



# Use of Dilated Eye Examination: Results of the 2002 National Health Interview Survey

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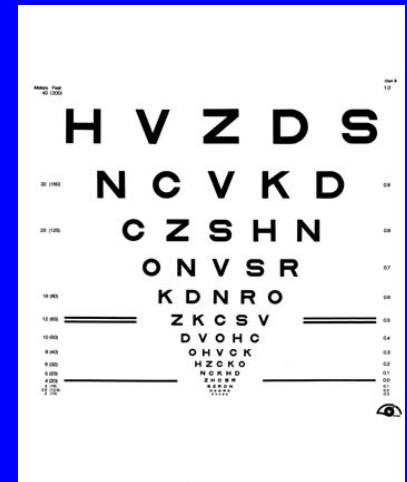


**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Centers for Disease Control and Prevention  
National Center for Health Statistics  
National Institutes of Health, National Eye Institute**



# Public Health Importance

- Visual impairment (VI) – frequent cause of disability in the US
- 1.1 million people legally blind
- 19 million people are visually impaired
- Annual economic and social costs: \$67 billion
- Average lifetime cost for a person with VI: \$566,000
- Treatment of some eye diseases is effective if diagnosed early





# Healthy People 2010 Vision Goal

**Improve the visual health of the Nation through prevention, early detection, treatment, and rehabilitation.**





# Healthy People 2010 Vision Objectives 28-1 and 5-13:

**28-1. Increase the proportion of persons who have a dilated eye examination at appropriate intervals**

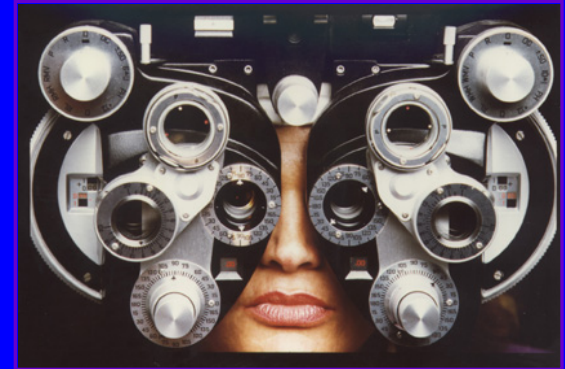
**5-13. Increase the proportion of adults with diabetes who have an annual dilated eye examination**



# Study Objectives

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- To estimate the reported use of dilated eye examination
- Assess gender, race/ethnicity, education differences among persons who received dilated eye examination



# Data Source

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## National Health Interview Survey (NHIS)

- Nationally representative sample of civilian, non-institutionalized population
- Computer-assisted in-person interview
- Over-samples black and Hispanic persons
- 2002 NHIS Vision health supplement

## Study Population

- Adults ages 18 and over
- Response rate – 74.3%, sample size – 31,044

# NHIS Questions

**When was the last time you had an eye exam in which the pupils were dilated?  
This would have made you temporarily sensitive to bright light.**

- **Less than 1 month**
- **1 to 12 months**
- **13 to 24 months**
- **More than 2 years**



# NHIS Questions - Diabetes

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**Have you EVER been told by a doctor or health professional that you have diabetes or sugar diabetes?**

