



DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION



An Eye on the Future

Public health response to Diabetic Eye Diseases

Jinan B. Saaddine, MD, MPH

Centers for Disease Control and Prevention

The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the CDC.

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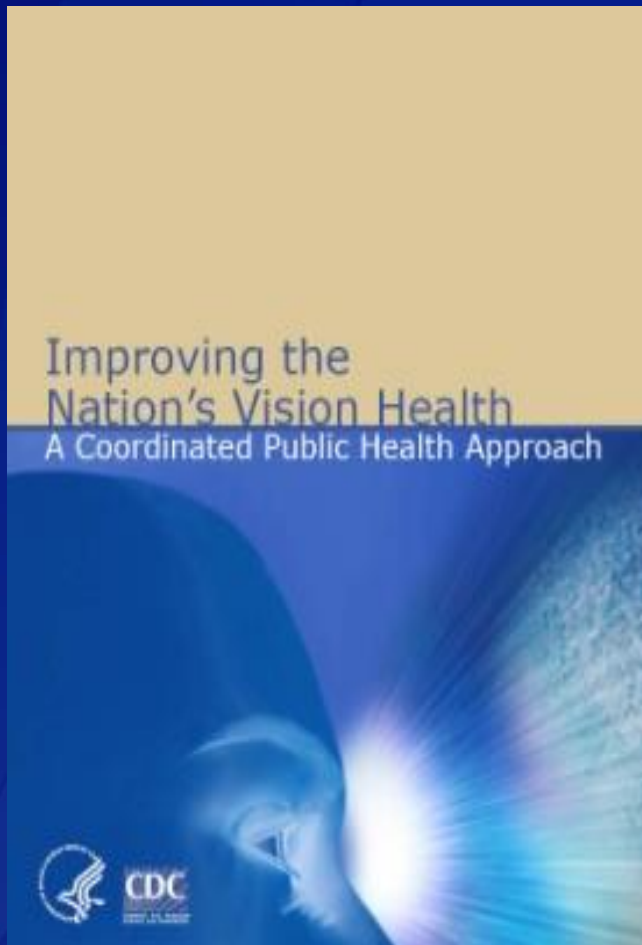
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Financial Disclosure

I have no relevant commercial entity relationships or financial interests to disclose

