



Joslin Diabetes Center



On the Road To Living Well With Diabetes:

Gateway to a Healthy Lifestyle

Arlington

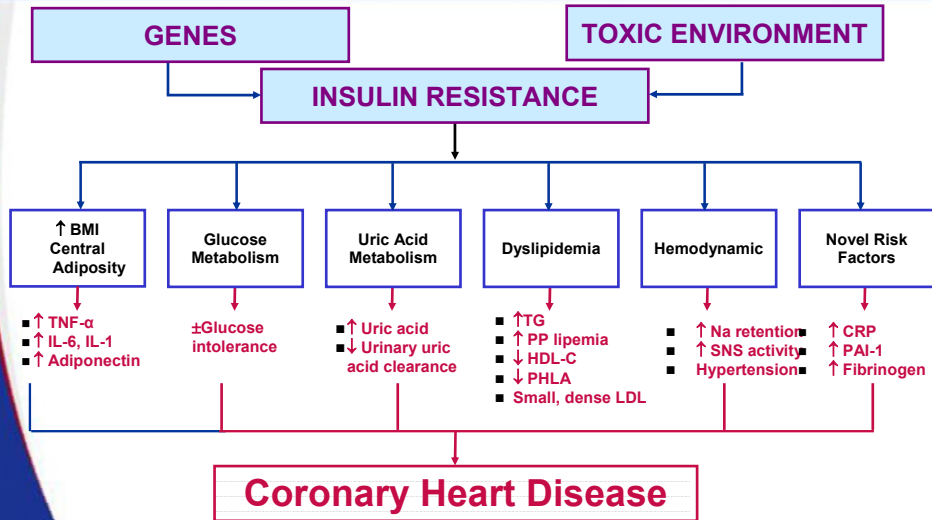
November 2009

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Diabetes and Its Prevention Is “Hitting the Headlines”



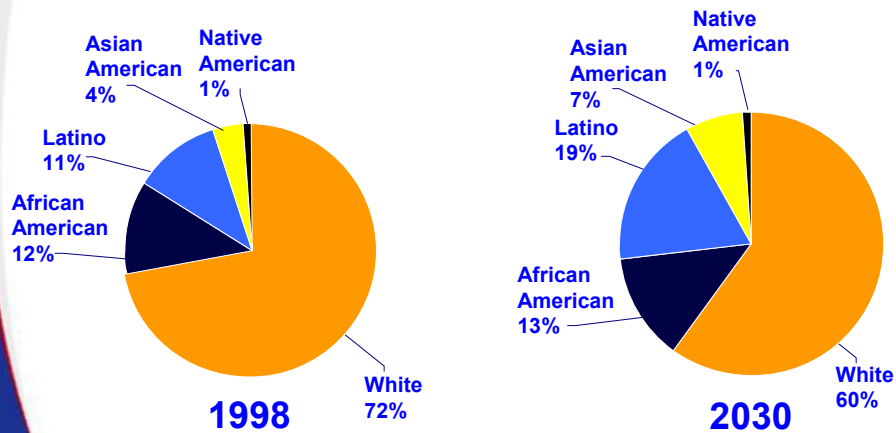
Metabolic Syndrome: Current Perspective



Adapted from Reaven G. *Drugs*. 1999;58(suppl):19-20.

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Projected Resident Population of the United States, 1998–2030



Source: Collins, Hall, and Neuhaus, *U.S. Minority Health: A Chart Book*, 1999.

