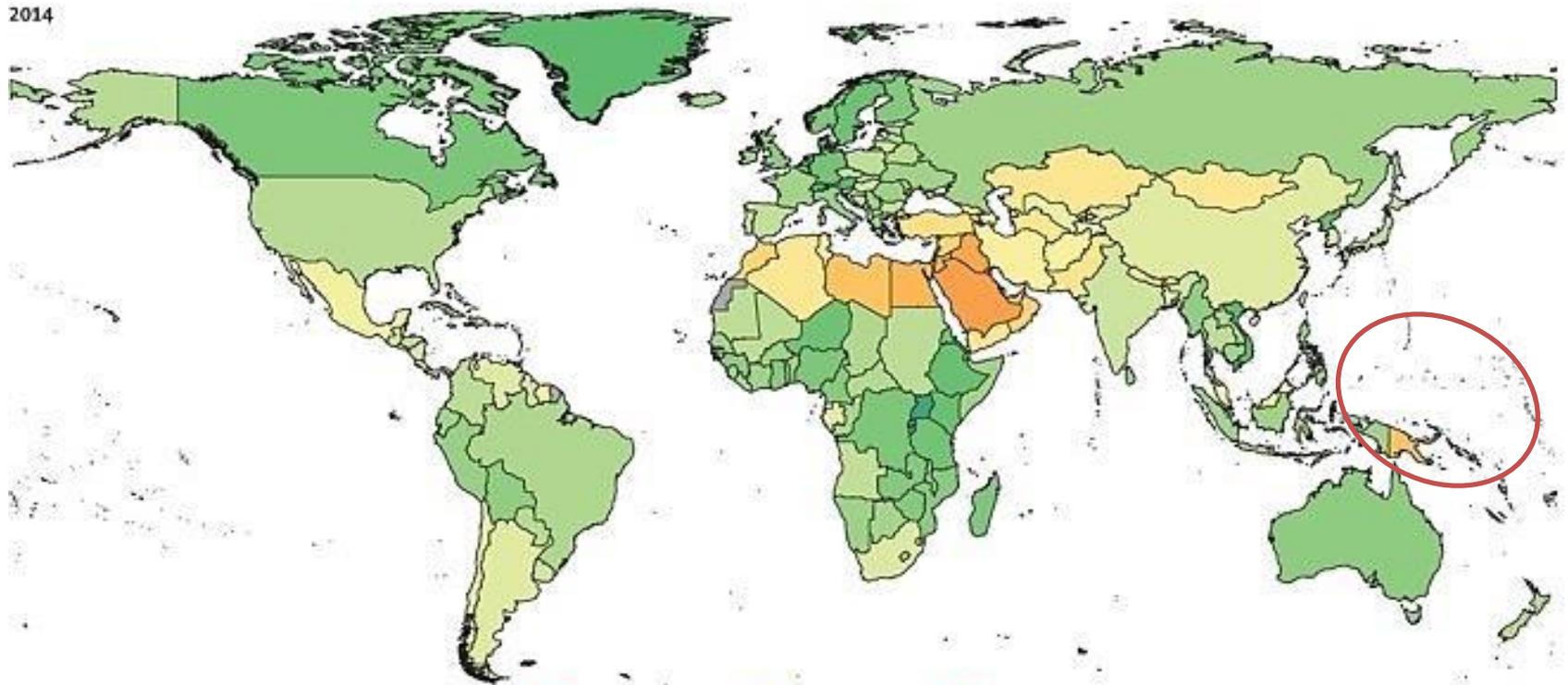
Nia Aitaoto, PhD, MPH, MS

POLICY, SYSTEMS AND ENVIRONMENTAL (PSE) INTERVENTION STRATEGIES FOR PACIFIC ISLANDERS BY PACIFIC ISLANDERS

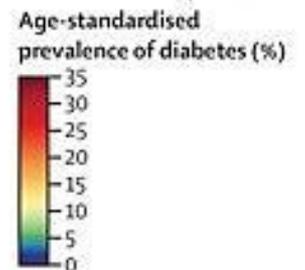
Age-standardized diabetes prevalence in adult women, 2014