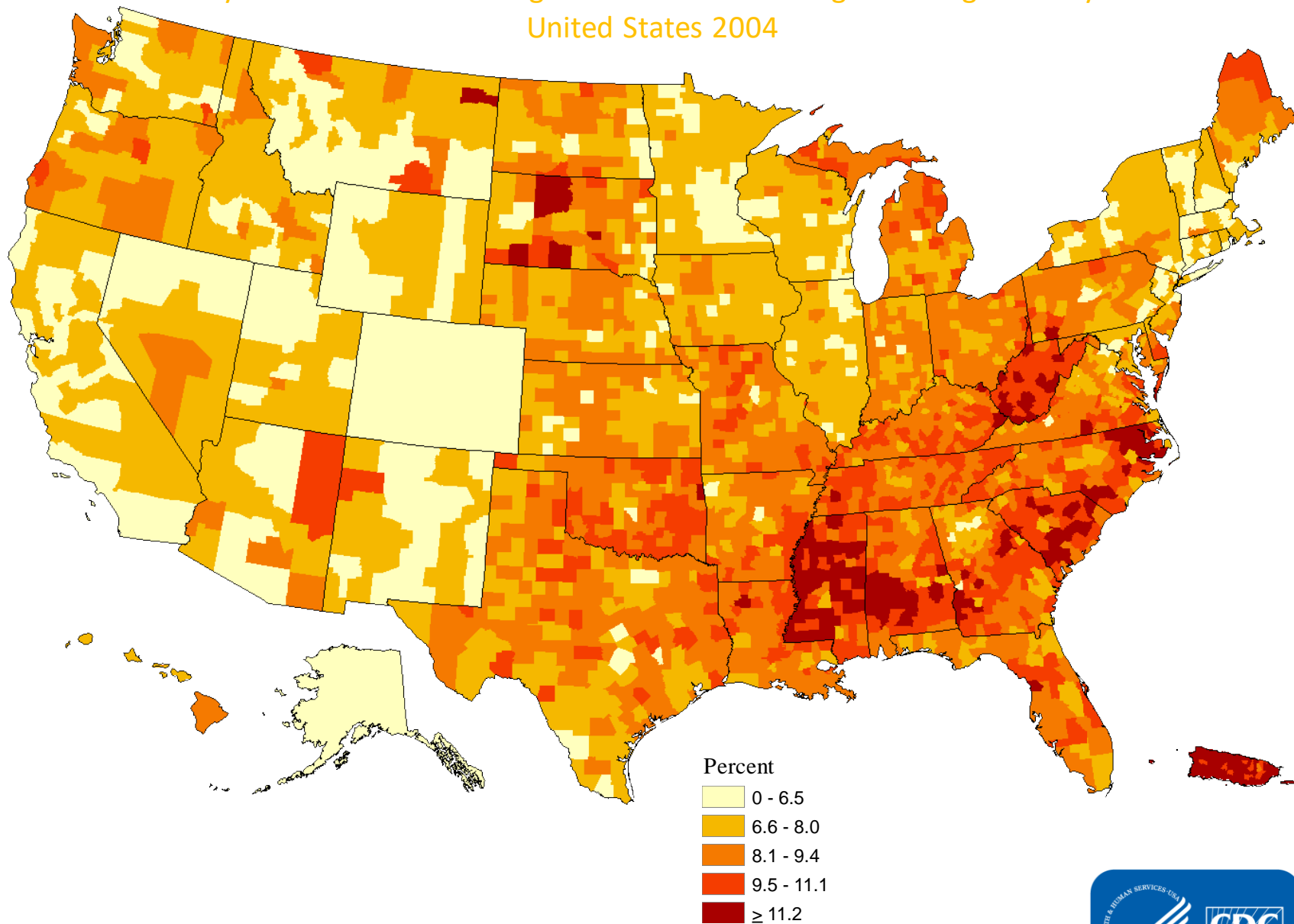
Jinan B. Saaddine MD, MPH

overview

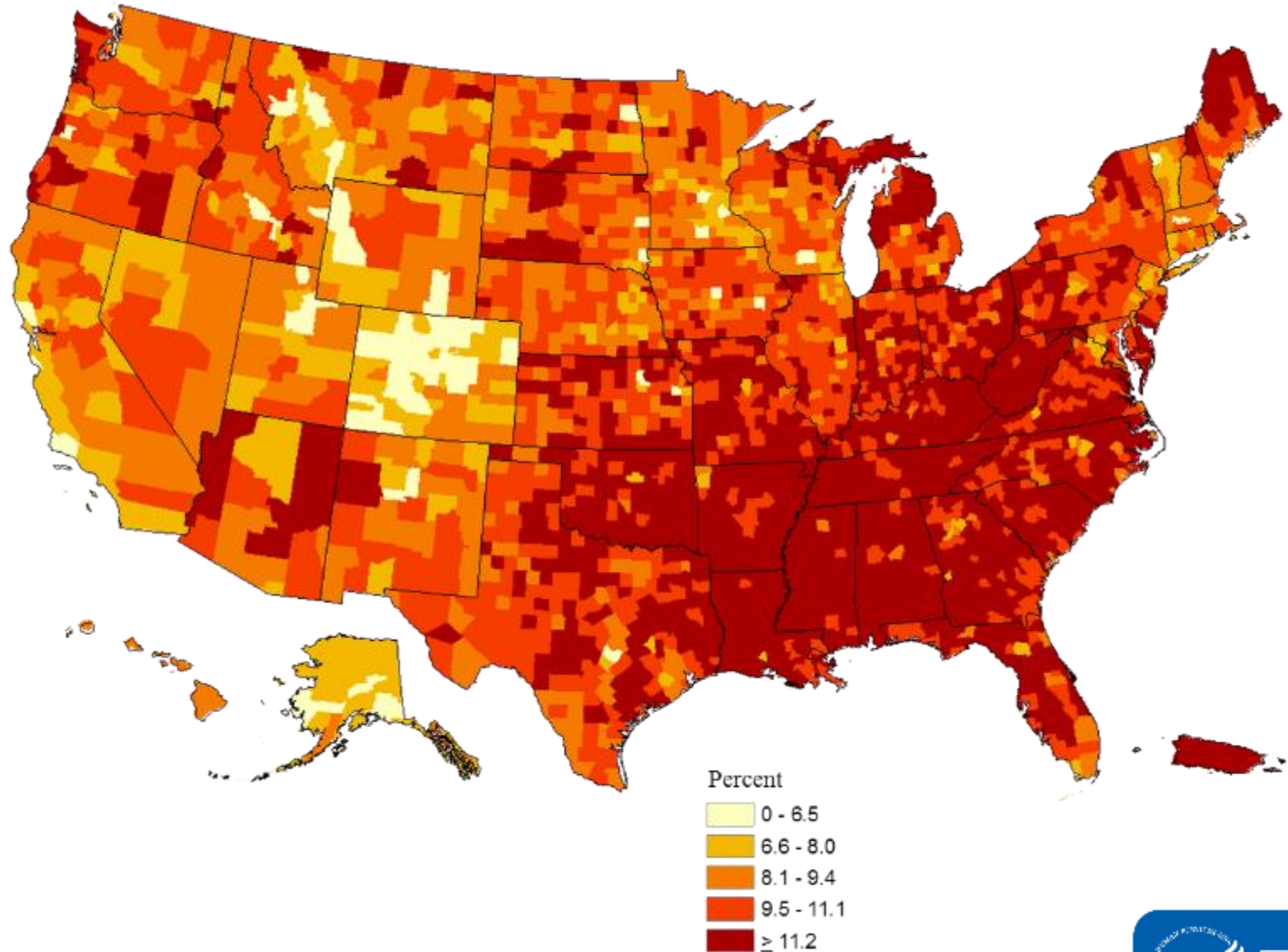


- Diabetes epidemic
- Public health response to diabetic eye diseases
 - Surveillance
 - Health service research
 - Program and policy

