Overview of the Issue

- Overview of the issue
  - Contaminants of emerging concern (CECs) and water quality
- Workshop findings
  - "Broadening the National Dialogue on CECs and Public Health", July 2013, Washington, DC (Water Research Foundation #4463)
  - The next steps to continue the public health/water quality dialogue
Contaminants of Emerging Concern (CECs)

- Carcinogenic Volatile Organic Compounds (VOCs)
- Endocrine disrupting compounds (EDCs)
- Hexavalent chromium
- Nitrosamines
- Perfluorinated compounds
- Personal care products
- Pharmaceuticals

*Broad range of unregulated chemical compounds that can be found in water supplies in trace amounts*

Technical Challenges Associated with CECs

- Analytical techniques are improving; increasingly lower levels now detected
- Evolving state of science
  - Effects (ecological, human health)
  - Analytical techniques
  - Occurrence
  - Future regulatory values
  - Source management
  - Treatment
  - Risk management

Communication Challenges

- Elevated public interest, consumer access to information (and mis-information)
- Media coverage drives public perception
- Diverse stakeholders

*How Clean Is Your Water?*
Water Utilities and CECs

- Spotlight on water utilities from public and media
  - Often perceived as solely responsible for the presence and complete removal of contaminants
- Utilities may not be best entities to address issue
  - May not have control over source water quality
  - May lack staff with public health knowledge and qualifications
  - Perceived conflict of interest as spokespersons
- Medical/public health agencies more trusted
  - May not understand drinking water issues

Water sample reveals codeine traces

Scientists detected the painkiller codeine at a concentration of 100 parts per trillion in Delaware River water near Wilmington, Del. Two codeine-making factories, whose treated wastewater is pumped into the river, are located within several miles of the sampling site.

- Wastewater treatment plant
- Codeine-producing factory

FACT: PHARMACEUTICALS DESTROY AQUATIC ECOSYSTEMS

Unprescribed: Drugs in the Water Cycle

- Production
- Agriculture
- Manufacture
- Recycling
- Disposal
- Discharge

$300 billion

22

50 billion

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Geosyntec consultants
Broadening the National Dialogue on CECs and Public Health (#4463)

- **Project objective**
  - Enhance communication and dialogue between public health organizations, researchers, water utilities, and others about the potential human health risks of CECs in drinking water

- **Project tasks**
  - Prepare research summaries
  - Plan and conduct workshop
  - Reporting and outreach

Inter-Disciplinary Workshop

Workshop Attendees

- American Water Works Association
- AFWAIS, U.S.
- Association of Metropolitan Water Agencies
- Association of Public Health Laboratories
- Association of State Drinking Water Administrators
- Aurora Water, Colorado
- Aqua Vista
- Canadian Water Network
- City of Scottsdale, Arizona
- City of Calgary, Canada
- Clackamas River Water, Oregon
- Clean Water Action
- Consortium for Research and Education on Emerging Contaminants
- Contra Costa Water District
- District of Columbia Water and Sewer
- East Bay Municipal Utilities District
- Eli Lilly and Company
- Environmental Protection Agency
- Fairfax Water, Virginia
- Geosyntec Consultants
- INTERTOX, Inc.
- Kennedy/Jenks Consultants
- Mid-Atlantic Center for Children’s Health & the Environment
- National Association of Clean Water Agencies
- National Institutes of Health National Institute of Environmental Health Sciences
- National Water Research Institute
- New York City Dept of Environmental Protection
- New York University School of Medicine
- Orange County Water District, California
- Reinventing the Nation’s Urban Water Infrastructure (ReNUWIt)
- Silent Spring Institute
- Trust for America’s Health
- University of Missouri-Columbia
- United States Geological Survey
- Washington Aqueduct, Washington, DC
- WaterReuse Association
- Water Environment Research Foundation
Group Discussion Topics

1. Define common understandings associated with CECs and public health
2. Identify technical uncertainties confounding the development of stronger statements about the public health risks of CECs in water
3. In light of the common understandings and technical uncertainties, identify improved CEC communication strategies

1. Common Understandings

- **Common goal**: ensure healthy and safe water nationwide
- Disconnect in the concerns/priorities of different groups
  - Public’s concerns do not match public health community priorities
  - Describing CECs as "unregulated" can alarm public
- Need to improve communication of health effects and safety
  - "CEC" terminology is imprecise, groups chemicals with different modes of action and health effects
  - A better method of grouping unregulated contaminants is needed
  - System for drinking water regulation in U.S. is not holistic
- Common interest in developing an unbiased, peer-reviewed standard for assessing water quality and safety beyond compliance with existing regulations

2. Technical Uncertainties

- Better analytical methods improve data quality and occurrence studies
- More complete understanding of CEC sources, transformations, and exposure pathways is needed
  - Currently, uncertainty in assessing relative risk and risk management approaches
- Lack of comprehensive studies of human health effects of CECs
  - Long-term effects, exposure to mixtures of different CECs, and population-level effects, relevant human health endpoints
- Risk communication without unduly provoking alarm
3. Communication Strategies

- Partnerships with other organizations
- Best practices for risk communication
- Know the audience(s) and tailor messages accordingly

Project Deliverables

- Workshop summary report
- Six overview papers
  - Medical practitioners and CECs
  - Public health research on CECs
  - Regulation of CECs in drinking water
  - Risk communication about CECs
  - Water quality research on CECs
  - Water utility activities related to CECs
- Outreach

http://www.waterrf.org/Pages/Projects.aspx?PID=4463

Recommendations to Continue the National Dialogue

- Create centralized communication tools
- Conduct cross-discipline outreach
- Fund research to advance regulations
- Assess the current state of knowledge and define key messages
- Conduct public outreach
Water Utility Perspective

- Who do our customers turn to for health information?
- Who else is studying the issue?
- Who can help us explain uncertainty to our customers?
- Do the public health and the water communities use the same vocabulary with the public?
- What is “uncertainty”?
  - Doubt?
  - Imprecision?
  - Detection = Concern?

Conducting Cross-Discipline Outreach

- Individual/expert participation
  - Fellowship program to embed a public health professional (mid-level or senior level) at a water utility
  - Cross-disciplinary technical meetings and workshops
  - Host special topics sessions at conferences (e.g., AWWA, APHA, NWQMC)
  - Prepare a position paper
- Interagency/intra-agency collaborations
  - Host a conference to promote cross-disciplinary networking and learning
  - Conduct workshops for pediatricians, funded by AAP
  - Enhance the dialogue at home within each organization

Engaging the Public Health Community

- Other thoughts…
- If interested in joining the public health/water quality dialogue, please contact:
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Questions?

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