Infection Prevention & Control Strategies Related to C. difficile, Norovirus and Methicillin Resistant Staphylococcus aureus (MRSA)

July 11, 2018
Presenter:
Muhammad Salman Ashraf, MBBS
Muhammad Salman Ashraf, MBBA

Dr. Ashraf, is the medical director for the Nebraska Infection Control Assessment and Promotion Program (ICAP). He is also the co-medical director of the Nebraska Antimicrobial Stewardship Assessment and Promotion Program (ASAP) and an Associate Professor in the Division of Infectious Diseases, Department of Internal Medicine, at University of Nebraska Medical Center, Omaha. Dr. Ashraf is board certified in Internal Medicine, Geriatric Medicine and Infectious Diseases.
Infection Prevention & Control Strategies Related to *C. difficile*, Norovirus, and Methicillin Resistant *Staphylococcus aureus* (MRSA)

Muhammad S. Ashraf, MBBS

Associate Professor,
Division of Infectious Diseases
Medical Director,
Nebraska Infection Control Assessment and Promotion Program
Co-Medical Director,
Nebraska Antimicrobial Stewardship Assessment and Promotion Program
University of Nebraska Medical Center
Disclosures

- Received grant funding for investigator initiated study from Merck & Co. Inc
Objectives

- Describe the epidemiology of *C. difficile*, Norovirus, and MRSA
- Recognize the presentation and diagnostic strategies for *C. difficile*, Norovirus, and MRSA infections
- Discuss the steps required to be taken to prevent transmission of *C. difficile*, MRSA when taking care of patients.
Chain of Infection

- Quantity of pathogen
- Virulence
- Route of transmission
- Port
- Sensitive host

Slide provided by Dr. Dawd S. Siraj
Routes of Transmission

Droplet

Large droplets within ~1 meter (3 feet) transmit infection via:

– Coughing, sneezing, talking
– Medical procedures
Examples of Organisms Transmitted Via Droplet Route

- Influenza
- Viruses responsible for common cold
- Diphtheria
- Pertussis
- Group A streptococcus
- *Neisseria meningitidis*
Routes of Transmission

**Airborne**

Very small particles of evaporated droplets with infectious agent

- Remain in air for a long time
- Travel farther than droplets
- Become aerosolized during procedures
Examples of Organisms Transmitted Via Airborne Route

- Rubeola virus [measles]
- Varicella virus [chickenpox]
- *Mycobacterium tuberculosis*
Routes of Transmission

Contact

**Direct Contact**
- Host comes into contact with reservoir
- Kissing, skin-to-skin contact, sexual intercourse

**Indirect Contact**
- Disease is carried from reservoir to host
- Contaminated surfaces (fomites)
Examples of Organisms Transmitted Via Contact Route

- *Staphylococcus aureus* including MRSA
- Enterococcus species including VRE
- *C. difficile*
- Norovirus
- Many other pathogens including various multi-drug resistant organisms like CRE, ESBL producing gram negative organisms, *Candida auris* etc.
Other Routes of Transmission

- Oral Transmission
- Fecal-Oral Transmission
- Vector-borne transmission
- Sexual Transmission
- Vertical Transmission
Organisms to be Discussed Today

- MRSA
- Norovirus
- *C. difficile*
Organisms to be Discussed Today

- MRSA
- Norovirus
- *C. difficile*
Staphylococcus aureus

- Gram stain: ‘Gram positive cocci in clusters’
- Common colonizing organism
  - Skin, nose, oropharynx
  - 33% of the US population carries *S. aureus* on their body

History of Staphylococcal Resistance(105,89),(982,977)

• Prior to introduction of penicillin, invasive Staphylococcal infections commonly resulted in fatal outcomes
  – Mortality rate of 82% for Staphylococcal bacteremia in a Boston hospital (1941)

• Penicillin discovered and utilized for battlefield injuries in WWII

• Widely available by 1944

The emergence of Methicillin-resistant *Staphylococcus aureus* (MRSA)

Two in 100 people carry MRSA

DeLeo et al. *J Clin Invest* 2009
https://www.cdc.gov/mrsa/healthcare/index.html
Serious Threats for Human Health

HAZARD LEVEL

SERIOUS

These are significant antibiotic-resistant threats. For varying reasons (e.g., low or declining domestic incidence or reasonable availability of therapeutic agents), they are not considered urgent, but these threats will worsen and may become urgent without ongoing public health monitoring and prevention activities.