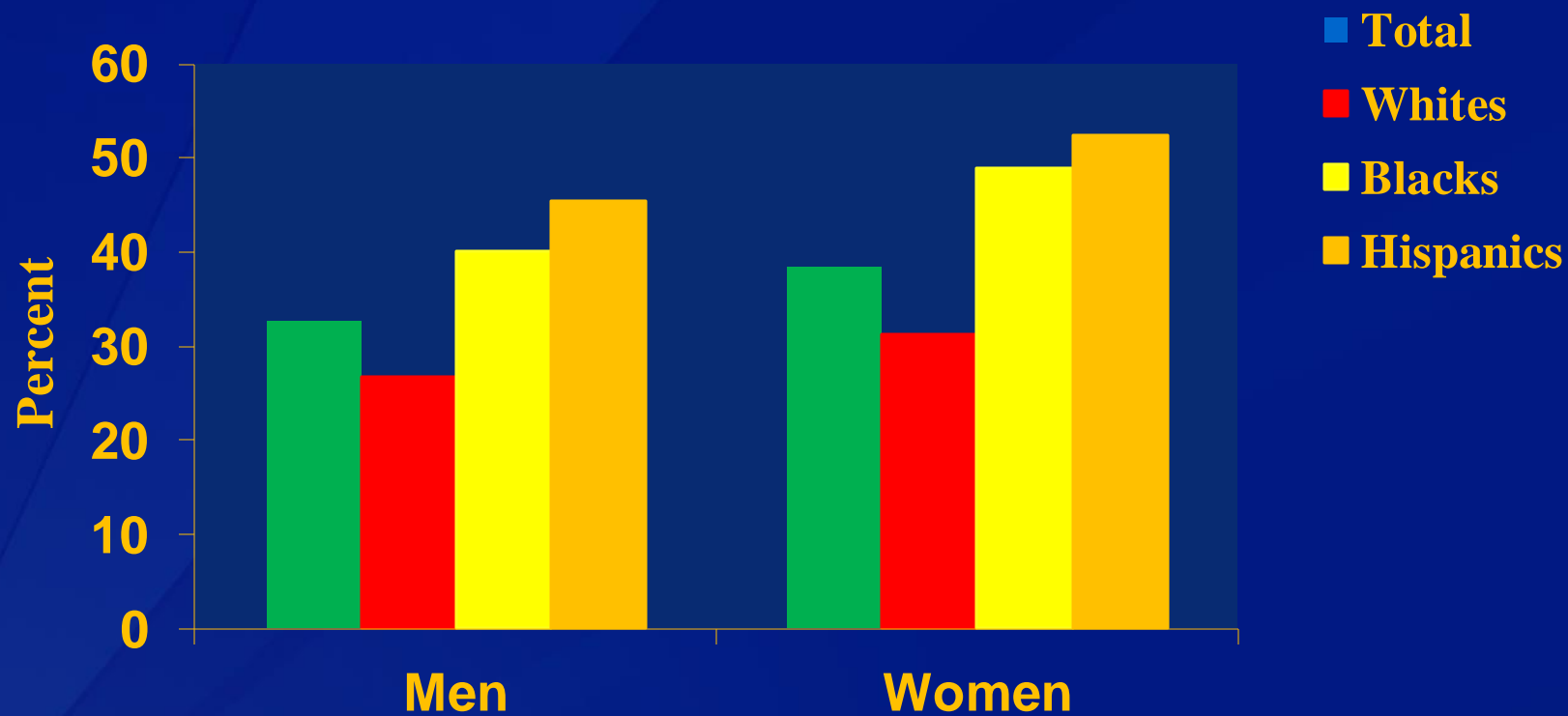
County-level Estimates of Diagnosed Diabetes among Adults aged ≥ 20 years:
United States 2004



County-level Estimates of Diagnosed Diabetes among Adults aged ≥ 20 years:
United States 2011

