John A. Burns School of Medicine

UNIVERSITY of HAWAI'I MĀNOA

Measuring Race and Ethnicity in Health Disparities Research: An Interactive Workshop for Public Health Professionals

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Measuring Race and Ethnicity in Health Disparities Research

Plan for the day:

- Introductions
- Background & Context
- Survey Measurement Exercise – Liz & Dorothy
- Break
- Denominator Exercise – Tetine & Jun
- Conclusions
- Evaluation

Introductions:

- Name
- Research interests or
- Why you chose this workshop

What is a "Disparity"?

"Disparities should be defined not simply as a difference but as an inequitable difference that is potentially systematic and avoidable."

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What Disparity?

- Health outcomes
  - Disease incidence
  - Disease prevelance
  - Life span
- Health care
  - Access
  - Quality
- "Health disparities research should involve consideration of life chances, opportunity and risk, and quality of life in a way that includes psychosocial and socioeconomic perspectives, as well as more traditional attention to health status and the provision of health care."

Pediatrics Vol. 124 No. Supplement 3 November 1, 2009

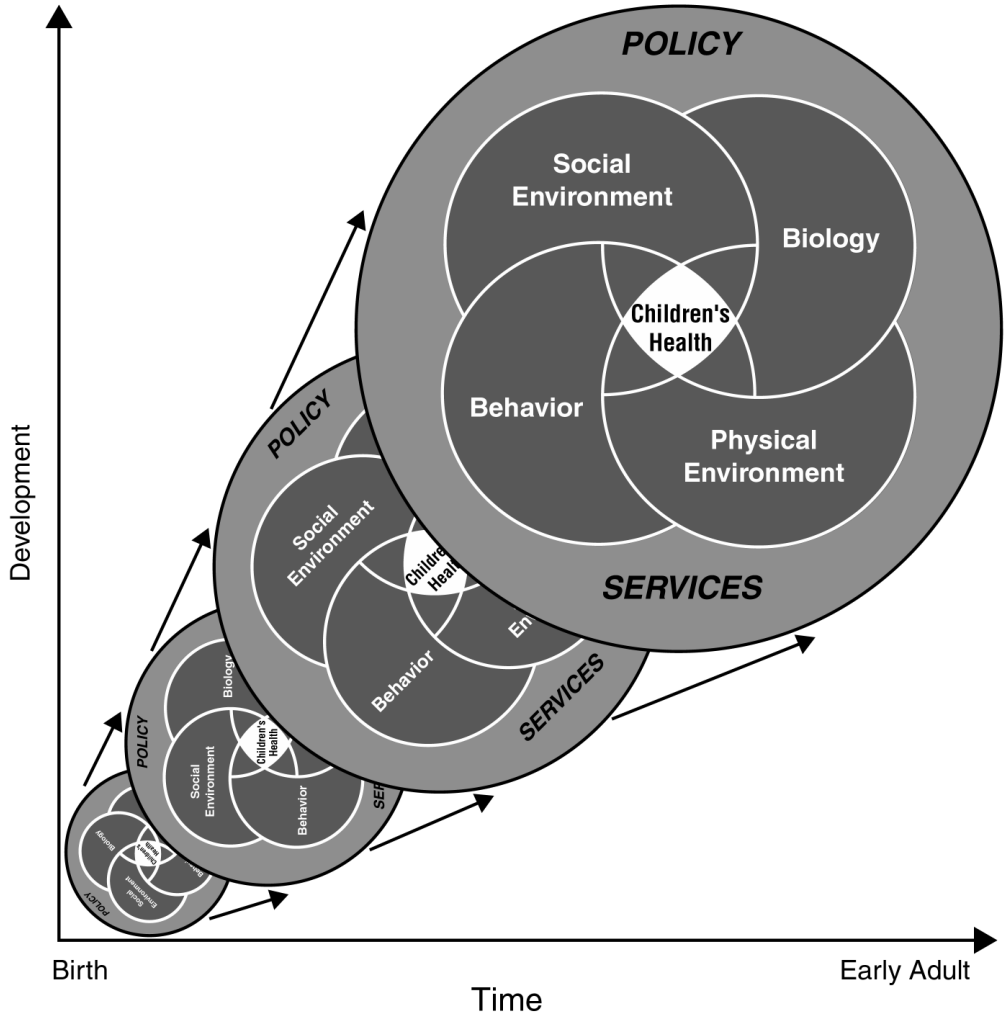
Who has the "Disparity"?

"Health disparities should be defined, investigated, and ameliorated based on **race and ethnicity, socioeconomic status, generation, and geography**, as well as their complex interactions."

