National Environmental Public Health Tracking

Heather Strosnider, CDC Tracking Program
14th Annual National Birth Defects Prevention Network Meeting

University of California Berkeley
University of Utah

University of Illinois
University of Pittsburgh

New York City, NY
University of Medicine & Dentistry of New Jersey
Environmental Public Health Tracking

THE CHARGE
Environmental Health Tracking: The Beginning

- Pew commission – gaps in data and information
  - % of population covered by birth defects registry
  - # of birth defects
  - % of birth defects for which etiology is unknown
Environmental Health Tracking: The Beginning

- Do have set of criteria for case ascertainment, and data quality and completeness
- Do not have sufficient financial resources to support full-fledged birth defects surveillance systems

- Results in variability across states
Environmental Public Health Tracking

OUR PLAN
Environmental Health Tracking and Birth Defects

- Track trends in birth defects
- Link BD and environmental hazards data
  - DW - disinfection by-products, nitrates, and halogenated solvents
  - Air - CO, SO2, ozone, PM, certain heavy metals, air toxics, and pesticides
  - Residential proximity to hazardous sites
Environmental Health Tracking and Birth Defects

- Communication
- Collaboration
- Sharing of resources
- High quality birth defects prevalence data for which the geospatial and temporal patterns and distributions can be monitored.
Environmental Public Health Tracking

PROGRESS
Communication, Collaboration, and Sharing

- Tracking Grantees collaborating with BD programs
  - Funding and technical assistance – 9
  - Funding – 3
  - Technical assistance – 4

- Funding = 120K to 10K
Communication, Collaboration, and Sharing

New Hampshire

- Missing values for mother’s age, infant gender, and mother’s race and ethnicity

- Linked birth defects data with vital statistics data
  - Infant’s name
  - Infant’s and mother’s DOB
  - Manually checked – in what way is the infant’s name different

- Now performed on each new year of data
Communication, Collaboration, and Sharing

Louisiana

- Financial support to assist with data acquisition and processing
  - Scanning and entering birth defects data from paper forms to digital format
  - Develop interoperable database
  - Develop core indicators and metadata for EPHTN
  - Geocoding
Communication, Collaboration, and Sharing

Maryland

- Annual funds for development of the data base
- Technical assistance
  - Geo-coding of BD data
  - Development of data collection forms
  - Testimony in support of new expanded BD reporting law
Collaborative Development Process

CDC EPHT

Portal Analysis and Visualization Team

Content Workgroup
- Air
- Water
- Cancer
- Lead Poisoning
- Birth Defects
- CO Poisoning
- Reproductive Health
- Asthma
- CVD

Program Marketing & Outreach Workgroup
- Health Disparities
- Data Stewards
- Outreach
- Content Messaging

Standards & Network Development Workgroup
- Network Architecture
- Security
- Geography & Locational Referencing
- Metadata
Tracking Trends: Prevalence Data

- Prevalence rates and average annual counts over 5 year period
- Anencephaly
- CL w/ or w/out CP
- CP w/out CL
- Trisomy 21
- Gastrochisis
- Hypoplastic Left Heart Syndrome
- Hypospadias
- Lower & Upper Limb deficiencies
- Spina Bifida
- Tetralogy of Fallot
- Transposition of Great Arteries
Tracking Trends: Prevalence Data

- Received data from 15 states
- Publishing data for 11 states
  - 1 state sent suppressed data
  - 2 states didn’t have enough years of data
  - 1 state had counts much lower than expected and was unable to resolve the discrepancy

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<th>Defect</th>
<th>Non-Hispanic White</th>
<th>Non-Hispanic Black or African</th>
<th>Hispanic</th>
<th>Asian or Pacific Islander</th>
<th>American Indian or Alaskan Native</th>
<th>Total**</th>
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Notes (+):
Tracking Trends: Prevalence Data

- **Building volume of data**
  - 12 birth defects
  - 11 states
  - Up to 6 five year periods

- **Improving and expanding functionality**
  - More flexible system
  - Better tables, maps, and graphs

- **Developing secure portal**
  - Restricted access
  - More data and functionality
Linking BD and Environmental Data

- High quality BD data
- Residence prior to and during pregnancy
- Maternal behavior or other risk factors
- Exposure or environmental data
- Methods and tools to pull it all together
Linking BD and Environmental Data

- Working with environmental partners
- Evaluating use of non-traditional datasets
- Evaluating and developing methods and tools
Linking BD and Environmental Data
Remote Sensing Data
Linking BD and Environmental Data
Academic Partners

- Linking ambient air and child blood lead levels – PITT
- Developing multi-level geographical model to detect high disease rates – UCB
- Linking PM2.5 and hospital admissions for CVD outcomes – UCB, PITT, UMDNJ
- Linking children’s health and exposure to water contaminants – U Illinois
Linking BD and Environmental Data
Academic Partners

- Linking Drinking Water Contaminants and Adverse Birth Outcomes – U of Utah

- Evaluate methods for
  - Estimating concentrations at tap
  - Linking populations to CWS
  - Accounting for the effects of water use behavior patterns

- Link exposures to arsenic and disinfection by-products in drinking water and LBW, VLBW and prematurity
Linking BD and Environmental Data

- Goal of projects less about establishing etiology
- Illustrating how to use data we have
- Techniques for using non-traditional data to fill in gaps
- Methods and models for linking health and environmental data
Environmental Public Health Tracking

MOVING FORWARD
Moving Forward

- Continuing collaborations at national, state, and local levels
- Sharing and leveraging resources
- Exchanging expertise and ideas
Moving Forward

- **Track trends in BD**
  - Reviewing standards used by Tracking – CWG
  - Publishing rates on Tracking Portal
  - Validating rates
  - Looking for trends

- **Link BD and environmental data**
  - Leverage results and products
  - Evaluate linking of cleft palate and PM 2.5 – CWG & NBDPN
Thank you

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