CDC/ATSDR Activities and Role in Environmental Health
EEH - 2005

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National Center for Environmental Health/
Agency for Toxic Substances and Disease Registry
Centers for Disease Control and Prevention
"Excuse me! Can we get a little Newborn Screening over here?"

Click here to learn how you can help!
The National Center for Environmental Health

We don’t regulate your environment …

- Prevention programs (asthma, Pb poisoning)
- Measuring people’s exposures to chemicals
- Investigating disease outbreaks
- Improving local/state environmental services
- Providing lab quality assurance programs
- Preparing and responding to chemical, radiation, and natural disaster events
- Inspecting cruise ships & chemical weapons sites
- Provide public health for refugees worldwide
ATSDR Major Program Areas

• Site Assessments
• Health Investigations
• Exposure and Disease Registries
• Emergency Response Program
• Health Education and Promotion
• Toxicological Profiles
Today’s Highlights

- Third National Report on Human Exposure to Environmental Chemicals
- Asbestos
- Hurricane Katrina
National Report on Human Exposure to Environmental Chemicals

- What chemicals get into Americans?
- How many people have elevated levels?
- Do exposure reduction efforts work?
- What are background levels?
- Do exposures to Americans change over time?
- Do exposures differ across susceptible groups?
- Set priorities for health research

27 chemicals

116 chemicals

141 chemicals
NHANES Survey

- National probability sample
- Data released every 2 years
- 30 localities via mobile trailers
- Behaviors + physical exam
- Medical and nutritional lab tests

Biomonitoring program

- Blood and urine
- 1/3rd sub-sample
- Sample size ~ 2400
- 350,000 + analyses

National Report on Human Exposure to Environmental Chemicals
Chemicals in the Report

- Metals
- Polychlorinated biphenyls, dioxins and furans
- Organochlorine, organophosphate, carbamate, and pyrethroid pesticides
- Herbicides
- Polycyclic aromatic hydrocarbons
- Phthalates
- Phytoestrogens
- Pest repellants
- Cotinine

www.cdc.gov/exposurereport
Figure 6. Lead in blood

Selected percentiles with 95% confidence intervals of blood concentrations (in µg/dL) for the U.S. population aged 1 year and older, National Health and Nutrition Examination Survey, 1999-2002.
**Cadmium**

- Human carcinogen
- Injury to kidneys and bone at low levels
  - Occurs at occupational levels
  - New research indicating subclinical change in renal function and bone density as low as 1 µg/g creatinine
  - About 5% of adult U.S. population above this level
  - Mainly due to smoking
Table 11. Cadmium in urine (creatinine corrected)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population aged 6 years and older, National Health and Nutrition Examination Survey, 1999-2002.

<table>
<thead>
<tr>
<th>Survey years</th>
<th>Geometric mean (95% conf. interval)</th>
<th>Selected percentiles (95% confidence interval)</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50th</td>
<td>75th</td>
<td>90th</td>
</tr>
<tr>
<td><strong>Total, age 6 and older</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.181 (.157-.209)</td>
<td>.219 (.199-.238)</td>
<td>.423 (.391-.446)</td>
</tr>
<tr>
<td>01-02</td>
<td>.199 (.181-.218)</td>
<td>.212 (.194-.232)</td>
<td>.404 (.377-.440)</td>
</tr>
<tr>
<td><strong>Age group</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6-11 years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>*</td>
<td>.085 (.063-.107)</td>
<td>.147 (.123-.182)</td>
</tr>
<tr>
<td>01-02</td>
<td>.075 (.059-.094)</td>
<td>.100 (.083-.112)</td>
<td>.166 (.136-.192)</td>
</tr>
<tr>
<td><strong>12-19 years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.071 (.051-.098)</td>
<td>.093 (.084-.106)</td>
<td>.147 (.130-.163)</td>
</tr>
<tr>
<td>01-02</td>
<td>.078 (.067-.091)</td>
<td>.091 (.085-.101)</td>
<td>.136 (.123-.143)</td>
</tr>
<tr>
<td><strong>20 years and older</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.267 (.247-.289)</td>
<td>.288 (.261-.304)</td>
<td>.484 (.433-.545)</td>
</tr>
<tr>
<td>01-02</td>
<td>.261 (.236-.289)</td>
<td>.273 (.247-.303)</td>
<td>.481 (.426-.518)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Males</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.154 (.131-.182)</td>
<td>.174 (.158-.191)</td>
<td>.329 (.293-.382)</td>
</tr>
<tr>
<td>01-02</td>
<td>.159 (.143-.177)</td>
<td>.168 (.157-.182)</td>
<td>.334 (.304-.364)</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.211 (.170-.261)</td>
<td>.267 (.239-.308)</td>
<td>.473 (.423-.551)</td>
</tr>
<tr>
<td>01-02</td>
<td>.245 (.216-.278)</td>
<td>.263 (.228-.297)</td>
<td>.479 (.414-.541)</td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mexican Americans</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.175 (.137-.223)</td>
<td>.181 (.144-.225)</td>
<td>.331 (.266-.418)</td>
</tr>
<tr>
<td>01-02</td>
<td>.156 (.136-.178)</td>
<td>.170 (.150-.184)</td>
<td>.282 (.263-.340)</td>
</tr>
<tr>
<td><strong>Non-Hispanic blacks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.183 (.140-.240)</td>
<td>.201 (.168-.241)</td>
<td>.414 (.343-.472)</td>
</tr>
<tr>
<td>01-02</td>
<td>.190 (.156-.232)</td>
<td>.195 (.174-.225)</td>
<td>.385 (.336-.449)</td>
</tr>
<tr>
<td><strong>Non-Hispanic whites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-00</td>
<td>.175 (.146-.209)</td>
<td>.219 (.191-.250)</td>
<td>.432 (.387-.470)</td>
</tr>
<tr>
<td>01-02</td>
<td>.205 (.184-.229)</td>
<td>.224 (.208-.242)</td>
<td>.421 (.382-.470)</td>
</tr>
</tbody>
</table>

