

# Managing Common Infections in the Nursing Home

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## Conflict of Interest

- Grant funding from Pfizer

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# Objectives

1. Identify when treatment is needed for common infection syndromes in the nursing homes
2. Discuss the appropriate treatment for urinary tract infection, pneumonia and skin soft tissue infection

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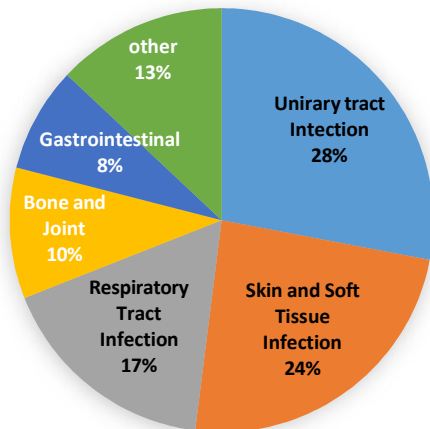
# Impact of Infections in Nursing Homes

- Estimated prevalence of infections: 2.3-5.3 per 100 residents
- Infections are associated with
  - High mortality and morbidity
  - Re-hospitalization
  - Extended hospital stay and substantial healthcare expenditures

Rhee MS. Infect Dis Clin N Am.2014; 28: 237-246  
Strausbaugh L. ICHE2000; 21:674-679  
Thompson N. ICHE 2021; 41(S1), S45-S46

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## 3 Infections Drive Antibiotic Use in Nursing Homes



8.2% of residents are on an antibiotic on a given day

40%-75% of antibiotics are inappropriate or unnecessary

Thompson ND. JAMA. 2021;325(13):1286-1295  
<https://www.cdc.gov/antibiotic-use/core-elements/nursing-homes.html>

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## Examples of When Antibiotics Are Unnecessary

- A positive urine test when the resident has no signs and symptoms of a urinary tract infection (asymptomatic bacteriuria)
- A runny nose, cough (likely viral infection) when there is no evidence of pneumonia
- A positive culture of a chronic wound but no clinical evidence of infection

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## Inappropriate Use of Antibiotics

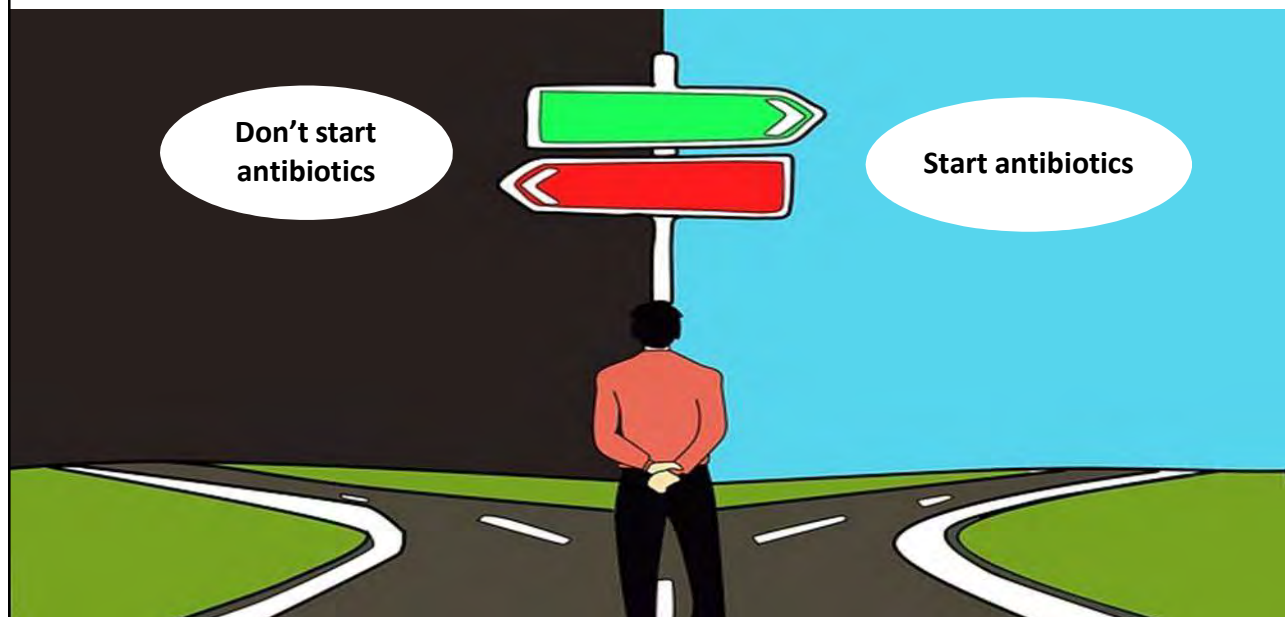
- **Diagnosis:** treatment may not be indicated
- **Drug:** antibiotic selection may not be correct
- **Dose:** dosing may be inappropriate or not adjusted
- **Duration:** longer than recommended guidelines
- **De-escalation:** not adjusted based on clinical condition or laboratory results

