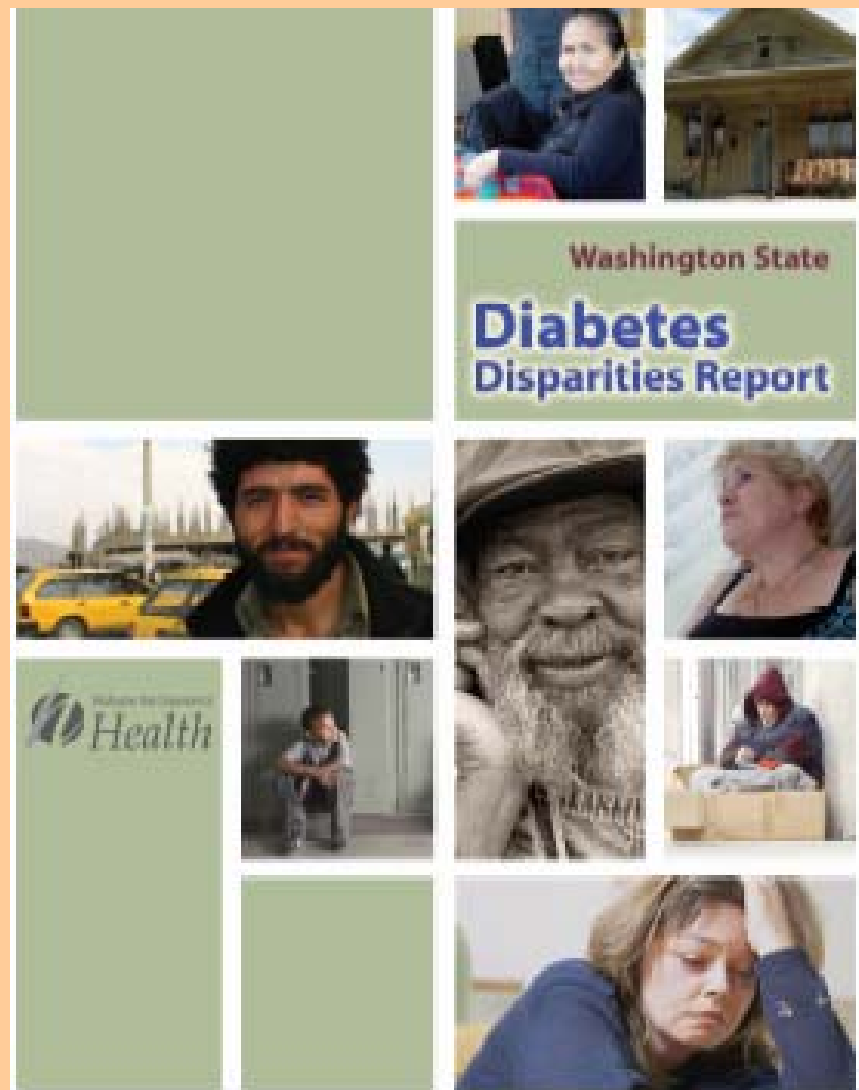


# Diabetes Disparities in Washington

Marilyn Sitaker,  
Angela Kemple,  
Noelle Hartwick &  
Linda Gunnells

Chronic Disease Prevention Unit,  
Washington Department of Health  
WREN Meeting May 17, 2007

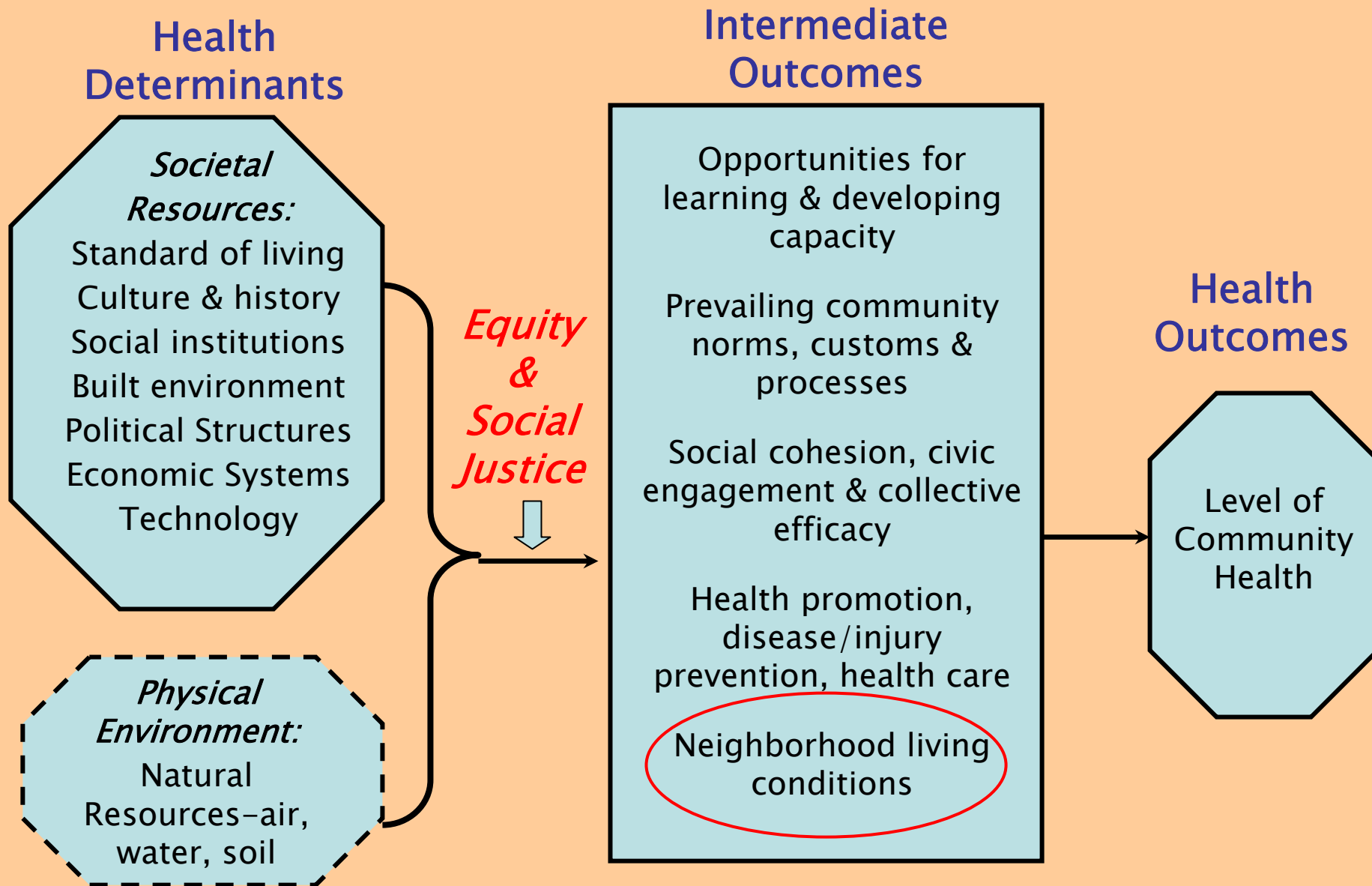


# Overview

- Events leading up to *Washington State Disparities in Diabetes* Report
- Outline and Findings from the Report
- Potential strategies to eliminate health disparities in diabetes (and other health conditions)
- Next steps?