Pediatrics Vol. 124 No. Supplement 3 November 1, 2009

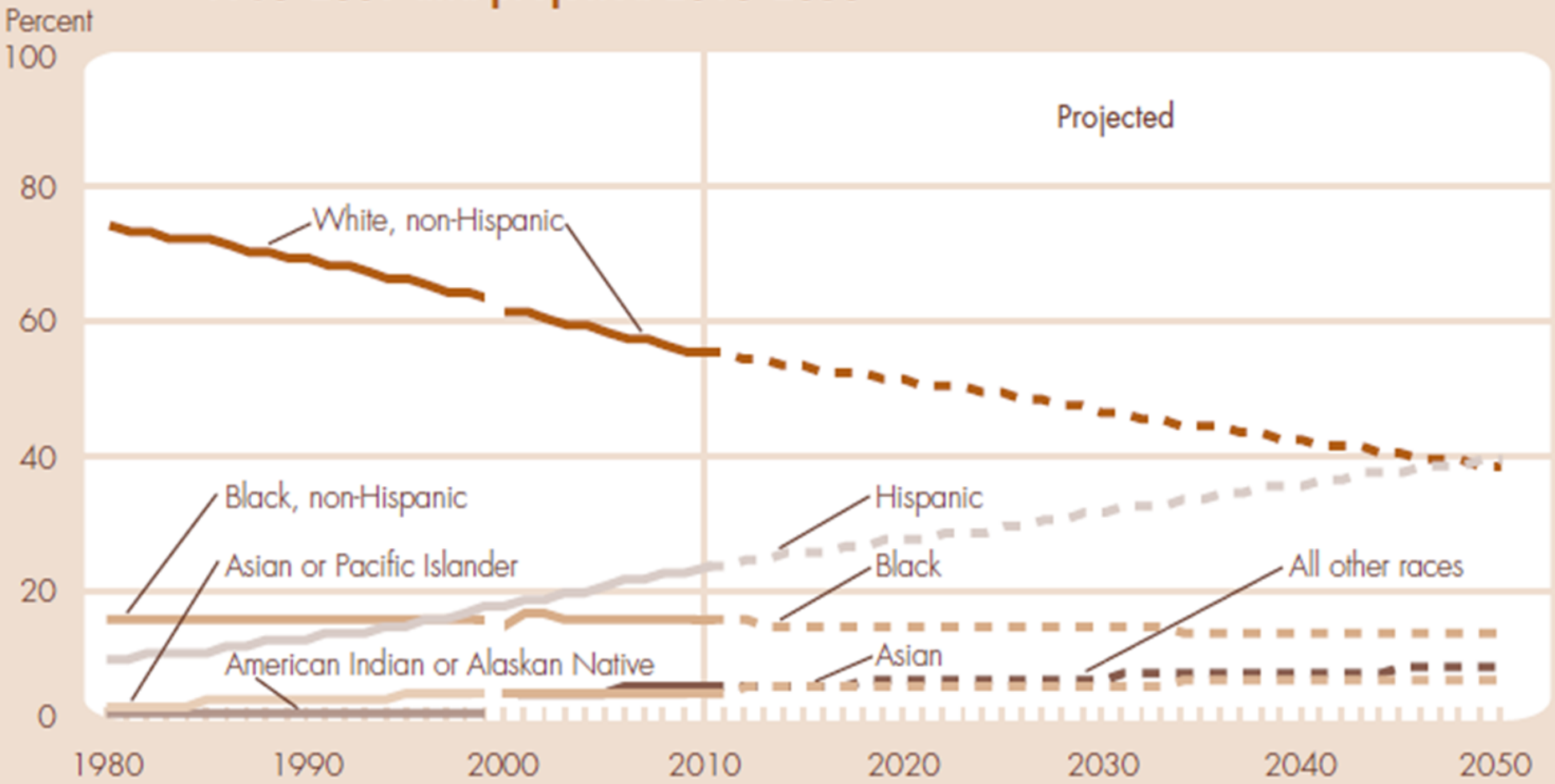
When or Where Did the Disparity Occur?

