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Linking Provincial and Prospective Cohort Study Data to Estimate the Incidence and Healthcare Burden of Viral Gastroenteritis

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Introduction

Acute gastroenteritis (AGE) is a major cause of morbidity in children. While viruses are known to cause the largest proportion of illnesses, slow adoption of new technology and recommendations against routine testing have blunted our ability to estimate the impact of viral AGE on the health system.

Conclusion/Implications

By linking data from APPETITE with the visit data available because of Alberta's single-payer system, we are able to provide population-based estimates of disease incidence for viral AGE, as well as the burden on the health care system in terms of the number of visits associated with these viral illnesses.

Objectives and Approach

Our objective was to quantify the incidence of medically-attended norovirus and other viral AGE etiologic agents as a baseline for future norovirus vaccination programs. AGE cases were identified through the Alberta Provincial Pediatric EnTeric Infection TEam (APPETITE) study, December 2014–December 2017, which tested participants for five viruses: rotavirus, norovirus, adenovirus, astrovirus, and sapovirus. Study data was linked to provincial health registry data to identify visits associated with the AGE episode. Comparable visits for children throughout the province were identified, and a comprehensive set of potential confounders was evaluated and used to standardize APPETITE rates to the Alberta population.

Results

APPETITE received and tested specimens from 2,358 children with AGE presenting to the emergency department (ED) for care and 513 children with AGE whose parent or guardian called the provincial health advice line Health Link (HL). Norovirus was the most commonly detected pathogen, associated with 579 (24%) ED cases and 177 (19%) HL cases. After norovirus, the most common viruses were, in descending order: adenovirus (441 ED, 97 HL), rotavirus (408 ED, 88 HL), sapovirus (211 ED, 68 HL), and astrovirus (75 ED, 21 HL). Results for the incidence of viral AGE by etiologic agent, with the associated number of hospitalizations, ED visits, and primary care visits, will be available by the date of the IPDLN conference.