Water as a vector for pathogens and anti-microbial resistance

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Water is required for life. We have accumulated evidence suggesting it may be an overlooked viral vector. In climatic zones with seasonally limited precipitation (for example in but not limited to East Africa and Central Asia) animals congregate at high densities at scarce water sources. A combination of stress of congregating at high density can lead to viral shedding into water sources. If the viruses can persist in the water post shedding, they can infect individuals of both the same and other species depending on the virus. Water can also serve as a source of antimicrobial resistance genes the diversity of which may be strongly influenced by urbanization. We have shown that there are strong urbanization signals on bacterial communities compared to most rural water sources and this is also reflected in what kinds and the amounts of antimicrobial gene sequences which are present. The contamination of water with such genes may have consequences for human health in urban environments.