Appendix 3 – SSTI Guideline

Management of Adults Hospitalized with Skin and Soft Tissue Infection

3 key concepts to optimize antibiotic use in the management of skin infections:

1) Most skin infections are caused by *Staphylococcus aureus* and streptococci – antibiotics should be targeted toward these gram-positive pathogens.
2) Antibiotics with a broad spectrum of gram-negative activity are NOT recommended and in most cases, should be avoided.
3) For patients with an appropriate clinical response, the recommended treatment duration is 5-7 days. Longer treatment durations are generally unnecessary.

Guideline applicable to patients with: cellulitis, erysipelas, cutaneous abscess or wound infection. Guideline NOT applicable to clinical scenarios requiring specialized management, including but not limited to: suspected or confirmed necrotizing or deep tissue infection, diabetic foot infection, infected ulcers, surgical site infection, animal/human bites, undrained abscesses, periorbital/orbital/perineal infections, critical illness, bloodstream infection, pregnancy.

Non-purulent Cellulitis

Common pathogens
β-hemolytic streptococci and MSSA

↓

Initial antibiotic selection
Recommended: Cefazolin 2gm IV Q8H*

If severe β-lactam allergy or history of MRSA: Vancomycin 15 mg/kg IV Q12H* or refer to institutional vancomycin protocol or Clindamycin 600-900mg IV Q8H

↓

Transition to oral therapy
Cefazolin→Cephalexin 500mg PO Q6H* or Dicloxacillin 500mg PO Q6H*

Vancomycin, clindamycin→TMP-SMX DS 1 tab PO BID (2 tabs if >80kg)* or Clindamycin 300-450mg PO TID

↓

Treatment duration for patients with an appropriate clinical response: 5-7 days

Abscess, Wound Infection or Purulent Cellulitis

Common pathogens
MRSA, MSSA and streptococci

↓

Drain abscesses and send purulence for culture

Initial antibiotic selection
Recommended: Vancomycin 15 mg/kg IV Q12H*
or refer to institutional vancomycin protocol

If vancomycin allergy: Linezolid 600mg IV or PO Q12H or Daptomycin 4mg/kg IV Q24H*

↓

Transition to oral therapy
Vancomycin, linezolid, or daptomycin→
TMP-SMX DS 1 tab PO BID (2 tabs if >80kg)* or
Doxycycline 100mg PO BID

Linezolid 600mg PO BID is an alternative but $$$

Target antibiotic selection to microbiologic data when available

↓

Treatment duration for patients with adequate abscess drainage (if applicable) and an appropriate clinical response: 5-7 days

*Antibiotic doses based on normal renal function, adjust as appropriate; always assess for antibiotic allergies and drug interactions

This is intended as a guide for evidence-based decision-making and should not replace clinical judgment.
REFERENCES: Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America *Clin Infect Dis* 2014; 52:285-92; *NEJM* 2015;372:1093; *Arch Int Med* 2011;171:1072

Appendix 4 – Data Collection Tools

UTI Data Collection Tool – Please print all responses to help with legibility

Hospital Name:_____ Patient Age:_____

Sex: ❑ M ❑ F Admission Date:_____ Discharge Date:_____

Antibiotic Allergies:_____ ❑ None

Primary or Secondary Diagnosis Any of the Following

- ❑ N30.00 Acute cystitis without hematuria
- ❑ N30.01 Acute cystitis with hematuria
- ❑ A56.01 Chlamydial cystitis and urethritis
- ❑ N30.80 Other cystitis without hematuria
- ❑ N30.81 Other cystitis with hematuria
- ❑ N30.90 Cystitis, unspecified without hematuria
- ❑ N30.91 Cystitis, unspecified with hematuria
- ❑ N39.0 Urinary tract infection, site not specified
- ❑ N11.9 Chronic tubule-interstitial nephritis, unspecified
- ❑ N12 Tubulo-interstitial nephritis, not specified as acute or chronic
- ❑ N13.6 Pyonephrosis