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## Antibiotic Decisions in Nursing Homes are Complicated



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# Urinary Tract Infections

- Most common indication for antibiotic use
- Most common reason for bacteremia
- Most common reason for inappropriate antibiotics
  - Treatment of asymptomatic bacteriuria
  - UTI prophylaxis

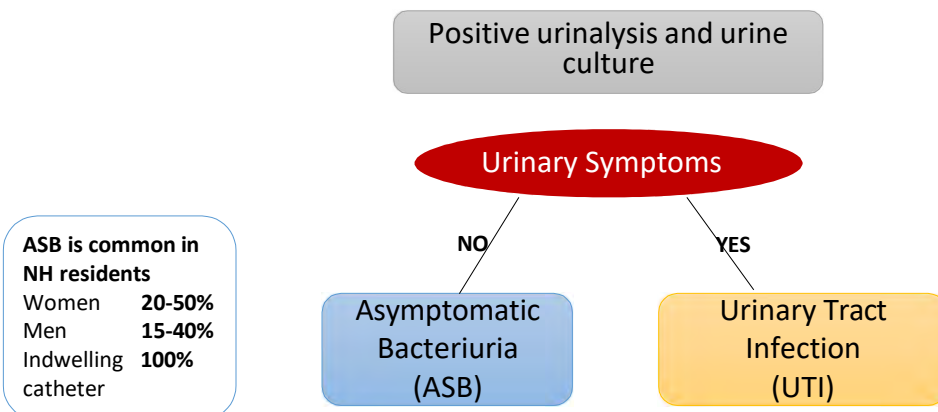
Thompson ND. JAMA. 2021;325(13):1286-1295  
 Mylotte JM. Clin Infect Dis. 2002;35(12):1484-1490  
 Nicolle LE. Infect Control and Hosp Epidemiol 2001; 22:167-175

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## UTI is a “Clinical Diagnosis”



Nicolle LE, Clinical Infectious Diseases 2005;40(5): 643-54

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## Treating ASB in Older Adults

### No Benefit

Treatment of ASB does not

- Decrease symptomatic episodes
- The prevalence of bacteriuria
- Improve chronic genitourinary symptoms such as chronic incontinence
- No improvement in survival

### Harm

Adverse outcomes do occur with antimicrobial therapy:

- Adverse drug effects
- Recurrent infection with more resistant bacteria
- Increased costs

Zalnovici TA et al, *Cochrane Database Syst Rev*, 2015

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## Multitude of Criteria for UTI

Updated Mc Geer Surveillance criteria	Loeb minimum criteria for testing and initiation of antibiotics	Crnich algorithm	IOU consensus criteria for uncomplicated cystitis
Includes the result of a positive urine culture  Used for surveillance	Testing and Treatment is based on signs and symptoms	Takes into consideration "warning signs" Fever, rigors, acute delirium, unstable vital signs	Differentiate between complicated UTI (upper tract disease) and lower UTI (cystitis)

Stone N. *Infect Control Hosp Epidemiol*. 2012 Oct;33(10):965-77  
Loeb M. *Infect Control Hosp Epidemiol* 2001;22:120-124

Crnich CJ. *Ann Long Term Care* 2014:43-47 Myelotte JM. *Drugs & Aging* (2021) 38:29-41  
Nace D. *JAMDA* 2018; 19: 765-769

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# Who Should be Tested and Treated?

