Emerging Contaminants:
Linking Science to Effective Action

EMERGING CONTAMINANTS

Colorado Environmental Partnership

Conference on Emerging Contaminants:
Threats to Colorado's Water Supply

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SCIENTIFIC SOLUTIONS FOR A BETTER ENVIRONMENT

INSTITUTE FOR ENVIRONMENTAL SOLUTIONS

Preview

- The nature of the emerging contaminants (EC) problem

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- Prevention as a solution

- The EC Project: a pilot program to test the effectiveness of education as prevention

The EC Problem:

What are ECs and where are they from?

- Trace amounts of chemicals of concern accumulating in waterways
- Known or suspected endocrine disruptors; combined effect difficult to quantify
- Sources include consumer products

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The EC Problem

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Unique form of pollution: ECs often provide desirable qualities in products, and are deliberately placed in products (versus "traditional" pollution, where pollutants are an unwanted by-product)

- Shifts responsibility from e.g. industrial processes to consumer preferences
- Consumers face conflict between values
- Invisible, scentless pollution

The EC Problem: Chemical footprint

- An individual's total contribution, direct and indirect, of chemicals of concern to the environment
- Comparable to carbon footprint

Prevention: a promising solution

- Limitations of wastewater and drinking water treatment
  - Treatment facility cost
  - Carbon cost of operations
- Availability of products that are effective and do not contain ECs

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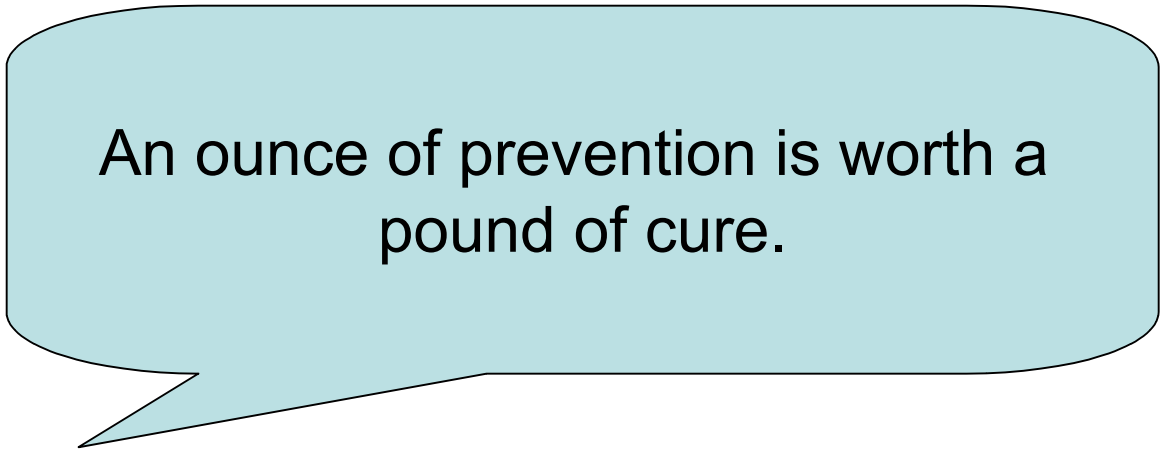
Prevention:
a promising solution



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The EC Project

- A pilot project in Golden to evaluate the efficacy of education as prevention
  - Review of existing work

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•Measurable, reproducible, generalizable results and scientific basis for policy recommendations

The EC Project: Education and outreach

- Provide basic EC education; easy and effective alternatives to shrink chemical footprint
- Targets non-pharmaceutical compounds
  - ECs from household products and personal care products
- Test efficacy of education for reducing chemical footprint:
  - Analysis of municipal wastewater
  - Community questionnaire

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The EC Project: Education and outreach

Example compounds from consumer products

- Triclosan: Antibacterial soap
- Musk ketone: Synthetic fragrance
- Octylphenol: Surfactant (in e.g. detergents)
- BHA: Food preservative
- Bisphenol A: Plasticizer

The EC Project: Education and outreach

- Informational campaigns have not been shown to be effective in changing behavior
- Community-based social marketing (www.cbsm.com)

The EC Project: Education and outreach

Targeted education campaign to promote prevention

- Determine citizens' motivations and levels of awareness (focus groups, surveys)
- Design simple strategies to shrink chemical footprint
- Disseminate to public in a way that will influence behavior
  - Free products, effective communication, commitments, prompts, new norms …

The EC Project:
Does education lead to prevention?

- Pilot effort
- Measure effectiveness of education as prevention
- Evaluate return on investment

The EC Project: Goals of pilot project

- Measure effectiveness of education as prevention
  - Water analysis: change in EC levels
  - Surveys: change in community awareness
- Produce scientifically-based policy recommendations
  - Comparative analysis of where to spend marginal investment dollars in improving water quality
  - A framework for communities to evaluate local initiatives on ECs
- Expand to next phase of EC Project

Conclusions

- Important to compare virtues of chemical compounds with their eventual environmental and health costs
- Important to have realistic approach on how to use limited resources to produce greatest environmental benefits
- Cheaper and easier to keep ECs from ever entering waterways than to treat later

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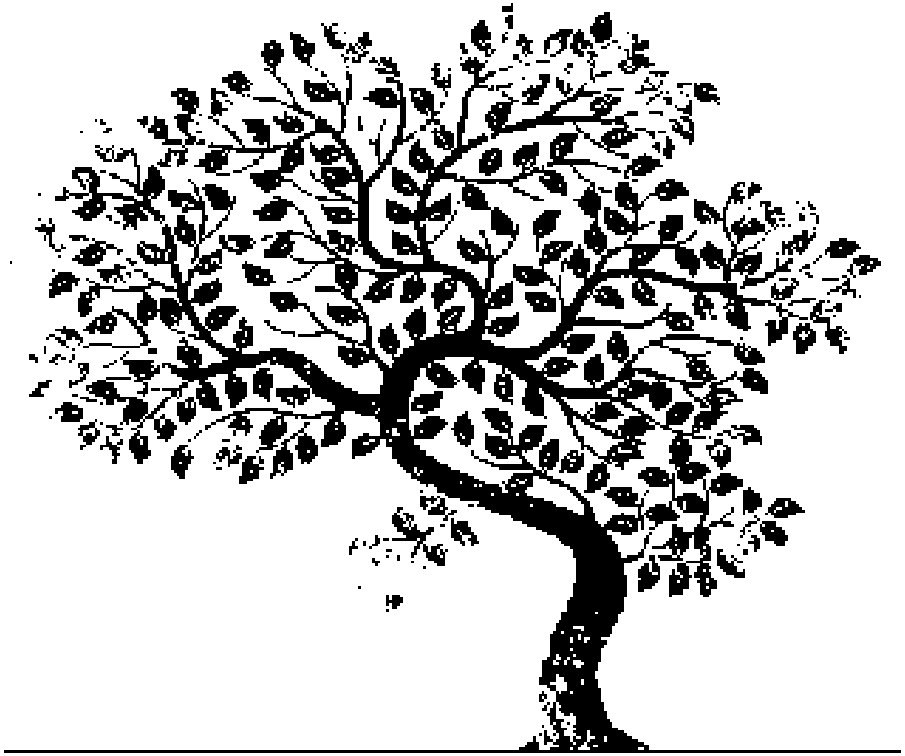

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