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Role of Iodine in controlling water quality during orthodontic patient care

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Introduction:

New standards in infection control are mandating that dental equipment and waterlines test less than 500 Colony Forming Units (<500 CFU/mL) of heterotrophic water bacteria (CDC, 2016).

Aim:

Test levels of Iodine as it relates to heterotrophic plate counts.

Materials and Method:

Water lines of twenty three dental units were tested of which all had Iodine cartridges (DentaPure, Crosstex International) installed. Water samples were collected at the dental chair at all points that deliver water to a device that enters the patient's mouth, which included the high speed handpiece and two air/water syringes per chair (Mills, 2018). Heterotrophic water bacteria CFUs were counted at a commercial lab (ALS) as well as Iodine levels with an Iodine sensitive test strip.

Results:

Six of the units tested showed zero levels of Iodine (0 ppm mg/mL) with associated heterotrophic plate counts above the 500 CFU/mL maximum acceptable values. The remaining seventeen units tested showed high levels of Iodine (>5ppm mg/mL) with associated heterotrophic plate counts below the 500 CFU/mL maximum acceptable value.

Conclusions:

Low levels of measurable Iodine were associated with high heterotrophic plate counts and high levels of measurable Iodine were associated with low heterotrophic plate counts. Although historically few cases of infection can be directly associated with contaminated water lines in dental offices, new emerging regulations in infection control are mandating immediate and much closer attention to this issue going forward. Iodine levels may be an important screening method to establish quality control of water used in orthodontic clinics.