CARE

Center for Asian
Healthcare Research
and Education

Summer Research Symposium 2021

MOCHI

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August 2021

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Neuroscience & Political Science

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San Francisco State University ‘21

Biology, Computing Applications & Chemistry

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Large Database Analysis

Leading causes of death in Japanese Americans

with Fumiaki Ikeno, MD
and Shozen Dan, BA

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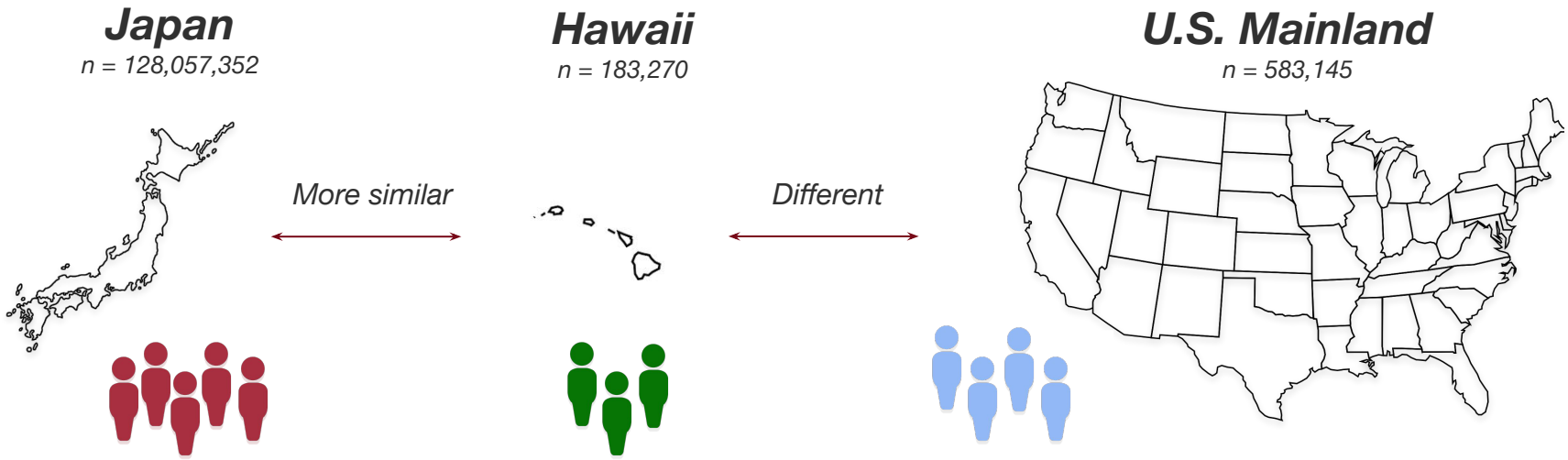
Japan

United States

Why study Japanese Americans?

- One of the **largest** Asian subgroups in U.S.
- Distinct **immigration pattern**

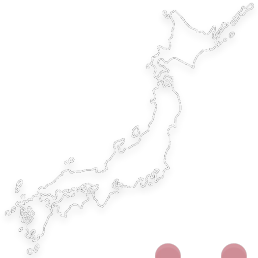


Curb, J. D. & Kodama, K. (1996). The NI-HON-SAN study. *Journal of Epidemiology,* 6(4):197-201. https://doi.org/10.2188/jea.6.4sup_197

Why study Japanese Americans?

Race/ethnicity → Geography, Culture, lifestyle → Health status → **Mortality outcomes**

