Tracking Our Nation’s Health
Using NCHS Data and Resources

Association of Public Data Users
September 22, 2011
Life Expectancy and Age-Adjusted Death Rates

NOTE: Prior to 1933, data are for death-registration States only.
NCHS Mission

- To monitor the nation’s health—to collect, analyze and disseminate health data
- To provide statistical information that will guide actions and policies to improve the health of the American people through ...
  - Policy
  - Research
  - Industry
- And by directly informing the public
The Prime Directives

- Data for Policy and Research
- Timely Release to all

Federal Statistical System

- Bureau of Transportation Statistics
- Bureau of Labor Statistics
- Bureau of Justice Statistics
- Energy Information Administration
- Bureau of Economic Analysis
- IRS Statistics of Income
- National Center for Health Statistics
- National Center for Education Statistics
- Economic Research Service
- National Agricultural Statistics Service
- Bureau of the Census
- NSF Science Research Statistics
- SSA Research Evaluation and Statistics

Principles and Practices for a Federal Statistical Agency

SECOND EDITION
Health System Model
A Dynamic Model of Health Status
--from Evans and Stoddart

Births

Social Environment

Physical Environment

Genetic Endowment

Individual Response
  --Behaviour
  --Biology

Health & Function

Disease

Health Care

Well-Being

Prosperity

Deaths
Four Major Data Systems

- **Births and Deaths**
  - National Vital Statistics System and surveys

- **Health Status (Disease, functioning, risk factors, ...)**
  - National Health Interview Survey (NHIS)
  - National Health and Nutrition Examination Survey (NHANES)

- **Health Care (Visits, diseases, physicians, care quality, waiting time, ...)**
  - National Health Care Surveys
    - Ambulatory care
    - Hospital care
    - Long term care + others
National Health Interview Survey

- **Data source**
  - Representative in person, in home survey of 87,500 respondents

- **Data applications**
  - Health status and disability
  - Insurance coverage
  - Access to and use of health services
  - Extent of illness and disability
  - Immunization
  - Health behaviors
National Health and Nutrition Examination Survey

- Data source
  - Standardized physical examinations, laboratory tests, personal interviews with annual sample of 5,000

- Data applications
  - Disease or condition prevalence
  - Risk factors
  - Nutrition monitoring
  - Anthropometry
  - Growth and development
  - Disease monitoring
Budget and Data

- Priorities:
  - Maintain critical data series to track changes in health
  - Provide base to evaluate policy changes
  - Provide base for health research (Policy, Health Care, Biomedical)
# Meeting New Initiatives

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<td>• Physician surveys on adoption/use of electronic health records</td>
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Budget and Data Management ‘s Tools

• **Budget increase/decrease:**
  - Vital Statistics
    - Extent of birth and death detailed information
  - Surveys
    - Sample size
      - Population and geographic detail
      - Length of time data pooled for analysis
      - Use of modeling to fill gaps in time
Health Insurance Trends

Budget affects detail: E.g.
- Age
- Race
- State
- Income
- Health status
Risk Factor Trends

Budget affects detail: E.g.

- Age
- Race
- State
- Income
- Health status

Trends in Mean Total Cholesterol

Mean total cholesterol (mg/dl)

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey, Ages 20–74 years
Risk Factor Trends

Budget affects detail: E.g.
- Age
- Race
- State
- Income
- Health status

Trend in Elevated Blood Pressure

SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey. Ages 65+ years
Risk Factor Trends

Budget affects detail: E.g.

- Age
- Race
- State
- Income
- Health status

Cigarette Smoking Among Adults

[source: CDC/NCHS, National Health Interview Survey]
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Budget and Data

- Budget decrease/Program adjustments
  - Vital Statistics
    - Reduce birth and death detailed information
  - Surveys
    - Reduce sample size
      - Reduce detail
      - Collect over several years
    - Collect data less frequently
      - Use modeling to fill gaps in time
      - Use less precise data sources
National Center for Health Statistics
What We Do:

Monitor the nation’s health by collecting, analyzing and disseminating health data

- Compare across time, populations, providers and geographic areas
- Identify health problems, risk factors, and disease patterns
- Inform actions and policies to improve the health of the American people
NCHS Data Systems Use These Sources ...

