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INTRODUCTION

Malnutrition is highly prevalent in patients with inflammatory bowel disease (IBD). Nutritional assessment tools have been created to identify malnourished individuals and facilitate prompt nutritional intervention. The Malnutrition Universal Screening Tool (MUST) is a validated tool recommended for patients across all healthcare settings.

AIM

In the present study, we implemented MUST among patients with IBD at outpatient clinics in an academic health system to examine the relationship between patient and clinical characteristics, and laboratory markers of nutrition with the MUST nutritional risk score.

METHODS

This was a multi-center retrospective study conducted in outpatient clinics throughout the MedStar healthcare system. A total of 199 patients with IBD were screened using MUST between February 10, 2022, and May 31, 2022. Low, medium, and high nutritional risk scores were defined as a score of 0, 1, or ≥ 2 , respectively. We examined the association between the MUST scores and patient demographic data, markers of nutrition, and markers of disease activity.

STATISTICAL ANALYSIS

A logistic regression model was used for univariate and multivariate analysis of risk factors with nutritional risk score. A probability value of 0.05 or less was considered significant. All statistical analyses were performed with SPSS version 21.0 for Windows (IBM Corp., Armonk, NY, USA).

METHODS

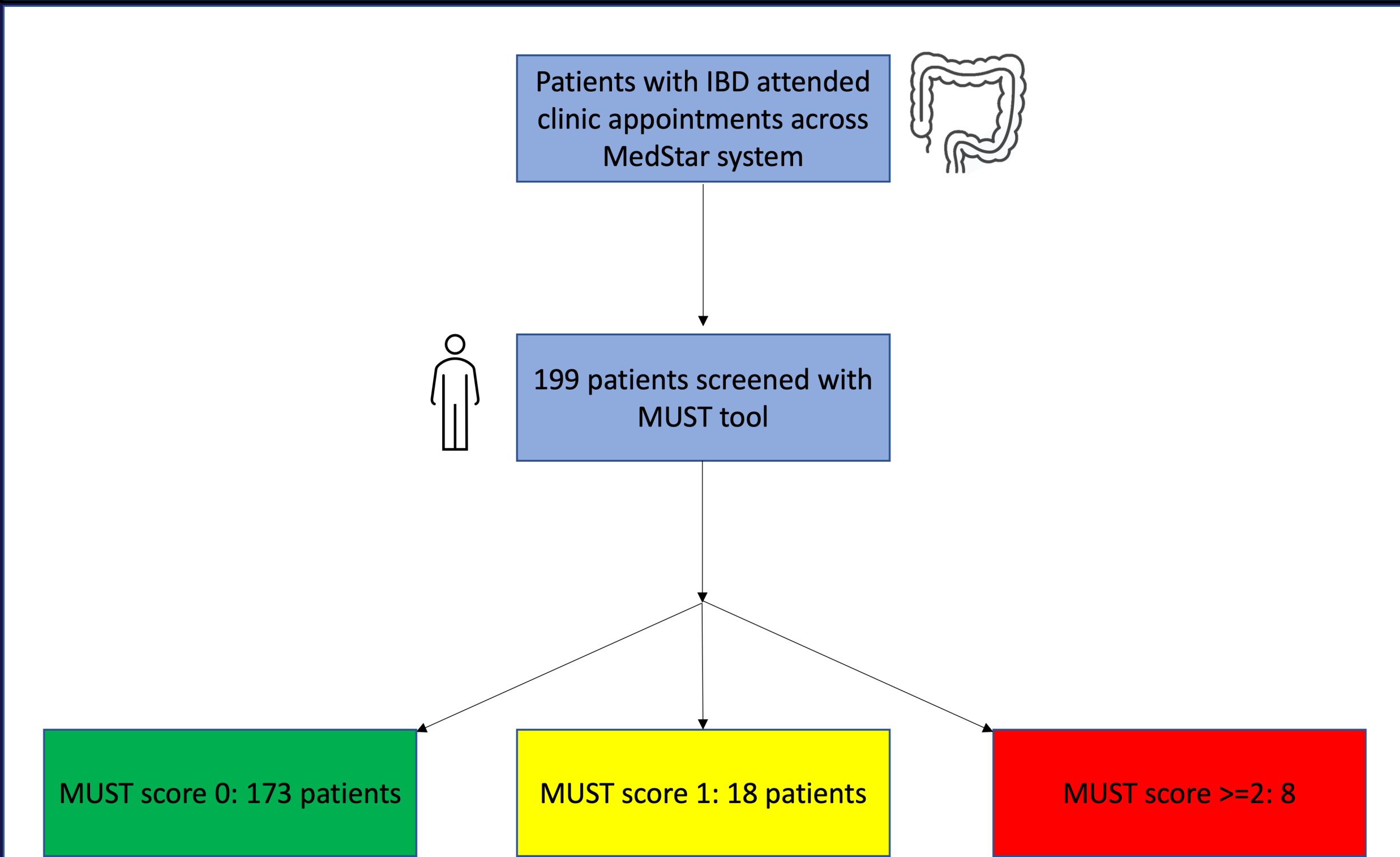


Figure 1. Flowchart of the MUST study methods

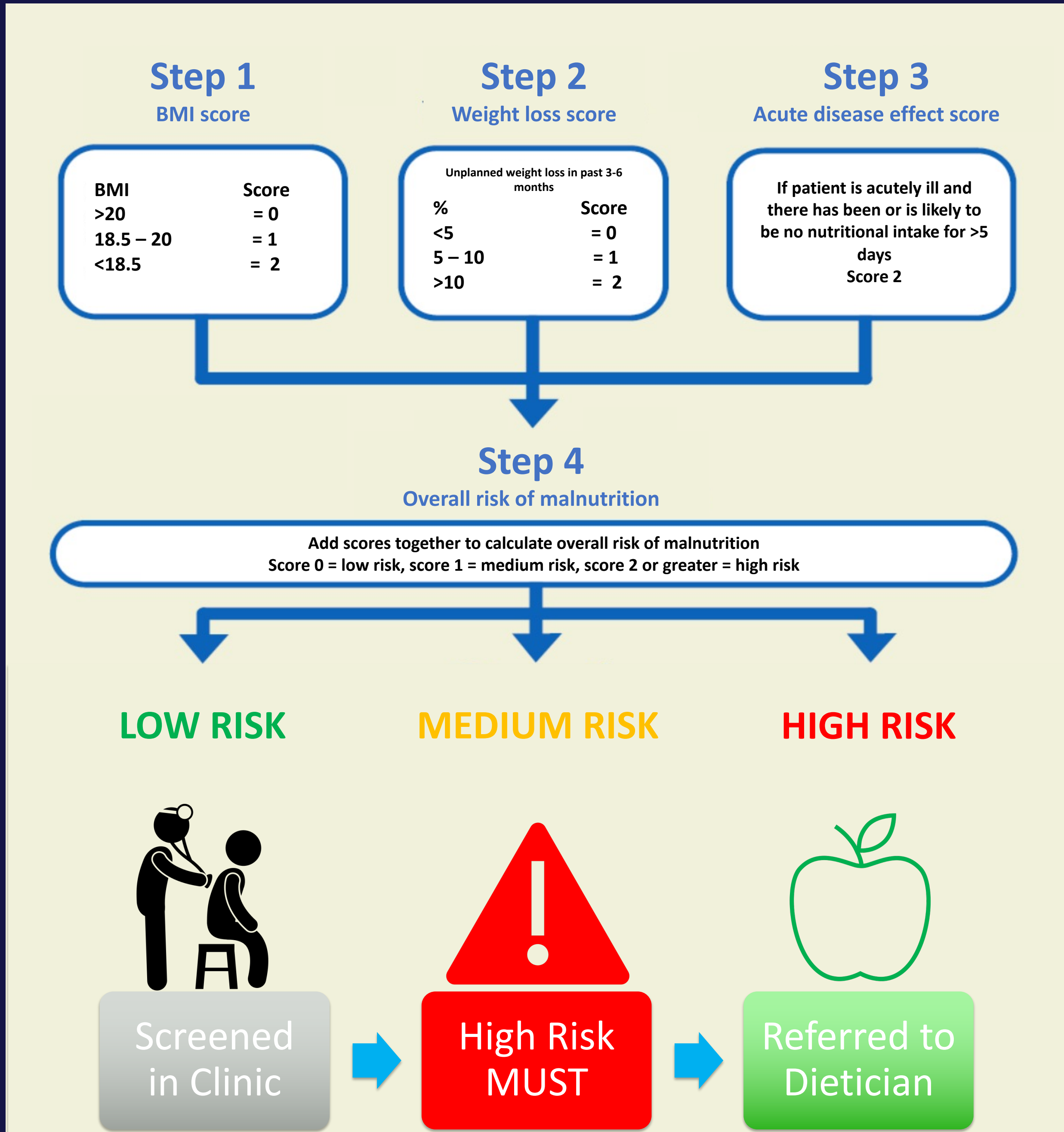


Figure 2. MUST Screening Algorithm

RESULTS

Table 1. Baseline patient demographics and characteristics

Characteristic	MUST Score Rank			Total
	Must Score 0	Must Score 1	Must Score 2	
Female	118	12	6	136
Male	55	6	2	63
Crohn's Disease	113	13	6	132
Ulcerative Colitis	53	5	2	60
Mean BMI	28.60	24.05	18.39	27.80
Mean Age	46.06	46.89	35.38	45.89
Total	173	18	8	199

Table 2. Univariate analysis of patient demographics associated with nutritional risk score

Characteristic	Odds Ratio (coE*)	95% Confidence Interval		P-Value
		Lower Limit	Upper Limit	
Female Sex	1.049	0.43	2.559	0.917
CD Diagnosis	1.273	0.504	3.214	0.609
Age	0.99	0.97	1.01	0.431

Table 3. Univariate analysis of disease activity markers associated with nutritional risk score

Characteristic	Odds Ratio (coE*)	95% Confidence Interval		P-Value
		Lower Limit	Upper Limit	
Steroid Use	7.314	2.346	22.805	<.001
Hospitalizations	4.632	1.247	17.213	0.022

Table 4. Univariate analysis of inflammatory markers associated with nutritional risk score

Characteristic	Odds Ratio (coE*)	95% Confidence Interval		P-Value
		Lower Limit	Upper Limit	
