

HQIC Community of Practice Call

Infection Prevention and Sepsis Recognition in Home Care

June 13, 2024

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Introduction



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Welcome!

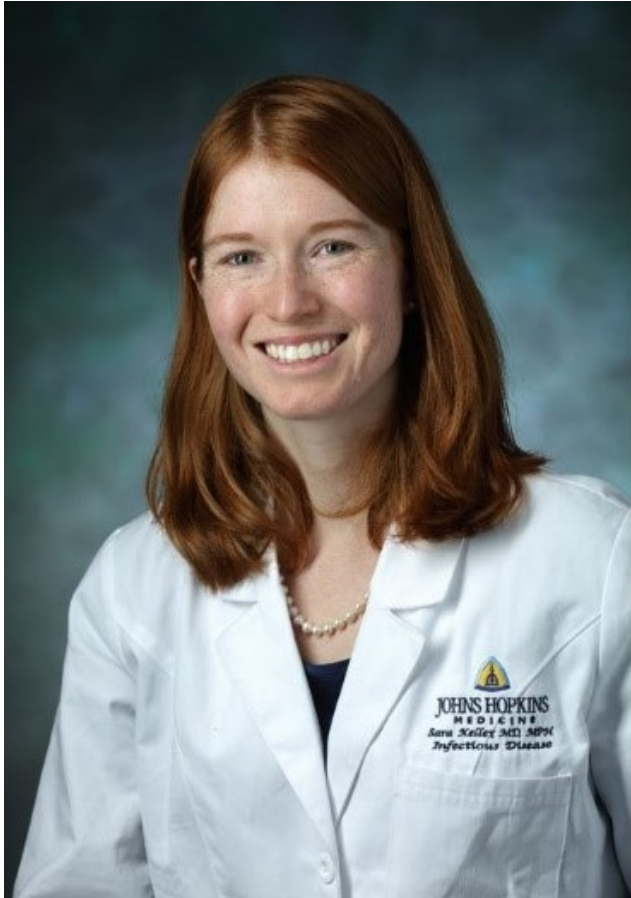
Agenda

- Introduction
- Today's topic: **Infection Prevention and Sepsis Recognition in Home Care**
- Presenter:
 - **Dr. Sara C. Keller**, Associate Professor of Medicine
Division of Infectious Diseases
Department of Medicine
Johns Hopkins University School of Medicine
- Open discussion
- Closing remarks

As You Listen, Ponder...

- What impactful actions can you take as a result of the information shared today?
- How are you able to increase engagement within your facilities to ensure a true change in patient safety?
- Based on what you heard today, what activities do you currently have underway that can leverage immediate action over the next 30, 60 or 90 days?

Meet Your Speaker



Sara C. Keller, MD, MPH, MSHP
Associate Professor of Medicine
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Infection Prevention and Sepsis Recognition in Home Care

Sara Keller, MD MPH MSHP
Johns Hopkins University School of Medicine

Objectives

- ✓ Explore the responsibilities of patients, caregivers, and healthcare workers in home care
- ✓ Describe types of infections that may occur in home care
- ✓ Explain the role of patients and caregivers in infection prevention in home care
- ✓ List warning signs of sepsis in home care
- ✓ Describe how to balance prevention of antibiotic resistance with management of sepsis in home care

Disclosures

- Grant funding from AHRQ, CDC, VA, NIA
- Consultation with 3M
- Royalties from McGraw Hill

Introduction to Home Care



What is Home Care?

- Skilled healthcare services in the HOME
- Cheaper than hospitals or nursing homes
- More convenient than hospitals or nursing homes
 - Wound care
 - Nutrition therapy
 - Patient and caregiver education
 - Injections
 - Infusions
 - Monitoring serious illness and unstable health status
- PATIENTS AND CAREGIVERS STILL DO MOST OF THE CARE



What is Hospital-at-Home?

- Patients who need hospital-level care can receive this at home
- Requires daily visits from nursing and physicians
- Can receive diagnostic studies (labs, X-rays, EKGs) and some treatments (injections, hydration, pills, oxygen)



<https://www.johnshopkinssolutions.com/solution/hospital-at-home/> Leff, B., et al., *Hospital at Home: Feasibility and Outcomes of a Program To Provide Hospital-Level Care at Home for Acutely Ill Older Patients*. Annals of Internal Medicine, 2005. **143**(11): p. 798.

What is Home Infusion Therapy?

- Providing intravenous (IV) or subcutaneous (subQ) drugs or treatments to patients in the home
- Often through central venous catheters
- Patients and caregivers do day-to-day care
- Nurses may visit weekly



Who Gets Home Care?

