# Arizona HIV/AIDS Survival Analysis

## Racial/Ethnic Disparities

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# Why are Survival Analyses Useful?

- Death toll?
- Survivors?
- Which Racial/Ethnic groups have the best/worse chances of survival?
  - Non-Hispanic Whites
  - Non-Hispanic Blacks
  - Hispanics
  - Non-Hispanic American Indian
  - Non-Hispanic Asian/Pacific Islander/Hawaiian
  - Multiple Races/Other/Unknown
- Which groups have the greatest need for improved HIV/AIDS Intervention?

# Racial/Ethnic Survival Analysis (Florida Surveillance Data)

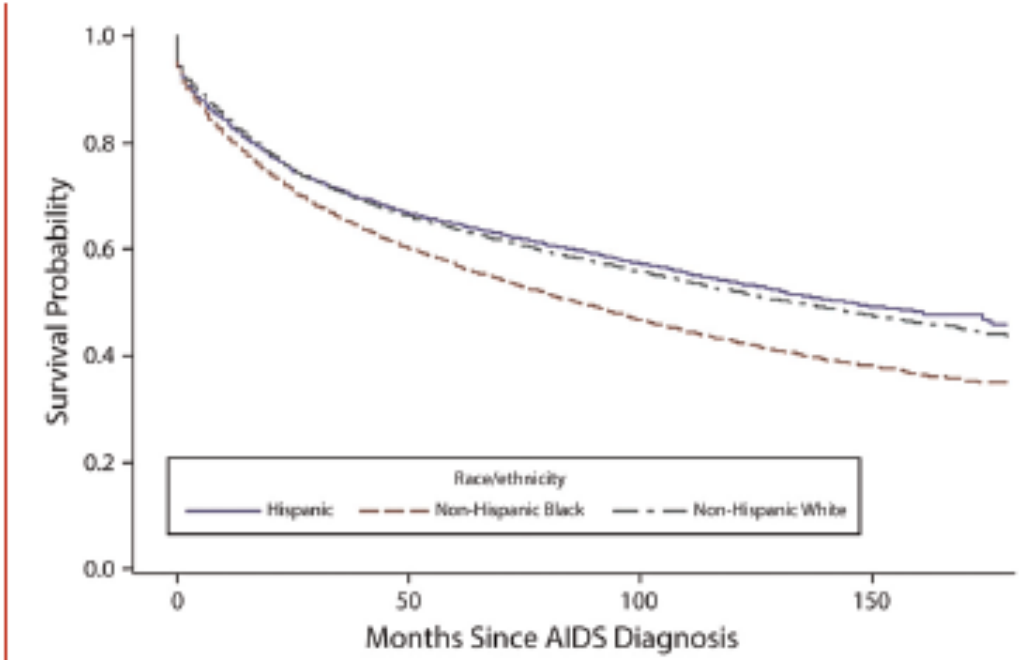


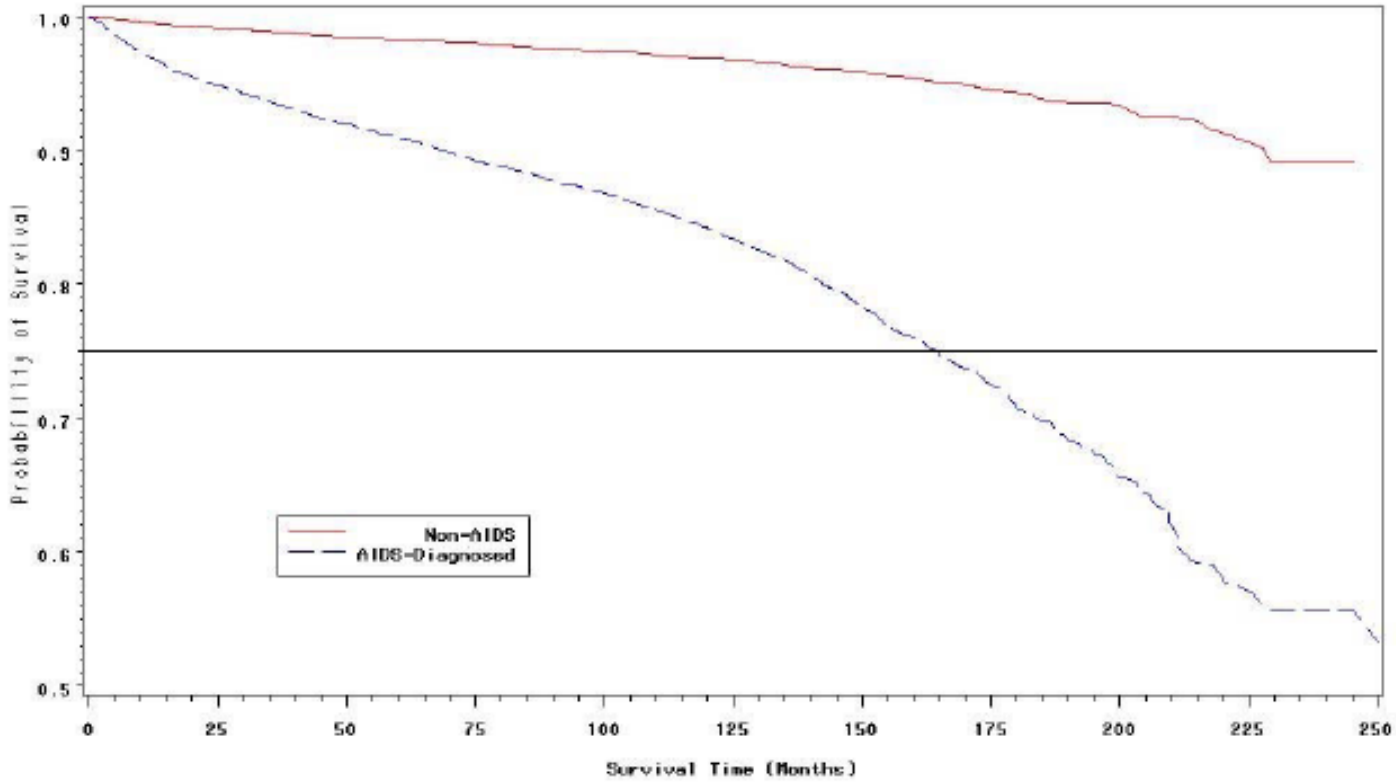

FIGURE 1—Kaplan-Meier Survival Curves for Floridians Diagnosed with AIDS, by race/ethnicity: 1993–2004.