Age-standardized diabetes prevalence in adult men, 2014



- | | | |
|--------------------------------|------------------|-----------------------|
| American Samoa | Fiji | Palau |
| Bahrain | French Polynesia | Samoa |
| Bermuda | Kiribati | São Tomé and Príncipe |
| Brunei | Maldives | Seychelles |
| Cape Verde | Marshall Islands | Solomon Islands |
| Comoros | Mauritius | Tokelau |
| Cook Islands | Montenegro | Tonga |
| Federated States of Micronesia | Nauru | Tuvalu |
| | Niue | Vanuatu |





Diabetes in USAPI

Jurisdiction	Year	Prevalence
Guam	2002-2003	11%
FSM	2002	24%
RMI	2002	30%
Palau	2006	39%
American Samoa	2004	47%
United States	2007	8%

Source: Hosey G, Aitaoto N, Satterfield D, Kelly J, Apaisam CJ, Belyeu-Camacho T, deBrum I, Luces PS, Rengiil A, Turituri P. The culture, community, and science of type 2 diabetes prevention in the US Associated Pacific Islands. *Prev Chronic Dis.* 2009 Jul;6(3):A104. Epub 2009 Jun 15.



Background

- **Ebeye (Kwajalein), Republic of the Marshall Islands**
 - Population: 12,000
 - Land: 6.33 square miles
 - Median Household Income: \$14,195
- **Risk Factors**
 - 91% consume < 5 servings of fruits and vegetables (f and v) per day
 - 66% low level of physical activity
 - 63% obese or overweight



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Community Building Approach

- **Engage the community**

- Association for Asian and Pacific Community Health Organizations
- Ebeye Community Health Center
- Kwajalein Diabetes Coalition
- Kwajalein Atoll Community at large



“It’s not just the ‘sector’ it is the heart, trust, leadership and honesty”

“Good first step but not the only step”

- **Build capacity: Kwajalein Diabetes Coalition**

- Coalition building
- Coalition infrastructure technical assistance
- Planning and evaluation support



PSE Interventions: Nutrition

- **Policy**
 - Legislative: Remove tax on fruits and vegetables
- **Systems**
 - Ebeye CHC: FARMacy, Recipe Book and Cooking Classes
- **Environment**
 - Community and Individual Gardens



PSE Interventions: Physical Activity

- **Policy**

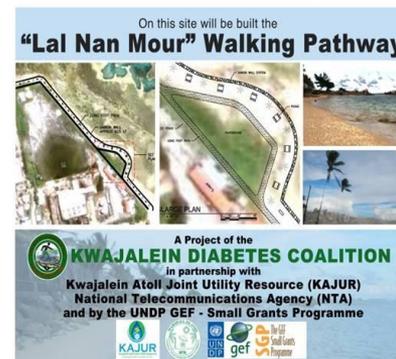
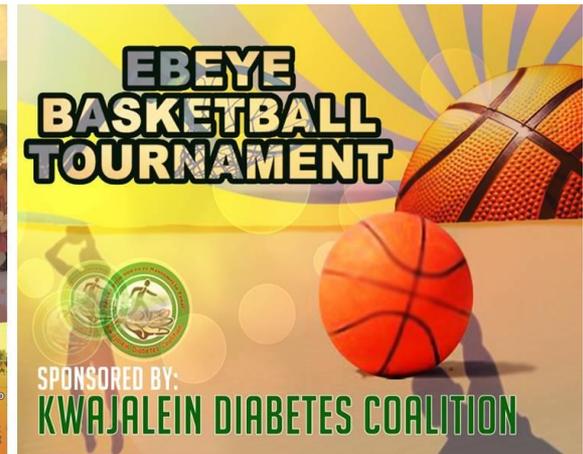
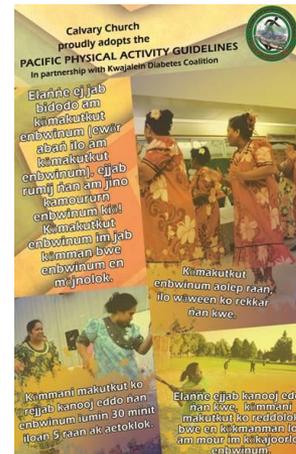
- Churches adapt *Pacific Physical Activity Guidelines for Adults*

