

WELCOME TO



▶ TITLE:

- ▶ Genetics, Family Health History, & Diabetes: Clinic to Community

▶ INSTRUCTIONS & REMINDERS:

▶ Continuing Education Units available

- ▶ Nurses = 1.5 hours
- ▶ Dietitians = 1.0 hour
- ▶ Other = 1.0 hour

▶ Complete the following at health.utah.gov/diabetes/telehealth/telehealth.html

- ▶ ONE sign-in form per site, or ONE pre-test per person
- ▶ ONE post-test per person
- ▶ Submit electronically (preferred), e-mail scanned versions to bpatino@utah.gov, or fax (legibly) to 801-538-9495
 - *The fax machine is now working*

▶ To archive your own pre-/post-test, fill out the PDF version and print (to paper or PDF).

▶ For technical assistance during the presentation

- ▶ Call 801-585-2426 or 801-538-6593

▶ Activate mute

Diabetes Genetics

Don McClain MD, PhD
University of Utah School of
Medicine

Types of Diabetes Mellitus

- Type 1 diabetes -- formerly "juvenile onset" or "insulin-dependent" diabetes. Characterized by an absolute deficiency of insulin.
- Type 2 diabetes -- formerly "adult onset" or "non-insulin-dependent" diabetes. Characterized as insulin resistant state without an absolute deficit of insulin even though there is a relative lack of insulin production as the disease progresses.
- Gestational diabetes -- a type 2 syndrome physiologically akin to type 2, and in fact may simply be type 2 that is brought to the fore by the increased insulin demands of pregnancy.
- Secondary diabetes -- diabetes brought on by a definable event, e.g. pancreatitis or Cushing's syndrome



Clinical Hallmarks of Type 1 Diabetes

- Hyperglycemia
- Lipid abnormalities
- Diabetic ketoacidosis
 - Often the presenting illness in new-onset type 1
 - Less frequent in type 2 diabetes because there is usually enough insulin present to keep lipolysis under control. But it can occur. In fact, many African American children who ultimately are diagnosed with type 2 diabetes present with diabetic ketoacidosis.

Pathogenesis of Type 1 Diabetes

- Autoimmune destruction of beta cells
- Unclear inciting event:
 - Some evidence (e.g. seasonal and geographic variation in onset) suggests a viral pathology, but it is unclear whether this represents a primary infection of the beta cells or damage to the beta cells as innocent bystanders due to presentation of a “superantigen.”
 - Newer hypotheses suggest that autoimmunity may develop as a result of insufficient immunoregulation as a result of increased antibiotic use.

HLA serotypes and the predisposition to type 1 diabetes

TABLE 19-12 Risk of Type I Diabetes for Various HLA Phenotypes Relative to the General Population

DR3	DR4	DR3 + DR4	DR2	DR7
5.0	6.8	14.3	0.1	0.1

Source: Wolf et al.: *Diabetologia* 24:224, 1983.

Familial Risk of Type 1 Diabetes

TABLE 19-13 Familial Risk of Type I Diabetes Mellitus (IDDM)

Relation to Affected Patient	Risk for IDDM, %
Sibling	5–6
Identical twin	35–50
HLA identical	15
HLA haploidentical	5
HLA nonidentical	1
Parent	3
Offspring	
Affected father	6
Affected mother	1
General population	0.4–0.5

