

Economic Costs and Trends in Inflammatory Bowel Disease-Related Hospitalizations and Surgery in the United States

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OBJECTIVE

This analysis described real-world trends in hospitalizations, surgery, and costs among patients with Crohn's disease and ulcerative colitis in the US

CONCLUSIONS

There was a decrease in the proportion of patients with Crohn's disease- and ulcerative colitis-related hospitalizations, surgeries, and hospital length of stay from 2007 to 2019

Despite these reductions, the average cost per hospitalization and surgery increased; sensitivity analyses showed similar findings

Additional research is warranted to better understand these trends so that medical costs can be further reduced and management of patients in the outpatient setting can be improved

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References

1. Mancour AM, et al. *J Med Econ.* 2020;23(10):1092-101
2. Plon D, et al. *Curr Med Res Opin.* 2020;36(9):1285-94
3. Instant Data Health (IDH) software (Parsippany, NJ, USA) and R, version 3.2.1.

INTRODUCTION

- Crohn's disease (CD) and ulcerative colitis (UC) are progressive inflammatory diseases that damage the gastrointestinal tract and can lead to hospitalizations and even surgery^{1,2}
- Economically, hospitalizations and surgeries are key contributors to direct medical costs for patients with CD and UC^{1,2}
- Limited data are available on hospitalizations, surgery, and cost trends over time in patients with CD and UC in the United States (US)

METHODS

Patients

- Data from patients with CD and UC in the IBM MarketScan® Databases from 2007 to 2019 were evaluated
- Eligible patients for each year had to have ≥1 inpatient claim or ≥2 outpatient claims for either CD or UC within that year and medical benefit continuous enrollment for the entire year

Hospitalizations

- For all inpatient claims, an Instant Health Data encounter group algorithm was utilized to determine the principal diagnosis and duration of each hospital episode³

Surgery

- Surgeries were based on CPT procedure codes, ICD-9 and ICD-10 codes, which included bowel resections, ostomy, colectomy, and other surgeries

The surgery encounter was defined as:

- A hospitalization with a CD/UC-related surgery procedure code (principal procedure type) and a CD or UC diagnosis code in the first 2 diagnosis positions of the hospital encounter; or,
- An outpatient visit with a CD/UC surgery procedure code with CD or UC diagnosis code in the first 2 diagnosis positions on the claim

Outcomes

- All outcomes were assessed descriptively and reported for each year of the study period:
 - Proportions of patients with ≥1 hospitalization or surgery
 - Average cost per CD/UC hospitalization episode and surgery (adjusted to 2020 US dollars)
 - Mean hospital length of stay (LOS) in days
 - Sensitivity analyses for cost analyses restricted LOS to ≤30 days were conducted