Resident without a catheter	Resident with a catheter
<p>1. <b>Acute dysuria</b> alone OR</p> <p>2. <b>Fever</b> of 100°F (37.9°C) or two repeated temperatures of 99°F (37°C) AND at <b>least one</b> of the following, <b>no fever</b>: then <b>two or more</b> of the following: <u>New or worsening:</u></p> <ul style="list-style-type: none"> <li>• Urgency, or</li> <li>• Frequency, or</li> <li>• Suprapubic pain, or</li> <li>• Gross hematuria, or</li> <li>• Costovertebral angle tenderness, or</li> <li>• Urinary incontinence</li> </ul>	<p>One or more of the following</p> <ul style="list-style-type: none"> <li>• <b>Fever</b> of 100°F (37.9°C) or two repeated temperatures of 99°F (37°C), or</li> <li>• <b>Rigors</b> (shaking chills) with or without identified cause, or</li> <li>• <b>Hypotension</b> (e.g., significant change from baseline BP or a systolic BP &lt;90), or</li> <li>• Costovertebral tenderness, or</li> <li>• Suprapubic pain, or</li> <li>• <b>New or worsening delirium</b> (sudden onset of confusion, disorientation, dramatic change in mental status)</li> </ul>

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# Who Should be Tested and Treated?

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<p>1. <b>Acute dysuria</b> alone OR</p> <p>2. <b>Fever</b> of 100°F (37.9°C) or two repeated temperatures of 99°F (37°C) AND at <b>least one</b> of the following, <b>no fever</b>: then <b>two or more</b> of the following: <u>New or worsening:</u></p> <ul style="list-style-type: none"> <li>• Urgency, or</li> <li>• Frequency, or</li> <li>• Suprapubic pain, or</li> <li>• Gross hematuria, or</li> <li>• Costovertebral angle tenderness, or</li> <li>• Urinary incontinence</li> </ul>	<p>One or more of the following</p> <ul style="list-style-type: none"> <li>• <b>Fever</b> of 100°F (37.9°C) or two repeated temperatures of 99°F (37°C), or</li> <li>• <b>Rigors</b> (shaking chills) with or without identified cause, or</li> <li>• <b>Hypotension</b> (e.g., significant change from baseline BP or a systolic BP &lt;90), or</li> <li>• Costovertebral tenderness, or</li> <li>• Suprapubic pain, or</li> <li>• <b>New or worsening delirium</b> (sudden onset of confusion, disorientation, dramatic change in mental status)</li> </ul>

✓ Foul smelling urine or change in urine color  
 ✓ Fall  
 ✓ Behavioral changes or delirium

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# Recommend the Use of Protocols for Diagnosis and Treatment

**IOU  
Consensus  
Guidelines**

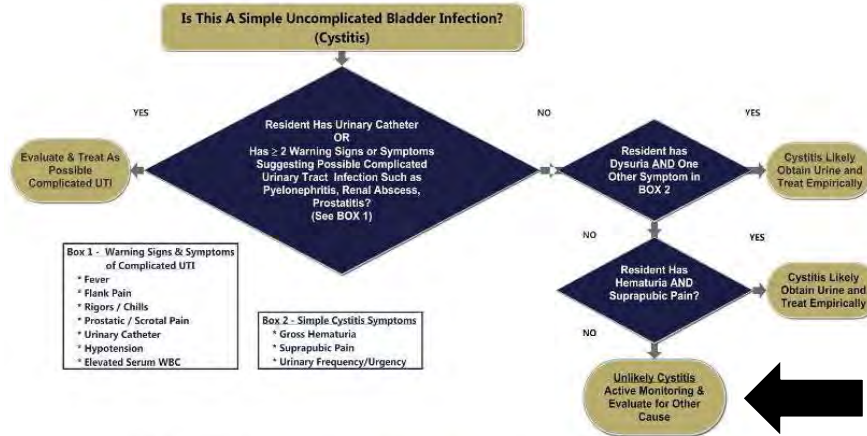


FIG. 1. Algorithm for the diagnostic approach to uncomplicated cystitis in noncatheterized nursing home residents. Nace DA et al. J Am Med Dir Assoc. 2018;19(9):765-769.e3

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### Suspected UTI SBAR

Complete this form before contacting the resident's physician.

Nursing Home Name: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Resident Name: \_\_\_\_\_ Done of Birth: \_\_\_\_\_

Physician/NP/PA: \_\_\_\_\_ Phone: \_\_\_\_\_

Nurse: \_\_\_\_\_ Fax: \_\_\_\_\_

Submitted by:  Phone  In Person  Other \_\_\_\_\_ Facility Phone: \_\_\_\_\_

**5. Situation**

I am contacting you about a suspected UTI for the above resident.

Vital Signs: BP \_\_\_\_\_ / \_\_\_\_\_ HR \_\_\_\_\_ RR \_\_\_\_\_ SpO<sub>2</sub> \_\_\_\_\_ Temp \_\_\_\_\_

**6. Background**

Active diagnoses or other symptoms (especially bladder, kidney/gonorrhea conditions): \_\_\_\_\_

Specify: \_\_\_\_\_

No  Yes The resident has an indwelling catheter.

