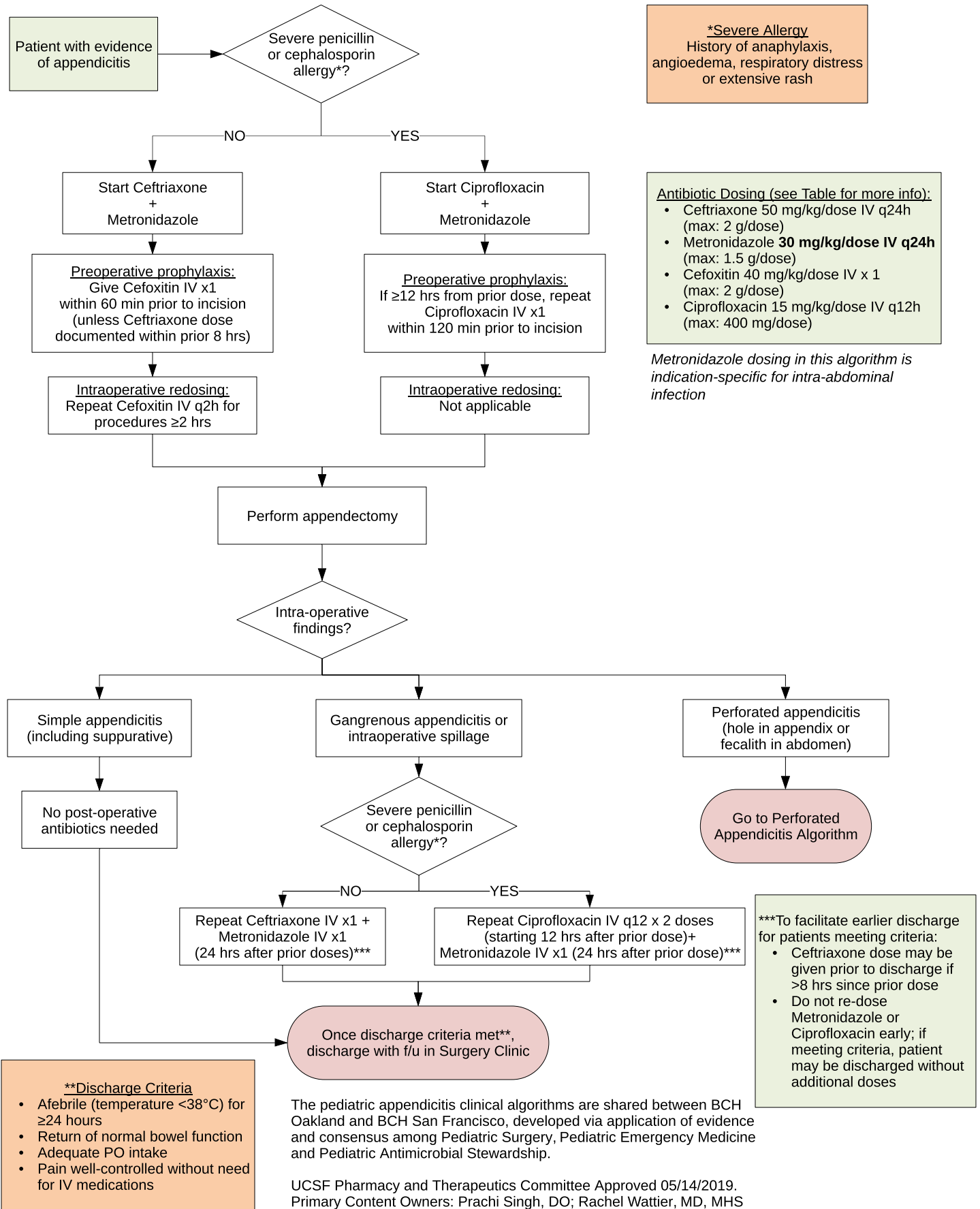


Pediatric Appendicitis Clinical Algorithm

This algorithm was developed for immunocompetent children. It serves as a guideline only and should not replace clinical judgment.



***Severe Allergy**
History of anaphylaxis, angioedema, respiratory distress or extensive rash

Antibiotic Dosing (see Table for more info):

- Ceftriaxone 50 mg/kg/dose IV q24h (max: 2 g/dose)
- Metronidazole 30 mg/kg/dose IV q24h (max: 1.5 g/dose)
- Cefoxitin 40 mg/kg/dose IV x 1 (max: 2 g/dose)
- Ciprofloxacin 15 mg/kg/dose IV q12h (max: 400 mg/dose)

Metronidazole dosing in this algorithm is indication-specific for intra-abdominal infection

****Discharge Criteria**

- Afebrile (temperature <38°C) for ≥24 hours
- Return of normal bowel function
- Adequate PO intake
- Pain well-controlled without need for IV medications

