Georgia Hospital Association

# Got C-Diff:  Lets talk

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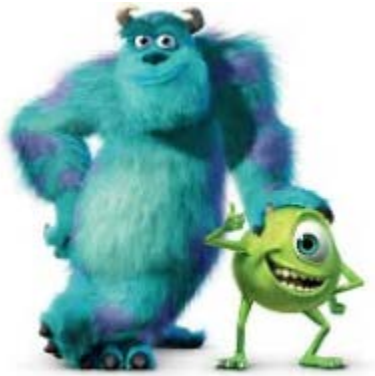

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# Clostridium Difficile Infection

CURRENT DEFINITION OF THE PROBLEM:

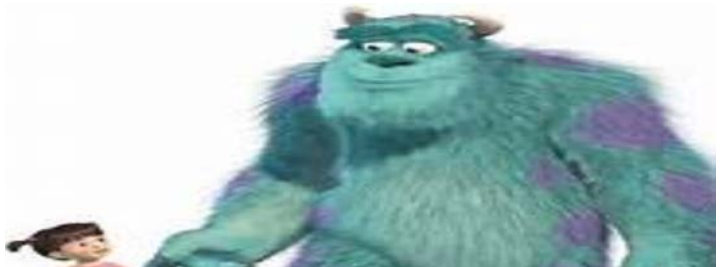
1. *Clostridium difficile (C. difficile)* is an anaerobic, spore-forming bacteria spread through fecal-oral transmission. That means you eat it!

2. *C. difficile* infection (CDI) colonizes the large intestine and releases two toxins that can cause a number of illnesses including diarrhea, colitis and sepsis. Nonetheless, colonized patients do not always present symptoms.

3. CDI transmission in hospitals occurs primarily from contaminated environments and through the hands of health care personnel

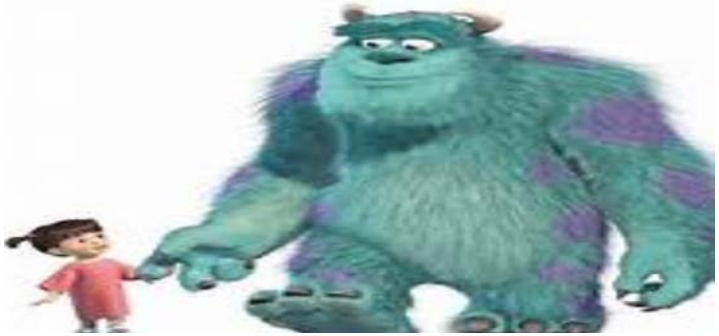
4. CDI spores are resistant to the bactericidal effects of alcohol and the most commonly used hospital disinfectants.

5. Antimicrobial therapy is the most important risk factor for CDI infection; the antibiotics destroy normal gut flora, allowing fo the overgrowth of CDI. While all patients taking antibiotics are at risk of CDI, longer courses of antibiotic therapy and multipl courses of antimicrobials increase CDI risk.



# Clostridium Difficile Infection

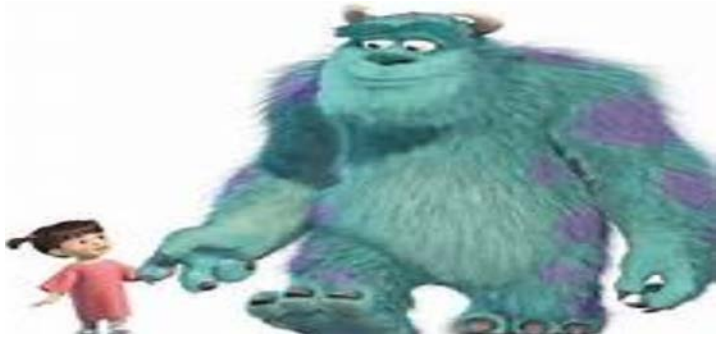
- CDI is the most frequently reported health care-associated infection.
- Cases commonly appear in outbreaks and clusters in health care facilities.
- However, the CDC study estimates that only one-quarter of CDIs occur in hospital



