

THE TROUBLE WITH TRIBBLES!

MDRO'S IN THE LTC SETTING

WHAT DETERMINES MICROBIAL PATHOGENICITY?

- ▶ Adherence characteristics
- ▶ Infectious Dose or inoculum
- ▶ Capacity to produce disease
- ▶ Toxin production
- ▶ Ability to elude host defenses
- ▶ Persistence in the environment
- ▶ Genetic variation

MDRO'S WE KNOW AND LOVE IN THE LTC SETTING

- ▶ MRSA
- ▶ VRE
- ▶ C. DIFFICILE
- ▶ CERTAIN GRAM NEGATIVE ORGANISMS
- ▶ NOROVIRUS
- ▶ SCABIES

MRSA

- ▶ Gram positive cocci
- ▶ Colonizes the skin of humans
- ▶ Has developed resistance to Methcillin and other beta lactamase resistant penicillins and cephalosporins.
- ▶ Has developed penicillin binding protein encoded by a chromosomal gene *mec-A*. This gene is not present on sensitive staph aureus

MRSA: A SHORT HISTORY

- ▶ 1945 First report of penicillin resistant strain of S. Aureus published.
- ▶ Methcillin resistance noted 2 years later
- ▶ 1960's MRSA in UK and Europe
- ▶ 1968 Reports of MRSA in US
- ▶ 1990-2000 increase in community-acquired MRSA documented
- ▶ VISA
- ▶ VRSA

VANCOMYCIN RESISTANT ENTEROCOCCI: VRE

- ▶ Gram positive cocci
- ▶ Colonizes the human intestines and female genital tract
- ▶ History: Late 1980's development of high level vancomycin- resistant E. Faecalis and E. Faecium in Europe
- ▶ 2006-2007 NHSN Report associated with 4% of healthcare associated infections

VRE TRANSMISSION

- ▶ Person to person from contaminated hands
- ▶ Contaminated surfaces
- ▶ Not spread by droplet or airborne route

- ▶ ASSOCIATED INFECTIONS:
 - ▶ UTI
 - ▶ Bloodstream
 - ▶ Wounds associated with catheters and surgical procedures such as dialysis

VRE CONTROL AND PREVENTION MEASURES

- ▶ Always have a high level of suspicion based on where patients are coming from
- ▶ Surveillance: know what your baseline is!
- ▶ Stool, rectal, or perirectal swabs are generally considered a sensitive method of detection
- ▶ Environmental and good hand hygiene is key

CLOSTRIDIUM DIFFICILE

- ▶ Gram positive anaerobic bacillus
- ▶ Produces Toxin (exotoxin A and B)
- ▶ Shed in feces
- ▶ In spore form can survive on surfaces for up to 5 months. Any surface, device or material that becomes contaminated with feces may serve as a reservoir for spores.
- ▶ Mode of transmission is fecal-oral transmission through contaminated environment and hands of healthcare personnel
- ▶ Increasing infection in low risk populations
- ▶ Emergence of novel, hypervirulent strain reported across US, Canada and Europe

CLOSTRIDIUM DIFFICILE: LABORATORY TESTING

- ▶ Evaluate and optimize when a test should be ordered
- ▶ Restrict testing to unformed stool only unless an ileus due to C. Difficile is suspected.
- ▶ Limit testing on patients with > 3 unformed stools in 24 hours.
- ▶ If you have a negative test, repeat testing during the same episode of diarrhea is of limited value and should be avoided
- ▶ If you have a positive test, repeat testing should not be used to guide duration of isolation or treatment.

CLOSTRIDIUM DIFFICILE: PREVENTION STRATEGIES

- ▶ Extend use of contact precautions beyond duration of diarrhea (48 hours)
- ▶ Presume infection for symptomatic patients while waiting for laboratory confirmation
- ▶ Soap and water for hand hygiene
- ▶ Use a sporicidal or hypochlorite cleaning agent for environmental cleaning
- ▶ Good environmental cleaning practices and adherence to them is key!
- ▶ No sharing of bathroom facilities during infective period. A bedside commode can be used if needed
- ▶ Antibiotic stewardship most important strategy for prevention

BASIC PREVENTION STRATEGIES FOR MDRO'S

- ▶ Promote hand hygiene
- ▶ Use Contact Precautions for MDRO colonized and infected patients. Remember, this may look different depending on the setting!
- ▶ Education for healthcare providers, patients and families
- ▶ Ensure cleaning and disinfection of equipment and environment
- ▶ Monitor compliance. Hold all healthcare providers accountable for compliance with recommended infection prevention practices
- ▶ Antibiotic stewardship

SUMMARY

- ▶ MDRO's have important infection control implications in all settings
- ▶ The prevention of MDRO's requires all healthcare facilities and agencies assume responsibility
- ▶ Following policies and procedures is not an option, it's critical for success
- ▶ Knowledge is important for patients, families and staff
- ▶ Communicating with other facilities that transfer or accept patients from you builds trust and keeps you knowledgeable about your patient's condition.

QUESTIONS???