

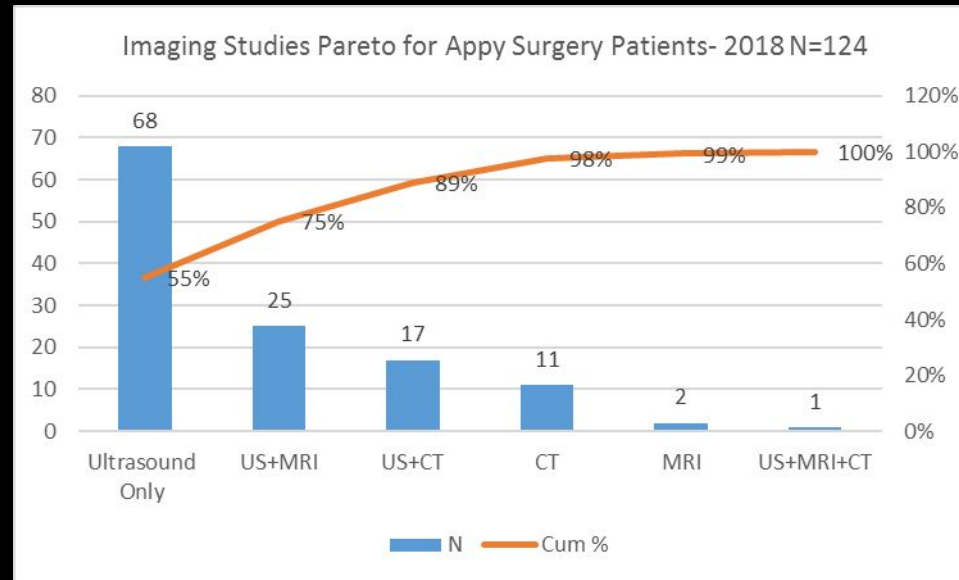
ED appendicitis pathway

Thanks!