# Clostridium Difficile Infection Check List

## *Clostridium Difficile infections (CDI)* Top Ten Checklist

- Develop or enhance your antibiotic stewardship program to ensure optimal antibiotic prescribing and reduce overuse and misuse of antibiotics.
- Evaluate the use of antibiotics by infection type and by unit to better understand where the opportunities for stewardship exist; be sure to include patients with urinary tract infections and lower respiratory infections.
- Evaluate the use of antimicrobials among patients with CDI and provide feedback to medical staff and facility leadership.
- Develop processes to minimize testing of patients at low probability for CDI to minimize false positive polymerase chain reaction results for CDI.
- Establish a lab-based alert system to immediately notify the infection prevention team and providers of newly-identified patients with positive CDI lab results. Ensure the system includes holiday and weekend notification.
- Remembering that CDI is a clinical diagnosis and not a lab diagnosis, develop processes where discussion occurs between physicians and other clinicians when a lab test for CDI is reported as positive.
- Establish cleaning protocols for a cleaning solution that is effective against CDI spores.
- Utilize a monitoring system to evaluate and validate effective room-cleaning, and to provide feedback, reward and recognition to those responsible.
- Engage and educate patients, visitors, families and community partners (e.g., home care agencies, nursing homes) to prevent CDI across the continuum of care.
- Establish and maintain an effective, creative, innovative and engaging hand hygiene program.



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# Clostridium Difficile Infection Check List

1. Develop or enhance your antibiotic stewardship program
2. Evaluate the use of antibiotic by infection type and by unit.
3. Evaluate the use of antimicrobials among pts with CDI
4. Develop processes to minimize testing of pts with low probability for CDI
5. Establish a lab-based alert system to notify Infection Prevention and providers
6. Remember CDI is a clinical diagnosis not a lab diagnosis.
7. Establish cleaning protocols for a cleaning solution that is effective against CDI spores
8. Utilize a monitoring system to evaluate and validate room cleaning.
9. Engage and educate patients, visitors, families and community partners
10. Establish and maintain an effective, creative, innovative and engaging hand hygiene program.

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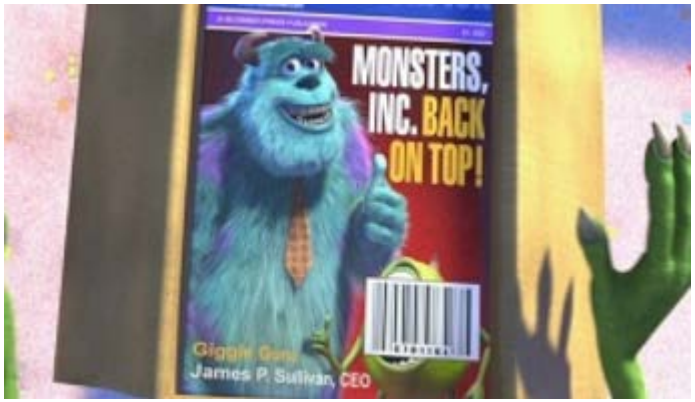
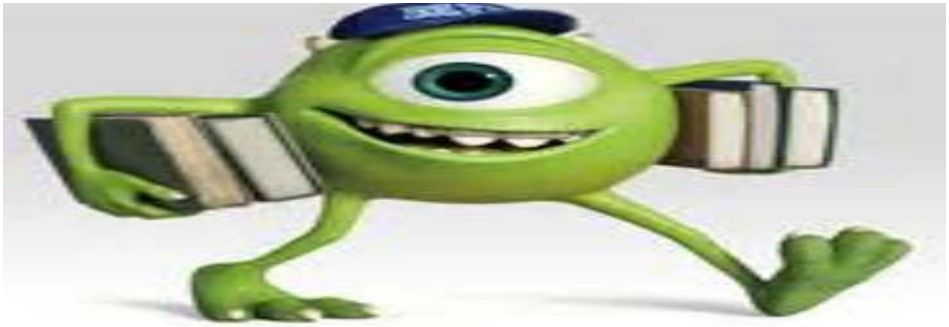
# Develop or enhance your antibiotic stewardship program

- Ensures optimal antibiotic prescribing and reduce overuse and misuse of antibiotics.



# Evaluate the use of antibiotic by infection type and by unit.

- By better understanding where the opportunities for stewardship exist; be sure to include patients with urinary tract infections and lower respiratory infections.