Japan
n = 128,057,352



More similar

Hawaii
n = 183,270

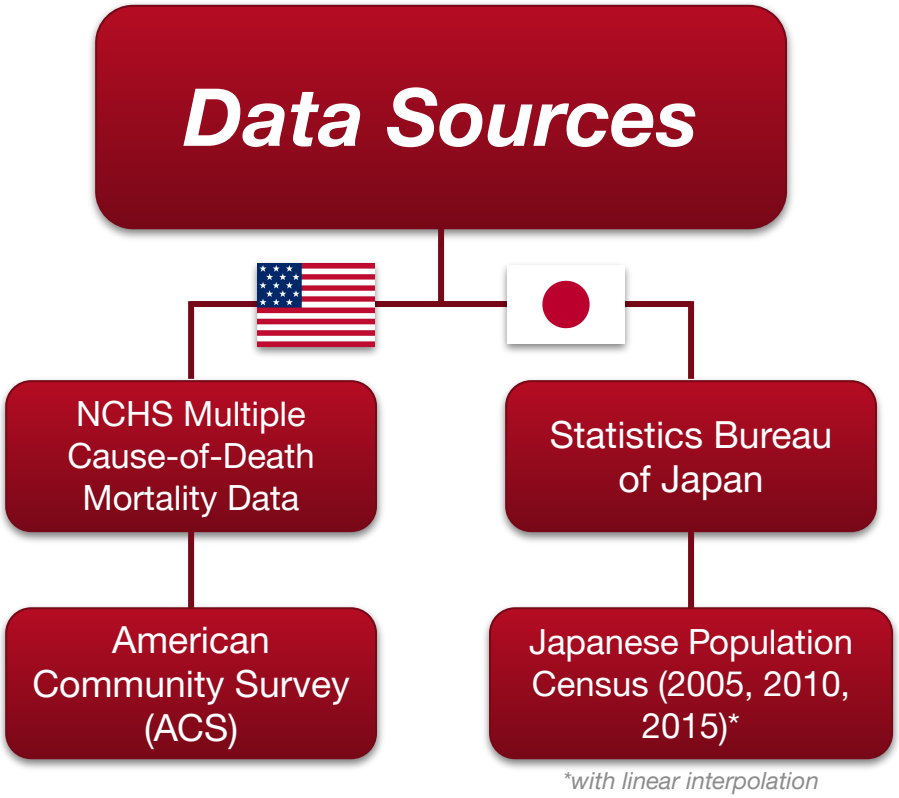
Different

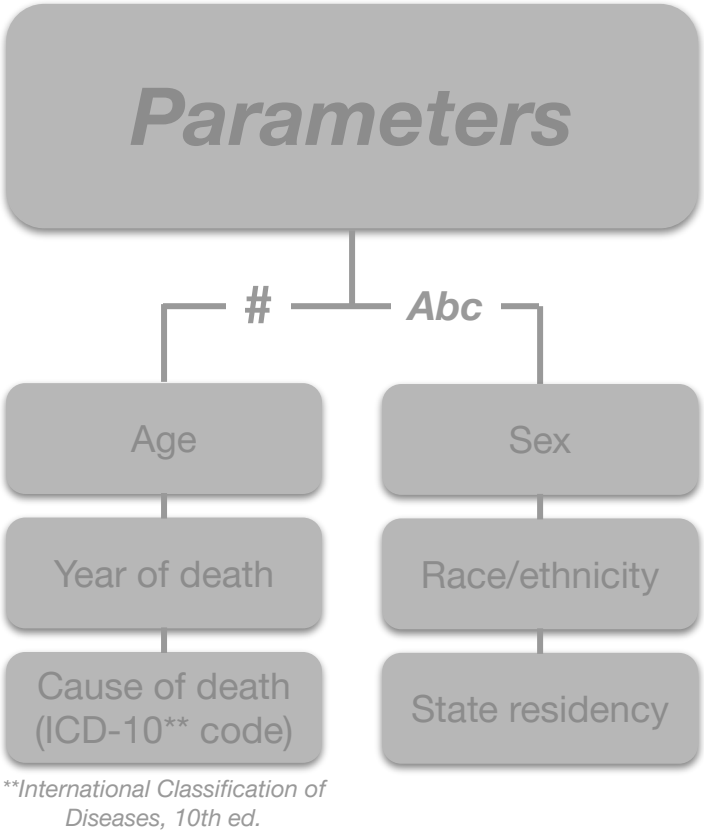
U.S. Mainland
n = 583,145

Curb, J. D. & Kodama, K. (1996). The NI-HON-SAN study. *Journal of Epidemiology,* 6(4):197-201. https://doi.org/10.2188/jea.6.4sup_197

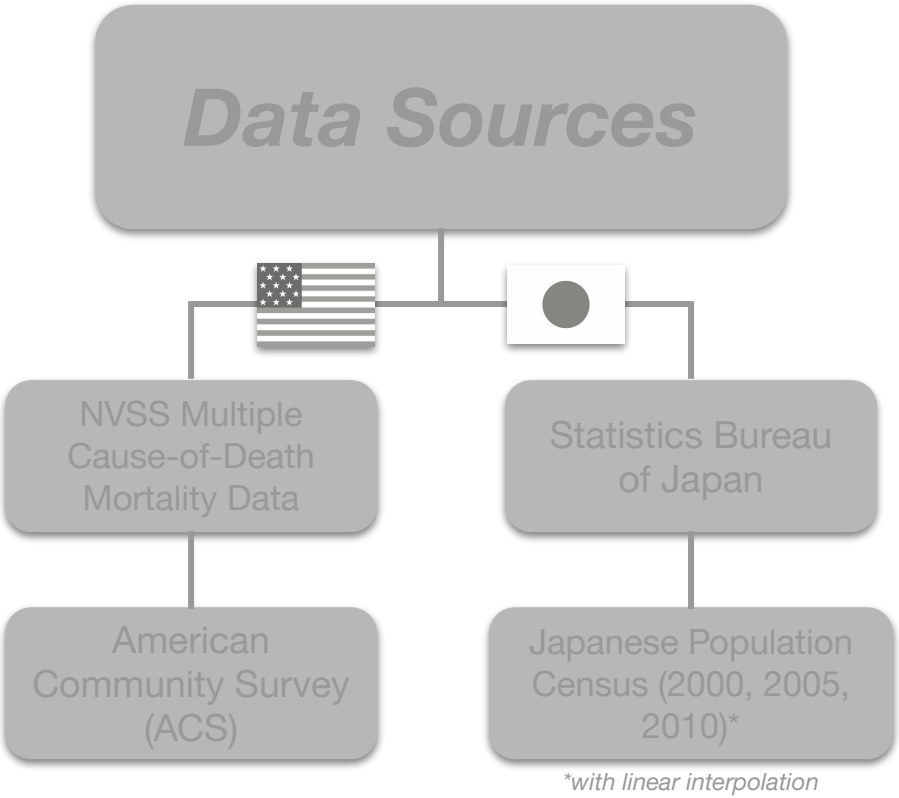
Based on **geographically-stratified** mortality data from 2005-2017, are the **leading causes of death** for **Japanese Americans** significantly **different** from native **Japanese**?

Study Design

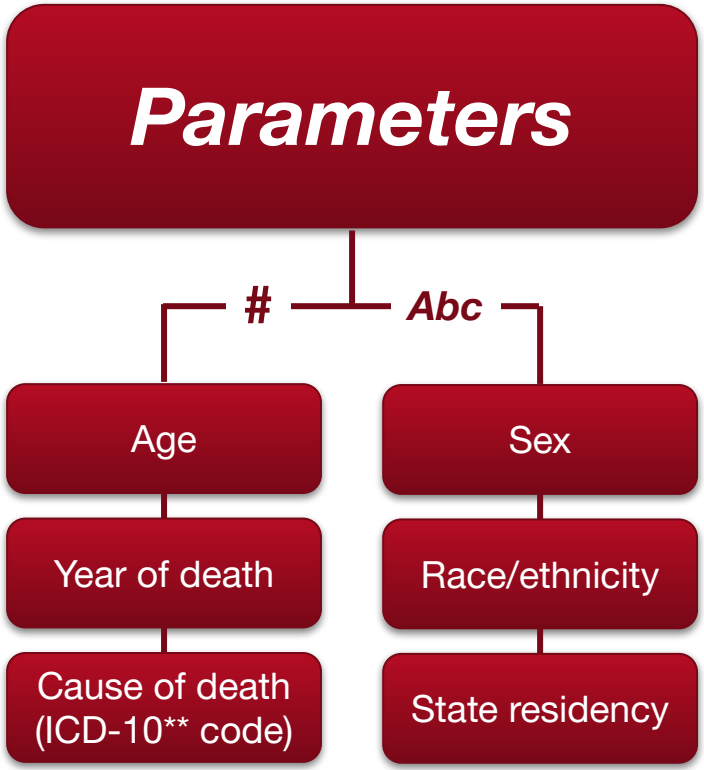




Study Design



*with linear interpolation



**International Classification of Diseases, 10th ed.

Top 10 causes of death in Japanese Americans from:

