

ARO's at Home – What Do YOU Need to Know?

October 21, 2011

Community Series



Superbugs in Community and Clinic Settings

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Community Series



Objectives

- Define and describe MRSA, VRE, (CA-MRSA) (and *Clostridium difficile*)
- Review the PIDAC Best Practice Guidelines for Antibiotic Resistant Organisms (MRSA, VRE and others) as they apply to the community setting (home care and clinics)

What are “AROs”?

Antibiotic Resistant Organisms are microorganisms that have developed resistance to the action of several antimicrobial agents and/or are of special clinical or epidemiological significance.



AROs

- MRSA
- VRE
- VISA
- VRSA
- ESBL
- CREs
- More!

Staphylococcus aureus

- A common skin bacteria
- Lives on the skin and mucous membranes of healthy adults (>60%)
- May cause skin and soft tissue infections (e.g., impetigo) or invasive disease
- Most common cause of healthcare associated infections in acute care

Methicillin Resistant *Staphylococcus aureus* (MRSA)

- A resistant form of the common skin bacteria, *Staphylococcus aureus*
- Many people carry it in their nasal passages or on their skin
- Can be either healthcare associated or community associated (CA-MRSA)
- Can cause serious infections

What is Community Acquired –MRSA (CA-MRSA)?

- A strain of MRSA acquired by people who have **not recently spent time in a health care facility**
- Has been endemic in First Nations communities since mid 1980's
- Prevalence of CA-MRSA in Canada is unknown
- Accounted for 15% of Canadian MRSA cases in 2006*
- Appears to have enhanced infectivity and virulence

* Canadian Nosocomial Infection Surveillance Program (CNISP)
Surveillance for MRSA, 2006 results

CA-MRSA

- Genetically different than Health Care Associated (HA)(nosocomial) MRSA
- Less resistant to antibiotics
- Usually causes infection, colonization rare
- Produces virulent exotoxins especially Panton-Valentine leukocidin (PVL)
- Toxin associated with skin & soft tissue infections as well as severe necrotizing pneumonia
- Transmitted via direct contact

5 C's of CA-MRSA Transmission

- **C**rowding
- Frequent skin **C**ontact
- **C**ompromised skin
- Sharing **C**ontaminated personal care items
- Lack of **C**leanliness

CA-MRSA Risk Factors

- Close contact with colonized/ infected person
- Exposure to shared sports equipment
 - (towels , clothing or common surfaces such as showers, benches etc.)
- Participation in contact sports
- Intravenous drug use
- Jails, correctional facilities
- Crowded facilities (e.g. shelters) with poor hygiene
- Some First Nations populations

Clinical Presentation

- May look like an insect or spider bite
- Minor skin infection that doesn't respond to traditional antibiotic therapy
- Boils, abscesses, folliculitis, cellulitis, impetigo
- Red, swollen ,painful wounds
- Tissue necrosis
- Necrotizing pneumonia especially following influenza



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Preventing the Spread of CA-MRSA

- Cover wounds/lesions with clean dry bandages
- Perform frequent hand hygiene
- No sharing of personal items (towels, sports equipment)
- Wash soiled linens, utensils/dishes in hot water
- Avoid skin-to-skin contact, including contact sports until lesions healed
- Ensure cleaning of communal bathing facilities

Comparing HA-MRSA and CA-MRSA

	Traditional MRSA	Community Acquired MRSA
Typical patient	Elderly, debilitated Chronically/critically ill, recent surgery, dialysis Recent hospitalization	Young, healthy people, professional/ amateur athletes No significant medical history
Infection site	Catheter related UTI Intravascular device infections Surgical site infections Colonization common	Skin: cellulitis, abscesses, Soft tissue infections Necrotizing pneumonia Colonization rare
Transmission	Nosocomial Little spread among household contacts Community spread rare	Community-acquired May spread in families, sports teams Spreads easily in community
Virulence factor	No PVL gene	PVL gene present

Risk Factors for MRSA

Definite Risk Factor

- *Previous colonization or infection with MRSA*
- *>12 hours in any health care facility (including this one) in the past 12 months*
- *Recent exposure to unit/area of a health care facility having an MRSA outbreak*
- *Health care in another country*

Possible Risk Factor

- *Home health care*
- *Indwelling device*
- *ICU, burn unit, transplant unit*
- *Communal setting*
- *Injection drug use*
- *Household contact of patient with MRSA*
- *Immunocompromised*
- *CA-MRSA risk (e.g., sports teams)*

Enterococci

- Bacteria that normally live in the gastrointestinal tract of most individuals, but can also be present in the urethra, vagina, skin, oropharynx, and/or bile
- It can also colonize wounds, ulcers and medical device sites in hospitalized patients
- A common cause of health care acquired infection

Vancomycin Resistant *Enterococci* (VRE)

- VRE are strains of *Enterococcus faecium* and *Enterococcus faecalis* that have become resistant to high levels of the very powerful antibiotic, Vancomycin
- Majority of individuals who have VRE are colonized with it

Risk Factors for VRE

Definite Risk Factor

- *Previous colonization or infection with VRE*
- *>12 hours in any health care facility (including this one) in the past 12 months*
- *Recent exposure to unit/area of a health care facility having a VRE outbreak*
- *Health care in another country*

Possible Risk Factor

- *Recent exposure to second and third generation cephalosporins*

Colonization

- The presence and growth of a microorganism in or on a body with growth and multiplication but without tissue invasion or cellular injury
- The patient will be asymptomatic

Infection

- The entry and multiplication of an infectious agent in the tissues of the host
- Symptomatic or clinical infection is one resulting in clinical signs and symptoms (disease)

Remember:

whether colonized or infected, the infection prevention and control precautions will be the same.