- 15 million patients a year
 - 70% of patients are at least 65 years of age
- 3 million patients in US receive home or specialty infusion services annually
 - Grew 44% in the last 5 years
- 35,000 home health agencies in the country (half are home aides)
 - 82% for-profit



Home Health Care Patients and Hospitalized Patients

- ✓ Complicated wound care
- ✓ Complicated medication administration
- ✓ Physical or occupational therapy
- ✓ Speech therapy
- ✓ Ventilator
- ✓ Central venous catheters
 - IV antibiotics
 - Parenteral nutrition
 - Chemotherapy
 - Hydration



Home Care

- Decreases costs
- Increases patient satisfaction
- Likely decreases transmissions of drug-resistant organisms and healthcare-associated infections



Mansour Arbaje Townsend OFID 2019; Wong Fraser Shrestha Fatica Deshpande ICHE 2015. <https://www.cdc.gov/nchs/fastats/home-health-care.htm>;
<https://www.ankota.com/home-care-industry-overview-and-statistics#:~:text=Currently%2015%20million%20patients%20and,million%20patient%20visits%20each%20year.>

Infections and Surveillance in Home Care

Patients and Caregivers are Nurses

- The patient and caregiver(s) as nurse and sometimes pharmacy tech
 - Start infusion
 - Appropriately care for line
 - Store medications
 - Take medications on time
 - Troubleshoot
- Prevent healthcare associated infections and adverse drug events
- All after a 1-2 hour start of care visit with a home nurse immediately after discharge
 - And wound care, new medications, new weight bearing restrictions, etc.
- How do they do this so well???



Patients in Home vs Nurses in Hospitals

Hospital: RN	Home: Patient/Caregiver
Nursing Degree	2 (?) Hour Training Session
In-Service Training	Can Call for More Help
Experts and Colleagues Around to Ask	Via Phone
Continuing Education	Can request ongoing education

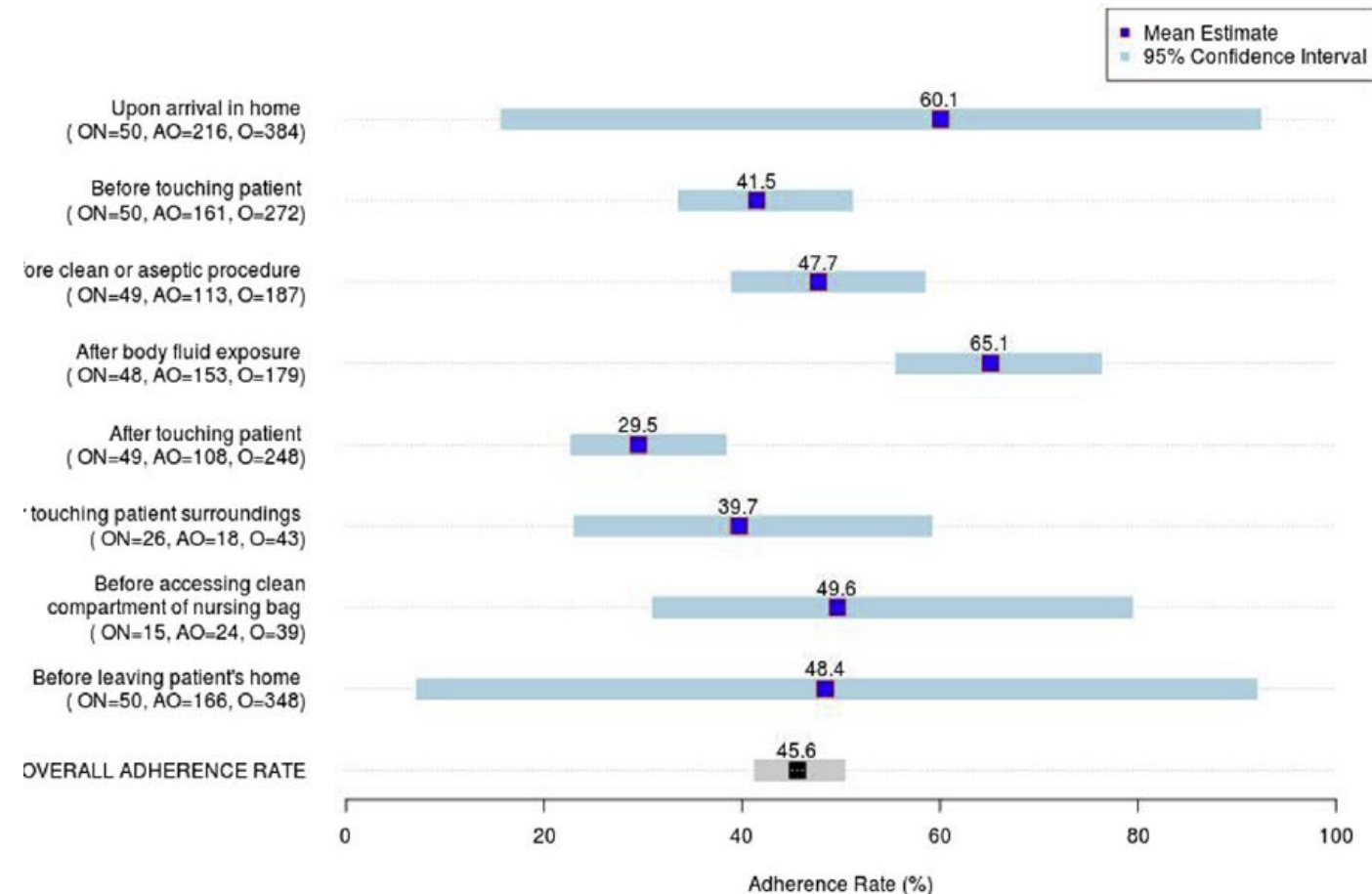
Do Infections Happen in the Home?