Hawaii

U.S. mainland

1. **Cancer**
2. **Heart disease**
3. **Cerebrovascular disease**
4. Alzheimer's disease
5. Influenza & pneumonia
6. Accidents *(unintentional)*
7. Diabetes
8. Chronic lower respiratory diseases
9. Nephritis, nephrosis & nephrotic syndrome
10. Essential hypertension & hypertensive renal disease

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Top 10 causes of death in Japanese Americans from:

Hawaii *U.S. mainland*

★ **Cancer**	6. Accidents *(unintentional)*
2. Heart disease	★ **Cardiovascular disease**
3. Cerebrovascular disease	ower respiratory diseases
4. Alzheimer's disease	9. Nephritis, nephrosis & nephrotic syndrome
★ **Influenza & pneumonia**	10. Essential hypertension & hypertensive renal disease

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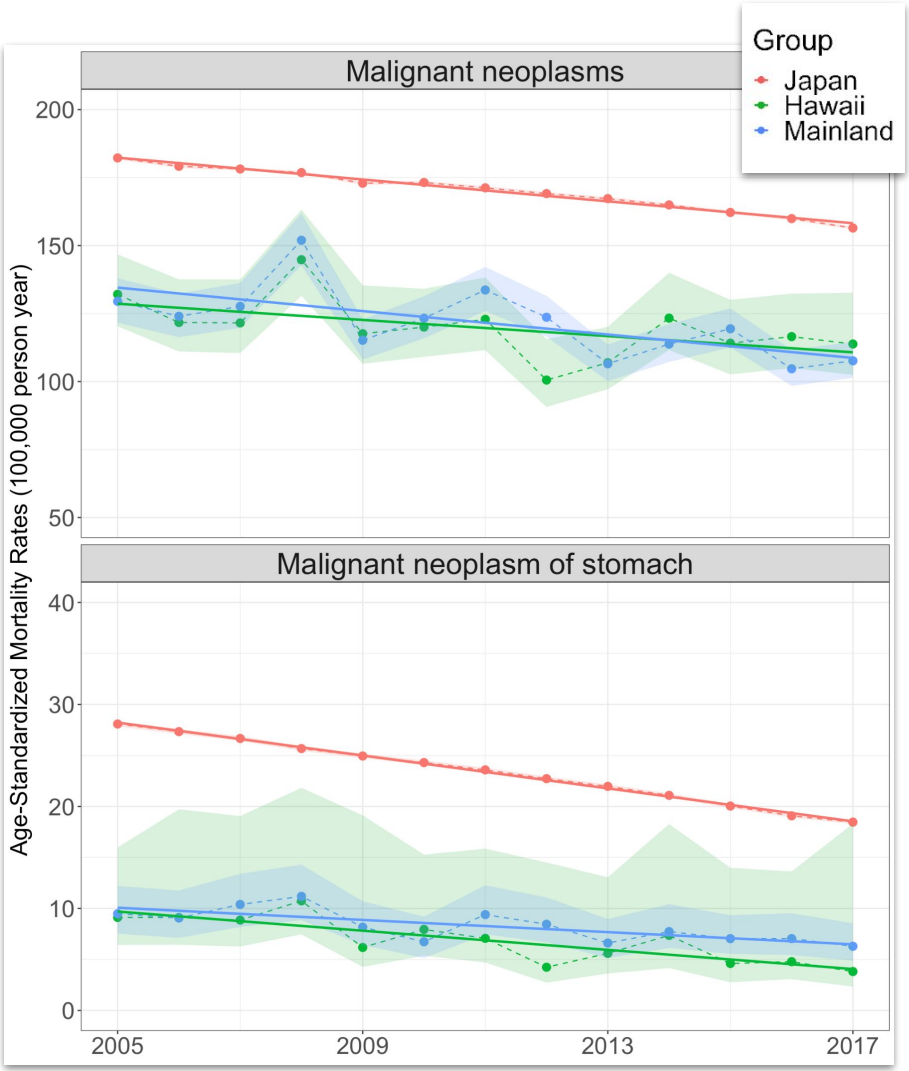

The Japanese have a **high risk** for cancer.

