Patient Reported Outcome 3 (PRO3) and pharmacist interventions among patients with Crohn's disease in the specialty pharmacy

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OBJECTIVE

To evaluate PRO3 scores and their association with pharmacist interventions among patients with moderate or severe Crohn's disease.

BACKGROUND

- Tracking patient-reported outcomes in the specialty pharmacy:
  - Offers **insight into patient perspectives** on their disease
  - Supports **patient care decisions**, and
  - Enhances **quality of care**
- Crohn's disease (CD) is a chronic, relapsing condition associated with significant morbidity and healthcare utilization.
- PRO3 is a simple, patient-reported index to assess CD activity.
  - It does not require laboratory measurements or physician input, thus has utility in the specialty pharmacy setting.
- PRO3 **enables timely pharmacist interventions** that may reduce flares, acute care utilization, and overall costs.
- Limited data exist to evaluate the association between PRO3 scores and pharmacist interventions in specialty pharmacy practice.

METHODS

Fairview Specialty Pharmacy:

- Is a **URAC accredited** specialty pharmacy
- Cares for patients from the **Fairview Health System** (12 hospitals and medical centers; >100 physician specialties; 1.2 million patients annually)
- Cares for patients outside of the Fairview Health System and across **all 50 U.S. states**

Study population:

Adult patients (≥18-years) with CD

≥1 Moderate/ Severe PRO3 score in 2025

≥1 PRO3 follow-up measured 3-8 months later

Definitions:

PRO3 Score Category	Score Range
Remission	< 13
Mild Disease	13-21
Moderate Disease	22-52
Severe Disease	≥ 53

Disease State Improvement:[1,2]

- Follow-up PRO3 at Remission or Mild, and/or
- Clinically meaningful subcategory improvement:
  - Wellbeing: ≥1-point improvement
  - Abdominal pain: ≥1-point improvement
  - Stool frequency: ≥1.5 per day decrease or ≤3 soft stools/day at follow-up

Therapy management pharmacists collaborate with patients to provide ongoing clinical oversight that optimizes medications and outcomes in the specialty pharmacy. Patients may opt-out of cadenced follow-up.

Pharmacist interventions included adherence support, therapy education, adverse effect management, and coordination with providers for therapy optimization.

RESULTS

Figure 1. Documented Medication Therapy Problems

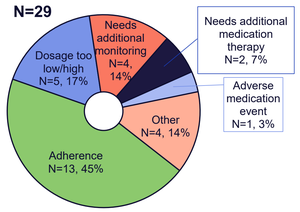


Figure 2. Documented Pharmacist Interventions

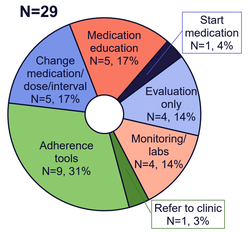


Figure 3. CD Symptoms Reported During Follow-up

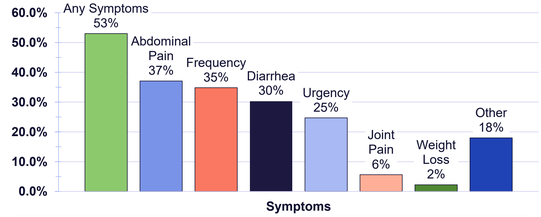


Figure 4. Change in PRO3 over Time

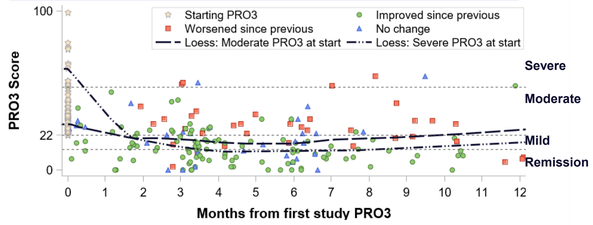
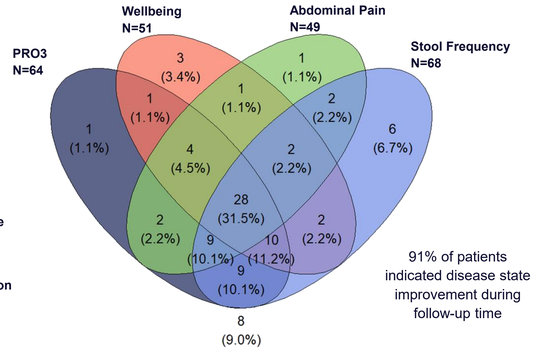