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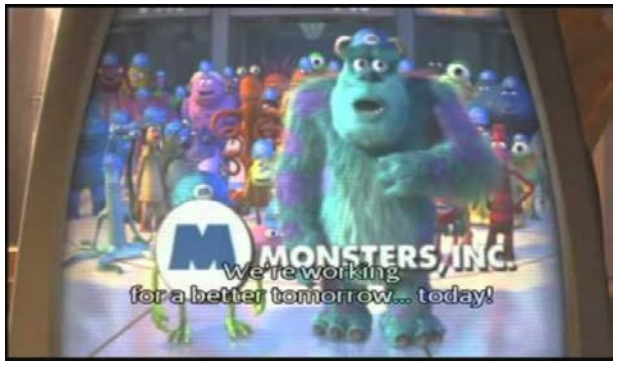
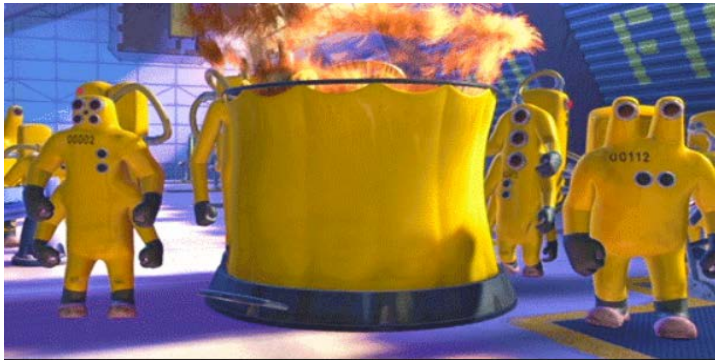
# Evaluate the use of antimicrobials among pts with CDI

- Provide feedback to medical staff and facility leadership.



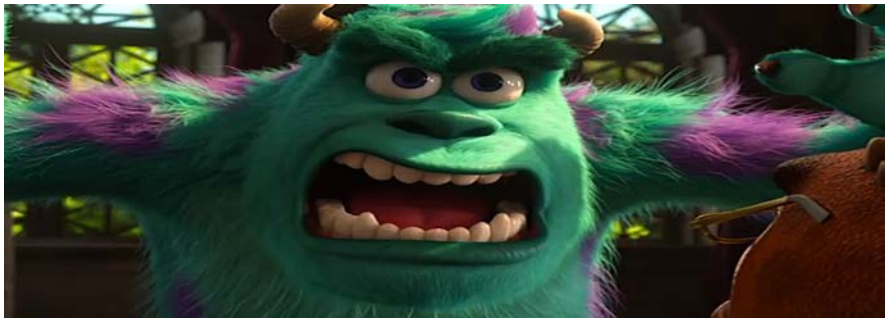
# Develop processes to minimize testing of pts with low probability for CDI

- This will minimize false positive polymerase chain reactions results for CDI.



# Establish a lab-based alert system to notify Infection Prevention and providers

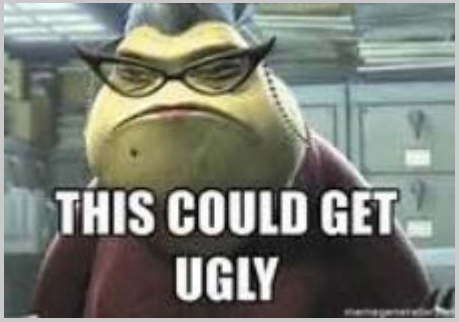
- Who?
- All newly identified patients with positive CDI lab results
- Ensure the system includes holidays and weekend notification.



# Remember CDI is a clinical diagnosis not a lab diagnosis

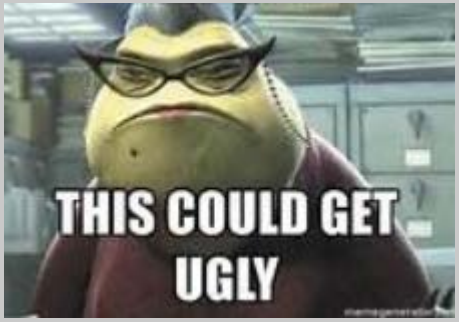
- What?
- Develop process where discussion occurs between physicians and other clinicians when a lab test for CDI is reported as positive.

# Change Ideas




- Establish CDI testing criteria for diarrhea (e.g., three or more loose stools per day for at least one to two days)
- Assess patients with diarrhea to determine if they have taken laxatives in the prior 24 to 48 hours as a possible explanation of symptoms.
- Establish laboratory criteria for CDI testing (e.g., only liquid or unformed stools that conform to the shape of the container will be tested). Adopt the “if the stool ain’t loose, the test is of no use” rule”
- Employ rapid diagnostic testing methods that facilitate prompt CDI diagnosis, isolation and treatment.

