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## Background

- Despite multiple therapeutic advances, including the advent of biologics, rates of urgent inpatient colectomy have remained stable.<sup>1</sup>
- Many presently validated risk stratification tools utilize data that is not readily available on admission to assess risk of colectomy.<sup>2,3</sup>
- Early identification of risk for failure of medical therapies and need for colectomy becomes critical to avoid unnecessary and dangerous delays in care.<sup>4,5</sup>

## Specific Aims

Our study aimed to determine the **predictive value of the change in C-reactive protein (CRP)** during hospitalization for severe UC.

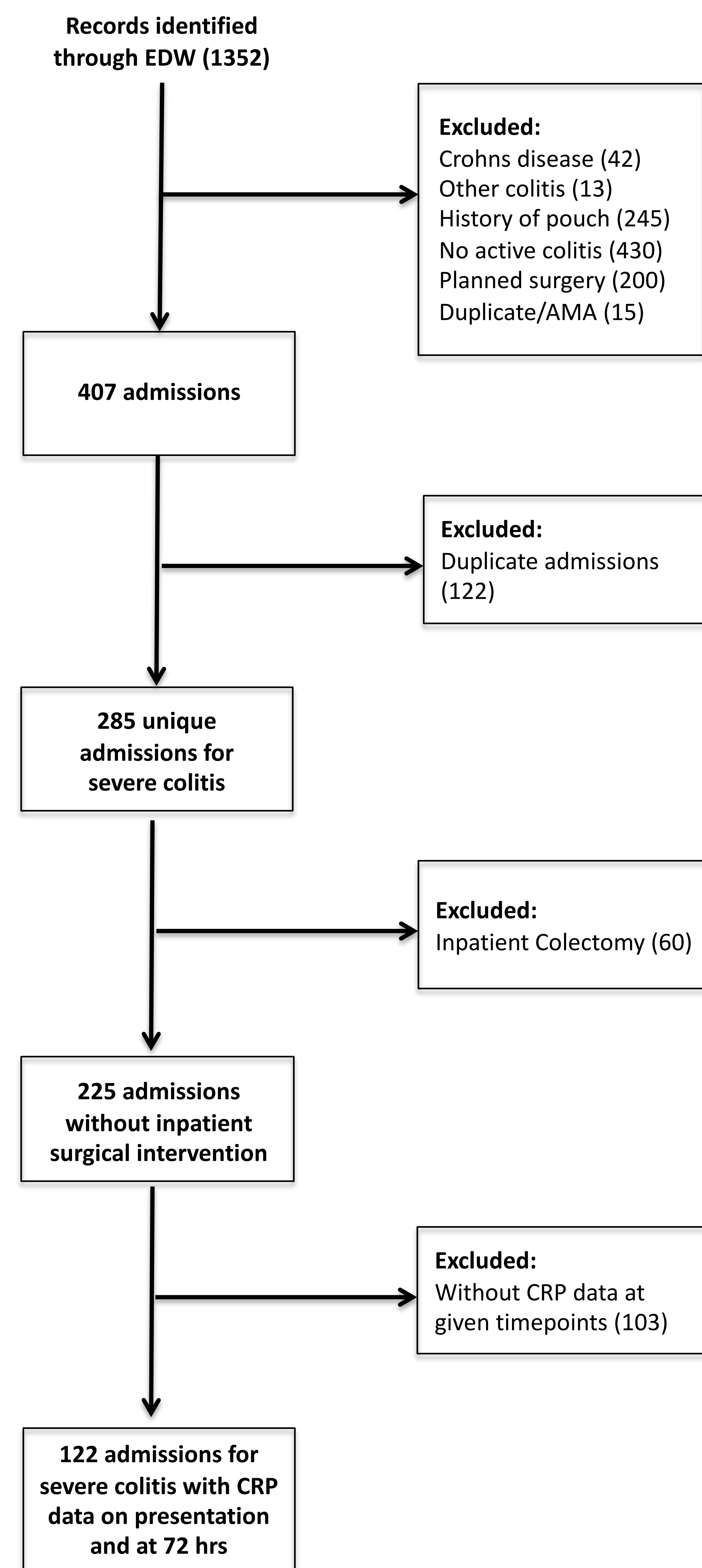
## Methods

- We designed a retrospective study including patients > 18 years old with an admission for UC at a single academic center between 1/1/2013 and 4/1/2018.
- Cases were identified using the ICD-9 code 556.X and ICD-10 code K51.X and separately, manually verified.
- Clinical variables of interest and laboratory values were obtained via chart review or extracted from the electronic medical record.

**Analysis.** Wilcoxon rank-sum test for continuous variables, and Fischer's exact test for categorical variables. Statistical analysis was conducted using JMP ® 13.1.0.

## Results

**Figure 1.** Baseline Characteristics of Sample.



- 122 hospitalized patients met inclusion criteria.
- Median age of 30.2 (IQR: 22.8-46.9) years.
- 72 (59%) patients were male and 89 (73.6%) were Caucasian.
- 27 (22.3%) patients required inpatient colectomy and 49 (41.5%) had a colectomy within one year of index admission.

## Results cont'd

**Table 1.** Predictors of Colectomy during Inpatient Admission.

Risk Factors:	Colectomy	No Colectomy	P-value
Age (years), mean (SD)	37.98 (18.51)	35.08 (14.3)	0.644
Male Sex, n (%)	14 (51.85)	58 (61.05)	0.506
White Race, n (%)	21 (77.78)	68 (72.34)	0.631
Presentation with Severe Colitis, n (%)	27 (100)	82 (86.32)	0.07
Prior Admission requiring IV Steroids, n (%)	17 (62.96)	34 (35.79)	0.015
