UW TASP tele-antimicrobial stewardship program | echo

C.difficile Treatment Options

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URL: http://rwpoll.com
Code: uwecho

This presentation is intended for educational use only, and does not in any way constitute medical consultation or advice related to any specific patient.

Disclosures

- No financial conflicts of interest
- Everything we discuss is QI, thus protected from legal discovery under WA State Code

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Question…

Do you have a C.difficile treatment order set at your hospital?

A. Yep
B. Nope
C. I'm not sure…

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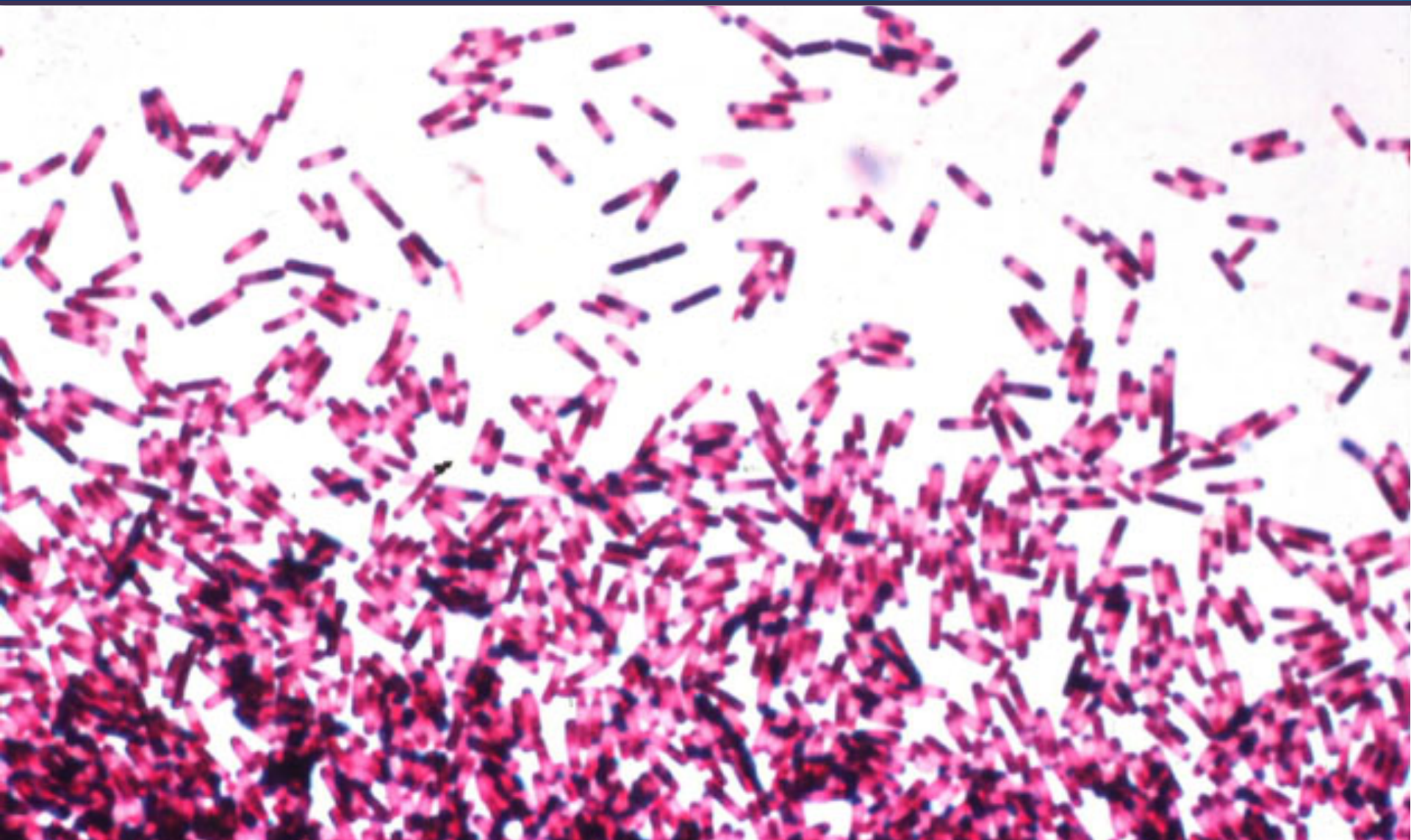
C.difficile: *"A Big Bowl of Bad"*



C.difficile: *"A Big Bowl of Bad"*

SPREAD

Touching unclean surfaces, especially those in healthcare settings, contaminated with feces from an infected person.

