

**Introduction:** Wajir County is part of Kenya's arid land in North Eastern Kenya and has a population of approximately 662,000 (2009 census). The County's main water supply is from underground shallow wells, and for long, sanitation options have been restricted to open defecation and bucket latrines due to susceptibility of the shallow aquifer to contamination. This is assessed against Millennium Development Goals (MDG) target achievements.

**Objectives:** To describe the trends of diarrhoeal and other waterborne diseases and to ultimately measure MDG targets performance.

**Methods:** Combined study designs were employed to investigate the existence of an association between water quality and water borne diseases in children. Data were entered into a database and analysed in Stata 10 software.

**Results:** Data were obtained using; survey questionnaires from 44 households, water samples from 46 shallow wells and stool samples from 4 children. The study indicated 27% prevalence of diarrhoeal diseases in children, presence of micro-organisms and high levels of properties and chemicals in the water, notably lead.

**Discussion and conclusion:** Although all the water samples were grossly contaminated, the study does not provide evidence for the water-borne diseases in children being linked to local groundwater quality due to poor performance of our stool sample collection. There are concerns about the high concentrations of lead in the water with uncertainties of its cause. MDG targets are unlikely in 2015.

**Keywords:** contamination, diarrhoeal diseases, groundwater, MDG, Wajir