NRC IOM Model of Children's Health and Its Influences

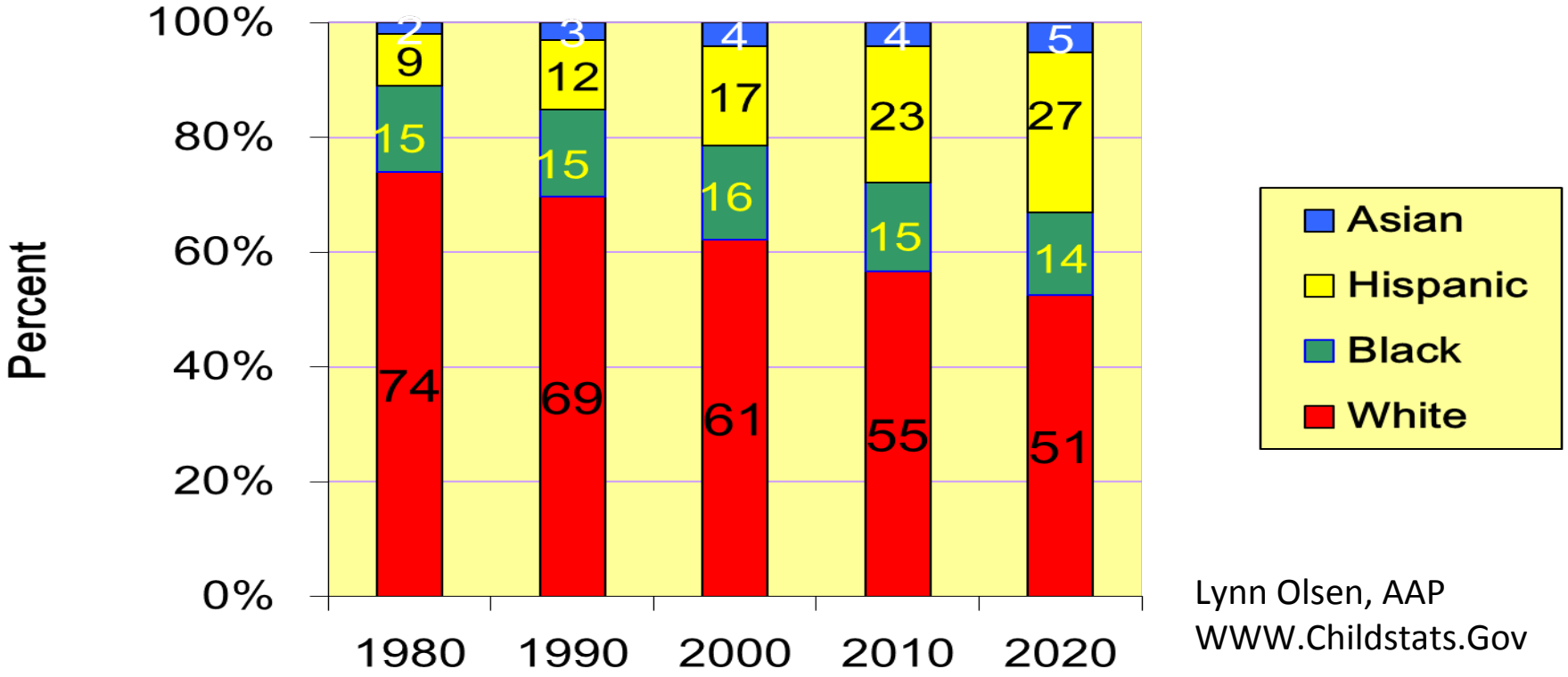


Children's Health, the Nation's Wealth. DC: National Academies Press, 2004.

Figure 1 Percentage of U.S. children ages 0–17 by race and Hispanic origin, 1980–2009 and projected 2010–2050

