SHORTER IS SMARTER

SUMMARY OF APPROPRIATE USE OF SHORT-COURSE ANTIBIOTICS IN COMMON INFECTIONS

Condition	Short duration	Available evidence	Mortality	Length of stay	Clinical success rate	Relapse rate	Adverse events	Tufts Medical Center Antimicrobial Stewardship Team Advice
Acute exacerbation of chronic bronchitis (AECB) or chronic pulmonary obstructive disease (COPD)	5 days	GOLD guideline[1] >20 RCTs (N=11,008)[24,25]	No difference in mortality between groups[2]	*Limited/ insufficient data*	No difference in clinical improvement between groups[1]	No difference in one-year exacerbation rate between groups[2]	No difference in adverse events between groups[2]	Clinicians should limit antibiotic treatment duration to 5 days when managing patients with COPD exacerbations and acute uncomplicated bronchitis who have clinical signs of bacterial infection (presence of increased sputum purulence in addition to increased dyspnea, and/or increased sputum volume).[*1]
Community-acquired pneumonia (CAP)	3-5 days	IDSA/ATS guideline[1] 14 RCTs (N=8,732)[1]	Lower mortality in short-course group[1]	No difference in length of ICU stay between groups[3]	No difference in clinical improvement between groups[1]	No difference in relapse rates between groups[4,5]	Fewer adverse events in short-course group[1]	Clinicians should prescribe antibiotics for CAP for a minimum of 5 days. Extension of therapy after 5 days of antibiotics should be guided by validated measures of clinical stability, which include resolution of vital sign abnormalities, ability to eat, and normal mentation.[*1]
Urinary Tract infection (UTI): bacterial cystitis	3-5 days or single-dose, depending on antibiotic selected	IDSA/ESCMID guideline[1] 3 recent RCTs[1]	*Limited/ insufficient data*	*Limited/ insufficient data*	No difference in clinical improvement between groups except in patients with complicated UTI[1]	No difference in rate of recurrent UTI within 30 days[1]	No difference in adverse events between groups[6,7]	In women with uncomplicated bacterial cystitis, clinicians should prescribe short-course antibiotics with either nitrofurantoin for 5 days, trimethoprim-sulfamethoxazole (TMP-SMZ) for 3 days, or fosfomycin as a single dose.[*1]
Urinary tract infection (UTI): pyelonephritis or febrile UTI	5-7 days or 10-14 days depending on antibiotic selected	IDSA/ESCMID guideline[1] 9 RCTs (N=1,814)[1]	*Limited/ insufficient data*	*Limited/ insufficient data*	No difference in clinical improvement between groups except in patients with complicated UTI[1,6,8]	No difference in rate of recurrent pyelonephritis within 30 days[1]	No difference in adverse events between groups[9,10]	For pyelonephritis or febrile UTI in both males and females, duration of therapy will vary based upon agent and antibiotic susceptibilities. Give fluoroquinolones for 5-7 days, TMP-SMZ for 14 days, or beta-lactams (e.g. cephalexin) for 10-14 days.[9,10,11]
Nonpurulent cellulitis	5-6 days	IDSA guideline[1] NICE guideline[1] 4 RCTs (N=1,412)[1]	*Limited/ insufficient data*	*Limited/ insufficient data*	No difference in clinical improvement between groups[1]	*Limited/ insufficient data*	Gastrointestinal adverse events were less frequent or similar with 6-day tedizolid than 10-day linezolid[11]	In patients with nonpurulent cellulitis, clinicians should use a 5- to 6-day course of antibiotics active against streptococci, particularly for patients able to self-monitor and who have close follow-up with primary care.[*1]
Debrided diabetic osteomyelitis	21 days	1 RCT (N=93)[33]	*Limited/ insufficient data*	*Limited/ insufficient data*	No difference in clinical improvements in between groups	*Limited/ insufficient data*	No difference in adverse events	In a randomized controlled pilot trial, a postdebridement systemic antibiotic therapy course for diabetic foot osteomyelitis of 3 weeks gave similar (and statistically noninferior) incidences of remission and adverse events to a course of 6 weeks[33]

RCT: Randomized Clinical Trial
*Direct recommendation from ACP Guidelines
**Direct recommendation from the IDSA

