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Prevalence of *Acanthamoeba* in Chicago area tap water

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Objectives: A significant recent increase in *Acanthamoeba* keratitis (AK) has been documented in the greater Chicago, Ill. area. It was hypothesized that changes in water treatments may have led to an increase in *Acanthamoeba* in the water supply. This study was done to identify the prevalence of *Acanthamoeba* in tap water in the Chicago area.

Methods: Over the course of 12 months (June 2006-June 2007), water samples were collected from sites in the greater Chicago area. Water was sampled in all cases using sterile swabs from the inside surface film of the lavatory cistern reservoir tank. Further, 50mL of tank water serving the lavatory was also sampled. In all cases, the ultimate source of water was cold municipal mains water. The presence of amoebae in samples was assayed using an enrichment cultivation method appropriate for *Acanthamoeba*. Amoebae were identified based on diagnostic features discernable by light microscopy and select samples were genotyped.

Results: Over 130 households' samples were processed and amoebae were noted in over half of these. *Acanthamoeba* were found in a higher percentage of homes than in previous US studies. Amoebae (regardless of genus) were also present in a higher percentage of samples than found in previous US studies.

Conclusions: Tap water in the home has been associated with corneal infection in contact lens wearers who have exposed their lenses to tap water. The recent outbreak of AK in the Chicago area prompted a study of the tapwater in that area. Initial findings reported here indicate a much higher incidence of *Acanthamoeba* in the tap water of Chicago than was observed in S. Florida, possibly a link to the higher incidence of AK. These initial findings support the hypothesis that the new water treatments may be permitting increased biofilms which result in an increase of *Acanthamoeba*.

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