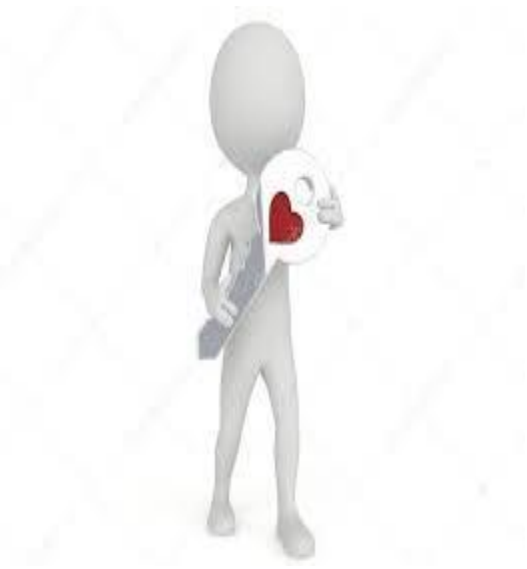
MAURY REGIONAL HEALTH

Your Key To Success: Improving Residents Lives By Getting Back To The Basics



Infection Prevention/Antibiotic Stewardship & Sepsis

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Maury Regional Healthcare

Objectives

- Create the link of resident advocacy to the basic nursing care
- Identify strategies for reduction of urinary tract infections
- Identify strategies for reduction of healthcare acquired pneumonia
- Describe the concept of Antibiotic Stewardship Program
- Describe the role of the nurses in the Antibiotic Stewardship
- Discuss strategies to identify residents at risk for sepsis
- Early recognition of sepsis: know the signs
- Communication Strategies – when to call for help and what to say
- Discuss early management of sepsis

Protect Your Residents From Bad Things Happening on Your Watch

Implement

Interventional Patient Hygiene

Interventional Patient Hygiene

Hand Hygiene

- Hygiene…the science and practice of the establishment and maintenance of health
- Interventional Patient Hygiene… nursing action plan directly focused on fortifying the patients host defense through proactive use of evidence based hygiene care strategies