- 25% of hospitalizations from home care are due to infection



Similar Struggles Hospital and Home

- 45% home nursing compliance with hand hygiene



Home Healthcare Workers Prioritize Infection Prevention

- Focus on hand hygiene
- Focus on bag technique (carried from home to home)
- Focus on equipment cleaning
- Importance of education of patient and family
 - Education is the only thing you can control



Home Care Has Unique Infection Prevention Challenges

- Each home is unique
- Hard to protocolize
- Need to focus on the whole person
- Intermittent nature of skilled care
- Staffing challenges

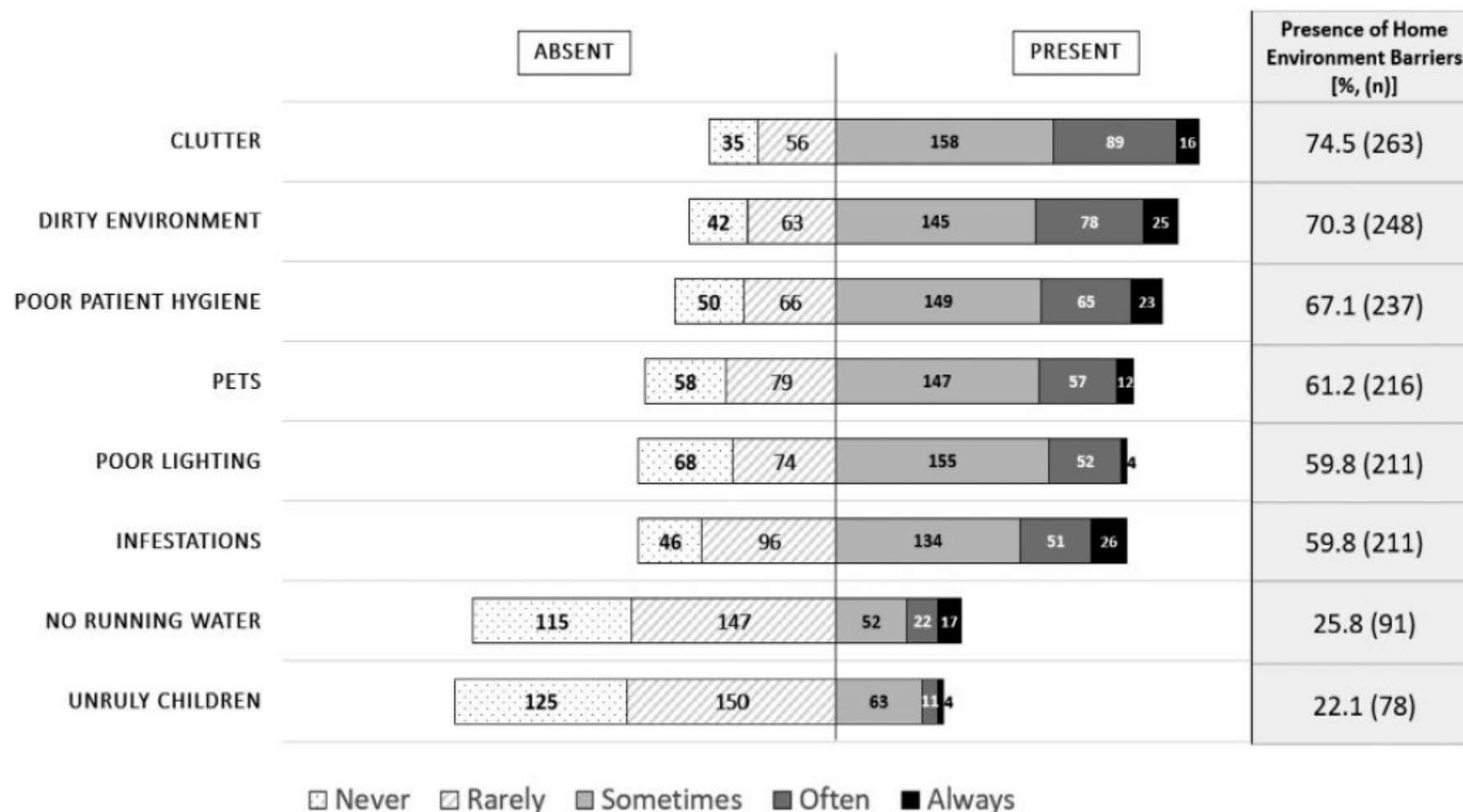


“It’s hard in home health. Sometimes, I’m just at a loss. How do you make this happen when these people are living in what they’re living in? ... Because a person can look like they got it all together on the outside, and then you get into their home and hoarding situations, infestations of animals... You just have to start and build trust.”

— Administrator, Agency 6

“For me is the home environment... You can be absolutely aseptic the whole time you’re in there. [But] if there’s dog poop 10 feet away from you when you’re doing wound care, that’s a problem. Some of the home environments are not appropriate for certain kinds of patients. There’s no way I can get them healed in that environment.” — Field RN, Agency 8

Environmental Barriers



