Adherence to Biologics, Hospitalizations, and Medical Costs in Patients with Ulcerative Colitis and Crohn's Disease Using the MarketScan Commercial Claims and Encounters Database

Edward A. Witt, Phd[a]; Heather Kirkham, Phd[a]; Renee Baiano, PharmD[b]

Walgreens

BACKGROUND

- Inflammatory bowel disease (IBD) is an umbrella term used to describe disorders caused by chronic inflammation in the gastrointestinal tract including ulcerative colitis and Crohn's disease.
- Patients with IBD typically have relapsing and remitting symptoms that often significantly affect their quality of life.[1]
- Research suggests that medication adherence is a significant problem in the management of IBD.[2]
- Diminished adherence rates can lead to adverse clinical outcomes, including an increase in disease activity, relapse, antibody development against anti-TNF agents, higher morbidity and mortality, increased health care costs, and poor quality of life.[2]

OBJECTIVES

- The goal of this study was to evaluate the association between adherence to biologic medications, medical costs, hospitalizations, and bed days in patients with ulcerative colitis (UC) or Crohn's disease.

METHODS

- Pharmacy and medical claims from the 2019 MarketScan Commercial Claims and Encounters database were used for this study.
- A PQA-like[3] proportion of days covered (PDC) metric was created to assess adherence to biologic medications among patients who had $\geq$ 2 medical claims ($\geq$ 30 days apart) with ICD-10 codes for UC or Crohn's disease during the year. In cases where patients had diagnosis codes for each condition, the most recent record was used to assign them to the UC or Crohn's group.
- Adult patients ($\geq$18 years) were eligible for PDC calculation if they had:
  - $\geq$ 2 pharmacy claims for the following biologics (adalimumab, certolizrumab, golimumab, infliximab, natalizumab, ustekinumab, or vendolizumab). Note that not all medications are approved for both indications.
  - $\geq$ 56 days-supply
  - and an index date that did not fall within the last 90 days of the period.
- Patients were excluded if they did not have > 150 days between the first and last fill for any medication, as a proxy for continuous enrollment in a health plan.
- Being adherent was defined as $\geq$ 80% PDC.
- Outcomes examined included hospitalizations, inpatient bed days, and inpatient costs.
- The methods of this study were reviewed and approved by Advarra IRB.

RESULTS

- In total, 8,849 and 3,106 patients had sufficient data to calculate PDC and met diagnostic criteria for Crohn's and UC, respectively. Sample characteristics can be found in **table 1**.
- Average age for both diagnosis groups was early 40s and the majority were women (**Table 1**).
- The most commonly used medication in both groups was adalimumab (UC=85.8%,Crohn's=66.7%; **Table 1**).
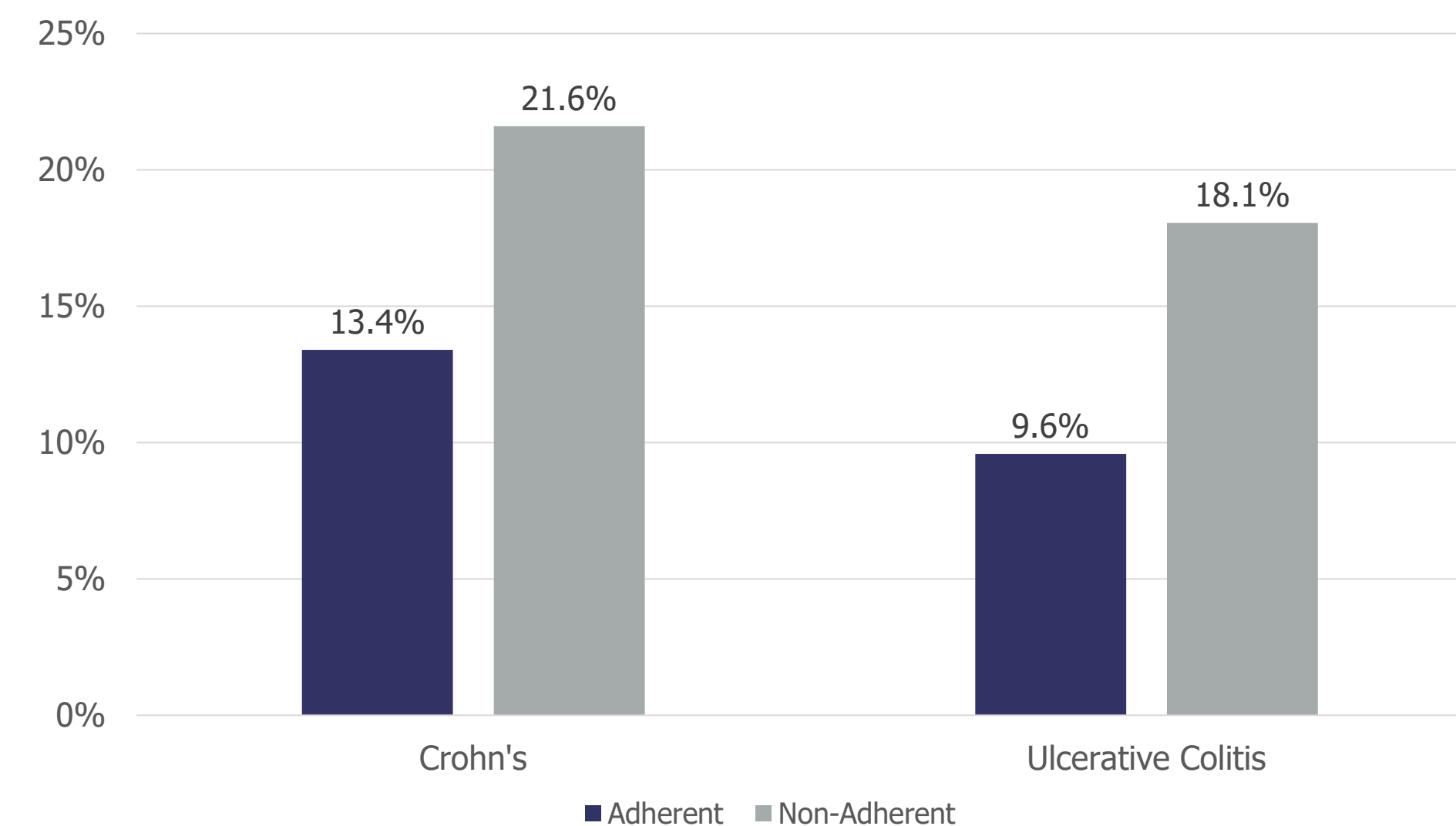
RESULTS