- **Yes**
- **No**
- **Borderline**
- **Don't know**

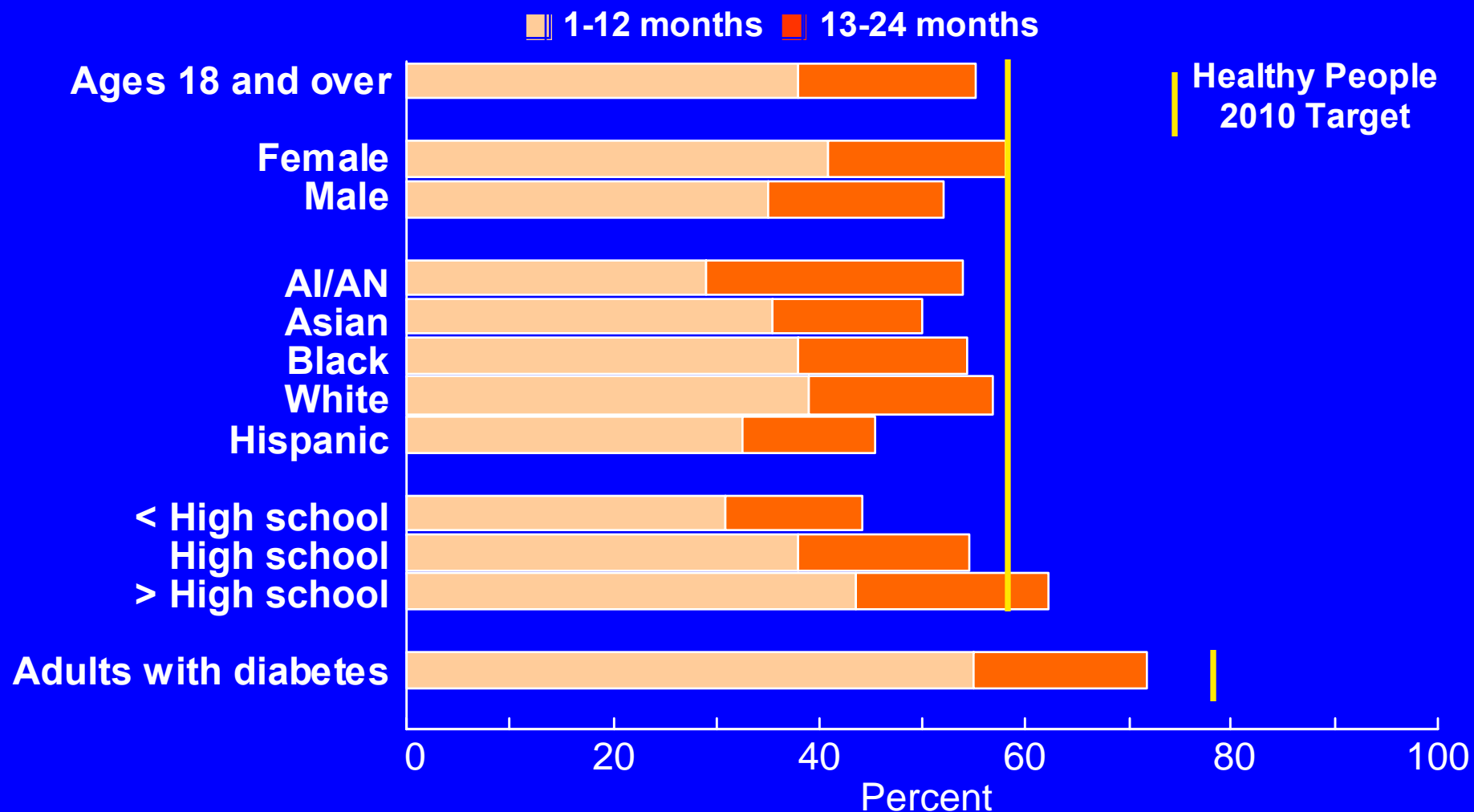


# Analytic Methods

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- SUDAAN software
- Data were weighted to the US population
- Estimates were age-adjusted
- Reliability of estimates determined by relative standard error (RSE)
  - RSE > 30% = unreliable estimates
- Test of significance at 0.05 level