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Three Simple Messages

- **Diabetes is a growing epidemic**
 - More and more people are developing diabetes
 - Diabetes-related medical costs continue to increase
- **People with diabetes are living longer and healthier lives than ever before**
 - Effect of treating important biomarkers
 - BP, Lipids, A1C, microalbumin, eye exam
- **Large gaps exist in care**
 - Myths, lack of education, clinical inertia, adherence

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30 yrs of type 1 DM

DCCT/EDIC follow-up

	Intensive n = 730 (%)	Control n = 711 (%)
Eye Disease		
Proliferative Retinopathy	173 (25)	71 (10)
Macular Edema	183 (25)	93 (13)
Scatter laser	129 (18)	42 (6)
Focal laser	80 (11)	30 (4)
Vision < 20/200 either eye	1 (0.1)	4 (0.5)
Nephropathy		
Any	117 (16)	41 (6)
Renal Insufficiency	26 (4)	10 (1)
Renal Replacement	8 (1)	7 (1)
Neuropathy		
Amputations	8 (1)	7 (1)

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Arch Intern Med. 2009;169(14):1307-1316

ACCORD Trial

10, 251 high risk people with type 2 DM

	Expected	Intensive	Control
Event Rate Deaths/1,000 pts/year	50	14	11

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RECORD Trial

4,447 high risk people with type 2 DM

	Expected	Rosiglitazone	Control
Cardiovascular Event Rate (%)	11.0	2.8	2.8

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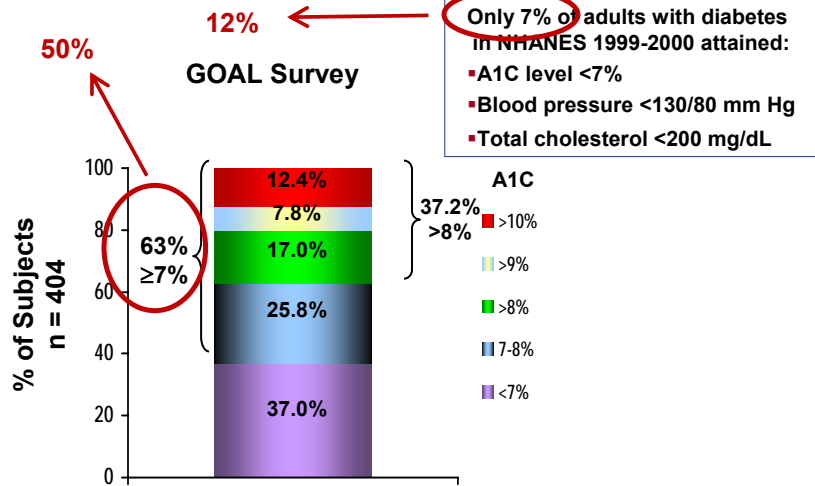
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We Are NOT At Goal

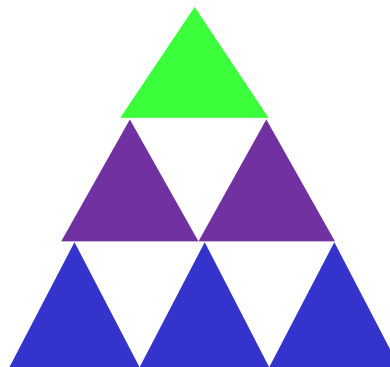


Adults aged 20-74 years with previously diagnosed diabetes who participated in the interview and examination components of the National Health Examination Survey (NHANES), 1999-2000. Saydah SH et al. *JAMA*. 2004;291:335-342.

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Diabetes Care Pyramid

- Diabetologists and CDE's
- Internists, Family Practitioners, GP's
- Underserved and Undiagnosed



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USDA - CSREES

JOSLIN DIABETES CENTER

- Experience in delivering nutrition and basic health knowledge
- Access to underserved clients
- Experience in delivering diabetes care and knowledge
- Access to Joslin patients, and to MD's, RN's, RD's

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Living Well with Diabetes



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Goals

- **Target underserved population**
- **Identify individuals with diabetes**
- **Provide baseline information**
 - Including hemoglobin A1c, BP
- **Increase utilization of local resources**
- **Improve self care behavior, diabetes knowledge**