Deaths	4 973 833	7 165	15 067
Pop. %	26.0%	20.1%	25.4%

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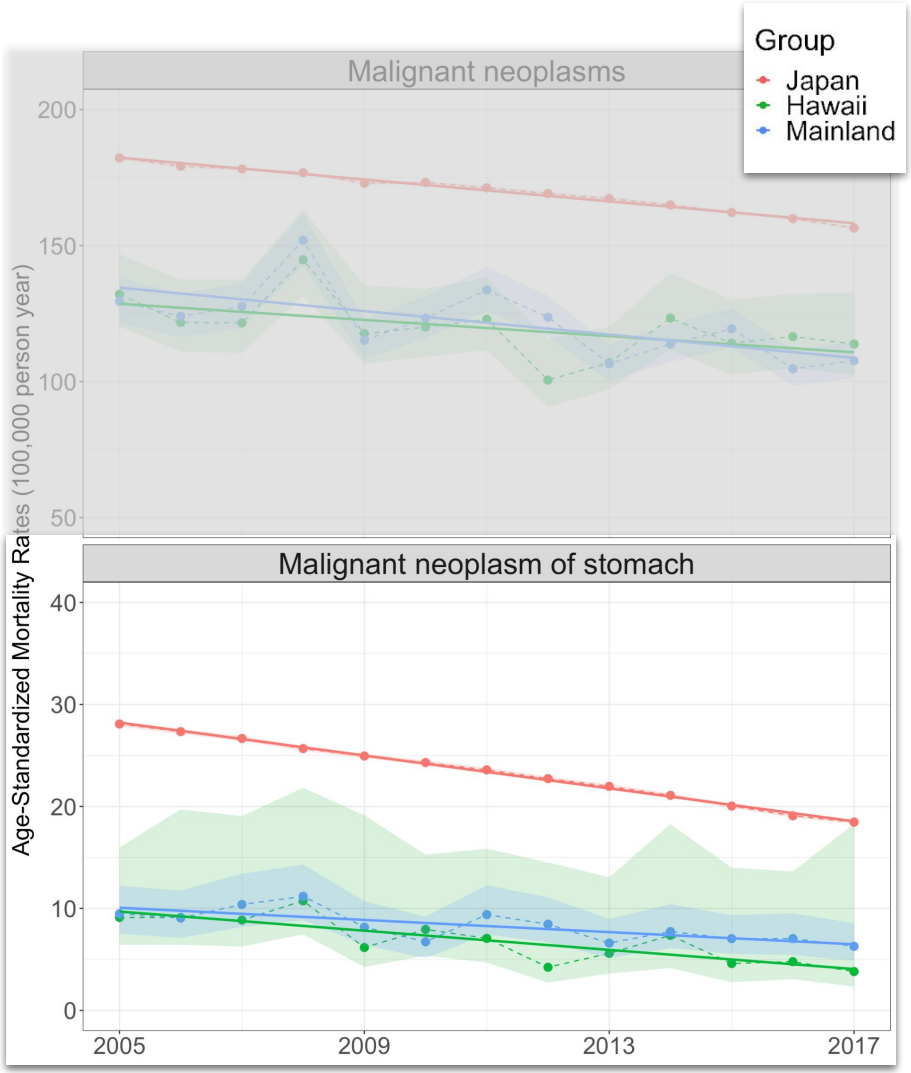

The Japanese consume large amounts of **salt**,

which increases their risk for **stomach cancer.**

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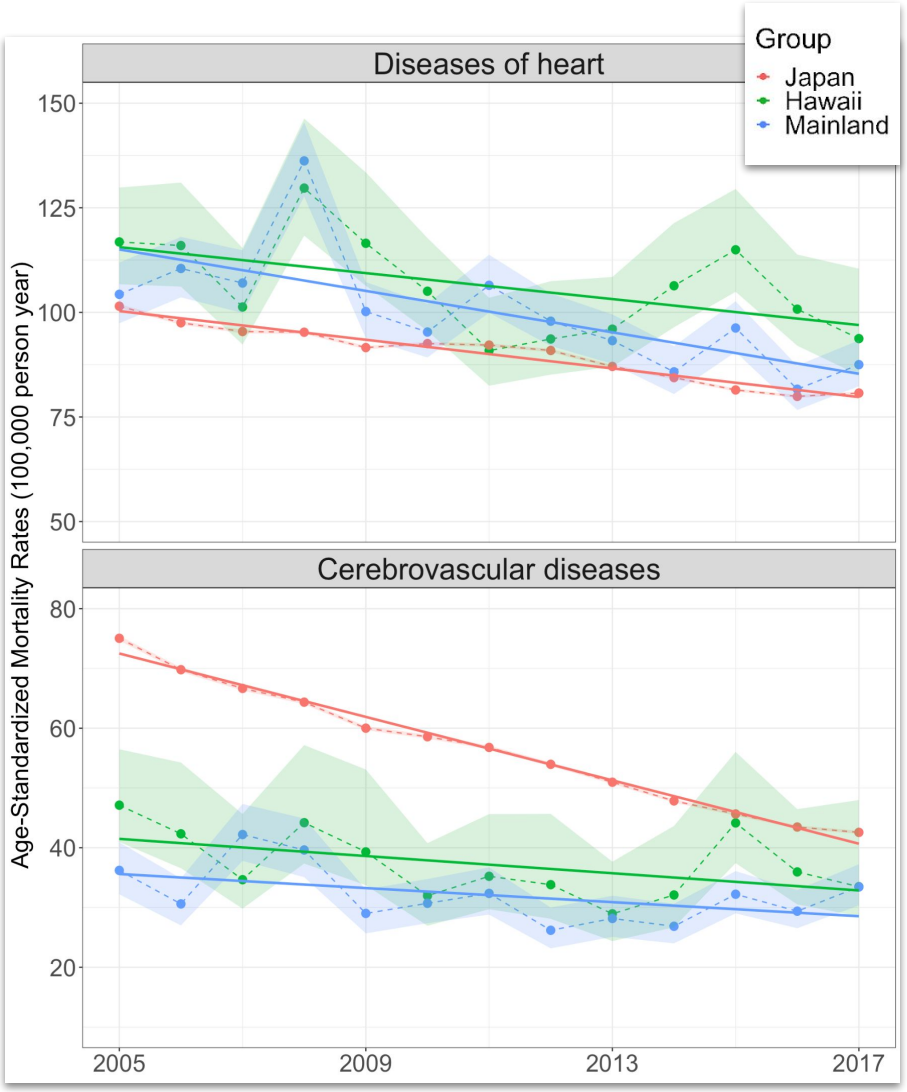