Status - Ontario

MRSA

In Ontario there were 21,002 patients identified with MRSA colonization or infection in 2010, an 8% increase over 2009.

Data on 94% of these patients indicated that 41% acquired MRSA in an acute care hospital, 17% in a nursing home and **42% in the community**

VRE

In Ontario, the incidence of VRE decreased by 15% in 2010, with 5,567 patients colonized or infected with VRE compared to 6,541 patients in 2009

The majority of patients were thought to have acquired VRE in acute-care hospitals (86%), 5% were thought to have acquired VRE in nursing homes **and there was an increase in VRE acquired in the community (10%)**

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Clients Need to Know....

- The highest risk of acquiring an ARO is during a hospital stay
- Low risk of acquiring an ARO if go on home care when discharged

Community Health Care Workers are called
.....the “travelling germs”

Transmission of AROs

Most commonly spread by the hands of healthcare workers

- Contaminated surfaces and equipment
 - Survival on surfaces:
 - MRSA – 7 days to 7 months*
 - VRE – 5 days to 4 months*
- Providing direct care



* Kramer et al. *BMC Infectious Diseases* 2006, 6:130

Why are AROs Important?

Impact on Individuals:

- Increased length of stay in hospitals
- Decreased quality of life
- Stigma
- May cause serious complications, including death

Impact on Healthcare System:

- Increased cost
- Decreased ability to provide quality care
- Slows the health system

C. difficile

- Prolonged, watery diarrhea with no other known cause
 - Recommend medical assessment
- Routine practices (if suspect)
 - Hand hygiene! Risk assessment!
 - Gown and gloves
- Contact precautions (confirmed)
- Promote hand hygiene for clients
 - hand washing
- Promote cleaning
 - Bleach (1:10 with tap water to achieve 0.55 or 500 ppm chlorine)

C. difficile

Client Education:

- Healthy people who are not taking antibiotics are at very low risk of getting *C. difficile* disease
- Wash hands/clean hands
- Cleaning the house:
 - Household cleaner/bleach (diluted as per instructions)
 - Wet surface well, clean using good friction, allow to air dry
 - Pay special attention to soiled areas
- Wash clothes separately if they are heavily soiled with stool (rinse stool off, clean in a hot water cycle with soap, dry items in the drying)
- Dishes: regular cleaning (dishwasher or clean by hand with soap and water)

PIDAC Best Practice Guidelines

MOHLTC. PIDAC. Routine Practices and Additional Precautions In All Health Care Settings. Revised July, 2011

MOHLTC. PIDAC. Annex A: Screening, Testing and surveillance for Antibiotic-Resistant Organisms (AROs): Methicillin-resistant *Staphylococcus aureus* (MRSA), Vancomycin-intermediate *Staphylococcus aureus* (VISA), Vancomycin-resistant Enterococcus (VRE), Resistant Gram-Negative Bacilli (e.g., ESBLs) In All Health Care Settings. July, 2011.

MOHTLC. PIDAC. Annex C: Testing, Surveillance and Management of *Clostridium difficile* In All Health Care Settings. May, 2010

<http://www.oahpp.ca/resources/pidac-knowledge/>

General Requirements

Communication:

- “If a client/patient/resident is identified with an ARO at admission and has been transferred from another health care setting, that health care setting should be notified of the results;
- If a client/patient/resident is identified with an ARO following transfer to another health care setting, the receiving health care setting should be notified of the results;
- If a client/patient/resident is identified with an ARO following discharge home, the client/patient/resident or family physician should be notified of the results;
- If a contact of a client/patient/resident with an ARO is identified as being a contact following transfer to another health care setting or after being discharged home, the receiving health care setting, family physician or physician most responsible for care should be notified of the contact in order to make decisions regarding additional follow-up. “

General Requirements

Information Management

- Tracking/flagging

Antibiotic Stewardship

Screening

- In settings other than acute care:

*For MRSA: in **community care**, re-screening is not required and should only be done on admission to a hospital or long-term care home;*

VRE, ESBL – no community directions given

[Depends on the instructions from the hospital

- Often the MRP doesn't even know the patient was in hospital
- Continuity of care is a challenge]

Decolonization

- *Current evidence does not recommend widespread or prolonged antibiotic therapy for decolonization of MRSA as this may promote antibiotic resistance, long-term efficacy is poor and systemic therapy may lead to adverse events*
- Depends on the instructions from the hospital
 - Often the MRP doesn't even know the patient was in hospital
 - Continuity of care is a challenge