*****To facilitate earlier discharge for patients meeting criteria:**

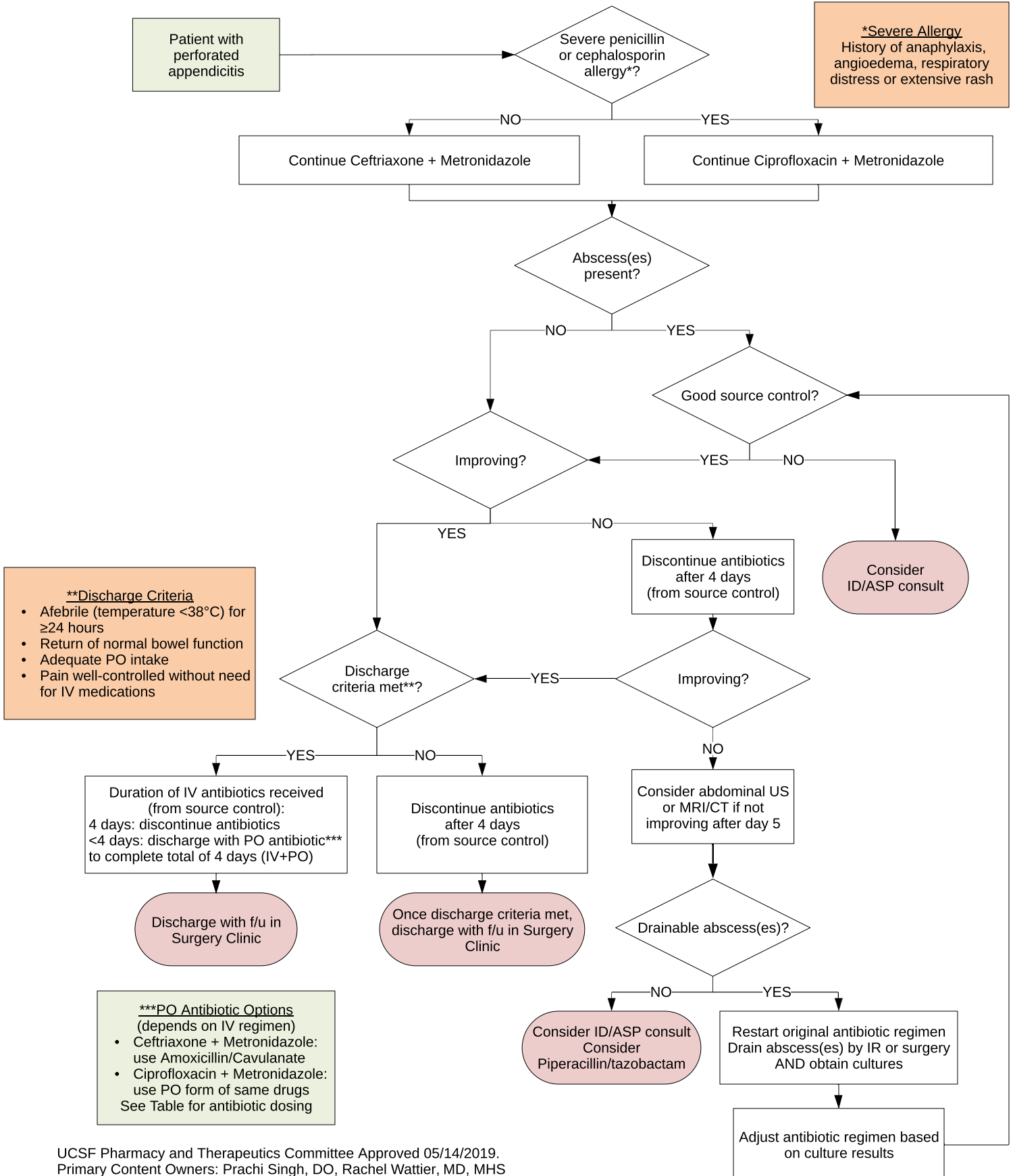
- Ceftriaxone dose may be given prior to discharge if >8 hrs since prior dose
- Do not re-dose Metronidazole or Ciprofloxacin early; if meeting criteria, patient may be discharged without additional doses

The pediatric appendicitis clinical algorithms are shared between BCH Oakland and BCH San Francisco, developed via application of evidence and consensus among Pediatric Surgery, Pediatric Emergency Medicine and Pediatric Antimicrobial Stewardship.

UCSF Pharmacy and Therapeutics Committee Approved 05/14/2019. Primary Content Owners: Prachi Singh, DO; Rachel Wattier, MD, MHS

Pediatric Perforated Appendicitis Clinical Algorithm

This algorithm was developed for immunocompetent children.
It serves as a guideline only and should not replace clinical judgment.