# Social Environment & Health Logic Framework



# Interventions to Improve Neighborhood Living Conditions

## 3. Making Neighborhoods Safer

- Neighborhood watch programs/  
Neighborhood policing by residents
- Rapid access to emergency personnel  
(e.g., fire, police, and medical services)
- Home security systems
- **Safe playgrounds**
- Animal control
- Reduction of neighborhood gang activity
- Reduction of drug trafficking and  
neighborhood shooting galleries
- Increased sidewalks, **exercise and  
recreation paths**, and lighting
- Reduction of liquor store density

## 4. Building, Improving, and Retaining Neighborhood Assets

- Public libraries, schools, fire  
departments, hospitals, and **parks**
- Public information systems (e.g., local  
media or the Internet)
- Neighborhood businesses and home-  
based enterprises
- Cultural organizations and citizen  
associations
- Religious organizations
- **Facilities for sports** and other special  
interest clubs
- Family resource centers
- **Supermarkets and produce grocers**
- Transportation systems (e.g., bus, rail,  
or car pools)

# Social Determinants of Health

## Summary

Social conditions are major determinants of health. Social factors acting as a collective level shape individual biology, individual risk behaviors, environments exposures, and access to resources that promote health. There is a graded relationship between position and health status: disease affects people at all levels of the social hierarchy. While public health programs alone cannot eliminate the social health disparities associated with poor health outcomes, developing a broader understanding of the social determinants of health is critical to reducing health disparities among Washington State residents of differing socioeconomic position.

## Introduction

Although average life expectancy improved dramatically during the last century, there are differences in life expectancy and health among people with different levels of education and income, different types of occupations, and among people who live in neighborhoods characterized by differing levels of community wealth and infrastructure. These characteristics measure what social scientists refer to as socioeconomic position or SEP. SEP includes both material and social resources as well as rank or status in a social hierarchy. This term might be preferable to the terms socioeconomic status or SES, which emphasizes status over resources.

An extensive body of literature documents higher mortality rates among people of lower SEP. SEP is most often measured by income, education, occupation, or composites of those factors but also can be measured by community resources and social factors, such as social cohesion. The general pattern

**Definition:** The social determinants of health are those conditions and pathways by which social conditions and factors potentially can be altered by interventions. Examples are income, education, or occupation; housing, service availability, sanitation, exposure to hazards; support, racial discrimination, and access to care for health.

of better health among those of higher SES, regardless of the time period or population periods at all levels, such that relatively high SEP does not always equal the highest levels.

As health conditions have improved over time, that accounted for mortality in the past. Yet the relative differences in SEP remain unchanged. This suggests something fundamental about the association of SEP and mortality that causes it to persist in changing conditions.

Because of the strong association of SEP with health, where possible, each chapter in *The Health of Washington State* includes information about health factors measured by two indicators of income. Health disparities by race and characteristics strongly associated with Washington state, are also explored. The social and environmental context that health among people of lower SEP is a developing strategies to improve health Washington's population.

## Year 2010 Goal

The two overarching goals in *Healthy Washington* "to increase the quality and years of life" and "to eliminate health disparities." *Healthy Washington* states explicitly that "inequalities in an underlie many health disparities in the state that community, state and national agencies need to take a multidisciplinary approach to improving health, education, housing, transportation, agriculture, and the environment. Health disparities are to be reduced or eliminated."

## Explanations for the Relationship Between SEP and Health

- *Income inequality*
- *Social capital*
- *Racial discrimination*
- *Factors related to medical care.*
- *Factors related to lifestyle*
- *Factors related to the physical environment*
- *A life-course perspective.*
- *Social support*

overcrowding, poor housing, poor sanitation, and malnutrition. However, public health efforts to improve sanitation, better working conditions, and

common good. Measures of social capital include social trust and participation in civic and social organizations. Low levels of social capital have been associated with higher mortality rates. In areas with high income

# Marilyn's Agenda:



- Find a conceptual model that 1) identifies social and economic factors driving health disparities and 2) describes mechanisms by which inequalities in these factors lead to health disparities
- Use WA-specific data to reflect points within the model
- Describe interventions to address risk factors through programs and policies
- Meet the information and evidence needs of the state-wide public health diabetes network
- Use Washington-specific data to facilitate deeper dialogue throughout the Washington and provide information to drive action planning.

# ***The Report: Washington State Disparities in Diabetes***

## **CH 1: FACTORS DRIVING DISPARITIES IN DIABETES**

*Concepts & definitions; evidence for the link between access to social resources & health.*

## **CH 2. SEP, RISK FACTORS & DIABETES PREVALENCE**

*Diabetes by sex, age, race/ethnicity, household income and education level; by Neighborhood income and education, and County-level income inequality*

## **CH 3: SEP, HEALTH BEHAVIORS & DIABETES OUTCOMES :**

*Diabetes self-management; Access to care; Process measures; Health Status*

## **CH 4. SEP & DIABETES HOSPITALIZATIONS**

*By age & sex, Payer source, County & community type*

## **CH 5. SEP & DIABETES DEATHS**

*By age, sex, race/ethnicity, income and education; Neighborhood income & education, County & community type*

## **CH 6. SUMMARY & NEXT STEPS**

*Examples of model public health programs to address social determinants; Next steps for the Diabetes Leadership Team to address health disparities.*