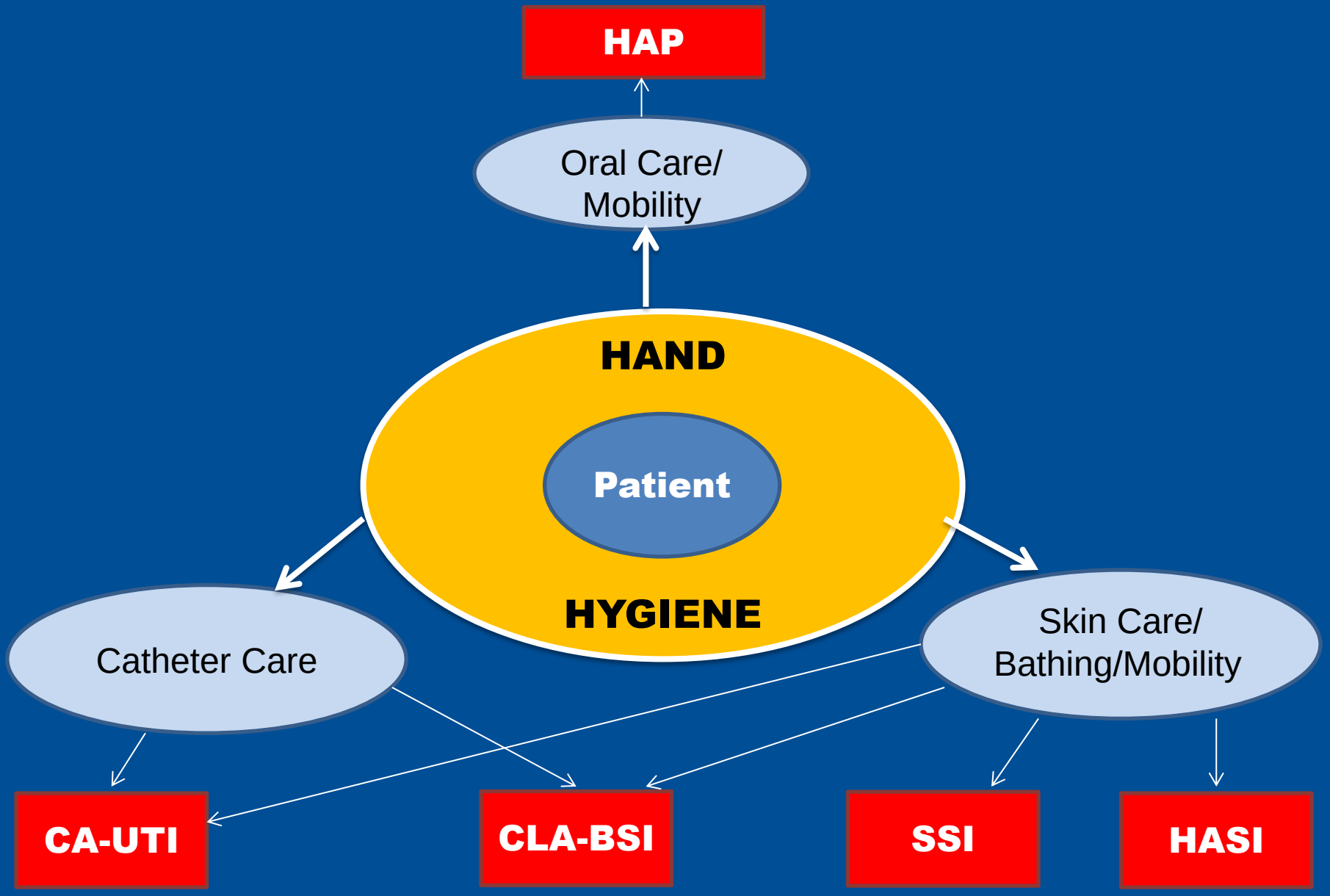
Catheter Care

Bathing & Assessment

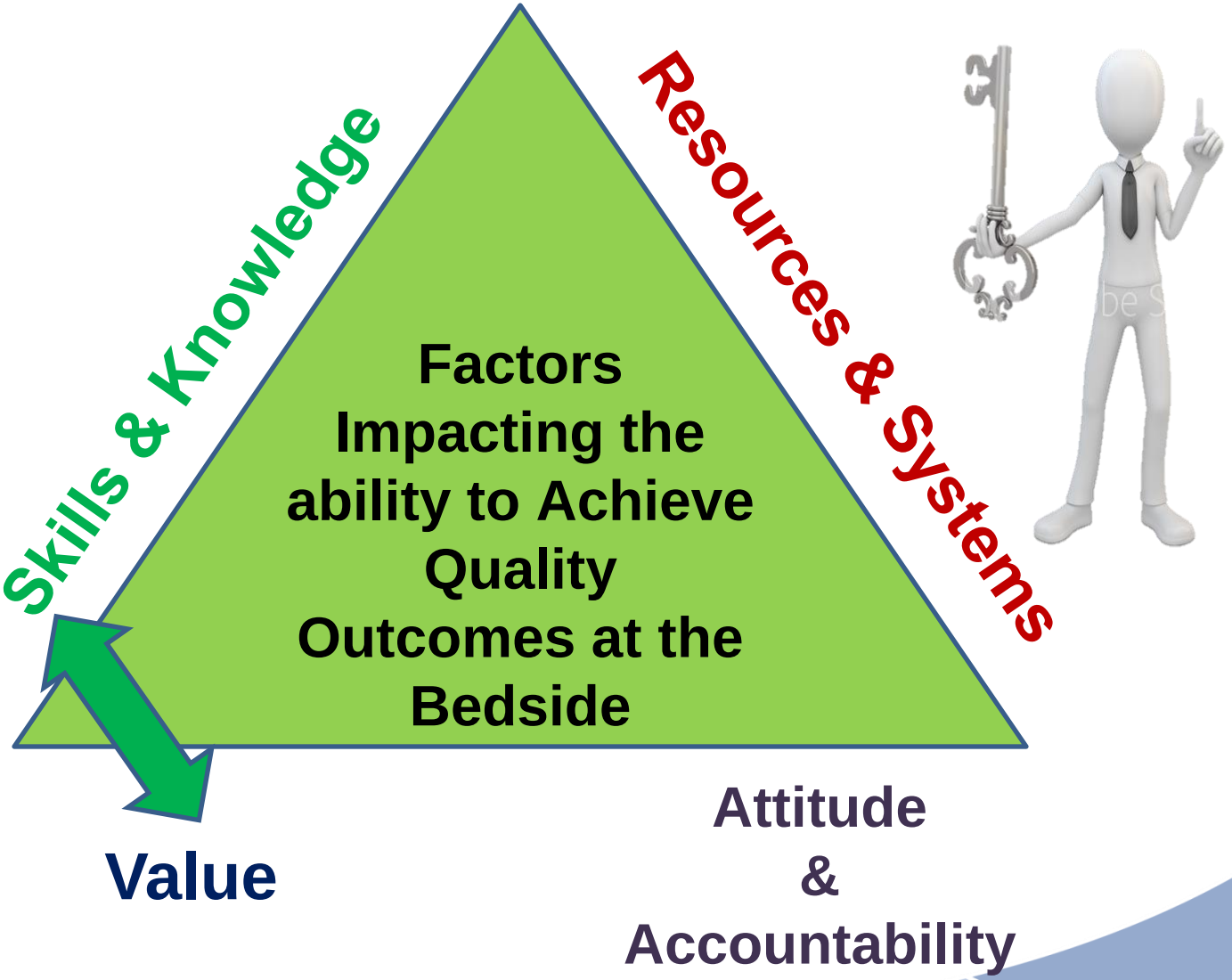
Comprehensive Oral Care Plan

Incontinence Associated Dermatitis Prevention Plan

INTERVENTIONAL PATIENT HYGIENE (IPH)



Achieving Quality With Evidence Based Practice



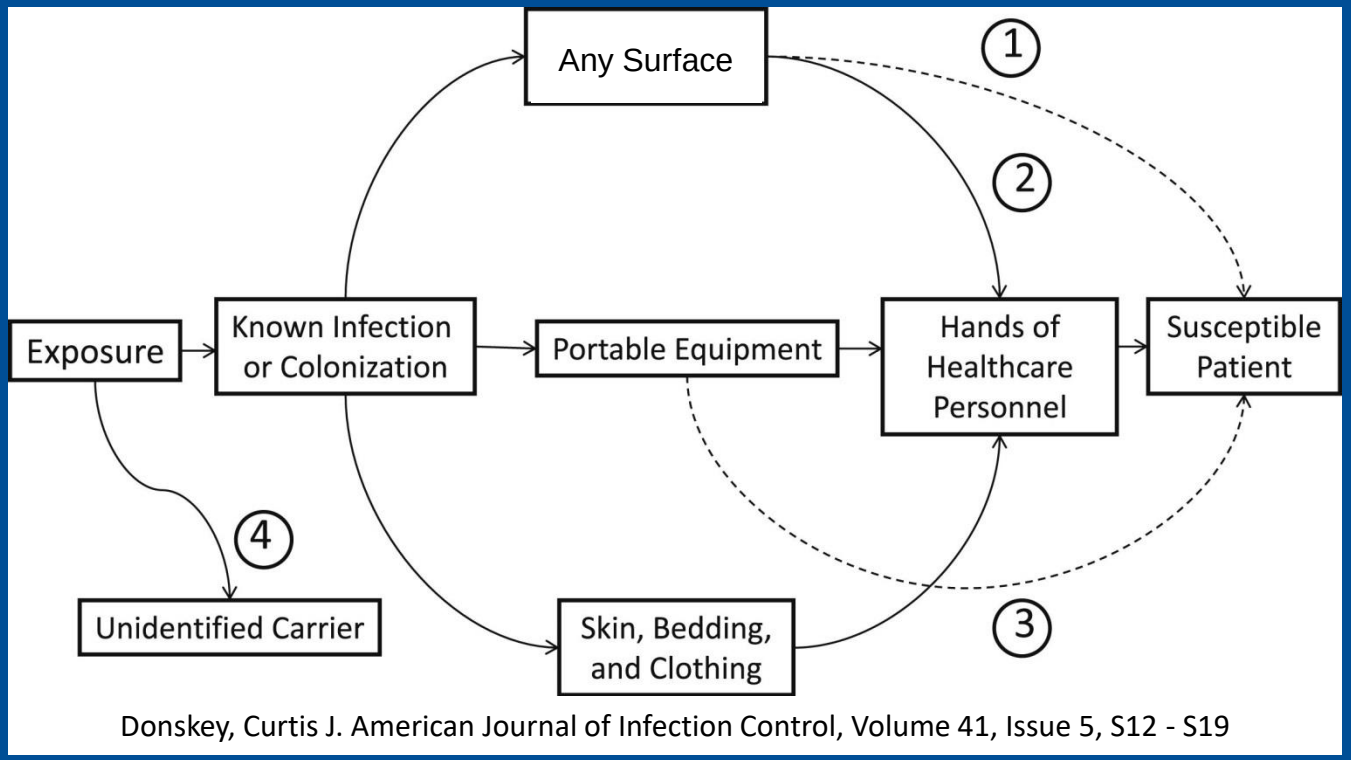
Missed Nursing Care

- “Any aspect of required patient care that is omitted (either in part or whole) or significantly delayed.”
- A predictor of patient outcomes
- Measures the process of nursing care

Why HAI's?
Protecting Residents From Harm

U.S. Nursing Homes	
HAI:	3 million/year
HAI- related deaths:	380,000/year
Hospitalized patients develop infection	1 out of 25 (45)
Death due to sepsis/septic shock	25,000/year
Money spent	$45 billion/year
30 day readmission rate:	10.8%

Common Routes of Transmission



Donskey, Curtis J. American Journal of Infection Control, Volume 41, Issue 5, S12 - S19

Reducing Infections

- Hand hygiene
- Comprehensive Oral Care
- Decontamination of environment and equipment
- Practice EBP protocols for catheter care
- Appropriate use of PPE
- Appropriate use of isolation
- Antibiotic Stewardship