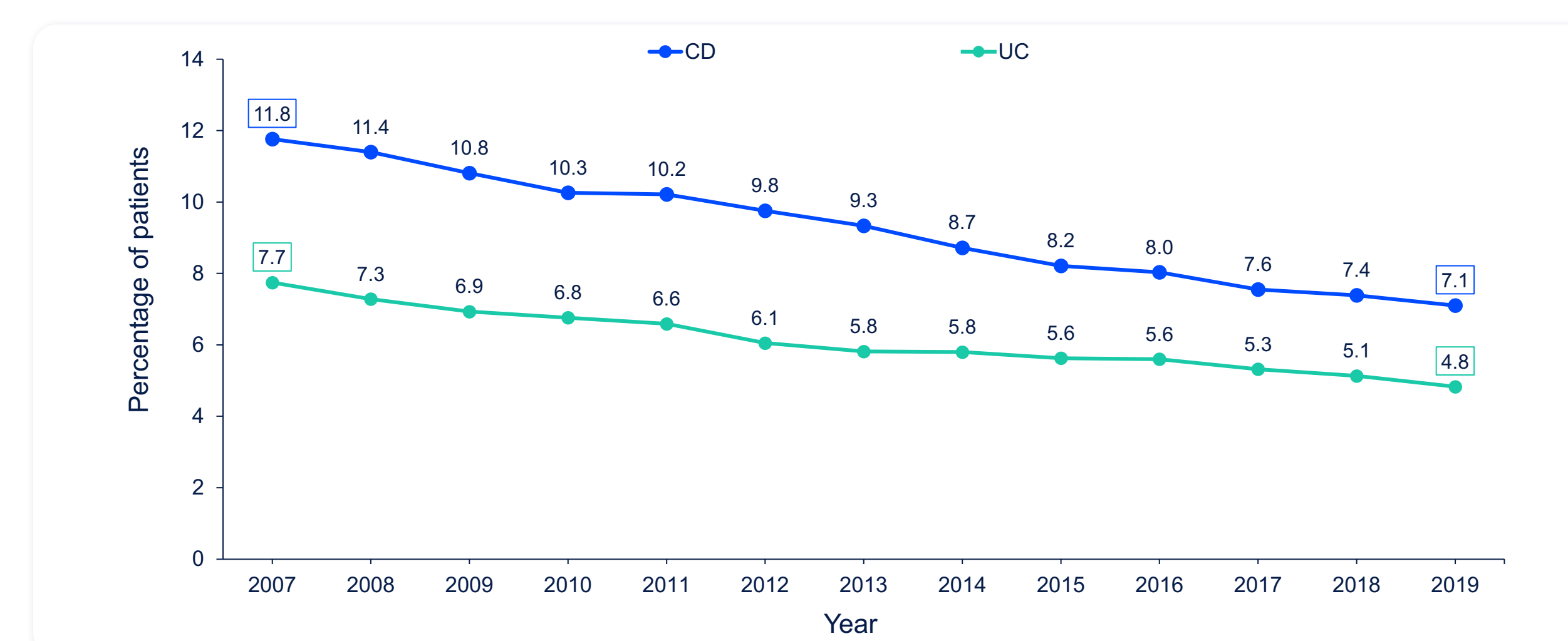
RESULTS

Table 1. Number of Patients With CD and UC per Year

Year	Hospitalizations			Surgeries		
	CD only ^a	UC only ^a	IBD Total ^b	CD only ^a	UC only ^a	IBD Total ^b
2007	24,327	22,161	45,197	24,327	22,161	45,197
2008	31,387	28,514	58,119	31,387	28,514	58,119
2009	32,986	30,449	61,540	32,986	30,449	61,540
2010	46,007	42,476	85,714	46,007	42,476	85,714
2011	55,777	51,352	103,594	55,777	51,352	103,594
2012	44,937	41,822	84,199	44,937	41,822	84,199
2013	51,382	47,515	95,801	51,382	47,515	95,801
2014	36,927	34,094	68,781	36,927	34,094	68,781
2015	37,285	35,780	70,806	37,285	35,780	70,806
2016	33,288	32,749	64,219	33,288	32,749	64,219
2017	31,869	31,272	61,415	31,869	31,272	61,415
2018	34,436	33,589	66,147	34,436	33,589	66,147
2019	34,423	33,677	66,366	34,561	33,810	66,635
Total	495,031	465,450	931,898	495,169	465,583	932,167