# Chapter 1: Factors Driving Disparities

## Summarizes literature on social determinants of health:

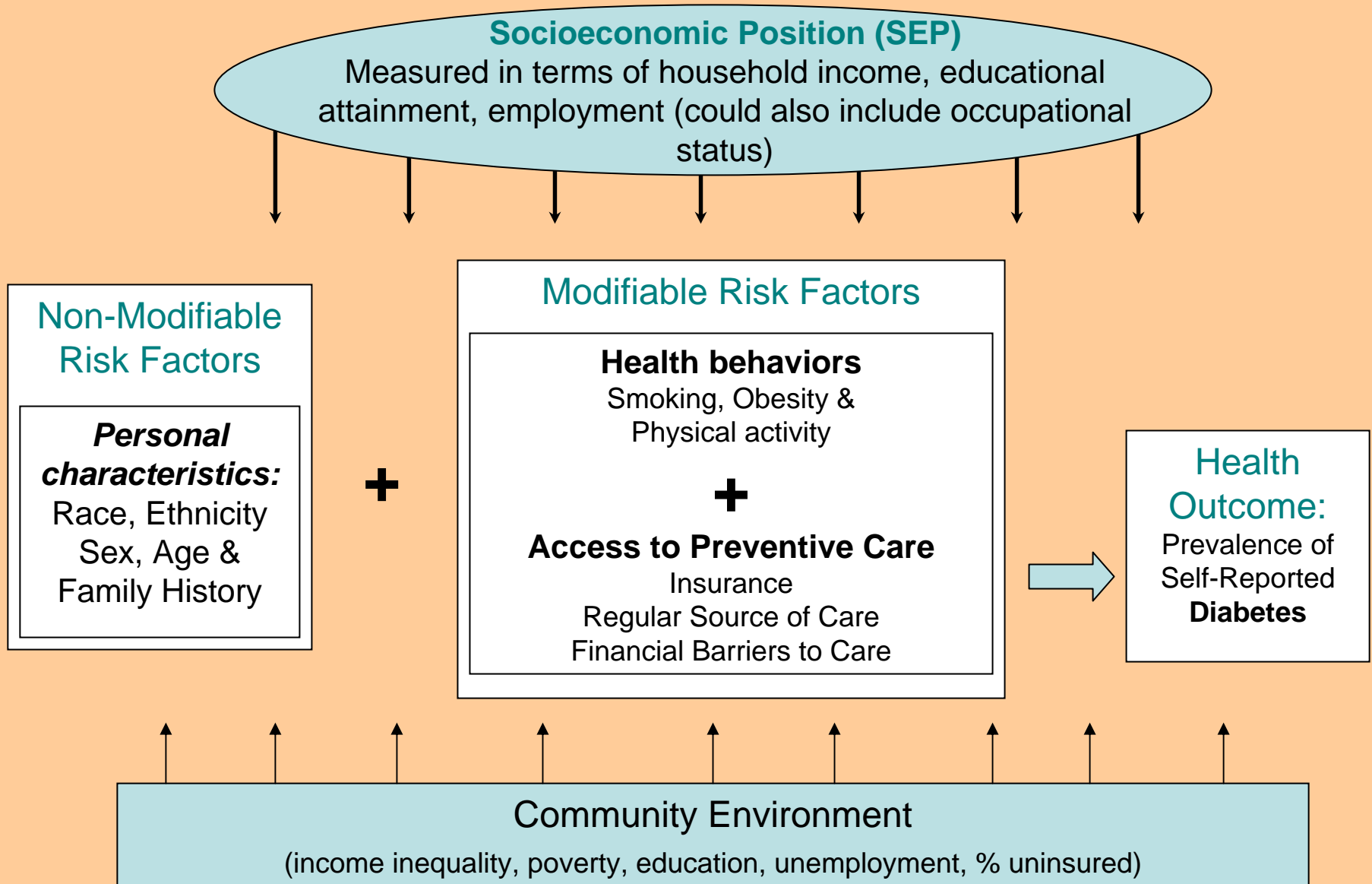
- ✓ **Socioeconomic position (SEP)** refers to one's position in the social hierarchy & encompasses effects over time.
- ✓ Health shows a “gradient effect” with respect to SEP
- ✓ The wider the gap between rich & poor, the worse health is in all stratum
- ✓ Lower SEP affects health through
  - Material deprivation,
  - Chronic stress,
  - Discriminatory policies and practices that exclude certain groups from access to social resources

# Chapter 2: Diabetes Prevalence

**Aim:** to show connections between SEP (income, education, employment status) & diabetes prevalence

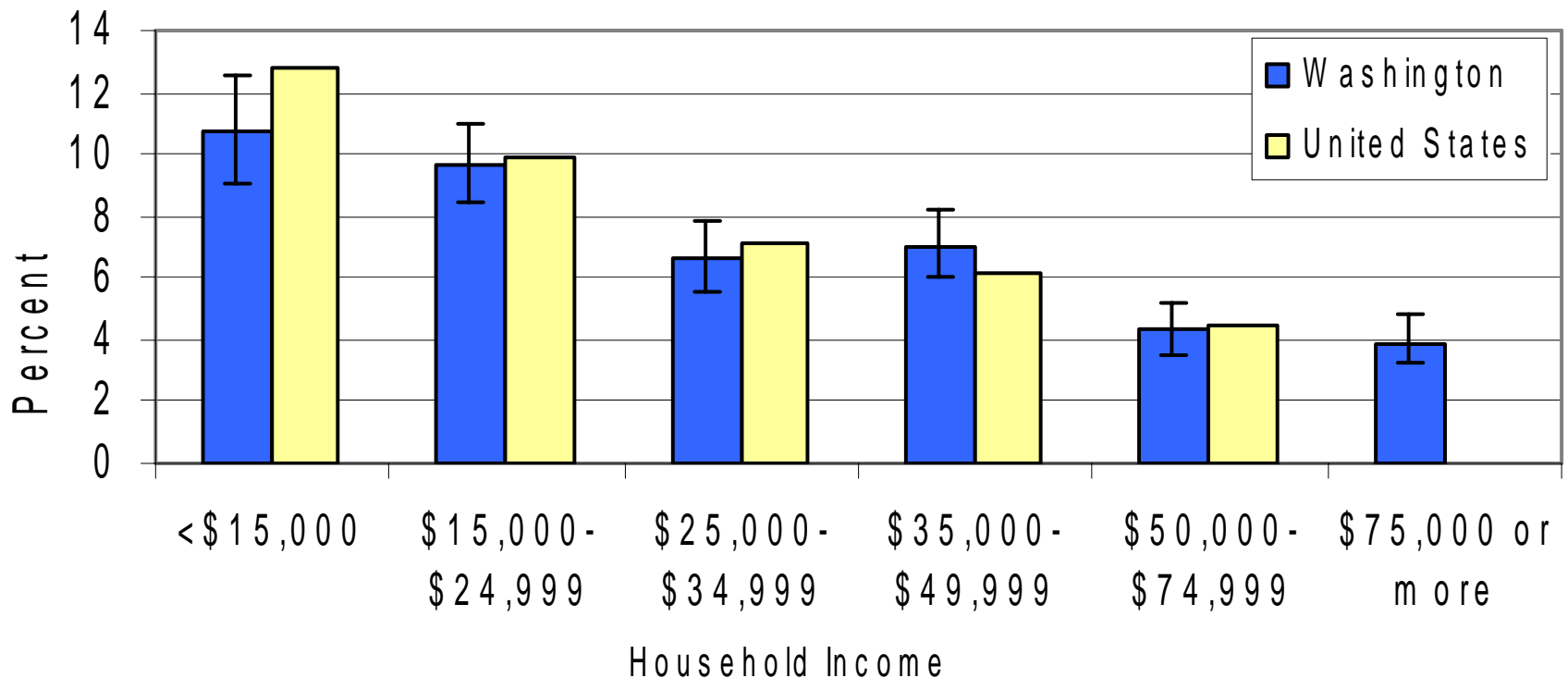
- Constrained by cross-sectional data from the Washington BRFSS and Census (can't show causality)
- Included contextual factors: neighborhood poverty and educational attainment; county-level income inequality
- Analyses included univariate and bivariate analyses; Individual level factors included in multiple regression model; HLM attempted