Exclusion Criteria

- ❑ <18 years of age
- ❑ Pregnancy
- ❑ Urologic or gynecologic surgery/procedure during current hospitalization
- ❑ Renal transplant
- ❑ Percutaneous nephrostomy
- ❑ Discharge antibiotic/duration unknown

**See Excel Spreadsheet and Data Dictionary for list of associated ICD-10 exclusion codes*

Comorbid Conditions	Yes	No	Not Documented
Diabetes mellitus	❑	❑	❑
Genitourinary tract abnormality	❑	❑	❑
Prior/recurrent UTI	❑	❑	❑
Dementia	❑	❑	❑
Immunosuppressed (see data dictionary)	❑	❑	❑
History of MDRO infection (see data dictionary)	❑	❑	❑
HIV infection	❑	❑	❑

Hospital Location/Service

Admitted via: ❑ ED ❑ Outpatient Clinic ❑ Transfer from other facility ❑ Direct admit ❑ Other_____

Is the patient a resident of a long-term care facility (LTCF)? ❑ No ❑ Yes

Level of care at time of UTI diagnosis: ❑ ICU ❑ Non-ICU

Primary Service at Time of UTI Diagnosis

❑ Medicine/Hospitalist ❑ ENT Surgery ❑ Podiatry ❑ Orthopedic Surgery ❑ Plastic Surgery

❑ General Surgery ❑ OB/GYN ❑ Other_____

Initial Clinical/Laboratory Data: Highest Value within 72 hours Before or After Time of UTI Diagnosis

Highest body temperature:_____ ❑ Not Obtained
Serum WBC: _____ ❑ Not Obtained
Serum Creatinine: _____ ❑ Not Obtained
Serum Lactate: _____ ❑ Not Obtained

1. **Urinalysis** ❑ Not obtained ❑ Positive leukocyte esterase ❑ Positive nitrite ❑ WBC ≥ 5 cells/hpf ❑ Bacteria ❑ Micro not done (no WBCs or bacteria)
2. **Urine Culture** (culture closest in time to UTI diagnosis)
   Date of urine culture:_____ ❑ Negative ❑ Not obtained
   Results of urine culture:
   I. _____ (Organism Name) ❑ 1000-10,000 cfu/mL ❑ 10,000-100,000 cfu/mL ❑ >100,000 cfu/mL
   II. _____ (Organism Name) ❑ 1000-10,000 cfu/mL ❑ 10,000-100,000 cfu/mL ❑ >100,000 cfu/mL
   III. _____ (Organism Name) ❑ 1000-10,000 cfu/mL ❑ 10,000-100,000 cfu/mL ❑ >100,000 cfu/mL
3. **Blood Cultures** (cultures closest in time to UTI diagnosis that were obtained within 72 hours before or after time of UTI diagnosis)
   Date of blood culture:_____ ❑ Not obtained
   Organism name:_____ ❑ No Growth

Clinical Findings

1. Did the patient have any of the following signs or symptoms within 72 hours before or after UTI diagnosis:

	Yes	No	Not Documented
Urgency	❑	❑	❑
Frequency	❑	❑	❑
Dysuria	❑	❑	❑
Suprapubic Tenderness	❑	❑	❑
Costovertebral angle pain or tenderness	❑	❑	❑
Delirium or other alteration in mental status	❑	❑	❑

2. Did the patient have an indwelling urinary catheter in place at time of UTI diagnosis OR did the patient have an indwelling urinary catheter in place for >2 calendar days that was removed the day of or the day before the event?
   ❑ Yes ❑ No

Appendix 4 – Data Collection Tools continued

Treatment

Did the patient receive any antibiotic thought to be prescribed for the current infection prior to presentation?
❑ Yes ❑ No ❑ Unkown

Record all antibiotics related to UTI episode that were administered in the ED, hospital, or prescribed at discharge