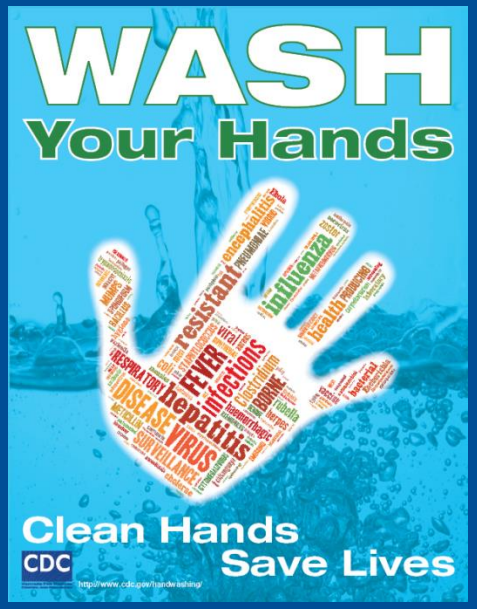
Hand Hygiene

CLINICAL INTERVENTIONS > HAND HYGIENE

Hand Hygiene Can Lower Mortality, Antibiotic Prescription Rates in Nursing Homes

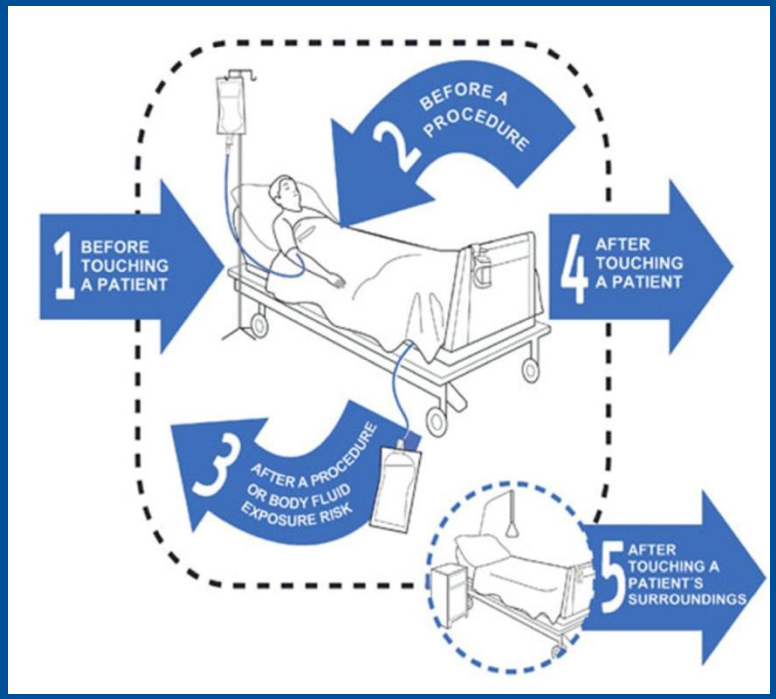
Infection prevention practices centered on hand hygiene protocols can save lives across all healthcare facilities, not just hospital settings.

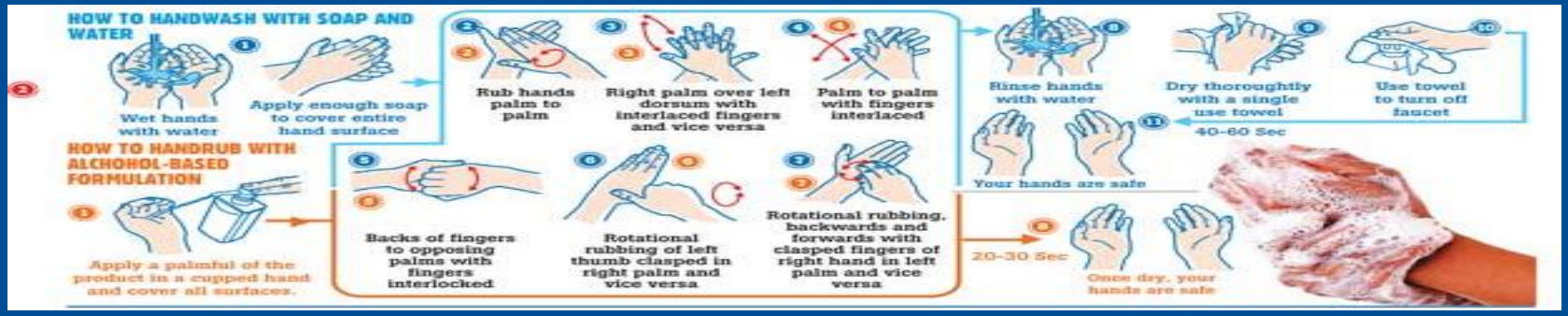
Feb 14, 2018



#1 Defense against infection

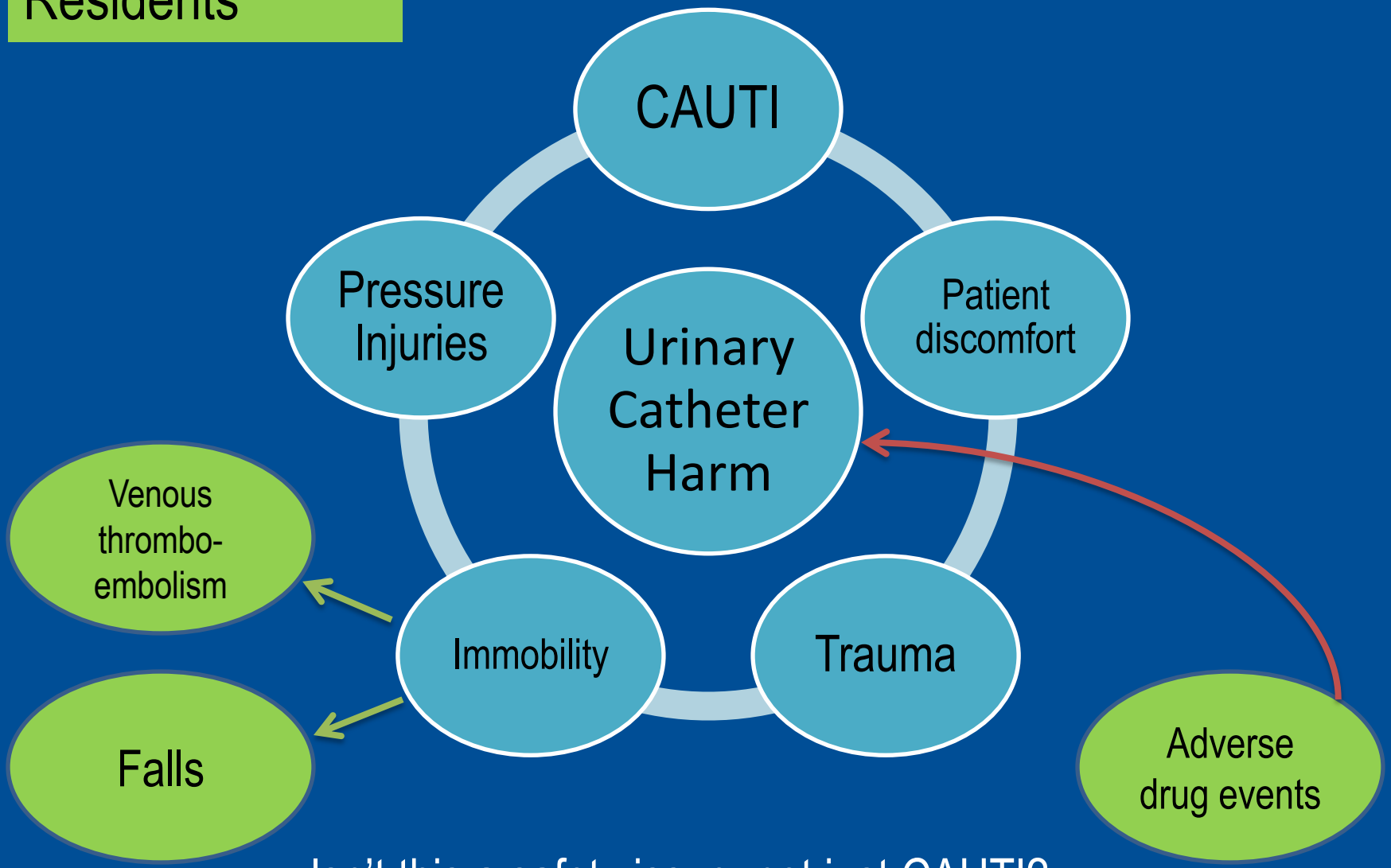
Hand Hygiene





CA-UTI Prevention

Partnership for Residents



Isn't this a safety issue, not just CAUTI?