LIVER
Increased hepatic
glucose production

MUSCLE
Decreased
glucose uptake

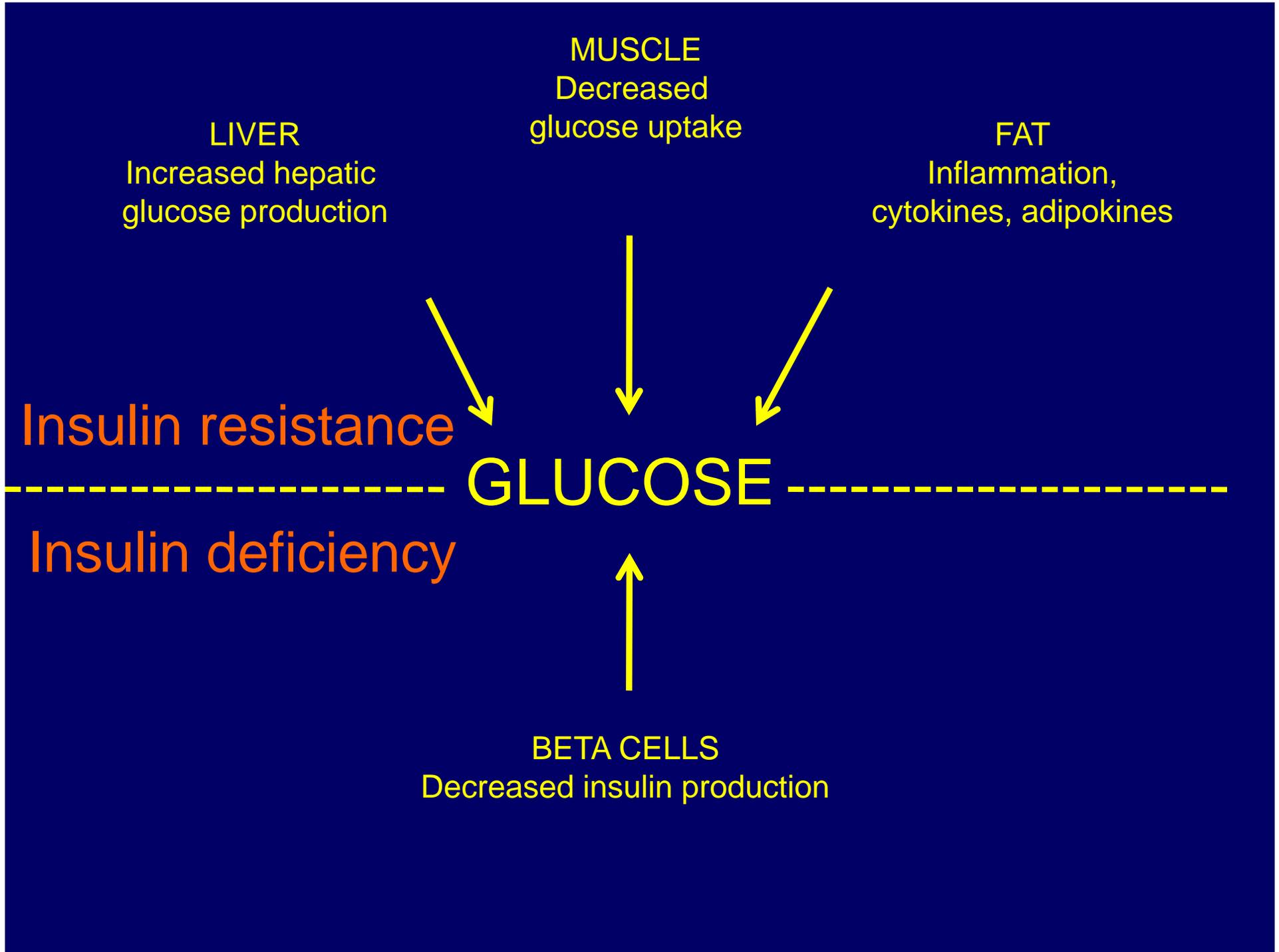
FAT
Inflammation,
cytokines, adipokines

Insulin resistance

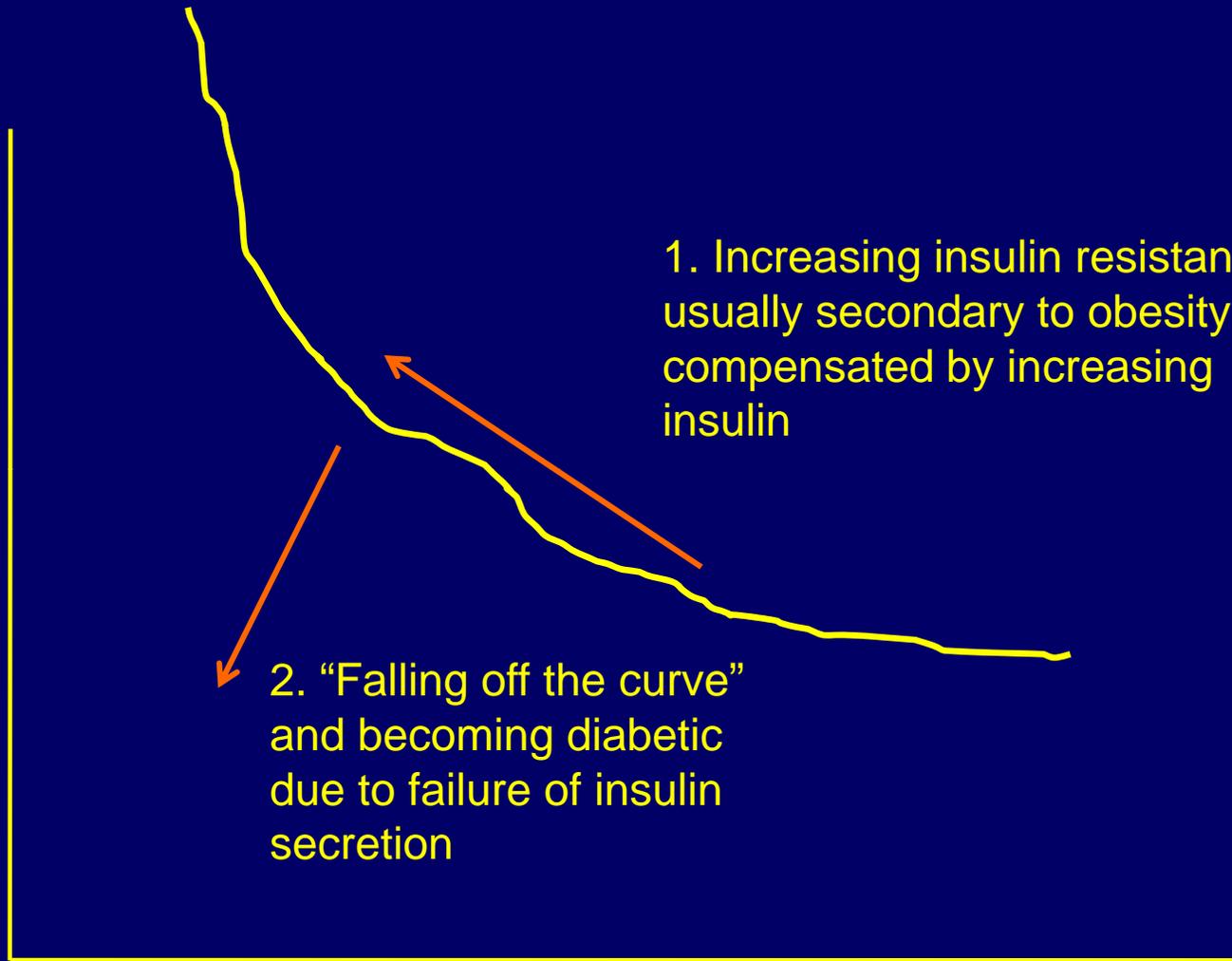
GLUCOSE

Insulin deficiency

BETA CELLS
Decreased insulin production



Insulin secretory capacity



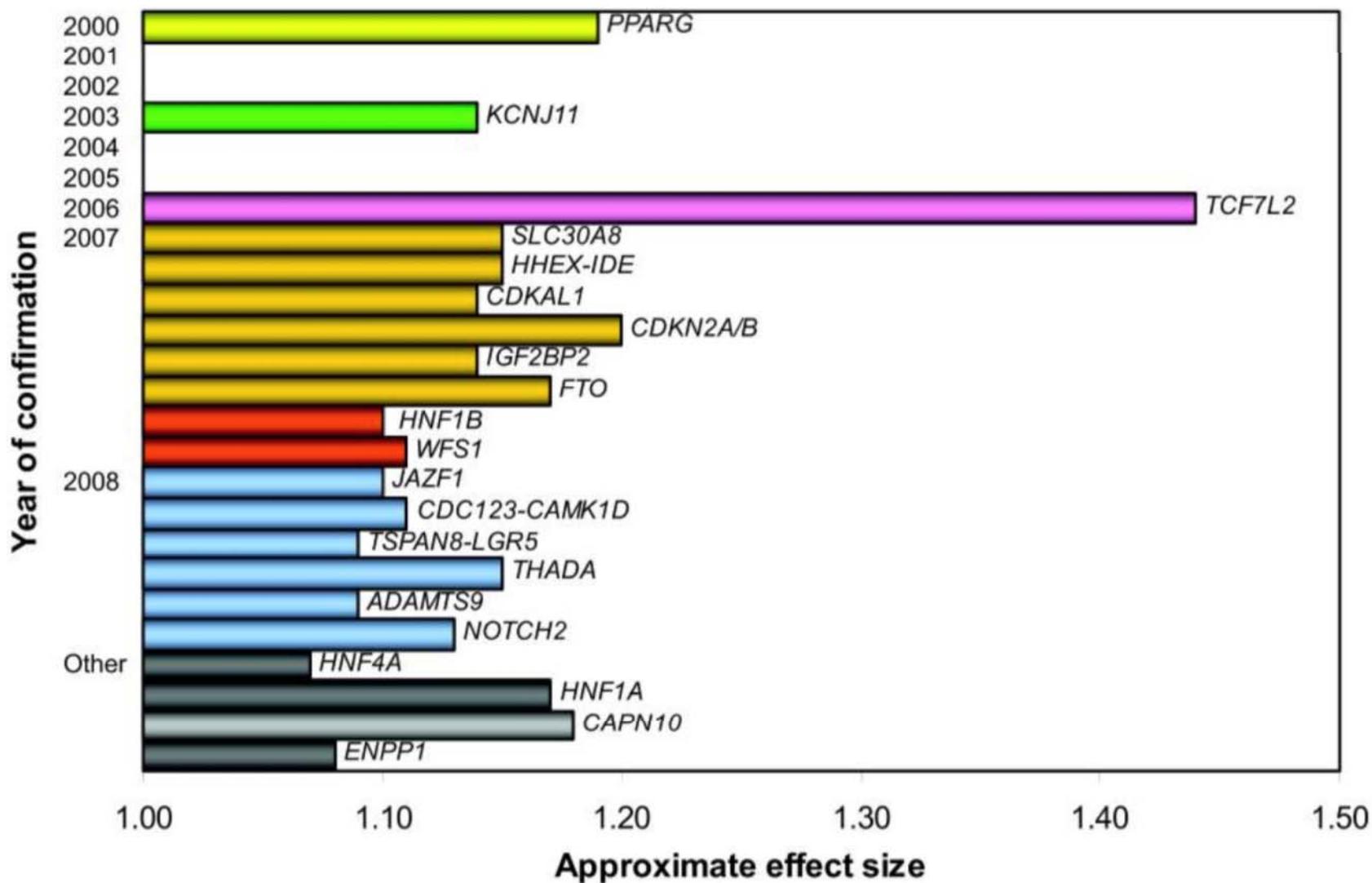
Insulin sensitivity

Genetics of Type 2 DM: > 20 genes, but all conferring modest (5-10%) increased relative risk.

Major risk factors:

- Excess weight
- Race/ethnicity
- Family history

Genetic Loci Associated with Type 2 Diabetes

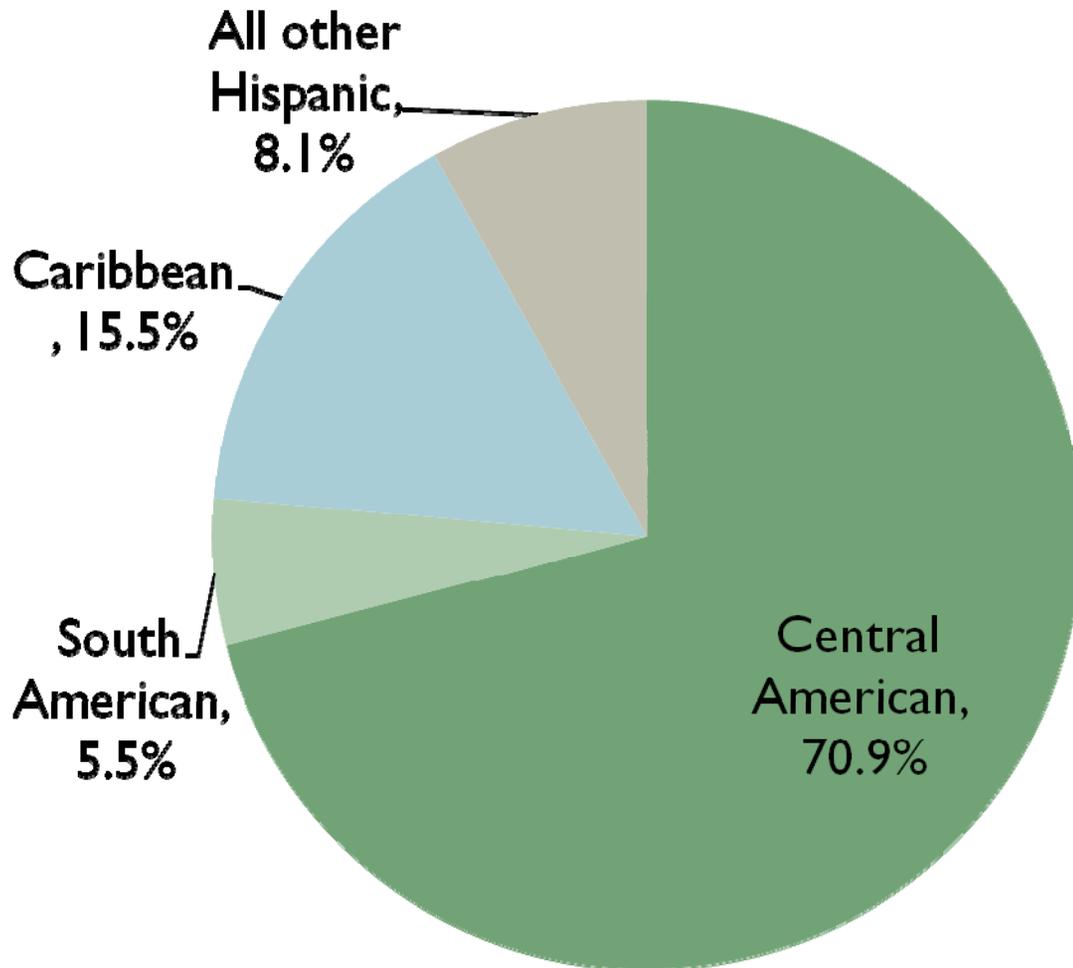




Family Health History & Diabetes in the Latino Community

Sylvia Rickard
Hispanic Healthcare Task Force

Percent Distribution of Hispanic Population by Type of Origin: 2010



U.S. Hispanic Population, by Country of Origin, 2010

Origin Group	POPULATION (thousands)	SHARE (%)
Mexican	31,798	63.0
Puerto Rican	4,624	9.2
All other Hispanic	3,452	6.8
Cuban	1,786	3.5
Salvadoran	1,649	3.3
Dominican	1,415	2.8
Guatemalan	1,044	2.1
Colombian	909	1.8
Spaniard	635	1.3
Honduran	633	1.3
Ecuadorian	565	1.1
Peruvian	531	1.1
Nicaraguan	348	0.7
Argentinean	225	0.4
Venezuelan	215	0.4
Panamanian	165	0.3
Chilean	127	0.3
Costa Rican	126	0.3
Bolivian	99	0.2
Uruguayan	57	0.1
Other Central American	32	0.1
Other South American	22	<0.1
Paraguayan	20	<0.1

Source: 2010 U.S. Census ([Ennis, Ríos-Vargas and Albert, 2011](#))

PEW HISPANIC CENTER

Variations within the Population

- ▶ Cuban Americans have lower rates of diabetes than most Hispanic/Latino groups
- ▶ Mexican Americans and Puerto Ricans have especially high rates



San Antonio Heart Study

- ▶ Mexican Americans have prevalence of diabetes 1.9 times higher than non-Hispanic whites
- ▶ Mexican Americans with first-degree relative with diabetes was two times higher than those without family history



Hispanic/Latino Children

- ▶ 1 of 3 children born in U.S. in 2000 have lifetime risk of diabetes
- ▶ 1 of 2 Hispanic/Latino children have lifetime risk of diabetes
- ▶ Risk is especially high in Hispanic children who are overweight and who have a family history of diabetes



Environmental Risk Factors

- ▶ “Hispanic” variations
- ▶ Hispanics are young
 - ▶ Median age is 27 (2009)
- ▶ About one-fourth (23.4%) live below poverty
- ▶ Lack insurance
- ▶ About 40% are born outside of the U.S.





Community Faces of Utah

Hispanic Healthcare Task Force
Community Education

The How and When of CFU

- ▶ In the fall of 2009 each CBO Leader was invited to join by Louisa Stark, PhD from the U of U Genetic Science Laboratory.
- ▶ She had a grant from the National Institute of Health to do outreach to underserved communities incorporating
 - ▶ genetics to explain the 5 major chronic diseases and
 - ▶ how an individual can change their personal and family outcomes through diet and exercise.



Which Organizations?

- ▶ **The Indian Walk-In Center**
 - ▶ Ed Napia
- ▶ **National Tongan American Society of Utah**
 - ▶ Fahina Tavake-Pasi
- ▶ **Best of Africa**
 - ▶ Valentine Mukundente
- ▶ **Calvary Baptist Church**
 - ▶ Pastor France Davis
- ▶ **Hispanic Healthcare Task Force**
 - ▶ Sylvia Garcia Rickard



University of Utah

- ▶ **Louisa Stark, PhD**

- ▶ Director of the Director of the Genetic Science Laboratory
- ▶ Founder of CFU
- ▶ Hand selected each Community Leader to be part of the CFU organization

- ▶ **Steve Alder, PhD**

- ▶ Division Chief, Division of Public Health, Department of Family Preventative Medicine
- ▶ Our sage and facilitator



Our Liaisons

- ▶ **Heather Aiono, M.Ed.**
 - ▶ CFU Liaison to the University and outside partners.
- ▶ **Brenda Ralls, PhD**
 - ▶ Utah Department of Health, Diabetes Prevention and Control Program
- ▶ **Dulce Diez, MPH**
 - ▶ Utah Department of Health, Office of Health Disparities
- ▶ **Meghan Chirpin**
 - ▶ University of Utah Intern



What Action We Took

- ▶ We held community mini forums in January and February of 2010 followed by a multicultural educational forum in May of 2010.
- ▶ It was such a success that we have continued to work together with the goal to improve the health care of each of our communities, then Utah.
- ▶ Through grants we have continued to educate our communities on how they can improve the health of our families and our communities.



Diabetes

- ▶ Since the 5 main diseases are all in some way impacted by diet and exercise.
- ▶ Because of this we have chosen diabetes education as our primary focus at this time.
- ▶ We (the CBOs) tailor the presentations to each community.



Hispanic Health Care Task Force

- ▶ The Hispanic Health Care Task Force was formed in 2004 by Community Leaders interested in improving the health of the Utah Hispanic Community.
- ▶ We are a not for profit organization driven by an all volunteer membership.
- ▶ We have put on five health conferences in an effort to educate both our community members and professionals who delivers services.



HHCTF role in the CFU

- ▶ Since joining CFU the HHCTF has expanded its role in the community.
- ▶ We are still planning our conference.
- ▶ Diabetes education outreach has been added to our agenda.





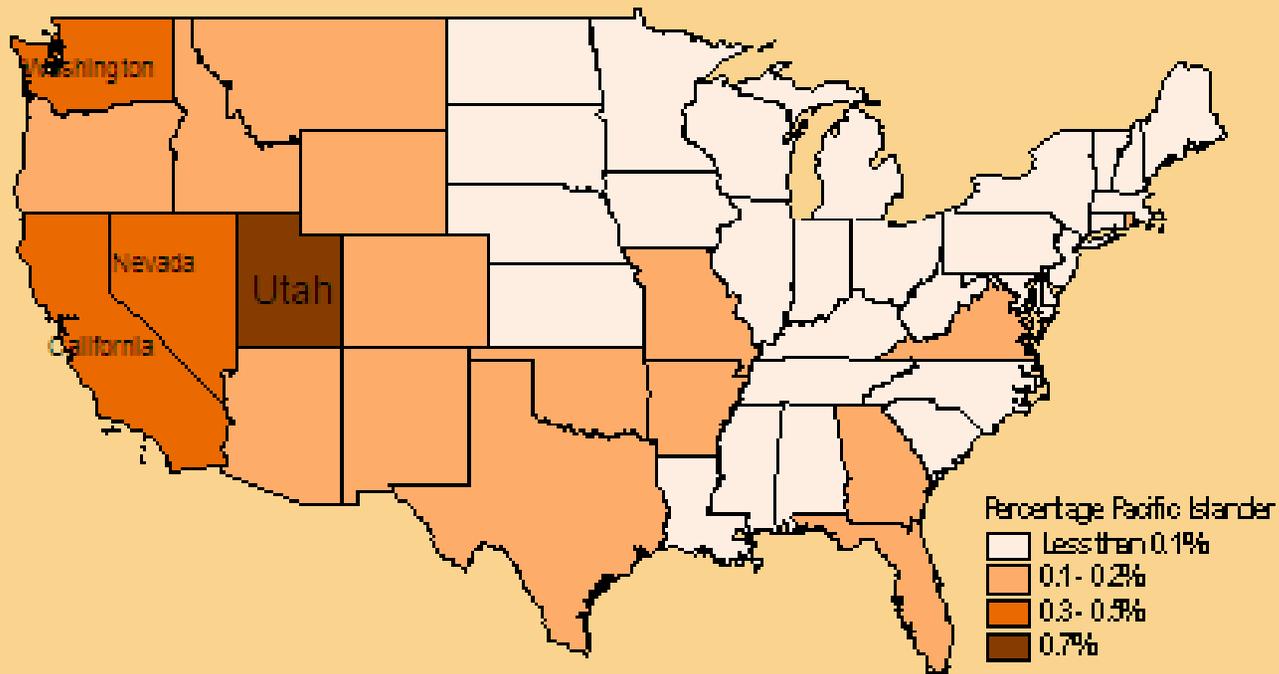
Thank You!!