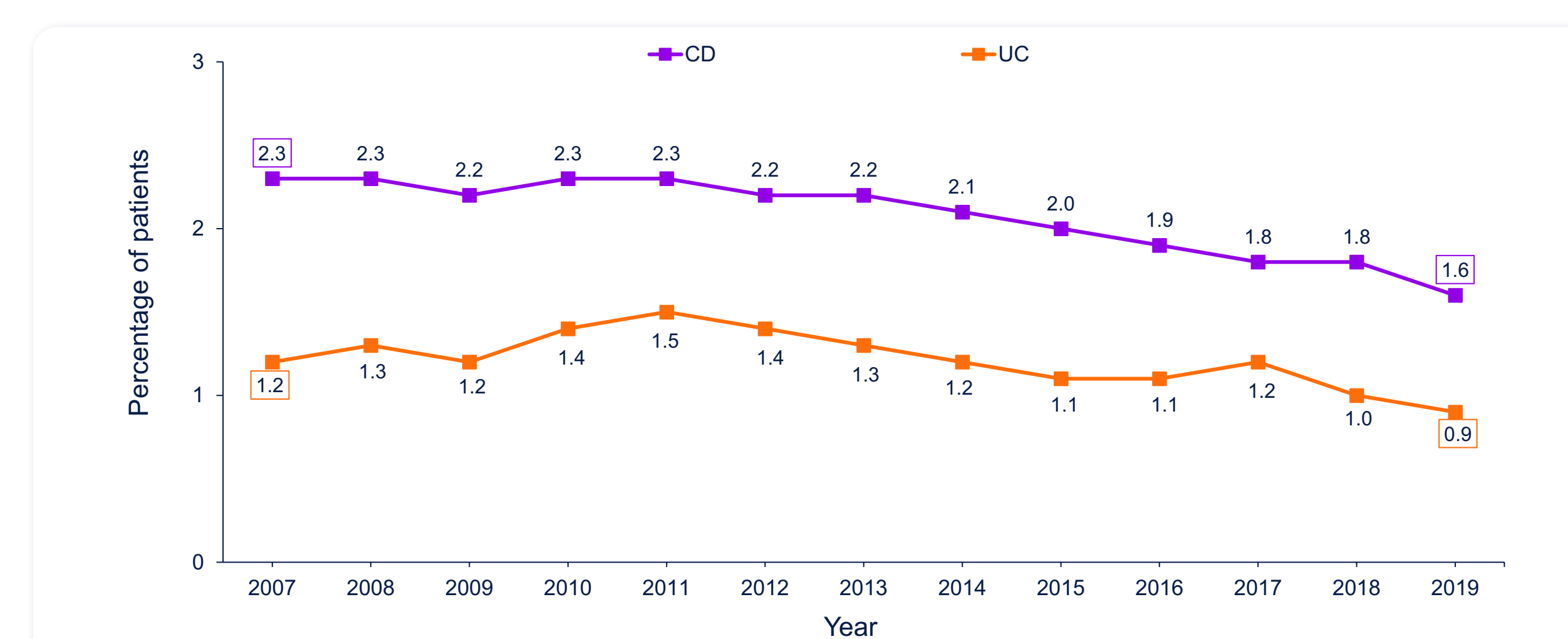
CD, Crohn's disease; IBD, inflammatory bowel disease; UC, ulcerative colitis.
^aDefined as at least 1 inpatient or 2 outpatient encounters with the condition diagnosis in the target year.
^bIBD total includes all patients with CD- or UC-related hospitalizations or surgeries, excludes those patients with claims citing both CD and UC.

Figure 1. In Patients With CD and UC, the Annual Proportion of Patients With Hospitalizations Decreased From 2007 to 2019



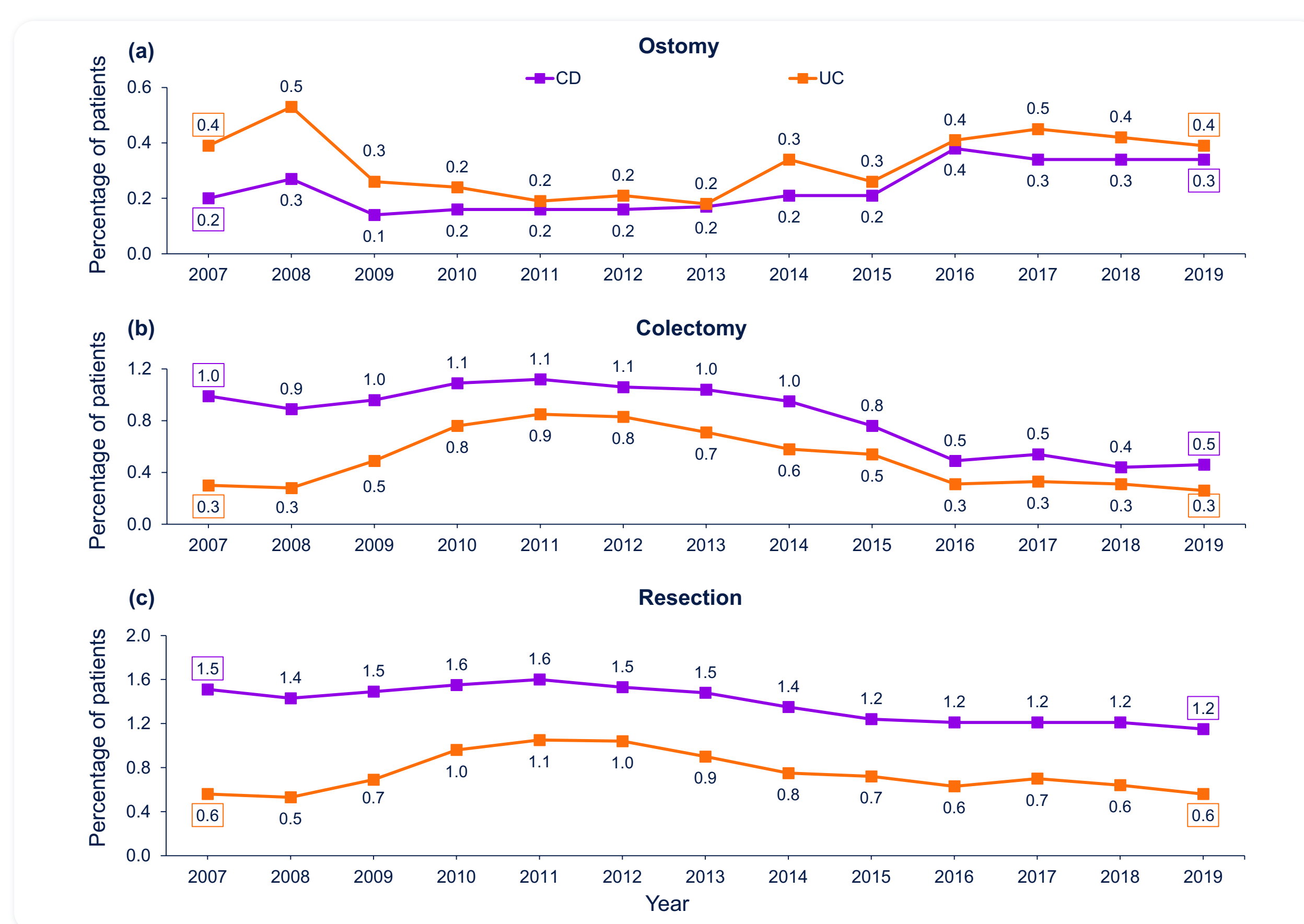
CD, Crohn's disease; UC, ulcerative colitis.