Core Recommendations

- Leave catheters only as long as needed (1B)
- Ensure that only properly trained persons insert and maintain catheters (1B)
- Consider use of alternatives (II)
- Insert catheters only for appropriate indications (1B)
- Maintain a close drainage system (1B)
- Secure the system (1B)
- Maintain unobstructed urine flow (1B)
- Keep the collecting bag below the level of the bladder at all times (1B)
- Use smallest bore catheter possible, unless otherwise indicated (II)
- If intermittent catheterization is used, perform at regular intervals to prevent bladder over distension (1B)

Insertion Checklist for Urinary Catheter

Components of Checklist	Compliant	
	Yes	Yes, after correction
Hand hygiene before and after procedure		
Sterile gloves, drapes, sponges, aseptic sterile solution for cleaning and single use packet of lubricant used		
Aseptic insertion technique (no contamination during placement) **Consider having second staff member present to ensure**		
Proper securement of urinary catheter post-procedure		
Closed drainage system and bag below patient post-procedure		
Catheter bag dated		

The **DO's** of Indwelling Urinary Catheter Care

- **Do** perform peri-care using only soap and water
- **Do** keep the catheter and tubing from kinking and becoming obstructed
- **Do** keep catheter systems closed when using urine collection bags or leg bags
- **Do** replace catheters and collection bags that become disconnected
- **Do** ensure the resident's identifier/implementation date is on their urine collection containers
- **Do** make sure to disinfect the sampling port before obtaining a sample

The **DON'Ts** of Indwelling Catheter Care

- **Don't** change catheters or drainage bags at routine, fixed intervals
- **Don't** administer routine antimicrobial prophylaxis
- **Don't** use antiseptics to cleanse the periurethral area while a catheter is in place
- **Don't** clean the periurethral area vigorously
- **Don't** irrigate the bladder with antimicrobials
- **Don't** instill antiseptic or antimicrobial solutions into the drainage bags
- **Don't** routinely screen for asymptomatic bacteriuria
- **Don't** contaminate the catheter outlet valve during collection bag emptying

CLABSI Prevention

Best Practice Guidelines

- Hand Hygiene is key to any effective patient safety and infection prevention program.
- Proper maintenance of CVC includes:
  - ✓ Disinfection of catheter hubs, connectors and injection ports
  - ✓ Dressing changes every 2 days for gauze dressings or every 7 days for semipermeable dressings
  - ✓ Dressing changed if it becomes damp, loose, or visibly soiled
  - ✓ All Intravenous Catheters are removed or replaced at the appropriate time
  - ✓ Administration kits (IV Tubing) is changed at appropriate time
  - ✓ IVF bags changed every 24 hours

Central Line Maintenance Checklist

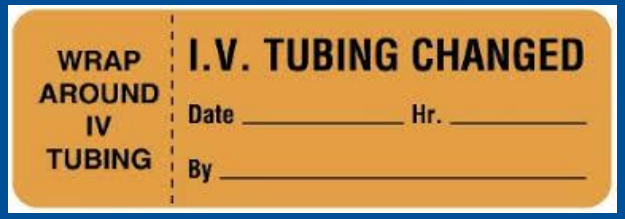
Critical Steps	Yes	No	N/A	Notes/Comments
Necessity assessed If no longer necessary, remove, indicating details of removal in the records (include date, location, and person removing)				
Injection ports are covered by port protectors				
Alcohol impregnated port protectors changed today				
Accessed line after scrubbing the hub				
Insertion site without evidence of infection				
Dressing intact and labeled properly				
Chlorhexidine impregnated Bio patch/dressing				
Dressing changed today				
Catheter stabilized/no tension on line				
Administration set replaced and labeled with time				
Peripheral IV catheters changed every 96 hours				

SCRUB THE HUB YOU ARE ACCESSING EVERY TIME YOU ACCESS IT!

Fluid and Tubing Changes

Type of Solution	Tubing Change	Maximum Fluid Hang Time
Primary IV tubing	96 hours	24 hours
Secondary IV tubing (that is not disconnected from primary line)	96 hours	According to pharmacy direction
Intermittent tubing	24 hours	24 hours

LABEL TUBING



COVER PORTS

Preventing Pneumonia Through Evidence Based Fundamental Nursing Care Strategies

NHAP?- Nursing home Acquired Pneumonia

- NHAP is the most common infectious disease in long-term care facilities
  - Occurs 10x more than CAP
  - Increased morbidity
  - Increased mortality – 55%
  - 30 day mortality between 10 – 30%
  - Understudied, under-addressed
  - Focus has been on the other HAP ⇨ VAP
  - Surveillance not required…..yet

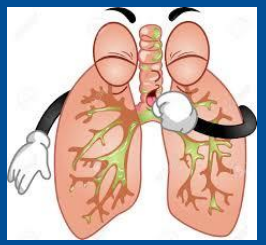
Pathogenesis ⟶ Prevention

Germs in Mouth

- Dental plaque provides microhabitat
- Bacteria replicate 5x/24 hrs.

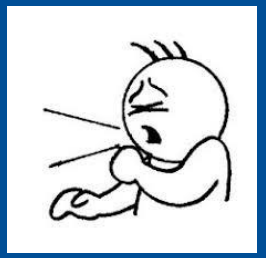
Aspirated into Lungs

- Most common route
- 50% of healthy adults micro-aspirate in their sleep



Weak Defenses

- Poor cough
- Immunosuppressed
- Multiple co-morbidities



Risk Factors for Oral Bacteria

- Poor oral health in the U.S. (CDC, 2011)
- Increased bacteria counts
  - Plaque, gingivitis, tooth decay
  - Reduced salivary flow
- 24 - 48 hours for HAP pathogens to develop in mouth
- If aspirated = **100,000,000** bacteria/ml saliva into the lungs

Could NHAP be decreased simply by brushing the residents teeth?

Protocol – Plain & Simple

Patient Type	Tools	Procedure	Frequency
Self Care/ Assist	Soft toothbrush Plaque-removing toothpaste Alcohol-free antiseptic oral rinse	Provide tools Brush 1-2 minutes Rinse	After each meal and before bedtime. If patient can't receive oral intake in morning, mid-day, evening and bedtime
Dependent/ Aspiration Risk	Suction toothbrush kit (4) Alcohol-free antiseptic rinse	Package instruction	Same as above
Dentures	Denture Cup (labeled) Soft toothbrush Alcohol-free antiseptic rinse Adhesive	Remove dentures & soak Brush gums, mouth Rinse	After each meal and at bedtime