- **Systems**

- Ebeye CHC: Prescribe physical activity (Fitness Center)

- **Environment**

- Fitness center
- Walking path





PSE Interventions: Health Management

- **Policy**

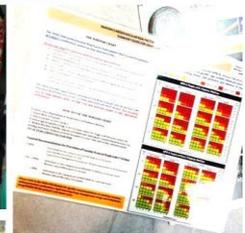
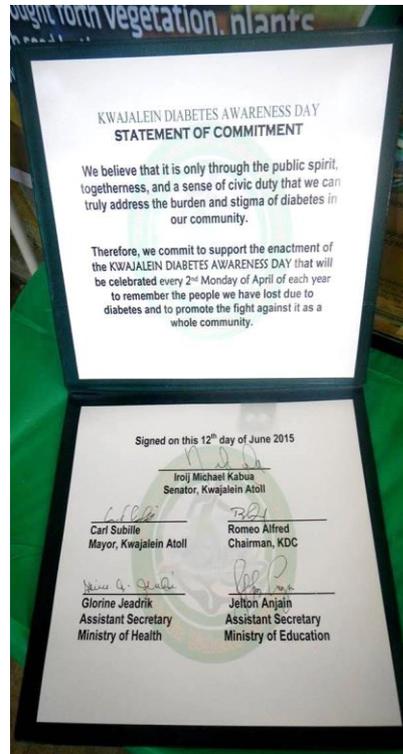
- Stigma Policy: Kwajalein Diabetes Day (2nd Monday of April)

- **Systems**

- Clinical and treatment Protocols

- **Environment**

- Family Model Diabetes Education





Outcomes

- **Nutrition**

- **CHANGE Tool (PSE)**

- Policy Score: 22% to 55%
 - Environment Score: 22% to 57%

- **Diabetes patients**

- Average f&v consumption/day: 0.86 to 2.80 servings
 - Percent consume at least 5 servings of f&v/day: 2% to 8%

- **Physical activity (PA)**

- **CHANGE Tool (PSE)**

- Policy Score: 28% to 63.64%
 - Environment Score: 49% to 68%

- **Diabetes patients**

- Average PA: 100 to 195.62 Metabolic Equivalent of Task (MET) minutes per week
 - Percent engage in moderate to high levels of PA: 1% to 4%



Outcomes

- **Health management**
 - **CHANGE Tool (PSE)**
 - Policy Score: 48% to 84%
 - Environment Score: 48% to 84%
 - **Diabetes patients:**
 - Average HbA1c: 9.2% to 8.4%
 - Percent of patients with HbA1c less than 9%: 19% to 39% (need recent)

Coalition Capacity Monitoring and Evaluation

- **Monitoring, reflecting and celebration calls and visits**
 - Monthly SKYPE meetings
 - On-visit
- ***Coalition effectiveness survey scores***
 - 2010: 0
 - 2012: 359 (82%)
 - 2015: 406 (93%)
- **Outcome**
 - Chartered Non Profit Organization
 - Kwajalein RIAK Coalition (All NCDs including tobacco and cancer)
- **Sustainability & future plans**
 - RIAK Plan 2
 - RMI NCD and Cancer Program
 - Policy Roles: Mayor and City Managers