- With regard to adherence, roughly 2 out of 3 patients were adherent to their medications (UC = 66.1%, Crohn's = 64.6%).

Table 1: Sample Characteristics

	Crohn's		Ulcerative Colitis	
	n	%	n	%
Age in Years (M, SD)	40.6	13.2	42.0	12.8
Gender				
Men	4,100	46.3	1,538	49.5
Women	4,749	53.7	1,568	50.5
Medication				
Adalimumab	5,905	66.7	2,665	85.8
Certolizumab	422	4.8	41	1.3
Golimumab	19	0.2	234	7.5
Ustekinumab	2,116	23.9	89	2.9
Multiple Classes	387	4.4	77	2.5

- Fewer adherent patients were hospitalized during the year than non-adherent patients (**Figure 1**; both $p < .001$).
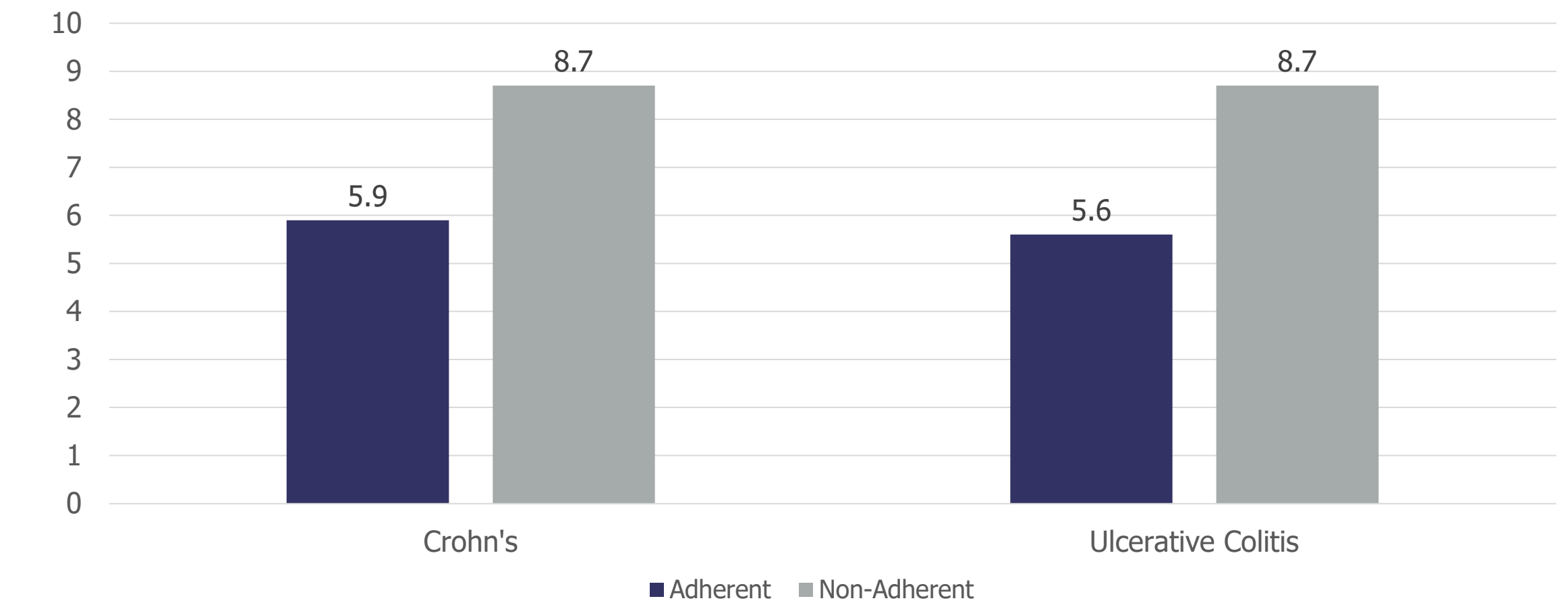
Figure 1: Adherence and Hospitalizations

