

# Diabetes

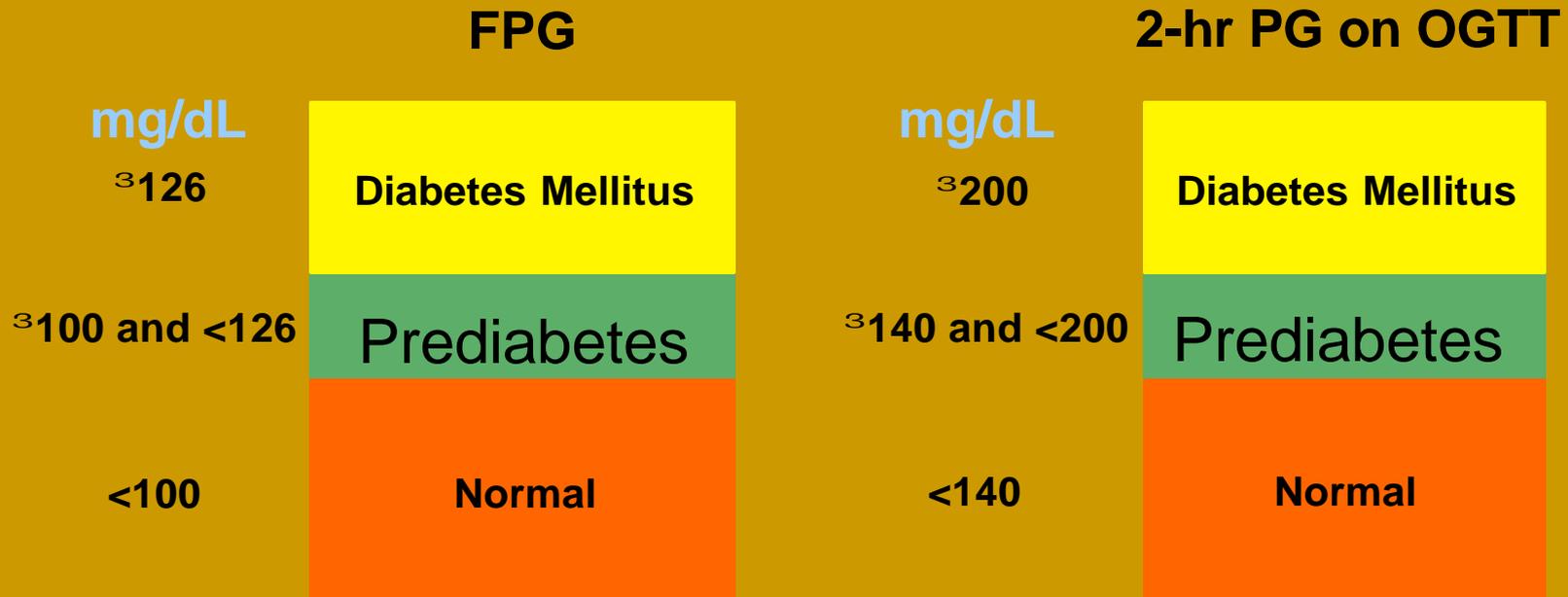
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Healthy Kansans 2010