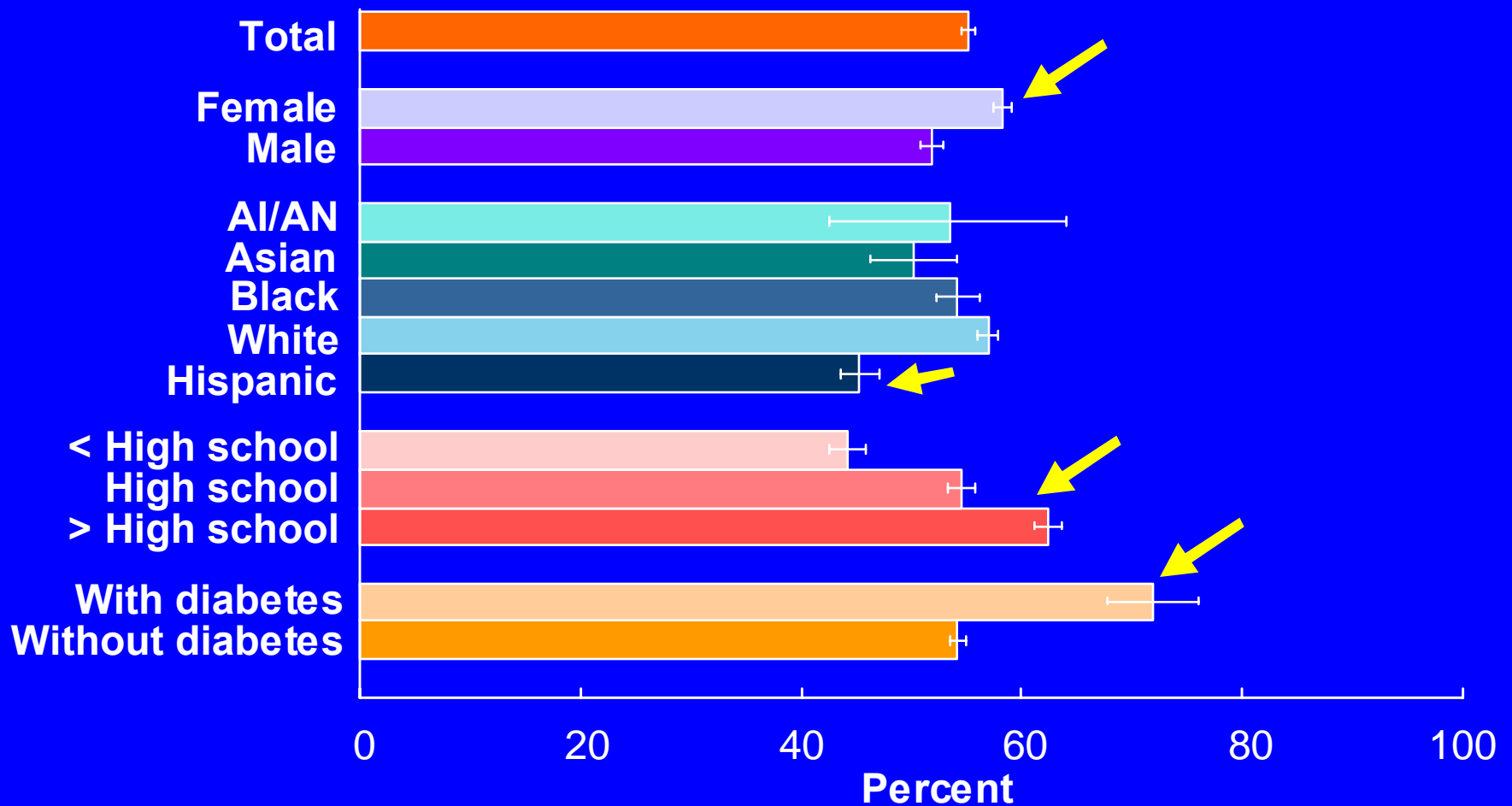
# Dilated Eye Exams, 2002



Note: Data are age adjusted to the 2000 standard population. Except for education levels, data are for adults 18 years and over; education-level data are for adults 25 years and over. AI/AN - American Indian includes Alaska Native. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Persons were asked to select one or more races. Data for the single race categories shown are for persons who reported only one racial group. The recommended time interval for adults without diabetes is 2 years, for adults with diabetes – 1 year.

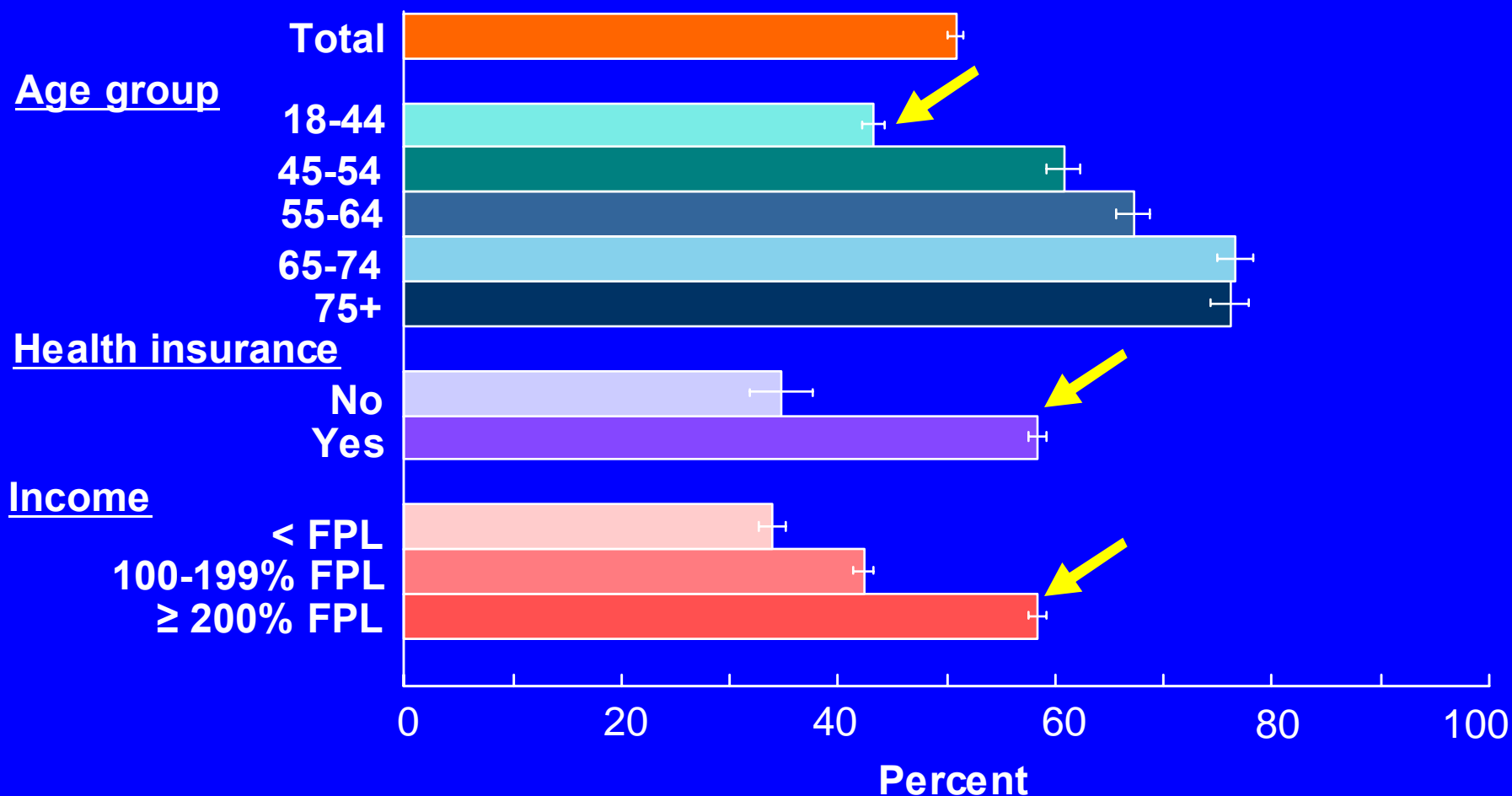
Source: National Health Interview Survey, CDC, NCHS.

