

## BRINGING CLINICIANS TOGETHER TO DISCUSS CURRENT DRUG THERAPY

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### INFECTIOUS DISEASES

You'll see a shift in meds to treat *Clostridium difficile* in adults...due to new guidelines from Infect Dis Soc of America (IDSA).

Metronidazole has been the standard for treating *C. diff*...with oral vancomycin often saved for severe or recurrent infections.

But about one in 4 patients relapse after a first *C. diff* episode.

Lean toward vancomycin for initial treatment and recurrences. A month after treatment, one more patient will have resolution of diarrhea for every 10 patients treated with vancomycin instead of metronidazole.

Treat an initial *C. diff* bout with oral vancomycin QID for 10 days.

But if diarrhea recurs, use an extended taper. For example, after the initial 10-day course, give vancomycin BID for a week...daily for a week...then once every 2 to 3 days for up to 8 weeks.

Prescribe *Firvanq* oral vancomycin solution. It's grape flavored and costs about \$125 for 10 days...versus \$600 for generic vancomycin caps.

It's still okay to use metronidazole for mild infections, such as white count 15,000 or less and creatinine below 1.5 mg/dL...especially if cost of vancomycin is a barrier.

Metronidazole is TID and costs about \$15 for 10 days. But repeat courses could lead to neurotoxicity...dizziness, ataxia, confusion, etc.

Save fidaxomicin (*Dificid*) for patients who relapse after vancomycin. Recurrence rates may be lower than vancomycin in some patients...but 10 days of BID fidaxomicin cost about \$3,700.

Refer for fecal transplant when patients have 3 or more *C. diff* episodes...to restore a healthy GI flora.

Don't discourage probiotics if patients want to try one...to prevent *C. diff* while taking an antibiotic, in combo with usual *C. diff* treatment, or to prevent recurrent *C. diff*. Suggest a product with *Saccharomyces boulardii* (*Florastor*, etc) or *Lactobacillus* species (*Culturelle*, etc).

To prevent *C. diff*, continue to limit antibiotics...especially clindamycin, quinolones, etc. Also stop unnecessary PPIs.

Don't use a stool test to see if *C. diff* has cleared...patients may remain asymptomatic carriers after treatment.

Hear our *PL Voices* team discuss the latest updates with an author of the guidelines. And see our chart, *Clostridium difficile* in Adults, for more about risk factors, recurrent infections, etc.

(For more on this topic, see Clinical Resource #340417 at [PrescribersLetter.com](http://PrescribersLetter.com).)

*Primary Reference* – McDonald LC, Gerding DN, Johnson S, et al. *Clinical practice guidelines for Clostridium difficile infection in adults and children: 2017 update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA)*. *Clin Infect Dis* 2018;66:e1-e48.

See LEADER NOTES for answers to discussion questions.



## DISCUSSION QUESTIONS

### OVERVIEW OF CURRENT THERAPY

1. What are the new *Clostridium difficile* guidelines?

### ANALYSIS OF NEW STUDY

2. What are the criteria for development or evaluation of practice guidelines?
3. Are the new guidelines for *Clostridium difficile* evidence-based? Is evidence linked to recommendations with a strength of recommendation grading system?
4. Are the guidelines unbiased and representative of a wide-range of clinicians?
5. Are the recommendations based on outcomes important to patients?

See [LEADER NOTES](#) for answers to discussion questions.

6. Are the interventions proposed in the guidelines feasible in all practice settings?

7. Have the guidelines been prospectively validated?

8. What are the major recommendations of the guidelines?

9. Are the guidelines expressed in terms we care about and can use?

### HOW SHOULD THE NEW FINDINGS CHANGE CURRENT THERAPY?

10. Do the guidelines change your practice? How?

### APPLY THE NEW FINDINGS TO THE FOLLOWING CASE

J.R. is an 83-year-old female with acute hypoxic respiratory failure secondary to pneumonia admitted from a nursing home. She was started on IV levofloxacin per hospital protocol. J.R.'s chronic meds (lisinopril 20 mg daily, metoprolol succinate 50 mg daily, and omeprazole 20 mg daily) were also continued on admission.

On day four of hospitalization, J.R. develops foul smelling, watery diarrhea and her stool test for *C. difficile* returns positive. You place J.R. on contact precautions.

See [LEADER NOTES](#) for answers to discussion questions.

**11. What are J.R.'s risks for *C. difficile* diarrhea?**

You try to narrow the spectrum of J.R.'s antibiotic. However, J.R.'s sputum culture did not reveal a pathogen, so you continue levofloxacin. She is improving clinically, so you switch her to oral levofloxacin and add a stop-date to the EHR to ensure the antibiotic doesn't continue beyond seven days total treatment. Finally, you stop J.R.'s omeprazole, since you find no clear indication for a PPI.

**12. How should you treat J.R.'s *C. difficile* diarrhea?**

J.R. responds well to treatment. By day eight of hospitalization, J.R. no longer needs supplemental oxygen and her diarrhea has resolved. Your team feels she is stable for discharge.

J.R. is concerned about a recurrence of her diarrhea after she stops treatment, since her roommate struggled with many bouts of *C. diff* diarrhea. She is also worried about her daughter and grandchildren becoming infected with the same bacteria when they visit her. She asks if you can do a test to ensure that it has cleared before discharge, and if there is anything she can do to prevent future bouts of *C. diff*.