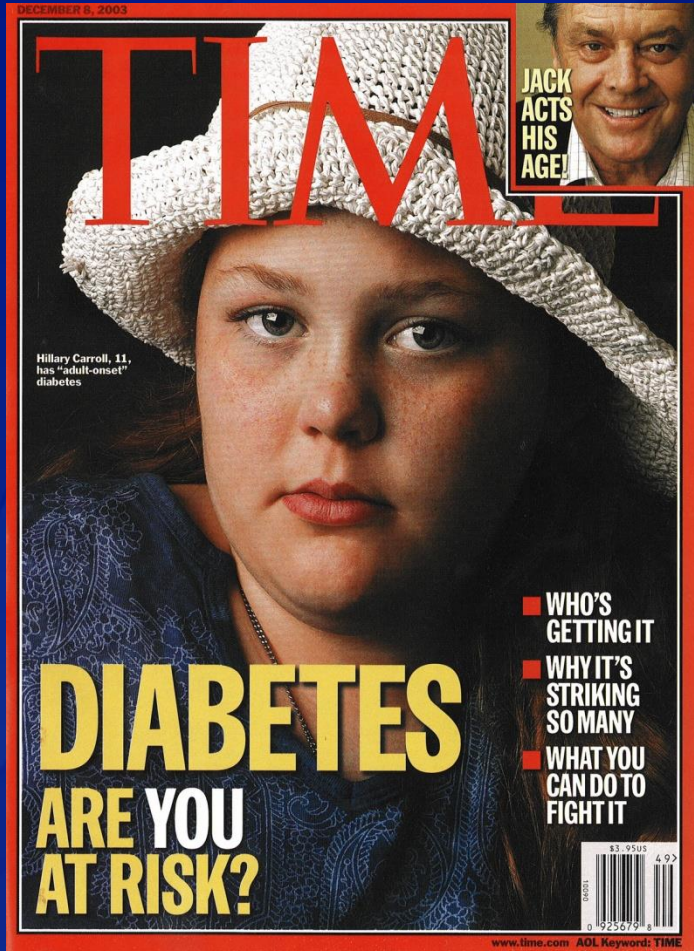


Lifetime Risk of Diabetes from Birth According to Sex and Race/ethnicity

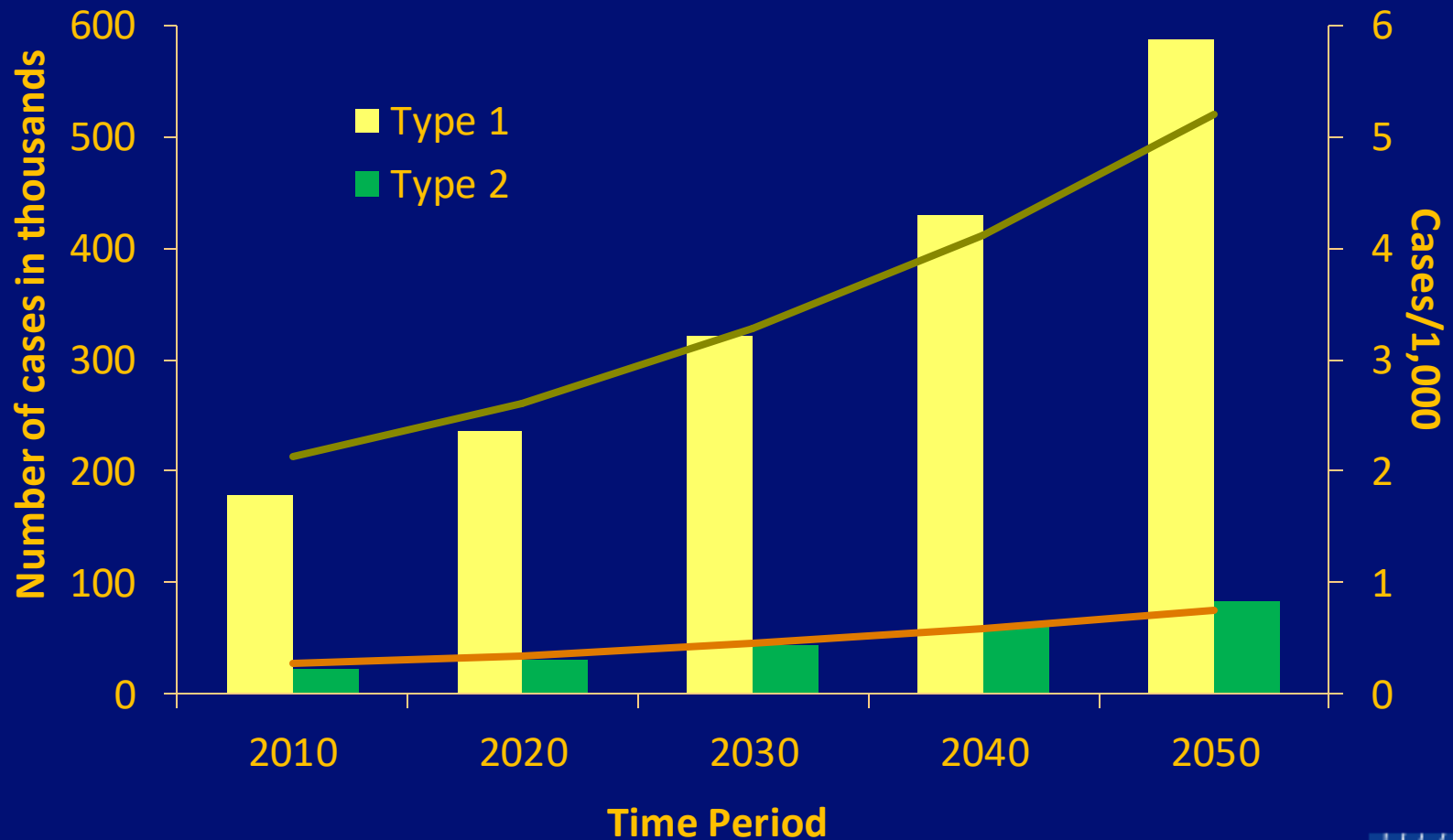


Narayan et al., *JAMA*, 2003

The Face of Diabetes is Getting Younger



Projected Number (bars) and Prevalence (line) of Type 1 or Type 2 DM in People aged <20 Years under Increased Incidence Scenario



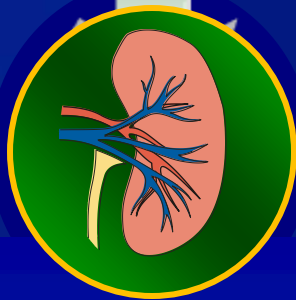
Imperatore G, et al. Diabetes Care 2012;35:2515 - 2520

Impact of Diabetes Mellitus

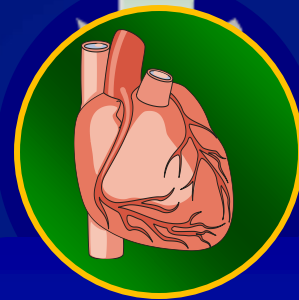
Diabetes



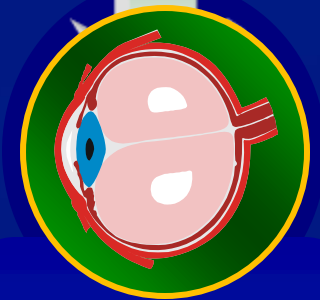
The leading cause of nontraumatic lower extremity amputations