No  Yes Patient is on dialysis.

No  Yes The resident is incontinent. If yes, how/controlling?  No  Yes

No  Yes Advance directives for limiting treatment related to antibiotics and/or hospitalizations. Specify: \_\_\_\_\_

No  Yes Medication Allergies. Specify: \_\_\_\_\_

No  Yes The resident is on Warfarin (Coumadin®).

Nursing Home Name: \_\_\_\_\_ Facility Fax: \_\_\_\_\_

Resident Name: \_\_\_\_\_

**A. Assessment report (check all boxes that apply)**

Resident WITH underlying catheter: The criteria are met to initiate antibiotics if one of the below are satisfied.

Resident WITHOUT underlying catheter: Criteria are met if one of the three situations are met.

**Yes**

1. Acute dysuria alone

**OR**

2. Single temperature of 100°F (38°C) and at least one new or worsening of the following:

- urgency  suprapubic pain
- frequency  gross hematuria
- back or flank pain  urinary incontinence

**OR**

3. No fever, but two or more of the following symptoms:

- urgency  suprapubic pain
- frequency  gross hematuria
- incontinence

**No**

Fever of 100°F (38°C) at repeated temperatures of 20°F (32°C)\*

New back or flank pain

Acute pain

Rigors/shaking chills

New dramatic change in mental status

Hypotension (systolic average base baseline BP or a systolic BP < 90)

**Nurses:** Please check box to indicate whether or not criteria are met

**Meeting home protocol criteria are met.** Resident may require UA with C&S or (in females) F

**Meeting home protocol criteria are NOT met.** The resident does NOT need an immediate prescription for an antibiotic, but may need additional observations.†

**B. Request for Physician/NP/PA Orders**

Orders were provided by (drawn through):  Phone  Fax  In Person  Other \_\_\_\_\_

Urine UA

Urine culture

Encourage \_\_\_\_\_ ounces of liquid intake \_\_\_\_\_ times daily until urine is light yellow in color

Record fluid intake

Advise when able for \_\_\_\_\_ steps, including stairs, every \_\_\_\_\_ hours

Notify Physician/NP/PA if symptoms worsen or if unresolved in \_\_\_\_\_ hours

Initiate the following antibiotic:

Antibiotic: \_\_\_\_\_ Dose: \_\_\_\_\_ Route: \_\_\_\_\_ Duration: \_\_\_\_\_

No  Yes † Prescribed to await renal function

Other \_\_\_\_\_

**Physician/NP/PA signature:** \_\_\_\_\_ Date/Time: \_\_\_\_\_

Telephone order received by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Fax/PCP (if applicable): \_\_\_\_\_ Date/Time: \_\_\_\_\_

\* If resident is that requires warfarin or has temperature above 100°F (38°C) above the baseline or a history of a fever.

† This is according to our understanding of local practices and the facility policies. Monitor criteria for a UTI must meet 1 of 3 criteria every 8 hrs.

‡ This is according to our understanding of our practices and our facility policies. One prescription is insufficient to establish an active UTI diagnosis.

[https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4\\_TK1\\_T1-SBAR\\_UTI\\_Final.pdf](https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK1_T1-SBAR_UTI_Final.pdf)

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**Suspected UTI SBAR**

Complete this form before contacting the resident's physician. Date/Time \_\_\_\_\_

Nursing Home Name \_\_\_\_\_  
 Resident Name \_\_\_\_\_  
 Physician/MD/PA \_\_\_\_\_  
 Nurse \_\_\_\_\_  
 Submitted by  Proxy  Fax  In Person

**S Situation**  
 I am contacting you about a suspected UTI:  
 Vital Signs: BP \_\_\_\_\_ / \_\_\_\_\_

**R Background**  
 Active diagnoses or other symptoms (include specify): \_\_\_\_\_  
 No  Yes The resident has an ICD  
 No  Yes Resident is on dialysis  
 No  Yes The resident is incontinent  
 No  Yes Advance directives for li Specify: \_\_\_\_\_  
 No  Yes Medication Allergies Specify: \_\_\_\_\_  
 No  Yes The resident is on WBC

**A Assessment Input (check all boxes that apply)**

**Resident WITH indwelling catheter**  
 The criteria are met to initiate antibiotics if one of the below are selected

**No Yes**

Fever of 100°F (38°C) or repeated temperatures of 99°F (37°C)\*  
  New back or flank pain  
  Acute pain  
  Rigors /shaking chills  
  New dramatic change in mental status  
  Hypotension (significant change from baseline BP or a systolic BP <90)

