

ID News: Gastrointestinal therapies

Freedman SB, Pasichnyk D, Black KJ, Fitzpatrick E, Gouin S, Milne A, et al. **Gastroenteritis Therapies in Developed Countries: Systematic Review and Meta-Analysis.** PLoS One. 2015 Jun 15;10(6):e0128754. doi: 10.1371/journal.pone.0128754.

CONTEXT: Gastroenteritis remains a leading cause of childhood morbidity.

OBJECTIVE: Because prior reviews have focused on isolated symptoms and studies conducted in developing countries, this study focused on interventions commonly considered for use in developed countries. Intervention specific, patient-centered outcomes were selected.

DATA SOURCES: MEDLINE, EMBASE, the *Cochrane Database of Systematic Reviews*, trial registries, grey literature, and scientific meetings.

STUDY SELECTION: Randomized controlled trials, conducted in developed countries, of children aged <18 years, with gastroenteritis, performed in emergency department or outpatient settings which evaluated oral rehydration therapy (ORT), antiemetics, probiotics or intravenous fluid administration rate.

DATA EXTRACTION: The study was conducted in accordance with the *Cochrane Handbook for Systematic Reviews of Interventions* and the PRISMA guidelines. Data were independently extracted by multiple investigators. Analyses employed random effects models.

RESULTS: Thirty one trials (4,444 patients) were included. ORT: Compared with intravenous rehydration, hospitalization (RR 0.80, 95%CI 0.24, 2.71) and emergency department return visits (RR 0.86, 95%CI 0.39, 1.89) were similar. Antiemetics: Fewer children administered an antiemetic required intravenous rehydration (RR 0.40, 95%CI 0.26, 0.60). While the data could not be meta-analyzed, three studies reported that ondansetron administration does increase the frequency of diarrhea. Probiotics: No studies reported on the primary outcome, three studies evaluated hospitalization within 7 days (RR 0.87, 95%CI 0.25, 2.98). Rehydration: No difference in length of stay was identified for rapid vs. standard intravenous or nasogastric rehydration. A single study found that 5% dextrose in normal saline reduced hospitalizations compared with normal saline alone (RR 0.70, 95% CI 0.53, 0.92).

CONCLUSIONS: There is a paucity of patient-centered outcome evidence to support many interventions. Since ORT is a low-cost, non-invasive intervention, it should continue to be used. Routine probiotic use cannot be endorsed at this time in outpatient children with gastroenteritis. Despite some evidence that ondansetron administration increases diarrhea frequency, emergency department use leads to reductions in intravenous rehydration and hospitalization. No benefits were associated with ondansetron use following emergency department discharge.