***Severe Allergy**
History of anaphylaxis, angioedema, respiratory distress or extensive rash

****Discharge Criteria**

- Afebrile (temperature <38°C) for ≥24 hours
- Return of normal bowel function
- Adequate PO intake
- Pain well-controlled without need for IV medications

*****PO Antibiotic Options**
(depends on IV regimen)

- Ceftriaxone + Metronidazole: use Amoxicillin/Cavulanate
- Ciprofloxacin + Metronidazole: use PO form of same drugs

See Table for antibiotic dosing

Pediatric Appendicitis Clinical Algorithm Antimicrobial Dosing

Antimicrobial	Appendicitis (All Types) Pre-operative and Intra-operative Dosing			Gangrenous Appendicitis Post-operative Dosing	Perforated Appendicitis Post-operative Dosing
	Pre-op dosing (beginning at diagnosis)	Pre-incisional dosing	Intra-op re- dosing interval		
Amoxicillin/Clavulanate (max: 875 mg Amoxicillin/dose)	N/A	N/A	N/A	N/A	22.5 mg/kg/dose Amoxicillin component PO q12hrs
Cefoxitin (max: 2 g/dose)	N/A	40 mg/kg/dose IV x1 within 60 minutes prior to incision, unless Ceftriaxone given within prior 8 hrs	q2hrs	N/A	N/A
Ceftriaxone (max: 2 g/dose)	50 mg/kg/dose IV q24hrs	N/A	N/A	50 mg/kg IV x 1 dose given 24 hrs after prior dose (may administer post-op dose early to facilitate discharge, if >=8 hours since prior dose)	50 mg/kg/dose IV q24hrs
Ciprofloxacin (max IV: 400 mg/dose) (max PO: 500 mg/dose)	15 mg/kg/dose IV q12hrs	15mg/kg/dose IV x 1 within 120 minutes prior to incision, if >=12 hours from prior dose	N/A	15 mg/kg/dose IV q12hrs x 2 doses starting 12 hrs after prior dose	15 mg/kg/dose IV q12hrs OR 15mg/kg/dose PO BID
Metronidazole (max q24 IV: 1.5 g/dose) (max PO: 500 mg/dose)	30 mg/kg/dose IV q24hrs	N/A	N/A	30 mg/kg/dose IV x 1 dose given 24 hrs after prior dose	30 mg/kg/dose IV q24hrs OR 10 mg/kg/dose PO TID
Piperacillin/tazobactam (Zosyn) (max: 4 g Piperacillin/dose)	N/A	N/A	N/A	N/A	80mg/kg/dose Piperacillin component IV q6hrs

References

- Snelling CM et al. Minimum postoperative antibiotic duration in advanced appendicitis in children: a review. *Pediatr Surg Int* 2004; 20: 838-45.
- Wang S et al. Metronidazole single versus multiple daily dosing in serious intraabdominal/pelvic and diabetic foot infections. *Journal of Chemotherapy* 2007; 19(4): 410-416.
- Coakley BA et al. Postoperative antibiotics correlate with worse outcomes after appendectomy for nonperforated appendicitis. *J Am Coll Surg* 2011;213:778-83.
- St. Peter SD et al. Single daily dosing ceftriaxone and metronidazole vs. standard triple antibiotic regimen for perforated appendicitis in children: a prospective randomized trial. *Journal of Pediatric Surgery* 2008; 43: 981-985.
- Bratzler DW et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. *American Journal of Health-System Pharmacy* 2013; 70(3): 195-283.
- Yardeni D et al. Single daily dosing of ceftriaxone and metronidazole is as safe and effective as ampicillin, gentamicin and metronidazole for non-operative management of complicated appendicitis in children. *Pediatric Therapeutics* 2013; 3(5): 177-179.
- Van Rossem CC et al. Duration of antibiotic treatment after appendectomy for acute complicated appendicitis. *British Journal of Surgery* 2014; 101: 715-719.
- Romano A et al. Simple acute appendicitis versus non-perforated gangrenous appendicitis: is there a difference in the rate of post-operative infectious complications? *Surgical Infections* 2014;15: 517-20.
- Shbat L et al. Benefits of an abridged antibiotic protocol for treatment of gangrenous appendicitis. *J Ped Surg* 2014;49: 1723-5.
- Sawyer RG et al. Trial of short-course antimicrobial therapy for intraabdominal infection. *NEJM* 2015; 372(21): 1996-2005.
- Kronman MP et al. Extended- versus narrower-spectrum antibiotics for appendicitis. *Pediatrics* 2016; 138(1).
- van Rossem CC et al. Antibiotic duration after laparoscopic appendectomy for acute complicated appendicitis. *JAMA Surgery* 2016; 151(4): 323-329.
- Bae E et al. Postoperative antibiotic use and the incidence of intra-abdominal abscess in the setting of suppurative appendicitis: a retrospective analysis. *Am J Surg* 2016;212: 1121-5.
- Berrios-Torres, SI et al. Centers for Disease Control and Prevention guideline for the prevention of surgical site infection. *JAMA Surgery* 2017; 152(8): 784-791.
- Mazuski JE et al. The Surgical Infection Society revised guidelines on the management of intra-abdominal infection. *Surg Inf* 2017;18:1-76.