**Resident WITHOUT indwelling catheter**  
 Criteria are met if one of the three situations are met

**No Yes**

1. Acute dysuria alone

**OR**

2. Single temperature of 100°F (38°C) **and** at least one new or worsening of the following:  
 urgency  suprapubic pain  
 frequency  gross hematuria  
 back or flank pain  urinary incontinence

**OR**


3. No fever, but two or more of the following symptoms:  
 urgency  suprapubic pain  
 frequency  gross hematuria  
 incontinence

Telephone order received by \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Facility/POA (include name) \_\_\_\_\_ Date/Time \_\_\_\_\_

\* For residents that regularly eat a low temperature, use a temperature of 37.5°C (99.5°F) instead of a fever.  
 † This is according to our understanding of their practices and our facility protocols. Minimum protocol for a UTI (not used if a urine test is done).  
 ‡ This is according to our understanding of their practices and our facility protocols. Use appropriate to residents to include all other UTI entries.

[https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4\\_TK1\\_T1-SBAR\\_UTI\\_Final.pdf](https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/4_TK1_T1-SBAR_UTI_Final.pdf)

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## Evaluating patient with Cognitive Impairment for UTI

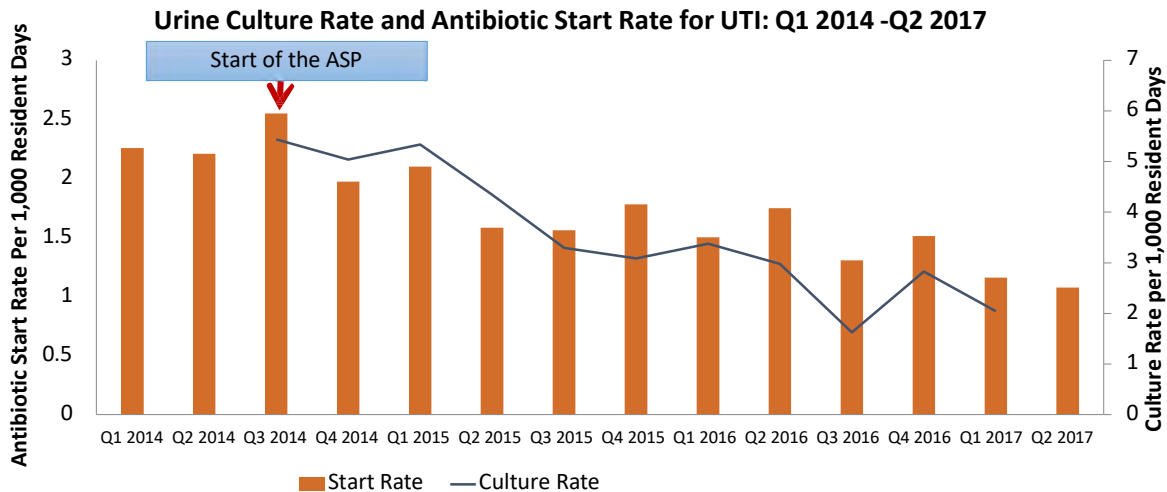
Focus on the presence of objective findings:

- Fever (with no alternative source of infection, e.g. cough)
- Hemodynamic instability
- Leukocytosis

D'agata E. J Am Geriatr Soc. 2013 Jan;61(1):62-6  
 Nace DA. J Am Med Dir Assoc. 2014 Feb;15(2):133-9

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## Reducing Inappropriate Urine Testing Reduces Inappropriate Treatment



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## UTI Management

- Obtain a **culture** prior to treatment
  - Insure that an appropriate specimen is obtained
- **Treat empirically** based on antibiogram and review of prior cultures
- Review **renal function**, antibiotic **allergies** and potential drug interactions
- Important to review culture result and if possible narrow antibiotic regimen
- Optimize the duration of treatment



