Reviewer’s report

Title: Spatiotemporal CART model for predicting the outbreak of cryptosporidiosis in Queensland, Australia

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Reviewer: Luigia Elzi

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The authors aimed to investigate the impact of socio-ecological factors on the incidence of cryptosporidiosis and their potential for predicting cryptosporidiosis in Queensland, Australia.
High temperature and living in areas with more advantaged socioeconomic conditions were strongly associated with an outbreak of cryptosporidiosis.
Understanding specific factors related to higher incidence of cryptosporidiosis is crucial for planning effective interventions to prevent this disease.

Major comments:

Methods
Details on the socio-economic index for areas (SEIFA) should be provided (i.e. what kind of occupation and living conditions). As cryptosporidiosis may affect in larger part children and elderly people, details on the distribution of age in the population living in these areas should be provided. Moreover, the presence of water reservoirs or large farms in these regions should be reported.

Discussion
The main limitations of the study were mentioned by the authors. In particular, the mechanism underlying the association of cryptosporidiosis with higher temperature and higher socio-economic factors remains unclear. While climate changes are well known determinants of the incidence of cryptosporidiosis, the link with the socioeconomic factors could be explained by the different exposure to water reservoirs (swimming pools?). Differences in behaviour related to higher education, as described in regions with higher socio-economic status, would have lowered the incidence of disease in these areas.
More information on the population size and age is needed to understand these differences.

Minor comments:
Figures 2-6: each figure should be clearly numbered

Level of interest: An article of importance in its field

Quality of written English: Acceptable
Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.