- Birth and death records
- Medical records in hospitals, nursing homes, emergency rooms, doctors’ offices
- Interviews with staff in hospice and home care agencies
- Physical examinations and laboratory testing in mobile exam centers
- Personal interviews in the home and via phone

Rates per 1,000 women aged 15-19 in specified group

- All races
  - 1991: 62
  - 2005: 41
  - 2006: 42
  - 2007: 43

- White *
  - 1991: 43
  - 2005: 26
  - 2006: 27
  - 2007: 27

- Black *
  - 1991: 118
  - 2005: 61
  - 2006: 64
  - 2007: 64

- Hispanic
  - 1991: 105
  - 2005: 82
  - 2006: 83
  - 2007: 82

- AI/AN
  - 1991: 84
  - 2005: 53
  - 2006: 55
  - 2007: 59

- API
  - 1991: 27
  - 2005: 17
  - 2006: 17
  - 2007: 17

Non-Hispanic
National Survey of Family Growth

Data source and sample

- In-person interviews in the home
- Annual sample of 7,600 women and 5,000 men, representative of the civilian US population, ages 15-44

Findings

- Reproductive health
  - Fertility/infertility
  - Contraception
  - Pregnancy
  - Sexual activity
- Family formation
  - Marriage, divorce, cohabitation
Health Insurance coverage status among persons under 65 years of age, January-September, 2009

- **Uninsured at time of interview**: 8.2% (Children under 18 years), 21% (Adults under 65 years)
- **Uninsured at least part of the year**: 13% (Children under 18 years), 25.5% (Adults under 65 years)
- **Uninsured for more than a year**: 4.9% (Children under 18 years), 15.2% (Adults under 65 years)
- **Public coverage**: 14% (Children under 18 years), 37.4% (Adults under 65 years)
- **Private coverage**: 56.2% (Children under 18 years), 66.3% (Adults under 65 years)
Prevalence of current asthma among persons of all ages, by age group and sex, Jan - Sept 2009

95% confidence interval

Percent

Age group (years)

All ages
Under 15
15–34
35 and over

Total
Male
Female
Other Health Interview Surveys

- National Immunization Survey
- State and Local Area Integrated Telephone Survey (SLAITS)
National Health and Nutrition Examination Survey
NHANES Mobile Exam Center
Average total cholesterol among Men and Women 20-74 years of age—1959-1962 to 2007-2008

Survey period

Mean total cholesterol (mg/dL)

Men

Women
Examples of National Health Care Survey Data

- Diagnosis
- Treatment and services
- Characteristics of patients
- Characteristics of health care providers
Examples of National Health Care Survey Data, Con't

- Patterns of disease
- Use of technology and drugs
- Emergence of alternative care sites
Electronic Medical Records/Electronic Health Records (EMR/EHR):
United States, 2001-2008, and preliminary 2009

Note: Dashes indicate preliminary data
Median Waiting Times
Emergency Departments, United States, 2005-2007

- non-Hispanic white: 29 minutes
- Non-Hispanic black: 39 minutes
- Hispanic: 38 minutes
Data Confidentiality

- Section 308(d), Public Health Service Act
- Privacy Act
- Confidential Information Protection and Statistical Efficiency Act (P.L. 107-347)
Welcome to the RDC Website!

The NCHS Research Data Center (RDC) is in the unique position of being able to provide secure access to the full range of health and vital statistics information collected by the National Center for Health Statistics data systems, while continuing to protect the confidentiality of the respondents and records.

Our mission is to give wide public access to the data, while maintaining strict confidentiality, and to offer our statistical, programming, and consulting expertise to facilitate the data analysis for your research project. Please review the Guidelines for Use of the Research Data Center PDF.

We provide a dataset created for you, using variables from virtually any NCHS data collection activity. For more information, see the NCHS Summary Matrix PDF.
Welcome! Health Data Interactive presents tables with national health statistics for infants, children, adolescents, adults, and older adults. Tables can be customized by age, gender, race/ethnicity, and geographic location to explore different trends and patterns.

Table Topics

- Health and functional status
- Health care use and expenditures
- Health conditions
- Health insurance and access

- Mortality and life expectancy
- Pregnancy and birth
- Risk factors and disease prevention
Affordable Care Act
Data and Measurement Provisions

- Vital statistics
- Quality improvement
- Disparities
- Levels of geography
- Health outcomes
- Oral health
- National health indicators
NCHS Program Changes …

Affordable Care Act: New survey questions

• On the NHIS about health insurance coverage

• New questions to long-term care surveys to respond to anticipated direct care workforce shortages

• Assessing adoption and meaningful use of Electronic Health Records
Program Changes ...

Expanding sample size of our surveys to provide more data for subpopulations

- **Selected state-level estimates** from the NAMCS on primary care visits

Surveying **new provider settings** including community health centers and residential care places
Purpose: To maximize the scientific value of the NCHS data (surveys and vital statistics)

- Survey data are routinely linked to administrative records
- Add a longitudinal component to cross-sectional survey data
- Linkage enables the study of factors that influence chronic disease, disability, health care utilization, morbidity, and mortality
NCHS Surveys Linked to Administrative Records

- National Health Interview Survey (NHIS)
  - Each year since 2000
- NHANES:
  - NHANES 1999-2004
  - NHANES III and
  - NHANES II
  - NHANES I Epidemiologic Follow-up Study (NHEFS)
- The Second Longitudinal Study of Aging (LSOA II)
- National Nursing Home Survey (NNHS)
Examples of Administrative Records Linked to Surveys

- National Death Index
- Medicare and Medicaid enrollment and claims
- Social Security Administration Retirement and Disability
- Pilot projects
  - Florida Cancer Data System
  - Texas Supplemental Nutrition Assistance Program (SNAP)
  - Natality data for NHANES children and infants of pregnant women
- Geographic linkage projects
  - Air quality, traffic, climate
Childbearing Differences Among Three Generations of U.S. Women

Key findings

- Of three generations of women born in 1910, 1935, and 1960, those born in 1935 had the most children (on average 3.0 children per woman) and those born in 1960 had the highest number of children.