Hospitalization in prior 4 weeks, n (%)	23 (39.0)	50 (24.5)	0.047*
Biologic naïve, n (%)	7 (25.93)	50 (52.63)	0.024
Single prior biologic class	12 (44.44)	33 (34.74)	
Multiple prior biologic classes	8 (29.63)	12 (12.63)	0.66
Steroids usage prior to Presentation, n (%)	17 (62.96)	53 (55.79)	
Inpatient salvage therapy	13 (48.15)	61 (64.21)	<0.001
<b>Laboratory Data: Mean (SD)</b>			
Admission CRP	45.7 (35.1)	52.89 (56.31)	0.7
72 hour CRP	37.41 (45.03)	26.52 (34.43)	0.178
72 hour change in CRP %	-26.5 (58.74)	-47.19 (55.81)	0.051

- Percent change in CRP between admission and 72 hours predicts the risk of medical therapy failure and inpatient colectomy ( $p=0.051$ ), whereas the values of CRP on admission and at 72 hours do not predict the need for surgery.**
- Among patients with an increase in CRP at 72 hours, 9/21 (42.9%) required inpatient colectomy, as compared to those without an increase in CRP 18/101 (17.8%) ( $p=0.019$ ).**
- The percent change in CRP at 72 hours notably predicted risk of colectomy at 1-year interval (-53.3 (50.7) vs -33.7 (49.6),  $p=0.003$ ).**

## Conclusions

- Percent change in CRP at 72 hours from admission better prognosticates the need for surgery, compared to CRP on admission alone.**
- Herein, we show that a reduction in CRP by 50% 72 hours from admission is an objective and easily determined measurement to risk stratify patients early in the admission for UC.

## Strengths/Limitations

- Strengths:**
  - 5-year duration of research study.
- Limitations:**
  - Single institution
  - Retrospective dataset

## Future Directions

- Investigate whether CRP, given at admission, at 72 hours, or percent change therein, may predict response to a given step in escalation of medical therapy (e.g. salicylates, steroids, biologics), even prior to consideration of colectomy.
- Identify & evaluate other objective data points obtained on admission in predicting risk of colectomy.
- Attempt prospective trials in utilizing percent change in CRP to predict risk of colectomy.

## References

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