Figure 2. In Patients With CD and UC, the Annual Proportion of Patients With Surgeries Decreased From 2007 to 2019



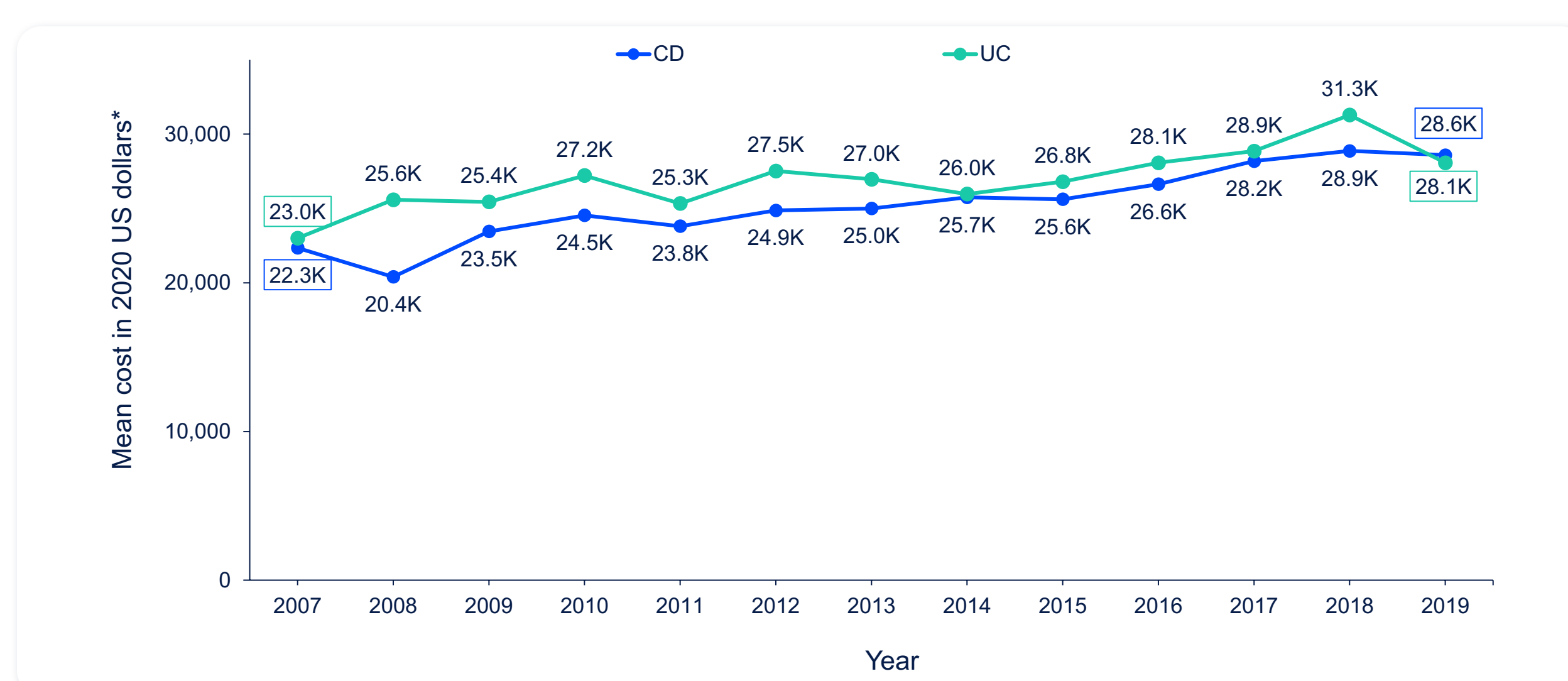
CD, Crohn's disease; UC, ulcerative colitis.