12 years, 6 months

Hogg et al, 1998

# Survival Analysis by AIDS Status (California)

**Figure 3. Kaplan-Meier Estimate of Survival Curves by AIDS Diagnosis**

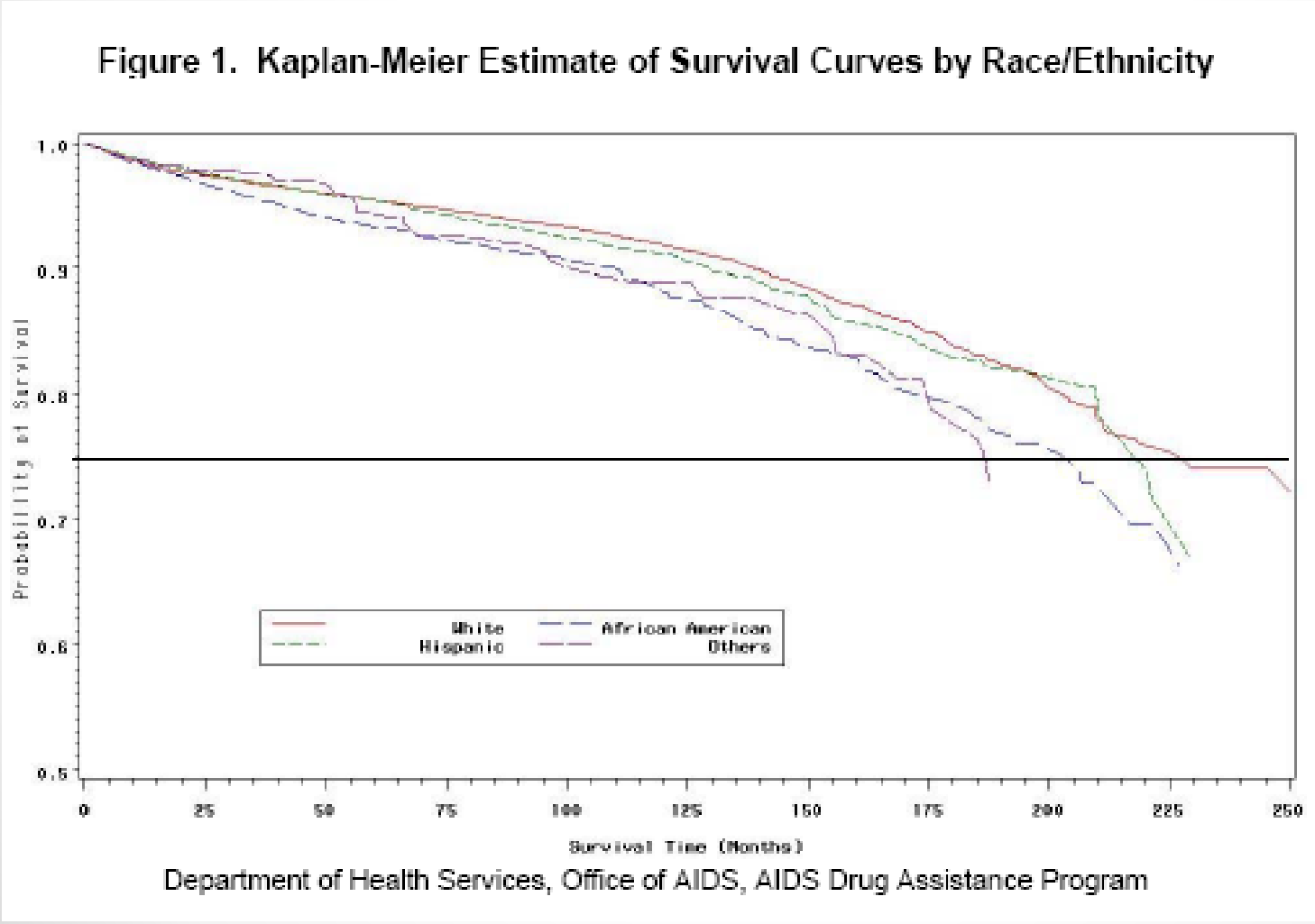



Department of Health Services, Office of AIDS, AIDS Drug Assistance Program

12 years, 10 months

- Wong and Xing (2005)

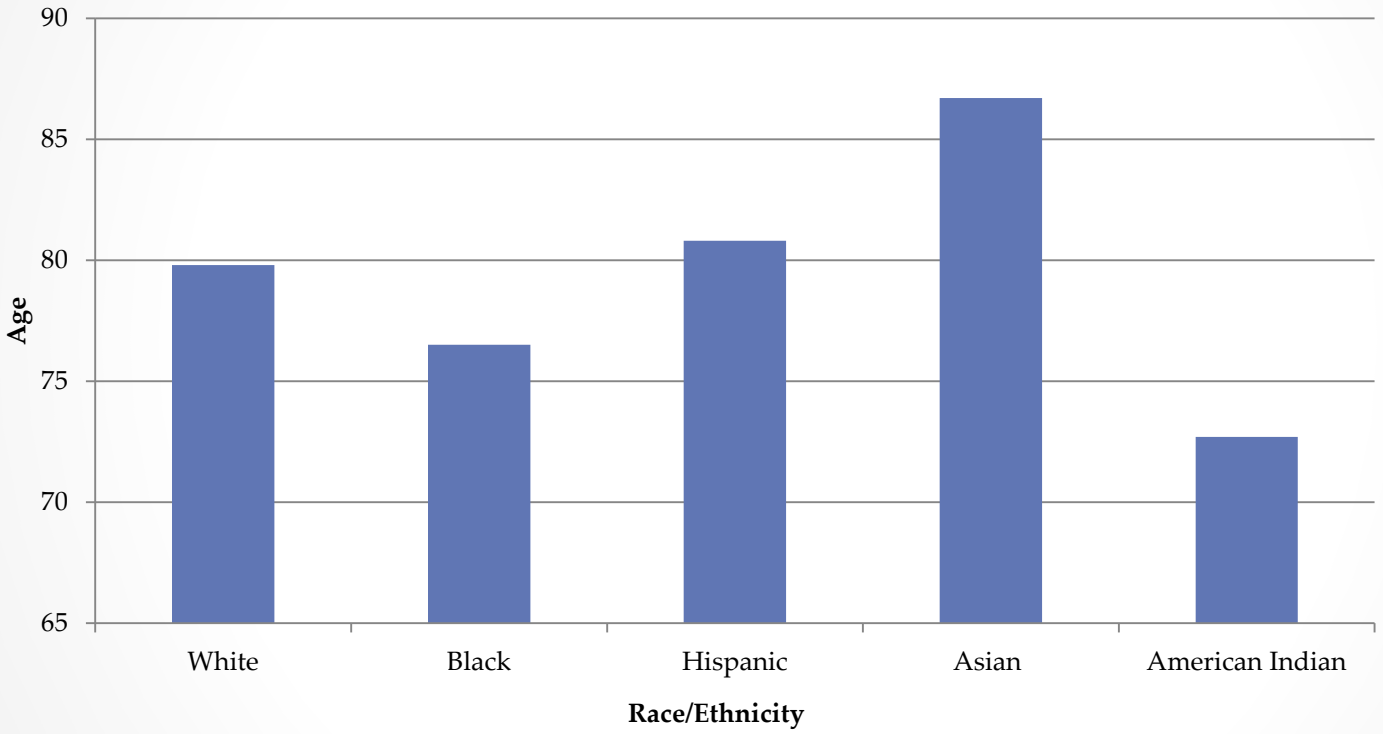
# Survival Analysis by Race/Ethnicity (California)