Compiled from ACP and other literature

Tufts Medical Center

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Condition	Short duration	Available evidence	Mortality	Length of stay	Clinical success rate	Relapse rate	Adverse events	Tufts Medical Center Antimicrobial Stewardship Team Advice
Ventilator-associated pneumonia (VAP)	7 days	IDSA guideline[12] 2 systematic reviews of RCTs (N=626)[12] 1 observational study[12]	No difference in mortality between groups[12,13,14]	No difference in length of hospital or ICU stay between groups[12]	No difference in clinical improvement between groups[12]	No difference in recurrent pneumonia between groups[12]	No difference in adverse events between groups[12]	For patients with VAP, clinicians should use a 7-day course of antimicrobial therapy. There is no longer a recommendation to use a longer duration for specific organisms.** There exist situations in which a shorter (5-day) duration of antibiotics may be indicated, depending upon the rate of improvement of clinical, radiologic and laboratory parameters.[12,15]
Intra-abdominal infection	4- 7 days	2 RCTs (N=766)[1]	No difference in mortality between groups[16,18,19]	No difference in length of hospital stay between groups[16,18,19]	No difference in clinical improvement or improved in shorter-course group[16,18,19]	No difference in recurrent infections or 30-day readmission rate between groups[16,17,18]	*Limited/ insufficient data*	Antimicrobial therapy of established infection should be limited to 4–7 days. Evidence supports that if source control is achieved, antimicrobial therapy is advised for 4 days. If source control has not been achieved, antimicrobial therapy is advised for 7 days. Within this window, improvement of clinical signs of infection should be used to judge the termination point for antimicrobial therapy.[18]
Gram negative bacillus (GNB) bacteremia	7 days	1 systematic review[25] 3 recent RCTs (N =1,186)[1] 2 observational studies[20,25]	No difference in mortality between groups[19,20,21]	No difference in prolonged hospitalization[24]	No difference in occurrence of therapeutic failure between groups[22]	No difference in recurrence or readmission rate between groups[23,25,26]	No difference in adverse events between groups[23]	IDSA recommendations on durations of therapy are not provided, but clinicians are advised that prolonged treatment courses are not necessary for infections caused by antimicrobial resistant pathogens per se, compared to infections caused by the same bacterial species with a more susceptible phenotype.** Evidence supports 7 days of antimicrobial therapy for patients with uncomplicated GNB bacteremia with a known source.[21-26]
Complex appendicitis	1-2 days	2 RCTs (N=1,085)[1]	No difference in mortality[31]	Reduced hospital length of stay[32]	No difference in clinical improvements	No difference in surgical site infections[31]	Fewer adverse events in short-course group[31]	Evidence supports that for complex appendicitis (appendicitis with necrosis, perforation or abscess) short course of postoperative antibiotics for 1-2 days is equally as effective as long postoperative antibiotics courses (5 days). While one RCT showed no difference in readmission[32] and the other showed higher readmission, it is important to note that it is difficult to be readmitted when you are in the hospital for longer duration.
Acute bacterial rhinosinusitis (ABRS)	3-7 days depending on the antibiotics used	6 RCTs (N=2423)[1]	*Limited/ insufficient data*	*Limited/ insufficient data*	No difference in efficacy[27,28]	No difference in recurrence [28]	Fewer adverse events in short-course group[27,28]	Clinicians do not necessarily need to use antibiotics for ABRS.[29,30] Antimicrobial therapy for Acute Bacterial RhinoSinusitis Guidelines[29,30] found no difference in outcomes based on antibiotics used. If used, duration depends on the class of antibiotics and should be limited to 3-7 days, e.g. 3 days for TMP/SMX[28] or azithromycin[27], 5 days for respiratory fluoroquinolones, and 5-7 days for amoxicillin/clavulanate.[29,30]

*Direct recommendation from American College of Physicians (ACP) Guidelines
**Direct recommendation from the Infectious Diseases Society of America (IDSA)

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Condition	Short duration	Available evidence	Mortality	Length of stay	Clinical success rate	Relapse rate	Adverse events	Tufts Medical Center Antimicrobial Stewardship Team Advice
Empyema	14-21 days	2 RCTs (N=105)[34,35]	No data available	No data available	No difference in treatment failure or clinical success between groups[34,35]	No difference in persistent symptoms at 6 weeks[34]	No difference between groups[34,35]	Shorter course is recommended for patients for first case of pleural infection and clinical improvement within 14 days. Oral therapy is recommended.[34,35]
Septic arthritis of hand and wrist native joints	14 days	1 RCT (N=154)[36]	No data available	No data available	No difference in clinical remission	No difference in recurrence[36]	No difference in antibiotic ADE or neurologic or mechanical sequalae[36]	Patients underwent drainage of joints as part of clinical management. Oral therapy recommended as step down.[36]
Variceal bleed	3 day	1 RCT (N=71)[37]	No difference in 28 day survival	No data available	No difference in rebleeding rate[37]	No difference in transfusion amount[37]	*Limited/ insufficient data*	Infection in cirrhotic patients with variceal bleed will most likely occur within 48 hours.[38]

*Direct recommendation from American College of Physicians (ACP) Guidelines
**Direct recommendation from the Infectious Diseases Society of America (IDSA)

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