Figure 3. The Annual Proportion of Patients With CD and UC Who Underwent an (a) Ostomy, (b) Colectomy, or (c) Resection Varied From 2007 to 2019



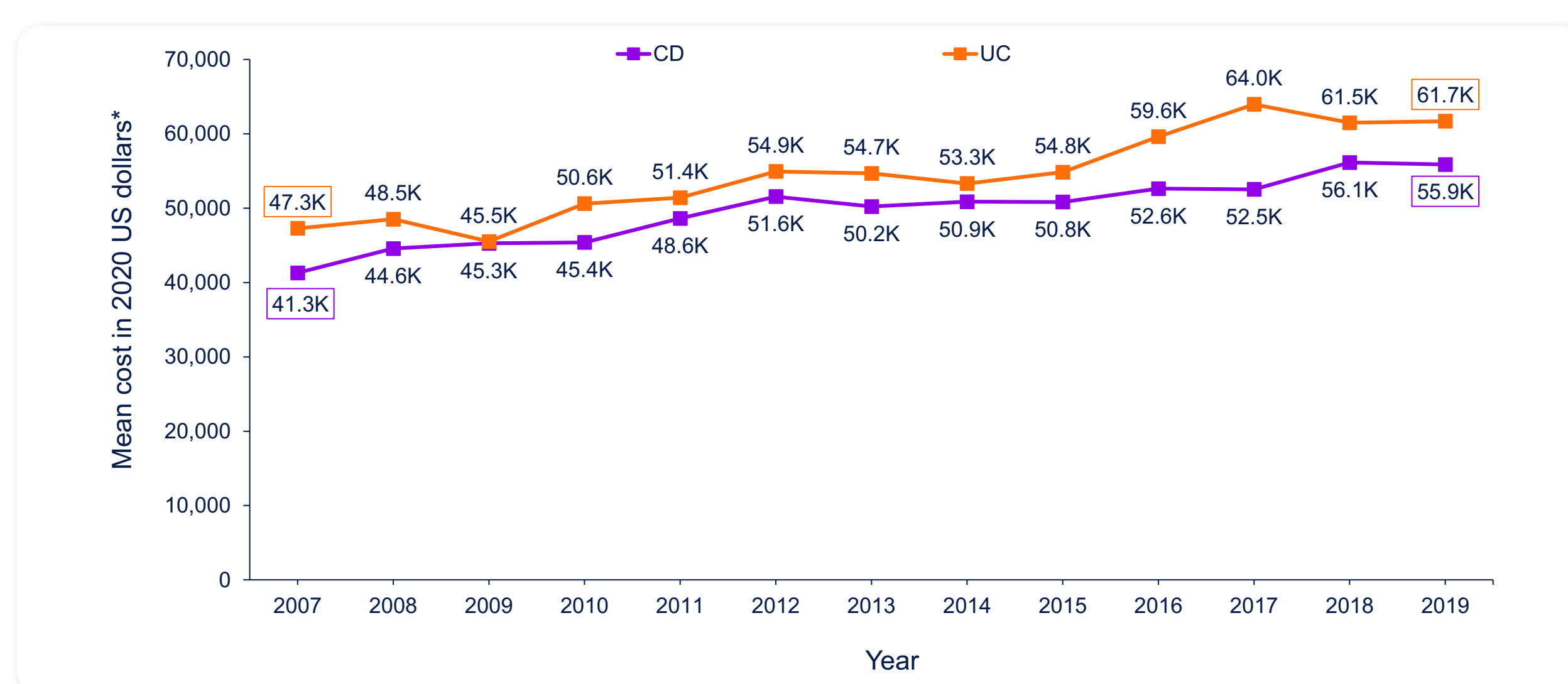
CD, Crohn's disease; UC, ulcerative colitis.

