Life Expectancy of Oregon AI/ANs

Using Linkage-Corrected Mortality Rates

Jenine Dankovchik, BSc
jdankovchik@npaihb.org

Megan Hoopes, MPH
VictoriaWarren-Mears, PhD, RD, LD

Improving Data & Enhancing Access (IDEA-NW) Project,
NW Tribal EpiCenter

Northwest Portland Area
Indian Health Board
Indian Leadership for Indian Health

Background

AI/AN disparities & lack of data

- NW AI/AN mortality rates exceeded NHW for 9 out of 10 leading causes

- Life tables are an important population health indicator

- Due to high rates of racial misclassification on death certificates, life tables have not be available for AI/ANs

  - Only published estimate by IHS (1999-2001) found NW AI/AN life expectancy 4 years below US all-races

AI/AN often misclassified on death certificates

- Race not often based on family's own report

- AI/ANs misclassified more frequently than other races/ethnicities

- Net result: mortality measures are *underestimated* for AI/AN

The IDEA-NW Project

- **Improving Data & Enhancing Access (IDEA-NW)**
  - Goal: Reduce misclassification of AI/AN race in surveillance systems; disseminate local-level health data to NW tribes
  - Grant funding: AHRQ (2010 to 2013), OMH (2012-2017)

- **Northwest Tribal Registry (NTR)**
  - All AI/AN registered at IHS or tribal clinic in the NW
  - Augmented with data from urban clinics

- Linkages conducted with public health datasets in OR, ID, and WA

Methods

Data sources

- Death certificates: Oregon, 2006-2010
- Linked with NTR (known AI/AN)
  - Using LinkPlus software, compared data sets to find individuals who appear in both
  - Matched based on identifiers (name, birthdate, SSN, date of death)
  - Probabilistic linkage – allow for errors, misspellings, missing data, nick names, etc.
  - Each pair given a score indicating likelihood of a match
  - "Grey area" matches reviewed by hand

Analysis

- Age- and sex-specific mortality rates computed using 2008-2010
  - race-corrected death certificate data in numerator
  - bridged-race population estimates from NCHS in the denominator
- Three years combined to lessen impact of annual fluctuations
- Complete and abridged life tables constructed using these rates
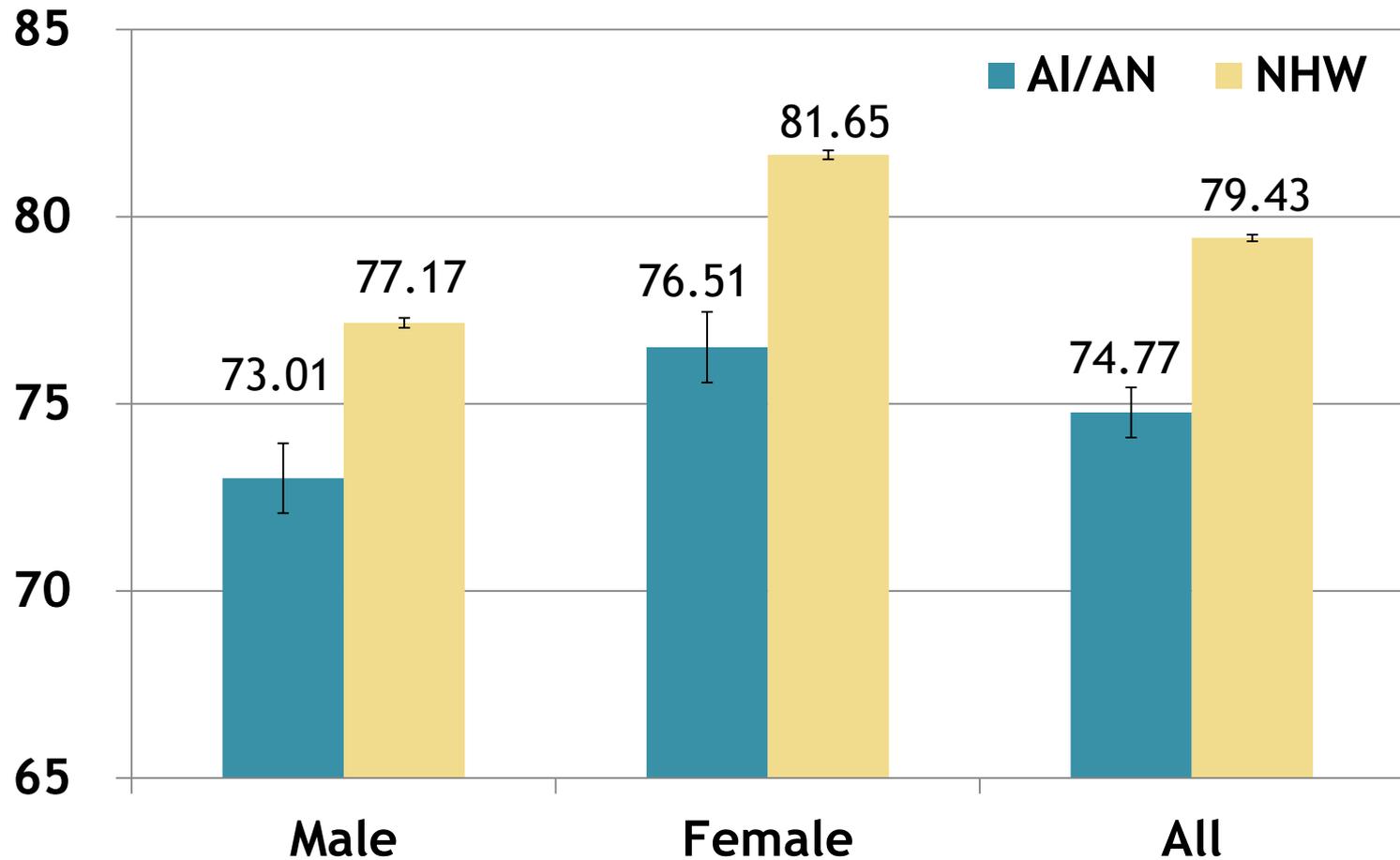
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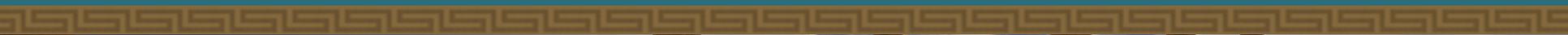
Racial misclassification