Steering Committee Meeting

April 22, 2005

# Glucose Tolerance Categories



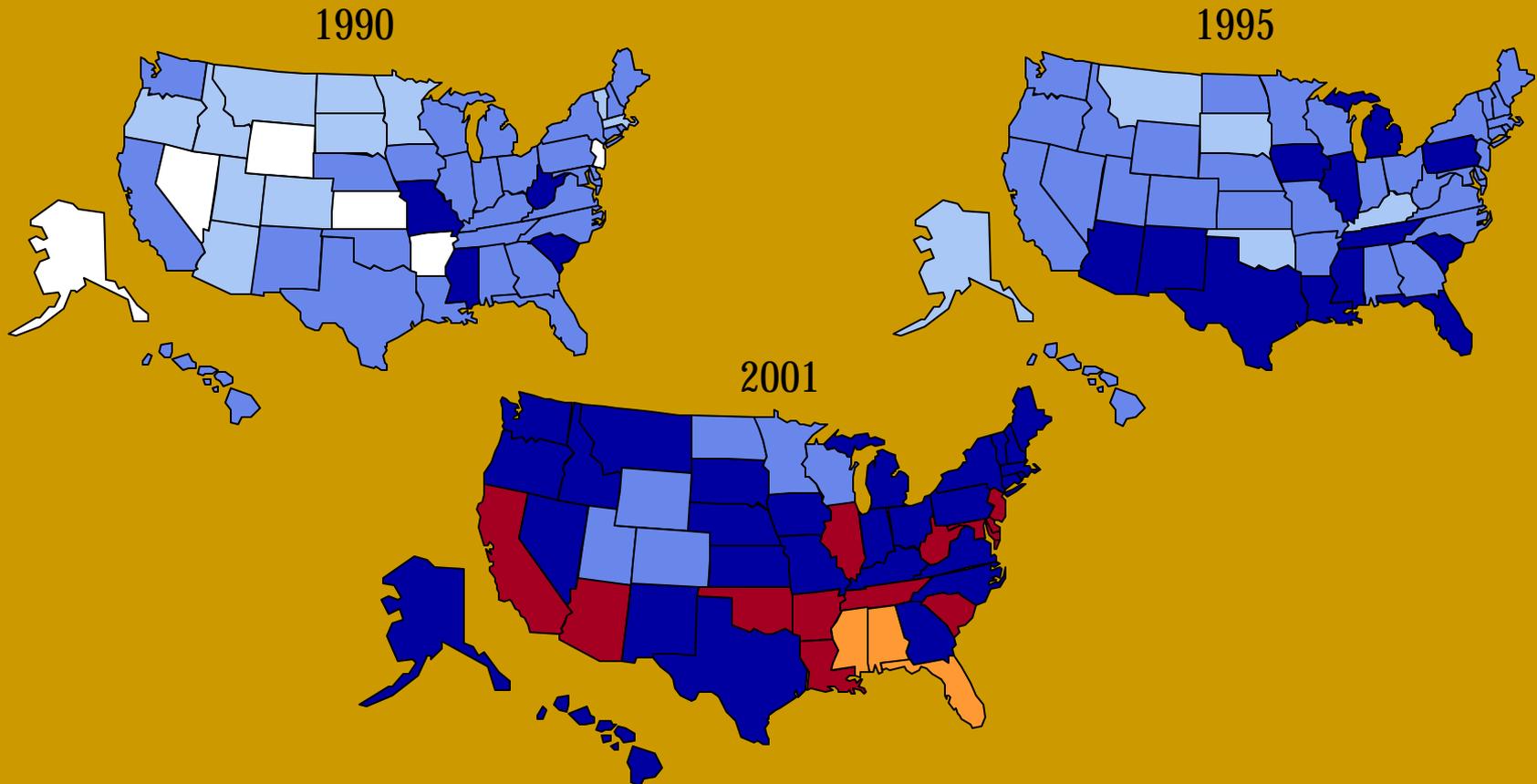
# Etiologic Classification of Diabetes Mellitus

|                      |  |
|----------------------|--|
| Type 1               | $\beta$ -cell destruction with lack of insulin   |
| Type 2               | Insulin resistance with insulin deficiency   |
| Other specific types | Genetic defects in $\beta$ -cell function, exocrine pancreas diseases, endocrinopathies drug or chemical induced, and other rare forms |
| Gestational          | Insulin resistance with $\beta$ -cell dysfunction  |