The leading cause of new cases of end stage renal disease



A 2 fold increase in cardiovascular mortality



The leading cause of new cases of blindness in working-aged adults

Diabetic Retinopathy

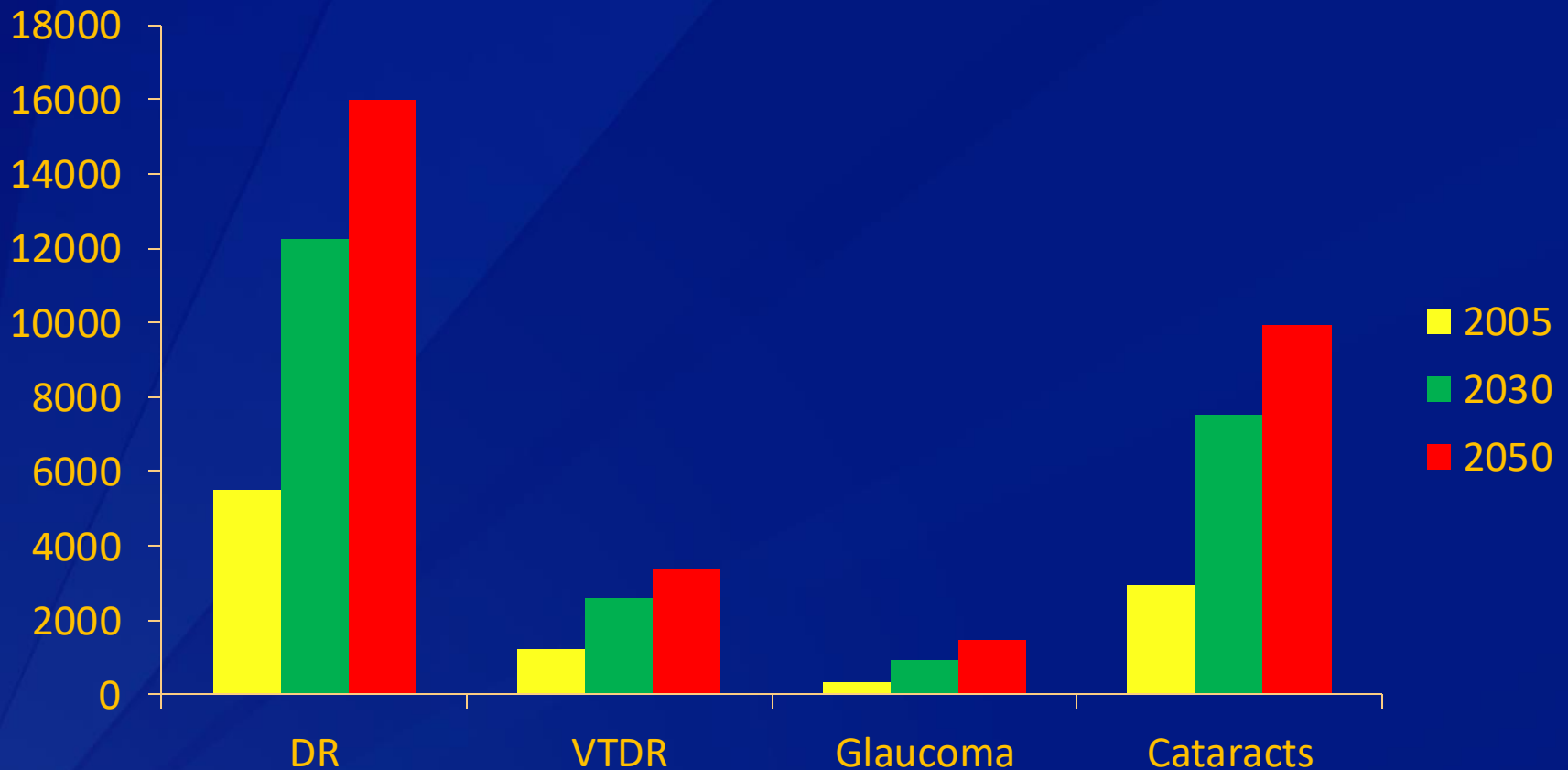
Common

Serious

costly

Preventable

Projections of number in thousands of people with diabetes in the US with selected eye diseases 2005-2050



DR, diabetic retinopathy; VTDR, vision-threatening diabetic retinopathy

Source: Saaddine JB, Arch Ophthalmol. 2008;126(12):1740-1747

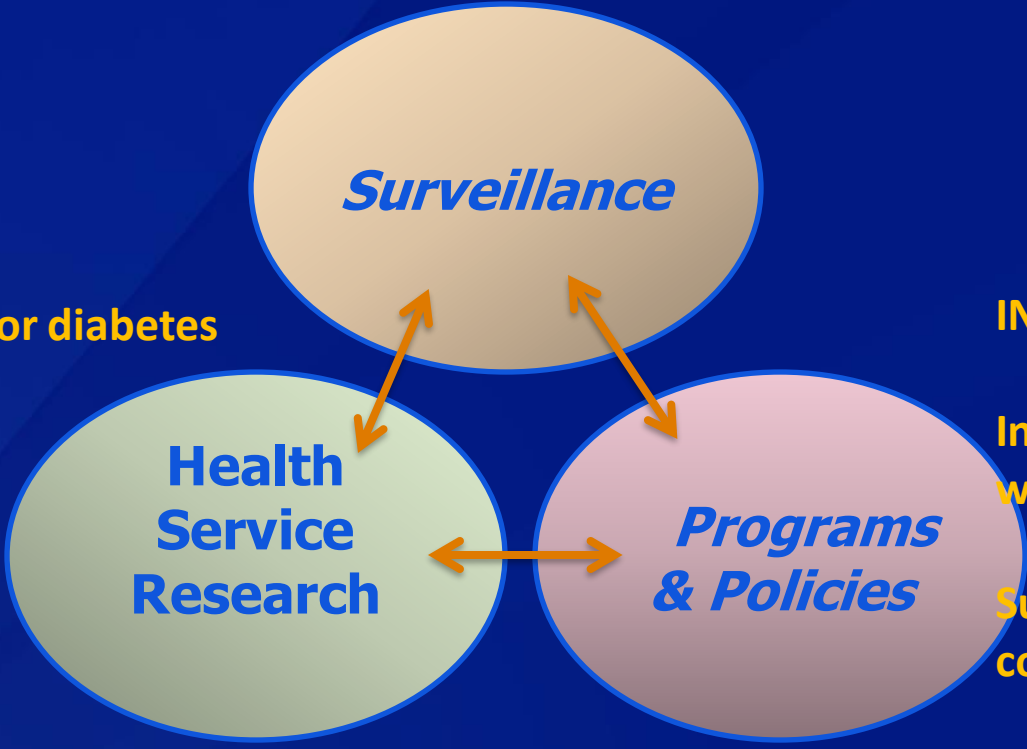


Public Health Approach to Diabetic Eye Diseases Vision Health Initiative

NDSS
NHANES
BRFSS

SEARCH for diabetes in Youth

Cost and CE Test, Prioritize interventions



INSIGHT

Integrate vision within PH program

Support states and community programs

NDSS: national Diabetes Surveillance System
NHANES: National Health and Nutrition Examination Survey
BRFSS: Behavioral risk Factors Surveillance System
INSIGHT: Innovative Network for SIGHT research



