Epidemiology and Surveillance Webinar

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Epidemiology and Surveillance Branch
Why are we here today?
Purpose

• Introduce a new series of epidemiology and surveillance technical assistance calls designed specifically for 1305 and 1422 grantees.
• Provide an introduction to the Division of Heart Disease and Stroke Prevention’s (DHDSP) Epidemiology and Surveillance Branch (ESB), including project highlights and technical assistance resources.
• Provide participants with an opportunity to discuss state training and technical assistance needs for epidemiology and surveillance, particularly related to health systems and heart disease and stroke prevention.
Support CDC’s Public Health Priorities

- Excellence in surveillance, epidemiology, laboratory services
- Strengthen support for state, tribal, local, and territorial public health
- Use scientific and program expertise to advance policy change that promotes health
- Better prevent illness, injury, disability, and death
- Increase global health impact
Who are we?
What do we do?
Repeated Calls for Improved National CVD Surveillance
Imperative to Improve CVD Surveillance Data

- No national system to quantify and track the incidence and recurrence of myocardial infarction or stroke.

- Limited data on the prevalence and control of major risk factors, such as hypertension and hyperlipidemia, at the state and local level and among the most vulnerable populations.

- Despite steady decline in CVD mortality since 1960’s, limited data exist to describe which prevention and treatment strategies are having the greatest impact.

- Some CVD related conditions are increasing or remain high – obesity and diabetes.
Key Milestones Impacting CVD Surveillance

2003
CDC Public Health Action Plan to Prevent Heart Disease and Stroke

2005
NHLBI Data Needs for Cardiovascular Events, Management and Outcomes

2007
AHA Scientific Statement of a Surveillance System to Support the Prevention and Management of Heart Disease and Stroke

2008
DHSP Initiative to Increase Capacity for CVD Surveillance

2011
IOM Report: A National Framework for Surveillance of Cardiovascular and Chronic Lung Diseases

2014
CDC Surveillance Strategy

2015
DHDSP Policy Research Agenda for Heart Disease and Stroke Prevention
Engagement and Collaboration

Domestic

• State/territorial and local health departments, tribes and tribal organizations
• Federal Agencies (e.g., NIH, NHTSA, FDA, USDA, CMS, HRSA, AHRQ)
• Practitioners (e.g., AMA, AAP, ACC)
• Non-Government Partners (e.g., AHA, NACDD, CSTE)

International

• Country-specific ministries of health
• Global Partners (e.g., WHO, PAHO)
Four Domains of Chronic Disease

Domain 4: Community-Clinical Links

Domain 3: Health System Strategies

Domain 2: Environmental Approaches

Domain 1: Surveillance and Epidemiology
Foundational, Evolving and Novel Data Sources

FIGURE 7-2 Traditional and evolving data sources for surveillance.
Current ESB Priorities

• Million Hearts™

• Winnable Battles & ABCS

• Sodium Consumption Reduction

• Surveillance
<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
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<tbody>
<tr>
<td>Vital Statistics</td>
<td>NVSS and NDI</td>
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<tr>
<td>Community-based Surveys</td>
<td>BRFSS, NHANES, NHIS and CVHES</td>
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<tr>
<td>Health System-based Surveys</td>
<td>NAMCS, NHAMCS, NHDS, HCUP, MEPS and MarketScan</td>
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<tr>
<td>Knowledge, Attitudes and Behaviors</td>
<td>BRFSS, NHIS and Styles</td>
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<tr>
<td>Food Composition and Supply (Sodium)</td>
<td>NHANES, Nielsen Scantrak (Sales), Gladson, Mintel, Food Essentials’ Label Insights and NYC’s MenuStat</td>
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<tr>
<td>Registries</td>
<td>PCNASP, CARES and NEMSIS</td>
</tr>
<tr>
<td>Type</td>
<td>Example</td>
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<tr>
<td>Million Hearts®</td>
<td>Clinical Quality Measures (CQM) Dashboard</td>
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<tr>
<td>Program Data</td>
<td>WISEWOMAN</td>
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<tr>
<td>Policy and System Performance</td>
<td>Chronic Disease State Policy Tracking System, HRSA UDS, NCQA HEDIS and CMS PQRS</td>
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<tr>
<td>Small Area Analysis (GIS and Spatio-temporal Trends)</td>
<td>NVSS, Medicare (MedPAR), Census Data and Primary/Comprehensive Stroke Centers</td>
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<tr>
<td>Online Resources</td>
<td>Data, Trends &amp; Maps (DTM), Interactive Atlas of Heart Disease and Stroke, MH® CQM Dashboard, Chronic Disease GIS Exchange and GIS Snapshots</td>
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## Emerging Approaches