# Conceptual framework: Relationship between SEP & Health among adults with diabetes.



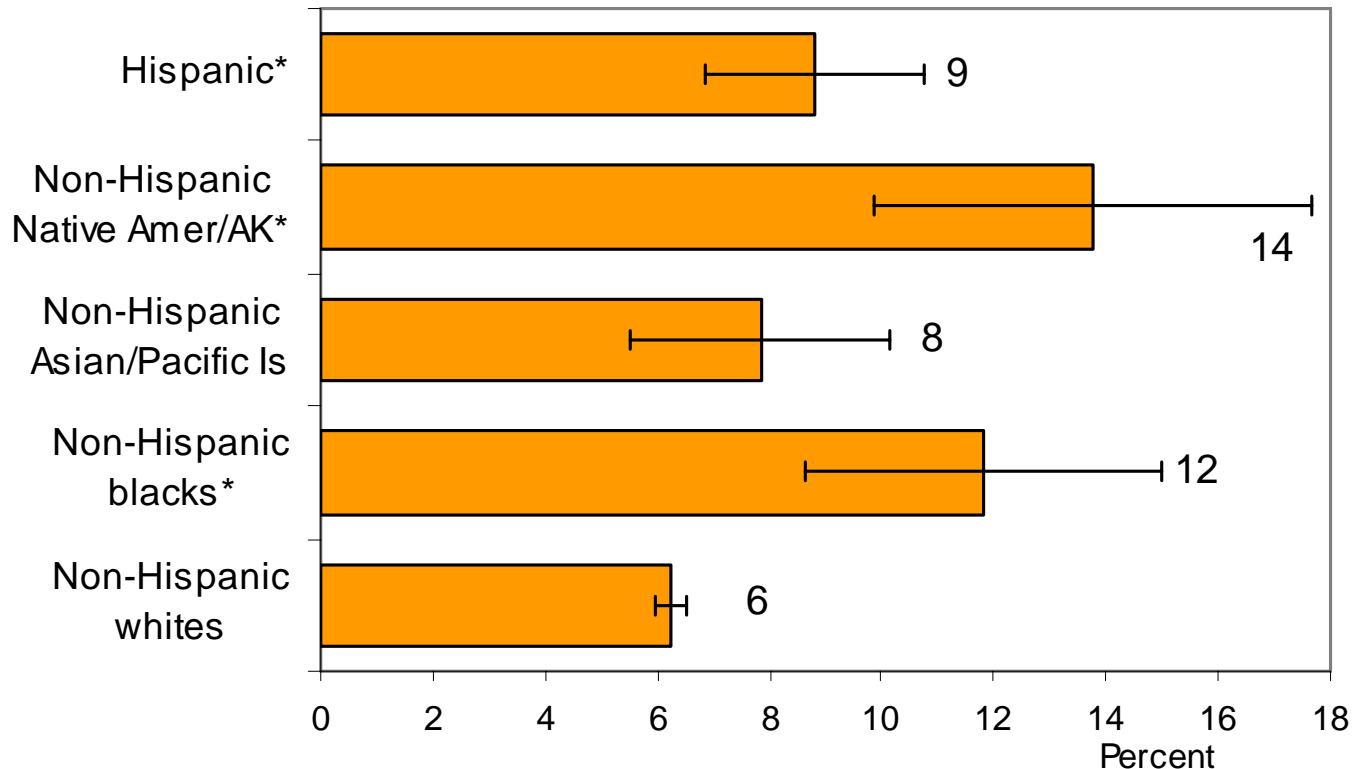
# Diabetes Prevalence by Income Level Washington & US, 2003

Prevalence of Diabetes among Adults, by Income Level,  
Washington versus US, 2003



# Diabetes Prevalence by Race & Ethnicity Washington 2003-2004

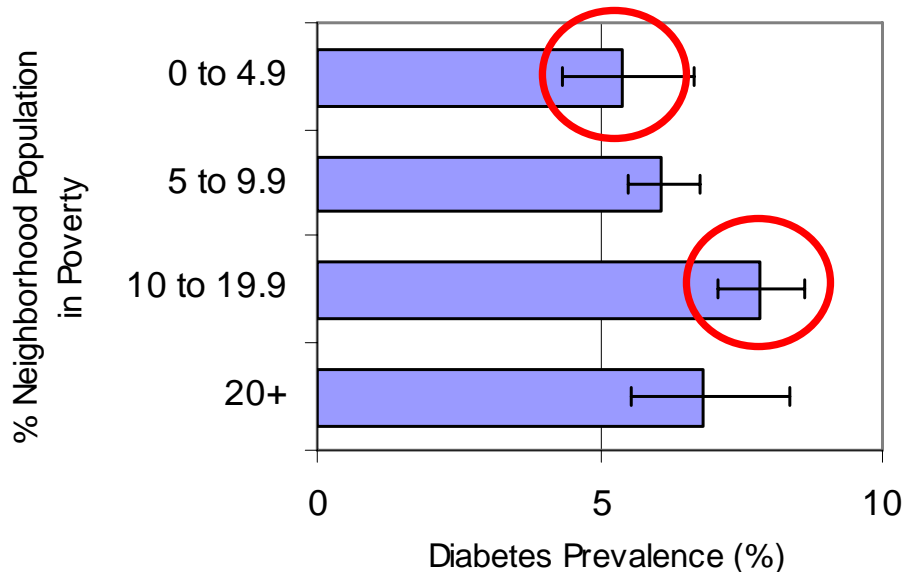
Age-adjusted Diabetes Prevalence by Race/Ethnicity  
2003-2004, Washington BRFSS