12 years, 10 months

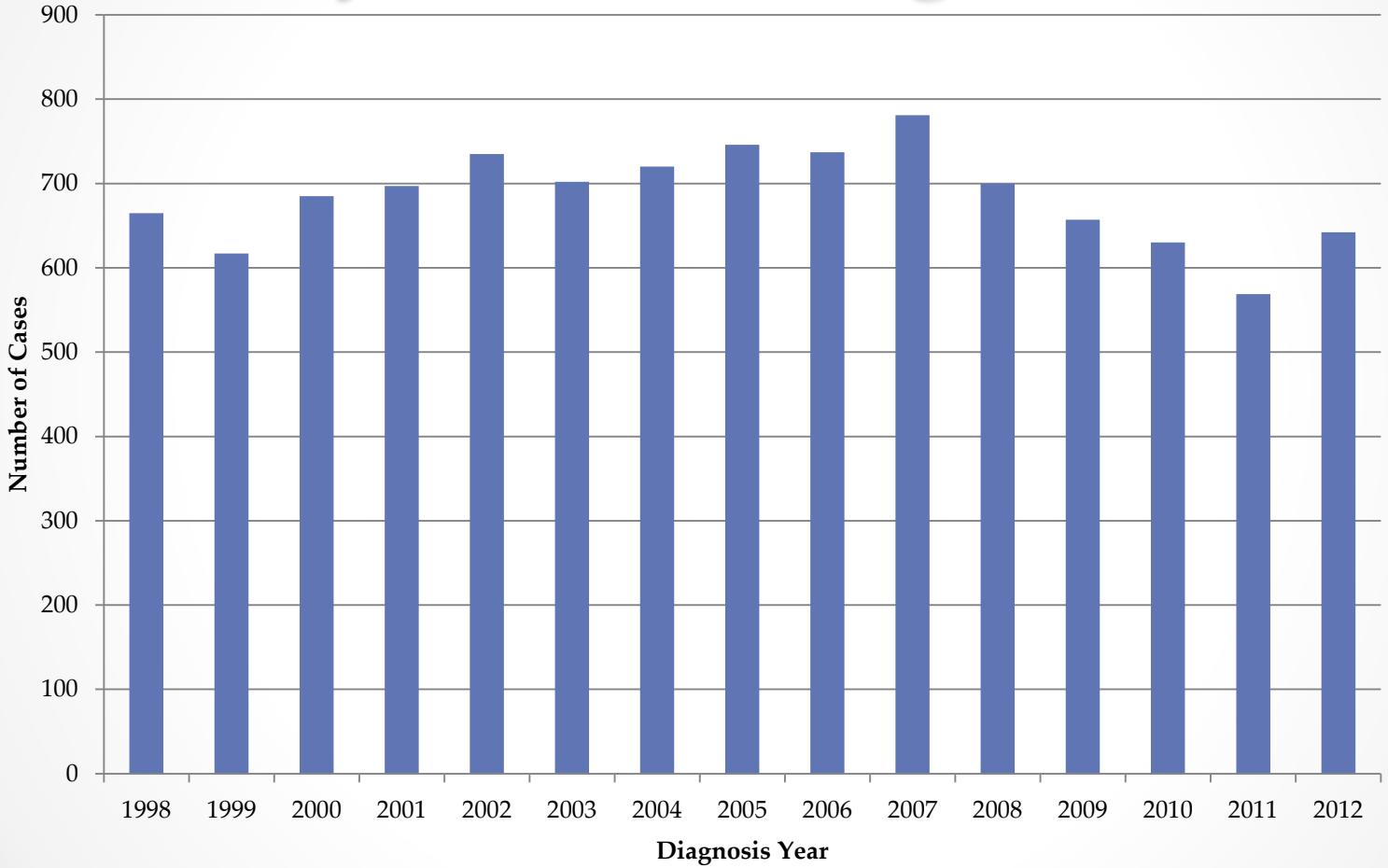
Wong and Xing (2005)

# Life Expectancy by Race/Ethnicity for Entire Arizona Population (2010)




Source : Kaiser Family Foundation
http://kff.org/

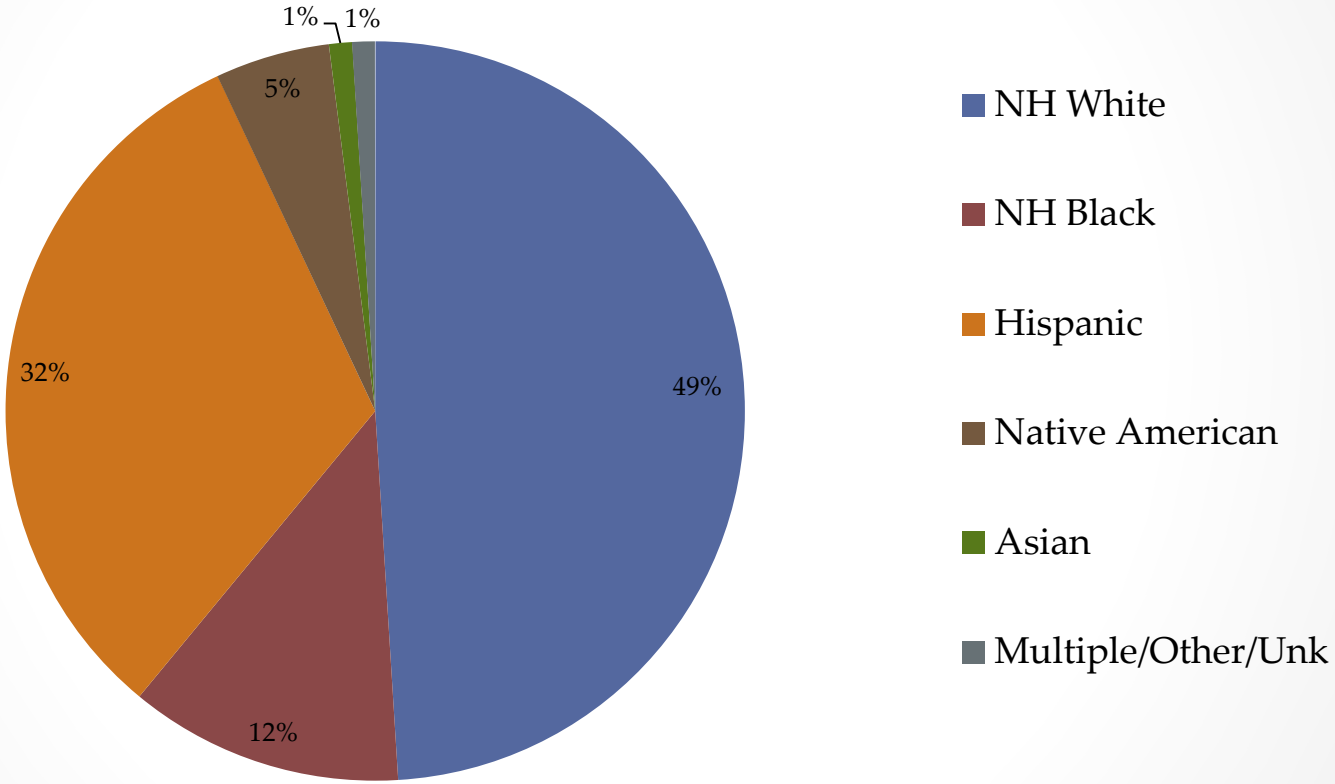
# Analytic Sample (N = 10,270) by Year of Diagnosis