Coalition Participants: Lead (Convening Agency), Support Staff, Leaders and Members; Coalition Structure (By-laws, goals, org chart, etc.); Coalition process (Decision Making, resources allocation, etc.); and Stages of Coalition Development (Formation, Maintenance and Institutionalization)



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Pacific Healthy Community Indicators

- Healthy people
- Healthy environment (social and physical)
- Healthy culture



DIAK PLAN

“Shifting Sails towards a Healthier Community”

COMMUNITY ACTION PLAN 2012-2015





Acknowledgements

- **Association of Asian Pacific Community Health Organization (AAPCHO):** Melinda Martin, Michelle Ninde, Allan Gamboa, Natalie Ah Soon, Nina Agbayani and Jeff Caballerro
- **Ebeye Community Health Center:** Dr. Richard M. Trinidad, Dr. Cho-cho Thein, Johannes Seremai, RoseH Dribo, Korab Lanwe, Dr. Lionel Acosta, Irene Paul, Tommy Milne and Glorine A. Jeadrik
- **Kwajalein Diabetes Coalition (Diak Coalition):** Romeo Alfred, Odrikawa Jatios, Scott Paul, Marcella Sakaio, Oling de Brum, Kiorong Sam, Noland De Brum, Sef Korok Calvin Juda, Lanjo Lanwe, Herinos Enos and Joma Maie
- **Partners:** RMI NCD Program, RMI CCC Program, Kunit Bobrae (Tobacco) Coalition, Youth to Youth in Health (YTYIH), Ruk Jen Leen Women's Chapter, Kwajalein Atoll Joint Utility Resource (KAJUR), Environmental Protection Agency (EPA), Ebeye Hotel (MIDB), RMI Resource and Development (RND), Republic of China (Taiwan Embassy), RMI CMI Land Grant, RMI Office of Environmental Planning, And Policy Coordination (OEPPC) Canvasback Missions, Kwajalein Wellness Program Inc., Marshall Islands Journal, National Telecommunication Agency (NTA), United Church of Christ, Assembly of God Calvary Church, New Beginning Church, Catholic Church (Queen of Peace), Church of Latter-Day Saints

Visit CDC NDEP's New Website

<http://www.cdc.gov/diabetes/ndep>

National Diabetes Education Program



▶ Asian Americans, Native Hawaiians, and Pacific Islanders have high rates of diabetes

Learn ways you can prevent or delay the disease.



The National Diabetes Education Program (NDEP) works with partners to reduce the burden of diabetes and prediabetes by facilitating the adoption of proven approaches to prevent or delay the onset of type 2 diabetes and the complications of diabetes. NDEP is a joint program of the Centers for Disease Control and Prevention and the National Institutes of Health.

PARTNERING WITH NDEP

Learn about NDEP and find partnership resources.

WORKING IN COMMUNITIES

Find tools to help implement community programs.

WORKING IN HEALTH SETTINGS

Find resources to support team care.

TRAINING & TECHNICAL ASSISTANCE

Find webinars and courses to build your capacity.

FOR PEOPLE AT RISK FOR DIABETES

Find information on preventing type 2 diabetes.

FOR PEOPLE WITH DIABETES

Find information on managing diabetes.

FIND RESOURCES FOR SPECIFIC GROUPS



AMERICAN INDIANS & ALASKA
NATIVES



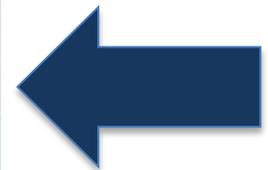
AFRICAN AMERICANS & AFRICAN
ANCESTRY



HISPANIC & LATINO AMERICANS



ASIAN AMERICANS, NATIVE
HAWAIIAN & PACIFIC ISLANDERS





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Q&A



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Thank you!

Learn more from the National Diabetes Education Program

National Diabetes Education Program

Call 1-800-CDC-INFO (800-232-4636)

TTY 1-(888)-232-6348 or visit www.cdc.gov/info

To order resources, visit https://nccd.cdc.gov/DDT_DPR/



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