Dirty hands.

Failing to notify other healthcare facilities when patients with *C. difficile* transfer from one facility to another.

PREVENT

Improve prescribing of antibiotics.

Use best tests for accurate results to prevent spread.

Rapidly identify and isolate patients with *C. difficile*.

Wear gloves and gowns when treating patient with *C. difficile*. Remember that hand sanitizer doesn't kill *C. difficile*.

Clean room surfaces with EPA-approved, spore-killing disinfectant (such as bleach), where *C. difficile* patients are treated.

http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_infect.html
www.cdc.gov/media

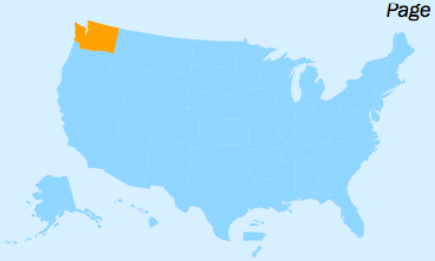
[1] Table 3 from Lessa FC, Mu Yi, Bamberg WM et al. N Engl J Med 2015;372:825-34. DOI: 10.1056/NEJMoa1408913

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

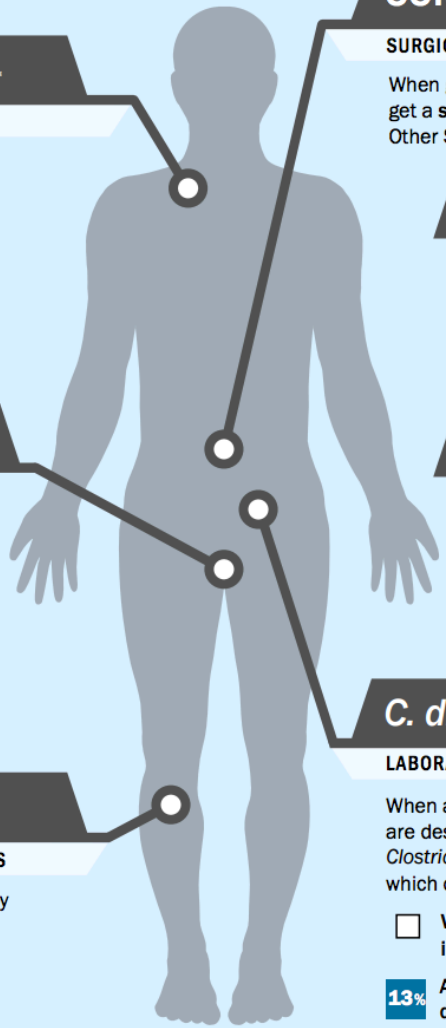
HEALTHCARE ASSOCIATED INFECTIONS PROGRESS

WASHINGTON

ACUTE CARE HOSPITALS



Healthcare-associated infections (HAIs) are infections patients can get while receiving medical treatment in a healthcare facility. Working toward the elimination of HAIs is a CDC priority. The standardized infection ratio (SIR) is a summary statistic that can be used to track HAI prevention progress over time; lower SIRs are better. The infection data are reported to CDC's National Healthcare Safety Network (NHSN). HAI data for nearly all U.S. hospitals are published on the Hospital Compare website.
This report is based on 2014 data, published in 2016.



CLABSIs

↓ 49% LOWER COMPARED TO NAT'L BASELINE*

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS

When a tube is placed in a large vein and not put in correctly or kept clean, it can become a way for germs to enter the body and cause deadly infections in the blood.

☐ **Washington hospitals reported no significant change in CLABSIs between 2013 and 2014.**

7% **Among the 51 hospitals in Washington with enough data to calculate an SIR, 7% had an SIR significantly higher (worse) than 0.50, the value of the national SIR.**

CAUTIs

↓ 11% LOWER COMPARED TO NAT'L BASELINE*

CATHETER-ASSOCIATED URINARY TRACT INFECTIONS

When a urinary catheter is not put in correctly, not kept clean, or left in a patient for too long, germs can travel through the catheter and infect the bladder and kidneys.