Sylvia Garcia Rickard
Hispanic Health Care Task Force
sylviarickard@hotmail.com

FAMILY HISTORY AND DIABETES FOR PACIFIC ISLANDERS

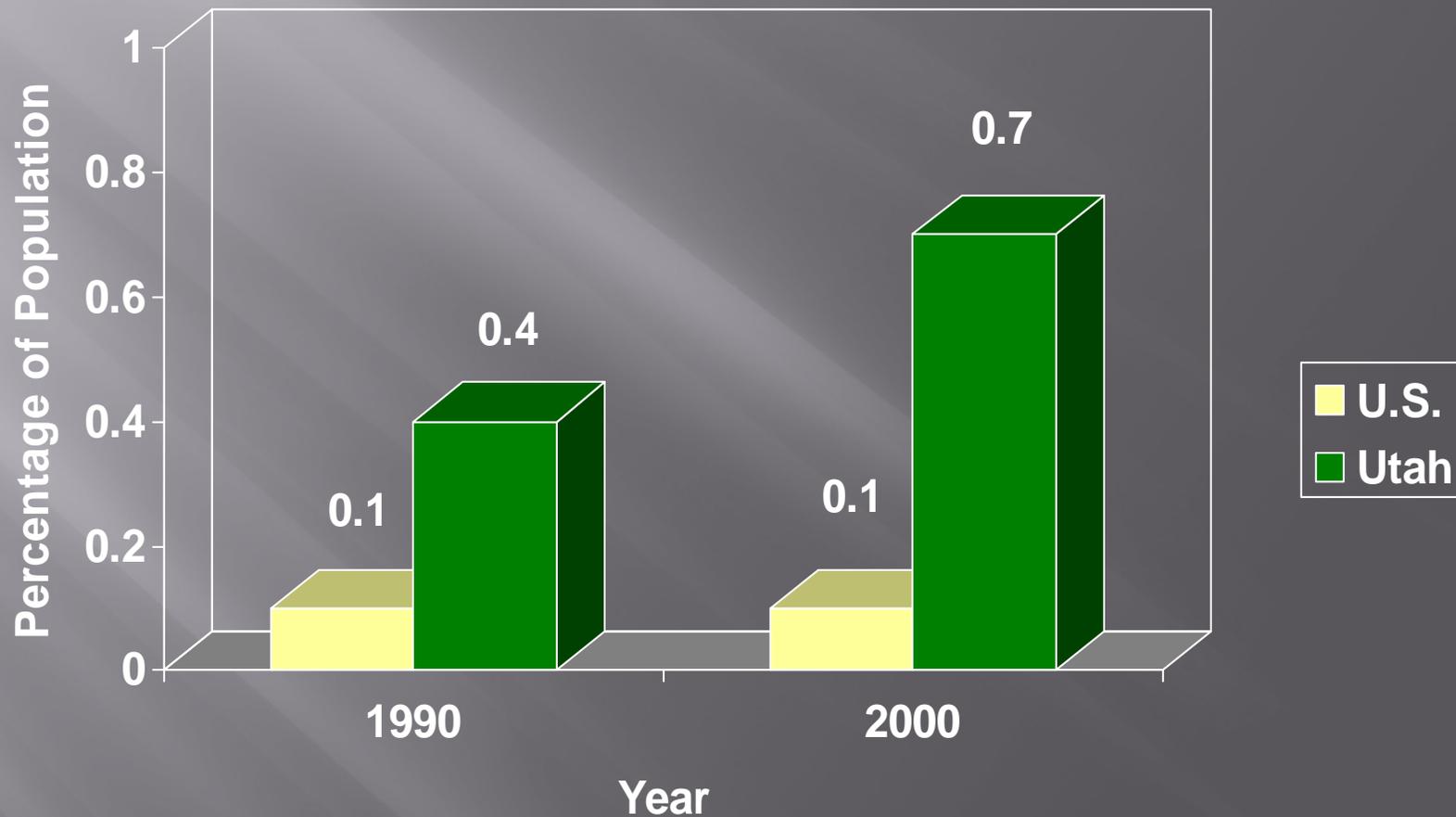
Fahina Tavake-Pasi, Executive Director
National Tongan American Society

Percentage of Population That Is Pacific Islander in Mainland U.S.

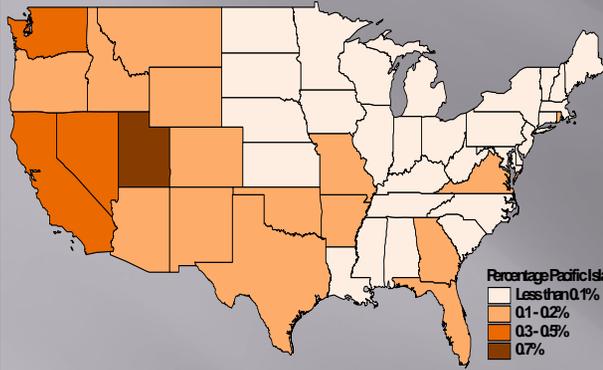


Source: U.S. Census 2000

Percentage of the Population that is NHOPI in U.S. and Utah 1990 and 2000



Sources: 1990 Census of Population; U.S. Census 2000, Summary File 1



UTAH'S HOME

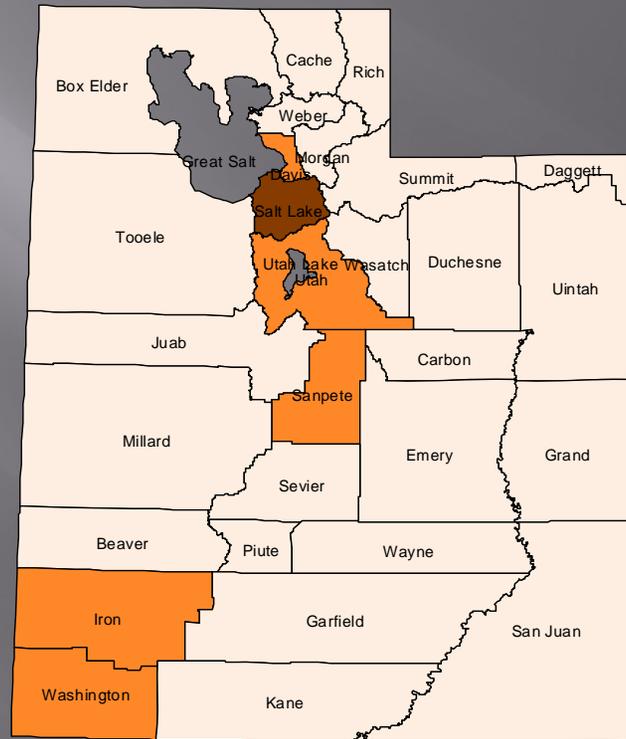
TONGANS & PACIFIC ISLANDERS IN UTAH



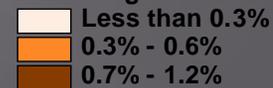
Pacific Islanders in Utah

- ▣ Over 25,000 Pacific Islanders live in Utah today
- ▣ Tongans are the largest Pacific Islander population in the state
- ▣ Two Tongans for every Samoan
- ▣ Fair numbers of Hawaiians, Fijians, Maoris, Tahitians, and Cookies

Percentage of Utah Population That Is Pacific Islander by County

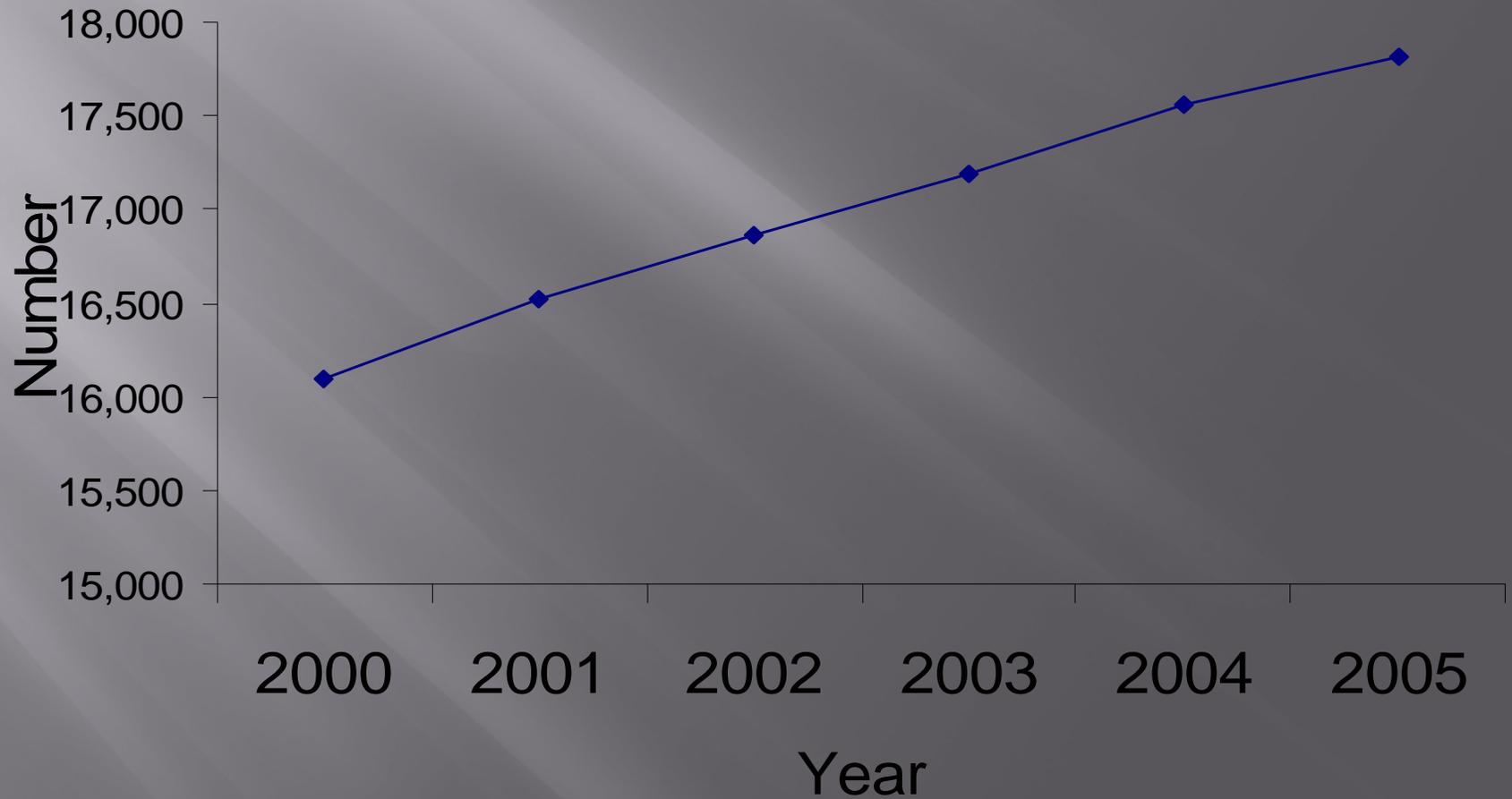


Percentage Pacific Islander



Source: Utah Census 2000
<http://factfinder.census.gov>

Number of Pacific Islanders Living in Utah 2000-2005



OBESITY PREVALENCE

- ▣ Prevalence of obesity in Tongans appears to be increasing and occurring at a younger age in adolescents, especially females