Cardiovascular disease trends are **less different.**

Deaths	4 425 925	10 858	18 243
Pop. %	23.1%	30.4%	30.8%

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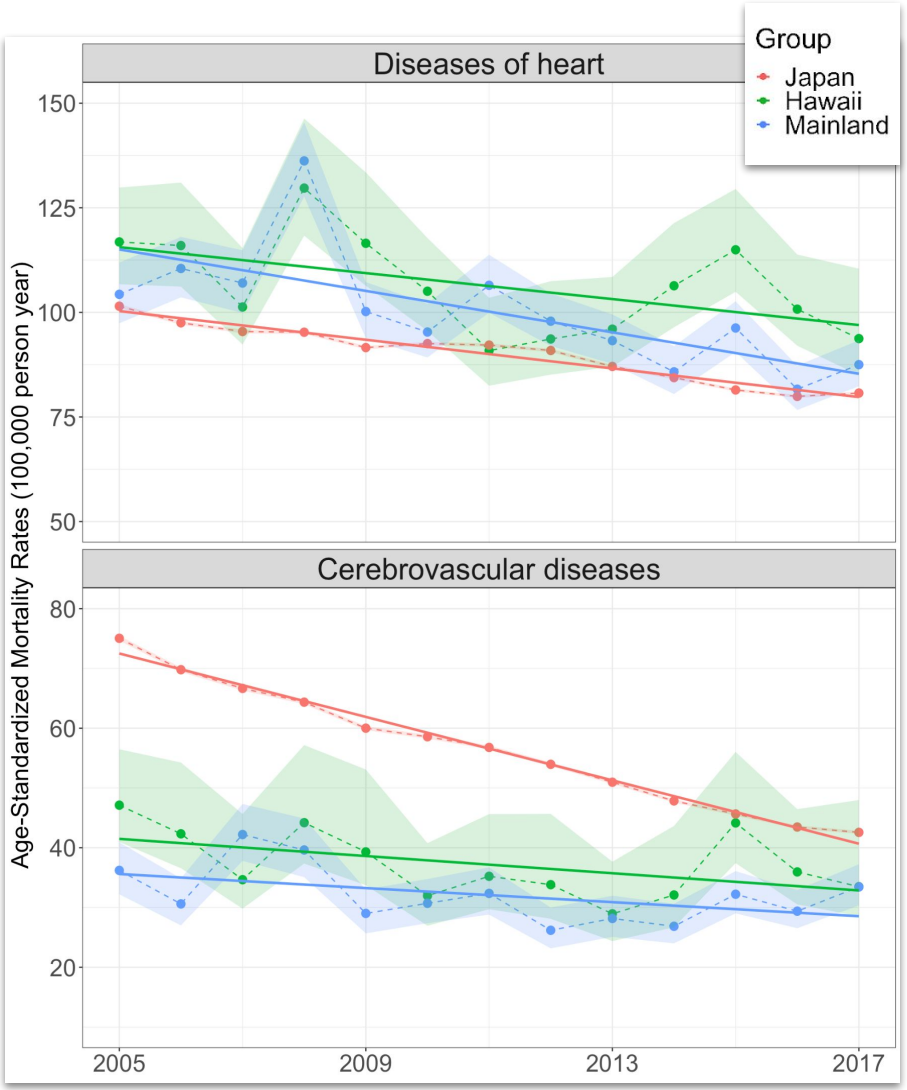

Native Japanese now consume more **animal products**—

this **Westernization** may explain **similarities.**

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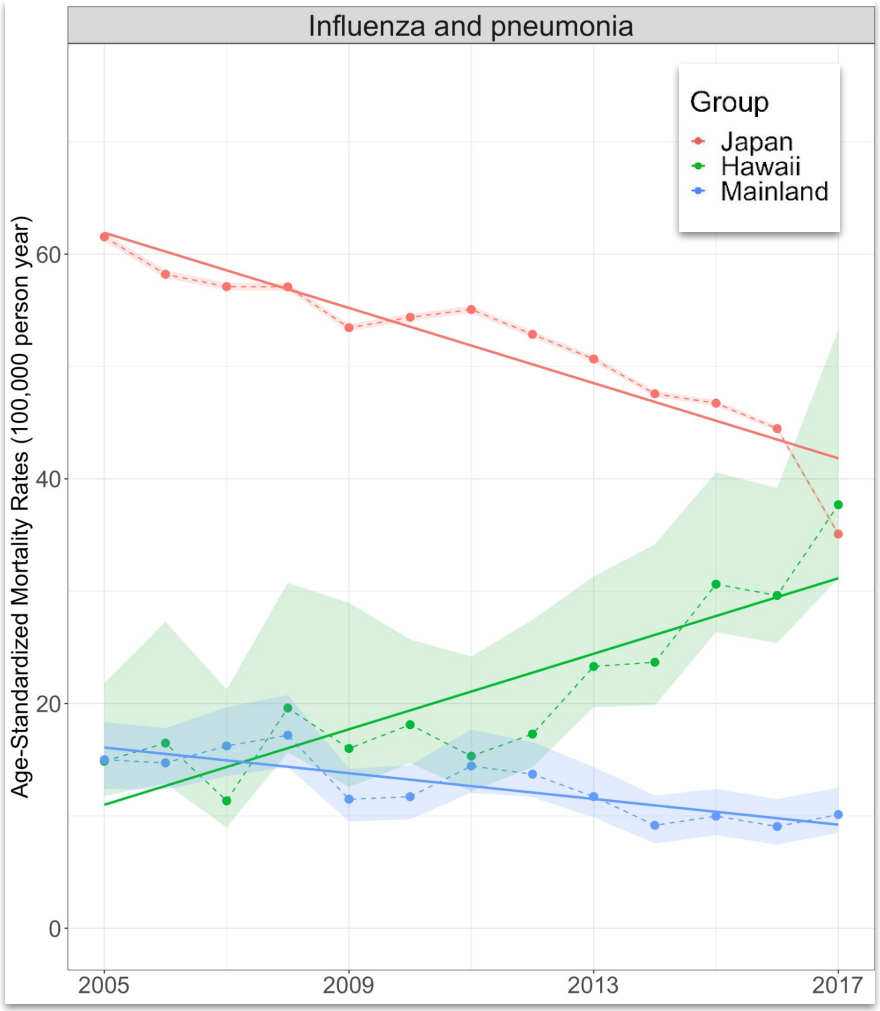

Influenza & pneumonia mortality was **highest** in **islander Japanese**.

Deaths	1 612 448	1 877	1 797
Pop. %	8.4%	5.3%	3.0%

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Key Findings

1. *Leading causes of death*
2. *Non-communicable diseases*
3. *Communicable diseases*

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Limitations

— Race/ethnicity —

- Misclassification
- Mixed races assigned to 1 group

— Cause of death —

- Misclassification
- Discrepancy in reporting habits

— Population data —

- Sampling error in ACS
- Linear interpolation bias

Limitations

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What's next?

Further research

- Japanese **cancer** & **CVD burden**
- Japanese **infant mortality**
- Mortality trends in **other Asian subgroups**

Prevention & health policy

- Diet and lifestyle
- Mandatory disease screening
- Educational campaigns & training

What's next?

