

# Effect of Gastrointestinal Pathogen Panel (GIP) in Antibiotic Management

## Contact

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## Background

GIP offers detection via polymerase chain reaction (PCR) for an array of common microbes associated with diarrheal illness. Its rapid turnaround time and high sensitivity has made GIP testing commonplace for the evaluation of diarrhea. The purpose of this study is to determine if GIP influences antibiotic management in patients hospitalized with diarrhea.

## Methods

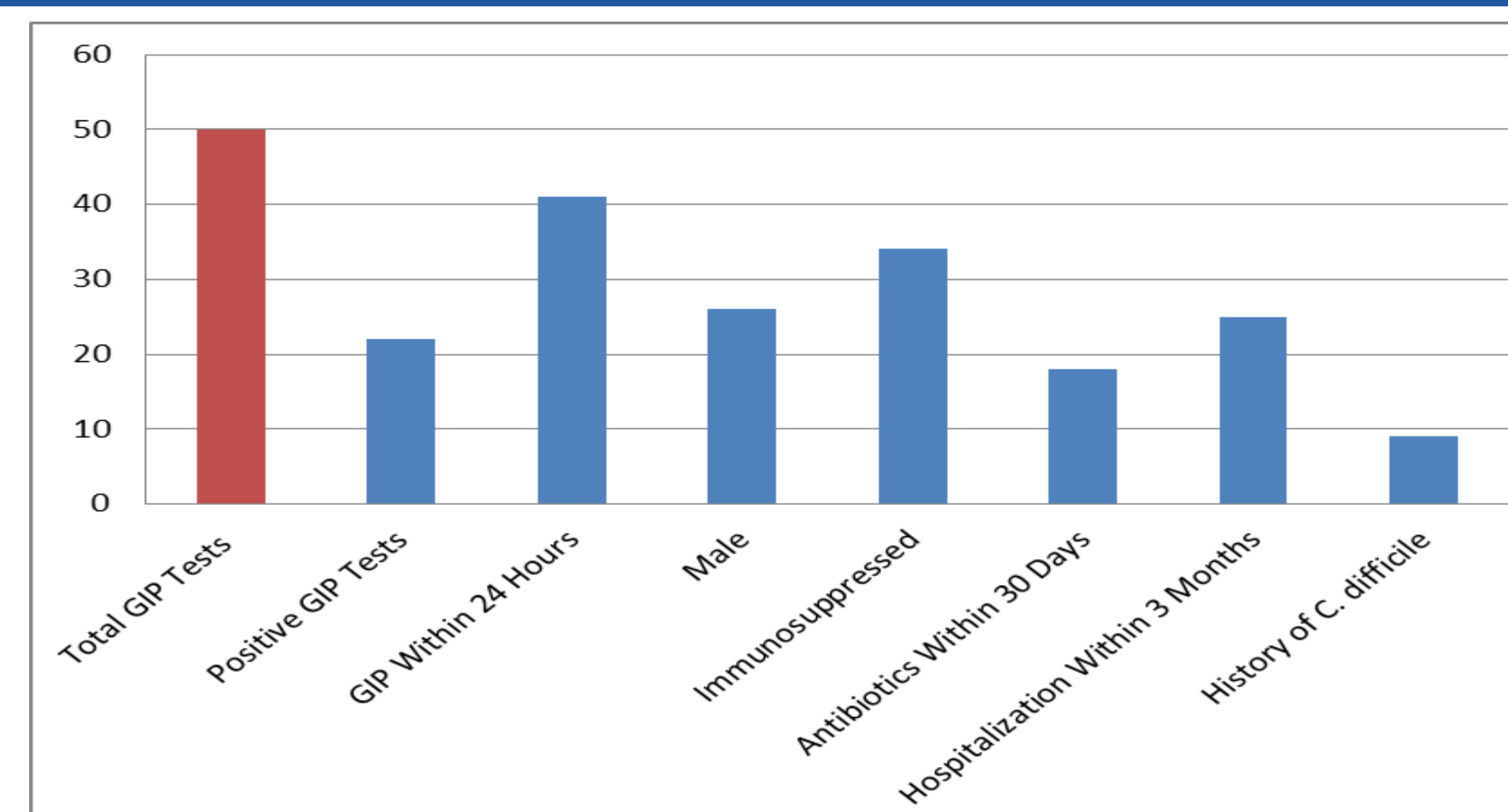
•50 patients hospitalized at Mayo Clinic Hospital between July to December 2019 who underwent BioFire® FilmArray™ GI PCR Panel testing were randomly selected