Figure 4. Mean Medical Costs per CD/UC Hospitalization Episode Increased From 2007 to 2019 (No LOS Limit)



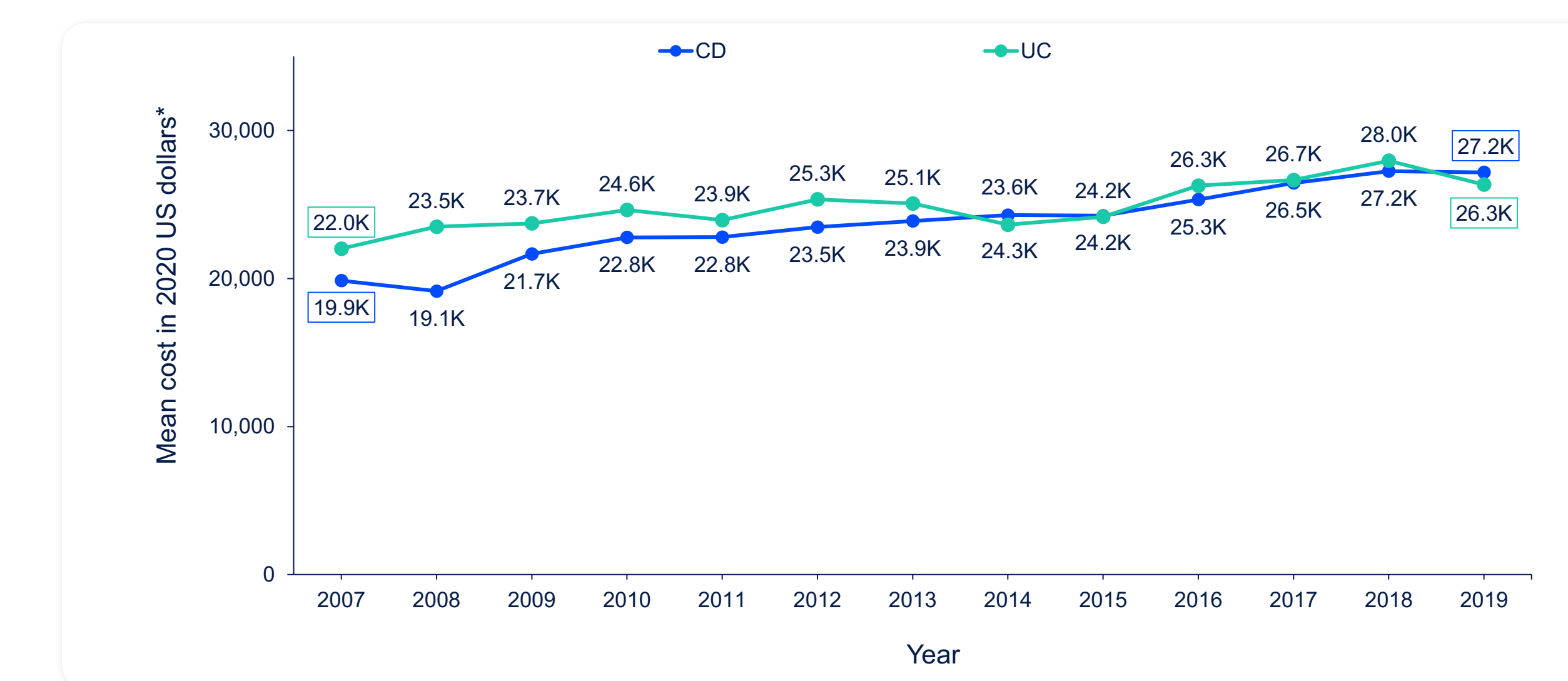
CD, Crohn's disease; K, thousand; LOS, length of stay; UC, ulcerative colitis. *Includes all associated costs except medication costs.

