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ADULT PERI-OPERATIVE ANTIBIOTIC PROPHYLAXIS

ANTIBIOTIC TIMING: Antibiotics should be given within the one (1) hour preceding surgical incision, re-scope and/or DUHS-wide with hospital-specific variation included where applicable. 2 hours are permitted for vancomycin and ciprofloxacin due to longer infusion times.

ANTIBIOTIC DISCONTINUATION: Continuing antibiotic prophylaxis after closure of incision does not reduce the risk of infection and is unnecessary. Organizations such as SCIP allow prophylactic antibiotics for up to 24 hours after surgery end time (48 hours for cardiac) but these antibiotics are unnecessary.

***PATIENTS WITH PENICILLIN/CEPHALOSPORIN (BETA-LACTAM) ALLERGIES:** Alternate regimen recommended for patients with history of confirmed cefazolin allergy, any cephalosporin anaphylaxis, or high-risk PCN/cephalosporin allergy (e.g. severe skin reaction (eg. SJS); history of kidney or liver injury). In patients with history of anaphylaxis to penicillin, a non-cross-reactive cephalosporin (eg. Cefazolin) can be administered routinely without prior testing. Caution with use of non-cefazolin cephalosporin surgical prophylaxis in patients with history of non-anaphylactic IgE-mediated cephalosporin allergy.

VANCOMYCIN DOCUMENTATION: Reason for using vancomycin must be documented before surgery start.

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INTRA-OPERATIVE ANTIBIOTIC REDOSING: Intra-operative redosing of antibiotics should occur at the intervals provided in increments after the time of the first (pre-op) dose.

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	Cefazolin	Ceftriaxone	Clindamycin	Ciprofloxacin	Levofloxacin	Gentamicin	Metronidazole	Vancomycin	Ertapenem	Ampicillin/ sulbactam	Piperacillin/ tazobactam
Initial Adult Dose	Wt <120 kg: 2g	2g	900mg	400mg	500mg	5mg/kg	500mg	Wt <80 kg: 1g	1g	3g	3.375g
	Wt ≥ 120 kg: 3g							Wt 81-119kg: 1.5g			
								Wt >120kg: 2 g			
Administration	IVP	30 min infusion	30 min infusion	60 min infusion	60 min infusion	30 min infusion	30 min infusion	60 min/g infusion	30 min infusion	30 min infusion	30 min infusion
		Redosing Interval During Surgery									
CrCl>50 mL/min	4 hours	do not redose	6 hours	8 hours	do not redose	do not redose	12 hours	12 hours	do not redose	4 hours	4 hours
CrCl 30-50 mL/min	4 hours	do not redose	6 hours	8 hours	do not redose	do not redose	12 hours	do not redose	do not redose	4 hours	4 hours
CrCl 10-30 mL/min	8 hours	do not redose	6 hours	do not redose	do not redose	do not redose	12 hours	do not redose	do not redose	8 hours	8 hours
CrCl<10 mL/min; HD	do not redose	do not redose	6 hours	do not redose	do not redose	do not redose	12 hours	do not redose	do not redose	do not redose	do not redose
	MASSIVE BLOOD LOSS (≥ 1500 mL) or BYPASS SURGERY (redose at time of blood loss or post-bypass surgery unless noted below to not redose)										
							do not redose		do not redose		

GENERAL SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
PEG or PEG revision	cefazolin	clindamycin + ciprofloxacin
hernia repair	cefazolin	clindamycin
hernia repair with MRSA risk factors	cefazolin + vancomycin	vancomycin
complicated, emergent or repeat inguinal hernia repair	cefazolin + metronidazole	clindamycin + ciprofloxacin
colorectal procedures DUH and DRAH	ertapenem	ciprofloxacin + metronidazole
colorectal procedures DRH	cefazolin + metronidazole or ceftriaxone + metronidazole	ciprofloxacin + metronidazole
abdominal trauma**	cefazolin + metronidazole	ciprofloxacin + metronidazole
appendectomy (if complicated or perforated, treat as secondary peritonitis)	cefazolin + metronidazole	ciprofloxacin + metronidazole
small bowel procedures	cefazolin + metronidazole	ciprofloxacin + metronidazole
distal pancreatectomy (ERAS)	cefazolin	clindamycin + ciprofloxacin
whipple procedures (ERAS)	piperacillin-tazobactam	clindamycin + ciprofloxacin
bariatric surgery	cefazolin + metronidazole	clindamycin+ ciprofloxacin
liver resection - clean (ERAS)	cefazolin	clindamycin + ciprofloxacin
liver resection involving biliary tract or other organs (ERAS)	cefazolin + metronidazole	clindamycin + ciprofloxacin
biliary tract procedures (i.e. open cholecystectomy, choledochoenterostomy)	cefazolin + metronidazole	clindamycin + ciprofloxacin
laporoscopic cholecystectomy	cefazolin	clindamycin
procedure involving entry into lumen of upper GI tract, gastric bypass, nissen fundoplication	cefazolin + metronidazole	clindamycin + ciprofloxacin