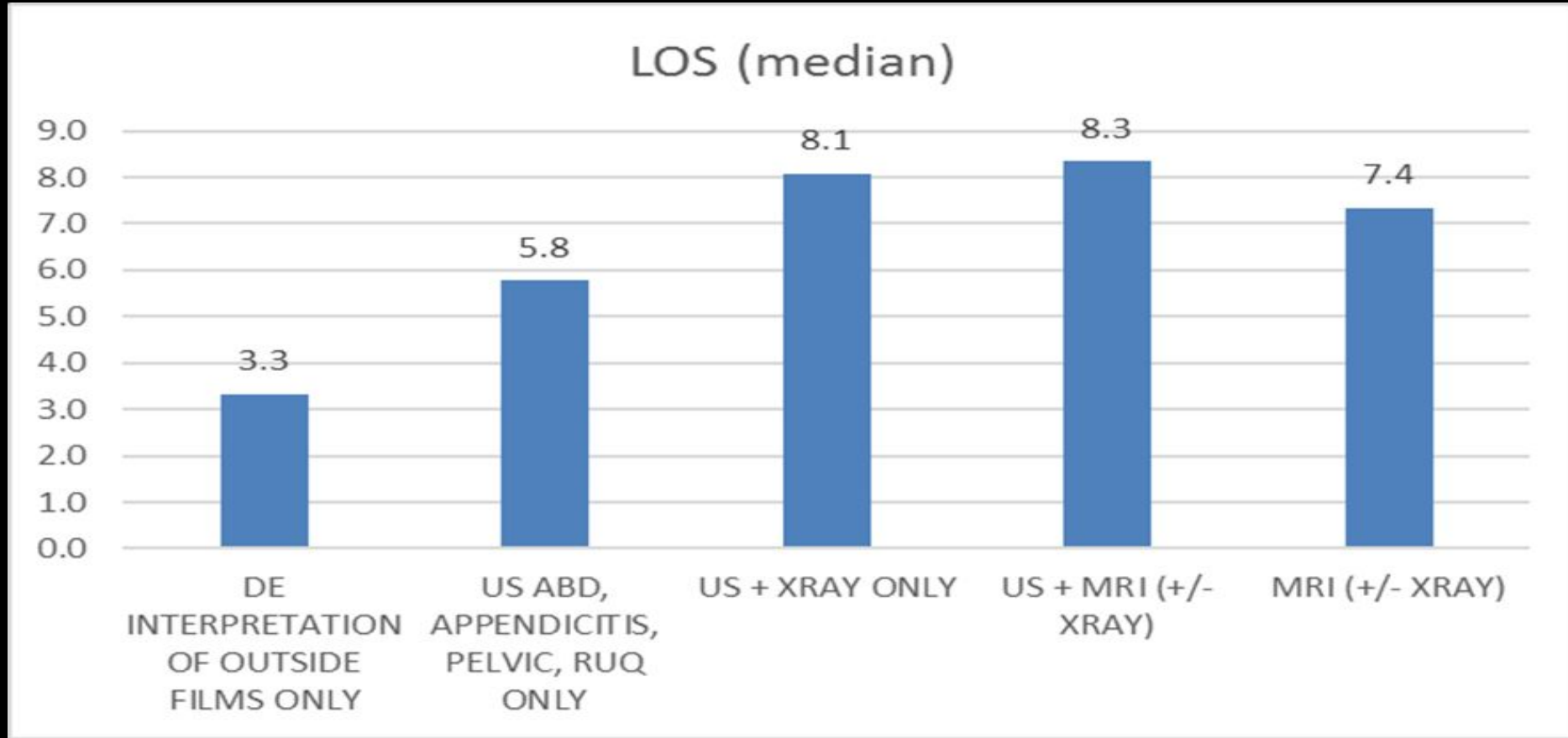


- Reconfirmed that MRI with incomplete visualization of a normal appendix without secondary signs of appendicitis had an NPV of 97.9. Though not statistically significant, rate changed to 98.1 and 98.2% when combined with WBC cut offs of 10 and 7.5 respectively.
- US rates with incomplete visualization of a normal appendix without secondary signs had a NPV of 85.3 that improved to 94.8 and 96.5% when combined with WBC cut offs of 10 and 7.5 respectively and may identify low risk groups.

Imaging Studies at AIDHC ED Jan-July 2018



ED LOS 2018 (Jan-July)