CRP	1.129	1.014	1.257	0.027
Fecal Cal	1.001	1	1.002	0.062

RESULTS

Among the 199 patients screened, 87% were classified as low risk for malnutrition, 9% as moderate risk, and 4% as high risk. In univariate analysis, IBD-related hospitalizations within one year of screening ($p = 0.022$), recent steroid use ($p < .001$), and elevated C-reactive protein (CRP) ($p = 0.027$) were associated with moderate-to-high risk of malnutrition (Table 3 and 4).

RESULTS

Table 5. Univariate analysis of nutritional markers associated with nutritional risk score

Characteristic	Odds Ratio (coE*)	95% Confidence Interval		P-Value
		Lower Limit	Upper Limit	
Albumin	0.101	0.018	0.57	0.009
Hemoglobin	0.58	0.403	0.835	0.003

Decreased albumin (OR: 0.10; 95% CI: 0.02-0.57) and decreased hemoglobin (OR: 0.58; 95% CI: 0.40-0.84) were also significant predictors of malnutrition (Table 5). In multivariate analysis, recent steroid use remained an independent risk factor for malnutrition (OR: 7.22; CI: 1.85-28.19; $p = 0.004$).

CONCLUSION

MUST screening correlates to markers of disease activity, inflammation, and nutrition in patients with IBD. Univariate analysis identified IBD-related hospitalizations, recent steroid use, elevated CRP, decreased albumin, and decreased hemoglobin as risk factors. Only recent steroid use was identified as an independent risk factor.