■ **Washington hospitals reported a significant decrease in CAUTIs between 2013 and 2014.**

5% **Among the 61 hospitals in Washington with enough data to calculate an SIR, 5% had an SIR significantly higher (worse) than 1.00, the value of the national SIR.**

MRSA Bacteremia

↓ 16% LOWER COMPARED TO NAT'L BASELINE

LABORATORY IDENTIFIED HOSPITAL-ONSET BLOODSTREAM INFECTIONS

Methicillin-resistant *Staphylococcus aureus* (MRSA) is bacteria usually spread by contaminated hands. In a healthcare setting, such as a hospital, MRSA can cause serious bloodstream infections.

☐ **Washington hospitals reported no significant change in MRSA bacteremia between 2013 and 2014.**

3% **Among the 34 hospitals in Washington with enough data to calculate an SIR, 3% had an SIR significantly higher (worse) than 0.87, the value of the national SIR.**

SSIs

SURGICAL SITE INFECTIONS

When germs get into an area where surgery is or was performed, patients can get a **surgical site infection**. Sometimes these infections involve only the skin. Other SSIs can involve tissues under the skin, organs, or implanted material.

SSI: Abdominal Hysterectomy

↓ 22% LOWER COMPARED TO NAT'L BASELINE

☐ **Washington hospitals reported no significant change in SSIs related to abdominal hysterectomy surgery between 2013 and 2014.**

0% **Among the 11 hospitals in Washington with enough data to calculate an SIR, 0% had an SIR significantly higher (worse) than 0.83, the value of the national SIR.**

SSI: Colon Surgery

↓ 6% LOWER COMPARED TO NAT'L BASELINE

☐ **Washington hospitals reported no significant change in SSIs related to colon surgery between 2013 and 2014.**

10% **Among the 39 hospitals in Washington with enough data to calculate an SIR, 10% had an SIR significantly higher (worse) than 0.98, the value of the national SIR.**

C. difficile Infections

0% NO CHANGE COMPARED TO NAT'L BASELINE

LABORATORY IDENTIFIED HOSPITAL-ONSET *C. DIFFICILE* INFECTIONS

When a person takes antibiotics, good bacteria that protect against infection are destroyed for several months. During this time, patients can get sick from *Clostridium difficile* (*C. difficile*), bacteria that cause potentially deadly diarrhea, which can be spread in healthcare settings.

☐ **Washington hospitals reported no significant change in *C. difficile* infections between 2013 and 2014.**

13% **Among the 67 hospitals in Washington with enough data to calculate an SIR, 13% had an SIR significantly higher (worse) than 0.92, the value of the national SIR.**

