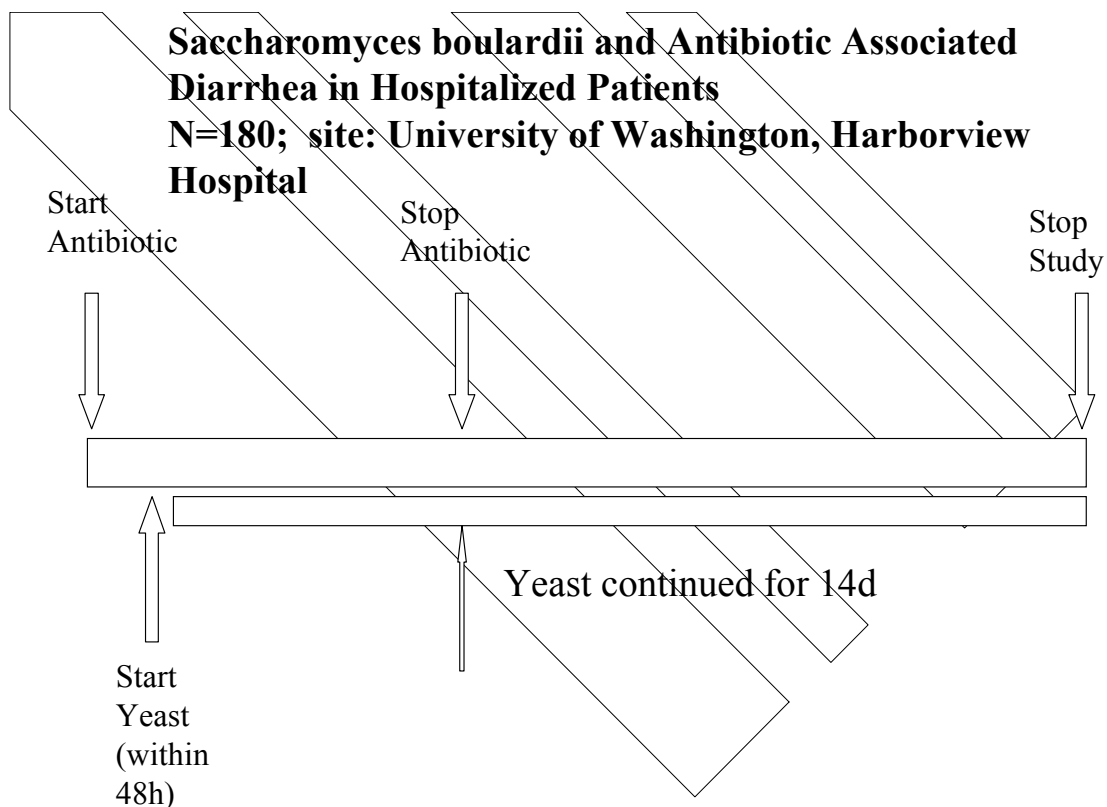
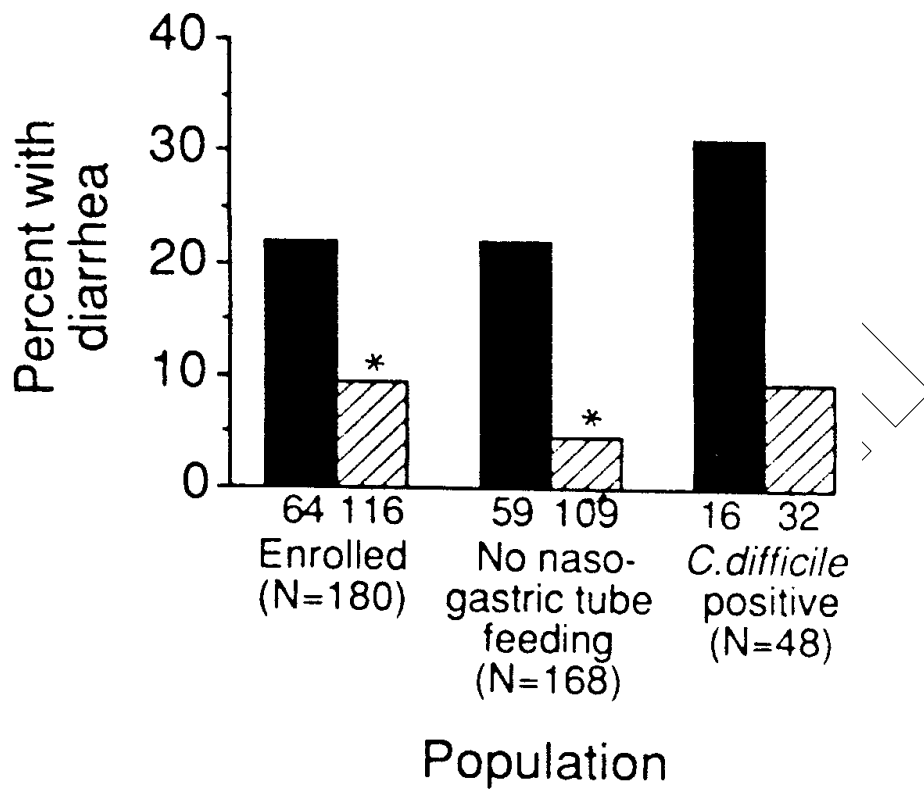