**13. How should you advise J.R.? Should you retest her stool?**

You discuss the BP effects of ibuprofen, and advise trying acetaminophen as an alternative. You also suggest a pill box to help M.B. organize his medications and remember whether he has taken them. M.B. and his daughter agree that switching to acetaminophen is worth a try, and that using a pill box sounds like a good idea.

You advise M.B. to return for a follow-up visit in one month to assess whether changes to his blood pressure medications are necessary.

See [LEADER NOTES](#) for answers to discussion questions.

## REFERENCES

- CMSS. *CMSS Principles for the development of specialty society clinical guidelines*. 2017. <https://cmss.org/wp-content/uploads/2017/11/Revised-CMSS-Principles-for-Clinical-Practice-Guideline-Development.pdf> (Accessed February 26, 2018).
- Cornely OA, Crook DW, Esposito R, et al. Fidaxomicin versus vancomycin for infection with *Clostridium difficile* in Europe, Canada, and the USA: a double-blind, non-inferiority, randomized controlled trial. *Lancet Infect Dis* 2012;12:281-9.
- Hayward RS, Wilson MC, Tunis SR, et al. Users' guides to the medical literature. VII. How to use clinical practice guidelines. A. Are the recommendations valid? The Evidence-Based Medicine Working Group. *JAMA* 1995;274: 570-4.
- Health and Medicine Division of the National Academies of Sciences, Engineering, Medicine. *Clinical Practice Guidelines We Can Trust*. March 2011. <http://nationalacademies.org/hmd/-/media/Files/Report%20Files/2011/Clinical-Practice-Guidelines-We-Can-Trust/Clinical%20Practice%20Guidelines%202011%20Insert.pdf> (Accessed February 26, 2018).
- Johnson S, Louie TJ, Gerding DN, et al. Vancomycin, metronidazole, or tolevamer for *Clostridium difficile* infection: results from two multinational, randomized, controlled trials. *Clin Infect Dis* 2014;59:345-54.
- Louie TJ, Miller MA, Mullane KM, et al. Fidaxomicin versus vancomycin for *Clostridium difficile* infection. *N Engl J Med* 2011;364:422-31.
- McDonald LC, Gerding DN, Johnson S, et al. Clinical practice guidelines for *Clostridium difficile* infection in adults and children: 2017 update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). *Clin Infect Dis* 2018;66:e1-e48.
- Nelson RL, Suda KJ, Evans CT. Antibiotic Treatment for *Clostridium difficile*-associated diarrhoea in adults. *Cochrane Database Syst Rev* 2017;3:CD004610.
- NGC. *National Guideline Clearinghouse: Fact Sheet*. August 2012. <https://www.ahrq.gov/research/findings/factsheets/errors-safety/ngc/national-guideline-clearinghouse.html> (Accessed February 26, 2018).
- US Grade Network. *Approach and implications to rating the quality of evidence and strength of recommendations using GRADE methodology*, 2015. <http://www.gradeworkinggroup.org/> (Accessed February 26, 2018).
- Wilson MC, Hayward RS, Tunis SR, et al. User's guides to the medical literature. VIII. How to use clinical practice guidelines. B. What are the recommendations and will they help you in caring for your patients? The Evidence-Based Medicine Working Group. *JAMA* 1995;274:1630-2.
- Zar FA, Bakkanagari SR, Moorthi KM, Davis MB. A comparison of vancomycin and metronidazole for the treatment of *Clostridium difficile*-associated diarrhea, stratified by disease severity. *Clin Infect Dis* 2007;45:302-7.

**Additional Prescriber's Letter Resources available at [PrescribersLetter.com](http://PrescribersLetter.com)**

- Chart, *Acute Infectious Diarrhea*. *Pharmacist's Letter/Prescriber's Letter*. December 2017.
- Chart, *Giving Meds by Alternative Routes*. *Pharmacist's Letter/Prescriber's Letter*. August 2017.
- Checklist, *Transitions of Care Checklist*. *Pharmacist's Letter/Prescriber's Letter*. August 2017.
- Toolbox, *Reducing Hospital Readmissions*. *Pharmacist's Letter/Prescriber's Letter*. July 2017.
- PL Voices, *Shorter Courses of Antibiotics*. *Pharmacist's Letter/Prescriber's Letter*. November 2016.
- Chart, *Antibiotic Therapy: When Are Shorter Courses Better?* *Pharmacist's Letter/Prescriber's Letter*. November 2016.
- Toolbox, *Antimicrobial Stewardship*. *Pharmacist's Letter/Prescriber's Letter*. May 2016.
- PL Voices, *Appropriate Use of Proton Pump Inhibitors*. *Pharmacist's Letter/Prescriber's Letter*. April 2016.
- Chart, *Proton Pump Inhibitors: Appropriate Use and Safety Concerns*. *Pharmacist's Letter/Prescriber's Letter*. March 2016.
- Patient Education Handout, *What You Should Know About Proton Pump Inhibitors*. *Pharmacist's Letter/Prescriber's Letter*. March 2016.
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