Data, Outcomes, Research, & Poster Development

Disclaimer

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Meet the Presenters

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Learning Objectives

1. Describe the role of data in specialty pharmacy practice
2. Explain the importance of outcomes tracking and real-world evidence
3. Discuss emerging innovations shaping the future of specialty pharmacy
4. Apply best practices for developing and presenting research posters

Data

Specialty pharmacy isn't just about dispensing medications—it's about generating evidence that improves patient outcomes and proves the value of pharmacy services.

Why Data in Specialty Pharmacy Matters

- Every patient interaction creates information that can improve care.
- Examples include:
  - Medication adherence
  - Clinical outcomes
  - Side effects
  - Financial assistance
  - Prior authorization success
  - Patient-reported outcomes
  - Care coordination
  - Therapy persistence

Data has many stakeholders

- The Patient!
  - Understand the importance of adherence, quality of life, side effects
- Care Team/Specialty pharmacy
  - Visibility into success of treatment, identify markers of poor performance, support accreditation, demonstrate value of specialty pharmacy
- Researchers
  - Generate real world evidence outside of clinical trials, general knowledge
- Pharma and Drug Developers
  - Post marketing surveillance, pharmacovigilance, drive volume and prescribing
- PBMs and Insurance Companies
  - Formulary management, cost containment, value-based care

What Data Do SPs Collect?

- Prescription Data
  - Drug, qty, day supply, adherence (PDC or MPR), discontinuation reasons, dose changes, changes in therapy
- Clinical data
  - Diagnosis, lab values, biomarkers/genetic tests, performance status, disease markers
- Operational Data
  - Turnaround time, prior auth, inventory, call center, financial assistance
- Customer Service/Patient experience
  - Pt satisfaction, quality of life, patient reported outcomes
- Financial Data
  - Revenue, expense, cost avoidance, copay or manufacturer assistance
- Outcomes
  - Hospitalizations, ED visits, treatment response, survival, length of stay, mortality

EVERY PATIENT CREATES
THOUSANDS OF DATA POINTS

EXAMPLE PATIENT JOURNEY

Every interaction.
Every touchpoint.
Real-world data
that drives
better outcomes.

DATA GENERATED

1 Referral	2 Benefits investigation	3 Prior authorization	4 Financial assistance	5 Clinical assessment	6 Dispense	7 Follow-up	8 Clinical outcome	9 Patient satisfaction	10 Research database
• Demographics	• Insurance eligibility	• PA submission data	• Income range	• Medical history	• Medication dispensed	• Adherence data	• Treatment response	• Surveys / NPS scores	• De-identified datasets
• Insurance information	• Benefits summary	• Clinical notes	• Program eligibility	• Labs & biomarkers	• NDC / Lot / Expiration	• Refill history	• Lab improvement	• Ease of access	• Real-world evidence
• Diagnosis	• Copay estimates	• Supporting documentation	• Assistance provided	• Disease severity	• Quantity / Days supply	• Side effects reported	• Hospitalizations	• Satisfaction drivers	• Outcomes research
• Referral source	• Plan formularies	• Approval / denial reason	• Copay card usage	• Concomitant medications	• Shipping data	• Care plan updates	• Disease progression	• Complaints / feedback	• Quality improvement
• Provider information	• Deductibles / OOP costs	• Time to approval	• Grant information	• Allergies / intolerances	• Delivery confirmation	• Patient communication logs	• ER visits	• Net promoter score	• Population health insights
				• Baseline assessment			• Steroid use		

ONE PATIENT. MANY TOUCHPOINTS. THOUSANDS OF DATA POINTS.

TRANSFORMING DATA INTO BETTER CARE.

Key Takeaway: Specialty pharmacy data creates value across the entire healthcare ecosystem—improving patient outcomes, supporting clinical decisions, advancing research, and driving smarter healthcare.

Together We inSPire
Innovation
Insights
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Outcomes

If you can't measure it, you can't demonstrate value

What Outcomes are Measured?

Clinical Outcomes	Adherence & Persistence	Healthcare Utilization	Patient Reported Outcomes
• Disease activity scores • Lab markers • Disease exacerbations/relapses • Symptom improvement • Medication effectiveness	• Proportion of days covered (PDC) • Medication possession ratio (MPR) • Time on therapy • Discontinuation rates	• Hospitalizations • ED visits • Readmissions • Total cost of care • Clinic appointments	• Quality of life • Functional status • Treatment satisfaction • Symptom burden

Bryan ED, et al. *J Manag Care Spec Pharm*. 2024;30(7):710-718; Bagwell A, et al. *J Manag Care Spec Pharm*. 2017;23(8):815-820; ASHP Specialty Pharmacy Outcomes Literature Library.