•Medical records reviewed for

- Gender and age
- Immunocompromised state
- Antibiotic use within past 30 days
- Hospitalization within past 3 months
- History of *Clostridioides difficile* infection
- Time from admission to testing and GIP results
- To determine if GIP results directly contributed towards antibiotic management

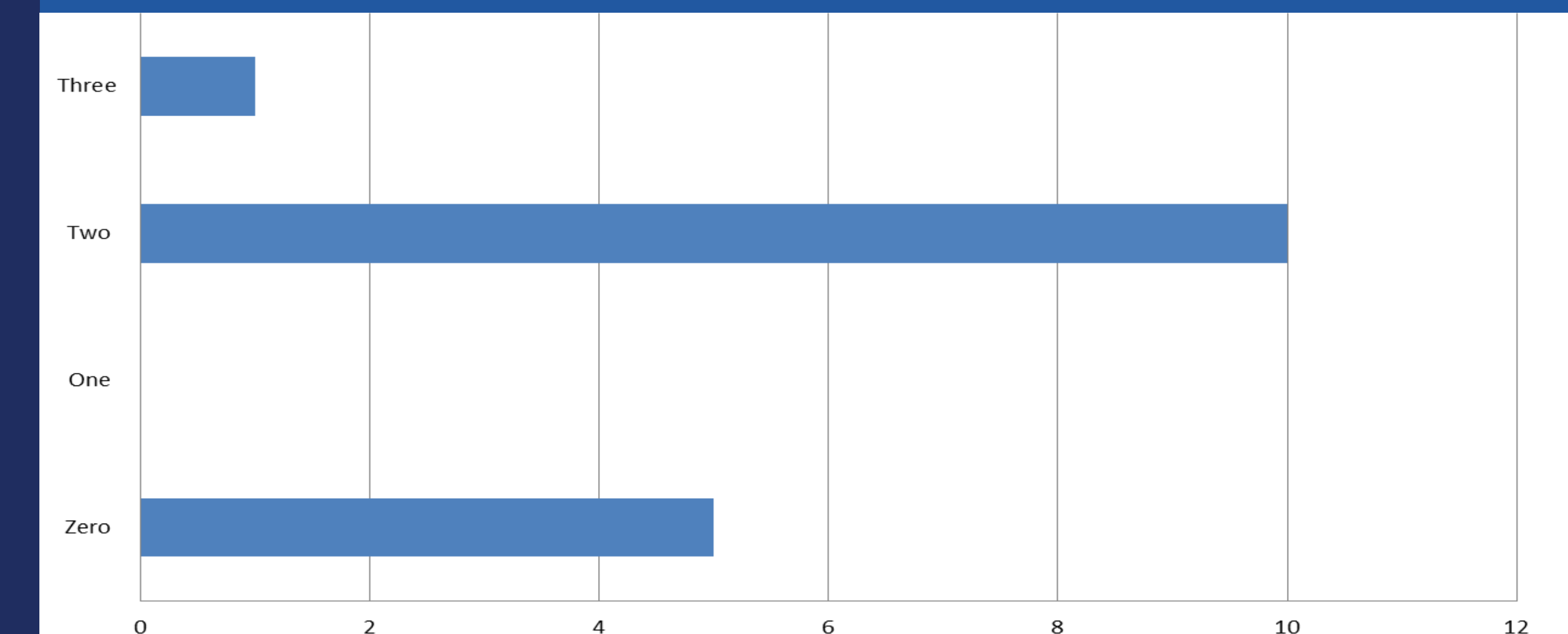
•Study was exempt from Institutional Review Board approval