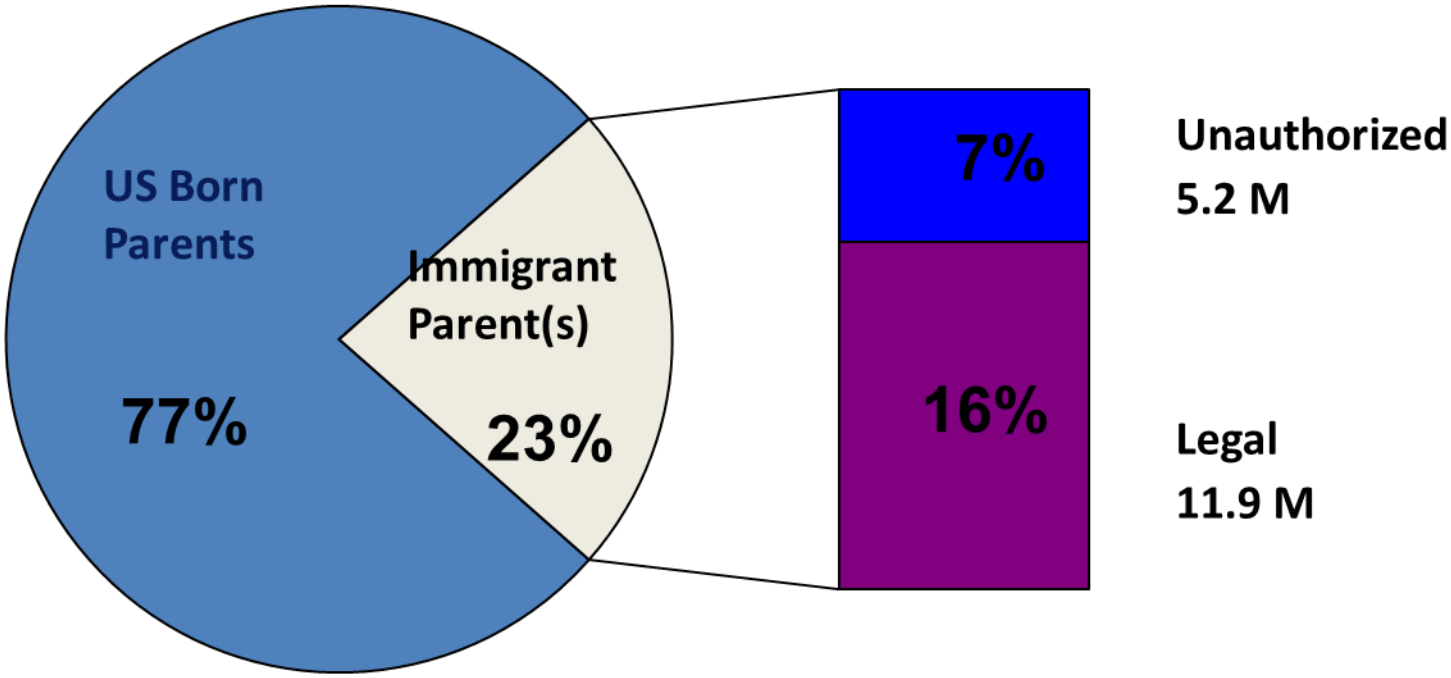


Trends in Race/Ethnicity of US Children, Recorded and Projected



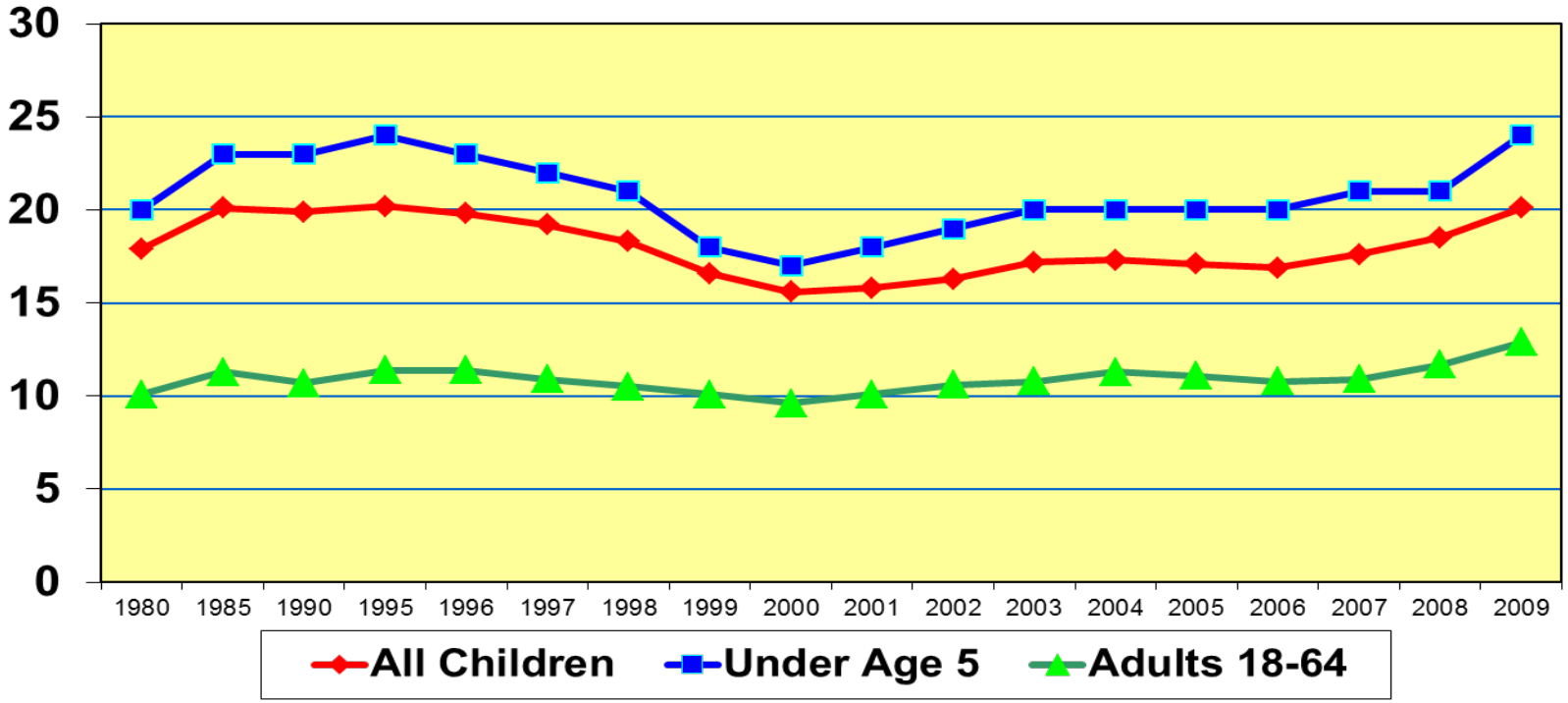
Lynn Olsen, AAP
WWW.Childstats.Gov

Estimates of the Parental Immigrant Status of U.S. Children, 2009



Source: March 2009 CPS, estimates by Pew Hispanic Center, www.pewhispanic.org

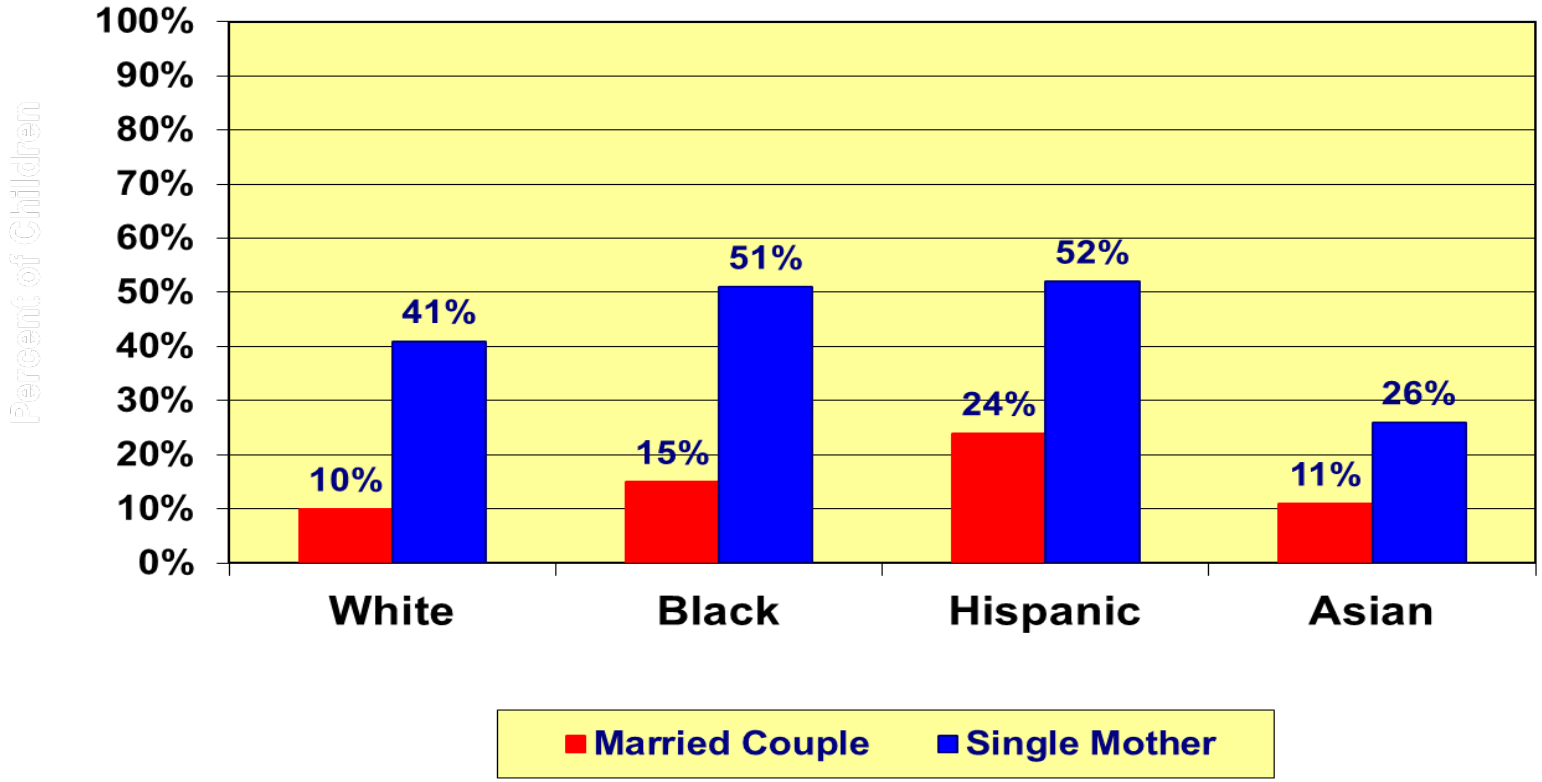
U.S. Poverty Status by Age Group, 1980-2009