MRSA

Produces a wide variety of diseases

– Relatively benign skin infections (folliculitis, cellulitis, abscesses)

– Severe, life-threatening infections

For example,

• Disseminated blood infection
• Heart valve infections
• Severe pneumonia
• Bone and Joint Infections
• Brain abscess, subdural empyema, spinal epidural abscess
MRSA Skin Infections

MRSA usually cause purulent skin infections

Treatment of MRSA Skin and Soft Tissue Infections

• For skin abscess, incision and drainage is the primary treatment and for simple abscess antibiotics may not even be needed.

• In addition to the incision and drainage, antibiotics may be needed if certain other criteria are met (like severe or extensive disease, immunosuppression etc.)

• Antibiotics are also required for treatment of purulent or non-purulent cellulitis without drainable abscess (although antibiotic directed to MRSA may not be necessary if it is a non-purulent cellulitis)

• Oral antibiotics effective against MRSA include trimethoprim-sulfamethaxazole, doxycycline, clindamycin or linezolid

Liu C et al. Clinical Infectious Diseases 2011;52(3):e18–e55
Trends in Invasive MRSA Infections in the US

Estimated National Incidence of Invasive MRSA Infections or Related Deaths

- **2005**: 111,261
- **2011**: 80,461

**National Estimated Incidence**: 27.7% decrease

Estimated National Deaths

- **2005**: 21,138
- **2011**: 11,285

**Estimated National Deaths**: 44.1% decrease

Organisms to be Discussed Today

- MRSA
- Norovirus
- *C. difficile*

https://www.cdc.gov/norovirus/index.html
Norovirus

• ‘Stomach flu’
• Many types no immunity
• Highly contagious
• Transmission
  – Close contact
  – Contaminated food/water
  – Contaminated surfaces/objects
• Infected people may shed virus for weeks

https://www.cdc.gov/norovirus/index.html
Norovirus Presentation

• Watery diarrhea
• Nausea/Vomiting
• Abdominal pain
• Fever
• Headache
• Body aches
• Dehydration

• Symptoms usually resolve in 1-3 days
Norovirus Diagnosis and Treatment

• Kaplan’s Criteria:
  – Vomiting in more than half of symptomatic cases
  – Mean (or median) incubation period of 24 to 48 hours
  – Mean (or median) duration of illness of 12 to 60 hours
  – No bacterial pathogen found in stool

• Special stool testing available through Public Health Labs

• Treatment- supportive care, fluids
Organisms to be Discussed Today

- MRSA
- Norovirus
- C. difficile

Epidemiology of *C. difficile* Infections

- An estimated 333,000 initial and 145,000 recurrent healthcare facility–onset CDI cases occur annually nationwide.

- Rate of hospital discharges with CDI increased from 3.82 per 1000 discharges in 2000 to 8.75 in 2008 and appears to have leveled off with a 2.5% decrease in 2009.

- A quarter of all CDI cases (20 to 27%) are community associated, with an incidence of 20–30 per 100,000 population.

Figure 1. Discharge rate for *Clostridium difficile* infection from US short-stay hospitals by age [22]. Abbreviation: CDI, *Clostridium difficile* infection.