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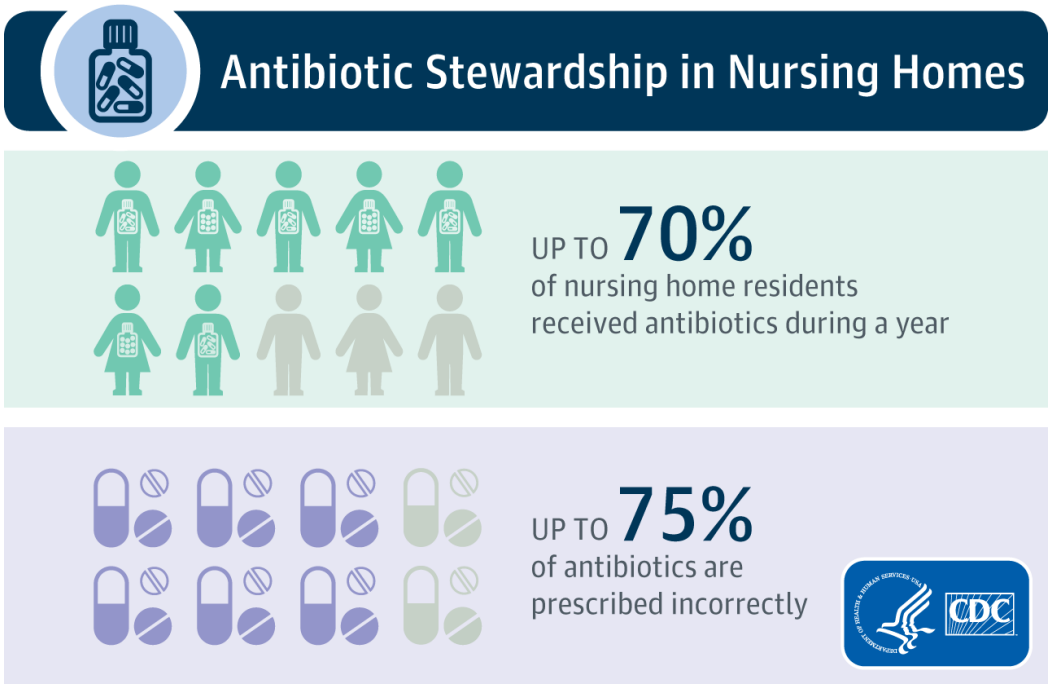


Antibiotic Stewardship


ANTIBIOTIC STEWARDSIP PROGRAMS
RIGHT ANTIBIOTIC
RIGHT DOSE
RIGHT TIME
RIGHT LENGTH OF TIME

Why Antibiotic Stewardship in LTCF's?

- **$38-137 Million** Annual Antibiotic Costs for LTCF's
- **25-75%** Antibiotics Misused in Nursing Homes
- **Inappropriate use of antibiotics:**
  - Increase bacterial resistance
  - Increased risk of drug-related complications (i.e. *C difficile*)
  - Drug – drug interactions

CMS New Rule Finalized

New rule mandates antibiotic stewardship in nursing homes

Filed Under: **Antimicrobial Stewardship**

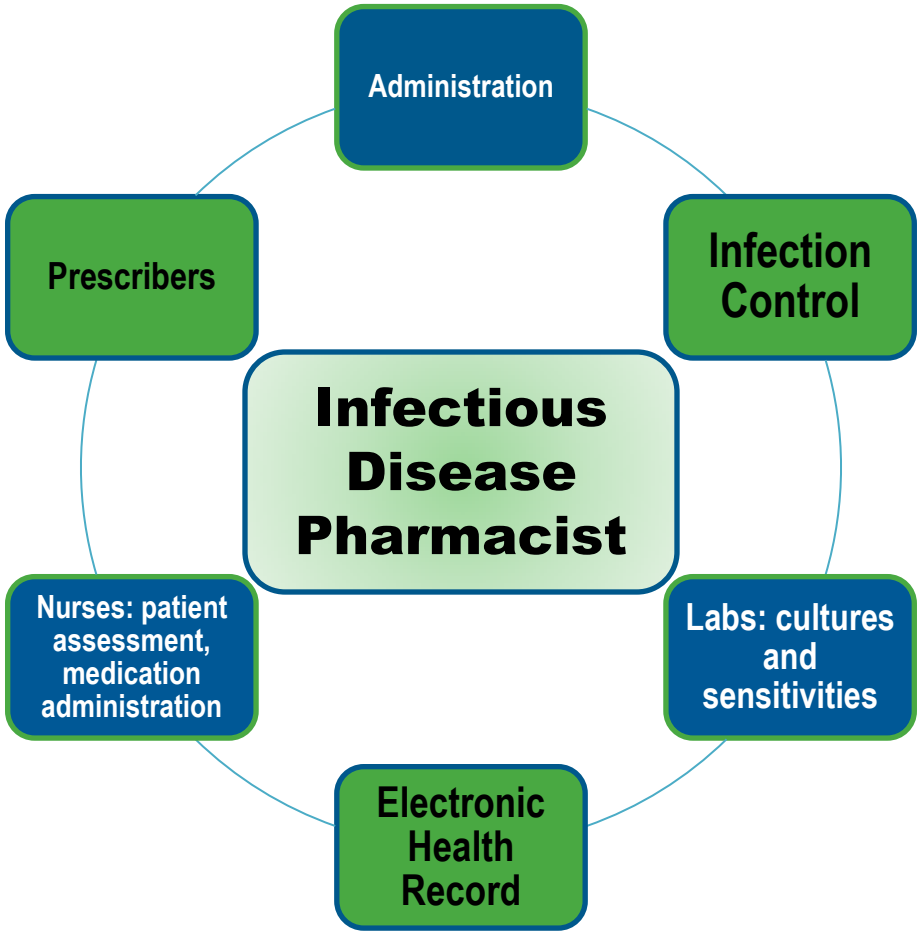
Chris Dall | News Reporter | CIDRAP News | Oct 04, 2016

Diego Cervo / iStock

The Centers for Medicare and Medicaid Services (CMS) has finalized a new rule that will require nursing homes to have an antibiotic stewardship program.

The rule is part of a package of changes to improve the care and safety of the nearly 1.5 million residents in the 15,000 US long-term care facilities that participate in the Medicare and Medicaid programs. The changes are aimed at improving the quality of care and strengthening safety measures for residents, and reducing unnecessary hospital readmissions and infections. Nursing homes, skilled nursing facilities, and assisted-living facilities must meet these new standards to receive Medicare and Medicaid payments.

Antibiotic Stewardship: IPASRR Model

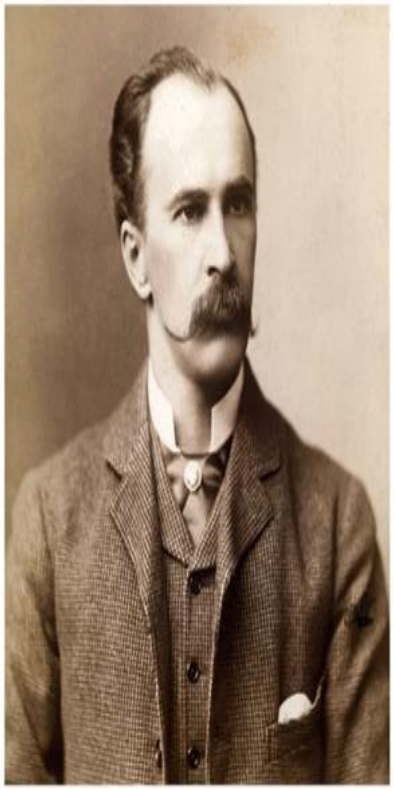


Antibiotic Stewardship The Role of the Nurse

- Allergy: specify reaction
  - The information regarding the specific reaction is extremely helpful
- Observe if patients are tolerating oral substances and mention to provider (may transition from IV therapy to oral)
- Clarify the intention and duration of antibiotic
- Question if the ordered antibiotics are not specified in the culture and sensitivity report
- Patient/family education to discuss appropriate antibiotic use, potential side effects, and general infection prevention measures

Recognizing

In Nursing Homes



"Except on few occasions, the patient appears to die from the body's response to infection rather than from it."

Sir William Osler – 1904
The Evolution of Modern Medicine

Sepsis: Magnitude of the problem?