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# Facility Antibioqram

Percent of Non-Duplicate Patient Isolates Susceptible to Achievable Serum Levels

ORGANISM	No. of Non-duplicate Isolates	Amikacin	Gentamicin	Tobramycin	Ampicillin	Amoxicillin-Clavulanate	Ampicillin-Sulbactam	Penicillin	Piperacillin/Tazobactam	Oxacillin	Imipenem	Meropenem	Ertapenem	Aztreonam	Cefazolin	Cefipime	Ceftriaxone	Vancomycin	Linezolid	Erythromycin	Clindamycin	TMP-SMX	Piprotioxacin	Moxifloxacin	Nitrofurantoin <sup>a</sup>	Tetracycline	Figecycline
<i>E. coli</i>	68	100	95	100	48	69		98		100	100	100	92	86	100	90						90	65		100		100
<i>Kleb. pneumoniae</i>	28	100	90	100	0	78		92			100	100	71	89	100	88						100	82		94		100
<i>Proteus mirabilis</i>	48	100	95	93	79		89		97		100	100	100	95	93	100	93					85	77				
<i>Ps. aeruginosa</i>	24	100	100	100					100		91	95		94		100							91				
<i>Staph aureus</i>	16		100			43		18		43					43			100	100	43	62	87		21	100	100	100
<i>Enterococcus faecalis</i>	20		89 <sup>b</sup>		100			100										100	100						95	40	100

<sup>a</sup>Susceptible to achievable levels in urine only

<sup>b</sup>Susceptible to high level gentamicin

# Cystitis/Lower UTI


	Agent	Notes
1 <sup>st</sup> line	Nitrofurantoin	Most active agent against E. coli Avoid if CrCl < 30 mL/min Avoid if systemic signs of infection/suspicion of pyelonephritis or prostatitis Does not cover Proteus
	TMP-SMX*	Drug-drug interactions with warfarin Monitor potassium level if concomitant use of spironolactone, angiotensin-converting enzyme inhibitors (ACEIs), angiotensin receptor blockers (ARBs) Renal dose adjustments, avoid if CrCl < 15 mL/min
2 <sup>nd</sup> line	B lactam (Cephalexin)	Active against E. coli, Proteus, and Klebsiella
3 <sup>rd</sup> line	Fosfomycin	Active against E. coli, Enterococcus. Is also active against ESBL positive E. coli. Fosfomycin susceptibility tests recommended
	Quinolones	No longer preferred due to increasing resistance and adverse effects

\* TMP/SMX: Modify according to your facility's antibiogram, increasing resistance reported

Ashraf MS. JAMDA 2020; 21: 12-24

# Alternative Treatment Recommendations

## The IOU Consensus Recommendations for Empirical Therapy of Cystitis in Nursing Home Residents

Joseph T. Hanlon, PharmD, MS, AGSF,<sup>\*†§</sup> Subashan Perera, PhD,<sup>\*§</sup> Paul J. Drinka, MD, AGSF,<sup>||</sup>  
 Christopher J. Crnich, MD, MS,<sup>\*\*††</sup> Steven J. Schweton, RN, MPH, MSN,<sup>‡‡</sup>  
 Michele Klein-Fedysbin, RN, MSLS,<sup>§§</sup> Charles B. Wessel, MLS,<sup>§§</sup> Stacey Saracco, RN,<sup>\*</sup>  
 Gulsum Anderson, PhD,<sup>\*</sup> Mary Mulligan, RN,<sup>¶¶</sup> and David A. Nace, MD, MPH<sup>‡</sup> 

Empiric treatment
Nitrofurantoin if CrCl >30 ml/min
or
Trimethoprim-sulfamethoxazole if CrCl ≥ 15 ml/min
or
Cirpofloxacin or fosfomycin <u>only if</u> CrCl <15ml/min

Hanlon JT. J Am Geriatr Soc. 2019; 67(3):539-545

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## Pyelonephritis/Upper UTI

Agent	Notes
<b>Ceftriaxone</b>	All treatment should start with a single IV dose then step down to one of the following oral options:
<b>TMP-SMX</b>	Use if resistance <20%
<b>Ciprofloxacin/Levofloxacin</b>	If patient unable to tolerate TMP-SMX and organism is sensitive
<b>β lactam</b>	Data suggests that oral beta-lactams are inferior to TMP-SMX or quinolones for pyelonephritis

Ashraf MS. JAMDA 2020; 21: 12-24

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## UTI Treatment Duration-Short

UTI	Agent	Duration
Lower UTI/cystitis	TMP/SMX	3 days
	quinolones	
	Nitrofurantoin, $\beta$ lactam	5 days (some favor 7 days in men)
Upper UTI/Pyelonephritis	Fosfomycin	1 dose
	quinolones	5-7 days
	TMP/SMX $\beta$ lactam	10-14 days
Catheter related UTI		7 days if rapid improvement 10-14 days if delayed response

Hooten, TM, et al. CID 2010; 50:625–663  
 Schaeffer AJ, et al. N Engl J Med 2016;374:562-71  
 Gupta et al. CID 2011;52(5):e103–e120

