

Treatment Approaches for Recurrent *Clostridium difficile* Infection (RCDI) among Infectious Disease Physicians

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Background

- *Clostridium difficile* infection (CDI) was a leading nosocomial infection in 2011
- Recurrent *Clostridium difficile* infection (RCDI) occurs commonly
- There is limited effectiveness of many antibiotics for some cases of RCDI
- Fecal Microbiota Transplant (FMT) is a highly effective treatment for RCDI
- FMT has limited use in the U.S.

Objectives

To assess how infectious disease experts treat RCDI and severe CDI, including:

- Use of antibiotics
- Use of non-antibiotic treatments
- Views and experience regarding FMT

Methods

- 11-item web-based survey developed by Emerging Infections Network (EIN) Staff at the University of Iowa in collaboration with other EIN-affiliated authors
- 7-item FMT sub-survey for respondents whose primary institutions offer FMT
- 1,212 members of the IDSA's EIN
- Survey sent by weblink or facsimile in October 2012 to EIN members with 2 weekly reminders

Conclusions

- ID experts use increasingly heterogeneous treatments for severe CDI and subsequent RCDI
- Probiotics and IVIG are used inconsistently for CDI treatment
- More ID experts favor use of FMT for RCDI than have access
- High success rates for FMT are reported
- Significant barriers to adoption of FMT exist

Results of CDI Survey

Response rates: 51% (621 respondents; 10% then omitted b/c no CDI treated)

RCDI rate: 4% to >50%

NAP1: Yes, test available: 25% (not sure 7%)

Would change treatment if (+): 30% (not sure 28%)

Figure 1. Proportionate Frequency of CDI Patients Treated in Prior 6 Months

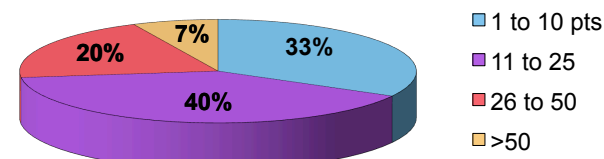


Table 1. Antibiotic Choices for Mild Primary CDI and RCDI

	1 st CDI N (%)	1 st RCDI N (%)	2 nd RCDI N (%)
Respondents	537	537	529
Metro po	449 (84)	215 (40)	17 (3)
Vanco po	87 (16)	347 (65)	282 (53)
Fidaxomyacin	1 (0.2)	20 (4)	60 (11)
Vanco taper	0	79 (15)	290 (55)
Rifaximin	0	9 (2)	73 (14)
Nitazoxanide	0	1 (0.2)	10 (2)
Tigecycline	0	1 (0.2)	3 (0.6)
≥2 drugs	0	127 (24)	121 (23)

(Metro=Metronidazole; Vanco=Vancomycin; Rifaximin=used at conclusion of other tx)

Figure 2. Number of CDI Relapses after which FMT is Recommended

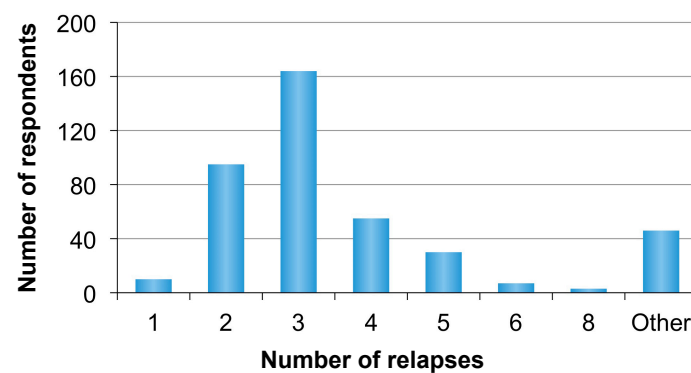
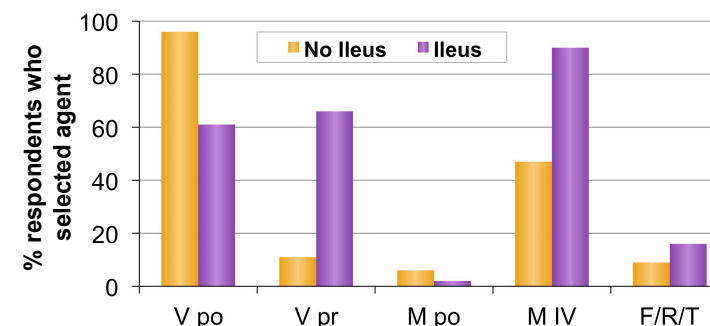


Figure 3. Antimicrobials Selected for Severe CDI



V = vancomycin; M = metronidazole; po = per oral; pr = per rectum; IV = intravenous; F/R/T = any of fidaxomyacin, rifaximin, tigecycline (combinations often used)

Table 2. Use of Probiotics for Prevention or Management of CDI

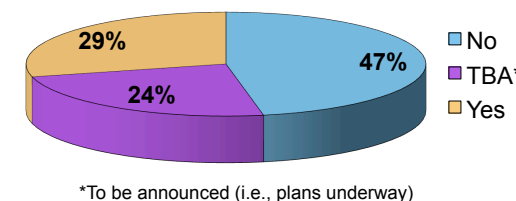
Probiotic Use	Prevention (%)	Treatment (%)
Never	50	45
Rare / Occasional	38	38
Routine	12	17

IVIG use: Yes – 51% (ever)

FMT considered for following circumstances:

- RCDI – 80%
- Severe CDI – 24%
- Never – 9%

Figure 4. Proportionate FMT Availability at Primary Institution



*To be announced (i.e., plans underway)

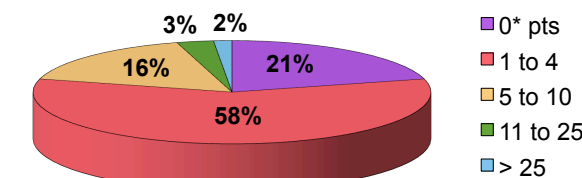
FMT: Reasons for lack of availability (selected all that applied):

- Logistics of preparation and delivery – 80%
- Complexity of donor screening – 45%
- Issues with compensation/reimbursement – 26%
- Patient refusal – 5%

Results of FMT Subsurvey

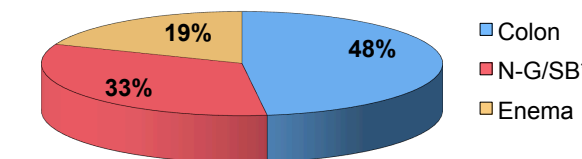
FMT Subsurvey: 149 respondents

Figure 5. Proportionate Frequency of FMT Use



*No patients treated by respondent, but used at institution

Figure 6. Proportionate Routes for FMT Delivery



*Naso-Gastric or Nasal-Small Bowel Tube

Donor Screening

Test	% Ordered	Test	% Ordered
HIV	88%	Hep B	85%
Hep C	78%	Hep A	74%
C diff	73%	Stool cx	69%
O & P	65%	Syphilis	56%

Source of FMT

- Household or family member – 98%
- Banked, frozen – 2%

Number of Instillations: 1 91%

Volume of Instillate: <250 ml – 67%
250-500 – 27%

Figure 7. Proportionate Success Rates of FMT