* Not calculated. Proportion of results below limit of detection was too high to provide a valid result.
### TABLE 2. Percentage of women aged 16–49 years with blood mercury (Hg) levels $\geq 5.8 \mu g/L$, by race/ethnicity — National Health and Nutrition Examination Survey, United States, 1999–2002

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>No.</th>
<th>Hg levels $\geq 5.8 \mu g/L$</th>
<th>(95% CI*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexican American</td>
<td>1,106</td>
<td>1.70</td>
<td>(1.04–2.79)</td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>1,377</td>
<td>5.77</td>
<td>(3.71–8.97)</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>794</td>
<td>4.82</td>
<td>(2.55–9.11)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3,637</td>
<td>5.66</td>
<td>(4.04–7.95)</td>
</tr>
</tbody>
</table>

* Confidence interval.
## Biomonitoring of Emerging Contaminants

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Tissue</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; Report</th>
<th>National Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>perchlorate</td>
<td>serum</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>PFOA/PFOS</td>
<td>serum</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Acrylamide</td>
<td>urine</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Polybrominated Fire retardents</td>
<td>serum</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Speciated As &amp; Hg</td>
<td>serum</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>serum</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>urine</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Tremolite Asbestos
Libby MT – Vermiculite

- Mine operated from 1920’s to 1990
- Raw ore contained up to 25% tremolite asbestos
- Contaminated ore was shipped all over the U.S. to over 200 locations
- 80% of world’s vermiculite came from the Libby mine
Findings in Libby, MT

- Overall prevalence of pleural abnormalities (18%) in over 7,300 people evaluated

- Among workers and household contacts, prevalence was 51% and 26% respectively

- Lung cancer and asbestosis both increased in Libby
CDC/ATSDR Katrina/Rita Response

- Preparedness and Planning
- Pre-impact and Impact
- Response
- Recovery
CDC Personnel Deployed and Deploying in the Next 24 Hours During Hurricanes Katrina/Rita Response

Monday, September 26, 2005

- Dallas, TX: 11 Deployed Personnel
- Austin, TX: 1, 23 Deployed Personnel
- San Antonio, TX: 9 Deployed Personnel
- College Station, TX: 12 Deployed Personnel
- Leesville, LA: 6, 1 Deployed Personnel
- Baton Rouge, LA: 65, 1 Deployed Personnel
- Jackson, MS: 6, 1 Deployed Personnel
- Gulfport, MS: 1 Deployed Personnel
- Lakeland, FL: 1 Deployed Personnel
- Atlanta, GA: 1, 1 Deployed Personnel
- Washington D.C.: 5 Deployed Personnel

141 Currently Deployed Personnel
99 Katrina/42 Rita
Rita Numbers In Red

Data Source:
RTS Database - As of 7 PM 25 SEP 05
Response: Issues

- Infectious Diseases
  - Outbreaks (Noro, vibrio, TB, scabies, etc)
  - Immunizations
  - Vector control
  - Infection control

- Environmental Health
  - food, water, shelter
  - sewage
  - chemicals

- Occupational Safety and Health

- Surveillance

- Mental Health/Resiliency

- Communications

Figure 3. CO poisonings by outcome (FL, AL, LA, MS), media report surveillance (n=76)
Response: Selected Products

**Response & Cleanup Workers**  Sep 24
**Evacuation Centers**  Sep 24
**Evacuees & Affected Persons**  Sep 24
**Evacuee Educational Materials**  Sep 24
**Volunteers**  Sep 15
**Health Professionals**  Sep 24
**Schools**  Sep 12
**Pet Shelters**  Sep 14
**Grantees**  Sep 23

Approximately 150 CDC staff assisting DEOC
Recovery

- Repopulation of New Orleans
- Rebuilding New Orleans Public Health Department
  - Disease Surveillance
  - Exposure Monitoring
  - Infrastructure
    - Clinics
    - Water, food, sanitation
- Built environment
- Research
Environmental Health Needs & Habitability Assessment

### Issue Categories

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Unwatering</td>
<td>• Drinking Water</td>
<td>• Solid Waste/Debris</td>
<td>• Housing</td>
</tr>
<tr>
<td>• Power</td>
<td>• Water</td>
<td>• Wastewater</td>
<td></td>
</tr>
<tr>
<td>• Natural Gas</td>
<td>• Road Conditions</td>
<td>• Sediments/Soil Contamination</td>
<td></td>
</tr>
<tr>
<td>• Vector, Rodent, &amp; Animal Control</td>
<td>• Contamination (Toxic Chemicals)</td>
<td>• (Toxic Chemicals)</td>
<td></td>
</tr>
<tr>
<td>• Underground storage tanks (e.g., gasoline)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>• Food Safety</td>
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<td></td>
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</tr>
</tbody>
</table>

*Level 4: Level 3: Level 2: Level 1*