270,000
DEATHS IN UNITED STATES

8,000,000
DEATHS ACROSS THE GLOBE

EACH YEAR, MORE THAN 270,000 PEOPLE IN THE U.S. DIE FROM SEPSIS, WORDWIDE, THAT FIGURE IS 8 MILLION

SEPSIS SURVIVOR S ARE **3X**

more likely to develop a cognitive impairment

MORTALITY INCREASES

8% every hour that treatment is delayed

NUMBER 1

LEADING CAUSE OF DEATH IN HOSPITALS

LEADING CAUSE OF HOSPITAL READMISSIONS

SINGLE BIGGEST COST TO HOSPITALS ($24 BILLION PER YEAR)

85%

OF SEPSIS CASES

Enter through the Emergency Department

Sepsis In LTCF Residents

- Older sepsis survivors experience on average 1 to 2 new limitations on their daily activities.
  (e.g. bathing, dressing, managing money)
- Up to 60% of sepsis survivors experience worsened cognitive (mental) and/or physical function.
- Readmissions for SEPSIS in the last 12 months from SNF's in our PACN were as high as 44% of our total Sepsis readmissions.

Who is at risk?

Everybody Can Get Sepsis – Certain People Are at Even Higher Risk

- **All ages – young and old are affected**
- **Any identified new or possible infection should trigger an evaluation for Sepsis**
- **Predisposing conditions increase the risk –**

Premature infants <1year, age 65+, individuals with open wounds, treatment involving tubes and catheters & those with chronic disease.

Impact on the Elderly

- Age itself independent risk factor for death
- More likely admitted to the ICU
- Highest mortality in the old elderly (85+)
- Prolonged hospitalization

- Post sepsis impact
- Contributes to cognitive decline
- Contributes to physical long term disabilities (walking, ADL's and IADLs)

What is SIRS?

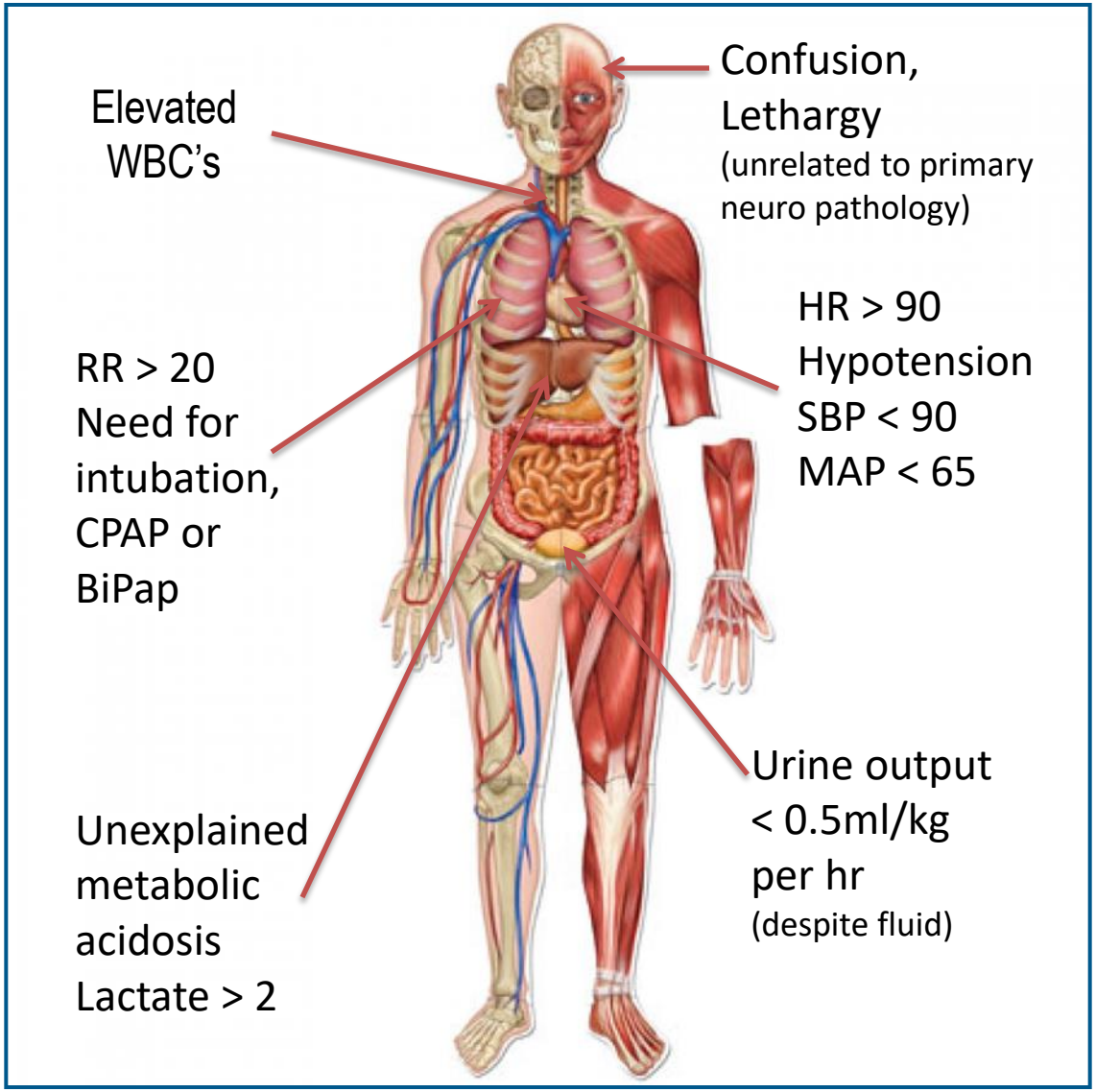
- **Systemic Inflammatory Response Syndrome: a clinical syndrome with or without an associated infection**
  - When an exaggerated inflammatory response occurs in the body of an affected person
  - Can be associated with non-infectious processes: pancreatitis; autoimmune disorders; burns; surgery

What is Sepsis?

- SIRS that is **secondary** to infection
- The body's overwhelming and life-threatening response to an infection that can lead to tissue damage, organ failure and death

  – *Patients often present with a benign clinical appearance and within a matter of hours may demonstrate signs & symptoms of sepsis*

Warning signs:



SEPSIS STEPS

SIRS

T: >100.4 F
< 96.8 F
RR: >20
HR: >90
WBC: >12,000
<4,000
>10% bands
PCO2 < 32 mmHg

SEPSIS

2 SIRS

+

Confirmed or suspected infection

SEVERE SEPSIS

Sepsis +

Signs of End Organ Damage

Hypotension (SBP <90)

Lactate >4 mmol

SEPTIC SHOCK

Severe Sepsis with persistent:

Hypotension

Signs of End Organ Damage

Lactate >4 mmol

Sepsis: Signs and Symptoms

- *qSOFA rapid screening criteria:*
  - *Tachypnea with RR > 20*
  - *Hypotension (SBP < 100 mmHg)*
  - *Altered Mental Status (GCS < 15)*

- *Additional Criteria to Consider*
  - *Any infection (known or suspected)*
  - *Temp > 100.4 deg. F or < 96.88 deg. F*
  - *Tachycardia with HR > 90*
  - *WBC > 12 or < 4*
  - *Hyperglycemia in the non-diabetic patient*

- *The syndrome may be elusive; think!*

Severe Sepsis:

- ***Organ dysfunction***
- *Evidence by any ONE of the following*
  - Systolic blood pressure ≤ 90 mmHg, MAP ≤ 65mmHg or a SBP decrease of more than 40 mmhg
  - Acute respiratory failure (VENT or BiPap)
  - Creatinine > 2 or UOP < 0.5ml/kg for 2 hours
  - Lactic acid ≥ 2 mmol/L
  - Serum bilirubin > 2 mg/dl
  - Platelets < 100,000
  - INR 1.5 or a PTT > 60 sec