Environmental Exposures

- Pets
- Clutter
- Vermin
- Soil
- Extremes of temperature
- Exercise



Types of Infections in Home Care

A Caveat...

- Infections in the home are under-researched
 - Clearly there are more types of infections than those described here!
- Very important: monitoring wounds for signs of infections and performing wound care

Urinary Catheters and UTIs

- UTIs are one of the more common infectious reasons for hospital admission from skilled home care services
 - Primary reason for admission in 6%
- 5% home health care patients have urinary catheters
 - 8% of these develop catheter-related UTIs



What do Home Care Agencies Say about UTI Prevention?

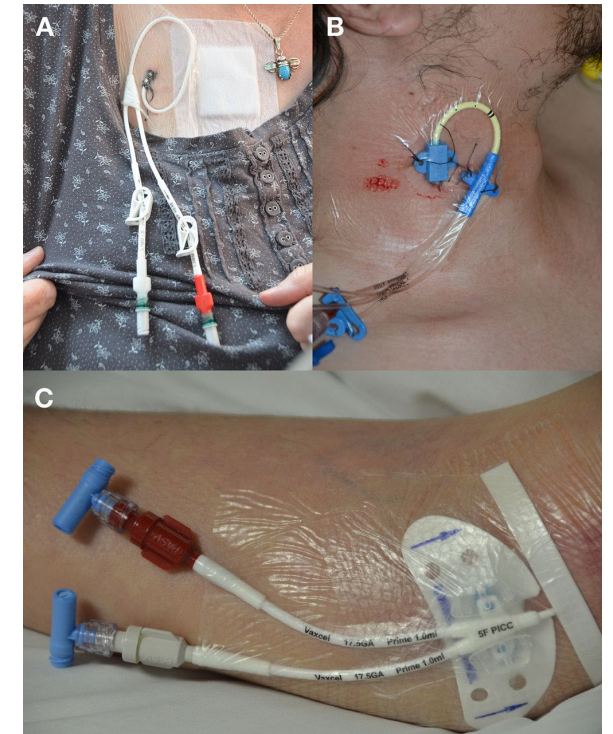
- Survey: agency policy to replace indwelling catheters at fixed intervals, empty drainage bag
- 15% of hospital admissions in patients with urinary catheters were for CAUTI
 - Less frequent in agencies that have policies

Table 3
 Probability of hospital transfer at varying urinary catheter policy intensity

	Probability of hospital transfer during a home healthcare episode			Percent difference in probability of hospital transfer		
	Scenario 1: Neither policy	Scenario 2: One policy	Scenario 3: Both policies	S1 vs S2	S2 vs S3	S1 vs S3
Hospital transfer (all-cause)	23.94%	22.92%	21.93%	-4.26%	-4.32%	-8.39%
Hospital transfer due to UTI	5.62%	4.99%	4.43%	-11.16%*	-11.37%*	-21.27%*