*Statistically significant

CDC

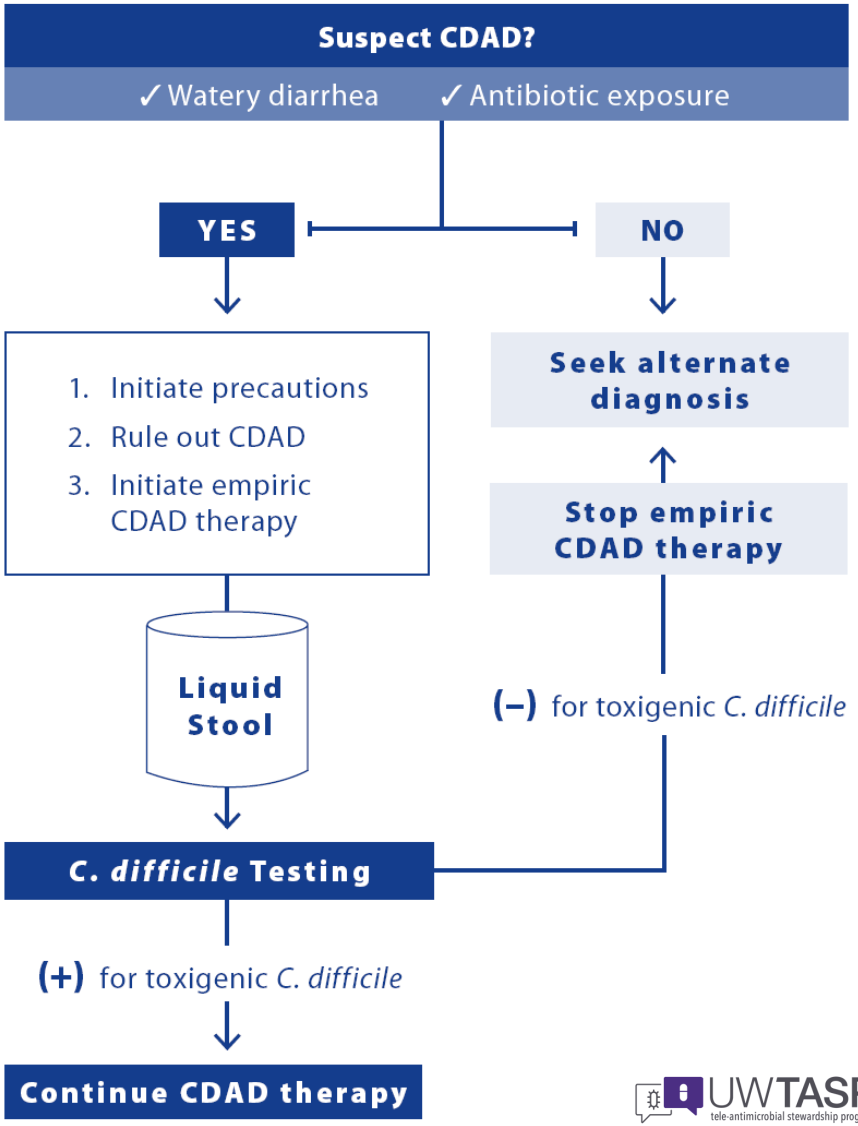
C.difficile: *"Should we Treat?"*

Diagnostic Uncertainty

- ✓ Laxative use?
- ✓ Stool quality, frequency?

Urgency to Treat?

- ✓ Test TAT?
- ✓ Clinical severity?



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C.difficile: *"Treatment Fundamentals"*

STOP precipitating abx

- ✓ Any abx still indicated?
- ✓ If so, can spectrum be deescalated?

START enhanced precautions

START anti-*C.difficile* abx

AVOID anti-motility drugs initially…

- ✓ Careful titration may be *fine* once clinical response established

C.difficile: *"Best Treatment? It Depends"*

Clinical Practice Guidelines for *Clostridium difficile* Infection in Adults: 2010 Update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA)

Stuart H. Cohen, MD; Dale N. Gerding, MD; Stuart Johnson, MD; Ciaran P. Kelly, MD; Vivian G. Loo, MD; L. Clifford McDonald, MD; Jacques Pepin, MD; Mark H. Wilcox, MD

Since publication of the Society for Healthcare Epidemiology of America position paper on *Clostridium difficile* infection in 1995, significant changes have occurred in the epidemiology and treatment of this infection. *C. difficile* remains the most important cause of healthcare-associated diarrhea and is increasingly important as a community pathogen. A more virulent strain of *C. difficile* has been identified and has been responsible for more-severe cases of disease worldwide. Data reporting the decreased effectiveness of metronidazole in the treatment of severe disease have been published. Despite the increasing quantity of data available, areas of controversy still exist. This guideline updates recommendations regarding epidemiology, diagnosis, treatment, and infection control and environmental management.

Infect Control Hosp Epidemiol 2010; 31(5):431-455

Treatment Options based on Clinical Course

Disease Severity	Definition	Drug/Dose	Duration	Comments
Initial episode mild-moderate	✓ WBC < 15,000 *and* ✓ Creatinine < 50% above baseline	Metronidazole 500mg PO TID*	10-14 days	* Consider changing to oral vancomycin in 5 days if lack of clinical response noted.
Severe	✓ WBC ≥ 15,000 *or* ✓ Creatinine ≥ 50% above baseline	Vancomycin 125mg PO QID	10-14 days	Vancomycin is recommended as the initial antibiotic for pregnant women.
Severe with complications	Any: ✓ Hypotension ✓ Shock ✓ Toxic megacolon ✓ Perforation ✓ severe colitis on CT Scan ✓ Admission to ICU for CDI	Ileus or unable to take PO: metronidazole 500mg IV Q8H +/- intracolonic vancomycin**	10 days min.**	** Recommend Infectious Diseases consultation for vancomycin dosing & duration of therapy.