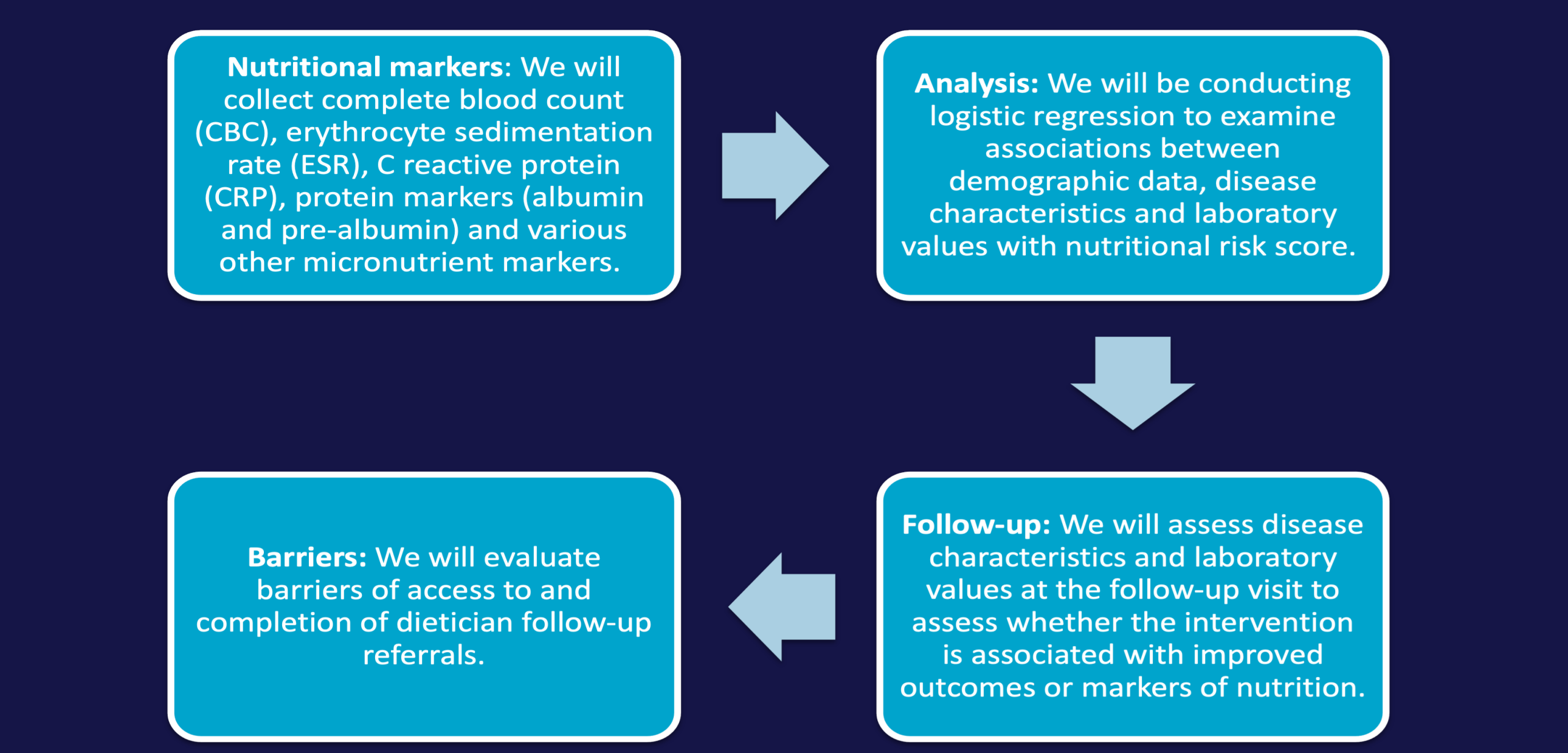


Figure 3. MUST Screening summary and next steps