ORIGINAL CONTRIBUTION

Prevalence of Diabetic Retinopathy in the United States, 2005-2008

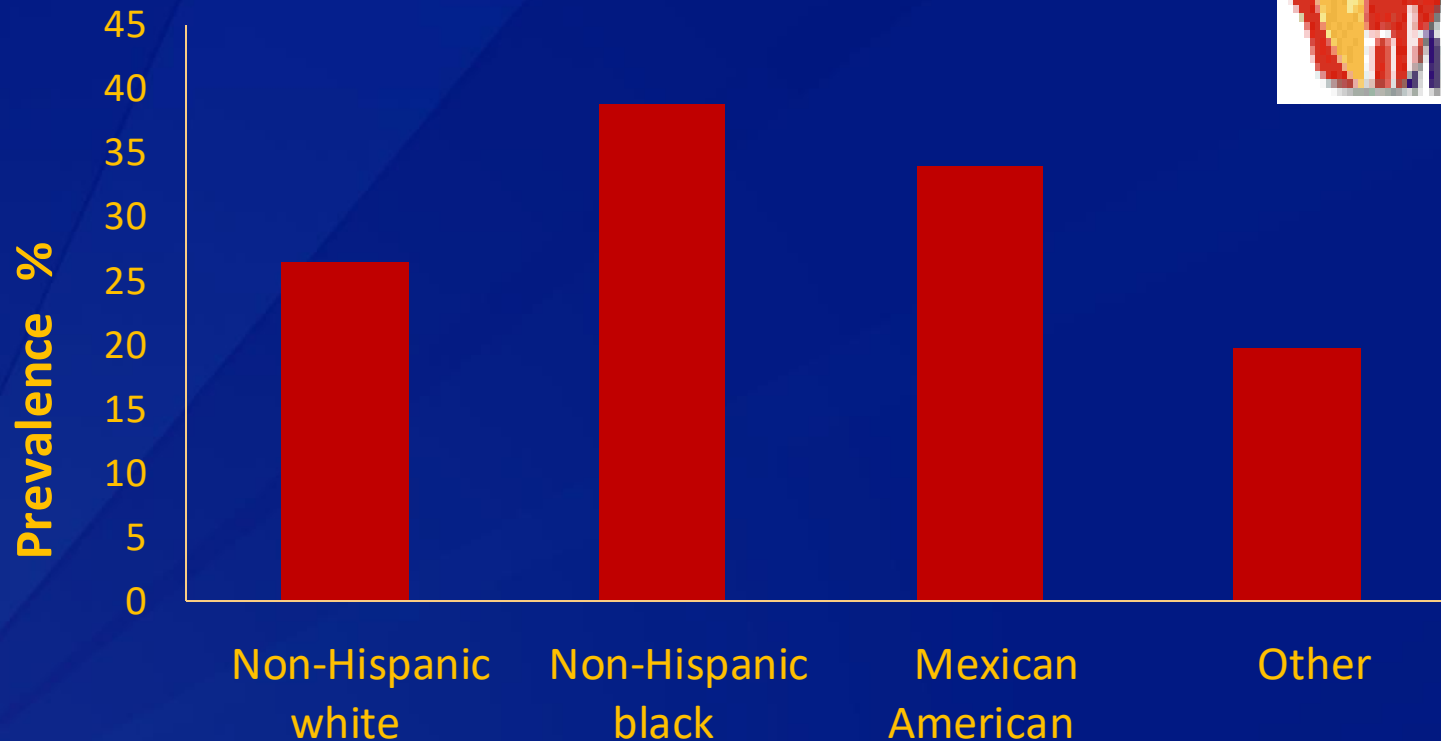
Xinzhong Zhang, MD, PhD

Jinan B. Saaddine, MD, MPH

Chiu-Fang Chou, DrPH

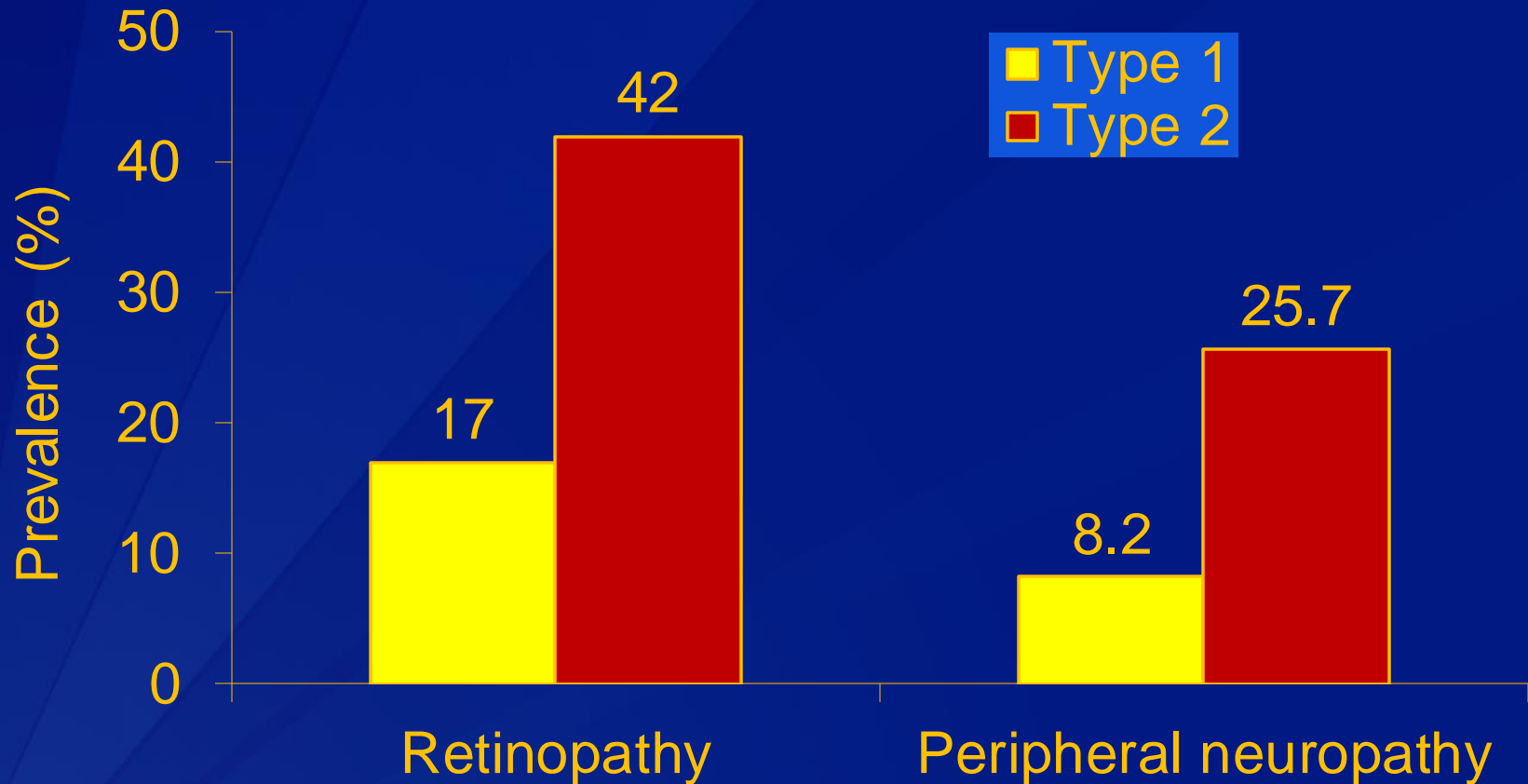
Context The prevalence of diabetes in the United States has increased. People with diabetes are at risk for diabetic retinopathy. No recent national population-based estimate of the prevalence and severity of diabetic retinopathy exists.

Surveillance

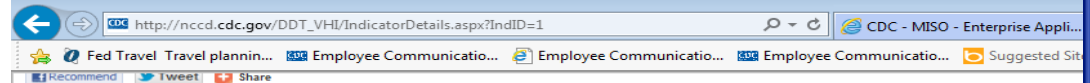


**Article: Epidemiology****Diabetic retinopathy in the SEARCH for Diabetes in Youth Cohort: a pilot study**

E. J. Mayer-Davis¹, C. Davis², J. Saadine³, R. B. D'Agostino