# Relationship of Antibiotic Use With *C. difficile* Infections

<table>
<thead>
<tr>
<th>Antibiotic Class</th>
<th>Prescriptions Per Capita, 2010</th>
<th>CA-CDI Cases, 2011</th>
<th>Absolute CA-CDI Reduction for Each 10% Reduction in Drug Use</th>
<th>95% Confidence Interval</th>
<th>CA-CDI Rate Reduction for Each 10% Reduction in Drug Use</th>
<th>95% Confidence Interval</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All classes</td>
<td>0.731</td>
<td>5284</td>
<td>885</td>
<td>(315–1390)</td>
<td>16.8%</td>
<td>(6.0%–26.3%)</td>
<td>.003</td>
</tr>
<tr>
<td>Penicillins</td>
<td>0.137</td>
<td>5284</td>
<td>639</td>
<td>(151–1081)</td>
<td>12.1%</td>
<td>(2.9%–20.5%)</td>
<td>.012</td>
</tr>
<tr>
<td>β-lactam, increased activity&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.056</td>
<td>5284</td>
<td>495</td>
<td>(84–873)</td>
<td>9.4%</td>
<td>(1.6%–16.5%)</td>
<td>.020</td>
</tr>
<tr>
<td>Lincosamides&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.029</td>
<td>5284</td>
<td>401</td>
<td>(75–707)</td>
<td>7.6%</td>
<td>(1.4%–13.4%)</td>
<td>.017</td>
</tr>
<tr>
<td>Cephalosporins</td>
<td>0.086</td>
<td>5284</td>
<td>396</td>
<td>(39–730)</td>
<td>7.5%</td>
<td>(.7%–13.8%)</td>
<td>.031</td>
</tr>
<tr>
<td>Trimethoprim/sulfamethoxazole</td>
<td>0.061</td>
<td>5284</td>
<td>392</td>
<td>(39–722)</td>
<td>7.4%</td>
<td>(.7%–13.7%)</td>
<td>.030</td>
</tr>
<tr>
<td>Tetracyclines</td>
<td>0.075</td>
<td>5284</td>
<td>365</td>
<td>(62–651)</td>
<td>6.9%</td>
<td>(1.2%–12.3%)</td>
<td>.019</td>
</tr>
<tr>
<td>Macrolides</td>
<td>0.157</td>
<td>5284</td>
<td>360</td>
<td>(1–694)</td>
<td>6.8%</td>
<td>(.03%–13.1%)</td>
<td>.049</td>
</tr>
<tr>
<td>Fluoroquinolones (all adults)</td>
<td>0.122</td>
<td>5284</td>
<td>255</td>
<td>(–94–581)</td>
<td>4.8%</td>
<td>(–1.8%–11.0%)</td>
<td>.149</td>
</tr>
<tr>
<td>Fluoroquinolones (age 65+)</td>
<td>0.238</td>
<td>1880</td>
<td>102</td>
<td>(–18 to 215)</td>
<td>5.4%</td>
<td>(–1.0%–11.4%)</td>
<td>.095</td>
</tr>
<tr>
<td>Other antibiotics</td>
<td>0.003</td>
<td>5284</td>
<td>104</td>
<td>(–375 to 542)</td>
<td>2.0%</td>
<td>(–7.1%–10.3%)</td>
<td>.658</td>
</tr>
</tbody>
</table>

Clinical Manifestation of *C. difficile* Infection

- Diarrhea (new-onset ≥3 unformed stools in 24 hours)
- Fever (may or may not be present)
- Crampy lower abdominal pain and lower abdominal tenderness on examination
- Severe cases can present with toxic megacolon which is characterized by colonic dilatation (abdominal distension) which can present as acute abdominal syndrome without diarrhea
- Leukocytosis can precede diarrhea for 1–2 days
- A positive *C. difficile* test in the absence of any symptoms represents colonization and does not indicate infection

Simor AE et al. Infect Control Hosp Epidemiol 2002: 23(11); 696-703
**Prevalence of Colonization with *C. difficile***

**Table 2** Prevalence of asymptomatic *C. difficile* colonization in different populations

<table>
<thead>
<tr>
<th>Population type</th>
<th>Range of carriage rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy neonates and infants</td>
<td>18–90 %</td>
</tr>
<tr>
<td>Healthy adults – general population</td>
<td>0–15 %</td>
</tr>
<tr>
<td>Elderly in long-term care facilities, chronic care, or nursing homes</td>
<td>0–51 %</td>
</tr>
<tr>
<td>Hospital</td>
<td></td>
</tr>
<tr>
<td><strong>Elderly</strong></td>
<td>0.6–15 %</td>
</tr>
<tr>
<td><strong>Inpatients (not specifically elderly)</strong></td>
<td>4–29 %</td>
</tr>
<tr>
<td><strong>Rehabilitation (spinal)</strong></td>
<td>11–50 %</td>
</tr>
<tr>
<td><strong>HIV</strong></td>
<td>4 %</td>
</tr>
<tr>
<td><strong>Healthcare workers</strong></td>
<td>0–13 %</td>
</tr>
<tr>
<td><strong>Cystic fibrosis</strong></td>
<td>18–47 %</td>
</tr>
<tr>
<td><strong>Hospital surgical patients on antibiotic prophylaxis</strong></td>
<td>17 %</td>
</tr>
<tr>
<td><strong>Intensive care</strong></td>
<td>7 %</td>
</tr>
<tr>
<td><strong>IBD (ulcerative colitis or Crohn’s disease)</strong></td>
<td>11 %</td>
</tr>
<tr>
<td><strong>Hematological malignancies</strong></td>
<td>8 %</td>
</tr>
</tbody>
</table>
## Treatment of *C. difficile* Infections