# Diabetes Trends\* Among Adults in the U.S.,

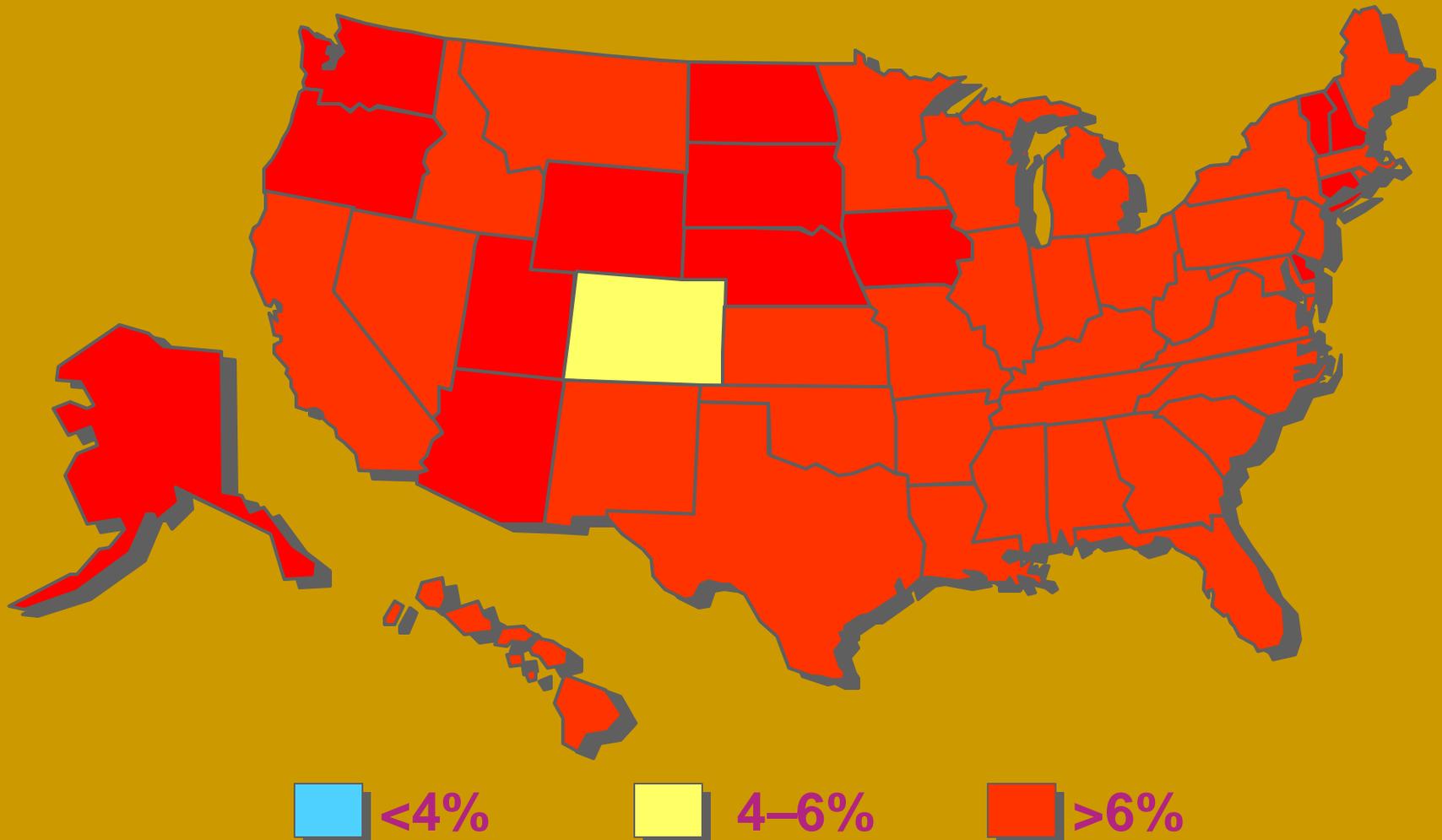
(Includes Gestational Diabetes)

BRFSS, 1990,1995 and 2001



Source: Mokdad et al., *Diabetes Care* 2000;23:1278-83; *J Am Med Assoc* 2001;286:10.