**More guidance provided here: Adult Trauma Procedure and Injury Prophylaxis (Open Fracture, Facial Fracture) | Duke CustomID

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ORTHOPEDIC SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
clean operations involving hand, knee, shoulder or foot arthroscopy	prophylaxis is not recommended	
total joint replacement	cefazolin	vancomycin + ciprofloxacin
total joint replacement with MRSA risk factors or mega-prosthesis	cefazolin + vancomycin	vancomycin + ciprofloxacin
hip fracture repair	cefazolin	vancomycin + ciprofloxacin
hip fracture repair with MRSA risk factors	cefazolin + vancomycin	vancomycin + ciprofloxacin
open fracture type I and II	cefazolin	clindamycin
open fracture type III	cefepime	aztreonam + clindamycin
open fracture type III with concern for soil/feces contamination (*Clostridium* risk)	piperacillin-tazobactam	cefepime + metronidazole OR aztreonam + metronidazole + clinda
closed fracture	cefazolin	vancomycin
lower limb amputation	cefazolin	vancomycin + gentamicin

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CARDIAC SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
standard, NO valve/implant surgery	cefazolin	vancomycin + ciprofloxacin (use vancomycin 20 mg/kg dose)
major aortic/debranching/TEVAR/TAVR	cefazolin + vancomycin (use vancomycin 20 mg/kg dose)	vancomycin + ciprofloxacin (use vancomycin 20 mg/kg dose)
valve surgery (continuous infusion cefazolin used for intraop redosing)	cefazolin + vancomycin (use vancomycin 20 mg/kg dose)	vancomycin + ciprofloxacin (use vancomycin 20 mg/kg dose)
pacemaker or ICD insertion inc. wire & generator change	cefazolin	vancomycin
pacemaker or ICD insertion with MRSA risk factors	cefazolin + vancomycin	vancomycin
VAD insertion with or without open chest	cefazolin + vancomycin + fluconazole	vancomycin + ciprofloxacin + fluconazole

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THORACIC SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
lobectomy, pneumonectomy, lung resection, thoracotomy, VATS	cefazolin	clindamycin
esophageal cases	cefazolin + metronidazole	clindamycin + ciprofloxacin

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NEUROSURGERY & SPINE SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
craniotomy, re-do crani, CSF shunting procedure (*DUH ONLY*)	cefazolin + vancomycin	vancomycin + ciprofloxacin
craniotomy, CSF shunting procedure (*DRH, DRAH*)	cefazolin	vancomycin
craniotomy, CSF shunting procedure WITH MRSA colonization/infection (*DRH, DRAH*)	cefazolin + vancomycin	vancomycin + ciprofloxacin
re-do crani (*DRH, DRAH*)	cefazolin	vancomycin + ciprofloxacin
Spine Implant-associated (includes fusion, ACDF)	cefazolin + vancomycin	vancomycin + ciprofloxacin
Spine No implant (includes laminectomy, microdiscectomy)	cefazolin (add vancomycin if MRSA risk factors)	vancomycin + ciprofloxacin