About 685 cases per year

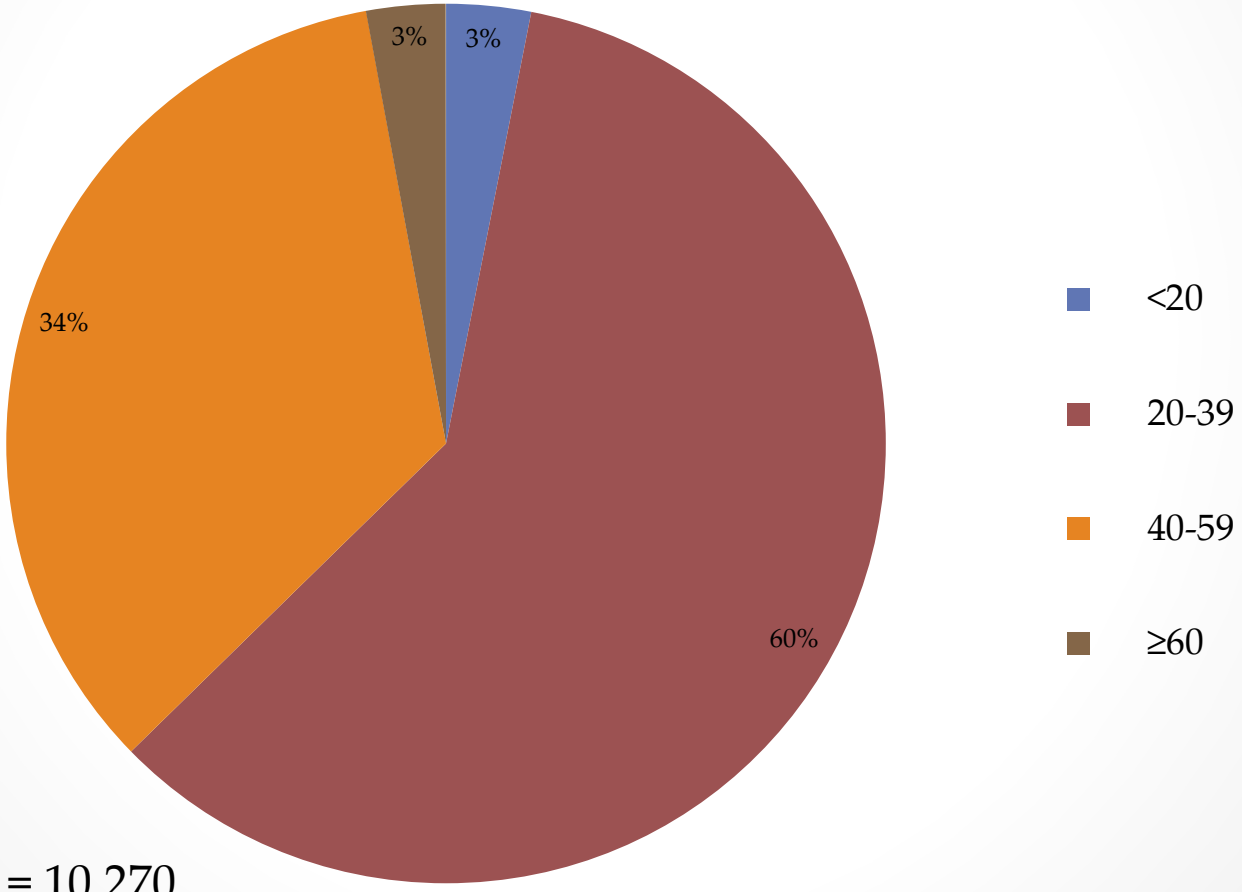
*Exact death date is unknown for 13 cases