# Prevalence of Diabetes in Adults United States, BRFSS: 2000

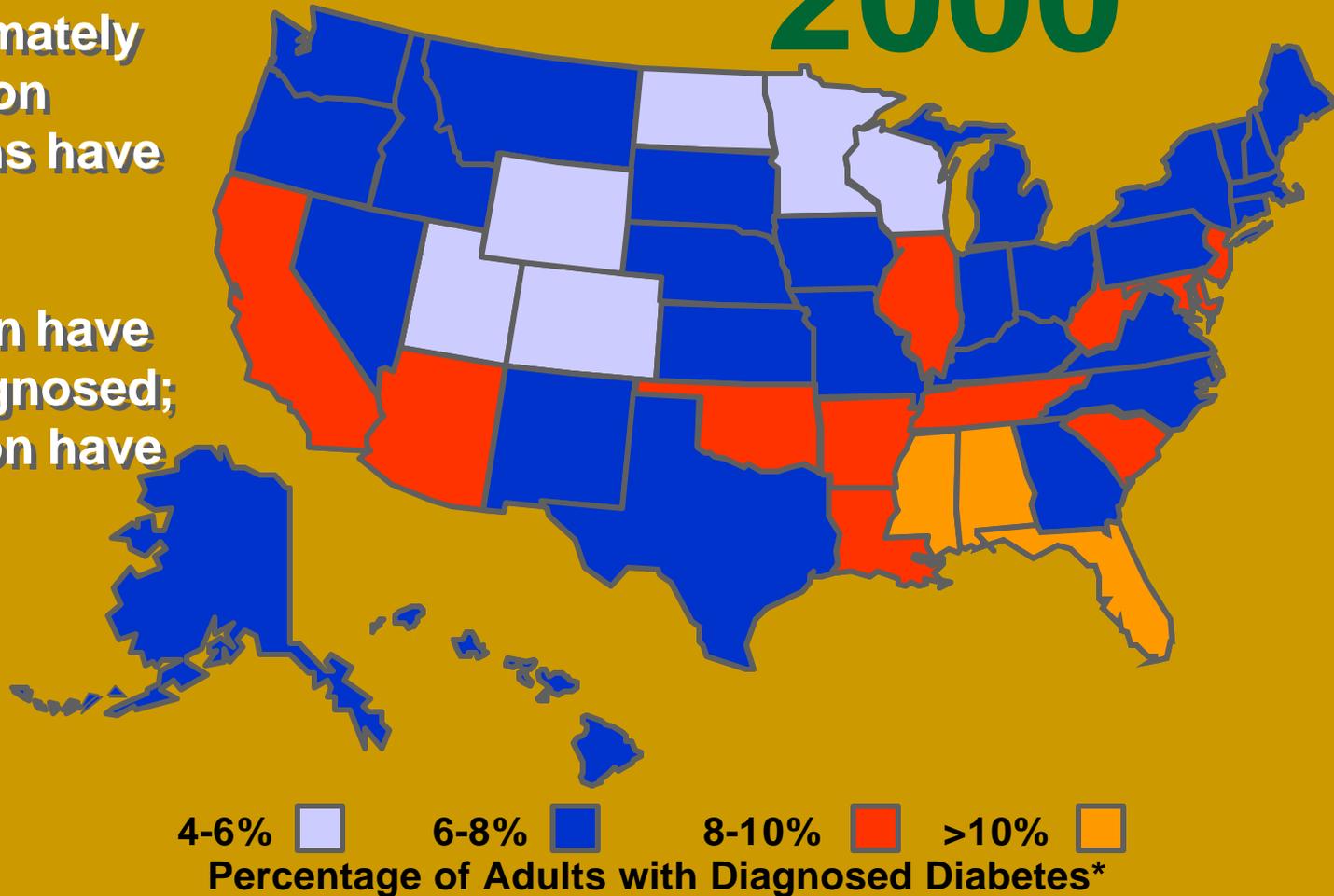


# Widespread Impact of Diabetes

## 2000

- Approximately 19.2 million Americans have diabetes.

