

Characterizing the Prevalence and Mitigating Possible
Risks of Wastewater Borne Antibiotic Resistance
(Technical Report)

Sanitation and Sanitary Products:
Threats to Wastewater Systems
(STS Research Paper)

An Undergraduate Thesis Portfolio
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by

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Preface

How are public wastewater systems managing new hazards? Rising volumes of foreign material, such as pharmaceuticals and wet wipes, pose public health risks.

How do we characterize the prevalence and mitigate possible risks of wastewater borne antibiotic resistance? Carbapenems, known as antibiotics of “last resort,” treat multidrug-resistant bacterial infections. Because carbapenems in wastewater can promote antibiotic resistance, tracking and mitigating carbapenem resistance is a public health necessity. An assessment of conventional wastewater treatment methods indicates that point-of-use treatment, such as under-the-sink UV disinfection, is the most effective means of mitigating carbapenem-resistant bacteria.

How are municipalities, residents, and sanitary product manufacturers striving to influence public flushing behavior? Flushing behavior is dictated by social norms of cleanliness. Manufacturers claim wet wipes clean better than toilet paper and are flushable, so residents act accordingly. Flushed wipes obstruct sewers. Municipalities attempt to appeal to residents to stop, with little effect. Municipalities must reassess their communication methods and promote alternatives to wipes.

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