# Analytic Sample by Race/Ethnicity




N = 10,270

# Analytic Sample by Age at Diagnosis

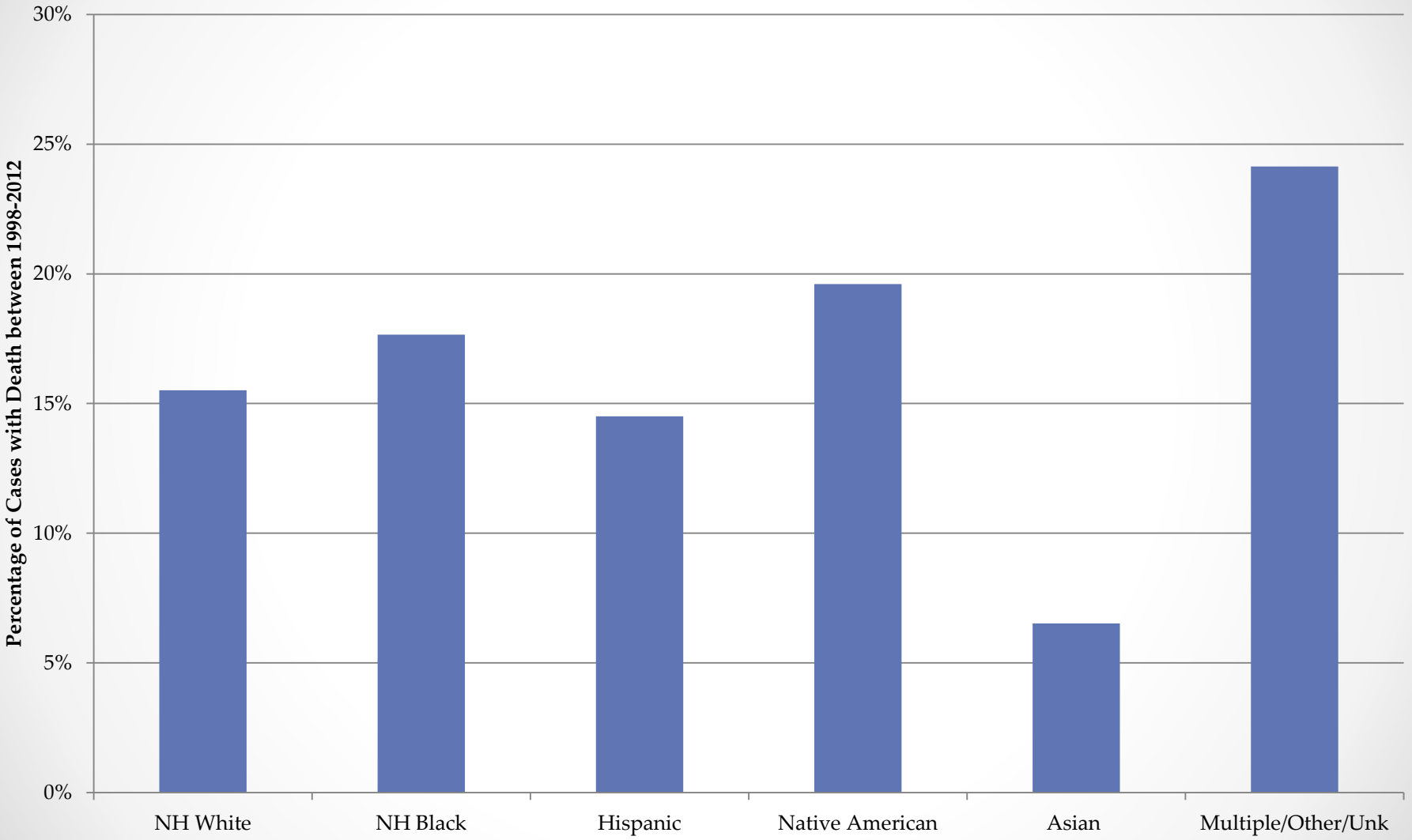



N = 10,270

# HIV/AIDS Death Records

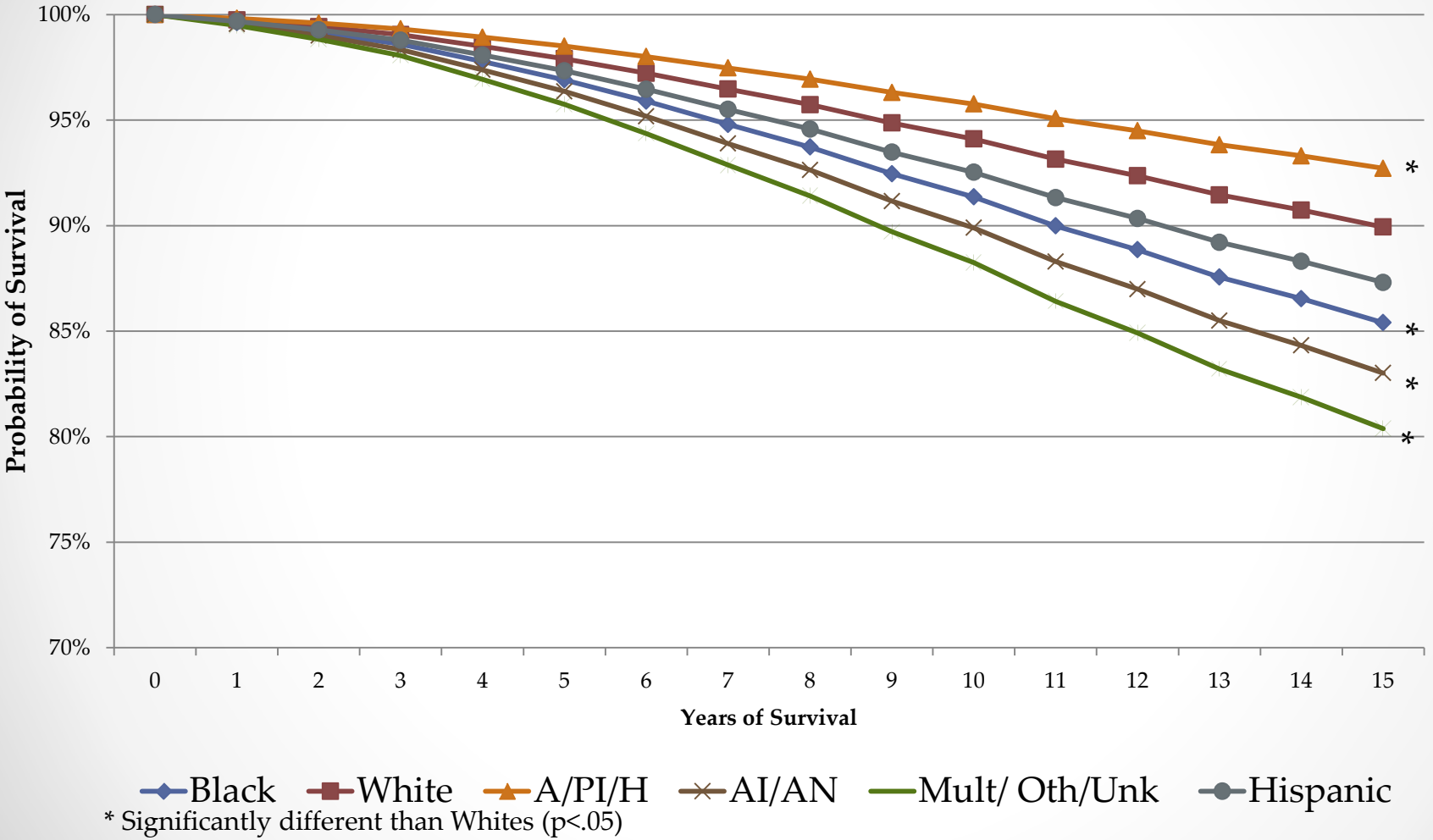
- Sources
  - National Death Index
  - Social Security Death Data
  - Arizona State Vital Statistics
- Causes of Death
  - HIV/AIDS Related : 69 %
  - Other causes :
    - Case1 : Stomach disease, obesity
    - Case 2 : Stroke
    - Case 3 : Cause missing
    - Case 4 : Suicide

# Deaths by Race/Ethnicity




N = 10,270

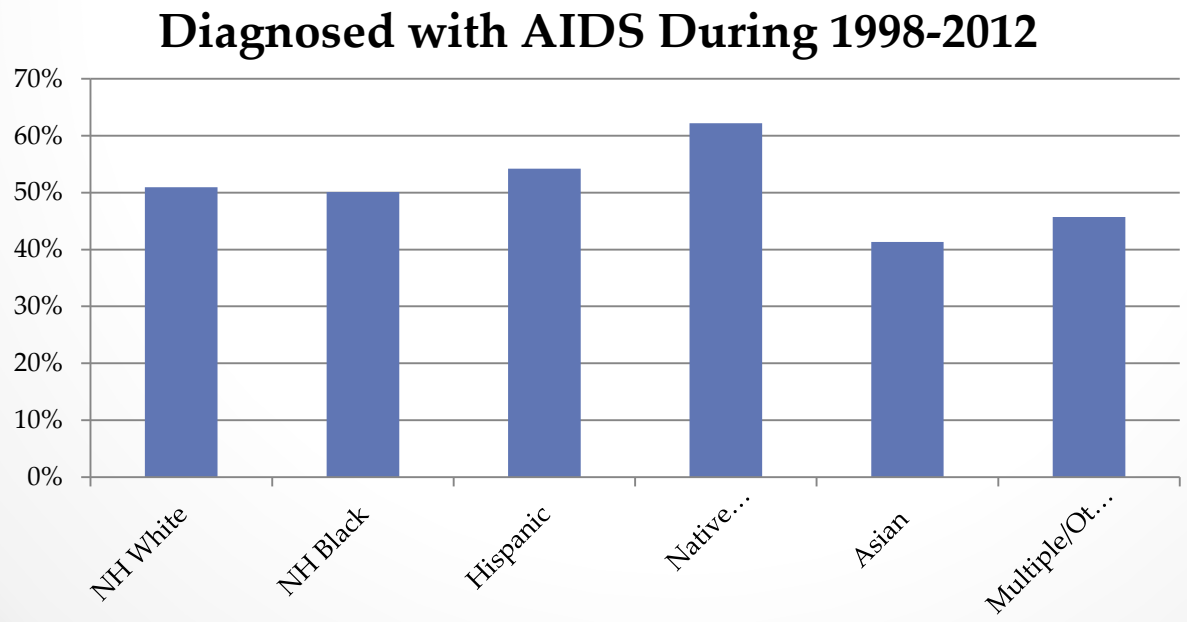
# Figure 1: Entire 15 year Sample ( N = 10,270)