- 13 million have been diagnosed; 6.2 million have not.



Available at: [http://www.cdc.gov/nccdphp/aag/pdf/aag\\_ddt.htm](http://www.cdc.gov/nccdphp/aag/pdf/aag_ddt.htm). Accessed 6/18/03.

Available at: <http://www.cdc.gov/diabetes/statistics/prev/state/fg62001.htm>. Accessed 6/23/03.

\*Includes women with a history of gestational diabetes.

# Complications of Diabetes

## Macrovascular

### Brain

Cerebrovascular disease

- Transient ischemic attack
- Cerebrovascular accident
- Cognitive impairment

### Heart

Coronary artery disease

- **Coronary syndrome**
- Myocardial infarction
- Congestive heart failure

### Extremities

Peripheral vascular disease

- Ulceration
- Gangrene
- Amputation

## Microvascular

### Eye

Retinopathy  
Cataracts  
Glaucoma

### Kidney

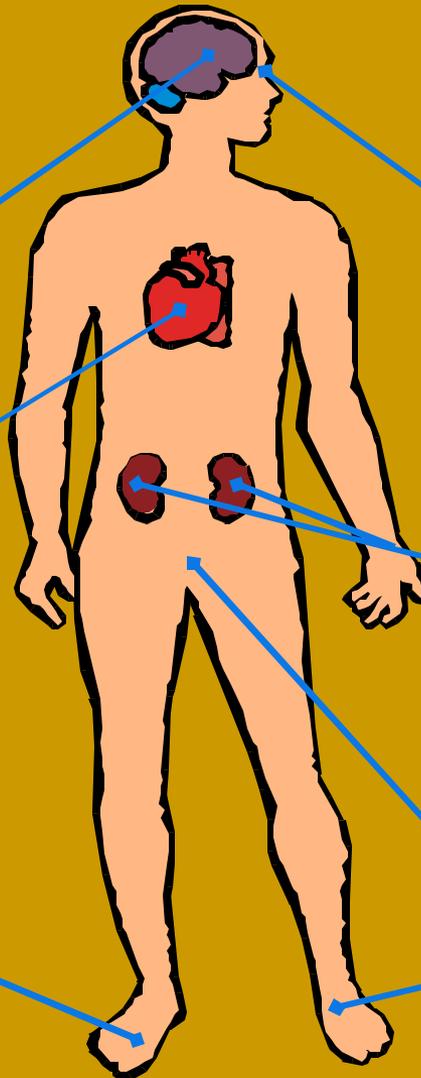
Nephropathy

- Microalbuminuria
- Gross albuminuria
- Kidney failure

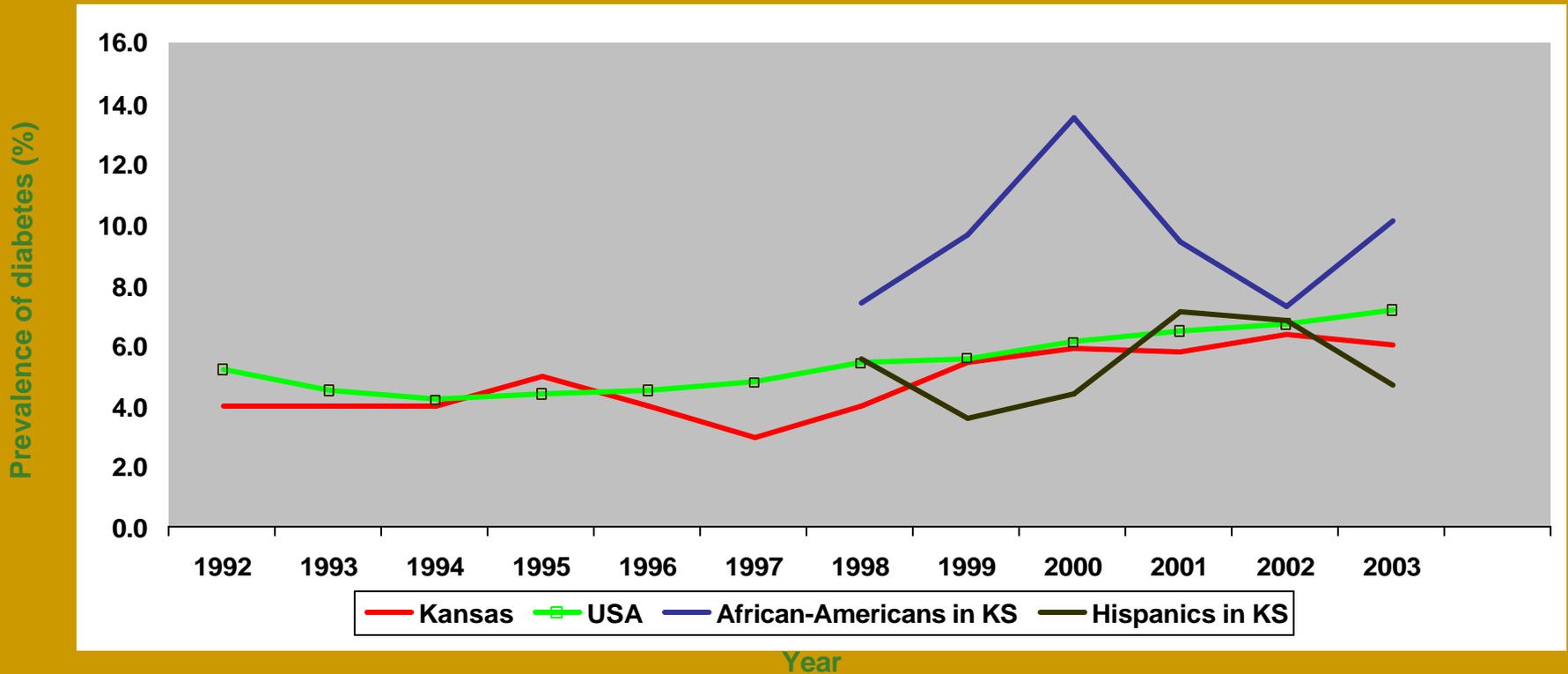
### Nerves

Neuropathy

- Peripheral
- Autonomic



# Prevalence of Diagnosed Diabetes Among Adults in Kansas and USA -1992-2003.



- Prevalence of diabetes among adults in Kansas is increasing. This trend is similar to the trend in the United States.
- Prevalence of diabetes in Kansas is highest among non-Hispanic African Americans in 2003 (10.1%). It is similar to the prevalence among African-Americans in the United States (10.2%)

Source: 1992-2003 Behavioral Risk Factor Surveillance System , Office of Health Promotion, Kansas Department of Health and Environment

National data : 1992-2003 Behavioral Risk Factor Surveillance System , Centers for Disease Control and Prevention.

Due to small sample size, data for Hispanics and African-Americans is from 1998-2003 Behavioral Risk Factor Surveillance System. KS=Kansas

# Diabetes in Kansas Cont'd

## Complications Due to Diabetes :

- In 2001, the age adjusted rate of lower extremity amputations among was 32.2/10,000 persons with diabetes (Health People 2010 target is 18 lower extremity amputations per 10,000 persons with diabetes per year). Kansas rate was lower than the national rate (52/10,000 persons with diabetes in 2001).
- In 2003, 17.4% of diabetic patients reported being told by a doctor that they have retinopathy.
- In 2001, the age-adjusted incidence of reported End Stage Renal Disease (ESRD) among persons with diabetes in Kansas was 146/100,000 persons with diabetes. The Kansas figure is similar to the national figure (148/100,000 persons with diabetes in 2001).