## Antimicrobials and risks for antibiotic-associated diarrhea (AAD)

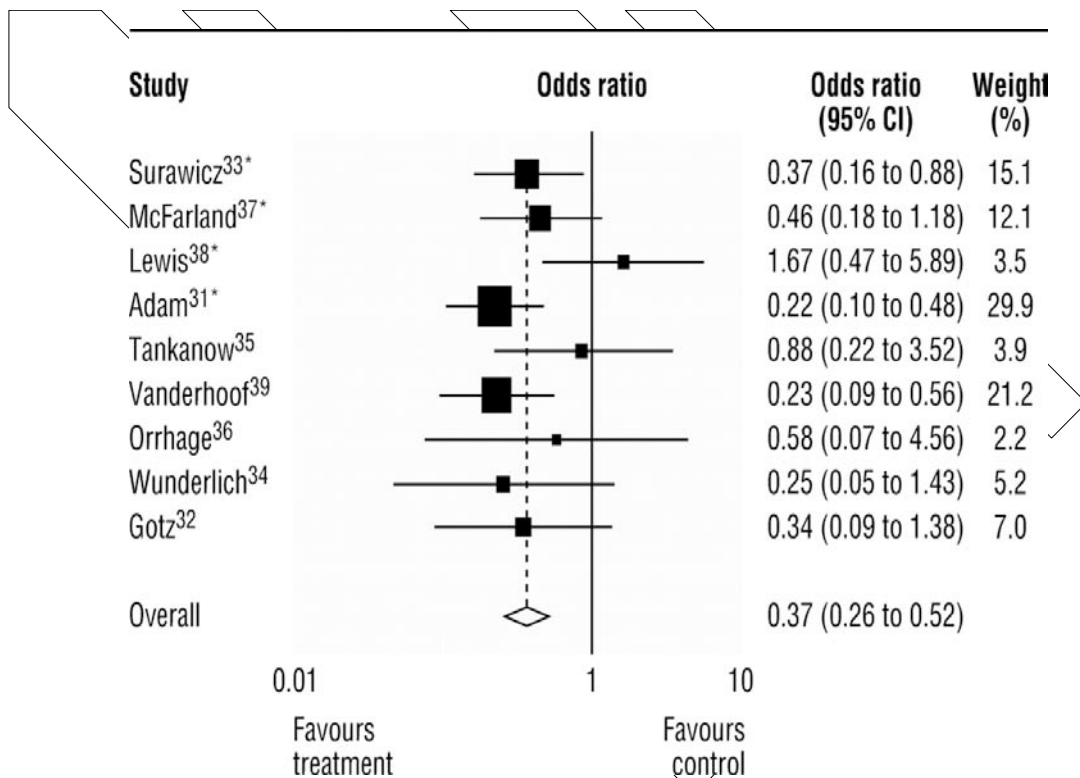
### •Antibiotic-associated diarrhea

- 5-30% risk
- Higher with multiple IV drugs
- Higher with broad spectrum antimicrobials
- Higher with pediatric patients