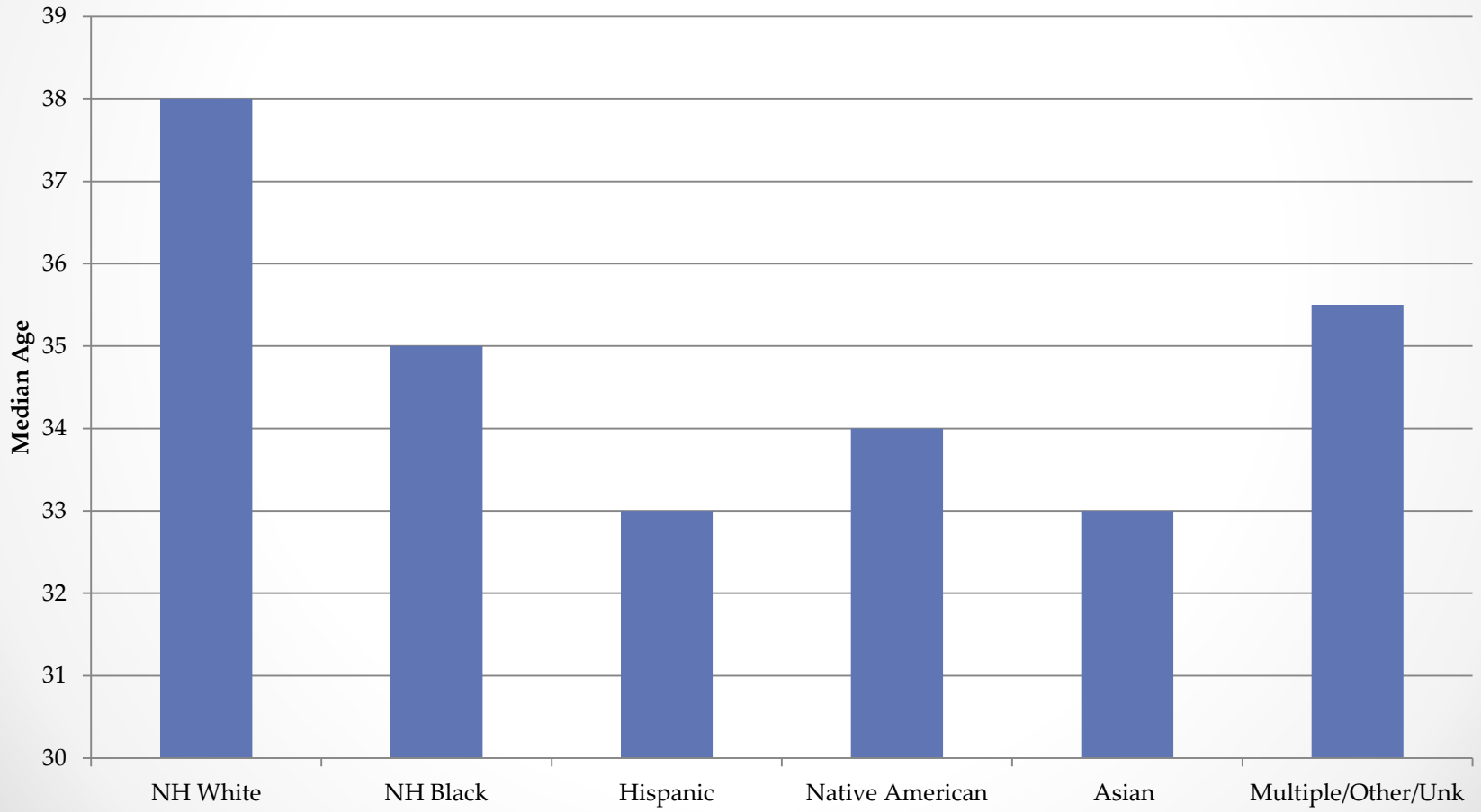

* Significantly different than Whites (p<.05)

# A More Comprehensive Analysis

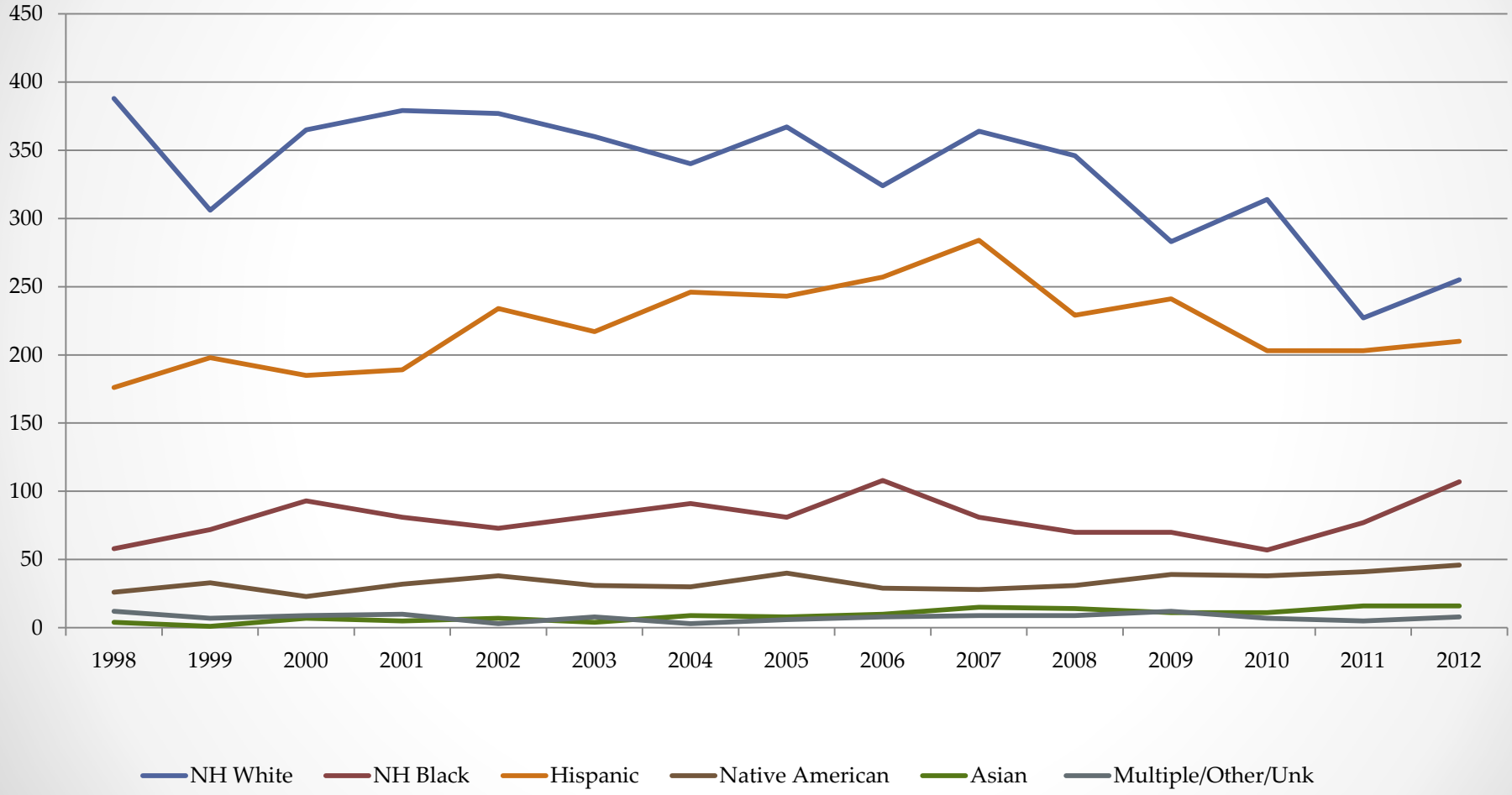
- Other confounding factors that affect mortality (Covariates)
  - AIDS status
  - Age at diagnosis
  - Diagnosis Year
- These factors vary by Race/Ethnicity