### Data Sources:

(1) 2001 Kansas Hospital Association Discharge Data. Center for Health and Environmental Statistics. KDHE.. (2) 2003 Kansas Behavioral Risk Factor Surveillance System. Office of Health Promotion. KDHE. (3) Diabetes Surveillance System, Centers for Disease Control and Prevention. [www.cdc.gov/diabetes/statistics/lea/table3link.htm](http://www.cdc.gov/diabetes/statistics/lea/table3link.htm). Accessed on March 30, 2005. (4) 2003 Annual Data Report. Atlas of End Stage Renal Disease in United States. United States Renal Data System. (USRDS)

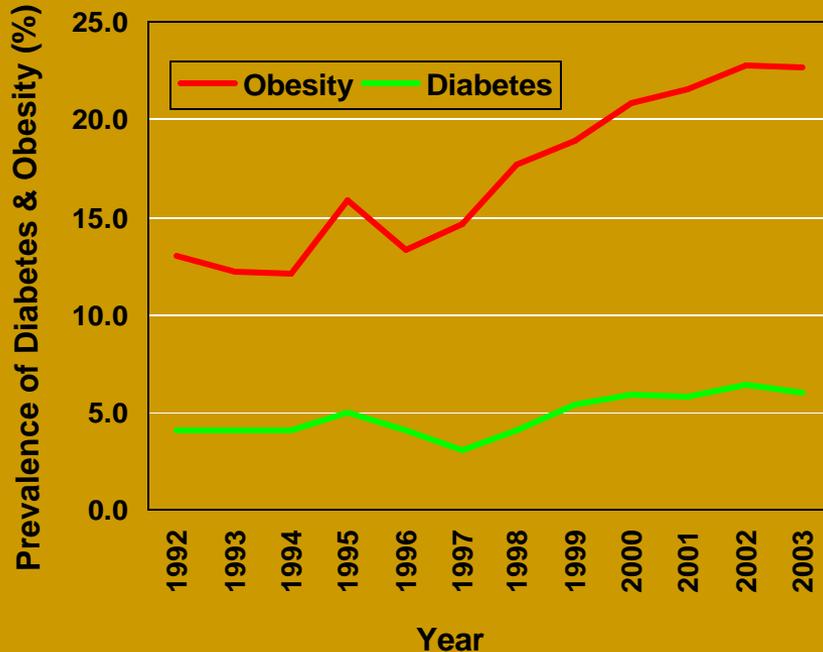
# Diabetes in Kansas

## Quality of Care among Diabetes Patients – 2003:

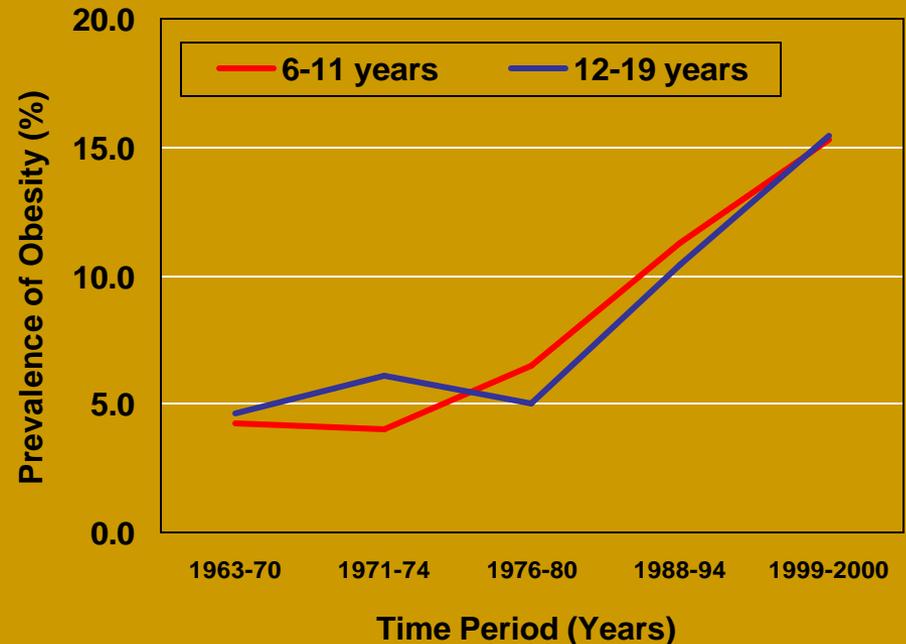
- 77% of diabetic patients reported that their HbA1c level was checked two or more times in the past 12 months by a health care professional.
- 61.3% of diabetic patients received Influenza vaccination during last 12 months.
- 49.1% of diabetic patients ever received pneumococcal vaccination.
- 68.6% of respondents with diabetes reported having at least an annual foot exam by a health professional.
- 77.2% of respondents with diabetes reported having had a dilated eye exam within the past 12 months.
- 76% of diabetic patients who were taking insulin reported checking their blood sugar at least once a day.