Jr², D. Dabelea⁴, L. Dolan⁵, S. Garg⁶, J. M. Lawrence⁷, C. Pihoker⁸, B. L. Rodriguez⁹, B. E. Klein¹⁰ and R. Klein¹⁰ for the SEARCH for Diabetes in Youth Study Group



<http://www.cdc.gov/visionhealth/>

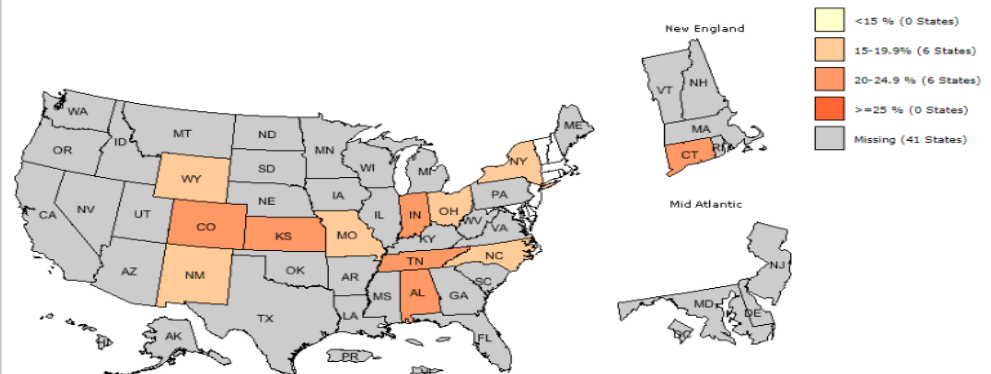


Indicator Summary

Year:
 Indicator:

2008 Percentage of Adults 40 Years and Older Who Reported Having Diabetic Retinopathy

Save Map



2008 Percentage of Adults 40 Years and Older Who Reported Having Diabetic Retinopathy

State	Percentage	95% CI
Alabama	23.6%	(20.1 - 27.6)
Colorado	20.7%	(16.4 - 25.8)
Connecticut	21.6%	(17.2 - 26.8)
Indiana	21.4%	(17.4 - 26.0)
Kansas	21.0%	(16.5 - 26.4)
Missouri	16.6%	(13.2 - 20.6)
New Mexico	19.0%	(15.5 - 23.1)
New York	19.4%	(15.3 - 24.2)
North Carolina	18.5%	(16.2 - 21.0)
Ohio	18.2%	(15.1 - 21.9)