Infections from IV Catheters: CLABSI

- Central line-associated bloodstream infection
- Central line (central venous catheter): terminates in superior vena cava or right atrium
 - Non-tunneled CVCs
 - Tunneled CVCs
 - Dialysis catheters
 - PICCs
 - Ports
- **Associated:** Not due to an infection at another site (primary bloodstream infection)
 - Must have central line in place within 48 hours before onset of bloodstream infection
- **Bloodstream infection:** Not a contaminant



Rates of CLABSI in Home Care

- 0.2-0.24 per 1000 catheter days
- About a fifth of the rate in acute care hospitals

Figure 1A: Validation of Agency Monthly CLABSI Rates for NHSN Criteria (CLABSI/1000 CVC-Days)

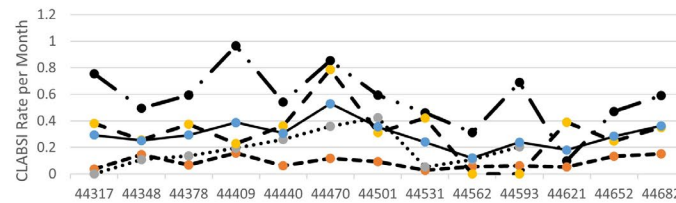


Figure 1B: Validation of Agency Monthly CLABSI Rates for Modified NHSN Criteria (CLABSI/1000 CVC-Days)

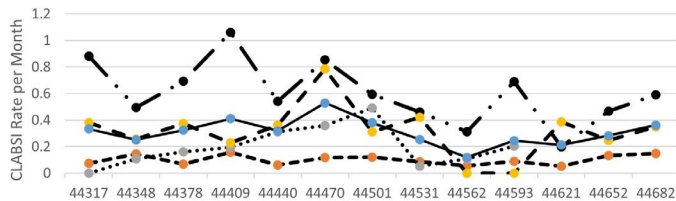


Figure 1C: Validation of Agency Monthly CLABSI Rates for HiOB Criteria (CLABSI/1000 CVC-Days)

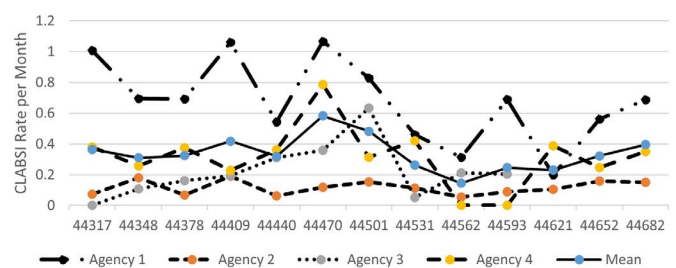
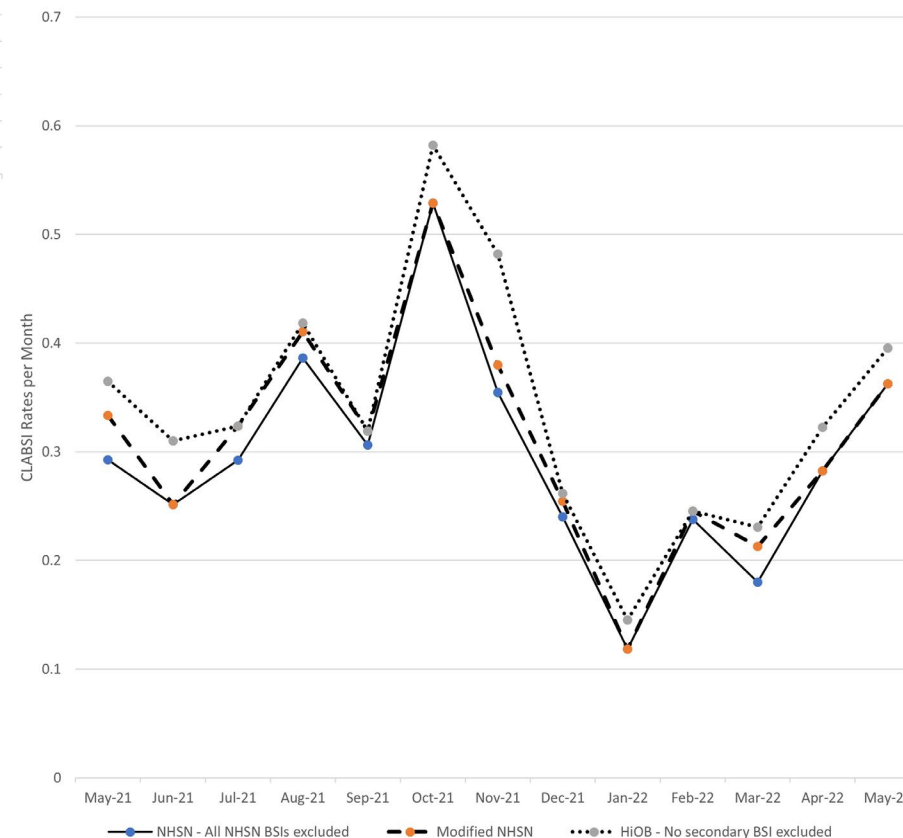