- Linkage with NTR found 699 matches among Oregon deaths

- Of these, 149 were misclassified or missing race

- Overall misclassification rate of 21%

- Linkage with NTR increased case ascertainment of AI/AN deaths by 14%

- Linkage decreased life expectancy at birth by 2.15 years

Life Expectancy at Birth by Race, Oregon 2008-2010
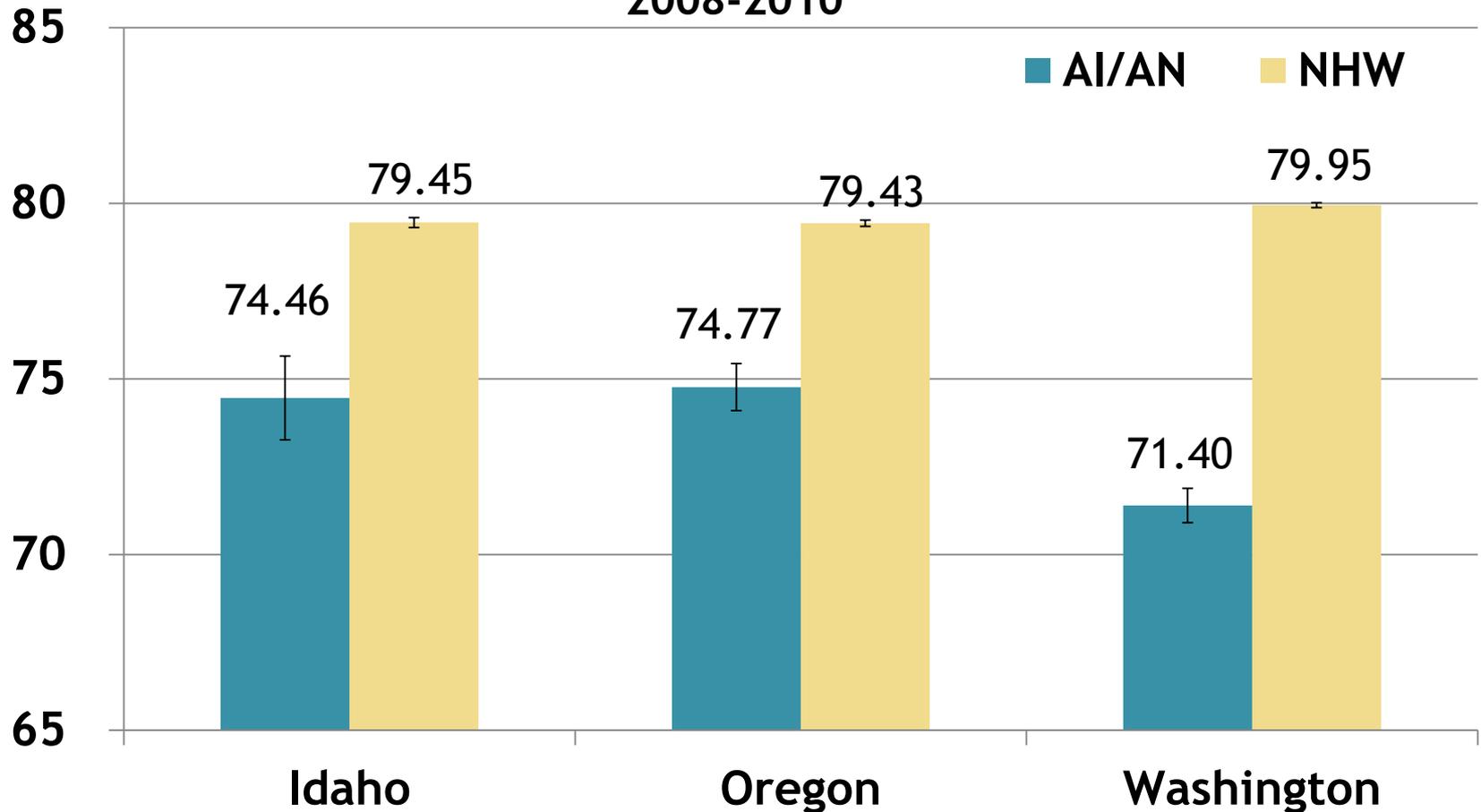