### Table 1. Recommendations for the Treatment of *Clostridium difficile* Infection in Adults

<table>
<thead>
<tr>
<th>Clinical Definition</th>
<th>Supportive Clinical Data</th>
<th>Recommended Treatment</th>
<th>Strength of Recommendation/Quality of Evidence</th>
</tr>
</thead>
</table>
| **Initial episode, non-severe** | Leukocytosis with a white blood cell count of ≤15,000 cells/mL and a serum creatinine level <1.5 mg/dL | • VAN 125 mg given 4 times daily for 10 days, OR  
• FDX 200 mg given twice daily for 10 days  
• Alternate if above agents are unavailable: metronidazole, 500 mg 3 times per day by mouth for 10 days | Strong/High  
Strong/High  
Weak/High |
| **Initial episode, severe** | Leukocytosis with a white blood cell count of ≥15,000 cells/mL or a serum creatinine level >1.5 mg/dL | • VAN, 125 mg 4 times per day by mouth for 10 days, OR  
• FDX 200 mg given twice daily for 10 days | Strong/High  
Strong/High |
| **Initial episode, fulminant** | Hypotension or shock, ileus, megacolon | • VAN, 500 mg 4 times per day by mouth or by nasogastric tube. If ileus, consider adding rectal instillation of VAN. Intravenously administered metronidazole (500 mg every 8 hours) should be administered together with oral or rectal VAN, particularly if ileus is present. | Strong/Moderate (oral VAN);  
Weak/Low (rectal VAN);  
Strong/Moderate (intravenous metronidazole) |
| **First recurrence** | ... | • VAN 125 mg given 4 times daily for 10 days if metronidazole was used for the initial episode, OR  
• Use a prolonged tapered and pulsed VAN regimen if a standard regimen was used for the initial episode (e.g., 125 mg 4 times per day for 10–14 days, 2 times per day for a week, once per day for a week, and then every 2 or 3 days for 2–8 weeks), OR  
• FDX 200 mg given twice daily for 10 days if VAN was used for the initial episode | Weak/Low  
Weak/Low  
Weak/Moderate |
| **Second or subsequent recurrence** | ... | • VAN in a tapered and pulsed regimen, OR  
• VAN, 125 mg 4 times per day by mouth for 10 days followed by rifaximin 400 mg 3 times daily for 20 days, OR  
• FDX 200 mg given twice daily for 10 days, OR  
• Fecal microbiota transplantation | Weak/Low  
Weak/Low  
Weak/Low  
Strong/Moderate |

---

Points to Remember

- Colonization does not need treatment

- Do not perform repeat testing (within 7 days) during the same episode of diarrhea

- Do not test stool from asymptomatic patients

- There is no clinical value in repeat CDI testing to establish cure as tests in more than 60% patients remain positive even after successful treatment.

How to Prevent Transmission of Infections?

Take appropriate Precautions

- Standard (Universal)

- Transmission based precautions:
  - Contact
  - Droplet
  - Airborne
Standard Precautions

Used for all patient care based on risk assessment and include:

• Hand Hygiene

• PPE use whenever possible exposure to infectious material is expected

• Following Respiratory hygiene/cough etiquette principles

• Ensure appropriate patient placement

• Proper handling, cleaning and disinfection of patient care equipment, instruments and the environment

• Careful handling of textiles and laundry

• Following safe injection practices

• Proper handling of needles and other sharps

https://www.cdc.gov/infectioncontrol/basics/standard-precautions.html
Contact Precautions

• Appropriate Patient Placement

• PPE use include gloves and gowns in addition to other equipment needed for standard precaution

• Limit transport and movement of patients and cover or contain the colonized and infected area during transport/ movement.

• Use dedicated or disposable patient care equipment when possible or clean and disinfect between patients when cannot dedicate.

• Frequent cleaning and disinfection of the rooms

https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html
Droplet Precautions

• Source control

• Appropriate patient placement

• PPE use include donning mask upon entry into patient space (Some organisms that spread through droplet can also spread through contact route so sometimes institutions combine droplet precautions with contact precautions which means wearing gowns and gloves also)

• Limit transport and movement of patients and when transport is necessary ask patient to wear a mask and follow respiratory hygiene/cough etiquette

https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html
Airborne Precautions

• Source control

• Appropriate patient placement in an airborne infection isolation room

• Restrict susceptible healthcare personnel from entering the room of patients known or suspected to have measles, chickenpox, or disseminated zoster, or smallpox if other immune healthcare personnel are available.