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Point of Care Testing



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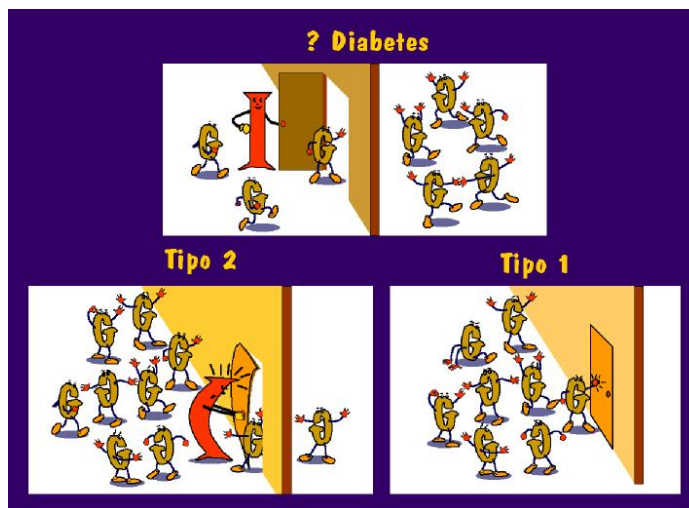
Using Local Resources



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Different Languages



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Different Languages

糖化血紅蛋白 (A1c) 目標



每三到四個月

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Exercise Video



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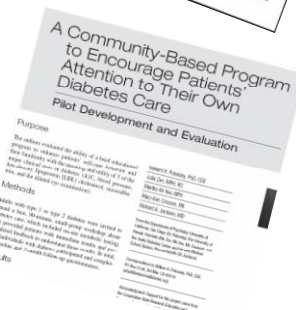
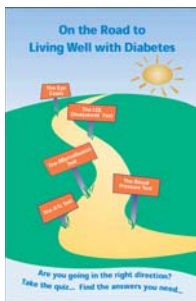
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Race and Ethnicity

Ethnicity	All States	HI	NM	PA	WA	WV
N	7616	1643	491	154	2403	2925
Hispanic ethnicity	8.7%	3.2%	72.7%	1.3%	9.5%	0.7%
Russian ethnicity	2.5%	0.0%	0.0%	1.3%	7.8%	0.0%
Race						
Native American/Alaska Native	3.7%	0.5%	6.9%	3.9%	5.7%	3.1%
Asian American	9.0%	39.3%	0.2%	0.0%	1.5%	0.1%
Black or African American	5.1%	0.2%	16.5%	18.8%	7.8%	3.0%
Native Hawaiian or Other Pacific Islander	2.2%	9.9%	0.0%	0.0%	0.0%	0.0%
White or Caucasian	65.7%	25.7%	2.4%	74.7%	73.4%	92.1%
Other/more than one	6.1%	22.3%	2.6%	1.3%	2.4%	1.0%
Only Identified as Hispanic	8.2%	2.0%	71.3%	1.3%	9.1%	0.6%

Annual Household Income

Annual Household Income	All States	HI	NM	PA	WA	WV
N	4677			103	2135	2439
< \$15,000	37.6%	NA	NA	17.5%	43.7%	33.1%
\$15K - \$25K	21.0%	NA	NA	27.2%	18.8%	22.6%
\$25K - \$50K	32.9%	NA	NA	41.7%	29.2%	35.8%
> \$50,000	8.5%	NA	NA	13.6%	8.3%	8.5%

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Identification of Diabetes

Have you been told you have diabetes?	N	Percent
Yes	4611	65.2%
No	1015	14.4%
Not Sure	118	1.7%
No Response/Undetermined	1326	18.8%

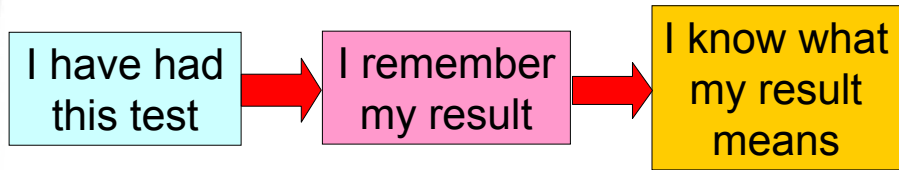
Diabetes Status	N	Percent
Self-identifies has DM	4611	65.2%
HAS diabetes characteristics*	1291	19.0%
HAS NO diabetes characteristics	617	8.7%
Self-identifies NO DM	551	8.1%

* Report "No," "Not Sure," or No Response to question if have diabetes, yet have diabetes characteristics including baseline or follow-up A1C \geq 6.5, take pills to control blood sugar, take insulin, years with diabetes, or reported blood glucose monitoring.