Further research

- Japanese cancer & CVD burden
- Japanese infant mortality
- Mortality trends in other Asian subgroups

Prevention & health policy

- **Diet** and **lifestyle**
- Mandatory **disease screening**
- **Educational** campaigns & training

Thank you!
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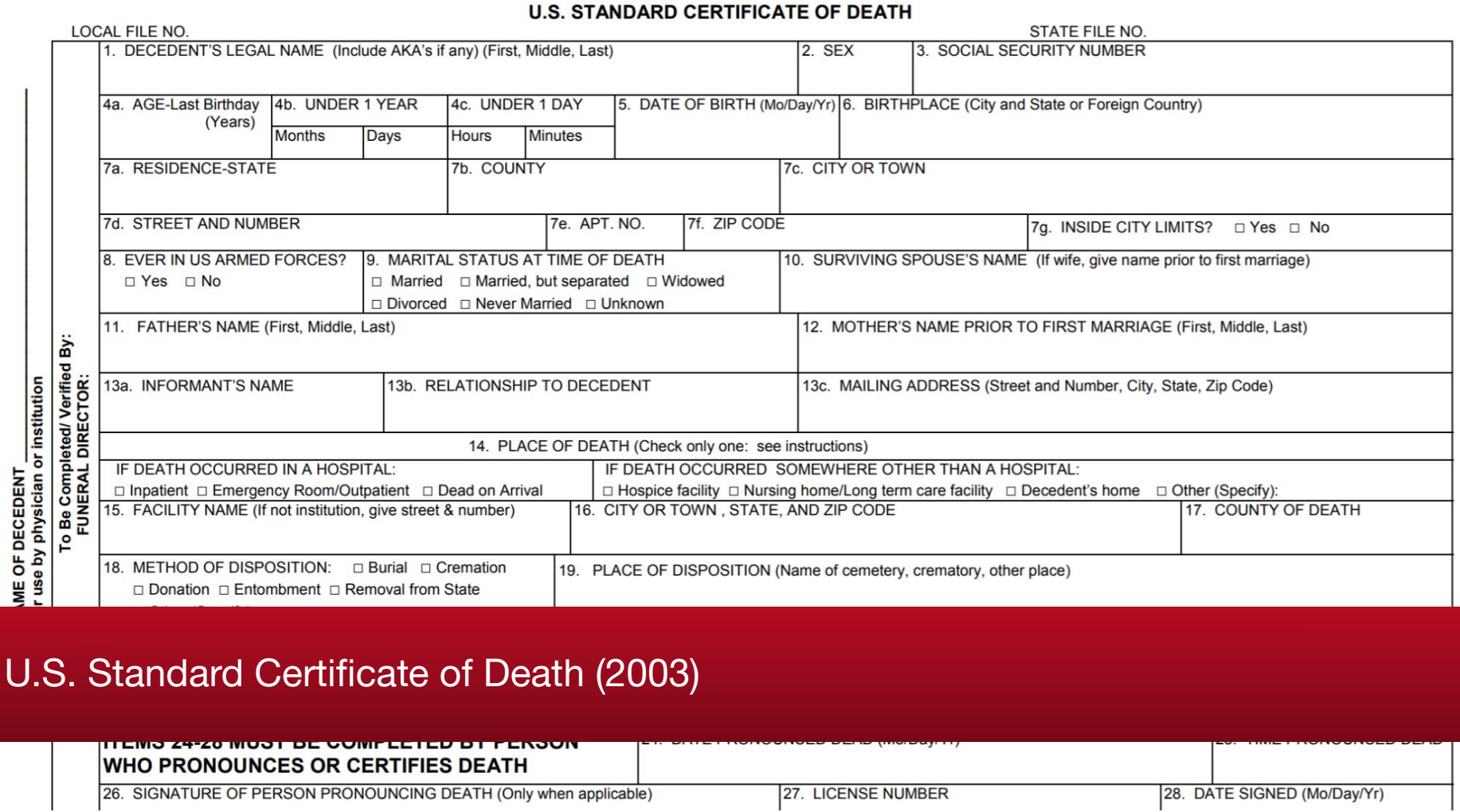
Supplemental slides

25. U.S. standard death certificate (2003)
26. Table 1.1: Population demographics
27. Table 1.2: Decedent demographics
28. AMR calculations
29. Top 10 causes of death: native Japanese vs. Japanese Americans (aggregate)
30. Top 10 causes of death: native Japanese vs. Japanese Americans (disaggregated)
31. Figure 1: AMRs for top 10 causes of death (residency)
32. Figure 2: AMRs for disaggregated cancers (residency, sex)



U.S. STANDARD CERTIFICATE OF DEATH

LOCAL FILE NO. STATE FILE NO.

To Be Completed/ Verified By: FUNERAL DIRECTOR:

ME OF DECEDENT
r use by physician or institution

1. DECEDENT'S LEGAL NAME (Include AKA's if any) (First, Middle, Last)
2. SEX
3. SOCIAL SECURITY NUMBER
4a. AGE-Last Birthday (Years)
4b. UNDER 1 YEAR — Months / Days
4c. UNDER 1 DAY — Hours / Minutes
5. DATE OF BIRTH (Mo/Day/Yr)
6. BIRTHPLACE (City and State or Foreign Country)
7a. RESIDENCE-STATE
7b. COUNTY
7c. CITY OR TOWN
7d. STREET AND NUMBER
7e. APT. NO.
7f. ZIP CODE
7g. INSIDE CITY LIMITS? ☐ Yes ☐ No
8. EVER IN US ARMED FORCES? ☐ Yes ☐ No
9. MARITAL STATUS AT TIME OF DEATH ☐ Married ☐ Married, but separated ☐ Widowed ☐ Divorced ☐ Never Married ☐ Unknown
10. SURVIVING SPOUSE'S NAME (If wife, give name prior to first marriage)
11. FATHER'S NAME (First, Middle, Last)
12. MOTHER'S NAME PRIOR TO FIRST MARRIAGE (First, Middle, Last)
13a. INFORMANT'S NAME
13b. RELATIONSHIP TO DECEDENT
13c. MAILING ADDRESS (Street and Number, City, State, Zip Code)
14. PLACE OF DEATH (Check only one: see instructions)
IF DEATH OCCURRED IN A HOSPITAL: ☐ Inpatient ☐ Emergency Room/Outpatient ☐ Dead on Arrival
IF DEATH OCCURRED SOMEWHERE OTHER THAN A HOSPITAL: ☐ Hospice facility ☐ Nursing home/Long term care facility ☐ Decedent's home ☐ Other (Specify):
15. FACILITY NAME (If not institution, give street & number)
16. CITY OR TOWN , STATE, AND ZIP CODE
17. COUNTY OF DEATH
18. METHOD OF DISPOSITION: ☐ Burial ☐ Cremation ☐ Donation ☐ Entombment ☐ Removal from State
19. PLACE OF DISPOSITION (Name of cemetery, crematory, other place)

