

# The relationship between rifaximin use and the prevalence of *Clostridioides difficile* and Vancomycin-resistant Enterococcus in patients with advanced liver disease

Francisco A. De Jesus, MD<sup>1</sup>, Kristi Kuper, PharmD, BCPS<sup>2</sup>, Alyzeh Hader, MHA<sup>2</sup>, Joachim Sackey, PhD, MS<sup>3</sup>, Diana Finkel, DO<sup>1</sup>  
<sup>1</sup> Rutgers, The State University of New Jersey/New Jersey Medical School, <sup>2</sup> Center for Pharmacy Practice Excellence, Vizient, Irving, TX <sup>3</sup> Rutgers School of Public Health

## Background

- Rifaximin (RFX) is a minimally absorbed antibiotic that achieves high concentrations after administration in the gut lumen.
- RFX has shown activity against *Clostridioides difficile* (C. difficile) recurrences post treatment with little overall impact on the normal fecal microbiota
- Additional studies have found that while exposure to systemic antibiotics was associated with infection with multi drug resistant organisms, exposure to only RFX was not.
- RFX has become widely used in hospitalized patients with advanced liver disease (ALD), with refractory hepatic encephalopathy, but the impact of therapy on the occurrence of C. difficile and VRE are not well established.

## Objectives

- Describe the relationship between RFX and the occurrence of *C. difficile* and VRE.

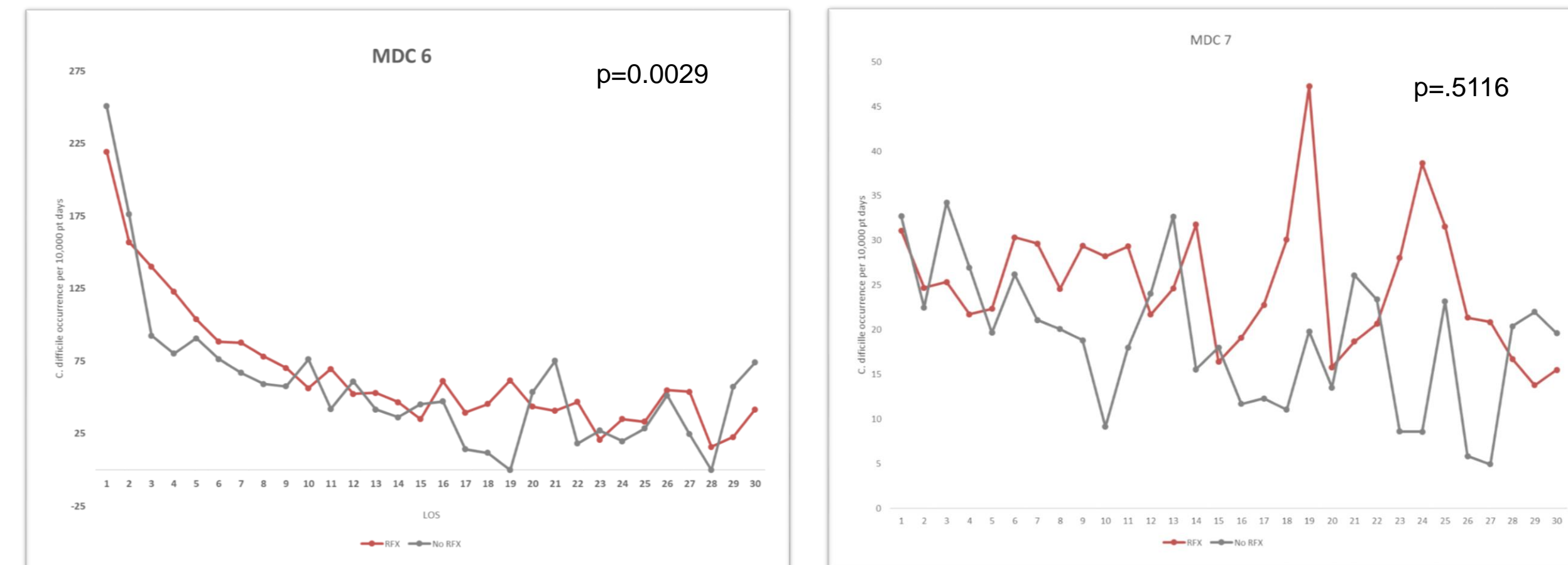
## Methods

- ALD patients in the Vizient Clinical Database-Resource Manager were identified based on ICD 10 and MS-DRG codes from Jan. to Dec. 2018
- MDC groups 6 (Gastrointestinal disease) and 7 (Hepatobiliary disease) were extrapolated with main diagnosis of ALD
- Data was further stratified based on the following:
  - Receipt of RFX
  - Documentation of C. difficile or VRE
  - Hospital type (academic medical centers, complex care medical centers, or community hospitals)
- Chi-square analysis was used to evaluate difference in RFX use by hospital type
- t test was used to evaluate differences based on LOS