Weekly December 15, 2006 / Vol. 55 / No. 49

Visual Impairment and Eye Care Among Older Adults — Five States, 2005



Weekly November 3, 2006 / Vol. 55 / No. 43

National Diabetes Awareness Month — November 2006

Correctable Visual Impairment Among Persons with Diabetes — United States, 1999–2004

Centers for Disease Control and Prevention



Morbidity and Mortality Weekly Report

Weekly / Vol. 60 / No. 19

May 20, 2011

Reasons for Not Seeking Eye Care Among Adults Aged ≥40 Years with Moderate-to-Severe Visual Impairment — 21 States, 2006–2009

Assess the cost and evaluate the CE of interventions

HSR

SOCIOECONOMICS AND HEALTH SERVICES

SECTION EDITOR: PAUL P. LEE, MD

The Economic Burden of Major Adult Visual Disorders in the United States

David B. Rein, PhD; Ping Zhang, PhD; Kathleen E. Wirth, BA; Paul P. Lee, MD, JD; Thomas J. Hoerger, PhD; Nancy McCall, ScD; Ronald Klein, MD, MPH; James M. Tielsch, PhD; Sandeep Vijan, MD, MS; Jinan Saaddine, MD, MPH

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DOI: 10.1111/j.1475-2775.2011.01263.x
RESEARCH ARTICLE

Cost-Effectiveness and Quality of Life

The Cost-Effectiveness of Three Screening Alternatives for People with Diabetes with No or Early Diabetic Retinopathy

David B. Rein, John S. Wittenborn, Xinchi Zhang, Benjamin A. Allaire, Michael S. Song, Ronald Klein, and Jinan B. Saaddine, for the Vision Cost-Effectiveness Study Group

The Cost-effectiveness of Routine Office-based Identification and Subsequent Medical Treatment of Primary Open-Angle Glaucoma in the United States

David B. Rein, PhD,¹ John S. Wittenborn, BS,¹ Paul P. Lee, MD, JD,² Kathleen E. Wirth, BA,³ Stephen W. Sorensen, PhD,³ Thomas J. Hoerger, PhD,¹ Jinan B. Saaddine, MD, MPH⁴

Cost-effectiveness of Vitamin Therapy for Age-Related Macular Degeneration

David B. Rein, PhD,¹ Jinan B. Saaddine, MD, MPH,² John S. Wittenborn, BS,¹ Kathleen E. Wirth, BA,¹ Thomas J. Hoerger, PhD,¹ K. M. Venkat Narayan, MD,² Traci Clemons, PhD,³ Stephen W. Sorensen, PhD²

Used to influence policy decisions regarding glaucoma screening and Medicare

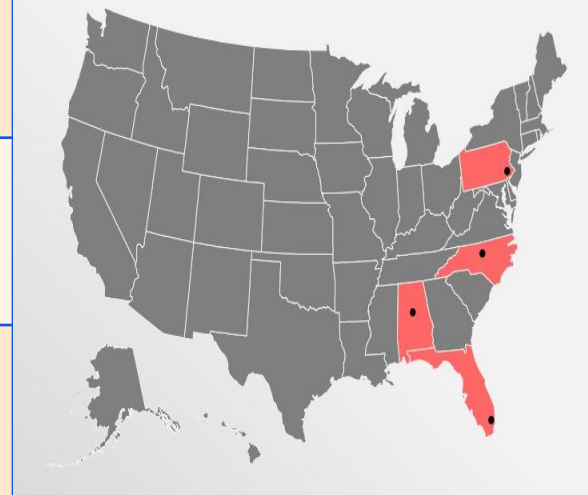
INSIGHT Network Settings

Innovative Network for Sight Research

Programs & policies

Institution	Type of Setting	Location
UAB	Internal Med clinic in county health system serving un- and under-insured	Birmingham AL
Johns Hopkins	Downtown Health Plaza serving low-income residents	Winston-Salem NC
Univ. of Miami	Community not-for-profit health center serving un- and underinsured	Miami-Dade County
Wills Eye Inst.	Out-patient pharmacy	Philadelphia PA

INSIGHT



Collaborative/Network Study

- **Diabetic retinopathy screening**
 - Telemedicine
 - Digital photography
 - Vision screening
- **Settings**
 - Pharmacy
 - Public clinic



Preliminary results for DR screening

1151 final reports of screened patients

- 25% diabetic retinopathy
- 3% Proliferative diabetic retinopathy
- 11% macular edema
- 20% cataract
- 23% hypertensive changes
- 8% increased cup to disc ratio
- Still collating data on VA

Moving Upstream

National Diabetes Prevention Program

COMPONENTS



Training: Increase Workforce

Train the workforce that can implement the program cost effectively.



Recognition Program: Assure Quality

Implement a recognition program that will:

- Assure quality.
- Lead to reimbursement.
- Allow CDC to develop a program registry.



Intervention Sites: Deliver Program

Develop intervention sites that will build infrastructure and provide the program.



Health Marketing: Support Program Uptake

Increase referrals to and use of the prevention program.

Conclusion

- ❑ 29 million people with diabetes, and 86 million with pre-diabetes
- ❑ Number of people with diabetic retinopathy will triple in 2050
- ❑ 40-50% people with diabetes do not get their annual eye examination and 50% get to their eye care provider too late to benefit from treatment
- ❑ Changing interventions

Conclusion

- ❑ **Better data for advocacy, policy, and development of public health interventions (National vision and eye health surveillance system)**
- ❑ **Strong collaborations and network**
- ❑ **Public health is local**
- ❑ **Leadership development**

Improving the
Nation's Vision Health
A Coordinated Public Health Approach



The only thing worse
than being blind is
having sight but no vision.

Hellen Keller

For more information

www.cdc.gov/visionhealth/

www.cdc.gov/diabetes

Jsaaddine@cdc.gov