Real-World Evidence (RWE)

- Clinical trials tell us if a therapy can work. RWE tells us how it performs in everyday practice.

Real-World Data (RWD)

- Data collected outside of traditional RCTs
- Ex: claims data, patient surveys, EHR data, specialty pharmacy management programs

Real-World Evidence

- Clinical evidence generated from analysis of RWD

Makady A, et al. *Value Health*. 2017;20(7):858-865.

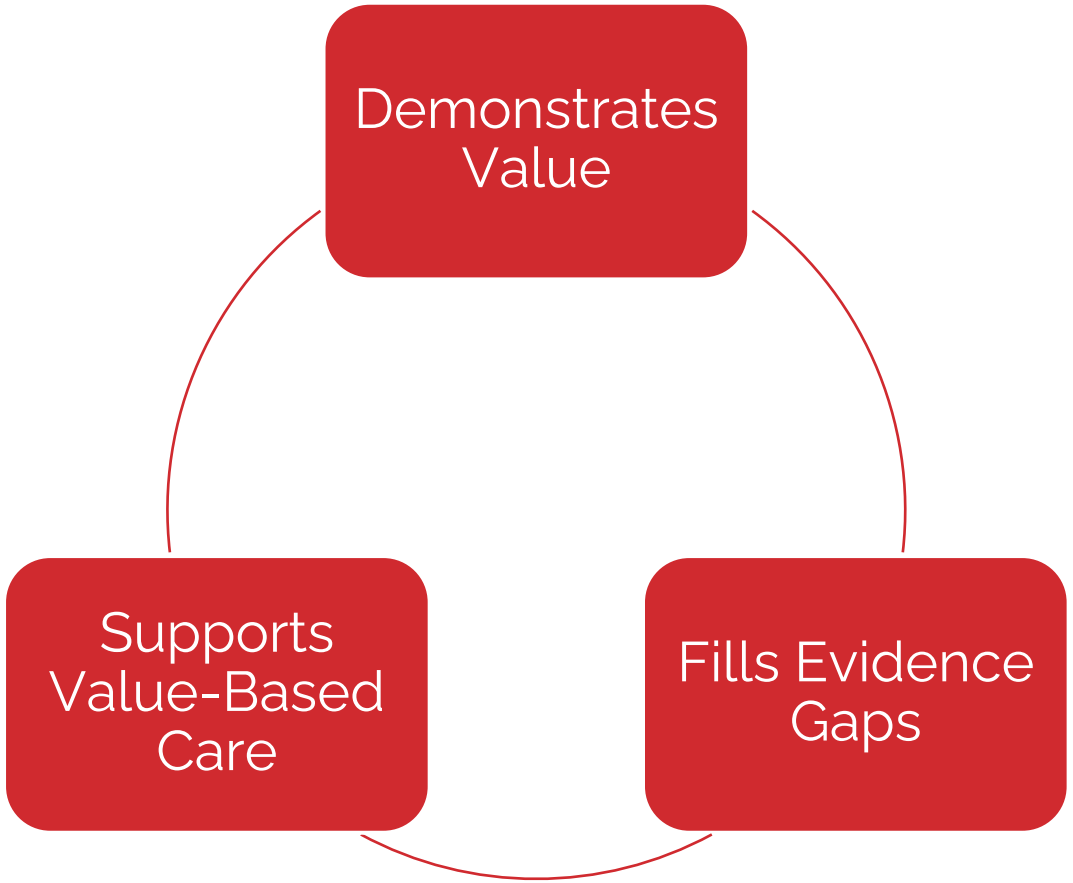
Clinical Trials vs. RWE

CLINICAL TRIALS *Evidence from Controlled Studies*		REAL-WORLD EVIDENCE (RWE) *Evidence from Real-World Data*
Controlled environment (e.g., research sites, clinical trial centers)	SETTING	**Real-world environment** (e.g., clinics, hospitals, specialty pharmacies)
Highly selected patients with specific inclusion/ exclusion criteria	POPULATION	**Broad, diverse populations** more representative of everyday patients
Prospectively collected using strict protocols	DATA SOURCE	**Retrospectively collected** from routine sources (e.g., EHR, claims, registries, pharmacy systems, PROs)
Often includes control (e.g., placebo or active comparator)	CONTROL	**Typically no control group** (observational data from routine practice)
Shorter duration (weeks to months)	DURATION	**Often longer follow-up** (months to years)
Evaluate efficacy (Can it work under ideal conditions?)	PURPOSE	**Evaluate effectiveness** (How does it work in real-world practice?)
High internal validity (greater control, less generalizable)	GENERALIZABILITY	**High external validity** (more generalizable to real-world patients)

COMPLEMENTARY, NOT COMPETING | Clinical trials establish whether a treatment can work; RWE shows how it performs in everyday practice.

Sherman RE, et al. Engl J Med. 2016;375(23):2293-2297. https://biologyinsights.com/real-world-evidence-vs-clinical-trials-a-comparison/

Why Does RWE Matter in Specialty Pharmacy?



RWE Examples in Specialty Pharmacy

Baseline Characteristics and Secondary Medication Adherence Patterns Among Patients Receiving Tafamidis Prescriptions: A Retrospective Analysis Using a National Specialty Pharmacy Dispensing Database

Health-system specialty pharmacist intervention types, acceptance, and associated actions for patients with multiple sclerosis

A cross-sectional analysis of persistence to disease-modifying therapies in treatment naïve and experienced patients with relapsing multiple sclerosis at a health-system specialty pharmacy☆