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Test Awareness

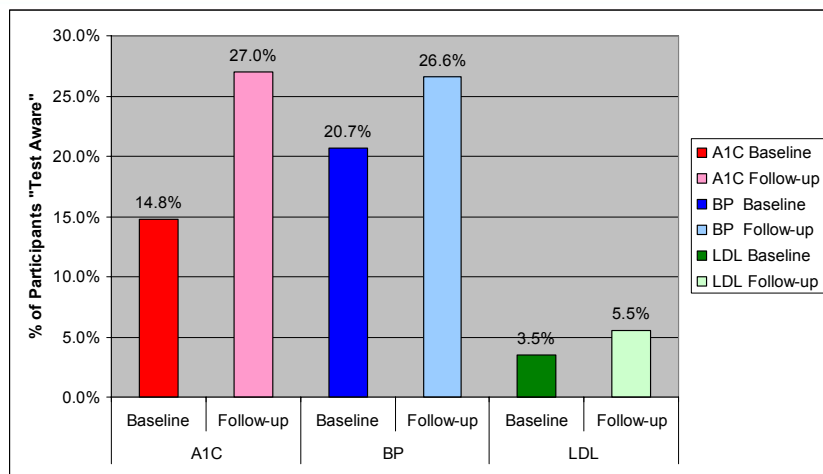


▪ Awareness – does it really matter?

- Question: do people who “become aware” do better than those who do not?
- Do people who “remain unaware” not do as well?

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Change in Test Awareness



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Point-of-Care Testing Results

ALL Participants	N	Baseline	Follow-up	p<
Baseline A1C \geq 7.0	1036	8.27	7.61	0.0005
Baseline A1C \geq 8.0	474	9.31	8.23	0.0005
Systolic BP	2338	136.63	133.28	0.0005
Dias BP	2338	77.13	75.81	0.0005
LDL	761	103.59	100.99	0.036

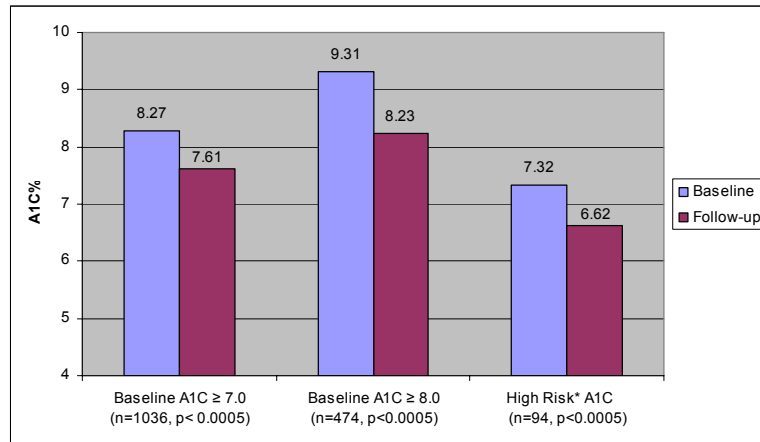
High Risk Un-Dx'd*	N	Baseline	Follow-up	p<
A1C	94	7.32	6.62	0.0005
Systolic BP	92	139.59	132.37	0.0005
Dias BP	91	77.31	74.59	0.056
LDL	17	134.12	102.24	0.025

* Report "No," or "Not Sure" to question if have diabetes, yet have diabetes characteristics including baseline or follow-up A1C \geq 6.5, take pills to control blood sugar, or take insulin.

