Emerging Contaminants in the Environment

Jennifer Davis, MPH, LEHP
Environmental Toxicologist
Illinois Department of Public Health
Toxicology Section

- Created in 1986 to carry out the Illinois Department of Public Health’s responsibilities under the Environmental Toxicology Act
- Cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR)
Responsibilities

- Evaluate hazardous waste sites
- Assess the health effects of exposure to hazardous substances in the home
- Respond to citizen inquiries
- Identify actions necessary to mitigate or prevent health effects
- Develop health advisories
Additional Activities

- Education
- Workshops
- Indoor Air Quality
- Methamphetamine Laboratories
- Children’s Health
- Fish Advisories
Emerging Contaminants

- Newly “discovered”
  - Contaminants
  - Issues
- Old becomes new
  - Technology changes
  - Additional research
- New ways of using materials
- Aged materials
Pharmaceuticals

- Antibiotics, anti-depressants, seizure medication, cancer treatments, etc.
- Disposal?
- Mid-'90s German researcher found 30 of 60 common pharmaceuticals he looked for
- USGS currently conducting assessment of “emerging contaminants” in selected streams
  - Website: toxics.usgs.gov/regional/emc.html
Impact of Pharmaceuticals

- Mostly unknown
- Aquatic life
- Retired populations
- Arid climates
Polybrominated Diphenyl Ethers (PBDEs)

- **Penta**: Used in polyurethane foam such as in mattresses, seat cushions, other upholstered furniture and rigid insulation.
- **Octa**: Used in high-impact plastics such as fax machines and computers, automobile trim, telephones and kitchen appliances.
- **Deca**: Used in carpet foam pads, draperies, television sets, computers, stereos and other electronics, cable insulation, adhesives, and textile coating.
Polybrominated diphenylethers (PBDEs)

Polychlorinated biphenyls (PCBs)

Thyroxine (T4)
Mercury

- Mad Hatter
- Schools
- Gas Regulators
Arsenic

- Maximum Contaminant Level reduction
- From 50 µg/L to 10 µg/L
- March 1999 National Academy of Science Report
- “Maximizes health risk reduction benefits at a cost that is justified by the benefits”
Lead

- Old hazards still present
  - Lead paint
  - Lead in soil
  - Lead in pipes

- New hazards
  - Imported powders
  - New health effects?
Methamphetamine Labs

- Easy “recipe”
- Easily obtainable materials
- Property contamination
- Exposure of children
Chemical Storage in Schools

- Better Living Through Chemistry
- Old inherited materials
- Accidents and spills
Contact Information:

Jennifer Davis
Illinois Department of Public Health
525 W Jefferson Street
Springfield, IL 62761
217-785-3239
Jennifer.A.Davis@illinois.gov