Life Expectancy of Oregon AI/ANs

Using Linkage-Corrected Mortality Rates

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Presented at:
Oregon Public Health Association
Corvallis, OR October 2013
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
Results
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: Oregon

Life Expectancy at Birth by Race, Oregon 2008-2010

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

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

<table>
<thead>
<tr>
<th>State</th>
<th>AI/AN</th>
<th>NHW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho</td>
<td>74.46</td>
<td>79.45</td>
</tr>
<tr>
<td>Oregon</td>
<td>74.77</td>
<td>79.43</td>
</tr>
<tr>
<td>Washington</td>
<td>71.40</td>
<td>79.95</td>
</tr>
</tbody>
</table>
Survival patterns by race

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

- Premature Mortality: 0 - 14 years
- Working Age: 15 - 64 years
- Elderly: 65 - 85+ years
Survival patterns by gender, AI/AN

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

- Male AI/AN
- Female AI/AN
- Male NHW
- Female NHW

Premature Mortality: 0 - 14 years
Working Age: 15 - 64 years
Elderly: 65 - 85+ years

Female: 13 percentage points lower
Male: 8 percentage points lower
Discussion
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

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