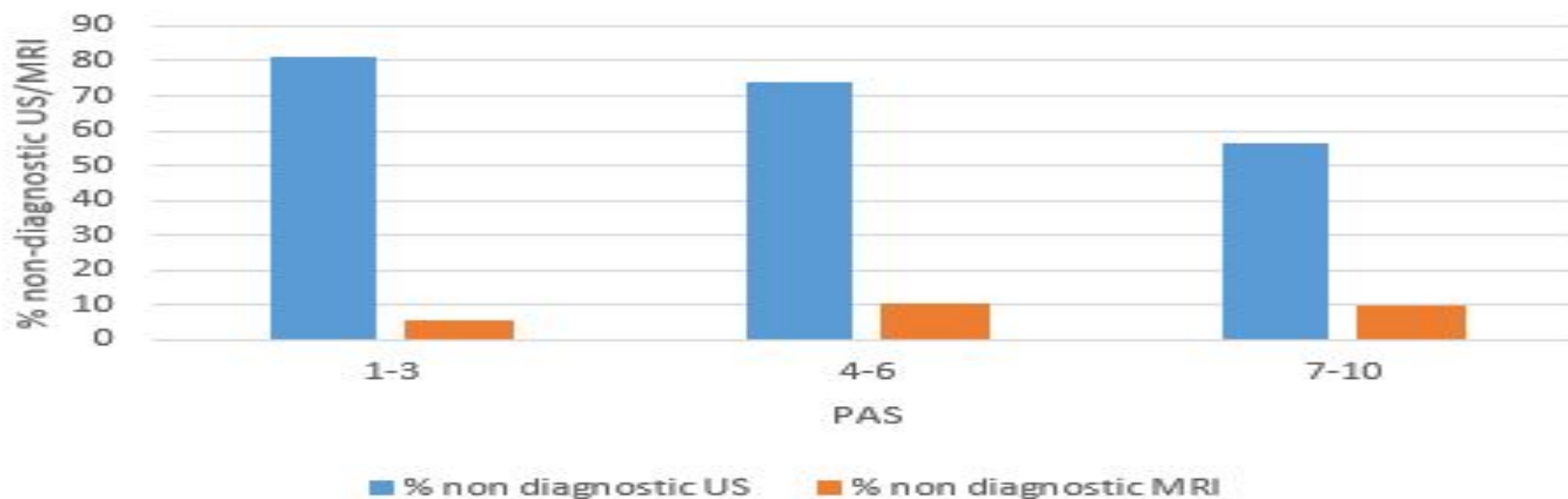
Appendicitis Cost

	N	Imaging Costs	ED Costs	Inpatient Stay Costs	Patients Admitted (N)	% Admitted
CT	21	\$ 865.84	\$ 790.48	\$ 1,997.86	5	24%
US	90	\$ 290.84	\$ 744.39	\$ 1,466.08	10	11%
US+MRI	39	\$ 1,509.39	\$ 790.48	\$ 1,271.25	7	18%
US+CT	8	\$ 974.73	\$ 895.05	\$ 3,595.99	3	38%
US+MRI+CT	2	\$ 2,196.09	\$ 979.43	\$ 2,293.18	1	50%
MRI	7	\$ 1,284.95	\$ 688.45	\$ 1,378.40	1	14%

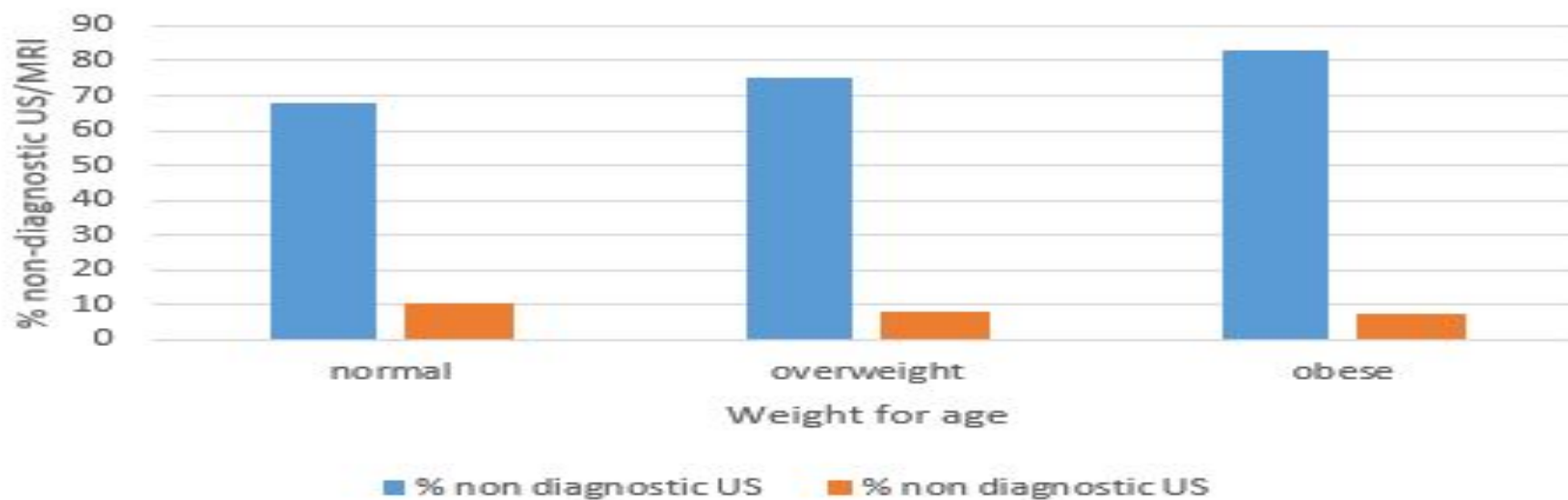
Review of our data: 2017

- **A total of 940 US and 250 MRIs were performed in 971 patients**
- Overall, 73% of US and 10% of MRI were non-diagnostic.
- **Female gender, obesity and low Pediatric Appendicitis Score (PAS)** were associated with non-diagnostic US, but not MRI