# Change Ideas




- Use a diagnostic test, such as polymerase chain reaction (PCR), that will enhance the sensitivity and specificity of CDI diagnosis, but beware of over diagnosis and possible false positives.
- Interpret the diagnostic test results only after considering the patient's clinical condition and pretest probability of having CDI, to maximize the positive predictive value of the tests and avoid false (incorrect) diagnosis and unnecessary treatment.
- Create a "hard stop" to discontinue an order for a CDI stool screening if the patient is admitted with a history of diarrhea yet fails to have an episode in the first two

# ESTABLISH GUIDELINES FOR USING CONTACT PRECAUTIONS

- Early identification of patients with CDI and of those suspected of having CDI provides the opportunity to stop the spread of CDI.
- Since the organism can be spread by direct human to human contact or by indirect means through fomites(e.g., bed rails, equipment, rectal thermometers), contact precautions are critical to prevent spreading infection to staff, visitors and other patients

# Change Ideas

- Consider visual cues, such as signs and colored tape placed on the floor, to identify restricted areas.
- Reiterate the proper use of gloves during contact precautions and adhere to the practice of universal gloving.
- Require gowns as part of contact precautions. While the practice of gowning has not been specifically studied as part of CDI prevention, the CDC recommends their use when using CDI contact precautions
- Continue contact precautions for the duration of the patient's hospitalization unless the diarrhea has resolved and the patient has been transferred to another room.
- Implement chlorhexidine gluconate bathing
- Establish protocols to cohort CDI patients if private rooms are limited or unavailable.
- Educate families and visitors regarding the need to follow contact precautions and effective processes for donning and removing personal protective equipment.

# Establish cleaning protocols for a cleaning solution that is effective against CDI spores

- The hospital environment plays a significant role in transmitting CDI.
- CDI spores can survive on surfaces for as long as five months. The most heavily contaminated areas were hospital room floors, bed rails and bathrooms.
- The disinfectants that have historically been used in health care environments are quaternary ammoniums and phenolics, neither of whic are sporicidal.
- Environmental Protection Agency-registered sporicidal agents are now available and should be used for general surface disinfection.

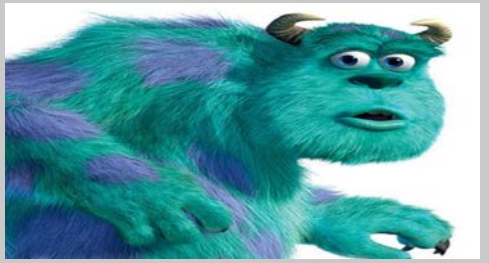
# Change Ideas

- a multidisciplinary team, including housekeeping, purchasing, and infection prevention, to review, evaluate and make recommendations regarding new disinfectant agents and infection control practices.
- Use disposable equipment or dedicate equipment to a single patient (e.g. blood pressure cuffs, thermometers, commodes).
- Use commode liners to limit splashing or contamination when emptying.
- Use fecal contamination clean-up kits for spills or uncontrolled stools.
- Identify and remove environmental sources of CDI (e.g., replace electroni thermometers with disposables).
- Create a visual cue that will show that a piece of equipment has been cleaned, such as paper strip or sign.

# continued

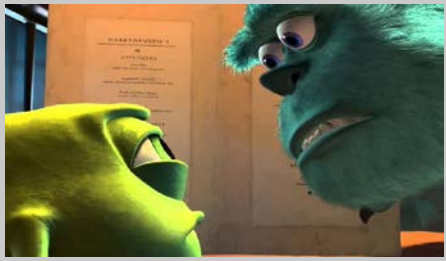
- Use audible timers to ensure appropriate contact time for cleaning agents.
- Clearly define who is responsible for cleaning ventilators, IV pumps and other critical patient care equipment. Ensure cleaning materials or wipes are within easy reach to facilitate cleaning.
- Use specialized privacy curtains that can be replaced without a ladder and appropriately cleaned.
- Attach disposable, plastic adhesive shields to privacy curtains to prevent glove or hand contact and contamination.
- Spray 3% hydrogen peroxide disinfectant solution on nonshielded areas of the privacy curtains during daily room cleaning and at patient discharge.
- Use a two-step cleaning protocol incorporating mobile, automated equipment tha releases ultraviolet C radiation or hydrogen peroxide vapor

# Utilize a monitoring system to evaluate and validate room cleaning

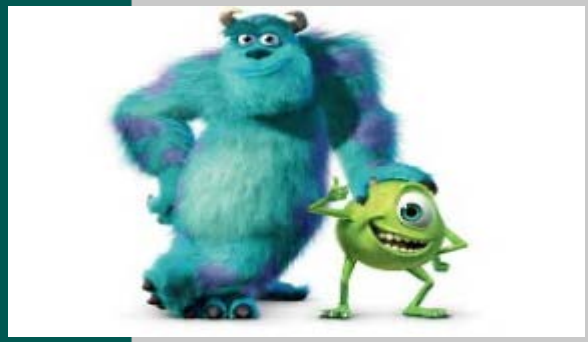


- Monitoring is required to ensure that cleaning and disinfection practices are consistent and effective.
- It is important to weigh the risks and benefits of the various auditing methods and select those that best fit your facility.
- Direct observation of cleaning practices provides immediate feedback