Pediatric and Adolescent Hepatitis C Care Cascade and Real-World Treatment Outcomes Utilizing an Integrated Health System Specialty Pharmacy Model

Patient-reported outcomes and pharmacist actions in patients with multiple sclerosis managed by health-system specialty pharmacies

Measuring prescription turnaround times in an integrated health system specialty pharmacy setting

Outcomes – Key Points

- Outcomes measurement demonstrates the value of specialty pharmacy services
- Real-world evidence complements clinical trial data
- Specialty pharmacies are uniquely positioned to generate meaningful RWE
- Routine operational data can be transformed into research and poster presentations
- Future opportunities include advanced analytics, predictive modeling, and AI-driven outcome assessment

Emerging Innovations

Analytics and Predictive Modeling

- Using historical data to estimate future events
- Examples:
  - Which patients are likely to:
    - Become nonadherent?
    - Miss appointments?
    - Experience toxicity?
    - Be hospitalized?
    - Lose insurance coverage?
    - Require financial assistance?

AI in Specialty Pharmacy

- Clinical Documentation and Scribing
- Prior Authorization Support
- Call Center Automation
- Call Summary and Transcribing
- Scheduling
- Inventory Forecasting

AI Use at Cone Health

Distributed Clinic Workflows

Local queues • variable processes
Limited enterprise visibility

Centralized Workflow

Shared intake standard
Common PA workflow

AI Clinical Intelligence

Rapidly surface relevant chart evidence
Reduce searching & follow-up friction

Human Review and Advocacy

Technicians apply judgment
Advocate and move therapy forward

Enterprise Analytics

Performance • training • staffing
Medication-level trends

MEASURABLE IMPACT

+60%
Monthly PA volume

+9%
First-pass approval rate

>80%
Reduction in turnaround time

15+
Clinics centralized in one quarter

4 fewer
FTEs than projected

Best Practices for AI

- AI requires
  - Human oversight
  - Quality data
  - Bias monitoring
  - Privacy protection
  - Clinical validation

AI augments clinicians—it does not replace clinical accountability.

Poster Development

Abstract

- Before poster development, you must first write an abstract
- You may wait to develop the poster until you hear about abstract acceptance
  - Consider timeline