PAS score



Weight for age



Variable	Odds Ratio	(95% CI)	p-value
Age			
Age <5	2.0	1.1 – 3.6	0.022
Age 5-10	1.0	0.7 – 1.4	0.904
(reference age>10)			
Gender			
Female (reference is male)	2.0	1.4 – 2.7	<.0001
Obesity			
Overweight (W/A 75-90 percentile)	1.418	0.9 – 2.1	0.0996
Obese (W/A >= 90 percentile)	2.38	1.6 – 3.6	<.0001
(reference is normal W/A)			
PAS			
low (1-3)	3.36	2.1 – 5.3	<.0001
intermediate (4 - 6)	2.339	1.6 – 3.4	<.0001
(reference is high PAS (7-10))			

APPENDICITIS PATHWAY- DRAFT

INCLUSION CRITERIA:
Age > 2 years
Concern for Appendicitis

Exclusion Criteria:
Age < 2 years
Immunocompromised
Appendicitis readmission

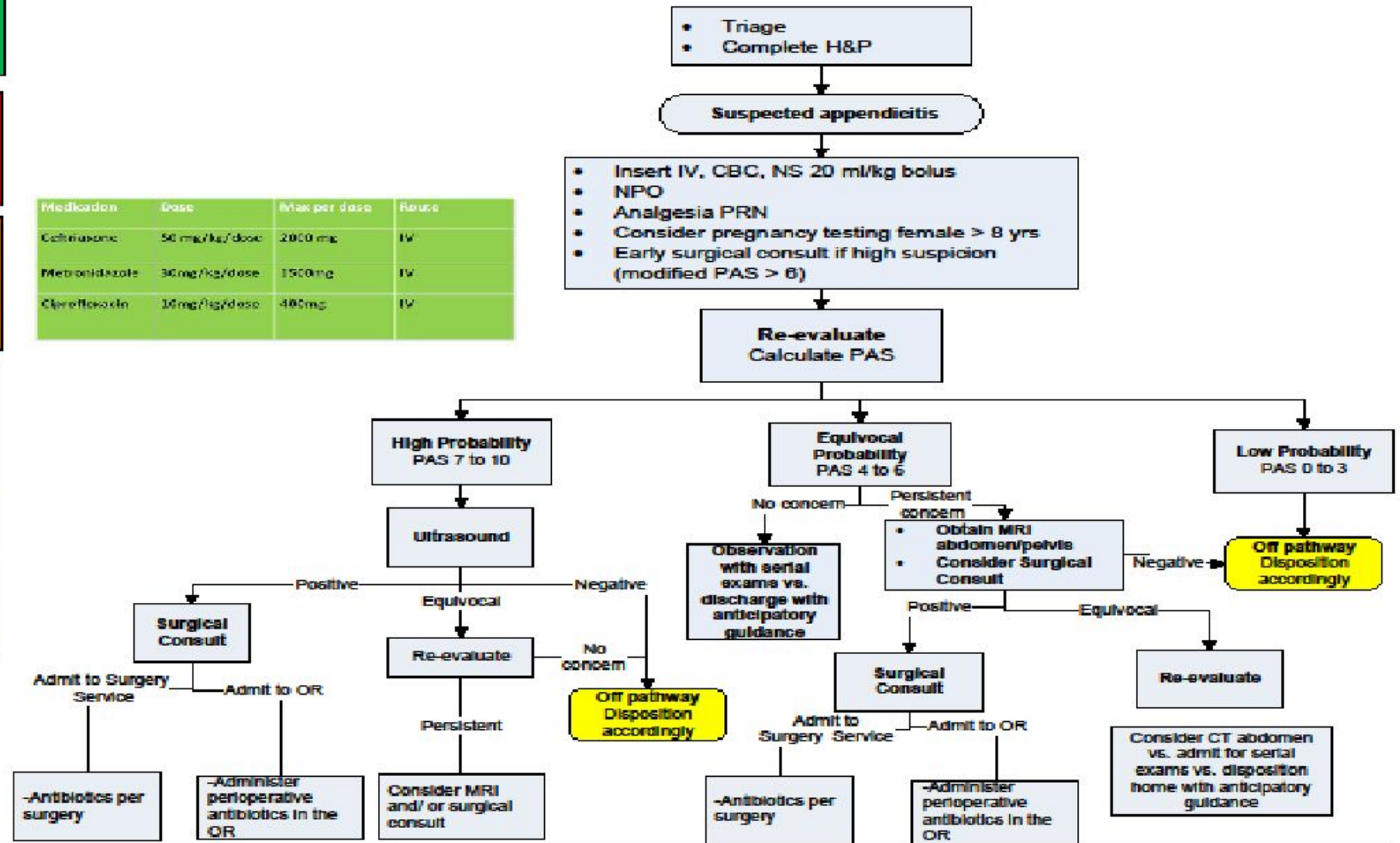
TARGETS:
Appendicitis Order Set to PAS score < 60 min
Surgical Consult within 60 min

