

## **E0098 Exploring the presence of human pathogenic free-living amoebas in different water ecosystems in Leicester, UK**

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**Background:** The presence and distribution of *Acanthamoeba* spp., *Balamuthia mandrillaris* and *Naegleria fowleri* (human pathogenic free-living amoebas, FLA) in different environmental compartments and geographical locations in Europe remains unknown. These FLA can be a public health threat as their cysts are highly resistant to harsh environmental conditions. The aim of this pilot study was to determine the presence of FLA in different water ecosystems close or in Leicester city (Leicestershire, UK) as information on the presence these emerging parasites in the UK is limited in the literature.

**Materials/methods:** A total of 30 water samples were collected from different open water environments in Leicester during summer 2017 including: the River Soar and the Grand Union Canal (a canalised section of the River Soar), different lakes highly frequented for fishing or leisure (e.g. John Merricks' Lake, Kings Lears Lake; Bennion Pools Fishing Lake), and a marina near River Soar. The River Soar is rich in wildlife including water birds, fish and plant populations attracting large numbers of users. Water samples were obtained following protocol 1623 described by US EPA and concentrated using IDEXX® Filta Max system following manufacturer's instructions. DNA extraction from concentrated water was performed from each water sample with Fast DNA® Kit. A triplex real-time TaqMan PCR assay was performed to detect FLA; positive controls for the three amoebae were used.

**Results:** All 30 samples assessed for FLA were negative. However these results should be considered as inconclusive as, although rare, several studies have reported the presence of *Acanthamoeba* spp. in the UK domestic water supplies which may indicate the presence of these human pathogens in other water systems including the environment. Moreover, the incidence of *Acanthamoeba* keratitis has increased in recent years in England.

**Conclusions:** Further studies will be needed to determine the presence and distribution of FLA in the open water systems monitored to protect the public as recent evidence indicates an increase in infections due to these emerging human pathogens globally. This information is crucial to develop novel strategies to protect humans and increase the awareness of these protozoan parasites in aquatic environments in the UK.