Legend: AI/AN, NHW

Male: 73.01 (AI/AN), 77.17 (NHW)
Female: 76.51 (AI/AN), 81.65 (NHW)
All: 74.77 (AI/AN), 79.43 (NHW)
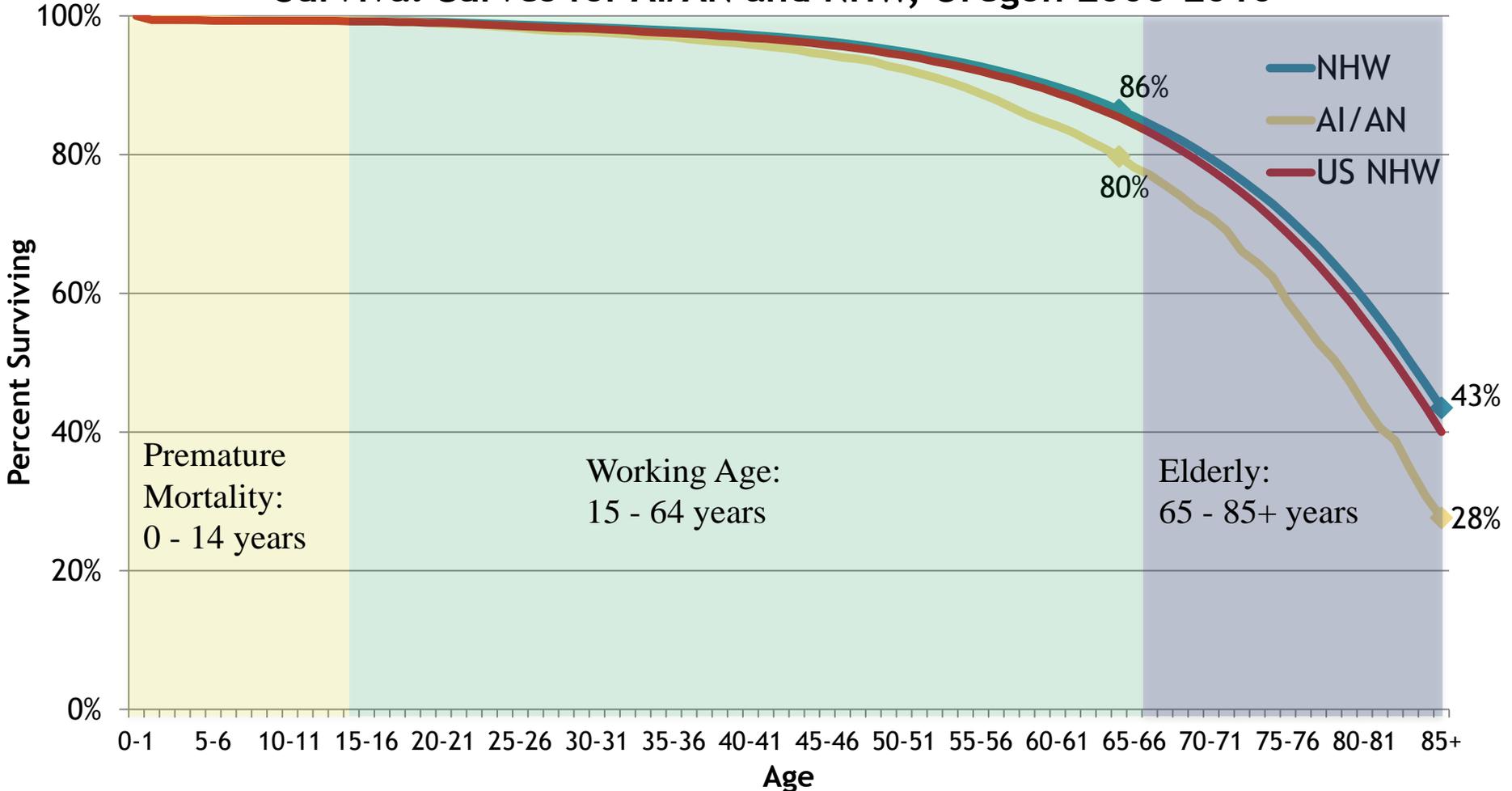
Life expectancy at birth: NW Region