Infection Prevention and Control

- Hand Hygiene
- Routine Practices
- Contact Precautions
 - Use in addition to routine practices
 - Institute as soon as indicated

Hand Hygiene



Your 4 Moments for Hand Hygiene

- Dressings
- IV Therapy

As you enter the home →



← As you leave the home

← After removing gloves

Elements Comprising Contact Precautions

- Accommodation
- Signage*
- Gloves*
- Gown*
- Equipment and items in the environment*
- Environmental Cleaning*
- Transport
- Communication

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Table 2

Accommodation

Home Care

No restrictions on accommodation

At home:

- Sleep in own bed

- Share a bed

- Share washroom facilities

Families share common flora

Clinic Settings

Identify patients who require precautions

Encourage client to perform hand hygiene on entering the setting

Signage – Home Care and Clinics

- Flag the chart

PPE – Home Care and Clinics

- Gloves and gowns
 - For direct care

Direct Care: Providing hands-on care (e.g., bathing, washing, turning client/patient/resident, changing clothes, continence care, dressing changes, care of open wounds/lesions, toileting).



Equipment and Items in the Environment

Home Care

As per Routine Practices

Clinics

As per Routine Practices

Clean and disinfect shared items (e.g., chair, examination table) or cover with a sheet before use

Equipment and Items Cleaning Routine Practices

Cleaning of equipment that is being used by more than one client/patient/resident between uses according to the recommendations found in *Best Practices For Cleaning, Disinfection and Sterilization in All Health Care Settings*, available at:

<http://www.oahpp.ca/resources/pidac-knowledge/best-practice-manuals/cleaning-disinfection-and-sterilization.html>

Environmental Cleaning

Home Care

No special cleaning requirements

Clinics

VRE and *C. difficile* rooms require special cleaning

Routine cleaning for all other rooms

Environmental Cleaning Routine Practices

Cleaning of the health care environment, including safe handling of soiled linen and waste (e.g., sharps) to prevent exposure and transmission to others, as detailed in *Best Practices for Environmental Cleaning in All Health Care Settings*, available on the PHO website at:

<http://www.oahpp.ca/resources/pidac-knowledge/best-practice-manuals/environmental-cleaning-for-prevention-and-control-of-infections.html>

Transport

- Not applicable

Current Challenges

- ARO clients moving from hospital to home and back
 - Finding out results. Infected? Colonized?
 - What to do about swabbing?
 - PPE: Initiate? What to use? When to stop?
- MDs in the community – interest, knowledge
- Education for HCWs re PIDAC BPGs

Methicillin-Resistant and -Susceptible *Staphylococcus aureus* Infections in Dogs

Meredith C. Faires, Michelle Traverse, Kathy C. Tater, David L. Pearl, and J. Scott Weese

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 16, No. 1, January 2010

Environmental Challenges

People have “the right to “live rough”

“There’s naught funnier than folk”

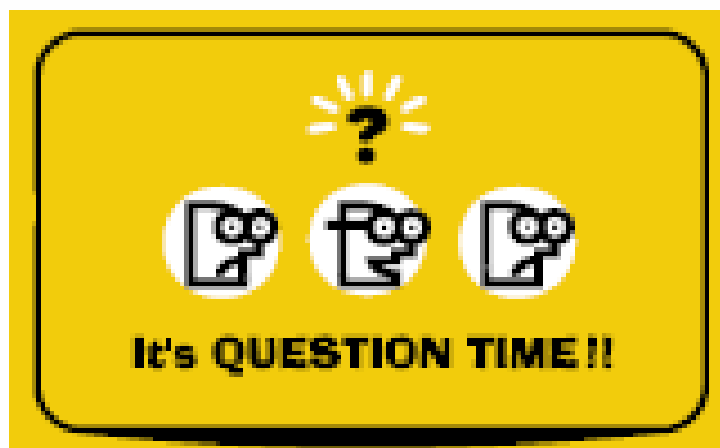
Antibiotic Stewardship

- Education to clients regarding:
 - Taking as ordered
 - Completing the course
 - Not demanding to receive



Future

- ARO working group
- ?Scandinavian model: search and destroy?



Do I need to do any special precautions with my laundry?

- No need to separate
- Use hot, soapy water (or use cold water detergent as per manufacturer's directions)

Do I do anything special with dishes?

- No
- Dishwashing as usual

Conclusion

- Community care needs to be aware of the evidence based literature
- Application of best practice is important; PIDAC is learning more about the unique needs of the community setting
- Consider joining the Community Health Care Interest Group of CHICA-Canada www.chica.org
 - Questions and answers
 - Website links
- Remember: the “travelling germ” could be you!

References

Regional Infection Control Networks

www.ricn.on.ca

Provincial Infectious Diseases Advisory Committee (PIDAC)

<http://www.oahpp.ca/services/pidac/index.html>

Public Health Ontario

<http://www.oahpp.ca/index.html>