# Median Age at Diagnosis by Race/Ethnicity



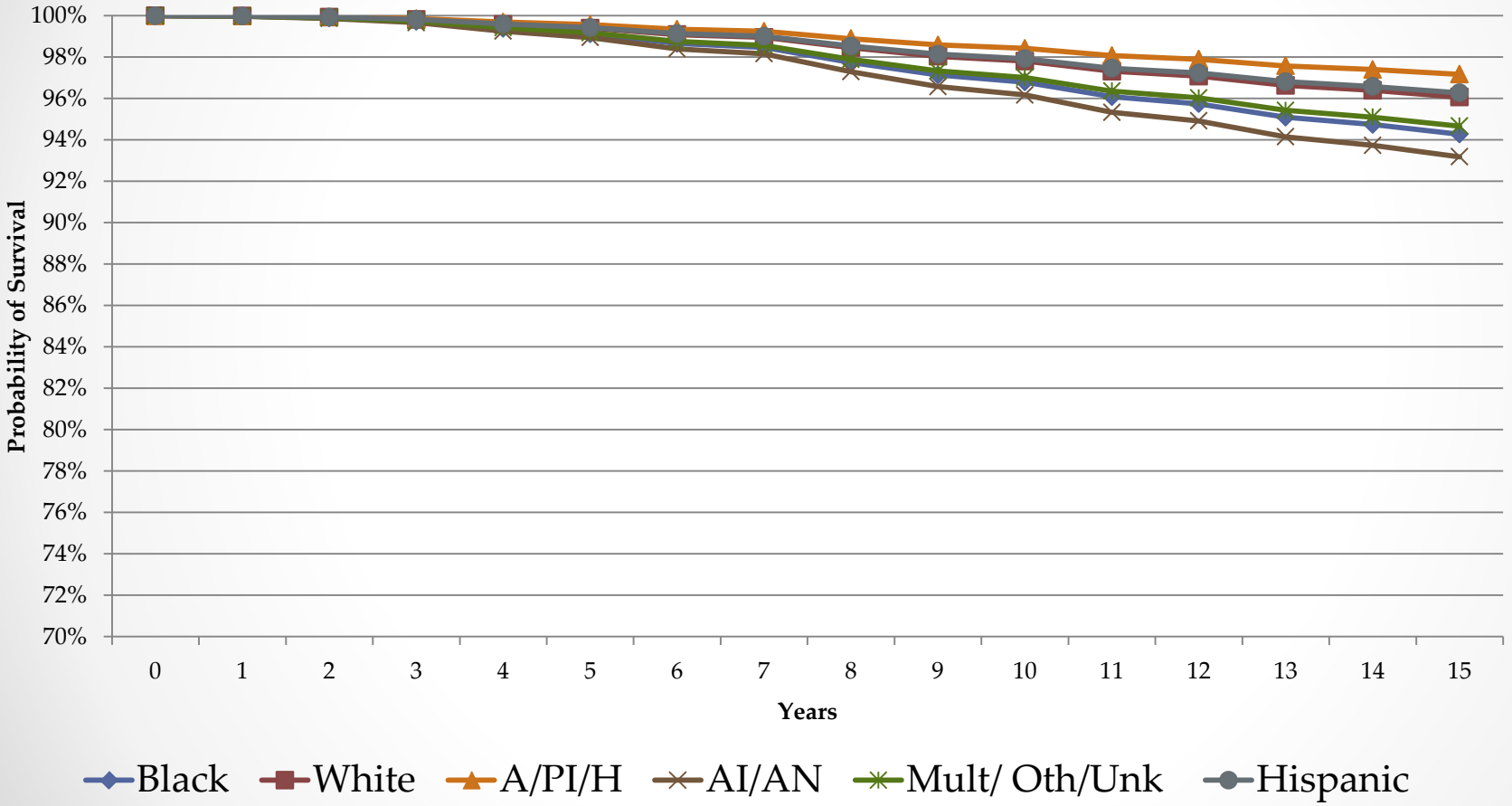
# HIV Diagnosis Year by Race



# A Survival Analysis that Considers Confounding Factors

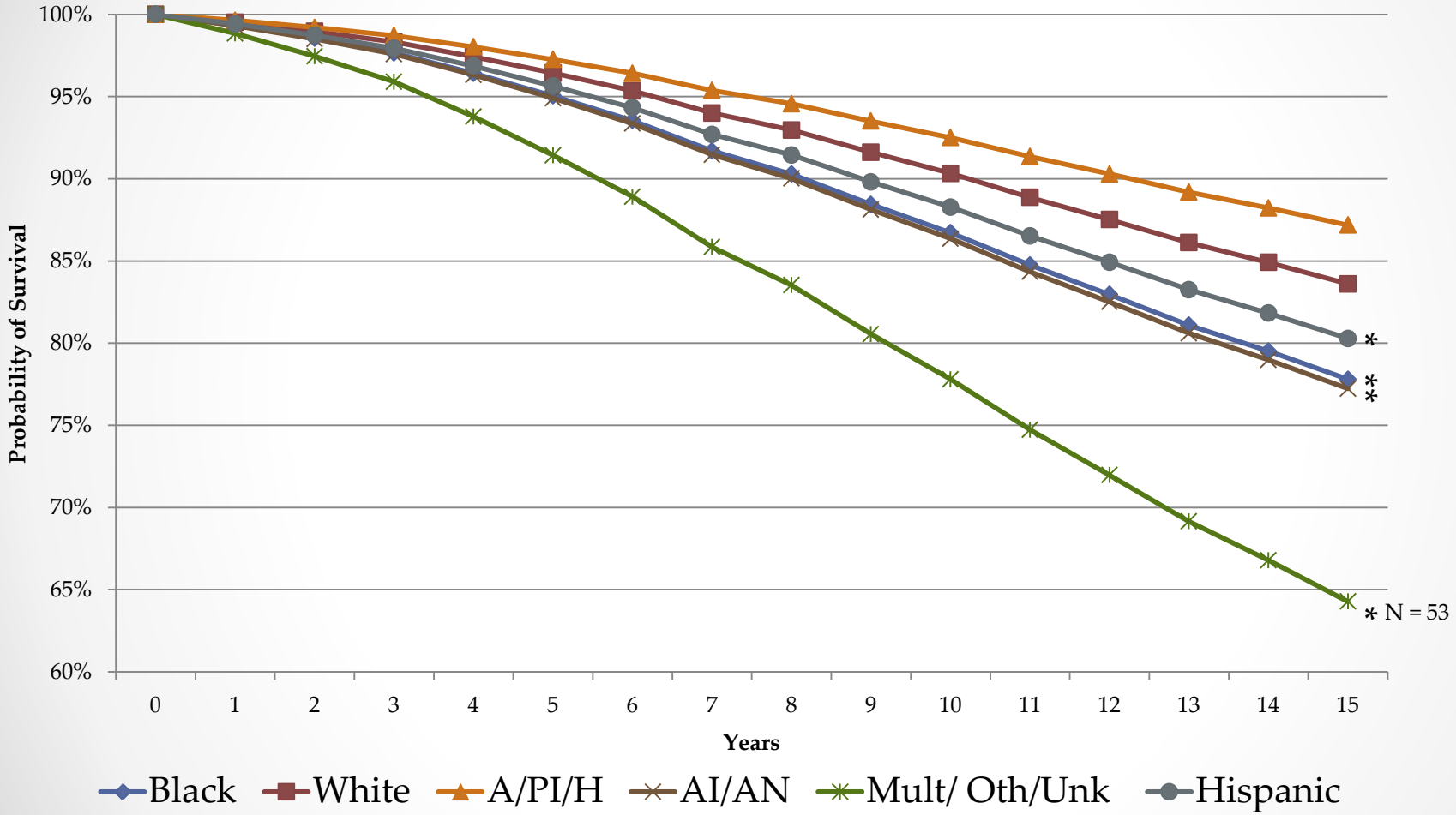
- Cox Proportional Hazard Regression
  - What would the survival curves look like if confounding factors were equal among all cases
  - Statistical assumptions : Every case in the analysis has the same diagnosis year, age at diagnosis, and Aids Status