Disparities

- ▣ In Utah, diabetes is the sixth leading cause of death
- ▣ In Utah, diabetes is the third leading cause of death among Pacific Islanders

Fatalistic Attitude is Common

- ▣ *We say “I got it from my mothers side,” then we think there is nothing we can do about it.*

Focus Group Study, University of Utah 2000

Fatalistic Attitude is Common

- ▣ *We say “I got it from my mothers side,” then we think there is nothing we can do about it.*

Appropriate information is critical

- ▣ Nearly one sixth of the U.S. population speaks a language other than English at home
- ▣ People with diabetes who receive appropriate health information improve knowledge and glycemic control
- ▣ Information appropriate for one population may not be equally effective in a different population

Disparities Are Pronounced

- ▣ Polynesians don't know where to go for help, or what's available to them.
- ▣ Tongans don't want to know what is wrong because if you live a good life then it is okay for you to die.
- ▣ Many won't go to the doctor because they don't have insurance.
- ▣ Language barriers, it is hard to explain how you feel.

Focus Group Findings

- ▣ Tongans don't like to go to the doctor
 - Lack of insurance
 - Feeling that doctors don't listen
 - Doctors are not culturally aware
 - Tongans tend to trust their ministers more than they trust their doctors

Focus Group Findings

- ▣ *(Referring to Mom), “She will not go and exercise even though her doctor tells her to. . . . It’s like pushing a goat.”*
- ▣ *We need a van that goes around picking up people to exercise.*

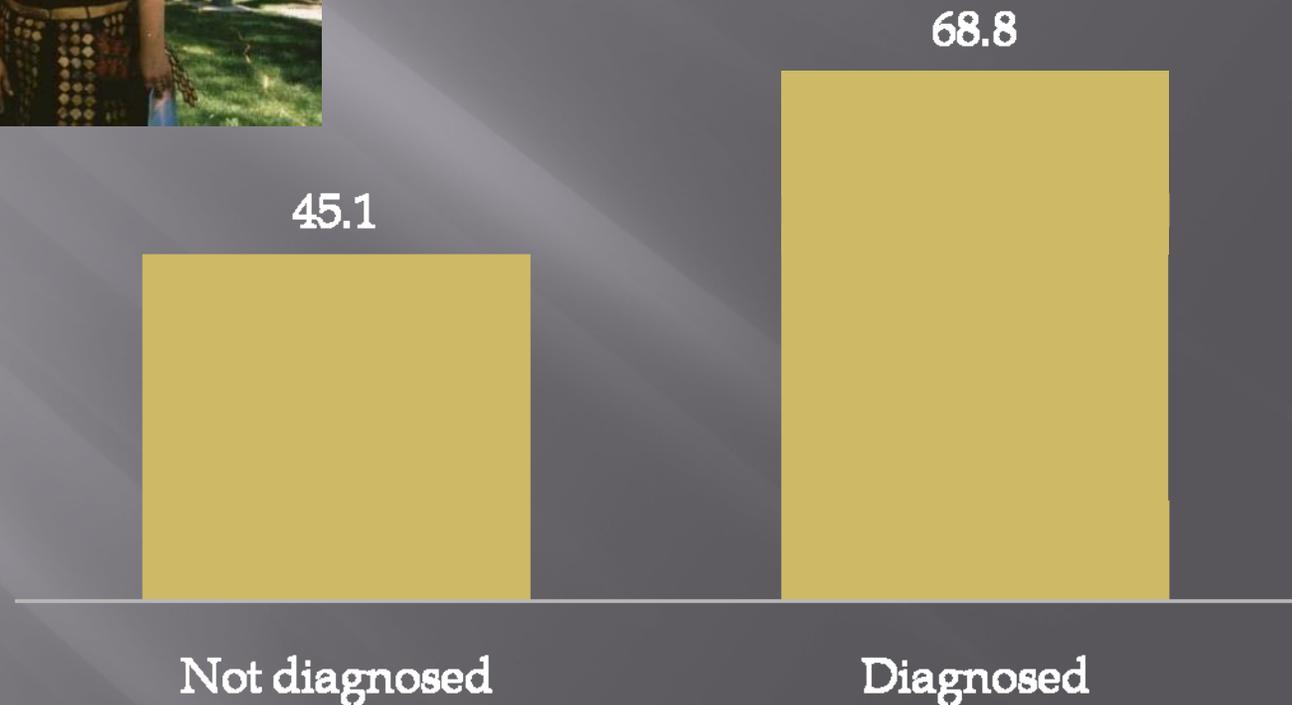




Focus Group Findings

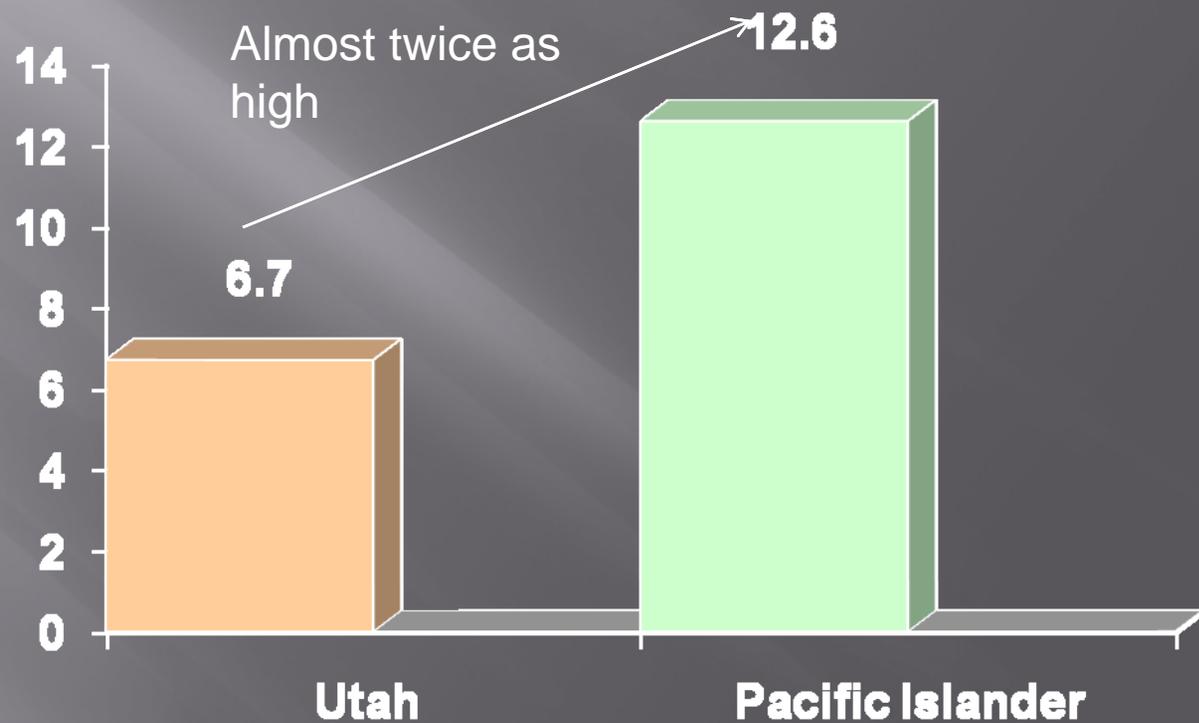
- ▣ *It is easy to keep putting off changing your lifestyle*
- ▣ *Adults don't go to doctors unless they are sick.*