Grigoryan L, et al. JAMA 2014;312(16):1677-1684  
 Mody, L, et al JAMA. 2014;311(8):844-854  
 Ashraf MS. JAMDA 2020; 21: 12-24

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## Respiratory Tract Infections

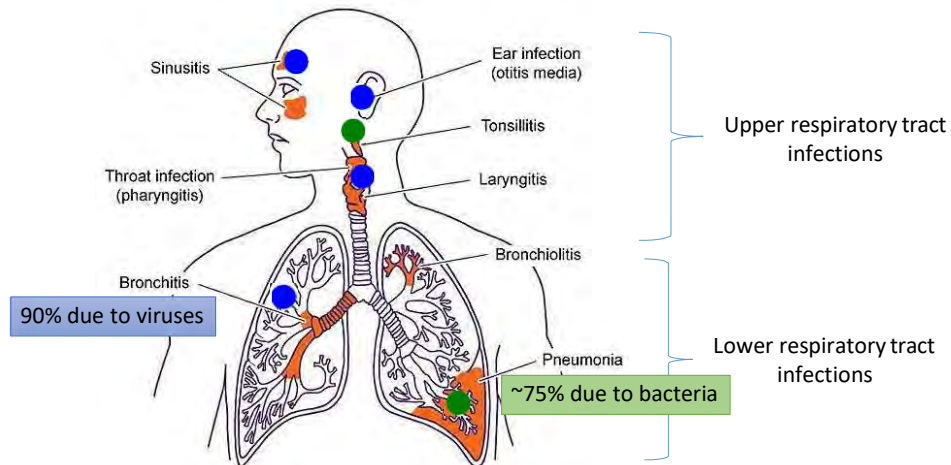
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# Acute Respiratory Tract Infections

- Syndromes caused primarily by viruses
- Syndromes caused primarily by bacteria



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## Acute Bronchitis vs. Pneumonia

	Acute bronchitis	Pneumonia
Definition	Self limited inflammation of bronchi	Inflammation or infection of the lung tissue
Cause	Viral (rare exceptions)*	~ 75% bacteria, ~25% viral
Symptoms	Cough for 5 days to 3 weeks Fever less common 50% have sputum production Often accompanied by wheezing	Cough Fever is common Sputum production Chest wall pain Hypoxia
Diagnostic studies	Normal to slightly elevated WBC No specific Chest-Xray findings	Elevated WBC Infiltrates, effusions

\*bacterial causes include *Mycoplasma pneumoniae*, *Chlamydia pneumoniae* and *Bordetella pertussis* (whooping cough)

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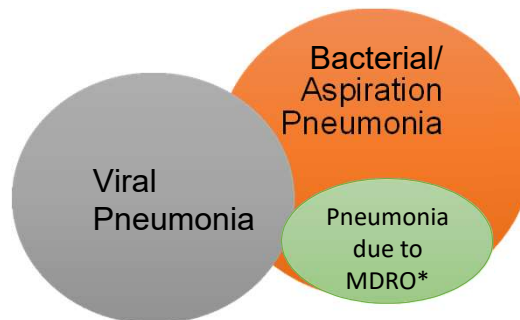
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# Nursing Home Pneumonia

Represents 13–48% of all infections

Leading cause of mortality

Primary reason for resident transfer to the hospital



\*MDRO: multidrug resistant organisms

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# Diagnosis of Pneumonia

## Bedside diagnosis

- Cough
- Shortness of breath
- RR >25 per min (sensitivity 90%, specificity 95%)
- Pulse oximetry:  $\leq 93\%$  (80% sensitive, 91% specific for pneumonia)
- Abnormal chest exam



High K. CID 2009; 48:149–71  
 Stone ND. ICHE2012;33(10):965-977  
 Mylotte JM. JAMDA 2020; 21:308-314

## Workup:

- Respiratory virus testing
- WBC  $\geq 14,000$  cell/mm<sup>3</sup> or left shift is suggestive of a bacterial infection
- CXR: need to compare to prior images
- Role of procalcitonin unclear in nursing home

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## When to Treat?