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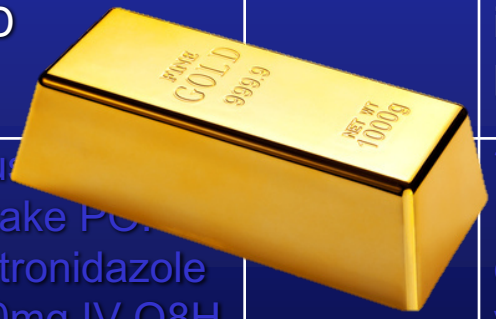

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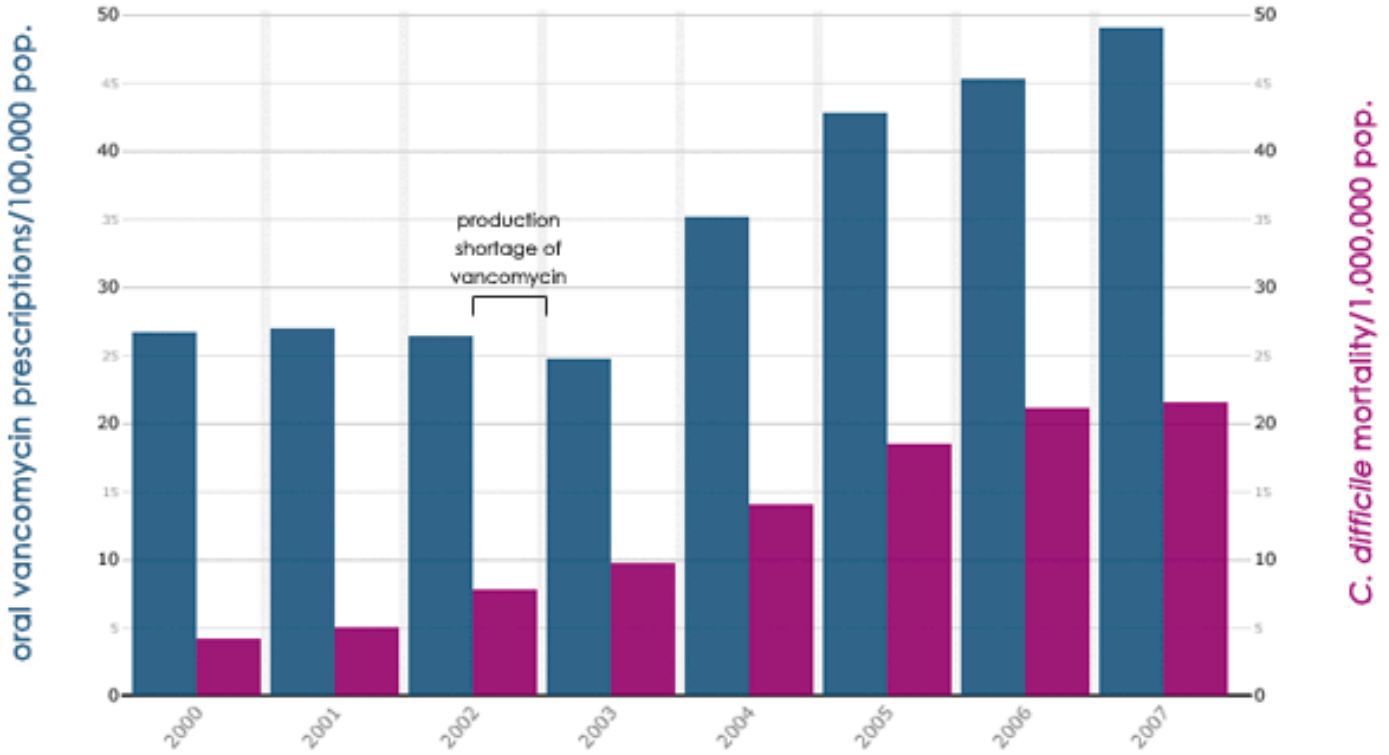
C.difficile: *"Vanco Isn't Magic"*

