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?
  o Non-Hispanic Whites
  o Non-Hispanic Blacks
  o Hispanics
  o Non-Hispanic American Indian
  o Non-Hispanic Asian/Pacific Islander/Hawaiian
  o Multiple Races/Other/Unknown

• Which groups have the greatest need for improved HIV/AIDS Intervention?
Racial/Ethnic Survival Analysis (Florida Surveillance Data)

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

Wong and Xing (2005)
Survival Analysis by Race/Ethnicity
(California)

Figure 1. Kaplan-Meier Estimate of Survival Curves by Race/Ethnicity

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

Wong and Xing (2005)

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

- **NH White**: 49%
- **NH Black**: 12%
- **Hispanic**: 32%
- **Native American**: 5%
- **Asian**: 1%
- **Multiple/Other/Unk**: 1%

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:
    - Case 1: 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

- NH White: 38
- NH Black: 35
- Hispanic: 32
- Native American: 33
- Asian: 32
- Multiple/Other/Unk: 36
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 < 0.001
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)

- Black
- White
- A/PI/H
- AI/AN
- Mult/Oth/Unk
- Hispanic

* Significantly different than Whites (p<.05)
CD4 by Race/Ethnicity

N=5,369
Questions or Comments?