# Change Ideas



- Directly observe room cleaning and provide immediate feedback
- Use swab cultures to demonstrate the effectiveness of cleaning
- Use Agar slide cultures to quantify microbial surface contamination.
- Use fluorescent markers to indicate physical removal of an applied substance.
- Use ATP bioluminescence, which provides immediate feedback, to measure organic debris as a surrogate marker for biological contamination.
- **Implement a program to recognize and acknowledge the efforts of environmental services team members**

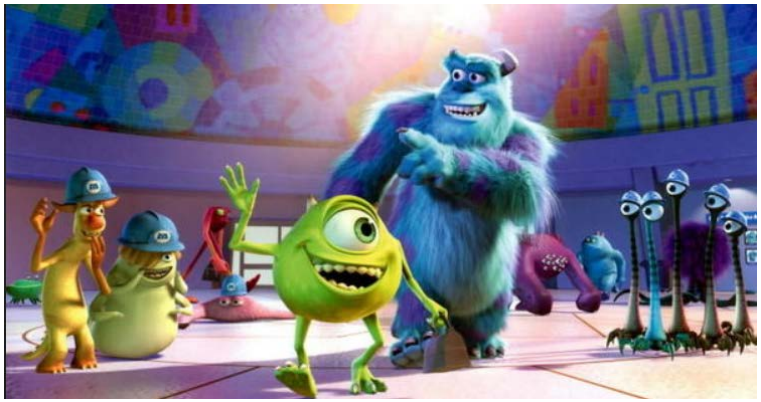


# Hardwire Process

- **Use a nurse-driven protocol**
- **Develop a process for rapidly providing test results**
- **Establish standard processes for staff, patient, families and visitors to practice hand hygiene**
- **Establish cleaning protocols for cleaning solutions that are effective against CDI spores.**
- **Develop equipment cleaning and disinfection procedures**
- **Adopt protocols for monitoring effectiveness of environmental cleaning.**

# Engage and educate patients, visitors, families and community partners

- Who?
- Home care agencies, nursing homes.
- This helps prevent CDI across the continuum of care



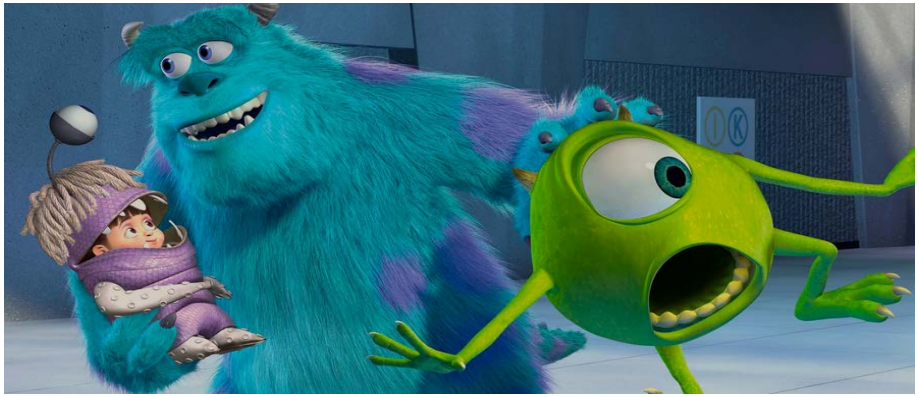
# Establish and maintain an effective, creative, innovative and engaging hand hygiene program

- Effective hand hygiene
- The proper use of disposable gloves can significantly reduce the chances that other staff and visitors will be exposed to th spores.