Figure 1D: Validation of Agency monthly CLABSI rates reported for the means of each variation of the definition (CLABSI/1000 CVC-Days)



Patients and Caregivers Prevent Infections

Home Care Nurses: Education is the Only Thing We Can Control

- How do patients learn how to prevent infections?



Patient and Caregiver Education is Key

- What do patients want?
 - ✓ Multiple ways of receiving education (face to face, printed sheets, overview and detail, diagrams, videos, pictures)
 - ✓ Practice it before having to do it for real
- Differences in tools, policies, and procedures in hospitals vs. in the home



Wash your hands!



Washing your hands for **20 seconds** with soap and water or hand sanitizer stops the spread of germs. Soap and water are best!



Everything you touch has germs on it. Here are some times you should wash your hands when you have an intravenous (IV) line.

Before AND after handling your IV line, medications, or supplies

Before AND after cleaning your workspace or SASH mat

Before AND after using gloves

Before AND after cooking or eating

After touching phones, remotes, door handles, etc.

After playing with pets or using the restroom

Whenever they are visibly dirty

If you think you should wash your hands, wash them!



Visit this link for more information!

https://www.hopkinsmedicine.org/patient_safety/infection_prevention/hand_hygiene.html



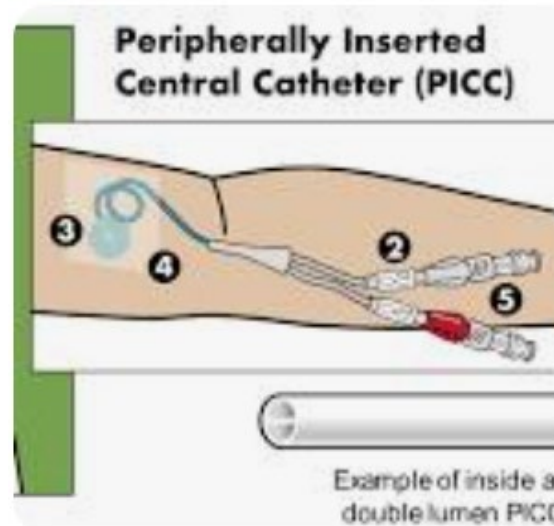
Biggest Responsibility for Preventing Catheter Infections: Maintenance

- Keep the IV catheter clean and dry
- Make sure the dressing is intact and dry
- Use appropriate technique in accessing the catheter



Dressing Maintenance

- Keep bacteria from going up your IV line!
- Keep it clean
- Keep it dry
- Keep it intact
- Changes using sterile technique once a week (typically by expert nurses)



How to Keep the Dressing Dry When Bathing?