- High with oral beta lactams
- Clostridium difficile may be involved
- Big reason for lack of compliance with therapy
- Big reason for need to switch and to increase patient





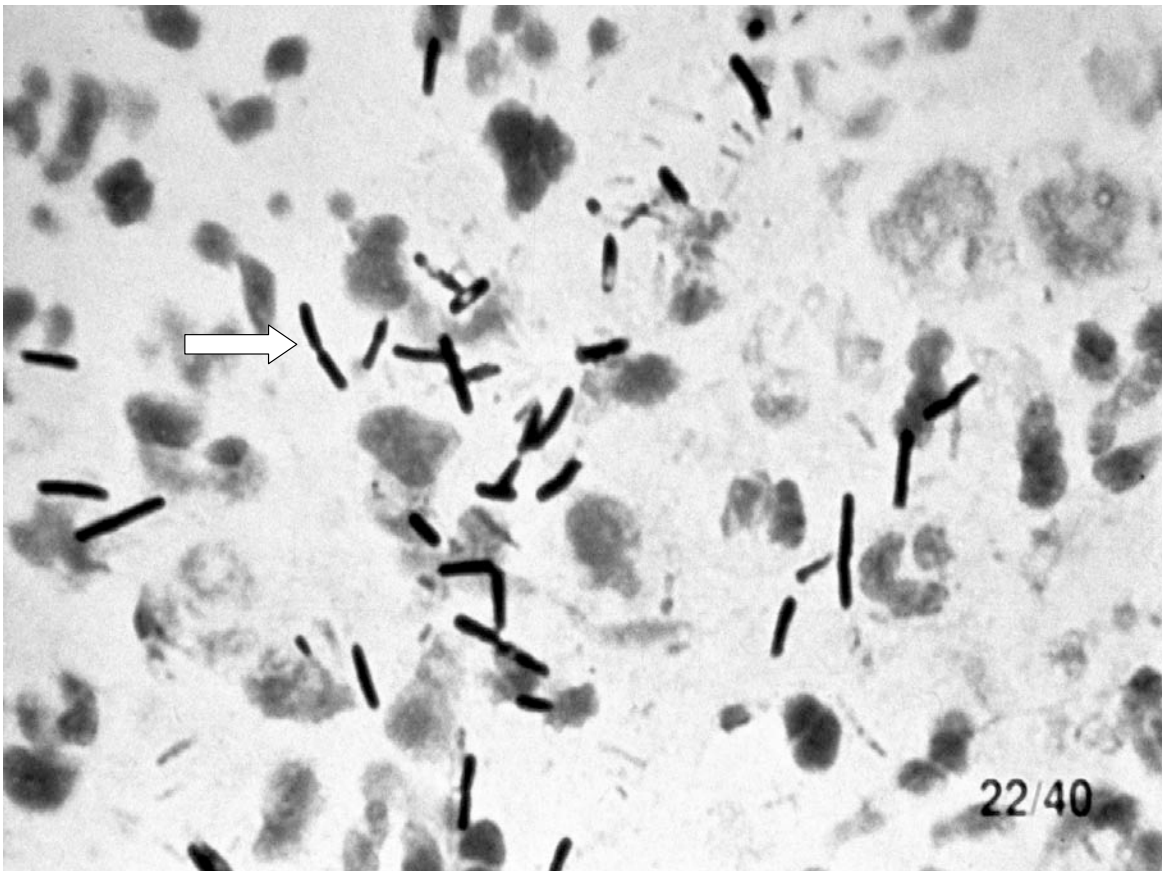
Surawicz et al., Gastroenterol. 1989;96:981