Poverty Level in 2010:
$22,000 family of 4

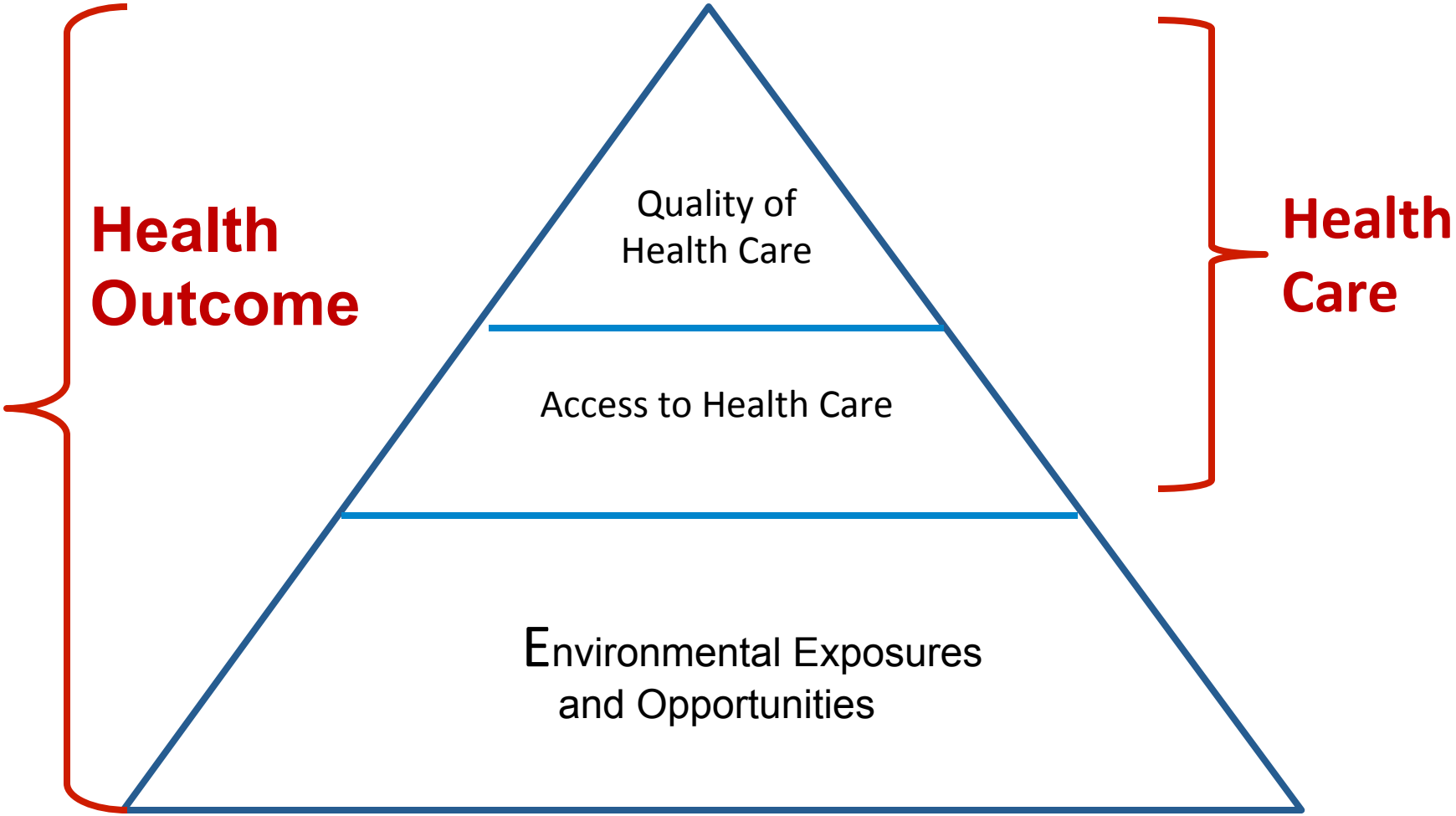
Current Population Survey, U.S. Census

Children in Poverty by Race/Ethnicity & Family Structure, 2009



Current Population Survey, U.S. Census

Levels at Which Disparities are Produced



Jones Camara P. **Phylon** 2002;50:7-22

National Children's Study (NCS)

