

Temperature variability and occurrence of diarrhoea in children under 5 years in Cape Town metropolitan sub-districts.

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This paper describes the relationship between temperature change and diarrhoea in children less than 5 years of age in the Cape Town Metropolitan Area (CTMA) of South Africa. The study used climatic and aggregated surveillance diarrhoea incidence data of two peak periods of seven months over two consecutive years. A Poisson regression model and a lagged Poisson model with autocorrelation was performed to test the relationship between climatic parameters (Minimum and Maximum temperature) and incidence of diarrhoea. 58,617 cases of diarrhoea occurred in the CTMA, which is equivalent to 8.60 cases per 100 population under 5 for the study period of 14 months. The mixed effect over dispersed Poisson model showed that a cluster adjusted effect of an increase of 5 degrees Celsius (C) in minimum and maximum temperature results in a 40% (IRR: 1.39, 95%CI 1.31-1.48) and 32% (IRR: 1.32,

95%CI 1.22-1.41) increase in incident cases of diarrhoea respectively for the two periods studied.

Autocorrelation of one week lag (AC 1) indicated that, a 5 degrees C increase in minimum and maximum temperature led to 15 % (IRR:1.46, 95% 1.09-1.20) and 6% (IRR:1.06, 95% 1.01-1.12) increase in diarrhoea cases, respectively.

In conclusion, there was an association between an increase in minimum and maximum temperature, and the rate at which diarrhoea affected children under the age of 5 in the Cape Town Metropolitan Area. This finding may have implications for the effects of global warming and requires further investigation.

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