Table 1. Patient Characteristics by Pharmacy Intervention

		All Patients N=89	Documented Pharmacist Intervention: No N=60	Documented Pharmacist Intervention: Yes N=29	p-value
Age, years (median, IQR)		46.6 (36.2, 59.9)	48.5 (34.5, 60.9)	44.6 (38.4, 56.4)	0.56
Gender	Female	59 (66.3)	41 (68.3)	18 (62.1)	
	Male	30 (33.7)	19 (31.7)	11 (37.9)	0.56
Health system patient		62 (69.7)	39 (65.0)	23 (79.3)	0.17
New to specialty medication		34 (38.2)	24 (40.0)	10 (34.5)	0.62
Medication switch following baseline PRO3		31 (34.8)	22 (36.7)	9 (31.0)	0.23
PDC, %; median (IQR)		94 (88, 98)	96 (90, 99)	91 (82, 95)	**0.039**
Adherent, PDC ≥86%		71 (79.8)	50 (83.3)	21 (72.4)	0.27
PRO3 score; median (IQR)	Baseline	31 (24, 40)	32 (24, 42)	28 (25, 35)	0.37
	Follow-up	15 (8, 24)	17 (8, 25.5)	13 (7, 19)	0.88
	Change over time	-18 (-25, -6)	-18 (-31, -4)	-17 (-21, -9)	0.60
Improvement over time	PRO3	64 (71.9)	40 (66.7)	24 (82.8)	0.11
	Stool frequency	68 (76.4)	46 (76.7)	22 (75.9)	0.93
	Abdominal pain	49 (55.06)	29 (48.3)	20 (69.0)	**0.067**
	Wellbeing	51 (57.3)	29 (48.3)	22 (75.9)	**0.014**

Figure 5. Overlap of PRO3 Score and Subscore Improvement



91% of patients indicated disease state improvement during follow-up time

DISCUSSION

- 29 of 89 patients (33%) had a pharmacist intervention documented:
  - Medication therapy problems were often due to adherence (45%) or dosage (17%; **Figure 1**)
  - Adherence tools were the most common intervention, followed by changes to medications and education (**Figure 2**)
- Pharmacist interventions were associated with improvement in PRO3 subscores for overall wellbeing (p=0.014), and marginally significant for improvement in abdominal pain (p=0.067; **Table 1**)
- Patients experienced rapid improvement in disease when managed by therapy management pharmacists:
  - ~2 months to reach Mild/Remission, on average (**Figure 4)**
  - 18-point median decrease in PRO3 score between initial and follow-up measurement **(Table 1)**
  - Stool frequency improvement was common among all patients (76%; **Table 1**)
  - 34% of patients improved across all three subcategories (**Figure 5**)
- Despite improvements, about half of patients continued to have symptoms that may affect quality of life (**Figure 3**)

CONCLUSIONS

- Patients with moderate to severe CD managed in the specialty pharmacy experience meaningful clinical improvements.
- PRO3 can help identify when pharmacist intervention may be needed.
- Although PRO3 scores associated with moderate to severe disease activity should prompt an intervention, pharmacists should also evaluate and intervene when PRO3 subcategories or symptoms indicate a flare.
- Measuring PRO3 suggests an approach to evaluate treatment effectiveness, prioritize clinical resources, and support value-based care by providing personalized approaches to disease management.

REFERENCES

1. Lewis JD, Vadhariya A, Su S, Zhou X, Durand F, Kawata AK, Stassek L, Clucas C, Schreiber S. A patient-reported outcome measure comprising the stool frequency and abdominal pain items from the Crohn's Disease Activity Index: psychometric evaluation in adults with Crohn's disease. Journal of Patient-Reported Outcomes. 2025 Feb 17;9(1):19.
2. Gibble TH, Kosa K, Basnyat B, Martin S, Moses RE, Jha P, Dubinsky MC. Exploring patient-reported outcome measures to assess symptoms of moderately-to-severely active Crohn's disease in adult and adolescent patients: a qualitative study. Journal of Patient-Reported Outcomes. 2025 Dec;9(1):1-2.

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