# Dilated Eye Exam in the Past 2 Years, 2002



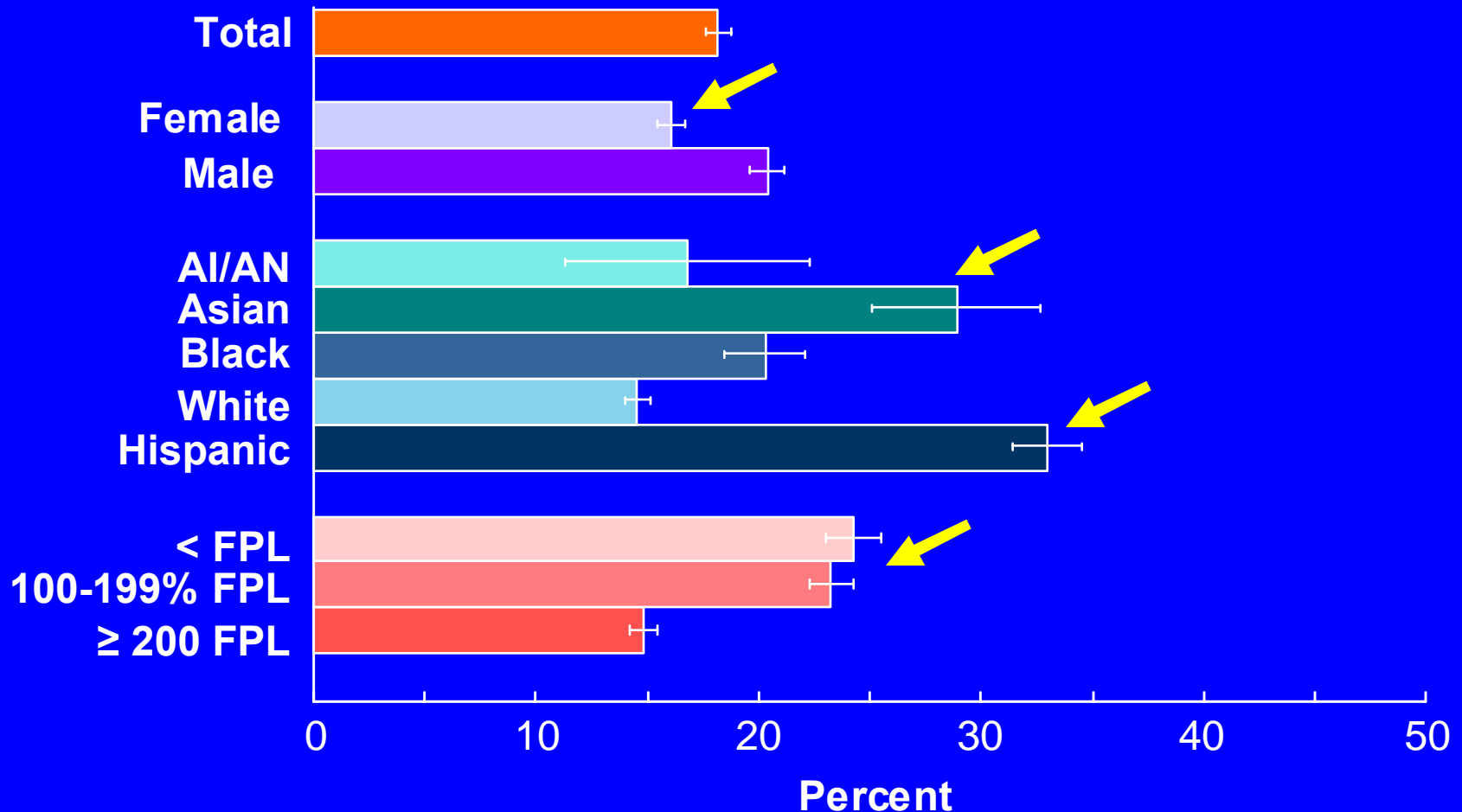
Note: Adults 18+ who received eye exam in the past 2 years. Data are age adjusted to the 2000 standard population. Except for education levels, data are for adults 18 years and over; education-level data are for adults 25 years and over. American Indian includes Alaska Native. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Persons were asked to select one or more races. Data for the single race categories shown are for persons who reported only one racial group. I is 95% confidence interval. Source: National Health Interview Survey, CDC, NCHS.