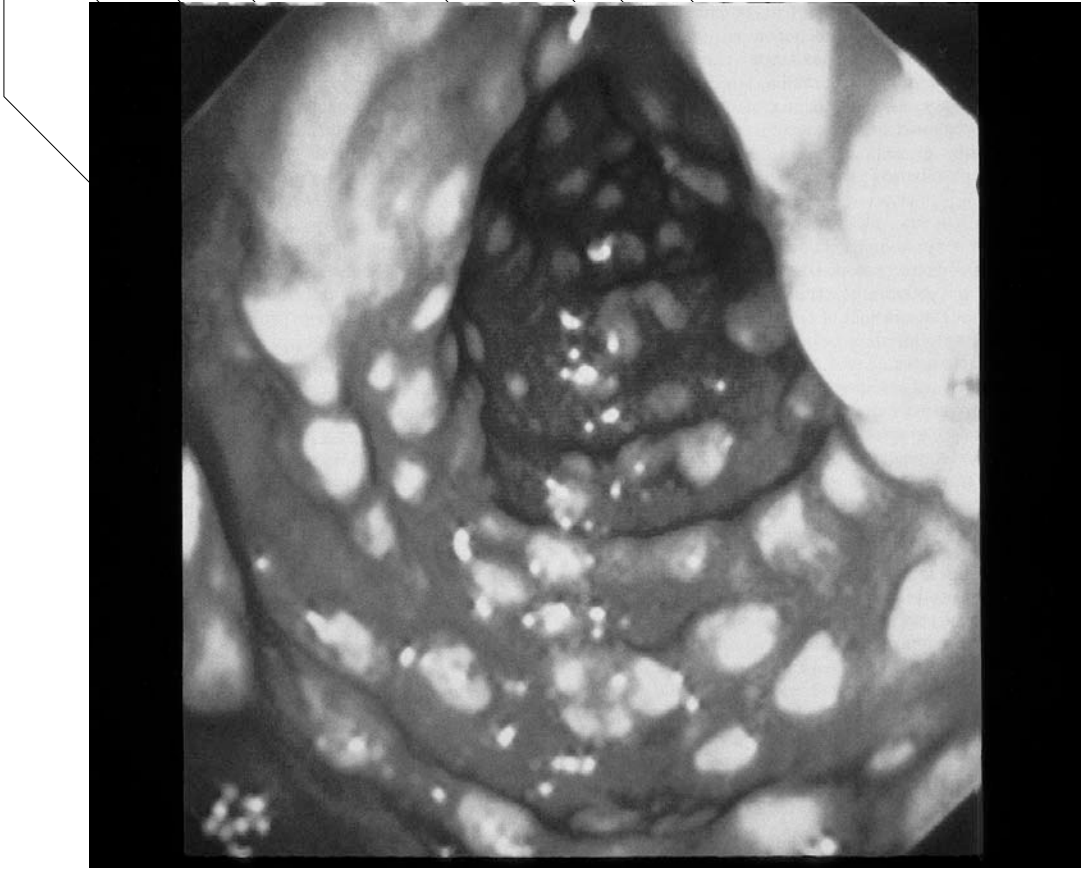


AAD D'Souza et al., BMJ 2002;324:1361

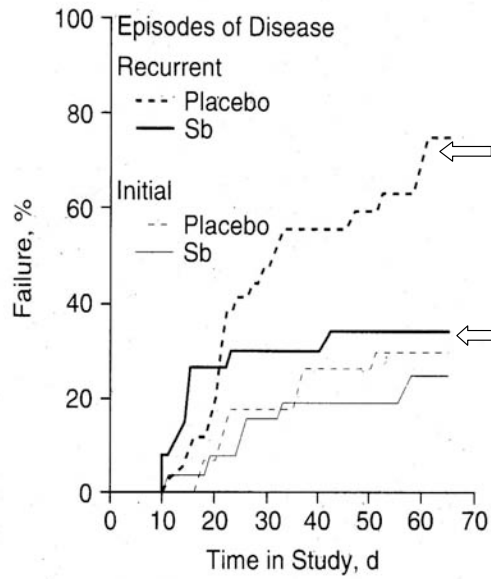
## **Clostridium difficile**

- is a spore former anaerobe resistant to most antimicrobials
- is held in check by the normal flora but can overgrow if flora is perturbed
- any antimicrobial can initiate overgrowth; stomach acid suppression therapy can increase risk
- C. difficile makes two toxins which cause diarrhea to colitis to pseudomembranous colitis to toxic megacolon to death