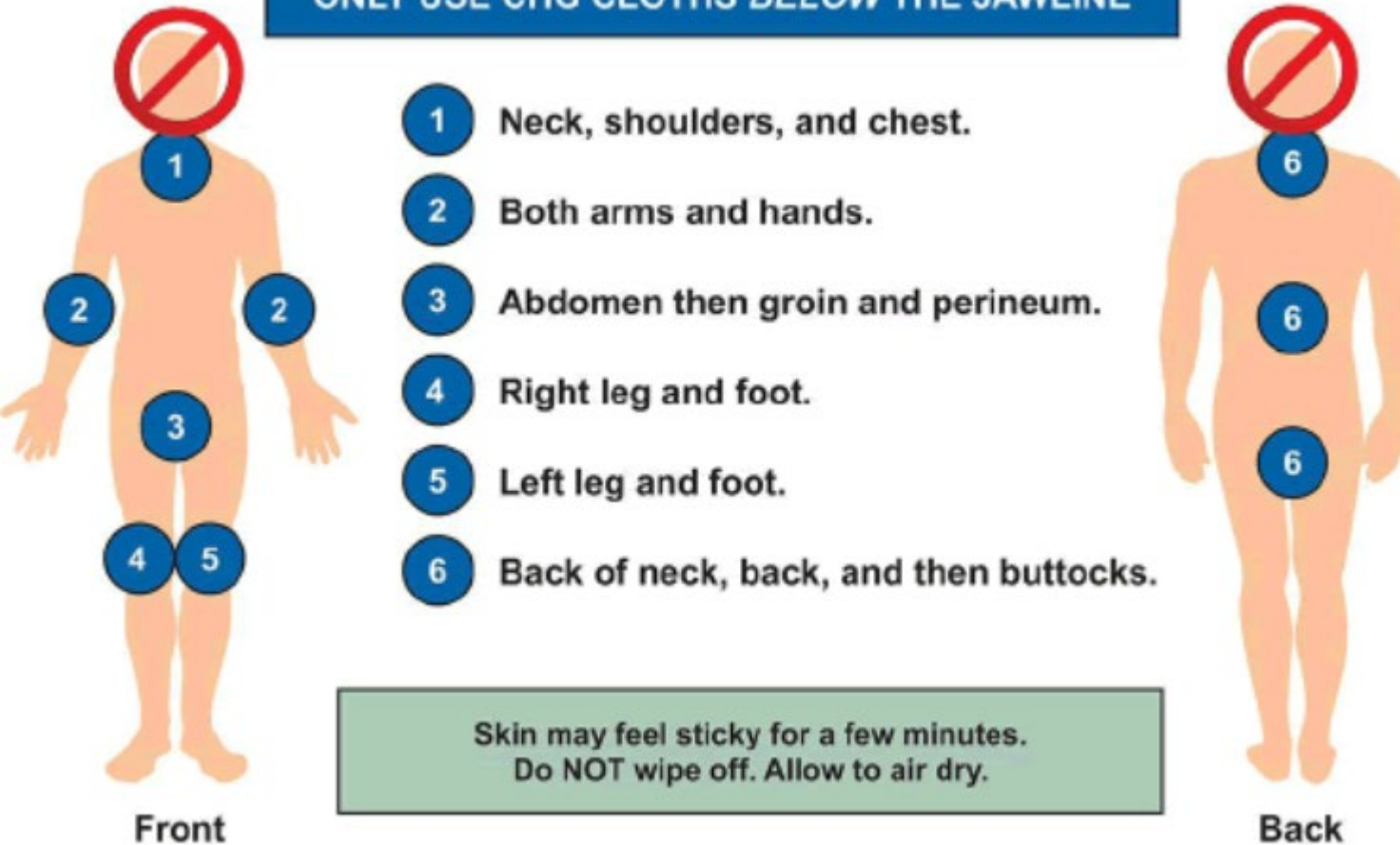


Scrub the Hub

- Using chlorhexidine or alcohol swab
- Get at all edges of end of the catheter including the tip and sides
- Allow to dry
- At least 5 seconds (preferably 15 with patients)
- Good friction is required!!

Chlorhexidine Bathing?

ONLY USE CHG CLOTHS *BELOW* THE JAWLINE



Skin may feel sticky for a few minutes.
Do NOT wipe off. Allow to air dry.



What if Something Goes Wrong?

- Make sure patients know who to call for what problem
- Have 24-hour access
- Patients should not try to fix things on their own!

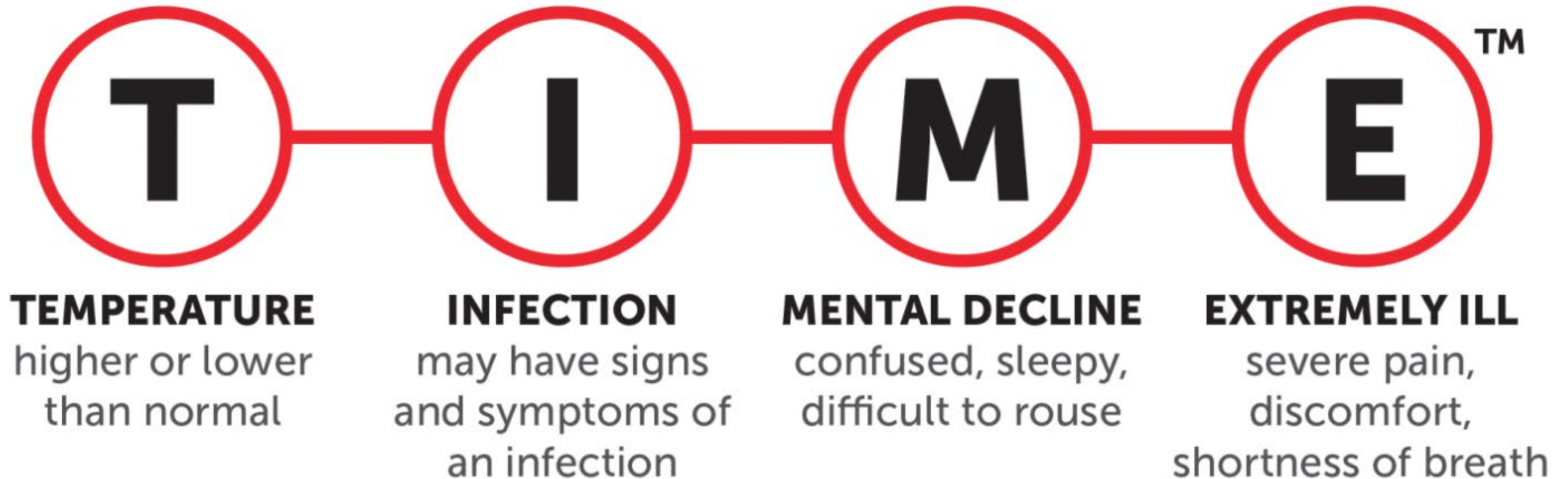
Sepsis and Infection Recognition in Home Care

