

## Trends in Hospitalization for Small Bowel Obstruction in Crohn's Disease Patients: A Nationwide Analysis from 2008 to 2018.

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### INTRODUCTION

- Small bowel obstruction (SBO) is a known complication of Crohn's disease (CD).
- Over the last decade, there have been advances in management of CD including early treatment and newer immunosuppressives.
- The impact of these interventions on SBO remains unknown.

### PURPOSE

- We aim to study the trends in SBO related hospitalization in CD patients using National Inpatient Sample (NIS).

### METHODS

- We used the National Inpatient Sample (NIS) database from 2008 to 2018 to identify patients with CD with concurrent diagnosis of SBO using ICD-9 and ICD-10 codes.
- We calculated trends in nationwide estimates for annual admissions, length of stay (LOS), in-patient mortality and complications of SBO including mortality, peritonitis and sepsis.
- We used the Cochran-Armitage test for trend significance and logistic regression to identify predictors of mortality among these admissions.

### RESULTS

- There were a total of 2,195,512 admissions with CD between 2008 and 2018. SBO accounted for 139,440 (6.78%) of these admissions.
- Among the SBO admissions, average age was 50 years and 52.6% were female.
- There was an increase in Elixhauser comorbidity index from a mean score of 3.0 in 2008 to 5.2 in 2018 (p< 0.001). There was a rising proportion of SBO cases among all CD admissions initially, rising from 6.0% in 2008 to a peak of 7.8% in 2014, followed by a significant decline down to 4.5% in 2018.
- Overall, 88.8% of SBO related admissions were emergent, with an increasing trend (from 86.1% to 92.3%, p-trend< 0.001) signifying more emergent admissions recently.
- Overall median LOS was 4 days. Trend analysis showed a decrease from 4 days in 2008 to 3 days in 2018 (p-trend< 0.001).
- Overall mortality was 1.0%, with a stable trend until 2015 but an increase during last 3 years to 1.6% (p-trend< 0.001).

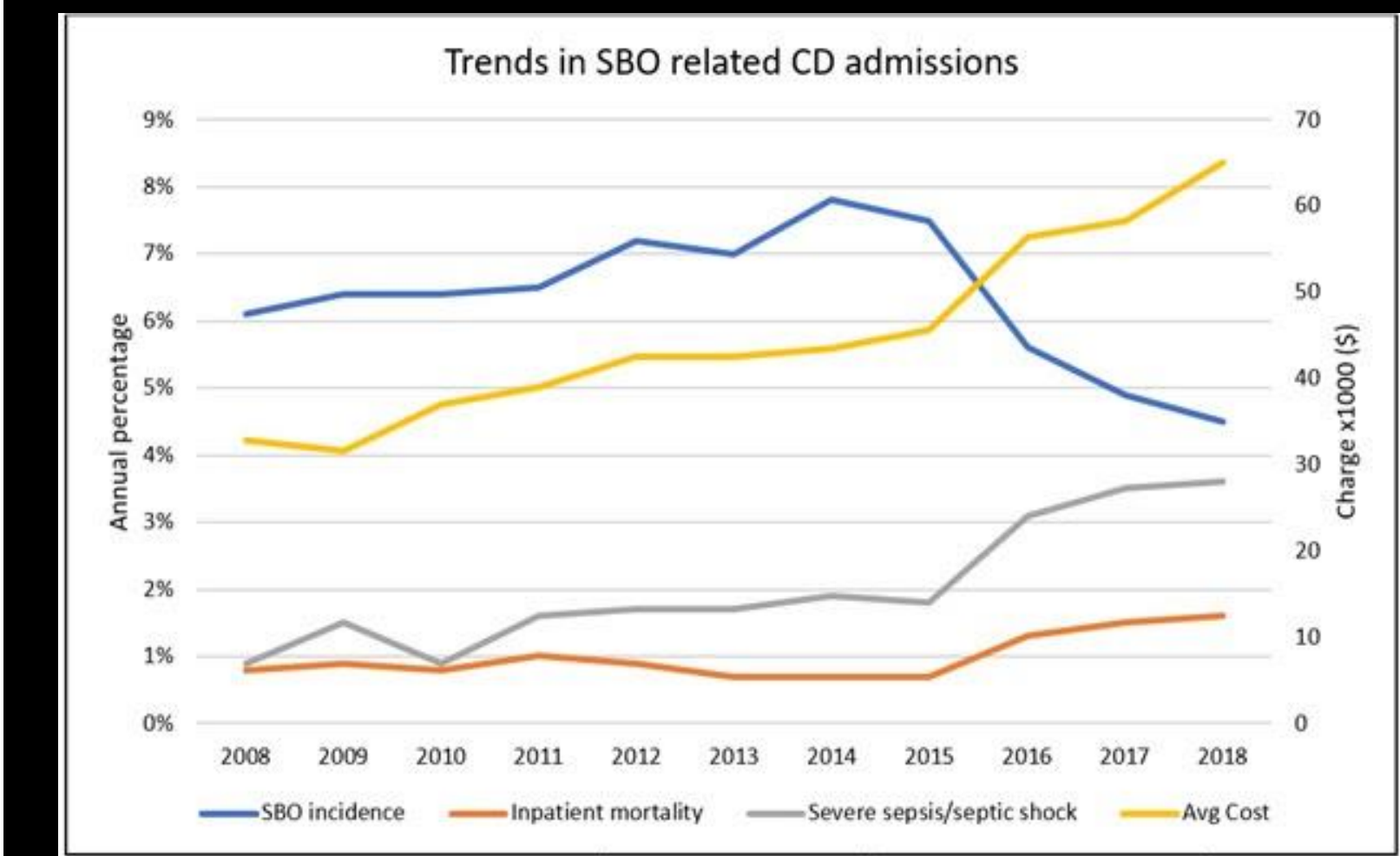
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# The incidence of SBO in Crohn's disease admissions is declining, but the mortality and cost of hospitalization is on the rise.