• Use personal protective equipment (PPE) appropriately, including a fit-tested NIOSH-approved N95 or higher level respirator for healthcare personnel.

• Limit transport and movement of patients and when transport is necessary ask patient to wear a surgical mask and follow respiratory hygiene/cough etiquette

• Immunize susceptible persons as soon as possible following unprotected contact with vaccine-preventable infections (e.g., measles, varicella or smallpox).

https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html
Preventing MRSA Transmission

• Some studies have challenged the need for contact precautions for endemic multi-drug resistant organisms like MRSA.

• However, CDC still recommend the use of Contact Precautions in inpatient acute care settings for patients known to be colonized or infected.

• Practice of contact precaution in non-acute care setting for MRSA colonization and infection is even more challenging.

• In non-acute acre settings like nursing homes, contact precautions may need to be considered strongly when patients have conditions that can facilitate transmission like draining wounds, uncontained secretions etc.

https://www.cdc.gov/mrsa/healthcare/clinicians/index.html#a1
https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html
Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006

Jane D. Siegel, MD; Emily Rhinehart, RN MPH CIC; Marguerite Jackson, PhD; Linda Chiarello, RN MS; the Healthcare Infection Control Practices Advisory Committee

V.A.5.e. In home care settings

1. * Follow Standard Precautions making sure to use gowns and gloves for contact with uncontrolled secretions, pressure ulcers, draining wounds, stool incontinence, and ostomy tubes and bags. Category II

2. * Limit the amount of reusable patient-care equipment that is brought into the home of patients infected or colonized with MDROs. When possible, leave patient-care equipment in the home until the patient is discharged from home care services. Category II

3. * If noncritical patient-care equipment (e.g., stethoscopes) cannot remain in the home, clean and disinfect items before removing them from the home, using a low to intermediate level disinfectant, or place reusable items in a plastic bag for transport to another site for subsequent cleaning and disinfection. Category II
GUIDELINE FOR THE PREVENTION AND CONTROL OF NOROVIRUS GASTROENTERITIS OUTBREAKS IN HEALTHCARE SETTINGS

Taranisia MacCannell, PhD, MSc1; Craig A. Umscheid, MD, MSCE2; Rajender K. Agarwal, MD, MPH2; Ingi Lee, MD, MSCE2; Gretchen Kuntz, MSW, MSLIS2; Kurt B. Stevenson, MD, MPH3 and the Healthcare Infection Control Practices Advisory Committee (HICPAC)4

1 Division of Healthcare Quality Promotion
Centers for Disease Control and Prevention
Atlanta, GA

2 Center for Evidence-based Practice
University of Pennsylvania Health System
Philadelphia, PA

3 Division of Infectious Diseases
The Ohio State University,
Columbus, OH

Available from: https://www.cdc.gov/infectioncontrol/guidelines/norovirus/
Norovirus: Recommendations for Precautions Include …

• Contact Precautions when symptomatic

• Keeping in contact precautions for at least 48 hour after resolution of symptoms (longer duration may be needed in selected cases)

• Strict adherence to hand hygiene (soap and water use is recommended for all opportunities during outbreaks)

• Implement systems to designate patients with symptomatic norovirus and to notify receiving healthcare facilities or personnel prior to transfer of such patients within or between facilities.

• Don’t forget standard precautions (use a surgical or procedure mask and eye protection or a full face shield if there is an anticipated risk of splashes to the face)

• Exclude ill personnel from work for a minimum of 48 hours after the resolution of symptoms
Norovirus: Recommendations for Diagnosis and Environmental Cleaning Includes ....

- Develop policies to enable rapid recognition and confirmation of suspected cases of symptomatic norovirus infection.

- Consult with Public Health authorities when a case is suspected.

- Routine cleaning and disinfection should be performed of frequently touched environmental surfaces and all patient equipments.

- Clean and disinfect shared equipment between patients using EPA-registered products with label claims for use in healthcare.

- Handle soiled linens carefully, without agitating them, to avoid dispersal of virus and use Standard Precautions, including the use of appropriate PPE (e.g., gloves and gowns), to minimize the likelihood of cross-contamination.
Welcome to the Nebraska ICAP website!

Use this website as a resource to further strengthen infection prevention and control programs at your facility. This site will be regularly updated with new tools and resources, so check back frequently.