Monitor What You're being Treated For

- Wounds—increasing drainage, drainage turning white or brown, increasing pain, or increasing redness or swelling
- Urine: increasing pain with urination or abdominal pain (NOT increasing cloudiness or odor of the urine)
- Central venous catheter appearance



Everyone Should Monitor...



In Home Care...

- Patients and caregivers are making this determination
- Measure your temperature daily (some variation is very normal, but more than 100.8 or less than 96 is of concern)
- Monitor your own symptoms
- KNOW WHO TO CALL!!
 - Many different providers involved
- Know when emergency attention may be needed



Central Line Infection Surveillance Assessment

Score	Category	Description	Action
0	Normal Appearance	<ul style="list-style-type: none"> - Skin is flesh-colored - No erythema, localized swelling, or drainage 	Continue serial assessments
1	Minimal Erythema	<ul style="list-style-type: none"> - Skin at insertion site with erythema < 3mm radius - Drainage/crusting scant and non-cloudy, if present* - No localized swelling at insertion site 	RN: Verbal communication with next shift RN. MD: Acknowledge RN assessment in progress note
2	Advancing Erythema	<ul style="list-style-type: none"> - Skin at insertion site with erythema 3-6mm radius (or increase in erythema over 24 hours) - Localized swelling at insertion site may be present - Drainage/crusting is non-cloudy, if present* 	RN: Verbal notification to MD MD: Strongly consider line removal. If not removed, document reason and plan.
3	Severe Erythema <u>OR</u> Purulence	<ul style="list-style-type: none"> - Purulent (cloudy) drainage/crusting <u>AND/OR</u> - Erythema >6mm or rapid worsening in size/brightness - Focal swelling at insertion (common, not required)** - Erythema not required if purulence present 	RN: Page MD MD: Order immediate line removal. If removal not possible, document plan for removal.
NV	Insertion site not visible	Assessment not possible due to obscured line insertion site. Skin that is visible appears normal.	Document "site not visible".

Make Sure Emergency Department Staff Know...

- Why you were in home care!
- That you have a central venous catheter, foley catheter, etc. (need to take fevers even more seriously in these patients!)
- Recent treatments such as chemotherapy, parenteral nutrition, steroids, etc. that may increase your risk of infection



Infection Prevention in the Home: Barriers and Next Steps

Home Care: Rapidly Changing Industry

- High growth rates
- Hospital-at-home programs in particular may be required to “follow infection prevention procedures” based on the hospital they are run out of...
 - No one knows what this means



Role of Costs and Supply Chain Issues

- Patients and caregivers have to pay for many of the supplies out of pocket
- Chlorhexidine soaps, etc. are not covered by insurance
- Less ability to access medical supplies in times of shortages than hospitals



So Many Questions!!!

- Very little research done on infection prevention in home care
- Most research is done in hospitals or nursing homes
 - Hospitals ARE NOT homes!
- How to best support patients and families
- How to adapt protocols to patient needs



Thank You!!!!



Discussion

- What impactful actions can you take as a result of the information shared today?
- How are you able to increase engagement within your facilities to ensure a true change in patient safety?
- Based on what you heard today, what activities do you currently have underway that can leverage immediate action over the next 30, 60 or 90 days?

Final Thoughts

Join Us for the Next Community of Practice Call!



Join us for the next
Community of Practice Call on July 11, 2024
from 1:00 – 2:00 p.m. ET

We invite you to register at the following link:
https://zoom.us/webinar/register/WN_ASI_I3p_TEyX_VY_YYFFeA

You will receive a confirmation email with login details.

Thank You!



Your opinion is valuable to us. Please take 4 minutes to complete the [post assessment](#).

We will use the information you provide to improve future events.