Antibiotics	Route (PO or IV)	Date Started	Date Stopped	Given in ED?	Initial Regimen Prescribed by Admitting Provider?	Prescribed in Response to Culture Results?
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Discharge Antibiotics	**Route (PO or IV)**	**Prescribed Duration (Days)**				

Was infecting pathogen(s) susceptible to the initial antibiotic regimen prescribed based on lab susceptibility report?
❑ Yes ❑ No ❑ No susceptibilities available ❑ N/A (no positive culture)

Final diagnosis documented by treating provider in discharge summary or progress notes
(select single answer most consistent with medical record documentation)

- ❑ UTI or cystitis – not otherwise specified
- ❑ UTI or cystitis – simple
- ❑ UTI or cystitis – complicated
- ❑ Pyelonephritis
- ❑ Urosepsis
- ❑ Urinary source bacteremia
- ❑ Catheter-associated UTI (CA-UTI)
- ❑ Other_____

Medical record documentation of any of the following during current hospitalization

❑ Sepsis	❑ Yes ❑ No	
❑ Severe Sepsis	❑ Yes ❑ No	
❑ Septic Shock	❑ Yes ❑ No	
❑ *C. difficile* infection	❑ Yes ❑ No	If yes, date_____
❑ Additional bacterial infection present?	❑ Yes ❑ No	

Follow-up:

Was the patient re-hospitalized at same facility within 30 days after discharge? ❑ Yes ❑ No
If yes, was the hospitalization potentially related to urinary tract infection? ❑ Yes ❑ No

Appendix 4 – Data Collection Tools continued

SSTI Data Collection Tool – Please print all responses to help with legibility

Hospital Name:_____ Patient Age:_____

Sex: ❑ M ❑ F Admission Date:_____ Discharge Date:_____

Antibiotic Allergies:_____ ❑ None

Primary ICD-10 diagnosis (select only one)

**See Excel Spreadsheet and Data Dictionary for list of ICD-10 Inclusion Codes

Exclusion Criteria

❑ Infected ulcer (diabetic, decubitus, stasis)
❑ Bone, joint, muscle, tendon involvement
❑ Necrotizing fasciitis/soft tissue infection
❑ Perineal infection
❑ Surgical site infection
❑ Tooth or odontogenic space infection
❑ Human or animal bite
❑ Periorbital or orbital cellulitis/abscess
❑ <18 years of age
❑ Discharge antibiotic/duration unknown

**See Excel Spreadsheet and Data Dictionary for list of associated ICD-10 Exclusion Codes

Anatomical location of infection (If more than one site, check all that apply)

❑ Lower extremity
  Involves foot? ❑ Yes ❑ No
❑ Upper extremity
  Involves hand? ❑ Yes ❑ No
❑ Trunk (chest/abdomen/back/axilla)
❑ Head/neck
  Involves face? ❑ Yes ❑ No
❑ Buttock
❑ Inguinal/groin

Comorbid Conditions	Yes	No	Not Documented
Diabetes mellitus	❑	❑	❑
Injection drug use	❑	❑	❑
HIV infection	❑	❑	❑
History of skin infection	❑	❑	❑
History of MRSA colonization or infection	❑	❑	❑
Immunosuppressed (see data dictionary for definition)	❑	❑	❑

Hospital Location/Service

Admitted via: ❑ ED ❑ Outpatient clinic ❑ Transfer from other facility ❑ Direct admit ❑ Other:_____

Level of care at time of admission: ❑ Non-ICU ❑ ICU

Primary Service at Time of Admission

❑ Medicine/Hospitalist ❑ ENT Surgery ❑ Podiatry ❑ Orthopedic Surgery ❑ Plastic Surgery
❑ General Surgery ❑ OB/GYN ❑ Other_____

Initial clinical/laboratory data: highest value within 24 hours of presentation

❑ Highest body temperature: _____
❑ Serum WBC: _____ ❑ not obtained
❑ Serum CRP: _____ ❑ not obtained
❑ Serum Creatinine: _____ ❑ not obtained
❑ Serum Lactate: _____ ❑ not obtained