# Dilated Eye Exam in the Past 2 Years, 2002



Note: Adults 18+ years who received eye exam in the past 2 years. **Except for data by age group, all data are age adjusted to the 2000 standard population.** FPL – Federal Poverty level. I is 95% confidence interval.  
 Source: National Health Interview Survey, CDC, NCHS.

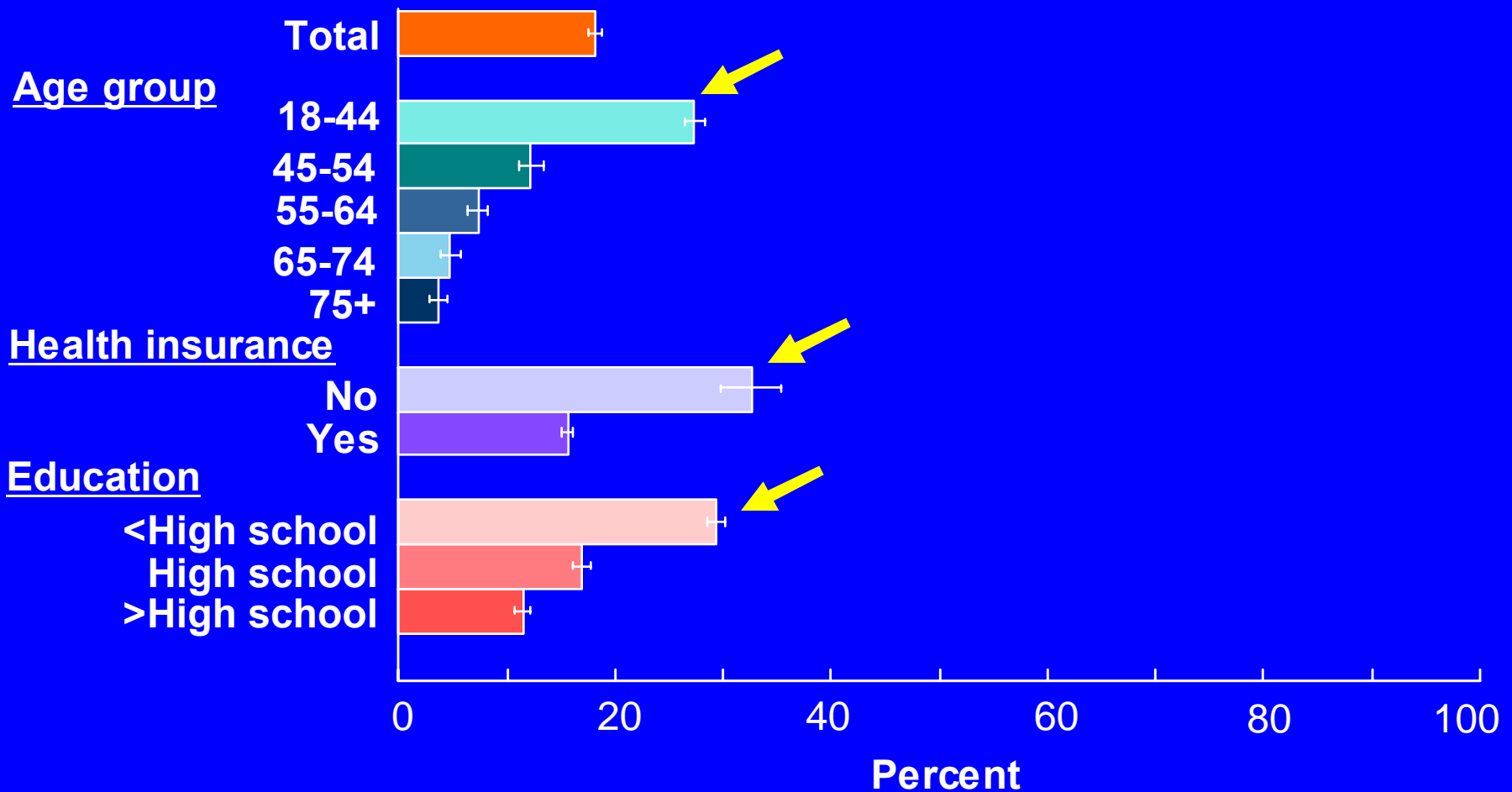
# Never Had Dilated Eye Exam, 2002



Note: Adults 18+ years who never received an eye exam. Data are age adjusted to the 2000 standard population. AI/AN - American Indian and Alaska Native. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Persons were asked to select one or more races. Data for the single race categories shown are for persons who reported only one racial group. I is 95% confidence interval.