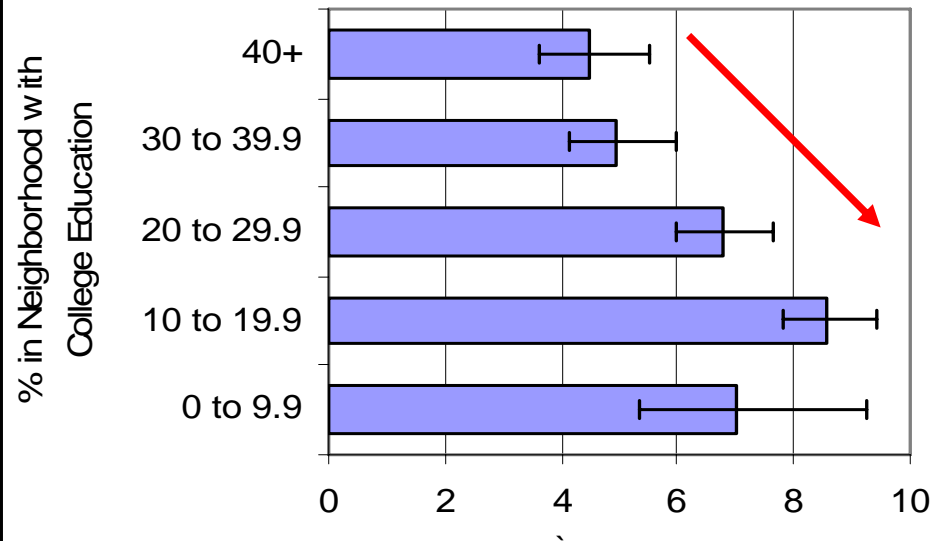
\*Rate is significantly higher than that of non-Hispanic whites

# Diabetes Prevalence by Neighborhood Poverty and Education Level, 2003

### Diabetes Prevalence by Neighborhood Poverty, Washington BRFSS 2003



### Diabetes Prevalence by Neighborhood Educational Level, Washington BRFSS 2003



\* On an individual level, the relationship between diabetes and lower SEP remained statistically significant after controlling for age, sex, physical activity level, obesity, access to preventive care and race and ethnicity

## Chapter 3: *Health Behaviors & Diabetes*

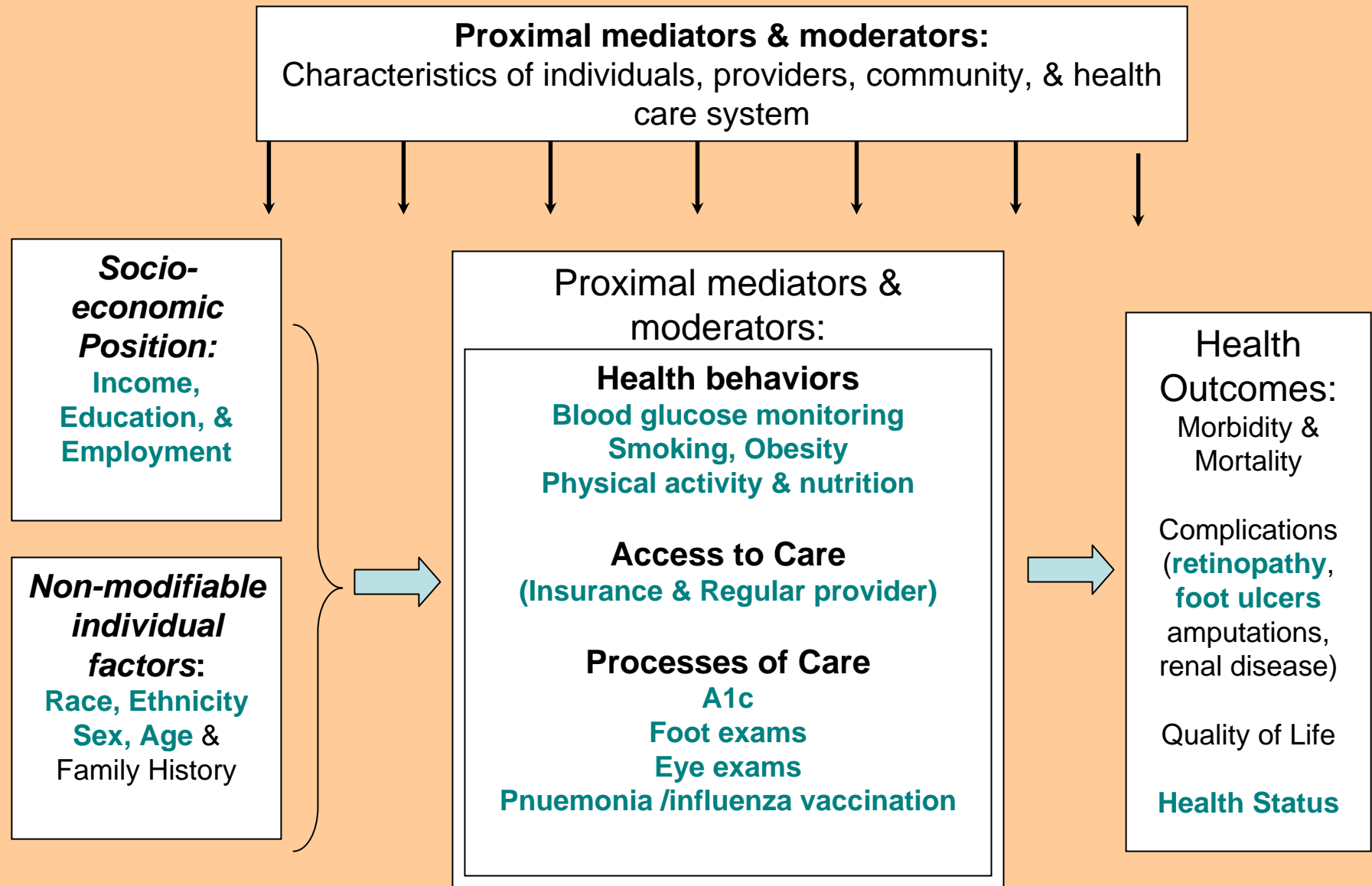
### *Outcomes:*

**Aim:** to show connections between SEP and factors that influence complications of diabetes:

- Health behaviors,
- Diabetes self-management,
- Access to health care;
- Receiving recommended services for diabetes

**Outcomes:** retinopathy, foot ulcers, poor mental and physical health days, and inability to perform usual activities due to poor health

# Conceptual framework: Relationship between SEP & Health among adults with diabetes.



# Health Behaviors and Diabetes Management:

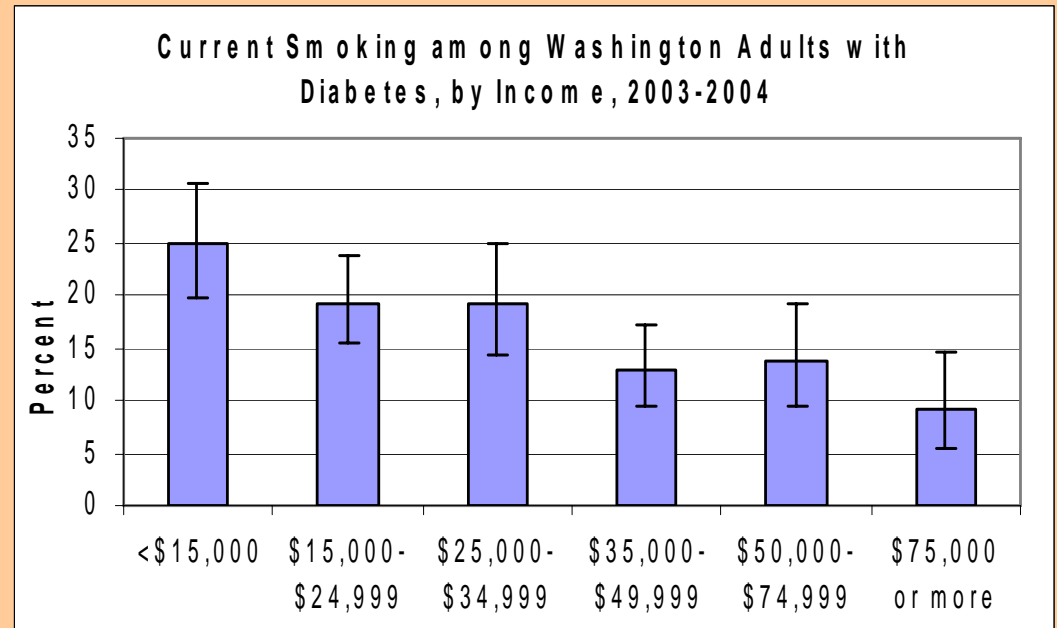
Adults with diabetes who had lower levels of *household income* had:

- Higher smoking rates
- Less physical activity

Lower *education levels* were associated with

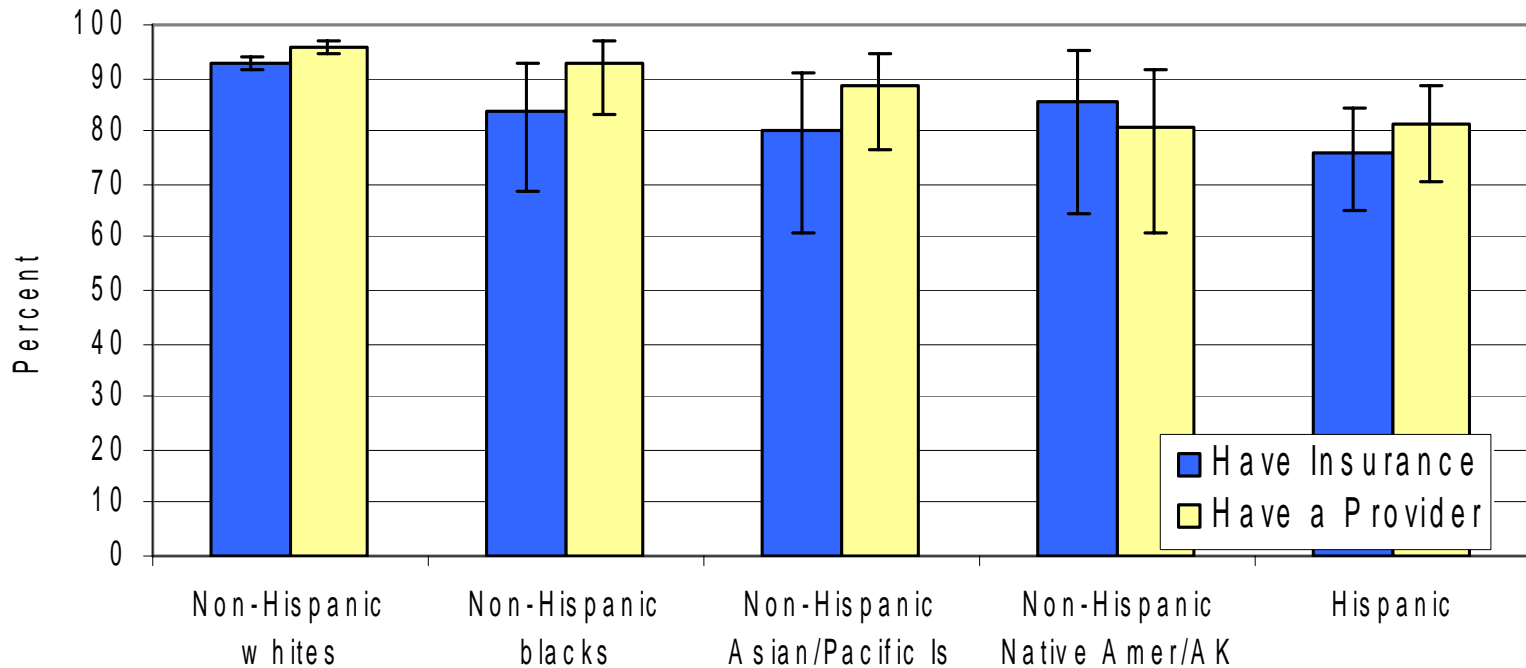
- Higher smoking rates
- Less physical activity
- Higher obesity rates

## Healthy Behaviors: Smoking



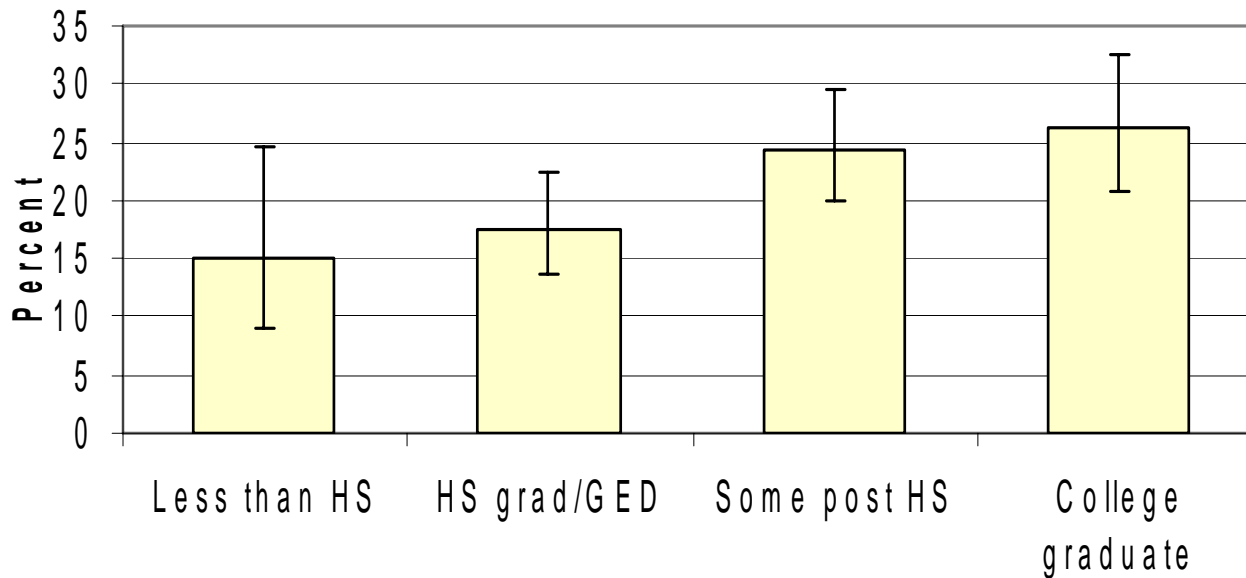
# Access to Health Care

Washington Adults with Diabetes who have Insurance and a Regular Provider, by Race/Ethnicity, 2003-2004



