

Prevalence of Antibiotic Resistance in Drinking Water Treatment and Distribution Systems ^{▽, †}

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The occurrence and spread of antibiotic-resistant bacteria (ARB) are pressing public health problems worldwide, and aquatic ecosystems are a recognized reservoir for ARB. We used culture-dependent methods and quantitative molecular techniques to detect and quantify ARB and antibiotic resistance genes (ARGs) in source waters, drinking water treatment plants, and tap water from several cities in Michigan and Ohio. **We found ARGs and heterotrophic ARB in all finished water and tap water tested**, although the amounts were small. The quantities of most ARGs were greater in tap water than in finished water and source water. In general, the levels of bacteria were higher in source water than in tap water, and the levels of ARB were higher in tap water than in finished water, indicating that there was regrowth of bacteria in drinking water distribution systems. Elevated resistance to some antibiotics was observed during water treatment and in tap water. Water treatment might increase the antibiotic resistance of surviving bacteria, and **water distribution systems may serve as an important reservoir for the spread of antibiotic resistance to opportunistic pathogens.**