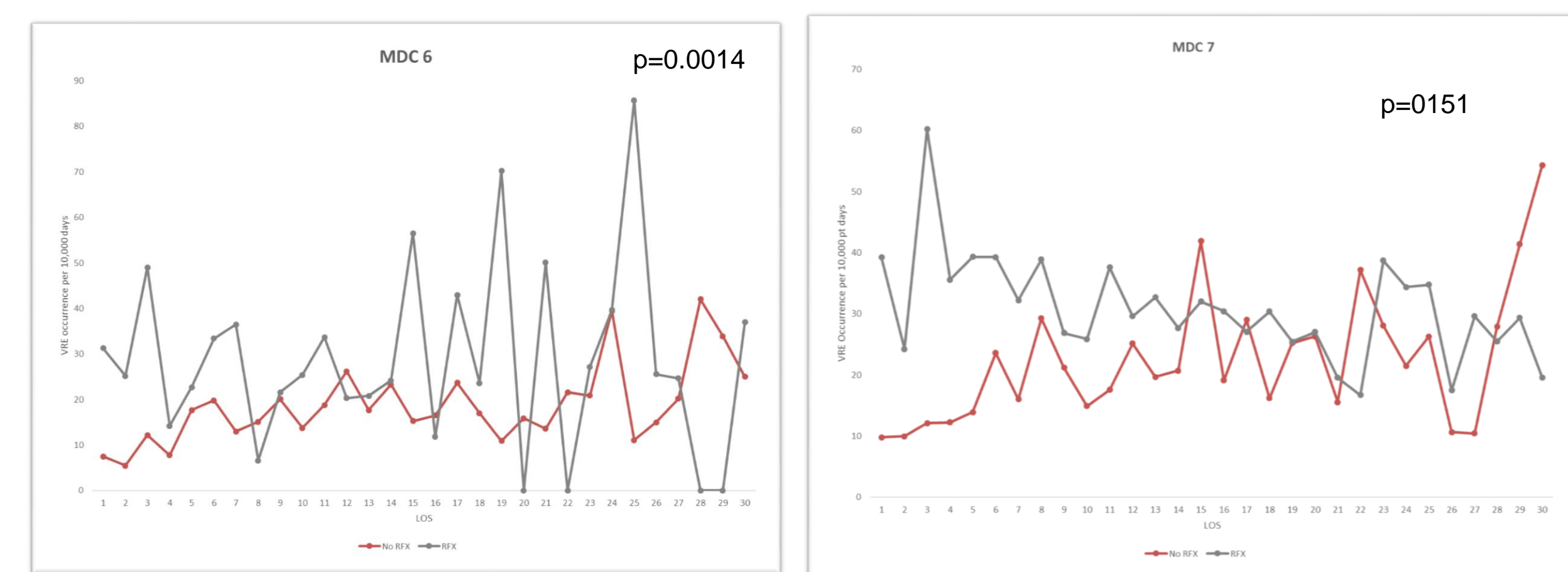
## Results

- A total of 397,658 cases from 287 acute care hospitals were included in the ALD cohort
- Approximately 11.71% received RFX (46,841)
- MDC group 6 had 41,314 encounters and MDC group 7 had 75,209 encounters

**Table 1: C. difficile per 10,000 patient days by MDC 6 and 7 and RFX receipt**



**Table 2: VRE per 10,000 patient days by MDC 6 and 7 and RFX receipt**



## Results

- Frequency of *C. difficile* occurrence in patients who receive RFX was 19.02 cases per 10,000 patient days vs. 25.06 cases per 10,000 patient days in those who did not
- VRE frequency was significantly lower in those that did not receive RFX (19.50 cases per 10,000 patient days) vs. those that received RFX in ALD population (33.25 cases per 10,000 patient days),  $P < 0.05$
- Percentage of ALD cases receiving RFX in the academic medical centers 11.94%, complex care medical centers 4.87%, and community hospitals 8.76%

## Conclusions

- Patients with ALD who received RFX had a significantly lower frequency of documented *C. difficile*
- However, there was a significantly higher frequency of documented VRE in the same population who received RFX
- Utilization of RFX varied significantly by institutional type
- These results support further studies on the relationship between receipt of RFX and protective effects against *C. difficile* and increase in VRE in patients with ALD

The authors of this poster have no conflicts of interest to disclose. This poster includes updated information from previously submitted abstract. Special thanks to Sam Hohmann, PhD for his assistance with this project