- The NCS will examine the effects of the environment, as broadly defined to include factors such as air, water, diet, sound, family dynamics, community and cultural influences, and genetics on the growth, development, and health of children across the United States, following them from before birth until 21 years of age.
- The goal is to improve the health and wellbeing of children and contribute to understanding the role various factors have on health and disease.

National Children's Study (NCS)

- Largest long-term study of children's health and development ever to be conducted in the U.S.
- Longitudinal study of children, their families, and their environment
- Approximately 100,000 children enables study of important but less common outcomes

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NCS Formative Research:
Measuring Child Health Disparities

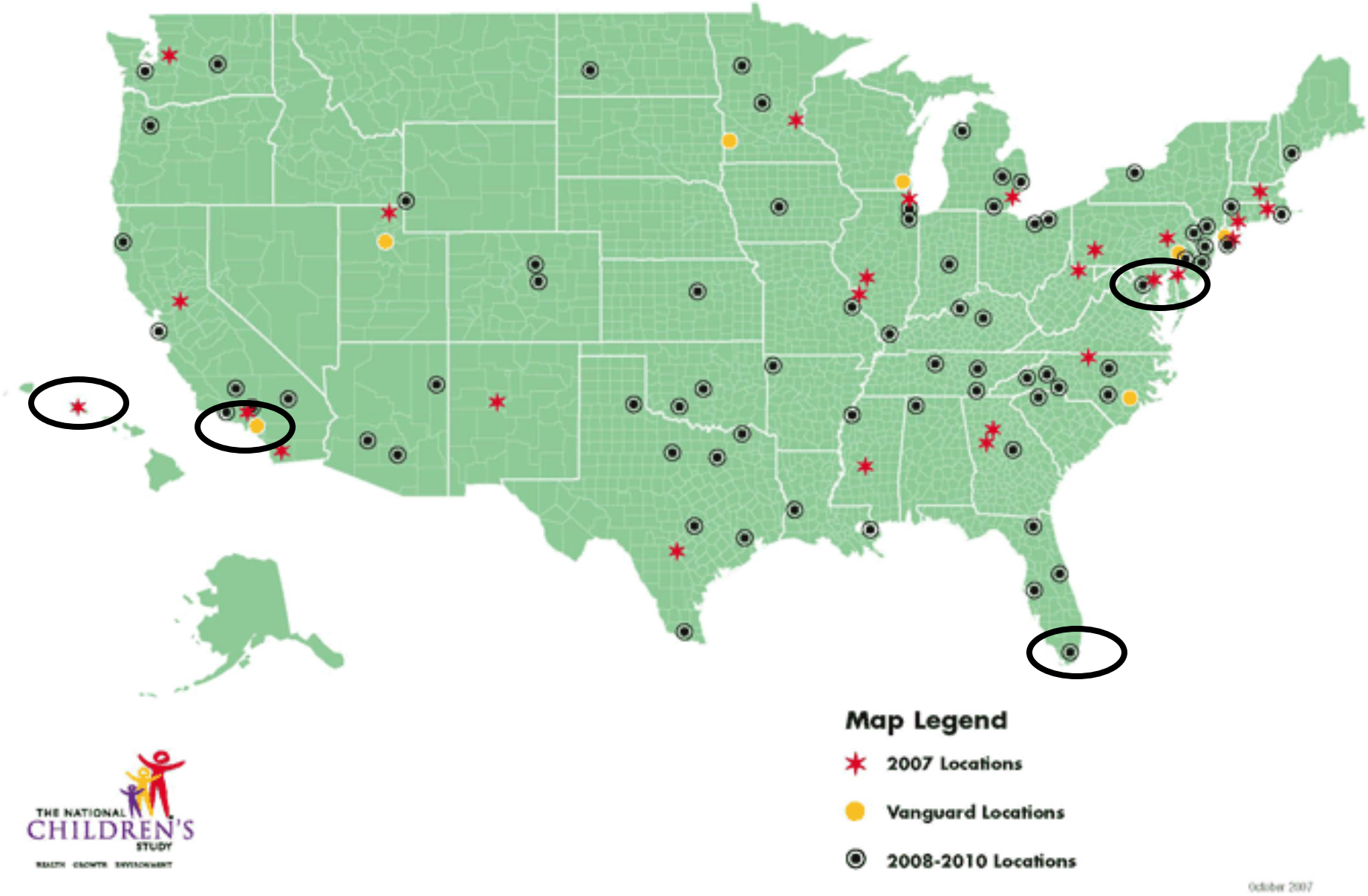
The Healthy Beginnings Study

Aim 1: To assess content, criterion and construct validity of measures of discrimination, health literacy, acculturation, and health care access, utilization, and quality in diverse populations

THE NATIONAL CHILDREN'S STUDY

HEALTH GROWTH ENVIRONMENT

National Children's Study Locations



Survey Measurement Exercise

- This exercise is an exploration of the complexity of measuring race and ethnicity across diverse communities.
- The Office of Management and Budget (OMB) and the U.S Department of Health and Human Services, and the Census Bureau provide guidance for measuring race and ethnicity.
- R/E are key demographic variables in research. Yet, measurement of these variables is often more complicated than expected or poorly captured.