<table>
<thead>
<tr>
<th>Type</th>
<th>Opportunity</th>
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<tbody>
<tr>
<td>Medication Adherence and Density</td>
<td>Pharmacy data: IMS, Medicare Part D, Department of Defense (DOD), Veterans Administration (VA), Indian Health Service and Tribal</td>
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<tr>
<td>Technical Assistance, Support and Outreach</td>
<td>1305 Surveillance Workgroup, State Epi &amp; Surveillance Calls and <em>Surveillance and Evaluation Data Resources for Heart Disease and Stroke Prevention Programs</em> (at-a-glance compilation)</td>
</tr>
<tr>
<td>Health Economics and Comparative Effectiveness Analysis</td>
<td>Expand beyond “cost of illness” studies to cost-effectiveness, prevention effectiveness and return on investment (ROI) studies</td>
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New and Novel Approaches

- **New Data Elements from Existing Sources**
  - Sodium and Potassium Intake
  - Ambulatory Blood Pressure
  - CVD Incidence
  - Aspirin Use for Primary and Secondary Prevention
  - School-based Surveillance

- **Novel Data Sources**
  - Administrative Claims: CMS and DOD
  - Pooled Cohort Research (NIH) and derivative surveillance
  - Electronic Health Information (EHI)
Forthcoming

- Ambulatory Blood Pressure Monitoring (NHANES)
- Home Blood Pressure Monitoring (NHANES)
- Department of Defense (DOD) & Veteran’s Administration (VA)
- Supplement of Primary Care Policies (NSPCP) for Managing Patients with High Blood Pressure, High Cholesterol, or Diabetes (NAMCS)
- National Hospital Care Survey (NHCS) – formed by combining NHDS & NHAMCS; linkable to NDI, MEDPAR and MSIS
Surveillance Challenges and “Opportunities”

- Timely (real time), efficient and local
- Risk factors and morbidity vs. disease and mortality
- Special populations and health disparities
- Events versus incidence
- Data warehousing, big data and data linkage
- Sentinel
- Meaningful use and clinical quality measures
- Health systems as unit of analysis, i.e., protocol use
- Data Visualizations
- Media, Social Media and Internet-based samples
- Healthy People Objectives
Epidemiology, Surveillance and Health Services

**Surveillance**

Examples:
- Surveillance system guidance
  - BRFSS core and modules
  - NHANES modules (AMBP)
  - NHIS modules (HP2020)
- Healthy People 2020
- Million Hearts®
- Utilizing existing data (health systems, administrative) and expanding use of novel data (pharmaceutical, policy)

**Technical Assistance**

Diverse technical assistance, by:
- Disease condition
- Setting (domestic, global)
- Program (1305, Coverdell)
- Partner (internal, external)
- Data collection system

**Publication, Dissemination, Collaboration**

- Generating peer-reviewed manuscripts and reports to maximize data collection investments
- Communication of science (training videos, podcasts, media inquires)
- Liaise with partners, representation on workgroups, collaborations with others (internal/external)

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Blood Pressure Control

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
</tr>
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<tbody>
<tr>
<td>1999-00</td>
<td>120/80</td>
<td>80/50</td>
</tr>
<tr>
<td>2000-01</td>
<td>125/85</td>
<td>85/55</td>
</tr>
<tr>
<td>2001-02</td>
<td>130/90</td>
<td>90/55</td>
</tr>
<tr>
<td>2002-03</td>
<td>135/95</td>
<td>95/60</td>
</tr>
<tr>
<td>2003-04</td>
<td>140/100</td>
<td>100/60</td>
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**Trends in Mortality Rates by Subtypes of Heart Disease in the United States, 2000-2010**

JAMA. 2014;312(19):2037-2039

**An Effective Approach to High Blood Pressure Control**
A Science Advisory From the American Heart Association, the American College of Cardiology, and the Centers for Disease Control and Prevention

J Am Coll Cardiol. 2014;63(12):1230-1238

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Status of Cardiovascular Health Among Adult Americans in the 50 States and the District of Columbia, 2009

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Hypertension Protocols

https://quantiamd.com/home/millionhearts
Health Systems and Services Research

- Examines how people get access to health care, how much care costs, and what happens to patients as a result of this care.
  - Understand the role of public health in population health management

- Five main domains into which our work falls
  - Measuring collaborative relationships
  - Monitoring excellence
  - Assessing impact of paying
  - Measuring transparency and accountability
  - Measuring improvements in health and wealth