## Figure 1: Demographics



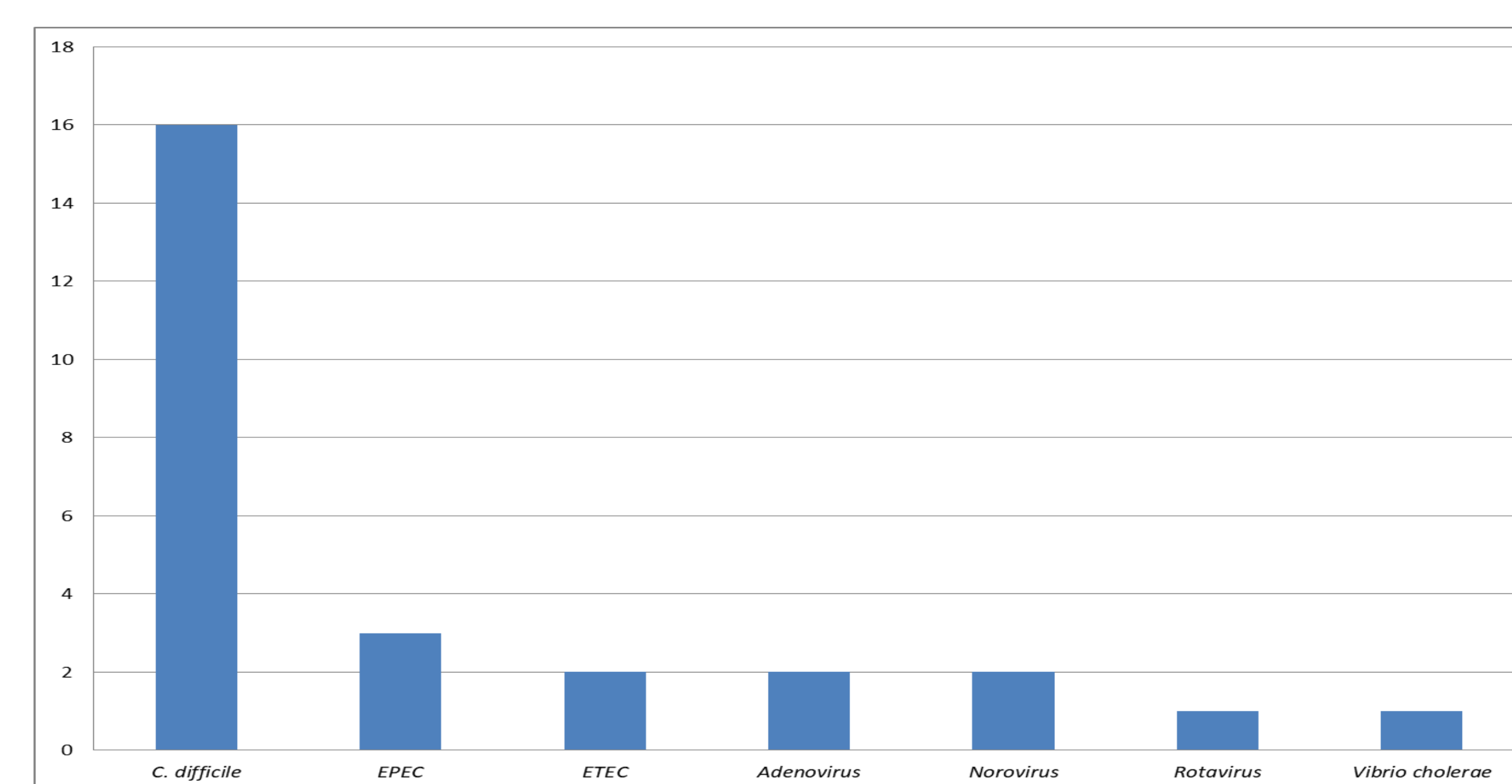
The average age was 61.7 years.

## Figure 3: Number of *C. difficile* Risk Factors in Patients with *C. difficile* Infection



Eleven of 16 patients (68.8%) with *C. difficile* had a hospitalization within 3 months, antibiotic use within 30 days, and/or a history of *C. difficile* infection.

## Figure 2: GIP Positive Results



EPEC: Enteropathogenic *Escherichia coli*; ETEC: Enterotoxigenic *Escherichia coli*

- Twenty-two patients (44%) had a positive GIP result.
- *C. difficile* was the most commonly detected organism, found in 16/24 (66.7%) positive tests.
- Five patients were positive for 2 concurrent organisms
  - 2 *C. difficile*/adenovirus
  - 1 *Vibrio cholerae*/norovirus
  - 1 EPEC/ETEC
  - 1 *C. difficile*/norovirus

## Results

- Excluding *C. difficile* positive patients, GIP testing contributed towards changing antimicrobial management in 3/50 (6%) of patients tested
- One patient had antibiotics stopped
- One patient received correct antibiotics
- One patient received inappropriate antimicrobial therapy

## Conclusions

- These results suggest that except in the setting of *C. difficile* infection, GIP has little utility in guiding antimicrobial management in the hospital setting, even in the immunocompromised patient
- GIP testing is expensive and a more prudent diagnostic approach may be to start with a *C. difficile* test for patients hospitalized with diarrhea, especially in those with risk factors for *C. difficile* infection
- GIP testing can lead to antibiotic overuse