Investigation of a waterborne outbreak of cryptosporidium in Northern Jordan due to contaminated groundwater

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In July of 2007 a large increase of gastroenteritis cases in a community in northern Jordan (Al Munshiyat) led to an investigation of the water supply. The outbreak of Al Munshiyat was investigated taking into consideration the prevailing symptoms of the patients. The cases symptoms included prolonged watery diarrhea, low grade fever, vomiting, nausea, and cramps, and in some cases bloody diarrhea. These symptoms match the symptoms of cryptosporidiosis, which generally lasts 7-14 days. It is also well noted that Cryptosporidium is resistant to conventional disinfection techniques.

In addition to the classical microbial surveillance, the investigation focused on testing for Cryptosporidium in the water supply. Moreover, the geo-physical data (including the existence of faults, groundwater level, and the activities around the wells) of the area was studied. The results proved the presence of Cryptosporidium sp. oocysts with other fecal pollutants in groundwater wells used for consumption. The cause was related to existence of the agricultural activities (dairy cows and calves raising), permeable cesspools, a dump site, grazing and uncontrolled handling of cows manure within the wells’ catchment area, where also many geological faults exist. A flood in late spring triggered the transfer of pollutants to groundwater. As a consequence of these results and observations, efficient reclaiming procedures and groundwater monitoring were recommended.

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