Oral vancomycin use increased along with mortality from *C. difficile* infections in the United States, 2000-2007



Sources: Centers for Disease Control and Prevention, National Center for Health Statistics. Compressed Mortality File 1999-2008. CDC WONDER Online Database; Polgreen, Philip M., Yang, M., et al. 2011. Using Oral Vancomycin Prescriptions as a Proxy Measure for Clostridium difficile Infections: A Spatial and Time Series Analysis. *Infection Control and Hospital Epidemiology* (32).Oral vancomycin data obtained under license from IMS Health Xponent ™ (January 2000-December 2007) IMS Health Incorporated. All Rights Reserved. The findings, conclusions and views expressed do not necessarily reflect those of IMS Health or any of its affiliated or subsidiary entities.

CDDEP.org

C.difficile: *"Recurrence is Common"*

Comes back at least once in about 1 in 5 patients who get *C. difficile*.

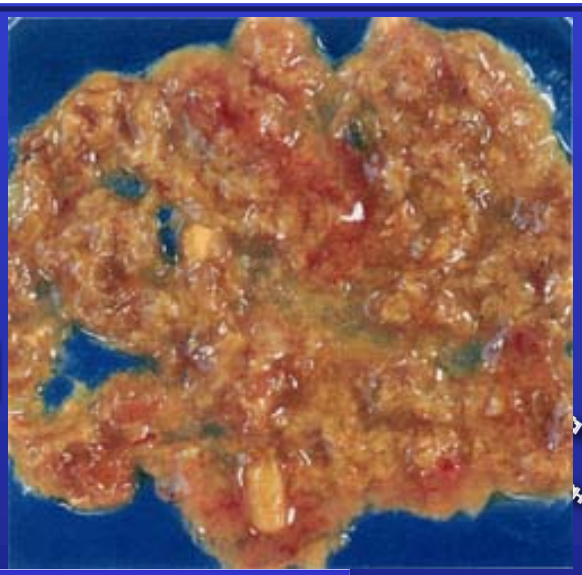
C.difficile: *"Recurrence is Painful"*

Situation	Treatment
First recurrence	Treat with the same regimen used for initial episode
Severe recurrent disease	Vancomycin
Second recurrence	Pulsed vancomycin regimen
Third recurrence after pulsed vancomycin regimen	Consider fecal microbiota transplantation