- You have an information card that describes:
  - Characteristics of a child's racial/ethnic background
  - Health related information about the child
- Race/ethnicity questions from three studies
- Using the information card about the child as a guide, answer the race/ethnicity questions from each study based on the information you believe best applies to your child.
- Assume in all cases that your child was born in the US.

- For Each Study/Survey 1 - 3
  - Please tell me what you chose for your child's race/ethnicity.
  - Please tell me whether or not he/she has diabetes.
- For each study we'll discuss the disparities we see.

Study 1					
Race	White	Hispanic	Black	Asian	Other
Has DM?	Y N	Y N	Y N	Y N	Y N

Study 2					
Ethnicity	Hispanic-N	Hispanic-Y			
Has DM?	Y N	Y N			
Race	White	Black	Asian/PI	AIAN	Other
	Y N	Y N	Y N	Y N	Y N

Study 3								
Ethnicity	A) Hispanic-No	B) Hispanic-Mexican	C) Hispanic-Puerto Rican	D) Hispanic-Cuban	E) Hispanic-Other			
Has DM?	Y N	Y N	Y N	Y N	Y N			
Race	White	Black	AIAN	Asian Indian	Chinese	Filipino	Japanese	Korean
Has DM?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N
Race	Viet	Other Asian	Native Hawaiian	Guam/Cham	Samoan	Other PI	Some Other Race	
Has DM?	Y N	Y N	Y N	Y N	Y N	Y N	Y N	

What Advantages or Disadvantages are evident in the studies/questions?

Discussion:

- Any categories that did not work for you?
- Any differences between the three studies?
- Your emotional reaction to the categories?
- Other thoughts?

Considerations:

- How R/E is asked may influence:
- Participant response rate, engagement, & retention
- Disclosure of health information
- Data analyses (power to detect differences between groups)
- Inclusion in data analysis (other/mixed is non-specific)
- Aggregation of groups may mask disparities

BREAK - 15 Minutes

Racial/ethnic survey data in action:

Are there disparities in hospitalizations?

First need a denominator!

Major racial/ethnic groups in Hawaii are Chinese, Filipino, Native Hawaiian, Japanese, and White.

But that's not everyone.
Others of mixed racial/ethnic heritage or from other racial/ethnic groups.

Step 1:

For your group, calculate the numbers of "others" left over after Hawaii's most common racial/ethnic groups are accounted for.

Group 1: Census- alone
Group 2: Census- combo
Group 3: Census- average
Group 4: Hawaii Health Survey

1: Census- alone- lowest #
2: Census- combo- highest #
3: Census- average- middle
4: Hawaii Health Survey- ?

1: Census- alone- lowest #
2: Census- combo- highest #
3: Census- average- middle
4: Hawaii Health Survey

- Primary race?
- Better job of getting Native Hawaiians?

We have hospitalization data and we want to know if there are disparities by racial/ethnic groups in hospitalizations. What to do next?

Research question 1:

"How many hospitalizations per 1,000 people in a specific ethnic/race group?"

Rate:

A measure, quantity, or frequency; typically measured against some other quantity or measure

Group activity 1: Calculate hospitalization rates

For each race/ethnic group

Hospitalization counts against population size

$$Rate = \frac{Hospitalization\ \#}{Population\ \#} \times 1,000$$

Race	Chinese	Filipino	Native Hawaiian	Japanese	White	Sum of Major Ethnic Groups	Other	Total
Population Size								
Group 1	35,000	126,000	51,000	110,000	240,000	562,000	313,000	875,000
Group 2	114,000	201,000	166,000	175,000	363,000	1,019,000	-144,000	875,000
Group 3	74,500	163,500	108,500	142,500	301,500	790,500	84,500	875,000
Group 4	58,000	140,000	195,000	182,000	192,000	767,000	108,000	875,000
Hospitalizations	7,000	15,000	25,000	10,000	25,000	82,000	60,000	142,000
Rates								
Group 1	**200.00**	**119.05**	**490.20**	**90.91**	**104.17**	**145.91**	**191.69**	**162.29**
Group 2	**61.40**	**74.63**	**150.60**	**57.14**	**68.87**	**80.47**	**?**	**162.29**
Group 3	**93.96**	**91.74**	**230.41**	**70.18**	**82.92**	**103.73**	**710.06**	**162.29**
Group 4	**120.69**	**107.14**	**128.21**	**54.95**	**130.21**	**106.91**	**555.56**	**162.29**

Research question 2:

"Can we see an ethnic disparity in hospitalization rates compared to White?"

Rate Ratio (RR):

A comparison of two groups (X to Y) in terms of incidence rates

e.g.