Figure 1. Top half shows trend lines for incidence of SBO in CD patients, their inpatient mortality, rate of severe sepsis/septic shock and cost of hospitalization (adjusted for inflation). Bottom half depicting predictors of inpatient mortality using regression analysis.



Mortality Predictors	Odds Ratio	95% CI		P-value
		lower	upper	
Weekend admission	0.92	0.79	1.08	0.317
Elective admission	1.14	0.92	1.42	0.214
Female sex	1.52	1.33	1.74	0.000
Elixhauser Score	1.10	1.10	1.11	0.000
Peritonitis	0.96	0.77	1.21	0.757
Intestinal perforation	2.15	1.62	2.84	0.000
Ventilator use	10.60	8.95	12.55	0.000
Severe sepsis/septic shock	6.09	5.13	7.23	0.000
Year	0.98	0.96	1.00	0.043
Age>50	3.60	2.99	4.33	0.000

### Results Cont.

- There were no changes in the proportion with peritonitis (mean 3.3%) or intestinal perforation (mean 1.3%). Severe/sepsis/septic shock was present in 1.9% cases overall with an increasing rising proportion from 0.9% to 3.6% (p-trend< 0.001).
- Regression analysis showed ventilator use (OR 10.6, 95% CI 8.9 – 12.6), severe sepsis/septic shock (OR 6.1, 95% CI 5.1 – 7.3), age >50 (OR 3.4, 95% CI 3.0 – 4.3), intestinal perforation (OR 2.1, 95% CI 1.6 – 2.8) and female sex (OR 1.5, 95% CI 1.3 – 1.7) were significant predictors of inpatient mortality.

### CONCLUSION

- SBO remains a known complication of Crohn's disease. The proportion of CD patients with SBO seem to be decreasing but among these patients, inpatient mortality seems to be increasing which needs further investigation.

### References

- Freeman, H. J. (2014). Natural history and long-term clinical course of Crohn's disease. *World journal of gastroenterology*; WJG, 20(1), 31.
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