# Processes of Care:

Receipt of All 5 Recommended Services among Washington Adults with Diabetes by Education, 2004

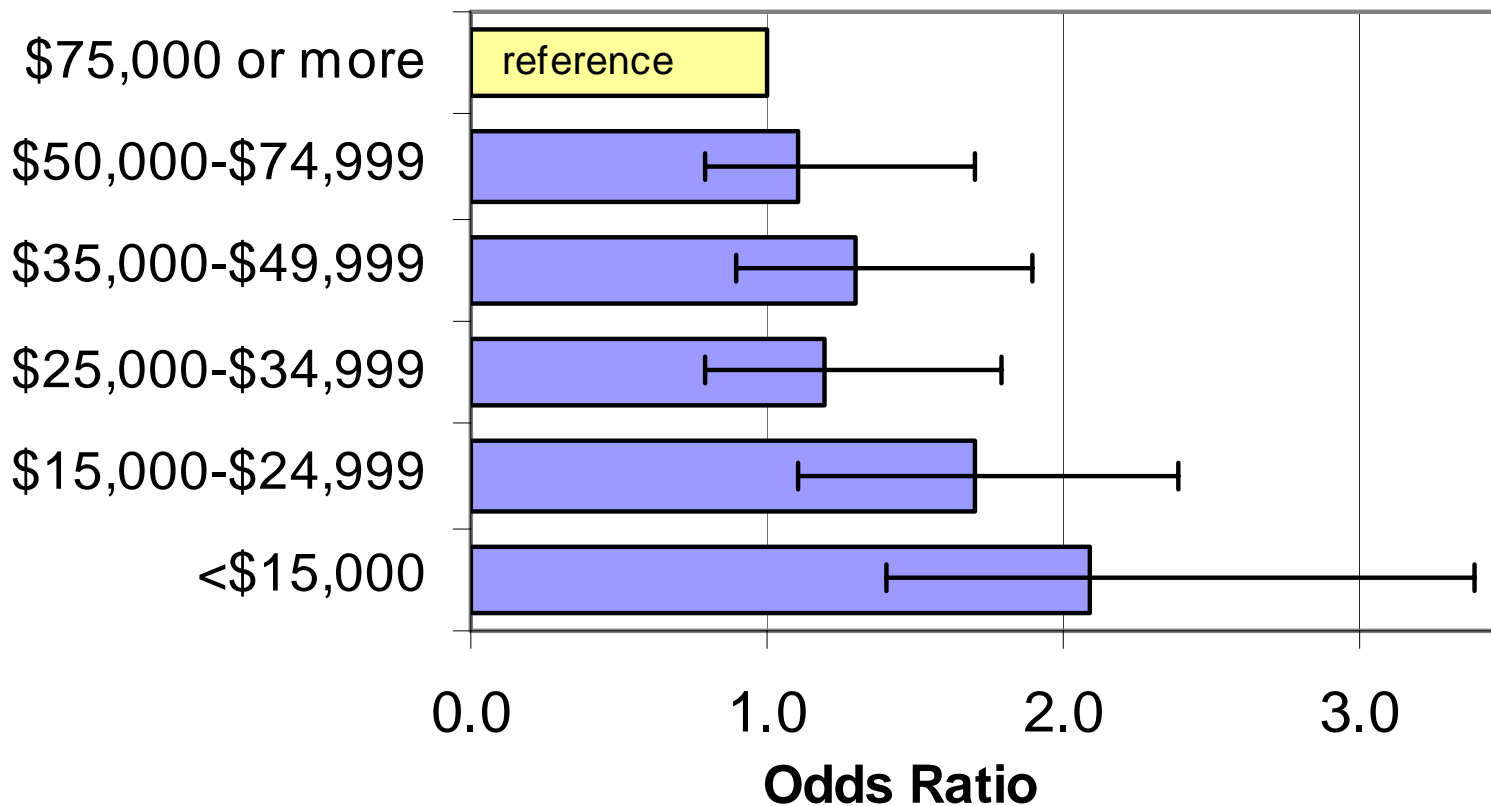


## 5 recommended services:

- 2 A1c tests per year;
- Annual dilated eye exam;
- Annual foot check
- Annual influenza vaccination
- Pneumococcal vaccination (ever)

# Health Status among Adults with Diabetes

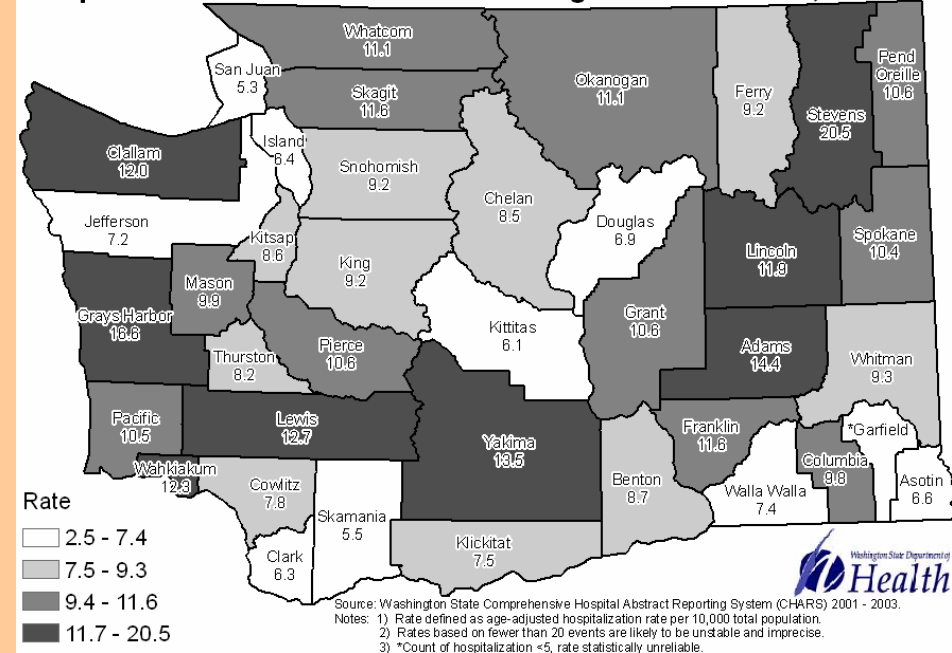
**Poor Physical or Mental Health Among Washington Adults with Diabetes, by Income, 2003-2004**