Newer Sometimes Better…

Fidaxomicin

- Macrocyclic antibiotic
- 200mg PO BID, not absorbed
- Cost: $2,800 / course



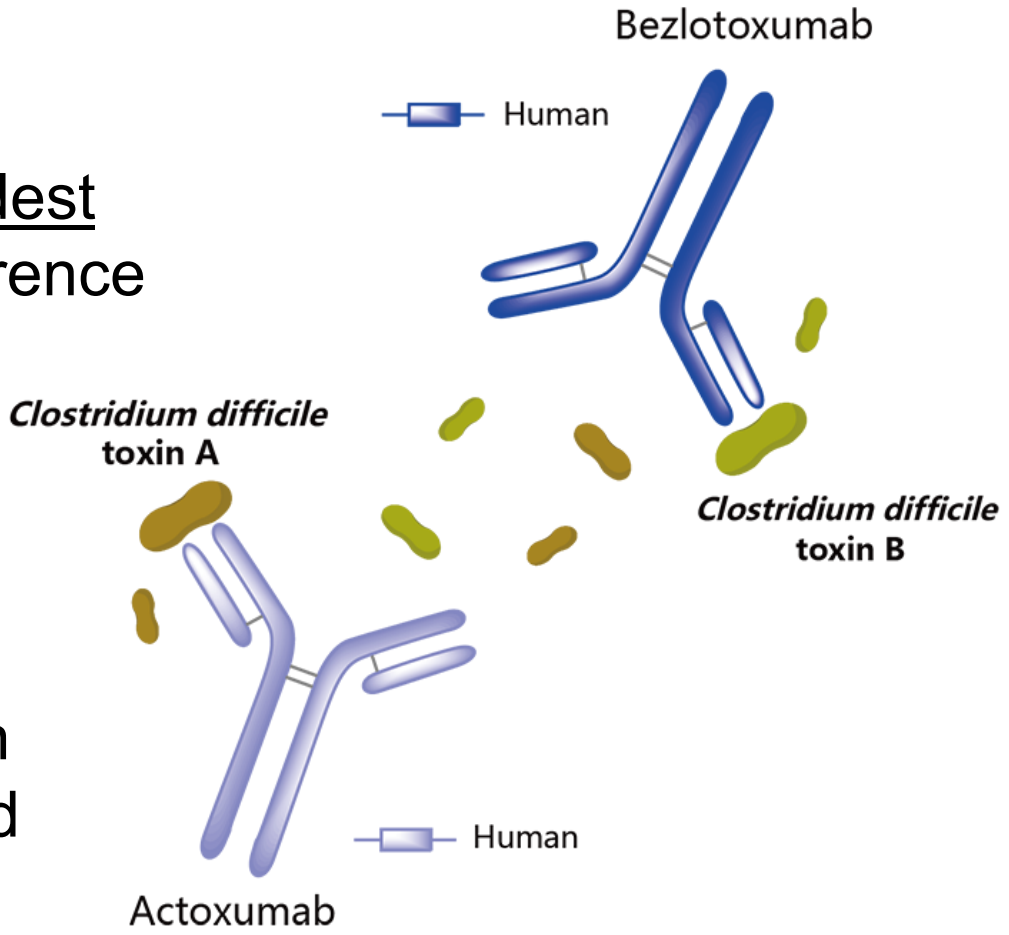
Outcome	*Fidax* (n=287)	Vanco (n=309)	Analysis
4-week Recurrence	15.4%	25.3%	p=0.005
Global Cure	74.6%	64.1%	p=0.006
Global Cure B1/NAP1	78.7%	80.7%	p=NS

Louie *NEJM* 2011

C.difficile: *"Neutralize the Toxins!"*

Humanized Antibodies

- ✓ Elegant… Expensive... Modest benefit for preventing recurrence
- ✓ No benefit in acute infection management... In fact, trend towards harm!