RR>1.0 : rate of X > rate of Y

RR<1.0 : rate of X < rate of Y

RR=3.0 : rate of X is three times greater than rate of Y

RR=0.3 : rate of X is 30% of rate of Y

Group activity 2: Calculate RR compared to White

Reference group: White

Hospitalization rate of a specific ethnic group (X) against hospitalization rate of White

$$RR = \frac{Hospitalization\ rate\ of\ X}{Hospitalization\ rate\ of\ White}$$

Check your calculations to see if RR > 1.0 or RR < 1.0

Race	Chinese	Filipino	Native Hawaiian	Japanese	White	Sum of Major Ethnic Groups	Other	Total
Population Size								
Group 1	35,000	126,000	51,000	110,000	240,000	562,000	313,000	875,000
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Group 3	93.96	91.74	230.41	70.18	82.92	103.73	710.06	162.29
Rates Ratios								
Group 1	**1.92**	**1.14**	**4.71**	**0.87**	**1.00**		**1.84**	
Group 2	**0.89**	**1.08**	**2.19**	**0.83**	**1.00**		**?**	
Group 3	**1.13**	**1.11**	**2.78**	**0.85**	**1.00**		**8.56**	
Group 4	**0.93**	**0.82**	**0.98**	**0.42**	**1.00**		**4.27**	

Discussion:

- Why are your group results different from other group results?

- What is the impact of incorrect population numbers by ethnic/race group?

Discussion:

- **Why are your group results different from other group results?**

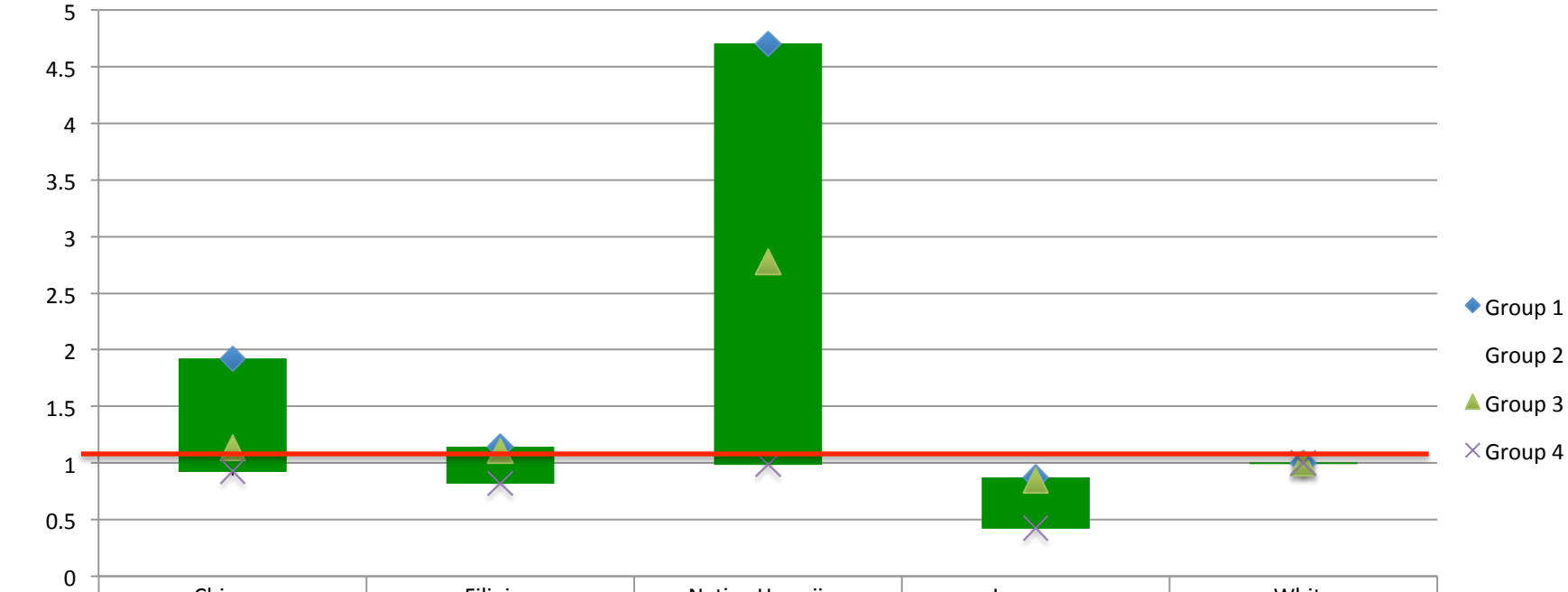
  Answer: Population numbers are different

- **What is the impact of incorrect population number by ethnic/race group?**

  Answer: RRs could be reversed (RR>1.0 → RR<1.0)

  Result could be wrong!!

Variation in Relative Rates by Denominator



	Chinese	Filipino	Native Hawaiian	Japanese	White
Group 1	1.92	1.142857143	4.705882353	0.872727273	1
Group 2	0.891578947	1.08358209	2.186746988	0.829714286	1
Group 3	1.133154362	1.106422018	2.778801843	0.846315789	1
Group 4	0.926896552	0.822857143	0.984615385	0.421978022	1

Summary:

- ✓ How race/ethnicity is measured is a critical issue in health disparities.
  - ✓ Mixed race
  - ✓ Primary race
  - ✓ Variation by age and race/ethnicity
- ✓ In rate and rate ratios, consider your numerator and denominator.
  - ✓ Ideally these should match.
- ✓ Can get incorrect conclusions from:
  - ✓ Incorrect population estimates
  - ✓ Differences in numerator vs. denominator measurement
- ✓ Helpful to compare across surveys, if available.

Implications

- How data is gathered matters
  - Plan carefully in asking the R/E questions
  - R/E questions may influence
    - program/service response rate, engagement, & retention,
    - data accuracy,
    - study findings/program outcomes
    - Policy to address disparities

Mahalo

Evaluations