Diabetes in the Latino population

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Challenges
- The Latino/Hispanic population is the largest minority group in the country (20.5 million – 16% of total population - 2010 census)
- The prevalence of type 2 diabetes is at least twice as high as that in the White population
- Diabetes care disparities – worse glycemic control, high rates of chronic complications
- Social and cultural barriers
- Limited cultural awareness and skills among providers
- Significant limitations in clinical practice – time, resources, support
- Limited comprehensive culturally oriented programs that address patient, provider and health system issues

Race and Ethnicity: Definitions

Race
- Usually biological
- White, Black, American Indian (Native American)/Alaska Native (Eskimo, Aleut), Asian/Pacific Islander
- Often overlapping

Ethnicity
- Primarily social
- Independent of race
- Hispanic or Latino?
The US Hispanic/Latino Population

Mexicans 63%
Puerto Ricans 8.2%
Central Americans 7.9%
South Americans 7.9%
Cubans 5.3%
Dominicans 2.8%
Spaniards 1.3%
Others 6.8%


Genes, Environment and Social/Cultural Factors in Type 2 Diabetes in Racial/Ethnic Minorities

Appetite and Satiety?
Insulin Resistance and Abdominal Obesity
Body Mass Index
Type 2 Diabetes
Renal and Retinal Complications
Increased Mortality rate

Unequal Treat. Genes, Environment and Social/Cultural Factors in Type 2 Diabetes in Racial/Ethnic Minorities

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Disparate and Disproportionate prevalence of long-term complications of type 2 diabetes in minorities Vs NH Whites

- lower leg amputations 2-4x
- retinopathy and blindness 2-4x
- stroke 2x
- ESRD 4-6x


Metabolic control in the US
Percentage of patients achieving an A1c<7%


A1c levels by ethnicity/race
NHANES 1999-2000

Percentage of participants with diagnosed diabetes with an A1c \( \geq 11\% \) by ethnicity/race

NHANES 1999-2000

Prevalence of major CVRF in Latinos

<table>
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<tr>
<th>Characteristics</th>
<th>No CVRF (%)</th>
<th>Risk Factor 1 (%)</th>
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<td>Age (years)</td>
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Daviglus ML, et al. JAMA 2012: 308(17):1775-84

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Estimated lifetime risk of developing diabetes for individuals born in the United States in 2000

Narayan et al, JAMA, 2003

Obesity and Endothelial Dysfunction in Hispanic Children

Variable | Controls (n=47) | At risk (n=21) | P value
--- | --- | --- | ---
Age | 14.18±2.3 | 13.33±2.7 | 0.31
Waist:hip ratio | 0.70±0.18 | 0.88±0.11 | 0.003
Total % fat | 29.6 | 48.9 | <0.0001
Trunk fat | 19.15 | 45.9 | <0.0001
Systolic BP | 101.5±17 | 116.5±15 | <0.0001
Diastolic BP | 68.6±16 | 76.9±16 | 0.23
Total cholesterol | 142.06 | 149.76 | 0.318
Triglycerides | 58.82 | 108.29 | 0.004
HDL | 42.00 | 37.52 | 0.162
LDL | 89.24 | 93.50 | 0.484

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Joslin Diabetes Center
Advances in Diabetes and Thyroid Disease 2013
Diabetes in the Latino Population

Obesity and Endothelial Dysfunction in Hispanic Children

![Graph showing panels A and B with data on endothelial dysfunction parameters for control and overweight groups.](image)

Caballero AE. Diabetes Care. 2008; 31:576-82

System Dynamics Modeling
Population Flow Map

![Flow map diagram showing various stages of diabetes onset, management, and related health outcomes.](image)

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Control metabólico en los EUA
Porcentaje de pacientes con A1c<7%

NHANES 2003-2004
NHANES 2001-2002
NHANES 1999-2000

P=0.191
P=0.002
P=0.021

P=0.033

0 25 50 75
N=1324
0 25 50 75
Total Blancos Afro-Americanos México-Americanos Méxic-Americanos

NHANES 2003-2004
NHANES 2001-2002
NHANES 1999-2000

P=0.191
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Expenditures in the Medicare Population with diabetes

Classification of Medicare Consumers based on aggregate payments

Crisis - Top 1%
Heavy - 90 to 99 percentile
Moderate - 75 to 89 percentile
Light - 50 to 74 percentile
Low - Under 49 percentile


Expenditures in the Medicare Population with diabetes


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Expenditures in the Medicare Population with diabetes


The Latino Diabetes Initiative at Joslin

A comprehensive strategy that involves clinical care, patient education, community outreach, research and provider education

www.joslin.org/latino

Current structure of LDI

Clinical Program

Community Based Activities

Professional Education

Research Program

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What Causes Disparities in Healthcare?

Patient
- Socio-economic status
- Education/Health literacy
- Health seeking behavior
- Cultural factors

Provider
- Mistrust
- Lack of cultural awareness
- Stereotyping or biases
- Language barrier
- Lack of resources

System
- Lack of culturally oriented programs
- Inadequate interpreter services
- Time pressures and resource constraints
- Lack of adequate training

What Causes Disparities in Healthcare?