- Women born in 1935 had on average three births—the highest of the three cohorts.

- Women born in 1960 started their childbearing at an older age.

- Women born in 1935 had the highest number of children; women born in 1910 had the lowest.
Visit our Web site at:

www.cdc.gov/nchs/
Healthy People 2020

- **General Health Status**
  - Life expectancy
  - Healthy life expectancy
  - Years of potential life lost
  - Physically and mentally unhealthy days
  - Self-assessed health status
  - Limitation of activity
  - Chronic disease prevalence

- **Determinants of Health**
  Determinants of health include, for example, biology, genetics, individual behavior, access to health services, and the environment in which people are born, live, learn, play, work, and age.

- **Disparities**
  Measures of Disparities and inequity include differences in health status based on:
  - Race/ethnicity
  - Gender
  - Physical and mental ability
  - Geography

- **Health-Related Quality of Life and Well-Being**
  - Physical, mental, and social health-related quality of life
  - Well-being/satisfaction
  - Participation in common activities

⇒ Total: 42 topics areas and nearly 600 objectives -- by some counts over 1,000 objectives
Leading Health Indicators
Institute of Medicine (2010)

- Access to health care services
- Healthy behaviors
- Chronic disease
- Healthy physical environment
- Healthy social environment
- Injury

- Positive mental health
- Healthy births
- Responsible sexual behavior
- Substance abuse
- Tobacco
- Quality health care services
Community Health Data Initiative

Data Sources
- Health Indicators Warehouse (HIW)
- Other federal data sets
  - State and local governments
  - Private sector data suppliers
  - Others

Innovators

Applications

End Users

Feedback on data
Welcome to the Health Data Community

You've found a public resource designed to bring together high-value datasets, tools, and applications using data about health and health care to support your need for better knowledge and to help you to solve problems. These datasets and tools have been gathered from agencies across the Federal government with the goal of improving health for all Americans. Check back frequently because the site will be updated as more datasets and tools become available.

More Information

Recent Blog Post

Learning about Employee Benefit Survey Data

By: Bill Wiatrowski, Bureau of Labor Statistics

There are many hidden gems available through healthdata.gov. One such jewel, the Employee

What's New

Learn about our newest high-value datasets and APIs.

- CDC BioSense: Tarrant County, Texas
- Medicare Prescription Drug Benefit Dashboard BETA
- DailyMed

Challenges

Get inspired to create your own application using the data and tools made available through HealthData.gov. Challenges and contests where you can compete against other programmers to create great health-related applications can be found through the following links.
Sources for the IOM Study of the Future of Emergency Care: NCHS Surveys on Ambulatory Care
A Profile of Uninsured Persons in the United States

The Burden of Pain Among Adults in the United States

Findings from the National Health and Nutrition Examination Survey, the National Health Care Surveys, and the National Health Interview Survey
A Dynamic Model of Health Status
--from Evans and Stoddart
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Births ➔

Social Environment ➔ Physical Environment ➔ Genetic Endowment

Individual Response
Behavior
Biology ➔ Health Function

Disease ➔ Health Care

Well-Being ➔ Prosperity

Deaths ➔
A Dynamic Model of Health Status
--from Evans and Stoddart
Meeting the New Initiatives

• Health Insurance
• Prevention
• Electronic Records

• Insurance questions on coverage, exchanges
# Meeting the New Initiatives

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Four Major Data Systems

- National Vital Statistics System and surveys
- National Health Interview Survey
- National Health and Nutrition Examination Survey
- National Health Care Surveys
National Vital Statistics System

- Birth and death records
  - National Vital Statistics System Cooperative Program—partnership with registration areas (State and Territories)
- Information at the State and local level
National Health Care Surveys

- Hospital Discharge Survey
- Ambulatory Care Survey
- Hospital Ambulatory Care Survey
- Nursing Home Survey
- Home and Hospice Survey
- Residential Care Survey
Examples of Critical Measures

- Vital Statistics
- Longevity
Examples of Critical Measures

- Health Status
- Insurance
Examples of Critical Measures

• Health Status

• Control of Blood Pressure
Examples of Critical Measures

- Health Care
- ?????? (Waiting times?)
- Community Health Centers
- 3 47 Primary Care sites