**Temp > 102° F  
AND RR >25 or  
productive cough**

**Fever > 2.4°F over baseline  
AND new cough plus:**  
1) P > 100 or 2) Delirium or  
3) Rigors or 4) RR > 25

**New productive  
cough AND RR > 25  
or delirium**

**COPD AND cough with  
purulent sputum**

Loeb M, et al. Infect Control Hosp Epidemiol 2001;22:120e124

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## Empiric Treatment

- Treat as a Community Acquired Pneumonia
- A broader regimen for MDRO reserved for specific populations:
  1. Patients with severe illness (e.g., mechanical ventilation, ICU admission, deterioration)
  2. Lack of improvement after 72 hours
  3. High risk of MDRO

Casey C. et al. *Am Fam Physician*. 2015 Oct 1;92(7):612-620

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## Antibiotics for Treatment of Bacterial Pneumonia

Mild-moderate pneumonia symptoms		
<b>1<sup>st</sup> line</b>	Uncomplicated bacterial pneumonia	<b>Cefpodoxime (PO)</b>
	With aspiration risk	<b>Amoxicillin/clavulanate (PO)</b>
	Alternative	<b>Doxycycline (PO)</b>
<b>2<sup>nd</sup> line</b>		
	Bacterial pneumonia, contraindication to first line therapy	<b>Levofloxacin or moxifloxacin (PO)</b>
Severe pneumonia symptoms or failure to respond to initial therapy		
<b>1<sup>st</sup> line</b>	Severe bacterial pneumonia (no risk for pseudomonas)	<b>Ceftriaxone (IM) and doxycycline (PO)</b> <b>Ceftriaxone (IM) and azithromycin</b>
<b>2<sup>nd</sup> line</b>	Used as first line, if high likelihood of pseudomonas aeruginosa*	<b>Levofloxacin (PO)</b>

\* Recent intravenous antibiotics (90 days), previous respiratory infection with *pseudomonas aeruginosa*, known bronchiectasis, very severe underlying COPD (FEV1/FVC <35% predicted)

Myelotte JM. JAMDA 2020; 20:315-321

Guidelines from the Rochester, NY Nursing Home Collaborative

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## Duration of Treatment

- 5-7 days depending on clinical stability

**Clinical stability criteria:** Temperature  $\leq 37.8^{\circ}\text{C}$  ( $100^{\circ}\text{F}$ ), pulse  $\leq 100$  beats/min, respiratory rate  $\leq 24$  breaths/min, systolic blood pressure  $\geq 90$  mm Hg, O<sub>2</sub>  $\geq 90\%$ , ability to maintain oral intake; normal mental status

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# Skin and Soft Tissue Infections

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Which one of these wounds should be cultured and treated?



1

Decubitus ulcer



2

Diabetic foot infection



3

Decubitus ulcer

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## Ulcers ≠ Infection

### Uninfected Ulcers:

Often colonized by multiple organisms

Should NOT:

- Be cultured
- Treated

### Treat if:

- New or increased purulence at SSTI site OR
- **Any two (2)** of the following
  - Increased warmth
  - Increased redness
  - Increased swelling
  - Increased tenderness
- **Fever (Temp > 100°F, or 2.4°F > baseline)**

Loeb M. ICHE 2001;22(2):120-4

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## Cellulitis

Need to differentiate from non-infectious causes



Stasis dermatitis, usually bilateral

Cellulitis etiology depends on presence of purulence



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## What to Treat with? Oral Regimens

### Non Purulent Cellulitis

#### Treat for Streptococcus (A,B, C/G)

- Penicillin
- Amoxicillin
- Cephalexin
- Dicloxacillin
- Clindamycin (for severe penicillin allergy)

Duration: 5 days

### Purulent Cellulitis

#### Treat for S. aureus

- TMX/SMZ
- Doxycycline
- Alternative: Linezolid

Duration: 7 days

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## Improving the Diagnosis and Treatment of Common Infections

Development of guidelines for diagnosis and treatment

Education and coaching of nursing and medical staff

Use of communication tools such as the SBAR

Post prescription review

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# Additional Materials

- [Antibiotic Stewardship Toolkits | Agency for Healthcare Research and Quality \(ahrq.gov\)](#)
- [Nursing Home Antimicrobial Stewardship Guide | Agency for Healthcare Research and Quality \(ahrq.gov\)](#)
- [IOU Study Home | AMDA | The Society for Post-Acute and Long-Term Care Medicine \(paltc.org\)](#)
- [Urinary Tract Infection Program | Public Health Ontario](#)
- [Core Elements of Antibiotic Stewardship for Nursing Homes | Antibiotic Use | CDC](#)
- [Antimicrobial Stewardship Essentials in Long-Term Care \(publichealthontario.ca\)](#)
- [For Nursing Homes | Rochester Patient Safety Collaborative](#)

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# Questions



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