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Change in A1C



* Report "No," or "Not Sure" to question if have diabetes, yet have diabetes characteristics including baseline or follow-up A1C \geq 6.5, take pills to control blood sugar, or take insulin.

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Change in A1C and Awareness

ALL STATES - Awareness and A1C Change	N	Baseline A1C	Follow-up A1C	Baseline to Follow-up p<	Change in A1C	Unaware to Aware change in A1C p<
All Participants with diabetes	2390	7.05	6.83	0.0005	-0.22	
Baseline \geq 8.0%	474	9.31	8.23	0.0005	-1.08	
All DM unaware became aware	386	7.11	6.77	0.0005	-0.346	0.009
All DM unaware remained unaware	1346	7.02	6.85	0.0005	-0.178	

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Improvement in A1C by Education

Improvement in A1C by Education Level - All States	Δ A1C	<p
Less Than High School Graduate	-0.32	0.039
High School or Greater Education	-0.19	
Grade School or Less	-0.55	0.012
More than 4 Years of College	-0.15	

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Pennsylvania POC Results

PA Participants	N	Baseline	Follow-up	p<
Baseline A1C \geq 7.0	40	8.26	7.53	0.0005
Baseline A1C \geq 8.0	17	9.35	8.11	0.005
Systolic BP	104	145.79	139.86	0.0005
Dias BP	104	76.62	75.05	0.043
LDL	51	108.69	100.43	0.110

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Medication Adherence and Systolic BP

	All Participants			People with Diabetes		
	Δ Sys BP	n	p<	Δ Sys BP	n	p<
Increased Adherence	-2.965	197	0.769	-2.483	180	0.892
Decreased Adherence	-2.265	102		-2.150	100	
No Change in Adherence	-3.679	1512		-3.854	1449	
	Δ Sys BP	n	p<	Δ Sys BP	n	p<
Not Fully Adherent at Baseline and Became Fully Adherent at Follow-up	-3.291	158	0.149	-3.264	144	0.122
Not Fully Adherent at Baseline and remained non-adherent	-0.058	119		0.434	106	
Adherent at Baseline and Remained Fully Adherent	-3.892	1452		-4.032	1399	
Adherent at Baseline and became less adherent	-1.101	99		-0.959	97	

- Chronic medication adherence is less than 50% (Haynes, Cochran Review 2001)
- OTR Participants reported days took medications as prescribed
- 2009 PA program delving deeper into medication adherence to see if relationship between improved blood pressure outcome and improved adherence

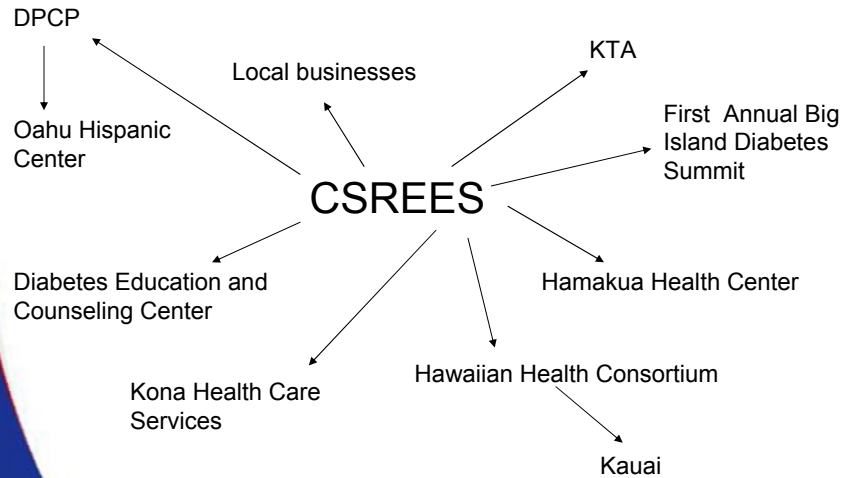
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Hawaii - Julia Zee



