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ECHO Nevada emphasizes patient privacy and asks participants to not share ANY Protected Health Information during ECHO clinics.
Interesting Recent Literature Updates on MRSA and other infections
July 20, 2017
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- Traditional teaching is that MRSA skin abscesses < 5 cm can be managed with simple I&D. **antibiotics not needed** unless patient systemically ill
- Randomized 796 children and adults with uncomplicated abscesses. All underwent drained, then randomized to 10 days of either Bactrim DS, clindamycin or placebo
- MRSA Cure Rates: clindamycin (81.7%), Bactrim DS (84.6%), placebo (62.9%)

Antibiotics have risks, but may be beneficial
• Looked at simulated 100% hand hygiene compliance by staff in a Neonatal ICU and its effect on MRSA transmission from one baby to another baby.

• Even perfect hand hygiene would result in 1 in every 100 contacts could still result in MRSA transmission. During an average nine day stay – approx. 250 contacts occurs per baby.

• Definite decrease in transmission rate as hygiene improved, no plateau effect. At about 50% range – there was about a 60% reduction in transmission, at 100% compliance about an 86% reduction in transmission rate.

• Points to hand hygiene alone not being adequate for control of MRSA - look at multi-pronged approach- screening, gloves, avoid fomites such as cell phones, and visitors.

“A Network Model of Hand Hygiene: How Good is Good Enough to Stop the Spread of MRSA?” Neal Goldstein, Infection Control and Hospital Epidemiol., 2017
“Genomic and epidemiological evidence for community origins of hospital-onset MRSA bloodstream infections”. Popovich, KJ et al. *J Infect Disease* 2017

- This study looked at where patients with Hospital onset MRSA blood stream infections (BSI) were initially exposed to the MRSA- were they already colonized when they were admitted, or did they acquire it in the hospital?
- Intermixing of Community-onset and HO-USA300 strains on the phylogenetic tree indicates that these strains derive from a common pool.
- “There appears to be a connection between MRSA community and hospital transmission networks, with a community factor being the primary driver. Our data suggest that HO-MRSA BSIs likely are due to colonizing strains acquired in the community before hospitalization. Therefore, prevention efforts may need to extend to the community for maximal benefit.
- Focus in the hospital must be on secondary prevention since many patients already colonized at time of admission – removing catheters, wound healing, eradicate colonization
"Efficacy of the decolonization of MRSA carriers in clinical practice". N. Sai et al. Antimicrobial Resistance and Infection Control

- Study in Erasme Hospital in Belgium. Identified 1150 patients on admission found to be MRSA carriers or infected. 268 patients prescribed 5 days of nasal mupirocin and 5 days of chlorhexidine body wash. Treated twice if not cleared after first course of therapy.

- 104 patients (39% of the treated group) were successfully decolonized. No infections occurred after an average of one year of follow-up.

- 164 patients (61% of the treated group) were not cleared. 8 patients (4.8%) developed MRSA infections in the future

- Not predictive of failure: diabetes, urinary catheter, dialysis, CV catheter, immunosuppression

- Predictive of failure- multiple sites of colonization, open wounds, MRSA resistance to mupirocin

- Sounds similar to what local hospitals are now doing to screen pre-op orthopedic patients for MSSA/MRSA

1. Retrospective cohort study to look at effectiveness of short course (7 to 10 days) versus longer (>10 days) of antibiotic therapy for uncomplicated gram negative BSI.

2. Majority of patients were women with E. coli BSI from a UTI.

3. Treatment was either intravenous or highly bioavailable oral agents.

4. Significant increased risk of failure with short course (average 8.5 days) compared to longer therapy (averaged 13 days) HR 2.60

5. CONCLUSION: Study supports common clinical practice of 2 weeks of antimicrobial therapy for uncomplicated gram – negative BSI.
Women with symptoms of a UTI but a negative urine culture: PCR-based quantification of *E. coli* suggests infection in most cases. Heytens, S. et al. *Clinical Microbiology Infect.* April 28, 2017

- 20-30% of women with symptoms of UTI have negative cultures
- Study performed quantitative PCR for *E. coli* and *S. saprophyticus* in addition to standard culture in 220 women with typical UTI symptoms, and in 86 that were asymptomatic
- In symptomatic group- 81% positive culture, 96% *E. coli* PCR positive
- In asymptomatic group- 11% culture positive, 12% PCR positive

CONCLUSION: “almost all women with typical urinary complaints and a negative culture still have an infection with *E.coli*”
Question: What is the best way to diagnose Uncomplicated Cystitis (UTI)?

Answer: Ask the patient – do you feel like you have a bladder infection!

- Thomas Hooton, M.D. UTI review NEJM 3/15/2012-don’t do dip stick, u/a or culture- can be negative or misleading- just treat on basis of classic symptoms in uncomplicated UTI

- **Best : Symptoms only**: +dysuria, +frequency, no discharge or irritation:
  
  ***95% chance of cystitis***

- **Not as good: Dipstick**: leukocyte esterase + and/or nitrite + only 75% sensitive, so symptoms more important for diagnosis even if dip is negative

- **Poor choice: Culture**: $10^5$ (100,000) bacterial CFUs – traditional criterion for UTI- 50% sensitive – will miss up to half the cases of UTI- counts of 100 to 10,000 colonies – all at levels that may be called as “no growth” by micro lab. Least sensitive diagnostic test.
Notes from the Field: An Outbreak of Salmonella Typhimurium Associated with Playground Sand in a Preschool Setting — Madrid, Spain, September–October 2016
MMWR / March 10, 2017 / 66(9);256–257

• Over a 6 week period, 24 kids (out of 300 children in a school) developed severe gastroenteritis. All stool cultures were positive for non-Typhi *Salmonella*

• No evidence for any source at the school- facilities, food, potable water, personnel. No animals kept at the school.

• Because of ongoing epidemic- a common source exposure identified- the sand lot- surrounded by trees that birds roost in. Multiple samples from the lot grew the strain seen in the kids. Previously only reported in wild and domestic birds.

• Closing the sandlot ended the epidemic
“Toxic Bacteria often Lurk in Playground Sandboxes”
Blanco, J. *Zoonoses and Public Health*, online July 7.

Past studies have shown public sandboxes can host pathogenic parasites, bacteria, and recently *Salmonella* from bird droppings.

Checked for *C. difficle* in 40 public sandboxes, some used by dogs. Likely contaminated by animal fecal material.

Found 21 sandboxes contained *C. difficle* spores, 8 were toxigenic strains.

Author noted *C. difficle* does not sicken children younger than 2 years. “We have to learn to live with these agents. If our children live in a highly clean environment, their immune system will not develop in the correct way.”
Multiply Recurrent *C. difficle* infection rates sharply rise.

Ma, G.K et al. *Annals of IM*, online July 3, 2017

- Analysis of nearly 40 million medical records for the years 2001 to 2012
- mrCDI- multiply recurrent CDI infections- at least 3
- 45,300 patients with CDI, 1669 of these had mrCDI.
- Annual incidence of CDI increased by 42.7% during this time period
- Annual incidence of mrCDI – increased by 188.8%
- Likely related to the NAP-1 strain growing in importance
- Risk factors- older, repeated antibiotics, PPI use, steroids, SNF
- Consider more aggressive therapy in patients with these risk factors