Bezlotoxumab: *"10% better than placebo"*

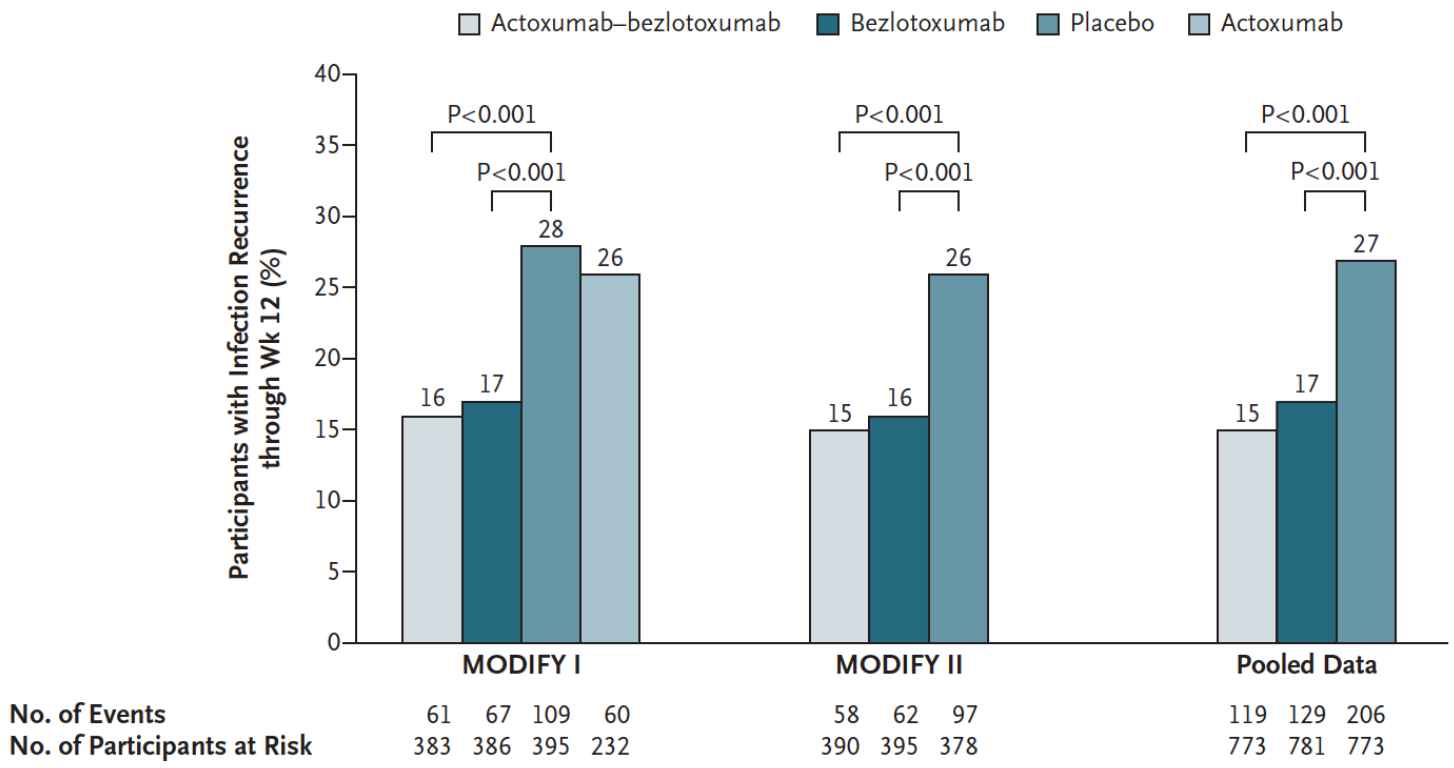


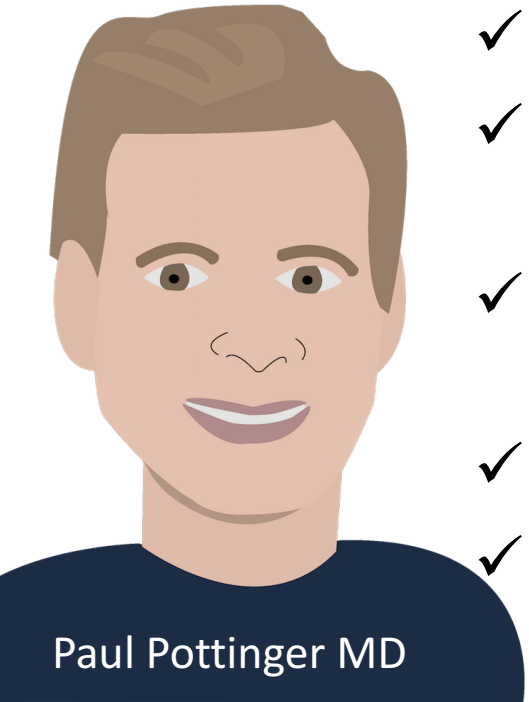
Figure 1. Participants with Recurrent *Clostridium difficile* Infection during the 12-Week Follow-up Period.

The results shown are for the modified intention-to-treat population, which included all randomly assigned participants who received the study infusion, had a baseline stool test that was positive for toxigenic *C. difficile*, and started receiving standard-of-care therapy before or within 1 day after receiving the monoclonal antibodies. P values were calculated by the Miettinen and Nurminen method, with stratification according to trial, standard-of-care therapy, and hospitalization status.

C.difficile: *"Reboot the Microbiota"*

Conclusions

C.Difficile Infection: *Treatment Depends on Situation*



- ✓ Always: Stop precipitating abx if you can!
- ✓ Mild-Moderate: Consider PO metro… vanco may be better
- ✓ Serious: Definintely PO vanco.
- ✓ Complicated or severe: PO vanco, PR vanco, IV metro, consult surgery & GI
- ✓ Recurrent disease: PO vanco +/- taper, consider PO fidaxomicin, consider FMT
- ✓ Bezlotoxumab: Drug in search of application
- ✓ Probiotics: May reduce risk of recurrence… nothing short of FMT proven therapeutic