    - Diagnosis year (mean)= 2005
    - Diagnosis age (mean) = 37
    - AIDS Status : one analysis per status
- Additional statistical info
  - Log rank test : $p<.001$

# Figure 2: Cases without AIDS Diagnosis
# N = 4,901



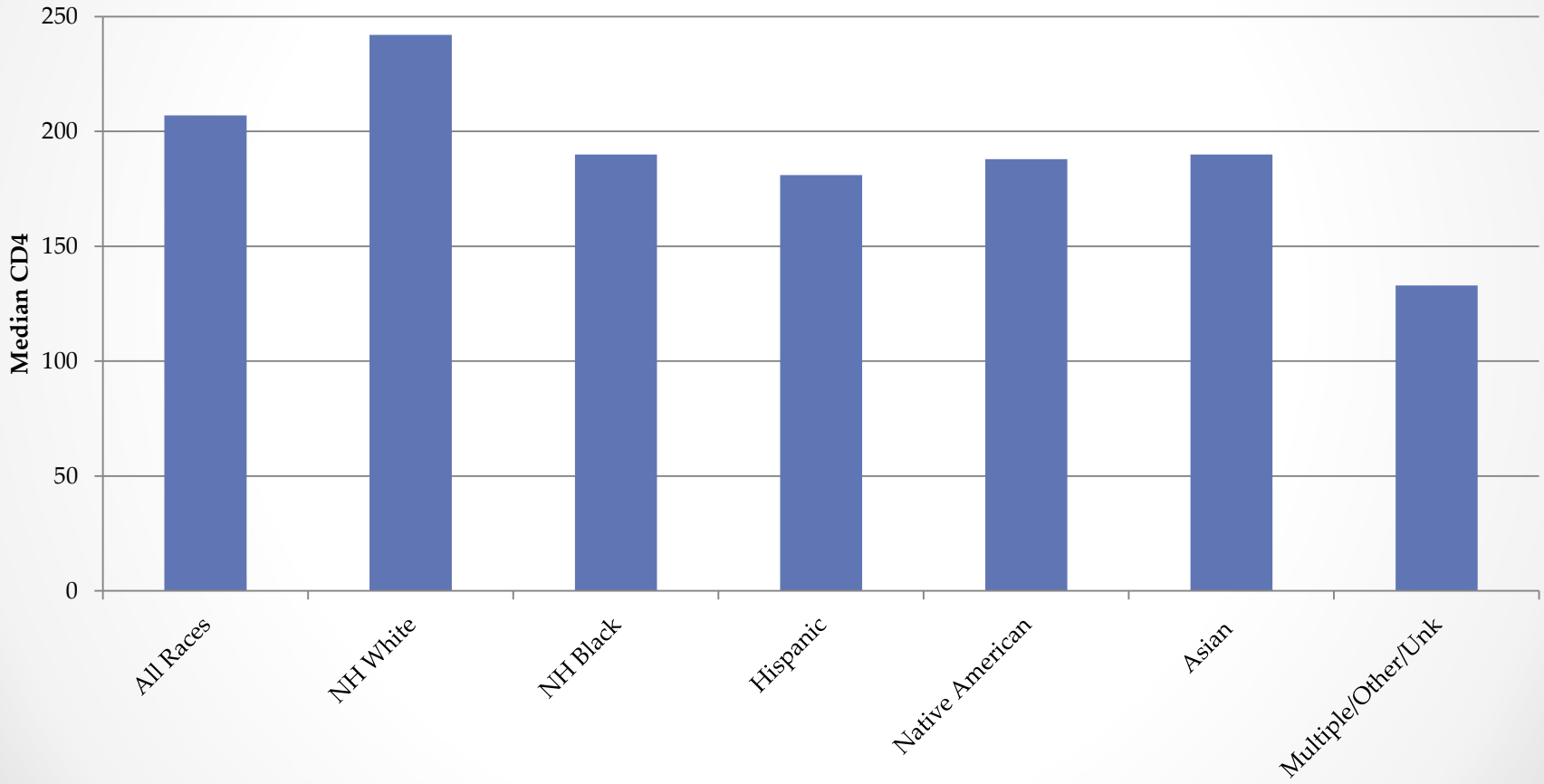

* Significantly different than Whites ($p<.05$)

# Figure 3: Cases Diagnosed AIDS within 1998-2012 (N=5,369)




* Significantly different than Whites ($p<.05$)

# CD4 by Race/Ethnicity




N=5,369

# Questions or Comments?