Community and policy
- System, group, culture
- Family, friends, small group
- Individual

What Causes Disparities in Healthcare?

Primary Factors That May Influence Diabetes Development and Care in Culturally Diverse Populations
- Acculturation
- Body image
- Cultural competence
- Depression
- Educational level
- Fears
- General family integration and support
- Health literacy
- Individual and social interaction
- Judgment about disease

Caballero AE. Am J Med 2011; 124, S10-S15
Primary Factors That May Influence Diabetes Development and Care in Culturally Diverse Populations

- Knowledge about the disease
- Language
- Myths
- Nutritional preferences
- Other forms of medicine (alternative)
- Physical activity preferences
- Quality of life
- Religion
- Socioeconomic status

Caballero AE. Am J Med 2011; 124, S10-S15

Language Barrier

A true story:

64 y/o Hispanic woman
Patient does not speak English
Treated for Hypertension
Received a prescription for:

Lisinopril 10 mg.
Once/d.

Patient rushed to the ER due to severe hypotension

Prevalent Racial/Ethnic Differences Related to Diabetes Medications

<table>
<thead>
<tr>
<th></th>
<th>Caucasian (n=230)</th>
<th>African American (n=279)</th>
<th>Latino (n=167)</th>
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<tbody>
<tr>
<td>If my doctor told me that I could benefit from taking more medications, I would be willing to take more</td>
<td><img src="image1" alt="Graph" /></td>
<td><img src="image2" alt="Graph" /></td>
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How common is Low Health Literacy?

- 30 million Americans (14%) scored below basic on health literacy
  - Grasp of no more than the simplest, most concrete literacy skills
- 47 million (22% or 1 in 5) of the population at basic health literacy
  - Basic is defined as skills needed to perform simplest everyday literacy activities

Assessing Literacy: The “Newest Vital Sign”

- Validated tool
  - Correlates with TOFHLA
- English and Spanish version
- Screening tool
  - Score 0–1: High likelihood of limited literacy
  - Score 2–3: Possible limited literacy
  - Score 4–6: Almost always adequate

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Evaluation of health literacy can guide education efforts


Rosa’s Story

Culturally Appropriate Translations

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Practice Listening!

And observing!
- Patients are interrupted by the healthcare provider after an average of 23 seconds
- In only 28% of visits did patients completely express concerns
- In 25% of visits, the healthcare provider never asked about patient’s concerns

Goal setting
- S - Specific
- M - Measurable
- A - Attainable
- R - Realistic
- T - Time
Ideal Body Image in Latinas with type 2 diabetes

3 or 4 – ideal shape for White women

5 – ideal shape for Latino women

Weitzman PF, Caballero AE, Millan A. The Diabetes Educator; Sept-Oct 2013

Esto es mejor: Improving food purchasing selection among low-income Spanish-speaking Latinos through social marketing messages

Baseline Evaluation:

Analysis of the Grocery Receipt:
- 1300 Calories per dollar
- 29 gr of Fat per dollar
- 150 gr of Carbs per dollar
- 5 gr of Protein per dollar
- 4650 cal – 50 USD

Other activities:
- Home Visits
- Supermarket tours
- Photovoice
- Rosa’s Story


Esto es mejor: Improving Food Purchasing Selection Among Low-income Spanish-speaking Latinos

Each dollar bought:
1st Supermarket
- 1330 Calories
- 84 grams of fat
- 135 grams of carbs
- 12 grams of fiber
- 15 grams of protein

2nd Supermarket
- 585 Calories
- 28 grams of fat
- 54 grams of carbs
- 4 grams of fiber
- 13 grams of protein

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Before

After

Joslin Diabetes Center
Advances in Diabetes and Thyroid Disease 2013
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What is Cultural Competence?

The knowledge and interpersonal skills that allow providers to understand, appreciate, and work with individuals from cultures other than their own. It involves an awareness and acceptance of cultural differences; self-awareness; knowledge of patient’s culture; and adaptation of skills.

Purnell’s Model:

Person, Family, Community, Society
- Unconsciously incompetent
- Consciously incompetent
- Consciously competent
- Unconsciously competent

The ESFT Model

- Explanatory Model
- Social Risk for Noncompliance
- Fears/Concerns about the Medication
- Therapeutic Contracting/Playback
Model for Cross-Cultural Care:  
A Patient-Based Approach

- Awareness of Cultural and Social Factors
- Elicit Factors
- Negotiate Models
- Implement Management Strategies

Tools and skills necessary to provide quality care to any patient we see, regardless of race, ethnicity, culture, class or language proficiency.

Resources – Cultural Awareness

- http://medweb.med.harvard.edu
- www.diversity.org
- www.healthcarecommunities.org
- www.nimhd.nih.gov
- www.hispanichealth.org

Resources – Latinos with Diabetes

- www.joslin.org/latino
- diabetes.org/espanol
- www.cdc.gov/minorityhealth
- ndep.nih.gov
- diabetes.niddk.nih.gov

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