

Detection of methicillin resistance gene *mecA* in wastewater treatment plants & public access water sources in Nanaimo

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The methicillin-resistance gene *mecA* poses a significant threat to public health given its potential to spread into non-staphylococcal species as a result of its location on a mobile genetic element. Thus, it is important to have efficient methods in place to detect the spread of this gene, especially in areas where it could easily affect the general public. The purpose of this study was to determine if the *mecA* gene is present in the influent and effluent flows at the Greater Nanaimo Pollution Control Center, and Duke Point Pollution Control Center as well as in water samples from selected public access waters in Nanaimo B.C. This analysis was accomplished by extracting total DNA from the samples and using the polymerase chain reaction (PCR) technique to detect *mecA* gene. The results show that while *mecA* was often found in the influent and effluent flows of Nanaimo's wastewater treatment plants, the public access water did not have detectable levels of *mecA*. In conclusion, it is possible that Nanaimo's wastewater could be a place of *mecA* dissemination into new bacterial strains and species, however this is unlikely to occur in the public access sites sampled.