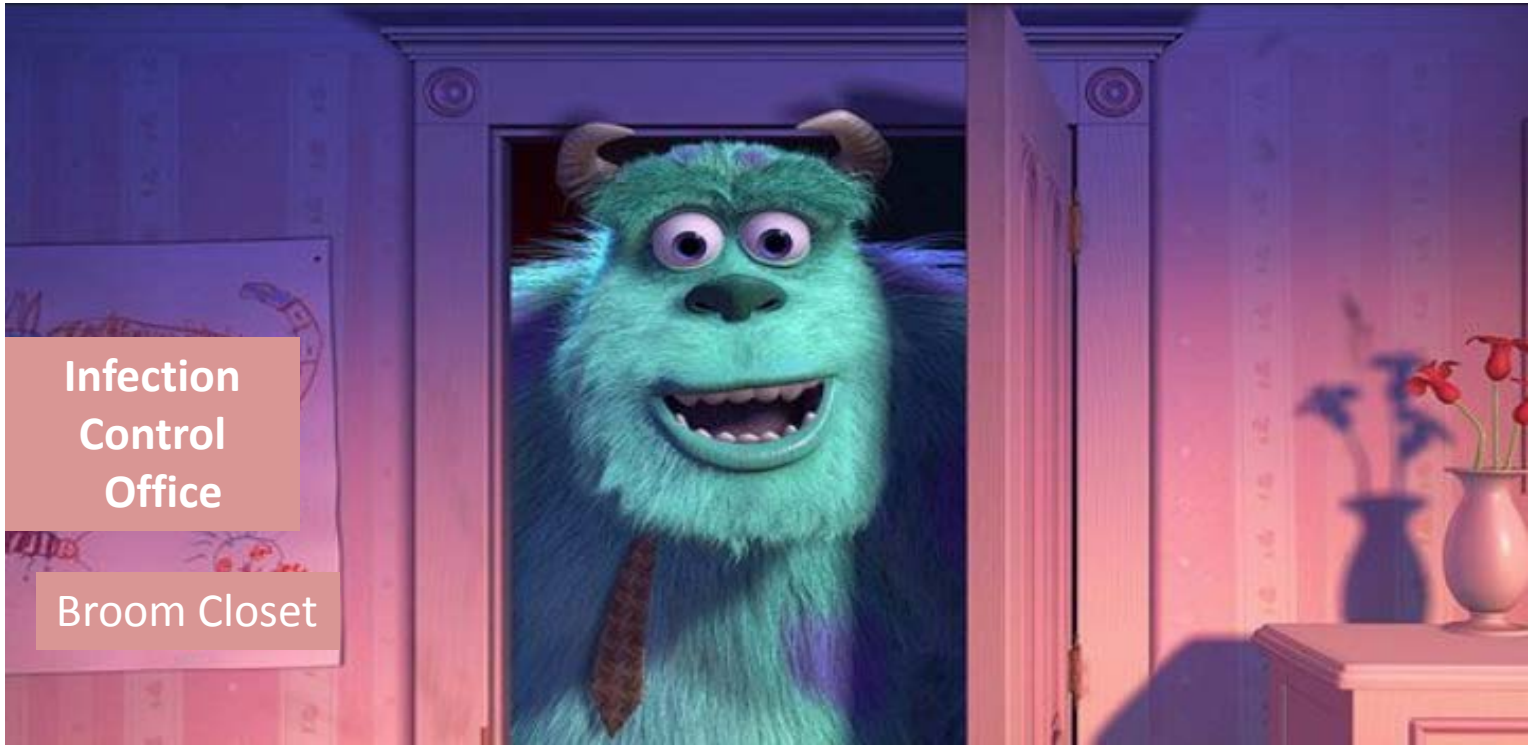
- Note that the Society for Healthcare Epidemiology of America recommends that health care settings continue using alcohol-based hand sanitizer if a CDI outbreak has not occurred. Thes hand sanitizers are associated with a decrease in infections

# Change Ideas

- Engage patients, visitors and families as partners in CDI prevention
- Provide patients with a hand sanitizer
- Adopt hand hygiene awareness programs
- Establish a method of monitoring hand hygiene compliance
- Adopt or adapt creative hand hygiene posters and other educational tools to attract attention and promote learning and understanding



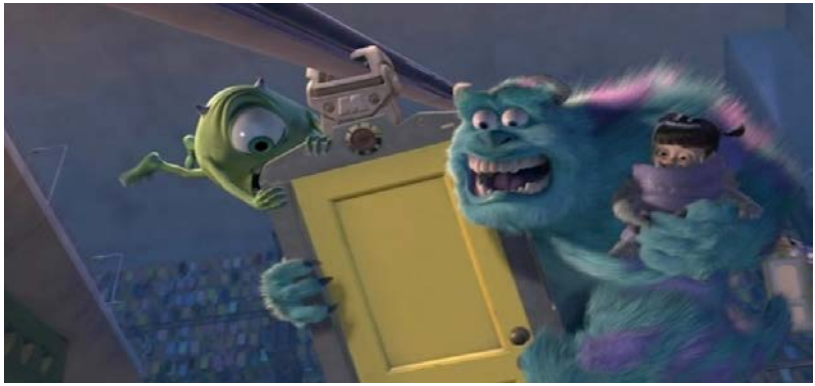
# Is it C-diff?