- Among patients who had a hospitalization, adherent patients had fewer inpatient bed days than non-adherent patients (**Figure 2**; both $p < .001$).
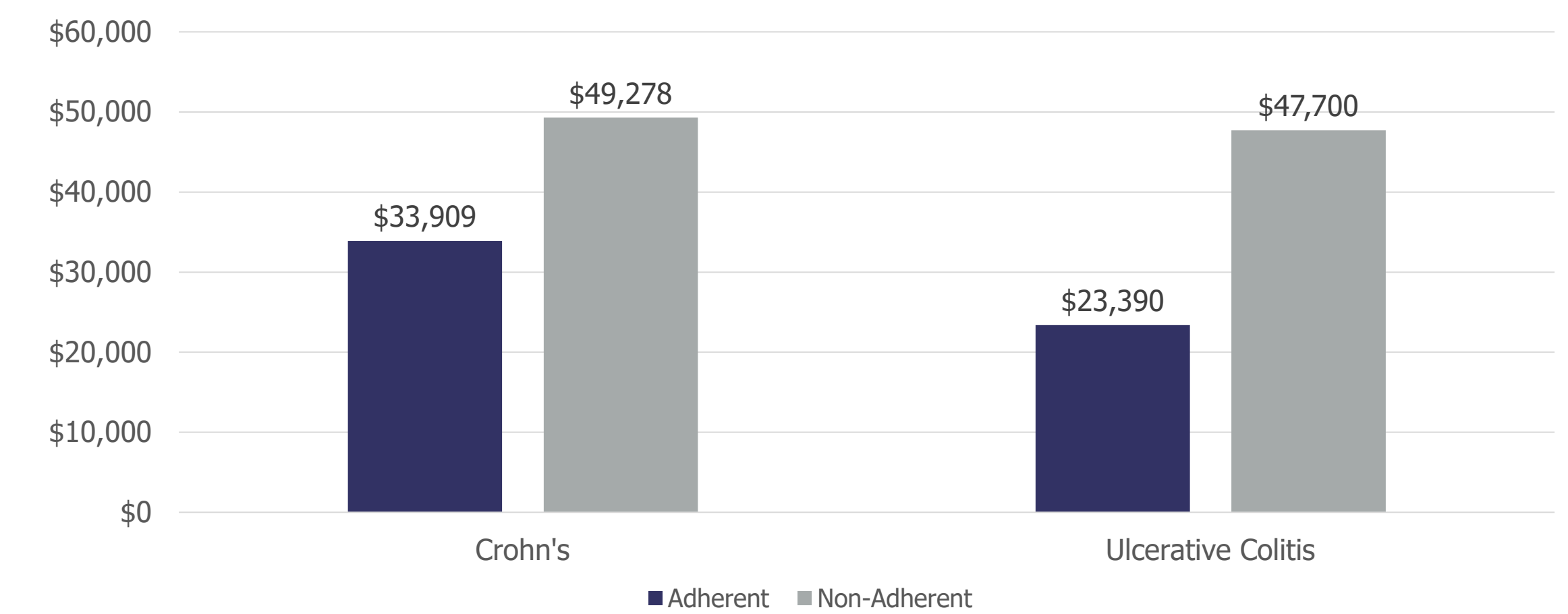
RESULTS CONTINUED

Figure 2: Adherence and Hospital Stay (Days)

- Similarly, adherent patients had lower inpatient costs than non-adherent patients (**Figure 3**; both $p < .001$).

Figure 3: Adherence and Inpatient Costs

DISCUSSION / CONCLUSIONS

- The results of this study suggest that adherence to biologic therapies may result in lower hospitalization rates and inpatient costs.
- Specialty pharmacy interventions focused on adherence to biologics could help reduce medical burden.

REFERENCES

1. Talley NJ, Abreu MT, Achkar JP, et al. An evidence-based systematic review on medical therapies for inflammatory bowel disease. *Am J Gastroenterol*. 2011;106(suppl 1):S2-S25.
2. Chan W, Chan A, Tiao D, et al. Medication adherence in inflammatory bowel disease. *Intest Res*. 2017;15(4):434-445.
3. 2019 PQA Measurement Manual. Pharmacy Quality Alliance/. Alexandria, VA; 2019.