

Naegleria fowleri Meningoencephalitis Associated with Public Water Supply, Pakistan

Technical Appendix

Technical Appendix Table. Water samples (n = 10) collected from water treatment plant B and its distribution system, including households, Karachi, Pakistan, 2014*

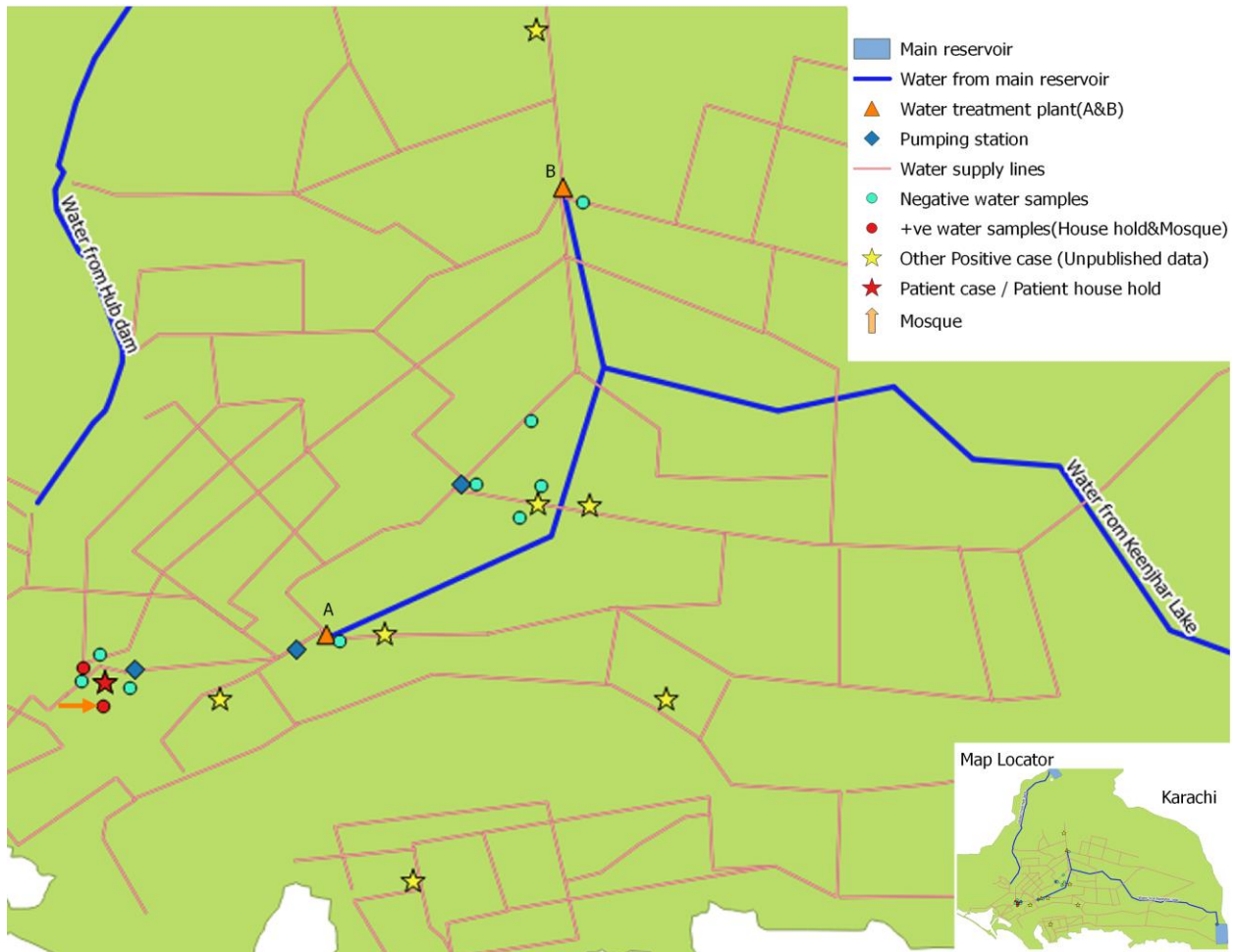
Characteristic								
Water supply	Sample location	Sample type	No. samples	Total chlorine, mg/L	Temperature, °C†	Culture positivity for FLAs	PCR results for <i>Naegleria fowleri</i> amebae‡	Distance relationships of water samples
Reservoir§	Water from Kinjhar	Untreated	2	ND	26	++	–	From reservoir to plant B, 100 km
				NT	27	++	–	
Water treatment plant B	Filtration unit	Treatment underway	2	1	28	+	–	
		Plant B exit point	1	1	24	–	–	
Pumping station	Pumping station 1	Filtered and chlorinated	1	0.5	27	+	–	From plant B to pumping station, 17.5 km
		Pumping station 2	1	>2.5	26	–	–	From pumping station site 1 to pumping station site 2, 3.5 km
Catchment areas: consumer households	Household 1, underground storage tank	Filtered and chlorinated	1	0.5	29	+	–	From pumping station site 2 to household 1, 2.03 km
		Household 1, overhead storage tank	1	<0.5	34	+	–	
		Household 2, underground storage tank	1	traces	30	–	–	From pumping station site 2 to household 2, 0.5 km

*FLAs, free-living amebae; ND, not detected; NT, not tested; +, 1–3 amebae seen with 40 x magnification; ++, >3 amebae seen with 40 x magnification; –, no amebae detected.

†Water temperatures of 25°C–40°C are conducive for flourishing of *Naegleria fowleri* amebae.

‡PCR was negative for other pathogenic FLAs such as *Balamuthia* or *Acanthamoeba* species.

§Kinjhar Lake, located in Sindh province, Pakistan, is the main reservoir that supplies water to Karachi.



Technical Appendix Figure. Locations of water treatment plants A and B and their distribution systems, water sampling sites, and other sites related to samples collected in Karachi, Pakistan, 2014. Inset shows main reservoir and its distance from sampling sites (≈ 100 km from Karachi). Because of a high number of cases reported before the case in this study, chlorine enhancement was initiated at water treatment plant B but not at plant A. *N. fowleri* was not detected after chlorine enhancement at plant B's distribution system in this study.