Source: National Health Interview Survey, CDC, NCHS.

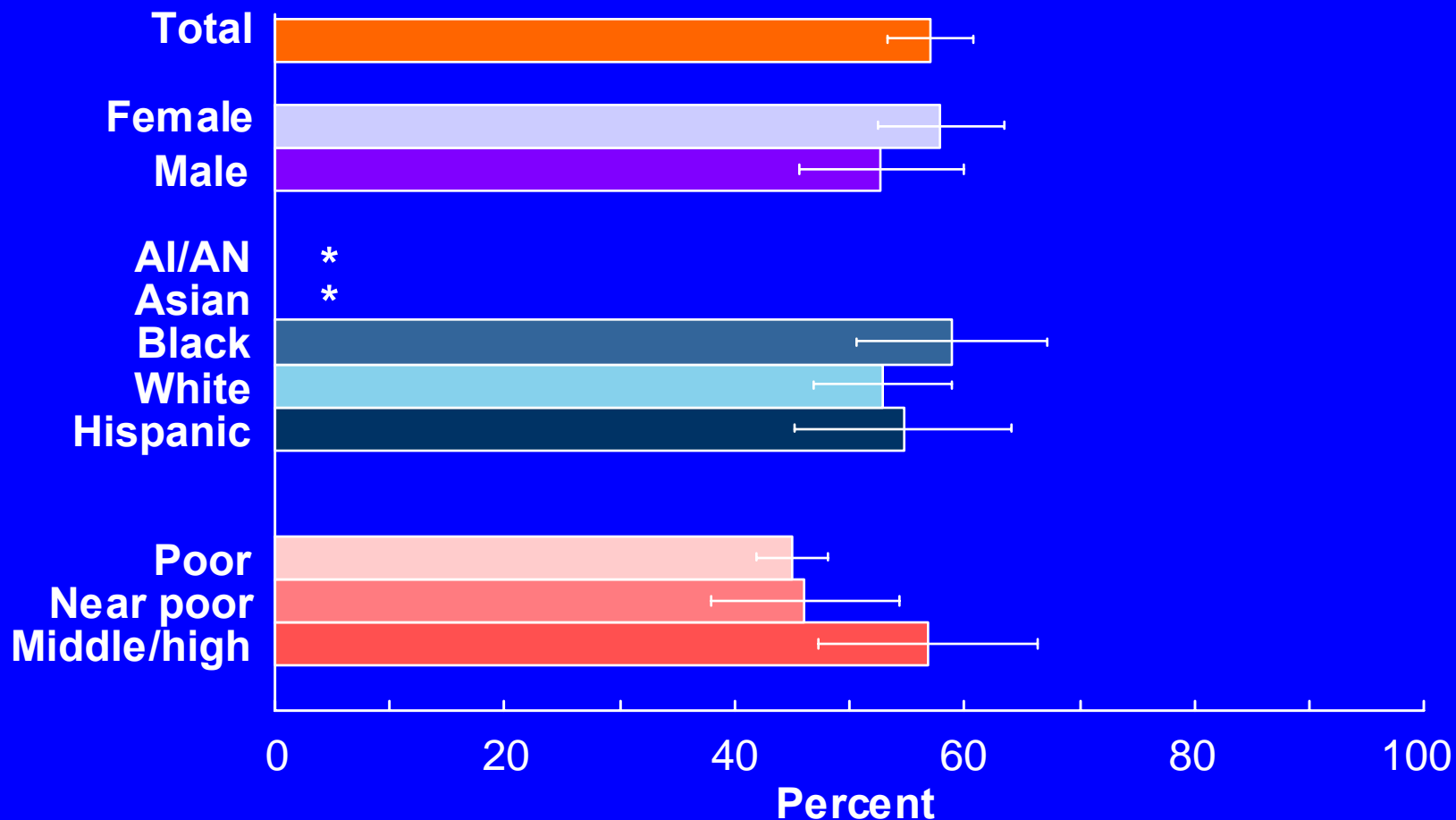
# Never Had Dilated Eye Exam, 2002



Note: Adults 18+ years who never received eye exam. Except for data by age group, all data are age adjusted to the 2000 standard population; education-level data are for adults 25 years and over. | is 95% confidence interval.

Source: National Health Interview Survey, CDC, NCHS.