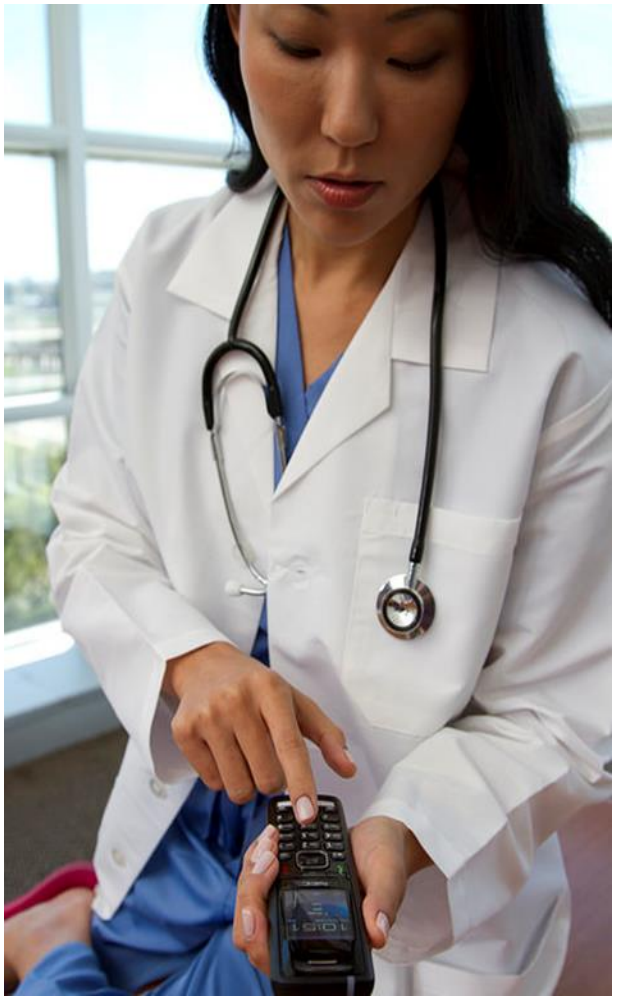
Early recognition!

- ***Time is tissue!***
  - Every patient with signs and symptoms of infection needs a complete nursing screen
  - Then continue effective nursing screening ***every shift***

If you don't screen you will miss patients that could have benefited from the interventions

Communication

- *Change in your patient's condition? The VRRT nurse and the doctor wants to hear from you!*
- *Use SBAR format when talking to the doctor*
- *Know your patient's story (vital signs, lab results, urine output in the last hour, IV rate, etc.)*
- *Anticipate questions from the doctor*



- *<u>Situation:</u> Tell physician patient screened positive for **severe sepsis.***
- *<u>Background:</u> Describe positive SIRS; (P 110; RR 24; Temp 100.2; he seems different than usual, confused and drowsy. Inform the provider if resident is currently being treated for a known infection; share which organ system has dysfunction ("BP 90/50; altered mental status)*

- *<u>Assessment:</u> Share VS and SaO2 (pulse ox) and any additional information. Say "Doctor Jones, I'm concerned that this resident is septic.*
- *<u>Recommendation:</u> May I check a serum lactate, blood cultures, CBC and initiate a fluid bolus of 30ml/kg over 1hr for his hypotension? Would you like to start an antibiotic on him? If resident doesn't respond to the fluid bolus, send to ER?*

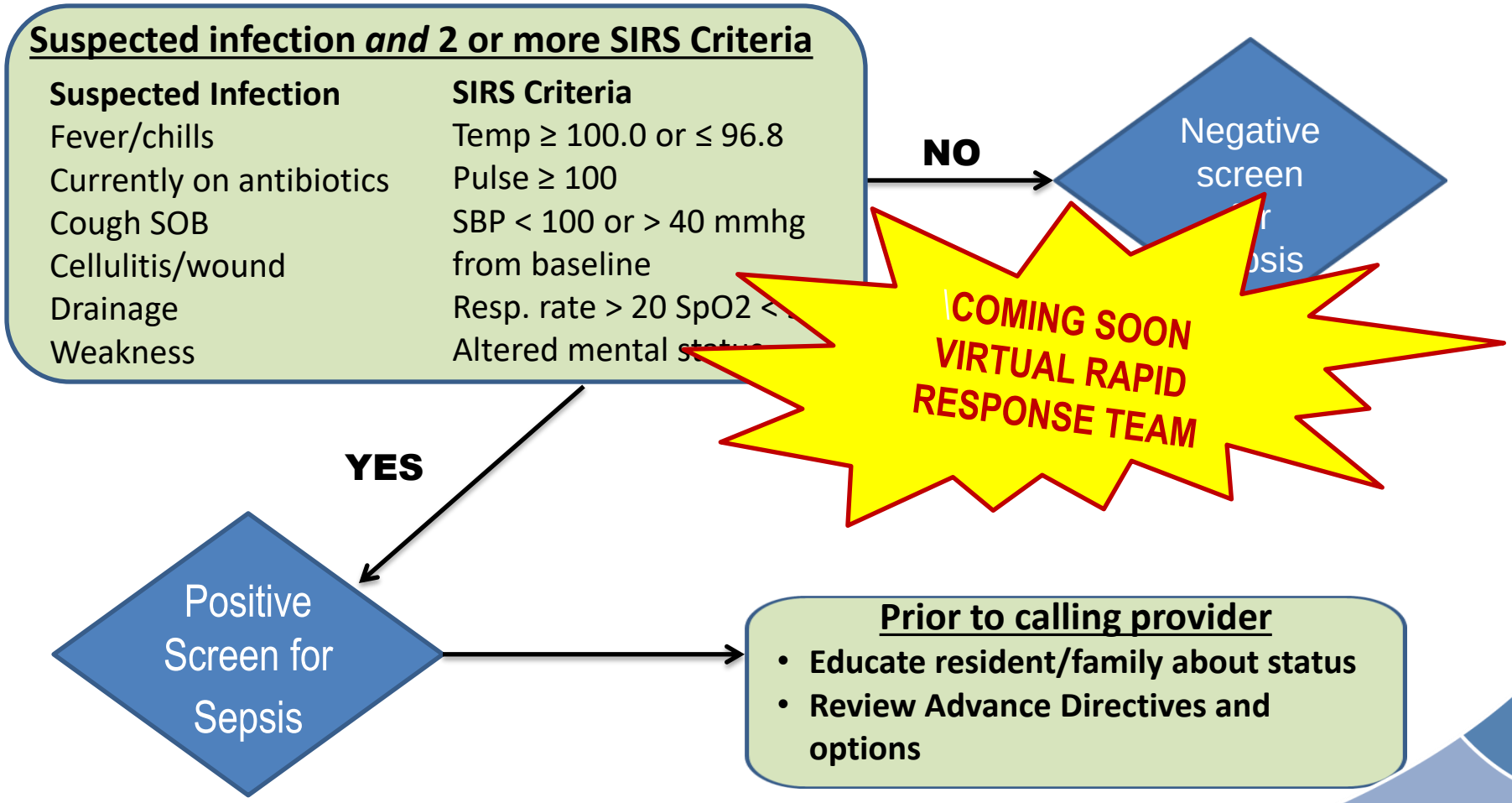
- *Asses ated the Sepsis gers IV bolus ar hypotens ditional inform is in se*
- *Critical call is Dr. Black and he ne VRRT nurse will notify him c*

AFTER VIRTUAL RESPONSE TEAM CAPABILITIES BECOME AVAILABLE

Let's Review


Bone/Joint Infection
Wound Infection
UTI
Positive Culture Results
Endocarditis
Do you Suspect an Infection?
Implantable Device Infection
Pneumonia, Emphysema
Skin/Soft Tissue Infection
NO THEN
STOP
Acute Abdominal Infection
Meningitis
Unidentified Source
Bloodstream Catheter Infection

Yes – you suspect they have an infection – Continue to Critical Think



You Suspect Sepsis-

Notify your Provider!