# Potential Barriers

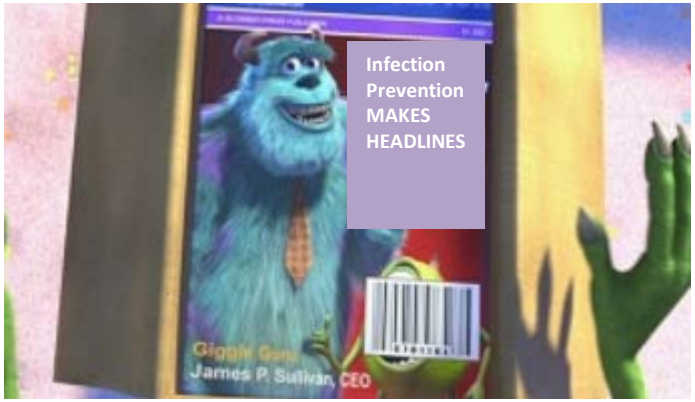
- Physicians may resist restrictions to antibiotic prescribing.
- Physicians may feel pressure from patients to prescribe antibiotics.
- Pharmacists may be reluctant to call physicians about inappropriate antibiotics or combinations of antibiotics.
- Clinicians may confuse a positive test for CDI with a case of CDI, rather than interpreting the test within the clinical context.
- Clinicians and EVS professionals may push back against hand hygiene oversight.
- Patients, families and visitors may be reluctant to “call out” staff who do not appear to be following proper precautions and cleaning.
- Leadership Rounds may be perceived to be punitive, and staff, patients and families may not speak out

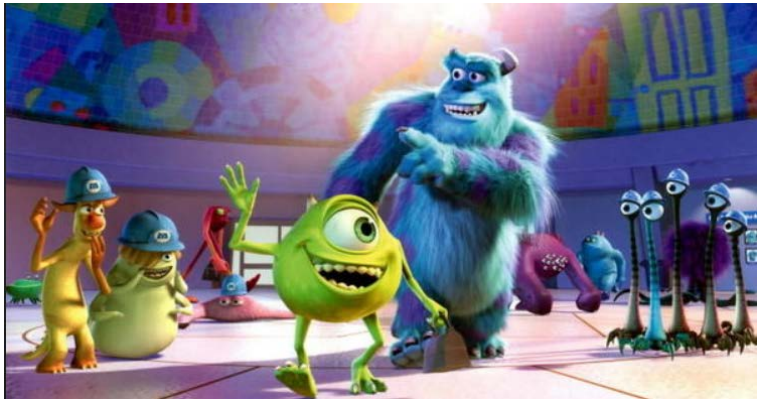
# Remove Barriers

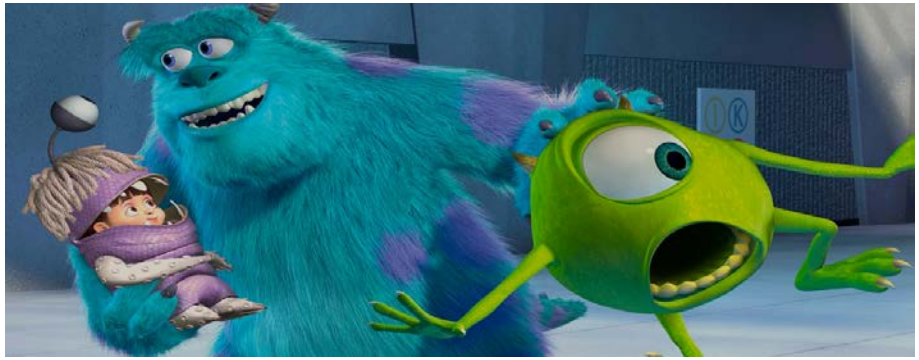


- A multidisciplinary team
- Minimizing physician resistance to changing antibiotic prescribing habits
- Understanding by leadership of the difference between a positive CDI test and the presence of CDI
- Conduct Leadership rounds