Percentage of Utah Adults with Family History of Diabetes by Diagnosis



$p < .05$

Age-Adjusted Percentages of Diabetes Among Utah and Pacific Islander Adults



Source: Utah. Behavioral Risk Factor Surveillance System 2005-2009

Obesity

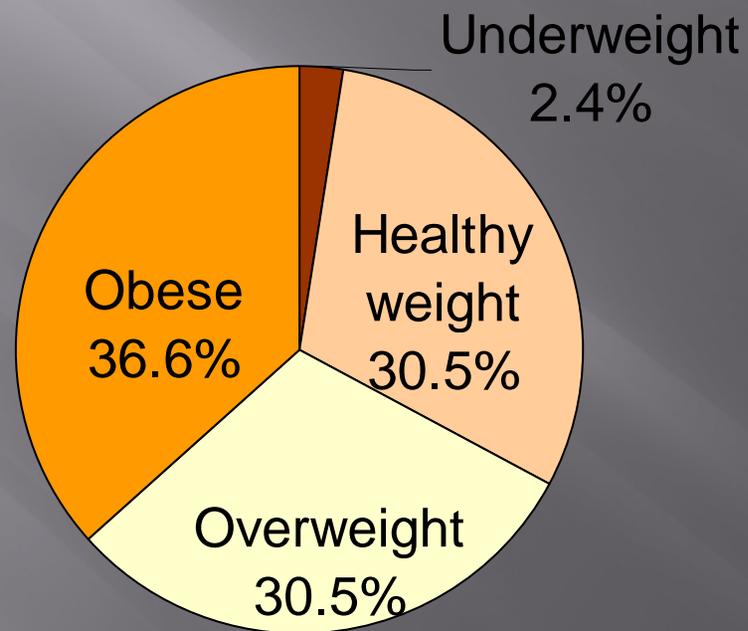
- ▣ The 2003-2004 National Health and Nutrition Examination Surveys (NHANES), found the prevalence of overweight increased from 11% to 17% among individuals aged 12 to 19.
- ▣ There are a multitude of issues with adolescent obesity including one that is front and center: *diabetes*
- ▣ Primary Children's Medical Center, suggests that almost all of Utah Pacific Islander children diagnosed with diabetes have type 2 & are overweight or obese.

Tongan Youth Behavior Study

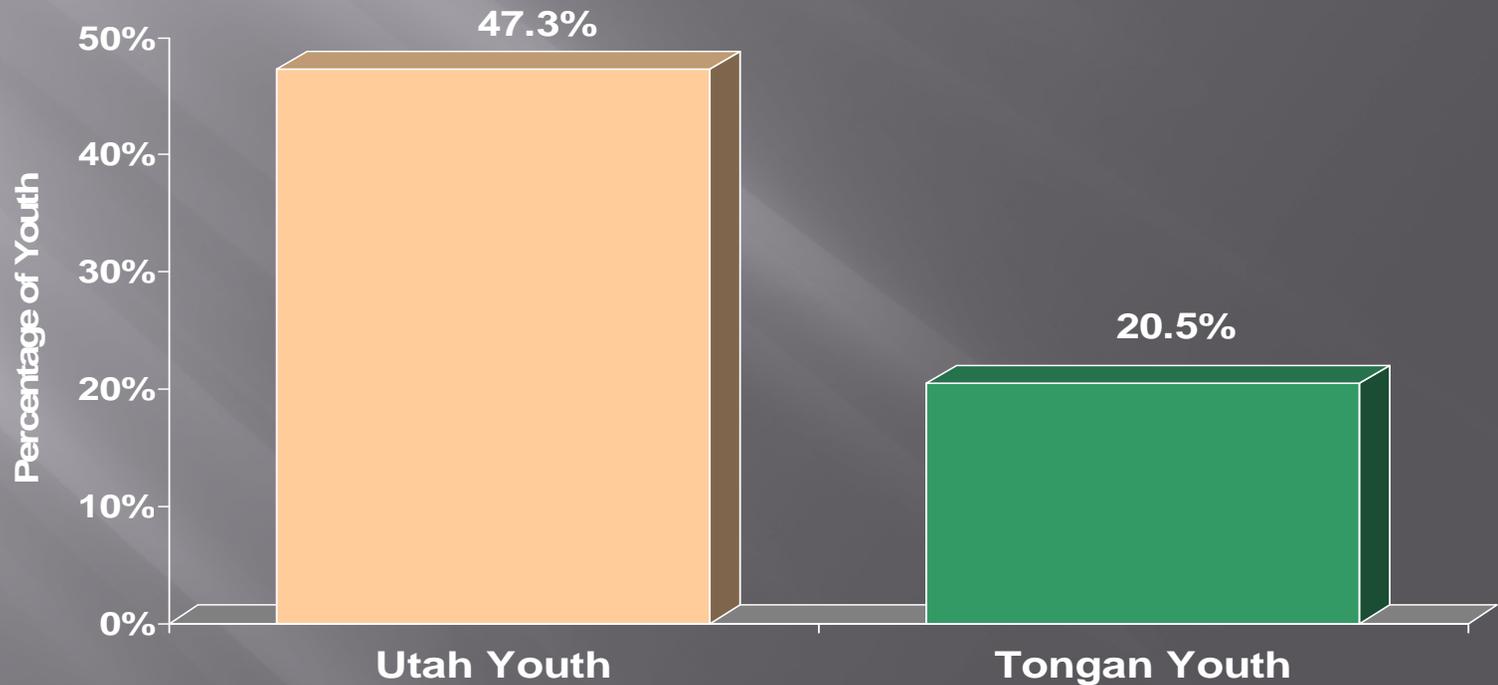
Youth Sample Description

- ▣ 156 youth, ages 12-17
- ▣ 48.9% male, 51.1% female
- ▣ Race
 - 62.5% Tongan American
 - 21.6% Tongan
 - 11.4% Tongan and other
 - 4.5% Other Pacific Islander/Native Hawaiian

