Reviewer's report

Title: Genotypic and phenotypic analysis of diarrheagenic Escherichia coli strains isolated from Brazilian children living in rural communities

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Reviewer: Theresa J Ochoa

Reviewer's report:

The authors have evaluated the prevalence of DEC in children with and without diarrhea living in poor communities in southeastern Brazil.

Major Comments:
1. The authors have included children up to 10 years of age. Why? Most studies on diarrhea are in children < 5 years of age, since this is the age group most commonly affected by this disease. In this study 35% of patients were older children (5-10y). The authors should present the prevalence data by age group (<2y, 2-5y and 5-10y) to determine the relevance of these pathogens in each age-group (Table 1).
2. Since the age group is very wide, the authors should describe if the control children were matched by age-group with the cases (ideally +/- 1 year). In addition, control patients were selected if no diarrhea was present 2 weeks prior to sample collection, however there is no information on follow up after sample collection, to determine if the patients were not incubating an infection.
3. The authors should describe if this was a passive surveillance study (enrollment of children coming for treatment to the medical center) or an active surveillance (home visits to find children with diarrhea). Where did the enrollment take place? This is important, since the prevalence of pathogens vary depending on the selection bias.

Minor comments:
4. The authors should comment on the very low prevalence of enteric viruses (rotavirus and norovirus). The numbers found are very low.
5. The numbers on all 3 tables do not match. For example: for EAEC on table 1: 117 (total), 36 (cases) and 81 (controls); on table 2: by PCR 55 (total); and on table 3: 21 (cases) and 34 (controls). This should be revised or an explanation for these differences should be given.
6. Table 2 should include p values for the comparison of the different diagnostic methods for each enteroadherent E. coli. The authors should discuss these differences and the relevance of these findings. In general, there is higher prevalence of these pathogens using tissue culture cells (HEp-2 cell adhesion) comparing with DNA probes or PCR. Are there more “false positives” with this method (tissue culture) or more “false negative” with the PCR…..Are the genes selected for each pathogens the most sensitive?
7. Table 3. The title should say “prevalence”, not incidence.
8. In the discussion, in several sections the authors mention that EAEC and DAEC were significantly associated with diarrhea. Based on Table 1, this is true only for DEAC.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests' below.