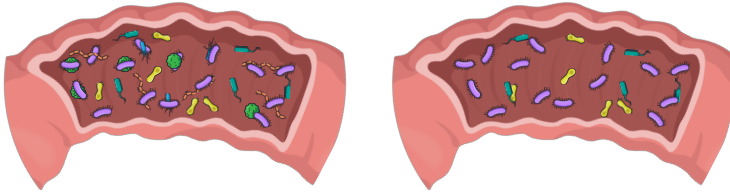


## TOPIC: SUPERINFECTIONS

### Selective Toxicity

- ◆ Antimicrobials (esp. \_\_\_\_\_ spectrum) kill \_\_\_\_\_ susceptible microorganism (not just pathogens).
  - Leaves \_\_\_\_\_ open for resistant microbes to colonize.
  - \_\_\_\_\_ **infection**: secondary infection; super = \_\_\_\_\_/in addition.



- ◆ Broad Spectrum Antibiotics:
  - **Good**: use against \_\_\_\_\_ array of microbes.
  - **Bad**: kills more of \_\_\_\_\_ biota.

### Common/Significant Superinfections:

- ◆ Candida (\_\_\_\_\_):  
\_\_\_\_\_ yeast infection/vaginitis.  
Thrush: \_\_\_\_\_ yeast infection.
- ◆ *Clostridium difficile* (C-diff):  
Causes severe diarrhea.  
Often acquired in \_\_\_\_\_.

## EXAMPLE

Number the steps that lead to a superinfection of *Clostridium difficile* in the correct order.

	<i>Clostridium difficile</i> is ingested & begins colonizing the empty space in the large intestine.
	A broad-spectrum antibiotic kills much of the natural flora in the gut in addition to the target pathogen.
	<i>Clostridium difficile</i> produces toxins, causing disease.
	Patient takes a broad-spectrum antibiotic to treat an infection.

## PRACTICE

Which of the following best explains why *Candida albicans* is a common superinfection?

- a) The regular use of antibiotics can cause a mutation that enables *Candida albicans* to thrive in the presence of antibiotics.
- b) Because *Candida albicans* is a fungus, it is not killed by antibiotics, leaving it capable of causing infection after antibiotic use.
- c) Some *Candida albicans* cells naturally have resistance to specific antibiotics; these resistant *Candida* strains replace the susceptible strains.
- d) *Candida albicans* is not normally present on the body, but it is regularly introduced when antibiotics are taken in a hospital setting.

## **TOPIC: SUPERINFECTIONS**

### **PRACTICE**

Which of the following best explains why broad-spectrum antimicrobials are more likely to lead to superinfections?

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- a) Bacteria that are resistant to broad-spectrum drugs tend to be able to replicate & spread faster.
- b) Broad-spectrum drugs are more likely to disrupt a larger portion of the normal flora, which provides an opportunity for resistant microbes to colonize.
- c) Broad-spectrum drugs are more likely to cause mutations that lead to antibiotic resistance.
- d) Broad-spectrum drugs tend to be less potent than narrow-spectrum drugs, which allows resistant bacteria to thrive and cause a superinfection.