Percentage Distribution of Weight Status Among Tongan Youth

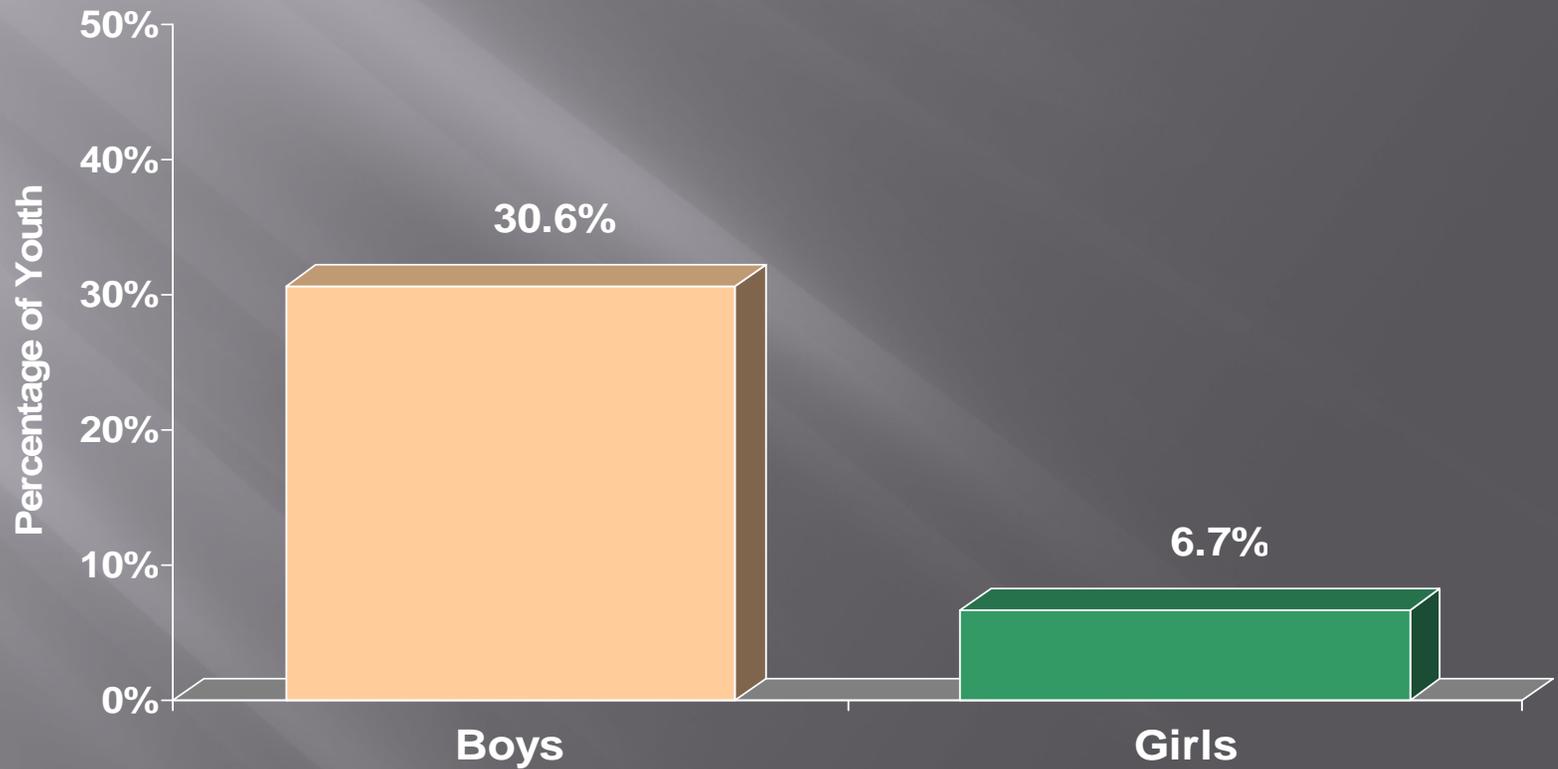


Participation in Recommended Physical Activity Utah Youth vs. Tongan Youth



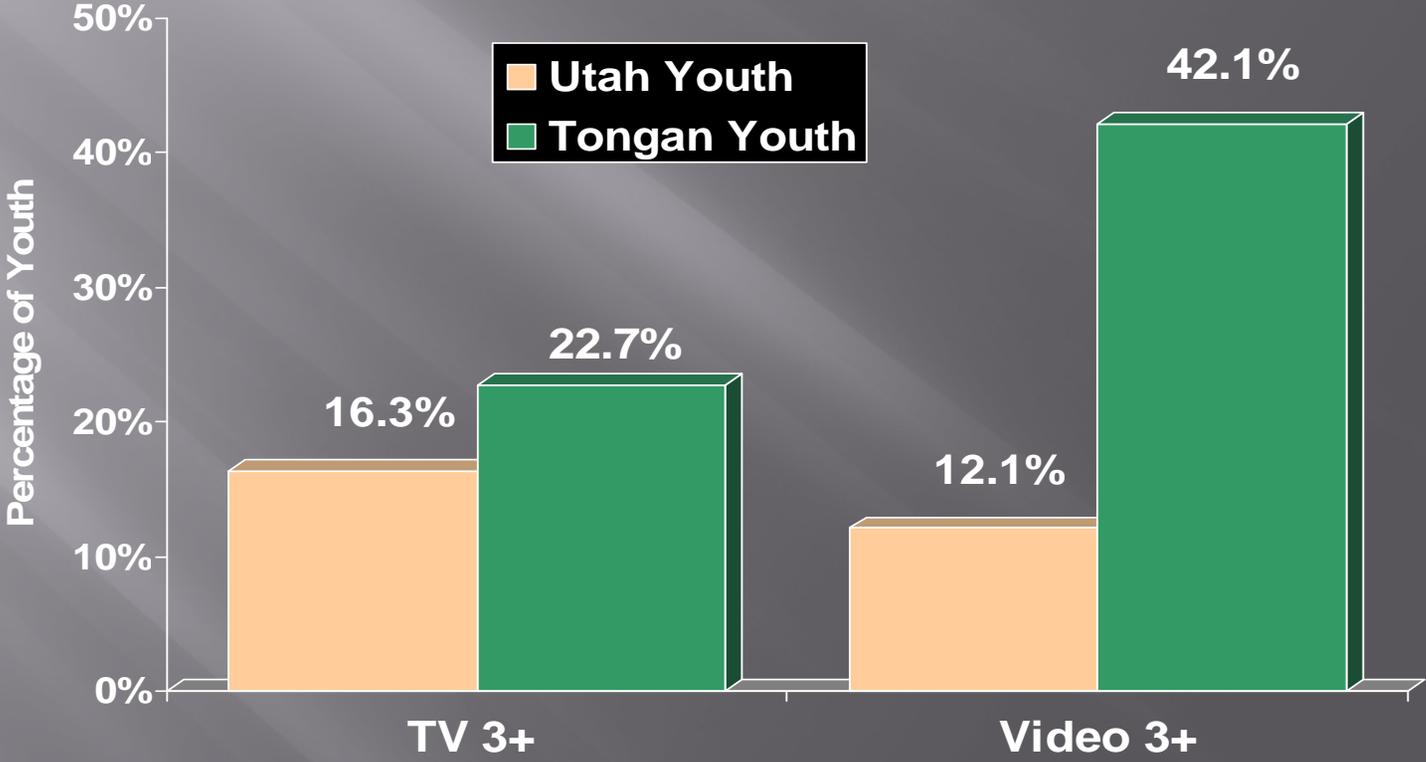
Tongan Youth Survey 2009-2010, Data are preliminary; Physically active 5+ days per week for 60 minutes

Participation in Recommended Physical Activity Among Tongan Youth Boys vs. Girls



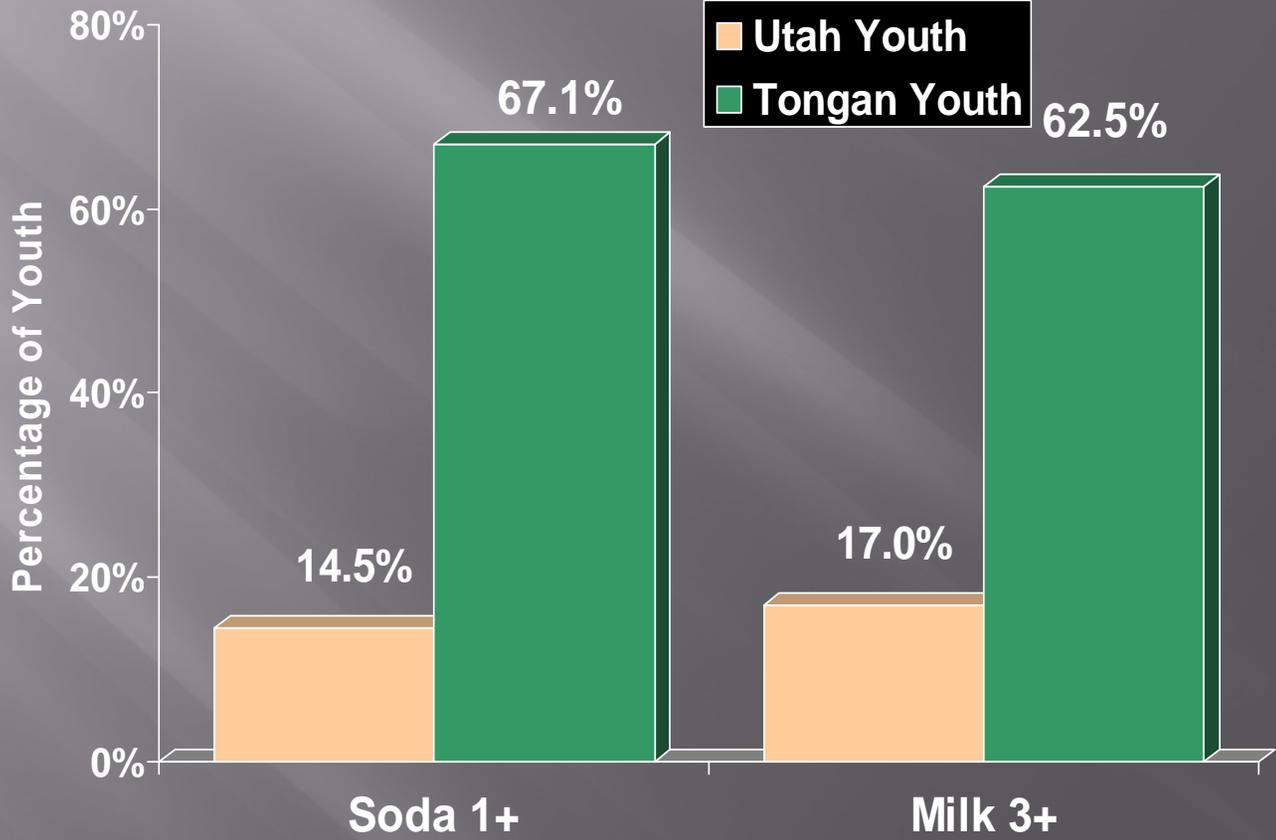
Tongan Youth Survey 2009-2010, Data are preliminary; Physically active for at least 6 months