Figure 5. Mean Medical Costs per CD/UC Surgery Increased From 2007 to 2019 (No LOS Limit)



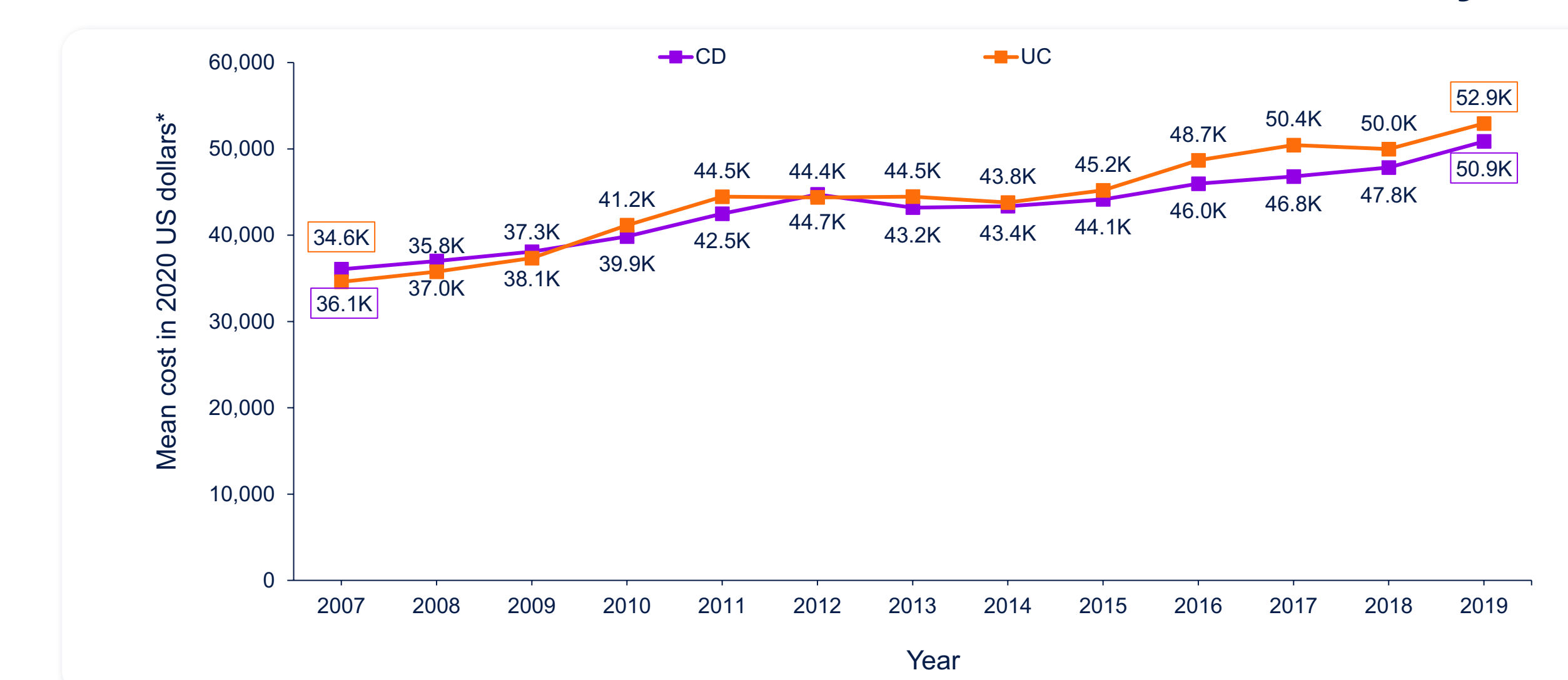
CD, Crohn's disease; K, thousand; LOS, length of stay; UC, ulcerative colitis. *Includes all associated costs except medication costs.