- Can be treated with metronidazole (250mg QID) or vancomycin PO (125mg QID or 500mg QID) but relapse rate is ~20%
- Patients who relapse can have recalcitrant disease with ~50% relapse rate
- Probiotics can decrease rate of relapse but only *Saccharomyces boulardii* has been tested and shown to help
- 



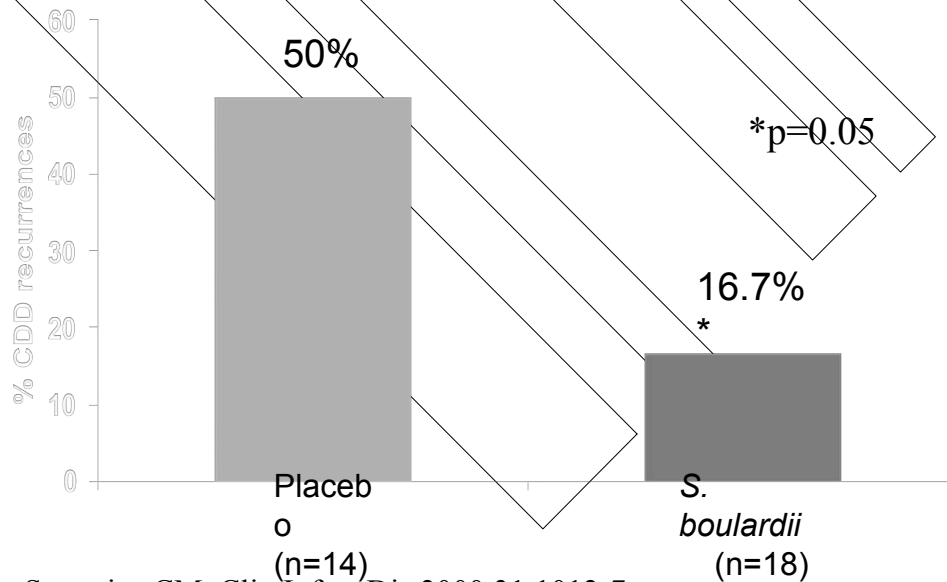


McFarlan  
*et al.*,  
*JAMA*;  
**271**,  
 1913-  
 1918,  
 (1994).



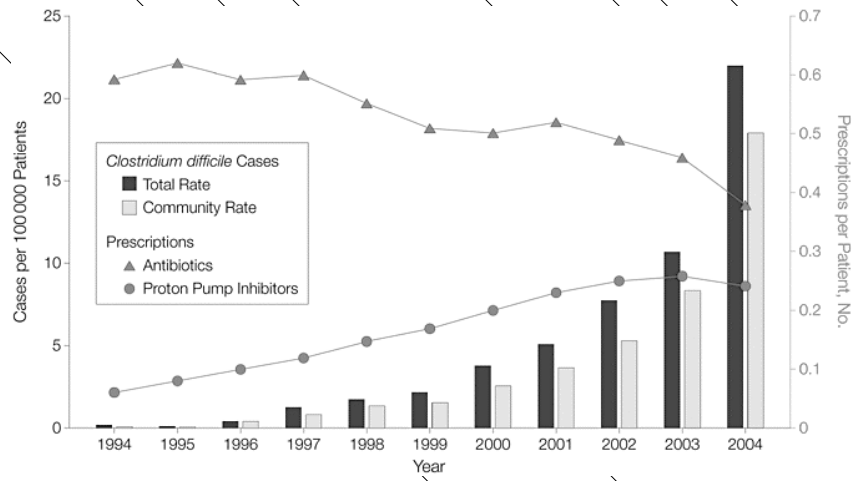
Kaplan-Meier failure curve for the probability of *Clostridium difficile* disease recurrence. Sb indicates *Saccharomyces boulardii*.