The Environmental Cleaning in Healthcare Training videos are here! Click here to access them directly.
Clinical Practice Guidelines for *Clostridium difficile* Infection in Adults and Children: 2017 Update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA)

L Clifford McDonald ☐, Dale N Gerding, Stuart Johnson, Johan S Bakken, Karen C Carroll, Susan E Coffin, Erik R Dubberke, Kevin W Garey, Carolyn V Gould, Ciaran Kelly ... Show more


**Published:** 15 February 2018
CDI: Recommendations for Precautions Include ....

- Must use glove and gowns on entry to the room
- Initiate contact precautions when CDI is suspected
- Continue contact precautions for at least 48 hours after diarrhea has resolved
- Strict hand hygiene compliance (use soap and water for all opportunities during outbreaks and hyperendemic settings).
- Encourage patients to wash hands and shower to reduce the burden of spores on the skin
CDI: Environmental Cleaning and Disinfection Recommendations Include...

• Use disposable patient equipment when possible and ensure that reusable equipment is thoroughly cleaned and disinfected, preferentially with a sporicidal disinfectant that is equipment compatible.

• Terminal room cleaning with a sporicidal agent should be considered in conjunction with other measures to prevent CDI during endemic high rates or outbreaks, or if there is evidence of repeated cases of CDI in the same room.

• Daily cleaning with a sporicidal agent should be considered in conjunction with other measures to prevent CDI during outbreaks or in hyperendemic (sustained high rates) settings, or if there is evidence of repeated cases of CDI in the same room.
V.A.3. Judicious use of antimicrobial agents § (i.e., systems to promote optimal treatment of infections and appropriate antimicrobial use).

V.A.3.b.ii. In settings that administer antimicrobial agents but have limited electronic communication system infrastructures to implement physician prompts (e.g., LTCFs, home care and infusion companies), implement a process for appropriate review of prescribed antimicrobials. Prepare and distribute reports to prescribers that summarize findings and provide suggestions for improving antimicrobial use. (342, 348, 349) Category II

https://www.cdc.gov/infectioncontrol/guidelines/mdro/
Be Aware of Regional Resources:

Nebraska ASAP is one of them

https://asap.nebraskamed.com
Syndrome-Based Precautions

- Diagnosis is often unknown at onset of symptoms
- Missed opportunity to isolate if delayed for a diagnosis
- Isolate based on signs and symptoms
- Remove isolation when infectious agents are ruled out
- Required for symptoms such as:
  - Uncontrolled diarrhea
  - Incontinent/diapered patient
  - Respiratory symptoms
  - Skin conditions
  - Headache with accompanying symptoms
Diarrhea

Examples of Potential Pathogens
- *E. coli* O157:H7
- *Shigella species*
- Norovirus
- Rotavirus
- Hepatitis A virus
- *C. difficile*

Type of Precaution Required?

- Contact Precautions
- During outbreaks of certain organisms like Norovirus or *C. difficile* infection use soap and water for hand hygiene
Skin or Wound Infection

Examples of Potential Pathogens causing abscess or draining wounds
- MSSA
- MRSA
- Group A streptococcus

Type of Precaution Required?

- Contact Precautions
- Droplet Precautions in addition to contact precaution for first 24 hour of starting antibiotic if invasive group A streptococcal disease suspected
Thank You

Questions?

Visit us on:

https://icap.nebraskamed.com
https://asap.nebraskamed.com
Continuing Education (CE)

- This event has been approved for 1.0 hour of Continuing Education for nurses through the North Dakota Board of Nursing; Course #1631

- To obtain CE credit, you must complete the evaluation form for this event and provide contact information

- CE Certificates will be emailed within the next 7-10 business days
How to Get Involved

Learning and Action Network

We invite you to join the Great Plains Learning and Action Network (LAN). All LAN partners will be invited to attend educational sessions on a variety of topics, have opportunities to learn from peers throughout the state and region and have access to an abundance of resources and tools. The LAN is a great opportunity to get connected and demonstrate your commitment to quality improvement. To sign-up, visit: greatplainsqin.org/lan-signup-page/
Thanks for Attending

The Home Health Infection Prevention Toolkit

http://greatplainsqin.org/hhip
Great Plains QIN HH Infection Prevention Team

North Dakota:  
Sally May RN, BSN  
sally.may@area-a.hcqis.org

South Dakota:  
Cheri Fast RN, BSN  
cheri.fast@area-a.hcqis.org

Nebraska:  
Paula Sitzman RN, BSN  
paula.sitzman@area-a.hcqis.org

Kansas:  
Brenda Davis RN, BSN  
brenda.davis@area-a.hcqis.org