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BIG ISLAND DIABETES SUMMIT

Physicians and Other Providers
Hilo Medical Center
Grand Rounds: Successful Diabetes Treatment – Easier Than You Think!
7:30 AM – 9 AM

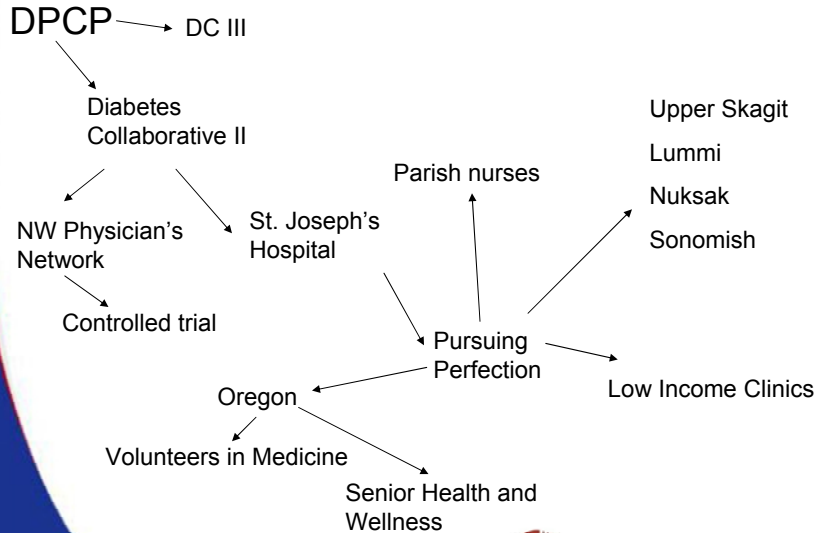
Nurses/Dietitians/Educators
University of Hawai'i Mānoa
Komohana Research and Extension Center
Closing Gaps in Diabetes Outcomes – Reversing Traditional Approaches
11 AM – 2:30 PM Symposium and learning lunch

People with Diabetes/Caregivers
University of Hawai'i Mānoa
Komohana Research and Extension Center
5 Things You Didn't Know about Diabetes
3:30 PM Free A1C and Blood Pressure Screening
4 PM – 7 PM Symposium and learning supper
Prizes!

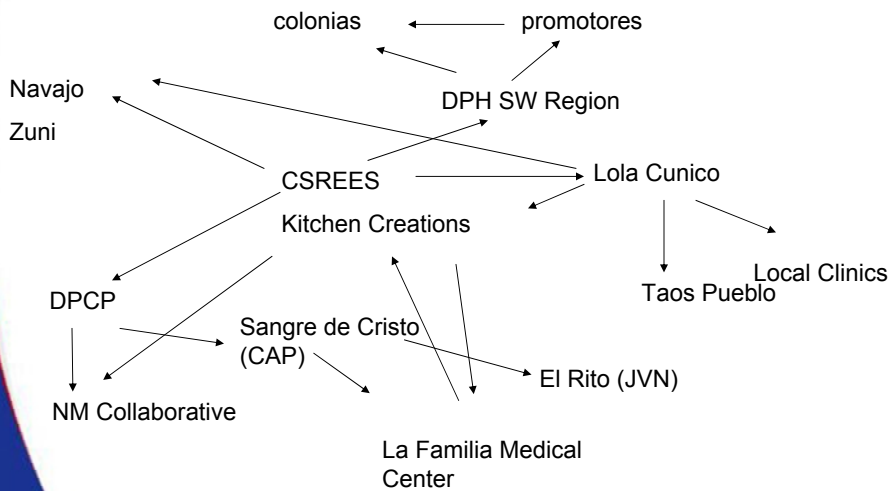
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Washington State – Sue Butkus



New Mexico - Carol Turner



Any Questions

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