# C-diff as a Team Approach





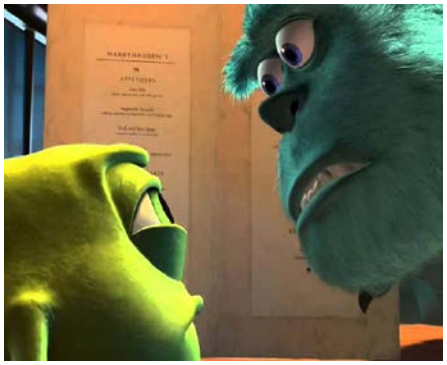
# Changing Culture

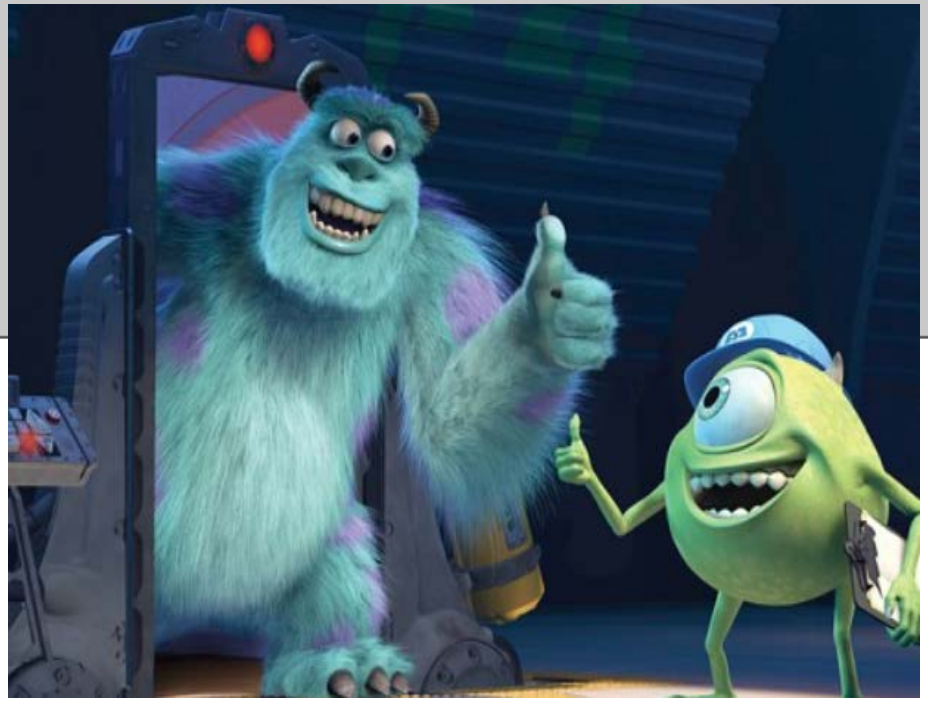
Multidisciplinary teamwork and trust are required to develop and implement

(1) a successful antimicrobial stewardship program,

(2) methods to rapidly identify and diagnose CDI and

(3) optimal protocols to prevent spread of CDI.





**Antibiotic Stewardship**

**Rapid Identification**

**Diagnosis**

**Preventing Transmission**

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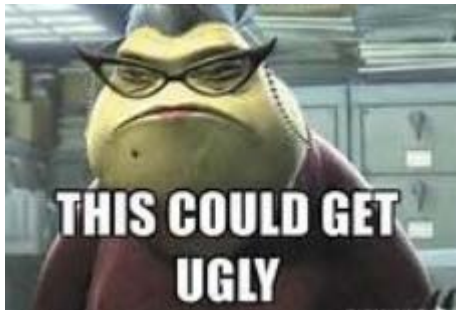
# Suggested Bundles and Toolkits:

- The Centers for Disease Control issued a checklist to aid in assessing the core elements of an antimicrobial stewardship program. This tool is available at: http://www.cdc.gov/getsmart/ healthcare/implementation/core-elements.html

- Rationale for Hand Hygiene Recommendations after Caring for a Patient with *Clostridium difficile* Infection, retrieved at: https://www.shea-online.org/images/patients/CDI-hand-hygiene-Update.pdf

- Strategies to Prevent *Clostridium difficile* Infections in Acute Care Hospitals: 2014 Update, retrieved at http://www.jstor.org/stable/10.1086/676023#full_text_tab_contents



# Suggested Bundles and Toolkits:

- The Hand Hygiene Audit Tool, retrieved at: http://www.cdc.gov/dialysis/PDFs/collaborative/ Hemodialysis-Hand-Hygiene-Observations.pdf

- Health Research & Educational Trust (HRET) Hospital Improvement Innovation Network. 2016 UP Campaign Set Up Tool. Retrieved at http://www.hret-hiin.org/Resources/up_campaign/17/up_ campaign_setup_tool.pdf

- For key tools and resources related to preventing and reducing CDI, visit www.hret-hiin.org

# Questions?