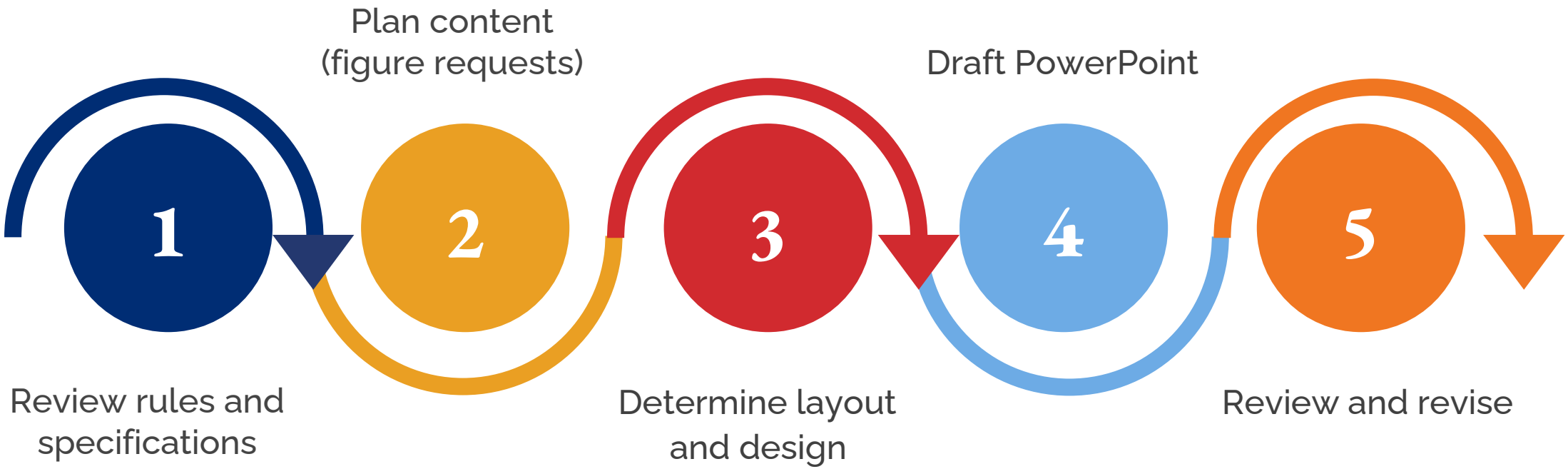
Compile	Compile information and materials
Outline	Outline headings and content for each section
Add	Add information to outline
Review	Review outline for clarity and organization
Cut	Cut words and characters

Purpose of a Poster

- Visual medium of the *main points* of a topic
- Text should attract attention and convey message
- NOT a journal article on display- Judged in 3-5 seconds
- Viewers are NOT intended to read long text panels
- Goal: Share information and network with the peer community

Interactive communication medium meant to stimulate dialogue between viewer and presenter

Steps for Poster Development



Simple Poster Guidelines

- Title: clear, concise, conveys message
- Arrange content into columns (usually 3-4)
- Sections and headings should be easily identifiable
- Layout and color scheme: clean, simple, uncluttered, organized
- Brief but thorough
- Bulleted, short statements or phrases
- Most content should be the results
- Viewers typically read top to bottom, then left to right

Presenting Data Effectively

- Choose the right visual
- Keep it simple
- Make visuals easy to read
- Use color for communication, not decoration
- Emphasize key messages

https://catalyst.harvard.edu/writing-communication-center/poster-design/

Tables vs. Figures

Tables

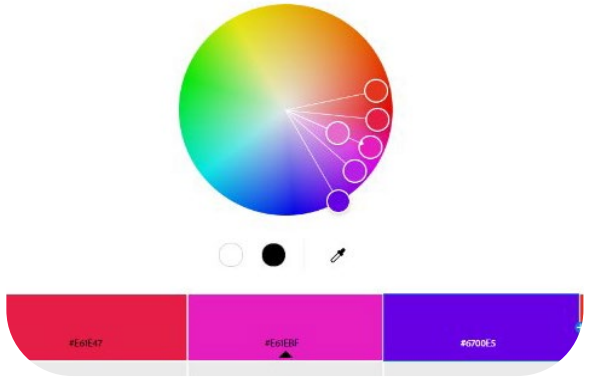
- Best for precision – exact values
- Sample characteristics

Figures

- Best for showing a pattern
- Communicate processes

https://researchramp.com/tables-vs-figures-when-to-use-each.html

Resources



- Adobe color scheme generator: https://color.adobe.com/create/color-wheel
- Chart Guide: https://chart.guide/charts/chart-choosing/
- Storytelling with Data: https://www.storytellingwithdata.com/
  - Chart Guide
  - Blog with resources

Poster Presentation Tips

- Prepare and practice an elevator pitch
  - Give background to the purpose of your work
  - Walk through the poster: Background > Methods > Results > Conclusions
  - End with why it is important, how it will impact practice, and/or future directions
- Prepare for anticipated questions
- Engage with audience
  - QR code on poster
  - Handouts allowed?
  - Business card
- Print poster on fabric if possible
- Plan ahead!!