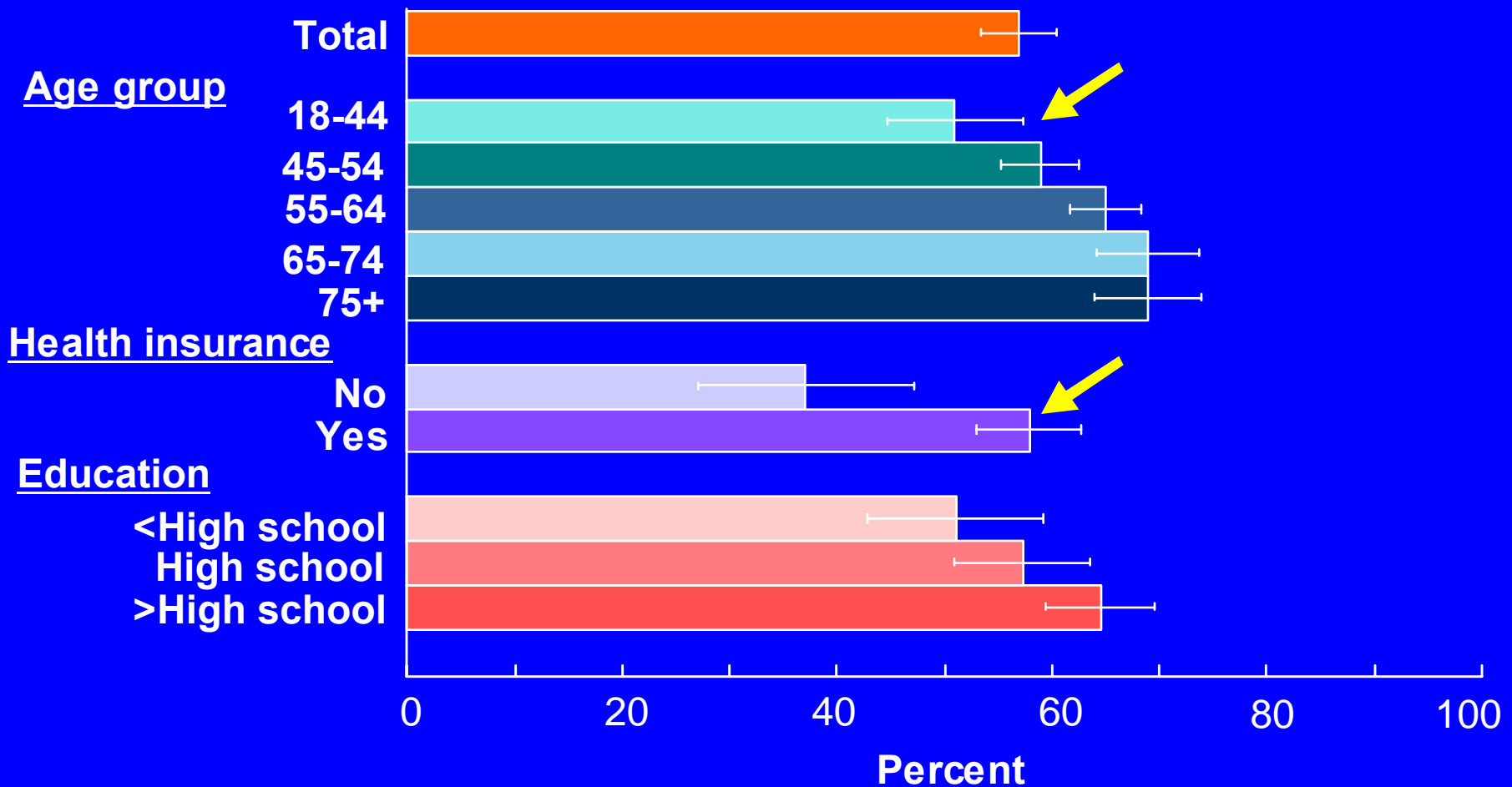
# Annual Dilated Eye Exam among Adults with Diabetes, 2002



Note: Adults 18+ years old who have diabetes. Data are age adjusted to the 2000 standard population. AI/AN - American Indian and Alaska Native. Black and white exclude persons of Hispanic origin. Persons of Hispanic origin may be any race. Persons were asked to select one or more races. Data for the single race categories shown are for persons who reported only one racial group. CI is 95% confidence interval. \*Data are statistically unreliable.

Source: National Health Interview Survey, CDC, NCHS.