Medication	Dose	Max per dose	Route
Ceftriaxone	50 mg/kg/dose	2000 mg	IV
Metronidazole	30 mg/kg/dose	1500 mg	IV
Cloxacillin	10 mg/kg/dose	400 mg	IV

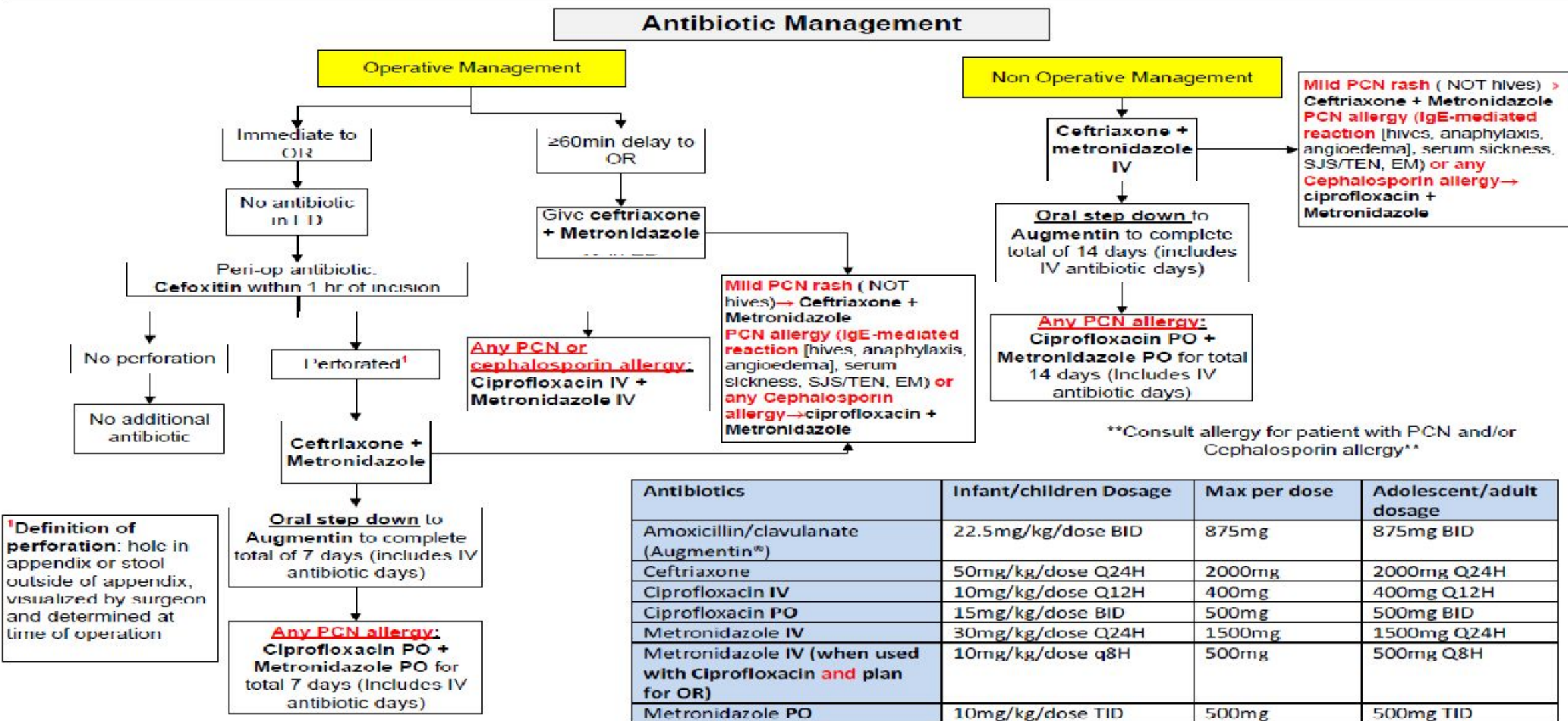
Pediatric Appendicitis score (PAS) (max 10 pts)
(use for children >= 4 years)
-Migration of pain to RLQ (1)
-Cough/Hopping/Percussion tenderness in RLQ (2)
-Anorexia (1)
-Elevation of temperature (fever > 38 degrees C in healthcare facility) (1)
-Nausea/Vomiting (1)
-Leukocytosis (>=10,000/mm3) (1)
RLQ tenderness (2)
Differential WBC with left shift (PMN >=75%) (1)
*The PAS is the cumulative point total from all clinical findings