(Beyond the Patient Protection and Affordable Care Act: Enduring Trends in Healthcare, Fabius RJ, MacCracken L, Pickens G; Truven Health Analytics)
Paul Coverdell National Acute Stroke Program (PCNASP)

- Funded 9 States to improve stroke care across the continuum of care
- Engaging EMS in QI & PMs, improving transition from EMS to ED
- The early transition from hospital to home
  - Early support, community resources
  - Medication adherence
  - Fall prevention
  - Improving patient and caregiver education
- Linking care across the continuum to improve the overall care for stroke survivors as they reintegrate with their PCP
- Public education
Small Area Surveillance of Heart Disease and Stroke

On-line Atlas of Heart Disease and Stroke
Includes:
- Mortality Rates
- Hospitalization Rates
- Health Facilities
- Socio-Economic Data
New Feature in Progress:
- Sub-County Data
http://nccd.cdc.gov/dhdspatlas/

Spatio-Temporal Surveillance of Heart Disease and Stroke Mortality
Monitoring Spatial and Temporal Trends:
- 1970s – 2013
- By County
- By Race-Gender
- By Age Group

Building Capacity for State and Local Health Departments to Use GIS for Small Area Surveillance
Develop GIS Skills
Use GIS to:
- Enhance Partnerships
- Inform Policy and Program Decisions
- Address the Four Domains of Chronic Disease Prevention
http://www.cdc.gov/dhdsp/programs/gis_training/index.htm

The Chronic Disease GIS Exchange
An On-Line Forum with:
- Map Gallery
- GIS Training Modules
- GIS Resources
http://www.cdc.gov/dhdsp/maps/gisx/
Sodium Workgroup of Heart Disease and Stroke

- Sodium Intake Monitoring and Surveillance
  - **Salt Sources Study**: updating previous study\(^1\) on the relative contributions of dietary sodium in a diverse population
  - **NHANES urine collection and calibration study**: estimate baseline 24-hour sodium intake (from all sources) among the U.S. population in 2014
  - **Sodium Evidence Review**: ongoing systematic review of the literature regarding sodium and health outcomes
  - **Knowledge, attitude, and behaviors related to sodium intake and reduction**: sodium questions added and maintained on surveys, i.e. Styles and BRFSS

- Sodium in Foods Monitoring and Surveillance
  - **USDA Sentinel Food Surveillance**: ongoing nutrient analysis of ~125 foods that are major contributors of sodium across the US food supply
  - **National Packaged Food Database**: describe the sodium content of commercially processed/packaged grocery store foods within the specific food categories
  - **Commercial Baby and Toddler Food Database**: establish baseline sodium content of commercially processed baby and toddler foods
  - **Menustat**: collaborated with New York City on developing a database to monitor sodium content in restaurant foods.

- **Work with food industry and manufacturers to support sodium reduction efforts**

Statistics Unit

- **Statistical support and guidance**
  - Million Hearts®
  - ABCS
  - Sodium monitoring & surveillance
  - PCNASP
  - WISEWOMAN
  - Healthy People 2020
  - American Heart Association

- **Products**
  - Data Trends & Maps website
  - Interactive Atlas of Heart Disease and Stroke
  - Scientific publications and presentations
    - Vital Signs
Million Hearts® Clinical Quality Measure Dashboard

http://millionhearts.hhs.gov/aboutmh/cqm_dashboard.html
Million Hearts® Clinical Quality Measure Dashboard

- Monitor and track over time national efforts related to Million Hearts® ABCS:
  - Aspirin for those at risk,
  - Blood pressure control,
  - Cholesterol management, and

- Compare state-level performance to national averages

- Compare state-level data, HHS region, and national averages to the Million Hearts® performance targets (70%)

- View demographic characteristics of reporting systems and compare to U.S. Census distribution
Mantra for Surveillance in DHDSP

Monitor the public’s health through the timely collection, analysis, interpretation, and dissemination of programmatically relevant data
From Data to Impact

Data Management
- Collection
- Collation
- Data Entry
- Reporting

Data Use
- Information Knowledge Understanding
  - Analysis
  - Interpretation
  - Communication
- Informed Decisions
  - Program Design
  - Implementation
  - Monitoring & Evaluation
- Changes in Policies & Practices

Health Impact
- Reduced Morbidity & Mortality
From Data to Impact

Vital Signs – 7 (8th in 2016)

Peer Reviewed Publications
FY14 – 64
FY15 – 78

http://www.cdc.gov/vitalsigns/
How can we help you?
Thank you!

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333
Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov  Web: www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.