Physical Exam

❑ Purulence (e.g., abscess, pus, purulent drainage, exudate) noted in ED exam: ❑ Yes ❑ No ❑ n/a
❑ Purulence (e.g., abscess, pus, purulent drainage, exudate) noted in initial H&P: ❑ Yes ❑ No
❑ Traumatic wound (e.g., laceration, abrasion, skin tear) noted: ❑ Yes ❑ No

Initial Microbiology

❑ Surface culture (e.g., wound, drainage) performed ❑ Yes ❑ No Date _____
If yes: ❑ No growth ❑ MRSA ❑ MSSA ❑ S. aureus (no susceptibility) ❑ Streptococcus ❑ Coag-neg Staph
❑ Anaerobes ❑ Other: _____

❑ Abscess culture (pus or tissue) performed ❑ Yes ❑ No Date _____
If yes: ❑ No growth ❑ MRSA ❑ MSSA ❑ S. aureus (no susceptibility) ❑ Streptococcus ❑ Coag-neg Staph
❑ Anaerobes ❑ Other: _____

❑ Non-abscess tissue culture performed ❑ Yes ❑ No Date _____
If yes: ❑ No growth ❑ MRSA ❑ MSSA ❑ S. aureus (no susceptibility) ❑ Streptococcus ❑ Coag-neg Staph
❑ Anaerobes ❑ Other: _____

❑ Aspirate of bullae, tissue or other ❑ Yes ❑ No Date _____
If yes: ❑ No growth ❑ MRSA ❑ MSSA ❑ S. aureus (no susceptibility) ❑ Streptococcus ❑ Coag-neg Staph
❑ Anaerobes ❑ Other: _____

❑ Blood culture performed ❑ Yes ❑ No Date _____
If yes: ❑ No growth ❑ MRSA ❑ MSSA ❑ S. aureus (no susceptibility) ❑ Streptococcus ❑ Coag-neg Staph
❑ Anaerobes ❑ Other: _____

Treatment

Did the patient receive any antibiotic *thought to be prescribed for the current infection* prior to presentation?
❑ Yes ❑ No ❑ Unknown

Procedures performed for current infection:
❑ Bedside incision and drainage or debridement ❑ Yes ❑ No ❑ Unknown
❑ Operative incision and drainage or debridement ❑ Yes ❑ No ❑ Unknown

Appendix 4 – Data Collection Tools continued

Record all antibiotics administered in the ED, hospital or prescribed at discharge

Antibiotics	Route (PO or IV)	Date Started	Date Stopped	Given in ED?	Initial Regimen Prescribed by Admitting Provider?	Prescribed in Response to Culture Results?
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
				❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Discharge Antibiotics	**Route (PO or IV)**	**Prescribed Duration (Days)**				

Was infecting pathogen(s) susceptible to the initial antibiotic regimen prescribed based on lab susceptibility report?
❑ Yes ❑ No ❑ No susceptibilities available ❑ N/A (no positive culture)

Final diagnosis documented by treating provider in discharge summary or progress notes
(select single answer most consistent with medical record documentation)

❑ Cellulitis or erysipelas (no mention of abscess)
❑ Abscess (no mention of cellulitis) (e.g., skin abscess, cutaneous abscess, subcutaneous abscess, shooter’s abscess, carbuncle, furuncle)
❑ Abscess with cellulitis OR cellulitis with abscess
❑ Wound infection

Medical record documentation of any of the following during current hospitalization

❑ Sepsis ❑ Yes ❑ No
❑ Severe Sepsis ❑ Yes ❑ No
❑ Septic Shock ❑ Yes ❑ No
❑ *C. difficile* infection ❑ Yes ❑ No If yes, date_____
❑ Additional bacterial infection present? ❑ Yes ❑ No

Follow-up

Was the patient re-hospitalized at same facility within 30 days after discharge? ❑ Yes ❑ No ❑ Unknown
If yes, was the hospitalization potentially related to a skin and soft tissue infection? ❑ Yes ❑ No