ITEMS 24-28 MUST BE COMPLETED BY PERSON WHO PRONOUNCES OR CERTIFIES DEATH

24. DATE PRONOUNCED DEAD (Mo/Day/Yr)
25. TIME PRONOUNCED DEAD
26. SIGNATURE OF PERSON PRONOUNCING DEATH (Only when applicable)
27. LICENSE NUMBER
28. DATE SIGNED (Mo/Day/Yr)

U.S. Standard Certificate of Death (2003)

Table 1.1. Native Japanese and Japanese-American population characteristics by geographic region, based on national census data from the U.S. and Japan (2010).

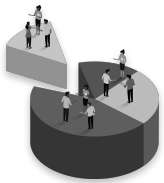
	Japanese	Japanese Americans (*n = 766,415*)		
		Aggregate	***Hawaii***	***U.S. mainland***
Population size	128 057 352	766 415	183 270	583 145
Sex (%)				
Male	48.60	42.95	44.78	42.37
Female	51.40	57.05	55.22	57.63
Age at death (%)				
0-4	4.17	2.53	1.80	2.76
5-19	13.83	9.98	7.73	10.69
20-39	25.06	23.91	16.55	26.22
40-59	26.03	32.88	31.14	33.44
60-79	24.51	21.42	28.99	19.05
80+	6.40	9.28	13.79	7.84

Table 1.2. Native Japanese and Japanese-American decedent characteristics by geographic region (2005-2017).

	Japanese	Japanese Americans (*n* = 94,985)		
		Aggregate	***Hawaii***	***U.S. mainland***
Raw death count	15 747 318	94 985	35 722	59 263
Sex (%)				
Male	52.54	42.86	48.50	39.46
Female	47.46	57.14	51.50	60.54
Age at death (%)				
0-4	0.27	0.09	0.04	0.12
5-19	0.21	0.16	0.07	0.21
20-39	1.42	0.91	0.50	1.16
40-59	7.00	6.42	5.57	6.94
60-79	34.37	26.00	22.98	27.83
80+	56.68	66.42	70.84	63.75
Average life expectancy (years)				
Below 60 years	46.43	48.61	50.46	47.80
Above 60 years	81.64	83.72	84.83	83.04

What are age-standardized mortality rates (AMRs)?

of deaths in an age group during study period (*years*)



population size of age group (*persons*)

% of age group in reference population

100,000 *person-years*

Top 10 causes of death in Japanese from:

Japan

Hawaii

U.S. mainland

1.	Cancer
2.	Heart disease
3.	Cerebrovascular disease
4.	Influenza & pneumonia
5.	Accidents *(unintentional)*
6.	Intentional self-harm *(suicide)*
7.	Pneumonitis *(from solids, liquids)*
8.	Nephritis, nephrosis & nephrotic syndrome
9.	Chronic lower respiratory diseases
10.	Diabetes

1.	Cancer
2.	Heart disease
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4.	Alzheimer's disease
5.	Influenza & pneumonia
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7.	Diabetes
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10.	Essential hypertension & hypertensive renal disease

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Top 10 causes of death in Japanese from:

Japan

Hawaii

U.S. mainland

Japan	Hawaii	U.S. mainland
1. Cancer	1. Heart disease	1. Cancer
2. Heart disease	2. Cancer	2. Heart disease
3. Cerebrovascular disease	3. Cerebrovascular disease	3. Cerebrovascular disease
4. Influenza & pneumonia	4. Influenza & pneumonia	4. Alzheimer's disease
5. Accidents *(unintentional)*	5. Alzheimer's disease	5. Diabetes
6. Intentional self-harm *(suicide)*	6. Accidents *(unintentional)*	6. Accidents *(unintentional)*
7. Pneumonitis *(from solids, liquids)*	7. Diabetes	7. Chronic lower respiratory diseases
8. Nephritis, nephrosis & nephrotic syndrome	8. Chronic lower respiratory diseases	8. Influenza & pneumonia
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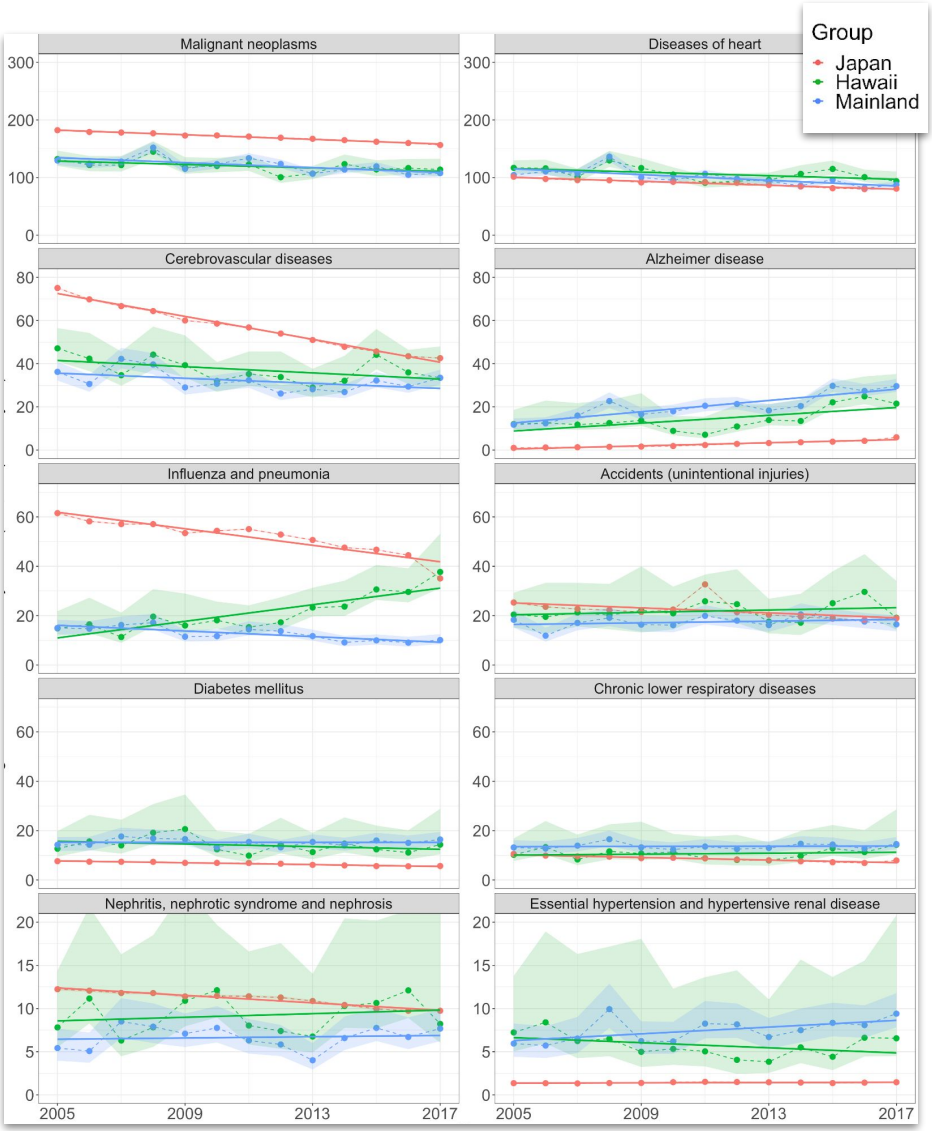

Figure 1.

Annual cause-specific AMRs for native Japanese and Japanese-American decedents (2005-2017).

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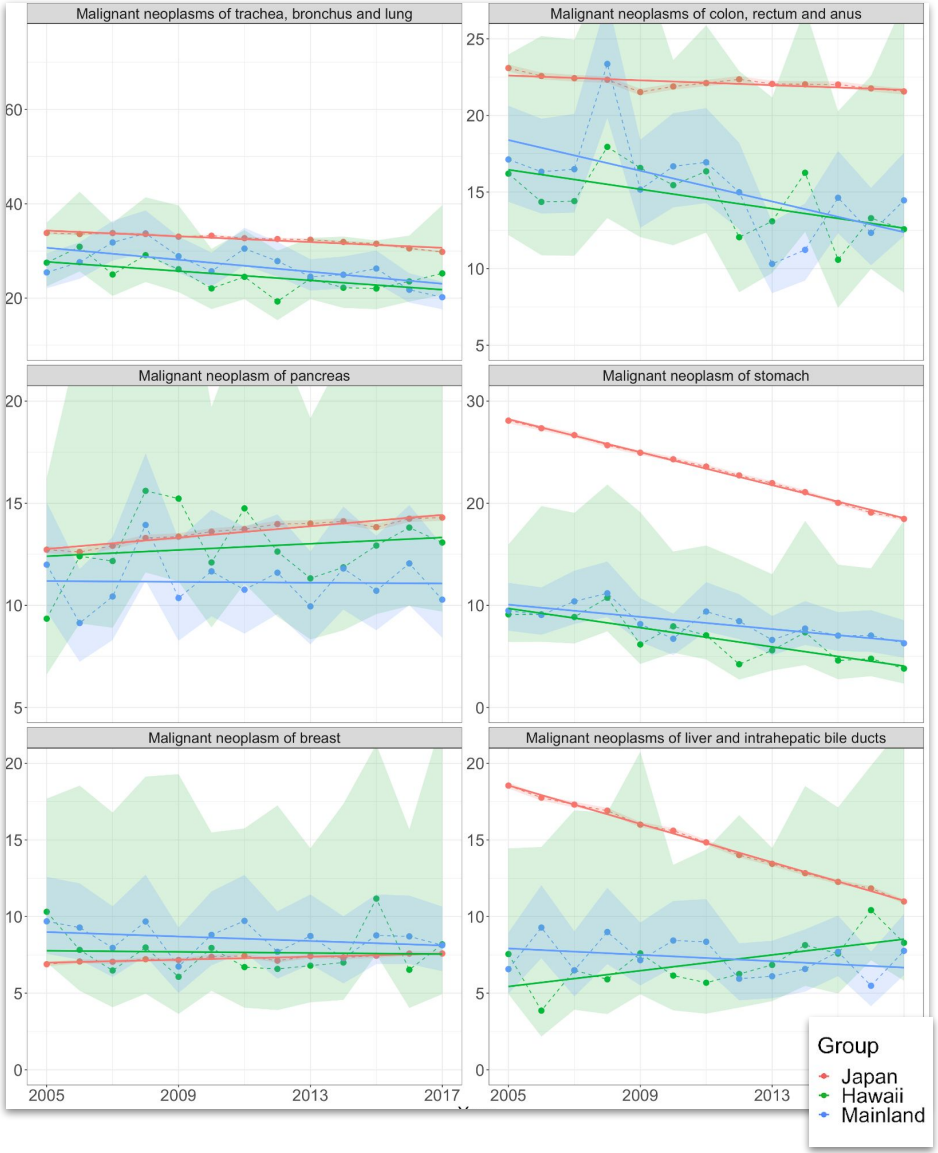

Figure 2.

Disaggregated cancer AMRs for native Japanese and Japanese-American decedents (2005-2017).

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