Life Expectancy at Birth by Race, NW Region
2008-2010

Survival patterns by race

Survival Curves for AI/AN and NHW, Oregon 2008-2010

Survival Curves by Gender for AI/AN & NHW, Oregon

Legend:
- – – Male AI/AN
- – – Female AI/AN
- —— Male NHW
- —— Female NHW

Female: 13 percentage points lower

Male: 8 percentage points lower

Premature Mortality: 0 - 14 years

Working Age: 15 - 64 years

Elderly: 65 - 85+ years

Y-axis: Percent Surviving (0%, 20%, 40%, 60%, 80%, 100%)

X-axis: Age (0-1, 5-6, 10-11, 15-16, 20-21, 25-26, 30-31, 35-36, 40-41, 45-46, 50-51, 55-56, 60-61, 65-66, 70-71, 75-76, 80-81, 85+)

Discussion

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Life tables highlight AI/AN disparities

- Oregon AI/AN life expectancy 4.7 years shorter than the NHW population
  - Gap is larger for females
- Disparity is small among younger AI/ANs, but grows larger as they reach working age and beyond
- This disparity is similar to what has been shown in other indigenous populations
  - 5 years lower for First Nations & Métis in Canada
  - 5 years lower for Native Hawaiians
- And is actually better than in some countries
  - 7 years lower for Maori in NZ
  - 17 years lower for Australian Aboriginals

Impact of racial misclassification

- Found racial misclassification rates of 21%
- If left uncorrected, would have given life expectancy estimates 2.15 years too high
- Federal/state efforts underway improve race data collection upstream, at the point of collection
- Until these efforts have gained traction, data linkage remains an effective and inexpensive option

Tribal uses of data

- Tribes use life tables for:
  - Health assessment
  - Grant writing and reporting
  - Program planning and evaluation
  - Policy and advocacy
- Abridged life tables will be disseminated to Tribes
- Cancer registrars will be conducting AI/AN survival analysis using these life tables

Limitations

- Tribal Registry under-represents urban AI/AN and those with private insurance
  - Captures 75-80% of AI/AN population
- Even with combined data years, small numbers make AI/AN rates unstable
- Age misreporting on death certificates
  - could not correct due to AI/AN race not being identified in Medicare records in the past
- Due to methodological differences, should not be compared directly to national estimates

Thank You!

- The Tribes of Oregon
- Victoria Warren-Mears, PhD (P.I.)
- Idaho, Oregon, and Washington vital statistics staff
- Idaho, Oregon and Washington cancer registrars
- Elizabeth Arias at National Center for Health Statistics
- The International Group for Indigenous Health Measurement
- AHRQ Grant #R01HS19972
- OMH Grant #AIAMP120012

Contact me:

jdankovchik@npaihb.org

503-416-3265