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GYNECOLOGIC SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
cesarean delivery procedures	cefazolin (add azithromycin for nonelective procedure)	clindamycin + gentamicin (add azithromycin for nonelective procedure)
hysterosalpingogram, chromotubation (for patients with history of PID or dilated tubes)	doxycycline	doxycycline
induced abortion/D&E	doxycycline PO 1 hr before procedure	azithromycin 500mg PO 1 hour prior to procedure
hysterectomy (any route) or urogyn procedures including those involving mesh	cefazolin	clindamycin or vancomycin PLUS gentamicin 1.5 mg/kg or ciprofloxacin
hysterectomy with procedures involving the colon	ertapenem (**DUH, DRAH**); cefazolin + metronidazole (**DRH**)	metronidazole PLUS gentamicin 1.5 mg/kg or ciprofloxacin
cystoscopy	ciprofloxacin	ciprofloxacin
laparoscopy (diagnostic, operative, tubal sterilization)	none indicated	
hysteroscopy (diagnostic, operative, endometrial ablation, essure)	none indicated	
IUD insertion	none indicated	
endometrial biopsy	none indicated	

****NOTE: Use of BMI based dosing can be utilized for GYN procedures****

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VASCULAR SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
low risk (upper extremity grafts/procedures with NO MRSA risk factors)	cefazolin	vancomycin
high risk (upper extremity WITH MRSA risk factors, lower extremity procedures, procedures involving groin incision, abdominal aorta repair)	cefazolin + vancomycin	vancomycin + gentamicin

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UROLOGIC SURGERY/PROCEDURES	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
cystoscopy, endoscopy	cefazolin (or gentamicin 80 mg if history of drug resistance)	ciprofloxacin (or gentamicin 80 mg if history of drug resistance)
percutaneous renal surgery	cefazolin + gentamicin	clindamycin + gentamicin
transrectal prostate biopsy based on rectal screen results 1. ciprofloxacin susceptible 2. ciprofloxacin resistant	1. ciprofloxacin 2. gentamicin 80mg IM or ceftriaxone 2g IM	1. n/a 2. gentamicin
surgery, no bowel involvement	cefazolin	clindamycin (add gentamicin if involving entry into urinary tract)
surgery, bowel involvement	cefazolin + metronidazole	ciprofloxacin + metronidazole
pubovaginal sling	cefazolin	clindamycin + gentamicin
AUS/IPP	cefazolin + gentamicin	vancomycin + gentamicin
AUS/IPP redo	vancomycin + gentamicin	vancomycin + gentamicin

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HEAD AND NECK SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
clean procedures (e.g. adeniodectomy, parotidectomy, thyroidectomy, tonsillectomy)	prophylaxis is not recommended	prophylaxis is not recommended
clean with prosthesis placement	cefazolin	clindamycin
clean-contaminated procedures (oropharyngeal mucosa is compromised)	ampicillin-sulbactam (cefazolin + metronidazole if mild PCN allergy)	clindamycin + gentamicin

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TRANSPLANT SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
kidney donor (ERAS)	cefazolin	clindamycin
heart transplant	cefazolin + vancomycin	vancomycin + ciprofloxacin
lung transplant	cefepime extended infusion + vancomycin	vancomycin + aztreonam
liver transplant	cefazolin	levofloxacin + metronidazole

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INTERVENTIONAL RADIOLOGY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
New and revision implanted ports	cefazolin	clindamycin
New tunneled peritoneal drainage catheter	cefazolin	clindamycin
Bone ablation	cefazolin	clindamycin
Hepatic ablation	cefazolin + metronidazole	clindamycin + ciprofloxacin
new and revision biliary ductal system procedures	cefazolin + metronidazole	clindamycin + ciprofloxacin
Hepatic embolization	cefazolin + metronidazole	clindamycin + ciprofloxacin
New jejunostomy insertion	cefazolin + metronidazole	clindamycin + ciprofloxacin
New and revision renal collecting system procedures	ceftriaxone 1g	clindamycin + ciprofloxacin
Renal ablation	ceftriaxone 1g	clindamycin + ciprofloxacin
Fibroid embolization	cefazolin	clindamycin + ciprofloxacin

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PLASTIC SURGERY	PREFERRED PROPHYLAXIS	ALTERNATIVE REGIMEN
lumpectomy	cefazolin	clindamycin
reduction mammaplasty	cefazolin	clindamycin
mastectomy with or without axillary dissection or reconstruction	cefazolin	clindamycin
partial mastectomy for cancer with or without sentinel lymph node biopsy or axillary dissection	cefazolin	clindamycin
tissue expander insertion/implants/all flaps	cefazolin	clindamycin
other clean with risk factors or clean-contaminated procedures	cefazolin	clindamycin

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