Hours of Screen Time Per Day Utah Youth vs. Tongan Youth



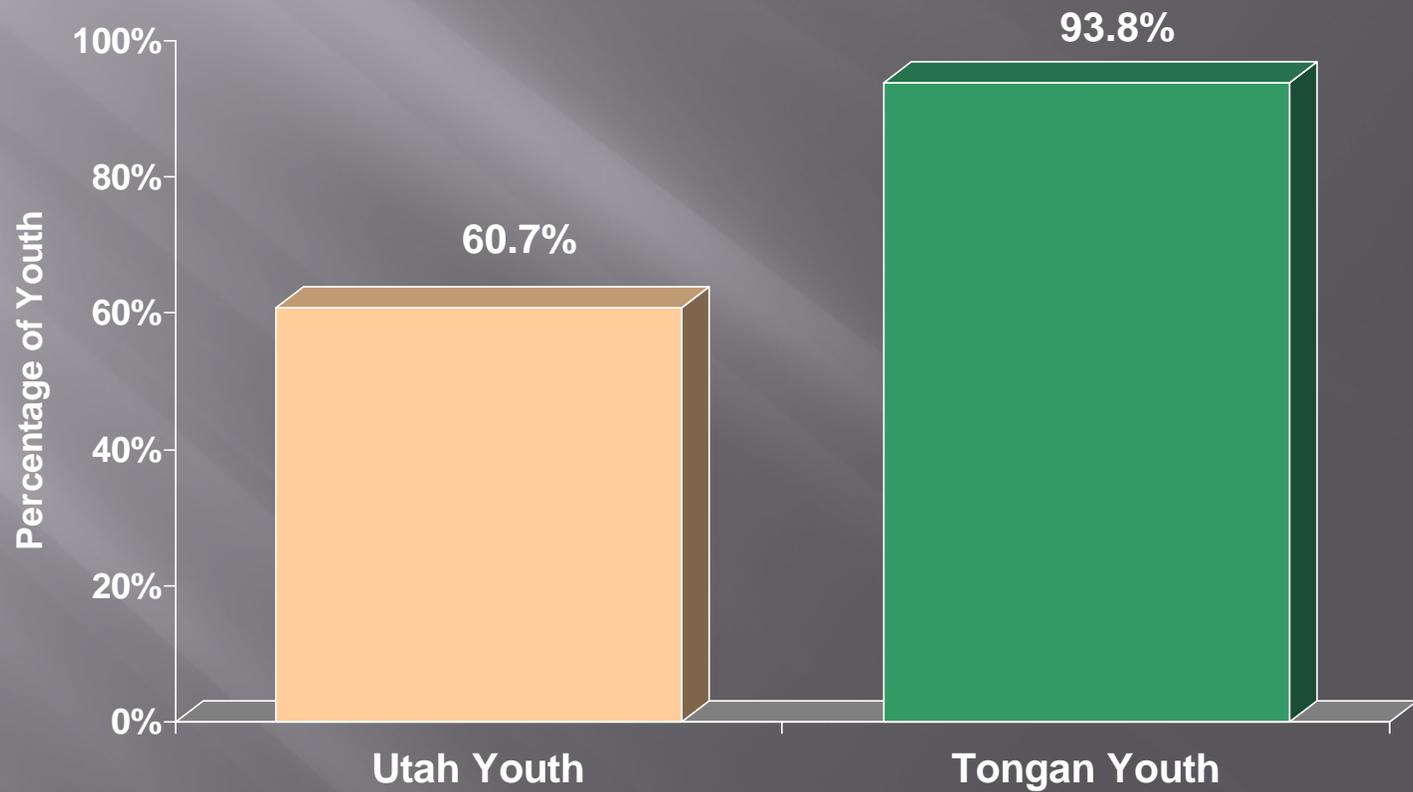
Tongan Youth Survey, 2009-2010; Data are preliminary

Daily Beverage Consumption Utah Youth vs. Tongan Youth



Tongan Youth Survey, 2009-2010; Data are preliminary

Weight Status by Daily Consumption of Sugared Sodas Utah Youth vs. Tongan Youth



Tongan Youth Survey 2009-2010, Data are preliminary 3 sugared sodas per day

In Addition....

- ▣ NTAS holds various health educational classes in churches, senior centers and in the community focusing on –
 - obesity and diabetes
 - family health history
 - cancer
 - chronic diseases

Interventions

- ▣ Increasing awareness of appropriate portion sizes
- ▣ Programs for youth
- ▣ Work through churches

Church-Based Interventions



▣ *Churches are a community's meeting ground. We trust them to give us information.*

▣ *The Polynesian race is very religious and anything that comes from the leaders of the church, they have the tendency to listen.*



“Family Fun Time” Strengthening Families Health Program

- ▣ Worked with churches to implement 7-wk program
- ▣ Included the whole family
- ▣ Did not have the typical exercise, but rather family games, some brought in by the families themselves (sock throwing, red-light green-light, tickle/protect family member, balloon popping, etc.)
- ▣ Healthy snacks
- ▣ Pedometers to track family steps during the week
- ▣ Produce a booklet with types of games that can be used by the families
- ▣ Pre/Post, reported back the next weekly

Strengthening Families Health Program



“Walk for Life”

- Socialization opportunities
- Walk at own pace (seats available)
- Encouraged children participation to bring parents out.
- Location: Jordan park (husbands were already playing tennis and women were doing nothing..so.)
- Make materials available (reading, meters, water..)
- In Mall during the winter – close to PI community
- Radio ad
- Miss Tonga Utah participates

“Walk for Life”



Before: 2008

After: 2010



Award Winning Program

Select
25

Youth Healthy
Weight Program

National Tongan
American Society

Salt Lake City



selecthealthTM

CELEBRATING
25 YEARS
of service

Rugby Tournaments

- ▣ 8 Women's team*
- ▣ 7 Men's team

*New in 2010

- Over 160 women participated AND their children
- 3-4 days/ at least 2 hrs exercise

Women's Rugby



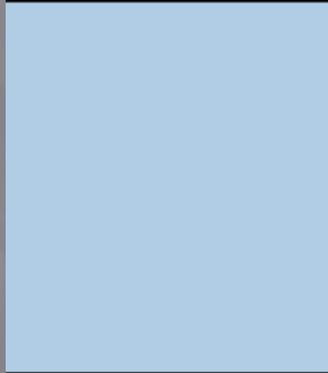
Walk for Life Program





4 Steps to Control Your Diabetes for Life

Sitepu 'e 4 Keke Mapule'i Ho
Suka 'I he Toenga 'o Ho'o Mo'ui.



Tongan
June 2007
Lea fakaTonga
Sune 2007



www.yourdiabetesinfo.org



Fai 'a e fanga ki'i ngāue'ni ké ke Hao ai mei he Suká

Vakai angē pe 'e ngalingali ké ke ma'u e mahaki'ni. 'E mātu'aki faingofua ange ke ma'u'ehe



ni'ihī Tonga 'oku fu'u sinō 'a e mahaki suká kalasi 2. Talanoa leva kia kinautolu 'oku nau tokang'i HO'O mo'ui leilei 'o fekau'aki mo e fakatu'utamaki'ni. Kapau 'okú ke fie ma'u hano toe fakaikiiki, sio ki he sivi fakatu'utamaki 'o e fa'ahi 'e taha.

Fakaholo ha ki'i pauni ho mamafá. Ko e lahi



ange ho mamafa ko e faigofua ange ia ke ma'u koe he'e kalasi fakatu'utamaki 'o e suká 'aia 'oku



Laasaga iti e tatau ona fai nei e Tete'e atu ai i le Ma'i Suka

Su'esu'e ma fesili pe ua tau maua oe.



O tagata Samoa e mamafa tino pe tele pauna e faigofie ona maua i le Ma'i Suka Ituaiga 2.

Talanoa i lau foma'i ina ia mautinoa ai pe ua tai maua oe i le Ma'i Suka. Mo se faapupulaga atili, taga'i i le isi itulau o lenei pepa e su'e ai pe ua maua oe i le Ma'i Suka.

Faaitiitia ni nei pauna o le tino



Kopwe Fééri meet ekkei meyi tettenitiw fan an epwe eppetì sonuk semwenin suke

Kúta ééchú ika semwenin suke epwe ne mecheres ngonuk.



Chuukese – Chóón Chuuk a mecheres ngenir an epwe urir ewe type 2 semwenin suke. OMW kopwe sineey ochu pwóróówusan satuni ena test ena epek. Omw kopwe sineey ochu pwóróówusan satuni ena test ena epek.

Kopwe okukunano choum.



Omw kopwe kon pinewatte a emecheresi an type 2 semwenin suke epwe toruk. Aukukun choum na ke ekieki nwe mevi ukukoch eni



Conclusion

- ❑ Identify physical activity barriers for youth
- ❑ Effects of habits , environment and belief on Tongan-American youth and obesity
- ❑ Recognize the unique health care needs of PI youth and look at root causes of obesity
- ❑ Identify barriers to making lifestyle changes faced by PI youth.
- ❑ Identify PI perceptions of beauty, health & preference for body types.
- ❑ Gather data that may create a healthy system in homes, churches and organizations



Thank You

Questions?

Contact Information:

Fahina Tavak-Pasi

3007 S. West Temple, J-#7

Salt Lake City, UT

801.467.8712

fahina36@hotmail.com



For more information on family health history, visit <http://health.utah.gov/genomics/>

health.utah.gov/genomics/

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Chronic Disease
GENOMICS
Program

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CURRENT PROJECTS
EDUCATION
FAMILY HISTORY
GENOMICS NEWS
RESOURCES
UPCOMING EVENTS
WORKGROUPS

Welcome!

The Chronic Disease Genomics Program wants to help you understand how **genomics, or the study of genes and their interaction with the environment**, will impact health. Genomics promises to revolutionize medicine and public health as we know it today.

As you explore our site you will discover how genomics and family health history can be applied to all areas of public health.

New!

- **Success Stories Booklet** - compilation of successful projects completed by the Genomics Program during the past 5 years.
- **Utah Genomics Plan** - This plan is a combination of the activities the **Family Health History Taskforce** would like to accomplish in addition to the goals developed by the **Chronic Disease Genomics Standing Committee**.
- **Health Family Tree tool** - online and secure tool to collect and analyze your family health history. Users will receive a free personalized report detailing what their family health history means for them and their family! Developed by the University of Utah Cardiovascular Genetics Research Clinic and the Genomics Program.
- **Spanish Family Health History Toolkit**
- **Family Health History Toolkit**

Due to lack of funding, the Genomics Program was dissolved in September 2008 and will no longer be able to provide technical assistance or family health history materials.

For further questions, contact Rebecca Giles at rgiles@utah.gov.

THANK YOU FOR YOUR PARTICIPATION



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▶ COMING SOON:

- ▶ Utah Diabetes Telehealth Program will be going paperless in August.
-