# Chapter 4: Disparities in Diabetes Hospitalizations

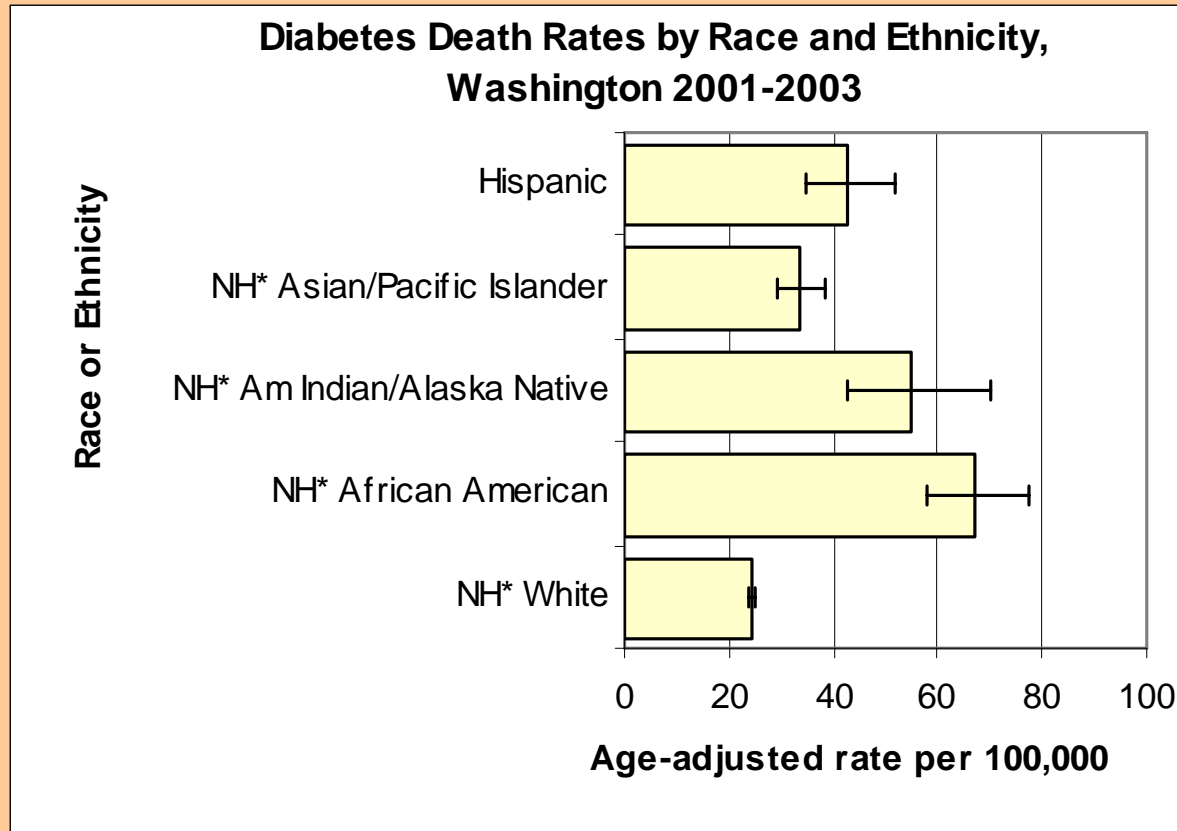
- Higher rates of diabetes-related hospitalizations occurred in rural and suburban areas and in large towns compared to urban communities.
- Hospitalizations for diabetes ketoacidosis, more common among younger adults, were more likely to be paid for by Medicaid— this means that a high proportion of those with poorly managed diabetes are of lower income.

Hospitalization Rates with First Listed Diagnosis of Diabetes, 2001-2003



**Stevens, Grays Harbor, Adams, Yakima, Lewis, Clallum, Franklin, Skagit, Whatcom, Pierce and Spokane counties have higher rates of diabetes hospitalizations compared to the state rate.**

# Chapter 5. Disparities in Diabetes Deaths



As noted in *HWS, 2004 Supplement*, a gradient effect in diabetes mortality was noted by neighborhood educational attainment and by neighborhood poverty level

# Policies to improve health by reducing socioeconomic disparities

- **Support early child development for low income families:** home-visitation programs during pregnancy through the first year of life, and early childhood development programs for three to five-year olds;
- **Nutritional support for low income women and infants:** provide the best possible basis for early physical development and good health;
- **Modifying the work environment:** reduce the negative health impacts associated with stressful, low-control/high-demand job conditions by increasing the variety of tasks in the production process, encouraging worker participation in decision-making, and allowing more flexible work arrangements.
- **Income redistribution:** move beyond anti-poverty programs to address income inequality by mobilizing low-SEP voters to participate more fully in voting & revise the tax structure to redistribute wealth

Source: Daniels, N., Kennedy, B., Kawchi, I. (2000). Justice is Good for Our Health. *Boston Review*, February/March, 2000. Viewed 3/6/2006 from: <http://www.bostonreview.net/BR25.1/daniels.html>

# *National Policies to address Health Disparities: Policy Development in Europe*

## **United Kingdom, 1998:**

### 39 Main recommendations

#### *7 overarching policy areas:*

- Taxation and social security
- Education
- Employment
- Housing and environment
- Mobility, transport, and pollution
- Nutrition and the common agricultural policy
  - National Health Service

*Demographic factors over the life course considered: mothers, youth, working adults, racial & ethnic minorities, older people, etc.*

#### *3 areas emphasized:*

1. Health inequalities impact assessment
2. Health of families with children prioritized
3. Reduction in income inequalities and improvement of living

## **Netherlands, 2001:**

### 26 recommendations

#### *4 Specific strategies:*

1. Reduction of inequalities in education, income, and other socioeconomic factors
  2. Reduction of the negative effects of health problems on socioeconomic
  3. Reduction of the negative effects of socioeconomic position on
  4. Improve access and quality of healthcare for lower socioeconomic groups
- 11 quantitative targets relating to intermediate outcomes.

*Strong emphasis on research, development, monitoring & evaluation.*

## **Sweden, 2000:**

### 18 health policy objectives

#### *6 overarching themes:*

1. Strengthening social capital
2. Growing up in a satisfactory environment
3. Improving conditions at work
4. Creating a satisfactory physical environment
5. Stimulating health-promoting life habits
6. Developing a satisfactory infrastructure for health

*Developing indicators for achievement is recommended.*

# Next Steps for Diabetes

- Goal 6 of *The Washington State Diabetes Plan*, states: “The state supports evidence-based culturally and linguistically appropriate and sustainable strategies that affect social determinants of health and reduce disparities in health outcomes”.
- Data from *Diabetes Disparities Report* presented at the 2nd Annual Meeting of the Diabetes State Network held in March 2006. Meeting evaluations indicated a desire to focus on diabetes disparities at the next annual meeting.
- In September 2007, the Diabetes State Network will discuss approaches to address SDOH during their annual statewide meeting, within three areas 1) reducing barriers to quality care; 2) culturally and linguistically appropriate approaches to prevent diabetes and complications at the community level and 3) innovative strategies to foster health equity.