# Obesity and Diabetes Among Adults and Children in Kansas and USA

Prevalence and trend of diagnosed diabetes and obesity among adults in Kansas-1992-2003



Prevalence rates of obesity among children & adolescents in USA



- Concurrent increasing trends of obesity and diabetes in adults are observed in Kansas. Increasing prevalence rates of obesity have been observed among US children and adolescents in the last four decades.
- A clinic-based study among obese children (4-10 years) and adolescents (11-18 years) showed that the prevalence of impaired fasting glucose was 25% and 21%, respectively. Type 2 diabetes was also diagnosed among 4% of the adolescents.

# Can the Course of Type 2 Diabetes Be Altered?



\*IFG=impaired fasting glucose.

Burger HG, Loriaux DL, Marshall JC, Melmed S, Odell WD, Potts JT, Jr., Rubenstein AH. 2001. Diabetes Mellitus, Carbohydrate Metabolism, and Lipid Disorders. Chap. in *Endocrinology*. 4<sup>th</sup> ed. Edited by Leslie J. DeGroot and J. Larry Jameson. Vol. 1. Philadelphia: W.B. Saunders Co. Originally published in *Type 2 Diabetes BASICS*. (Minneapolis, International Diabetes Center, 2000).

## How Are we Addressing diabetes in Kansas Now?

- Improvement in the quality of diabetes care through provider education and promotion of patient self-management strategies.
- Promoter training support to improve access to diabetes care for Kansas Hispanic/Latino communities. Center for Health and Wellness has also implemented a similar lay-health model in Wichita for African Americans.
- Life style modifications through addressing key behavioral and environmental risk factors.
- Diabetes prevention and control efforts have impact on indicators as physical activity, overweight and obesity, tobacco use, mental health, immunization, and access to health care.

# What Are Kansas' Assets for Improving This Health Issue?

- Strong partnerships / coalitions.
- Diabetes electronic management tools.
- Established state-wide data surveillance systems on deaths, hospitalizations, and behavioral and lifestyle risk factors (Vital Statistics, Hospital Discharge Data, Behavioral Risk Factor Surveillance System).

# What Are Barriers or Liabilities That Are Limiting Progress in Kansas?

- Changing the behaviors of persons with diabetes, health care providers, or organizations involved in diabetes health care is challenging (compliance with Standards of Care).
- Limited resources including lack of state-wide data resources such as Diabetes Registry and database on clinical information.
- Geographic distribution of population.

# Recommendations

- Increased focus on identification and referral for individuals with pre-diabetes (persons with impaired fasting glucose or impaired glucose tolerance).
- State-wide utilization of the electronic monitoring system in clinical practice to improve quality of diabetes care.
- Increasing the support for self-management of diabetes by patients and increasing awareness of co-morbidities.

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