# Annual Dilated Eye Exam among Adults with Diabetes, 2002

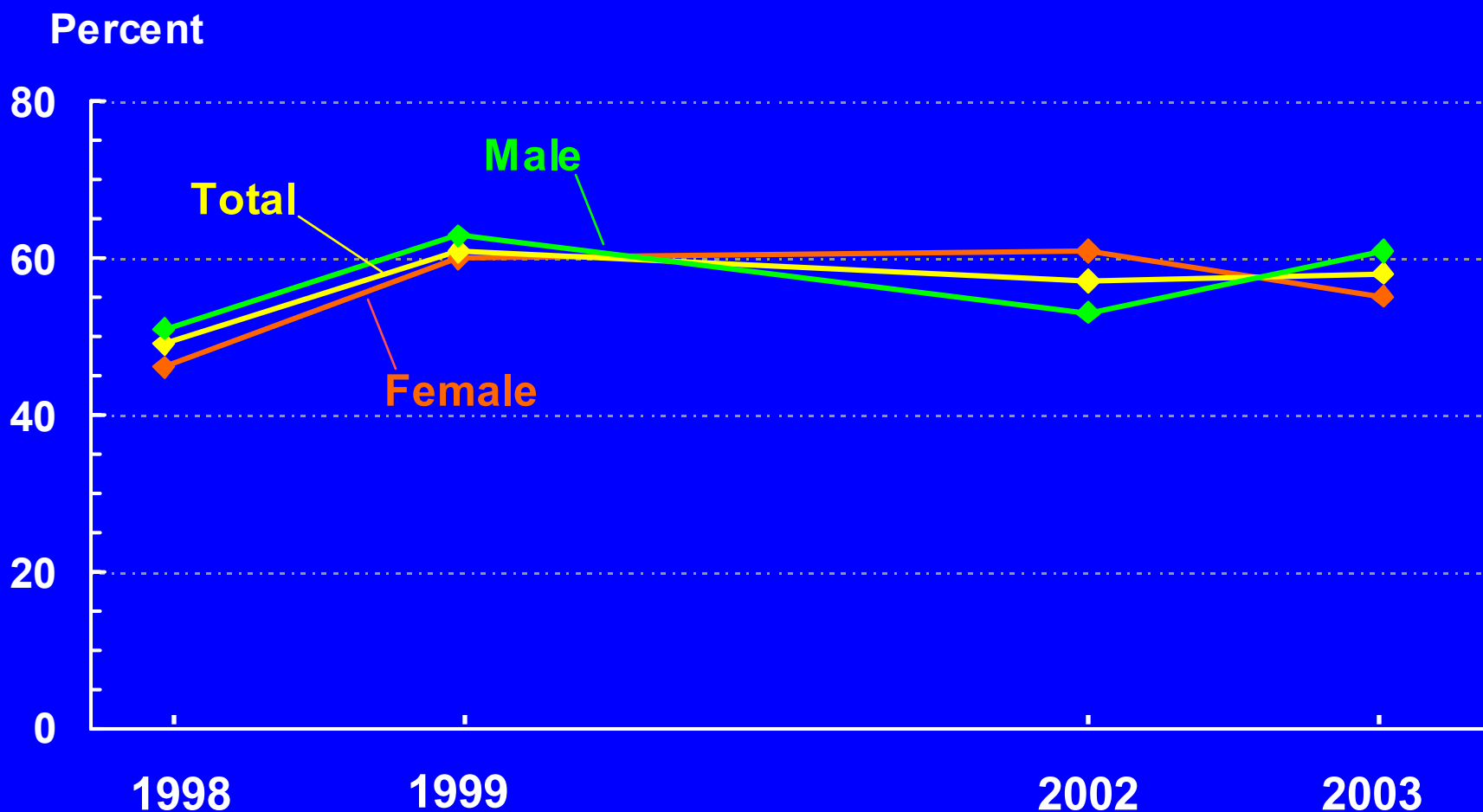


Note: Adults 18+ years old who have diabetes. Except for data by age group, all data are age adjusted to the 2000 standard population; education-level data are for adults 25 years and over. | is 95% confidence interval.

Source: National Health Interview Survey, CDC, NCHS.



# Annual Dilated Eye Exam among Adults with Diabetes, 2002



\*Among persons 18 years and older with diagnosed diabetes. Data are age adjusted to the 2000 standard population.  
Source: National Health Interview Survey, CDC, NCHS.

# Limitations

- Vision questions are not asked on a regular basis (vision supplement)
- Based on self-reports
- Excludes institutionalized population
- Unreliable data on small minority U.S. populations



# Conclusions

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- **NHIS provides national data for HP 2010 vision objectives**
- **Use of dilated eye exam:**
  - **18% of adults have never had a dilated eye exam**
  - **Only about 60% of persons with diabetes received an annual exam**
- **Disparities exist among socio-demographic population groups**
- **Next NHIS vision supplement in 2008**

# Policy Implications

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- **Early diagnosis can prevent or slow vision loss**
- **Prevalence of age-related eye diseases is projected to double by 2020**
- **27 million people will be 65+ years old by 2025**
- **Demand in eye care services may significantly increase**

