



Potential Human Health Implications of Exposure to Pharmaceutical Contamination in Drinking Water

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Pharmaceuticals and Personal Care Products in Drinking Water

- Problem: Many pharmaceuticals and personal care products (PPCPs) are released into the environment and are being detected in drinking water supplies.
- Why are we more aware of this issue now?
 - Increased use of these products
 - Improved detection methods



Types of PPCPs Detected in Drinking Water

- Pharmaceuticals
 - Antibiotics
 - Hormones
 - Antidepressants
- Personal Care Products
 - Antibacterial compounds
 - Cosmetics
 - Fragrances



Potential PPCP-Related Health Effects

- Increased antibiotic resistance
- Hormone mimicry (endocrine disruption)
- Carcinogenicity



Sensitive Populations Impacted

- Children
- Pregnant women
- Patients with particular diseases and medical treatments



World Health Organization (WHO) Conclusions¹

- There is limited information on occurrence of PPCPs in drinking water.
- In general, levels of PPCPs are present in drinking water at concentrations below therapeutic doses.
- The potential for human health risks from **long-term exposure to mixtures of very low levels** of PPCPs remains unclear.

1 - World Health Organization. (2012). *Pharmaceuticals in Drinking Water*. ISBN: 978 9241502085



World Health Organization Recommendations¹

- Other drinking water issues (e.g., waterborne disease) are still very important and should continue to be addressed.
- Human exposure to PPCPs through drinking water can be reduced through preventative measures.

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Practical Next Steps

- Further biomonitoring should be conducted to better understand human exposures to PPCPs in Wisconsin drinking water.
- Implement or improve existing methods to:
 - Prevent waste pharmaceuticals from getting into water (Take-Back Programs/public education on proper drug disposal).
 - More effectively remove PPCPs in wastewater (wastewater treatment strategies).