Surveillance Data for Heart Disease And Stroke Prevention: A Clinician Educator’s Perspective

Charles K. Francis, MD, MACP, FACC
Age-adjusted death rates for CHD, stroke, lung and breast for white and black females (United States: 2006).
Source: NCHS.
Source: NCHS and NHLBI.
Percentage breakdown of deaths from cardiovascular diseases * (United States: 2006) - Not a true underlying cause.

Source: NCHS.
Hospital discharges for coronary heart disease by sex (United States: 1970-2006). Source: NHDS/NCHS.

Note: Hospital discharges include people discharged alive, dead, and status unknown.
Annual rate of first heart attack by age, sex and race.


Note: In-hospital procedures only.
Estimated 10-year stroke risk in 55-year-old adults according to levels of various risk factors (FHS).

*Closest ranges for women are: 95-104 and 115-124.

Prevalence of Lower-Extremity Disease in the U.S. Adult Population ≥40 Years of Age With and Without Diabetes

Figure 1—

Prevalence of LED among the overall, nondiabetic population, and diabetic population aged ≥40 years in the U.S., 1999–2000. *Does not meet standard of statistical reliability and precision (relative SE >30%).
Diabetes Awareness, Treatment and Control (NHANES: 2003-2006). **Source:** NHLBI.
Extent of Awareness, Treatment and Control of High Blood Pressure by Race/Ethnicity and Sex (NHANES: 1999-2006). Source: NCHS and NHLBI.
Source: Health, United States, 2008. NCHS.

Note: Obesity is defined as a BMI of 30.0 or higher.

NH – non-Hispanic.

* The survey question regarding leisure-time physical activity was not asked in Rhode Island in 1994.
Issues In Cardiovascular Health

- Race/ethnic admixture
- Acculturation
- Birthplace,
- Built environment
- Diet (salt, DASH diet)
- Insurance coverage
- Language
- Geography: urban-rural, neighborhood, city, state
- Legal and regulatory policies
- Education
- Income
- Religion
- Health beliefs and attitudes
- Medication non-adherence
- Pharmacogenomics
Socioeconomic Issues

- Lower socioeconomic ranks
- Lower quality schools
- Poorer paying jobs
- Mortgage lending denials
- Employment and housing discrimination
- Prior beliefs (clinical uncertainty relating to age, gender, socioeconomic status, and race or ethnicity)
- Bias against certain groups (e.g. immigrants)
- Beliefs (Stereotypes) held by the provider and patients
- Patient mistrust and resistance
Cardiovascular Surveillance

• Longitudinal data:
  • Impact of educational programs
  • Attainment of risk factor targets
  • Assessment of diagnostic technology
  • Performance indicators of quality
  • Clinical outcomes of therapeutic interventions
  • Adoption of electronic health record (EHR)
  • Changes in prevalence and incidence of CVD
• Standard definitions of data
• Linkage of national, state and local data
• Feed back to clinicians
• Feedback to patients
Figure 6
Population by Race and Ethnicity, Actual and Projected:
1960, 2005 and 2050
(% of total)

Note: All races modified and not Hispanic (*); American Indian/Alaska Native not shown.
See "Methodology." Projections for 2050 indicated by light brown bars.

Source: Pew Research Center, 2008
Racial and Ethnic Groups

In the Center’s projections, each person is included in only one race or Hispanic category. These projections assume that definitions of race and ethnic categories will remain fixed and that self-identification does not change over time. In reality, the growing numbers of births to parents of different racial and ethnic groups, as well as changing social norms about racial and ethnic self-identification, are serving to blur the boundaries of racial/ethnic categories. Consequently, the future sizes of race/ethnic groups could be higher or lower than the projection values even if the underlying demographic assumptions about the future prove to be correct.
The Association Between Birthplace and Mortality From Cardiovascular Disease Among Black and White Residents of NYC* (1)

- **Methods:** Mortality data for blacks born in the U.S. South, the Northeast and the Caribbean were compared with those for whites born in the Northeast.

- **Results:**
  1. Overall rates of mortality from CVD: blacks>white;
  3. Southern-born black men and women had higher mortality rates than their black counterparts born in the Northeast.
  4. Caribbean-born blacks had mortality rates lower than their black counterparts born in the Northeast.

The Association Between Birthplace and Mortality From Cardiovascular Disease Among Black and White Residents of NYC*(2)

Results (continued)

• Black men born in the South had death rates 30 percent higher than Northeastern-born blacks and four times that of Caribbean-born blacks of the same sex and age.

• Higher rates of CVD mortality among blacks compared to whites masks substantial variation among blacks based on birthplace.

2010 Census Questionnaire

- Hispanic Identity:
- Is this person of Hispanic, Latino or Spanish origin?
  - No, not of Hispanic, Latino or Spanish origin
  - Yes, Mexican, Mexican Am. Chicano
  - Yes, Puerto Rican
  - Yes, Cuban
  - Yes, another Hispanic, Latino, or Spanish origin

*Population Reference Bureau:*
2010 Census Questionnaire

- What is the person’s race?: White, Black, African Am or Negro, American Indian or Alaska Native
- Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander
- Other Asian: (print race: e.g. Hmong, Laotian, Thai, Pakistani, Cambodian and so on.
- Some Other Race (print race)

*Population Reference Bureau:
Heterogeneity Within Racial and Ethnic Groups

The Asthma Example:
• Prevalence and mortality of asthma is highest in Puerto Ricans, African Americans, Filipinos and Hawaiians.
• Prevalence is lowest in Mexicans and Koreans
• Albuterol response lower in Puerto Ricans vs. Af Am.

Genetic Admixture and Ancestry
• African American ancestry is on the average 20% European and 80% African.
• Latino populations are descendents of European, Native American and African ancestors. The average proportion of these ancestral populations varies between Latino subgroups and among individuals within the same group.

*Drake KA, Galanter JM, Burchard EG. Race, ethnicity and social class and the complex etiologies of asthma. Pharmacogenomics 2008. 9(4);453-462
• **Clinical Adaptation:** We conclude that more attention needs to be devoted to (a) identifying the correct etiologic period within a life-course perspective and (b) understanding the dynamic interplay between *preventive, diagnostic and therapeutic* interventions *and outcomes* and the *genetic, clinical, social, economic, and environmental* contexts in which interventions are delivered.
Thank you for your attention