Modified PAS
PAS without labs (max 8 pts)

Negative MRI that does not show secondary signs of appendix



APPENDICITIS PATHWAY- DRAFT



▼ Imaging

Calculate the cumulative PAS score to determine appropriate imaging study (for children ≥ 4 years)

Migration of pain to RLQ (1 pt)

Cough/Hopping/Percussion tenderness in RLQ (2 pts)

Anorexia (1 pt)

Elevation of temperature >38 in healthcare facility (1 pt)

Nausea/Vomiting (1 pt)

Leukocytosis $>10,000/\text{mm}^3$ (1 pt)

RLQ tenderness (2 pts)

Left shift PMN $>75\%$ (1 pt)

Ultrasound - Appendicitis

STAT, RAD 1 TIME IMAGING

MRI Imaging - Appendicitis

If an MRI study is warranted, enter both the Abdomen and Pelvis studies.

MRI Abdomen w/o contrast

⚠ P STAT, RAD 1 TIME IMAGING

Reason for exam: Right lower quadrant pain concerning for appendicitis

MRI PELVIS W/O CONTRAST

⚠ P STAT, RAD 1 TIME IMAGING

Reason for exam: Right lower quadrant pain concerning for appendicitis

CT Abdomen and Pelvis w/ Contrast - Appendicitis

STAT, RAD 1 TIME IMAGING

Ultrasound Appendicitis

Priority:

STAT Routine **STAT**

Frequency:

RAD 1 TIME IMAGING

For: Occurrences Hours Days Weeks

Starting: Today Tomorrow At: [Show Additional Options](#)

Starting: **Today 1411 Until Specified**

There are no scheduled times based on the current order parameters.

Modifiers:

Reason for exam:

Right lower quadrant pain concerning for appendicitis

PAS score

Portable

Yes No

Comments:

[+ Add Comments \(F6\)](#)

Reference Links:

1. [Clinical Decision Support](#)

Phase of Care:

Class:

Nemours