- ***Determine if resident will***

TRANSFER

OR

STAY IN YOUR FACILITY

You Suspect Sepsis –
Notify your Provider!

When the patient is Transferring–

- Prepare Transfer Sheet
- Call Ambulance
- Call report to hospital
- *Report positive sepsis screen*

Bundle Summary

3- hour bundle:

Sepsis

1. Initial lactate level
2. Blood culture prior to antibiotics Broad spectrum antibiotic (Within the first hour)
3. 30ml/kg crystalloid fluid

This will be our focus at the center

6-hour bundle:

Sepsis

1. Repeat lactate level
   If initial LA>2.0

Septic Shock

1. Vasopressor if hypotension persist
2. Volume status and tissue perfusion reassessment if hypotension persist

You Suspect Sepsis –

Notify your Provider!

When the patient stays in your facility–

If Advance Directive and/or resident's wishes are in agreement, consider some of all of the following order options:

Labs: CBC w/Diff, lactate level (if possible), UA/UC, blood cultures from 2 sites if able; *Send all labs ASAP for STAT results.*

Establish IV access for the following:

- IV lactated ringers or normal saline 0.9% @ 30ml/kg if BP <100
- Administer IV, IM or PO antibiotics
- Comfort Care

You Suspect Sepsis –

Notify your Provider!

Monitor for progression into

Multisystem Organ Failure

Examples:

- Progression of symptoms despite treatment
- Urine output <400cc in 24 hours
- SBP <90 despite IV fluids
- Altered Mental Status

Consider transferring to another level of care – hospital, palliative or hospice

You Suspect Sepsis –
And resident stays in your facility –

Comfort Care

- Pain control
- Analgesic for fever
- Reposition every 2-3 hours
- Oral care every 2 hours
- Offer fluids every 2 hours
- Keep family informed

Early recognition is key

- *Consistent use of Sepsis screening tool decreases sepsis-related mortality*
  - *This is critical work by NURSE team members*
- *Coordinating early and regular assessments with adjustments in treatment renders a better outcome*

Sepsis Screening Tool

Sepsis Screening Tool

Directions: The screening tool is for use in identifying residents upon admission, daily on every shift and PRN upon condition change or a STOP AND WATCH notification.

Date							
Time							
I. Systemic Inflammatory Response Syndrome (SIRS)							
Temperature greater than or equal to 101 or less than or equal to 96.8							
Heart rate greater than 90 beats/minute							
Respiratory rate greater than 20 breaths/minute							
WBC less than 4,000 or greater than 12,000 (do not use blood work greater than 24 hours old)							
Blood glucose greater than 140 in non-diabetics (Obtain if 1 or more SIR present)							
Check blood glucose if any one above is checked. If less than two checked above – negative screen for sepsis (initial) _____ Continue to assess resident. Proceed to II if one or more checked							
If less than two checked, negative screen for sepsis (initial) _____ If two or more checked above, proceed to II.							
II. Infection							
Suspected or documented infection							
Antibiotic therapy							
If no checks above – negative screen for sepsis (initial) _____ No need to proceed to III. Continue to assess resident for changes: STOP AND WATCH early warning tool or using your senses. **If one checked above, patient has screened positive for sepsis.** Monitor VS q4x2, then q shift x 2, then routine. Place resident on I & O Monitor and record urine output every shift. Obtain order for lactic acid and **proceed to III**							
III. Organ Dysfunction							
Respiratory: SaO_2 less than 90% or increasing O_2 requirements							
Cardiovascular: SBP less than 90 mmHg or 40 mmHg less than baseline							
Renal: Urine output less than 1.5 ml/kg over last 8 hours							
CNS: Mental status changes							
Labs: Do not use lab results older than 24 hours							
Platelets less than 100,000							
INR greater than 1.5 (not on anticoagulants)							
Bilirubin greater than or equal to 4 mg/dl							
Serum lactic acid greater than 2 mEq/l							
If no checks above – negative screen for severe sepsis (initial)_____ Continue to assess. No further action at this time. **If one checked above – resident screens positive for severe sepsis.** Review advance directives. Contact family if no advance directives on record. Call provider and follow SBAR.							

SITUATION	Tell provider resident screened positive for severe sepsis
BACKGROUND	Describe positive SIRS; inform provider if resident is currently being treated for a known infection; share which organ system has dysfunction.
ASSESSMENT	Share VS, the SaO_2 and any additional vital information.
RECOMMENDATION **Request order for following**	Blood cultures; CBC; lactic acid (if not previously drawn); IV antibiotic. The systolic blood pressure is less than 90 mmHg (or 40 mmHg less than baseline) pneed an order to administer fluid bolus of 30 ml/kg over 1 hour. After reassessment; if resident's hypotension has not resolved, may we send to the ER?

Surviving Sepsis

The healthcare team is responsible for providing comprehensive sepsis management.

- *You are the voice of the resident*
- *You are the eyes & ears of the M.D.*
- *You are often the first responder*

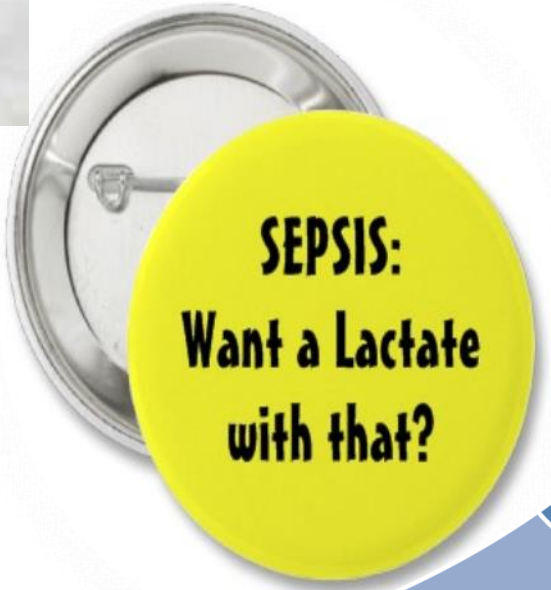
Early recognition!

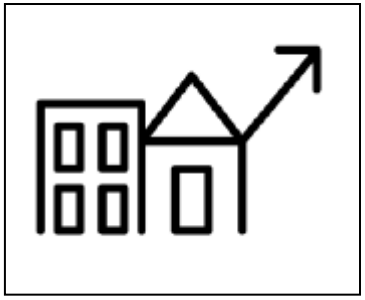
- Screening is the foundation
- Re-screen and assess for condition change with every shift
  - Review the vital signs, labs, etc. from the previous 6 hours
- Communicate with team members

Cornerstones of SNF & Hospital Management of Sepsis

- *Prevention*
- *Screening and Early Identification*
- *Early Intervention: Source control, Blood cultures and broad spectrum antibiotics*
- *Initial Resuscitation Bundle*
- *Septic Shock Bundle – at the hospital*

- ✓ *Know Sepsis*
- ✓ *Know your patient*
- ✓ *Communicate with the Team (SBAR)*





After Discharge:

#1 Potentially Preventable Readmission

Infection

- Optimize antibiotic
- Remove lines, tubes, hardware
- Counsel patients, update vaccines
- Screen and treat promptly

Questions

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