## *S. boulardii* & High Dose Vancomycin for *C. difficile* Disease [Results]



Surawicz CM. Clin Infect Dis 2000;31:1012-7.

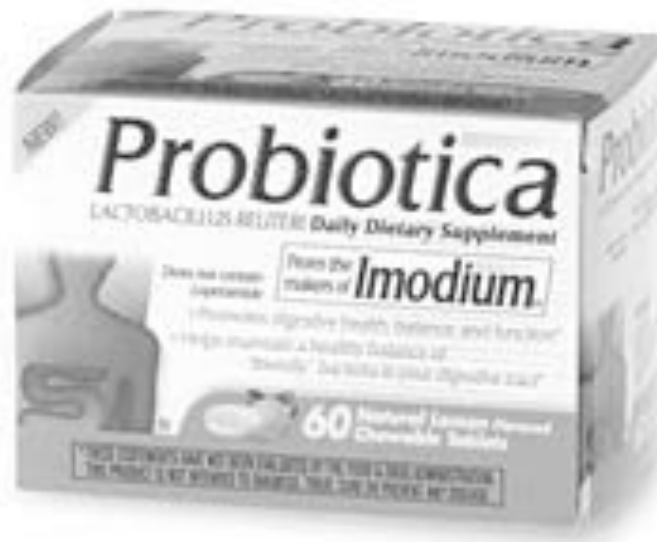
## Rates of Clostridium difficile per 100 000 Patients in the United Kingdom General Practice Research Database



Dial, S. et al. JAMA 2005;294:2989-2995.

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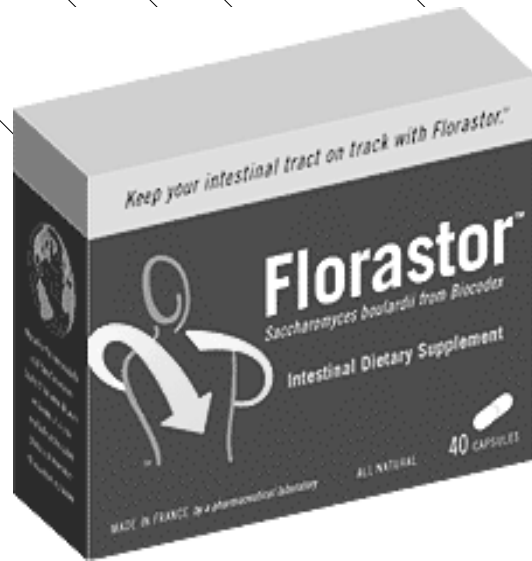





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Florastor Kids

- ⊕ Maintains intestinal health and normal bowel function
- ⊕ Reduces number of stools<sup>1</sup>
- ⊕ Improves consistency of stools<sup>1</sup>

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<sup>1</sup> Aliment Pharmacol Ther. 2005;21:583-590. M. Kowalek, P. Abraczynski, H. Szewczyk  
These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.



## Summary

- *C. difficile* disease (CDD) should be considered with any protracted diarrhea following antimicrobials.
- Toxin tests on stool samples need to confirm CDD
- Initial treatment is metronidazole
- Vancomycin PO if failure
- Vancomycin PO high dose if further failures
- Probiotic therapy for 30 days with *S. boulardii* (2x250mg BID) can decrease risk of recurrences