Figure 6. Mean Medical Costs per CD/UC Hospitalization Episode Increased From 2007 to 2019 Where LOS Was Limited to ≤30 Days



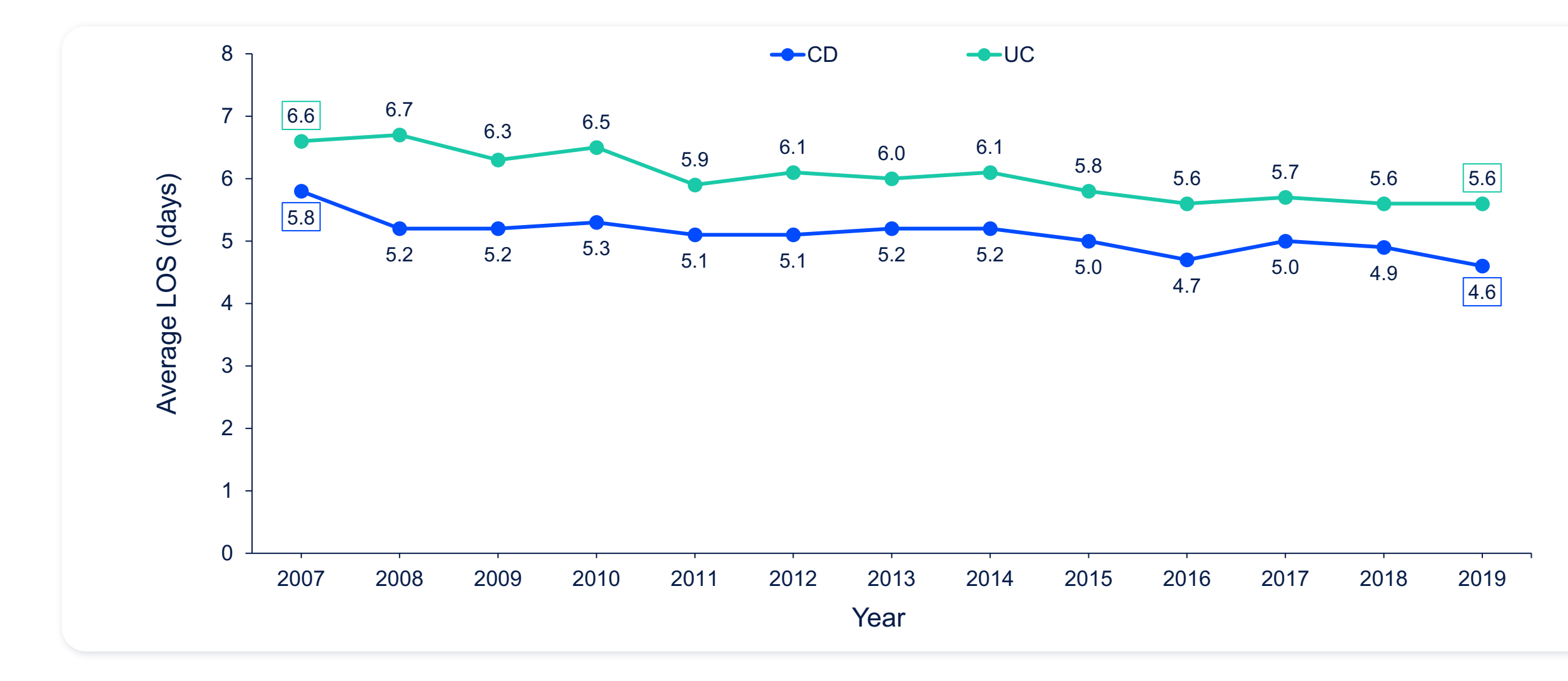
CD, Crohn's disease; K, thousand; UC, ulcerative colitis. *Includes all associated costs except medication costs.

Figure 7. Mean Medical Costs per CD/UC Surgery Increased From 2007 to 2019 Where LOS Was Limited to ≤30 Days



CD, Crohn's disease; K, thousand; LOS, length of stay; UC, ulcerative colitis. *Includes all associated costs except medication costs.

Figure 8. In Patients With CD and UC, the Average LOS per Hospitalization Reduced From 2007 to 2019



CD, Crohn's disease; LOS, length of stay; UC, ulcerative colitis.

LIMITATIONS

- The study population included commercially insured patients, mostly from large employers, thus the data may not be representative of the overall population
- The identification of CD and UC diagnoses, surgeries, and hospitalizations are based on claim coding which are subject to misclassifications
- The underlying reasons for increased medical costs over time was not assessed in this study but warrants further investigation