Poster Examples

Questions to consider

1. What is the main takeaway of the poster?
2. What catches your attention first?
3. Is the poster visually inviting or overwhelming?
4. Is the information organized logically? Can you follow the flow?
5. Is there too much text? What could be condensed?
6. Should any tables be converted into figures?
7. Are the conclusions supported by the data collected?
8. One thing the keep, change, or remove

Impact of Pharmacist-led Education on Physician Perceptions and Awareness of HIV PrEP Services

BACKGROUND

- More than 1 million patients in the U.S. may benefit from HIV pre-exposure prophylaxis (PrEP)[1]
- It is estimated that less than 10% of eligible patients have filled a prescription for PrEP[1,2,3]
- Previous studies have identified multiple perceived barriers to primary care physicians (PCPs) prescribing PrEP[4,5,6]
  - Concerns about patient affordability
  - Concerns about medication adherence
  - Limited time for patient counseling
  - Lack of adequate knowledge of PrEP regimens and guidelines
- There is little research published on the effects of pharmacist-led PrEP education delivered to physicians

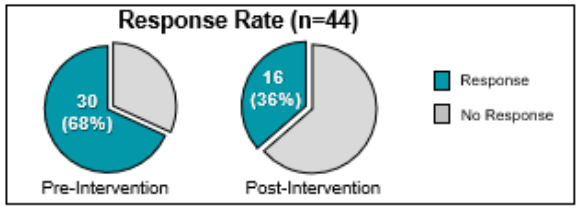
OBJECTIVE

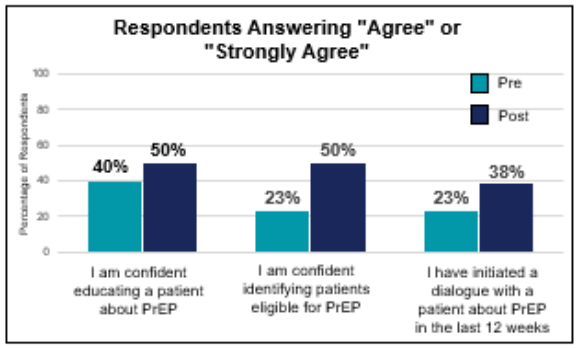
- The objective of this study is to evaluate the impact of pharmacist-led educational interventions on physician perceptions of PrEP and awareness of pharmacist-led services to prevent HIV infection in a high-risk patient population

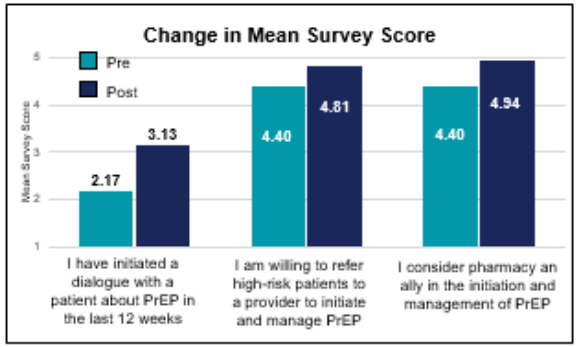
METHODS

- Study Design:
  - Quasi-experimental, single-center, IRB-approved study of Family Medicine and Internal Medicine physician residents at a community teaching hospital
- Likert-scale pre-intervention surveys were distributed to medical residents to determine baseline attitudes and perceptions of PrEP
- Attendance was encouraged at a pharmacist-led educational presentation on PrEP
- Pharmacist-led presentation included targeted education for PCPs on HIV PrEP:
  - CDC guideline-directed PrEP medication regimens and monitoring parameters
  - Assessing patient eligibility for PrEP
  - Patient counseling points
  - Role of specialty pharmacy services in initiating and managing PrEP
- Post-intervention surveys were distributed to medical residents six weeks after the educational presentation
- Primary Outcome:
  - Change in mean survey scores
- Statistical Analysis:
  - Wilcoxon Rank Sum Test
  - Descriptive statistics

RESULTS







CONCLUSIONS

- Educational presentations given by a pharmacist were associated with significant changes in medical residents' attitudes about HIV PrEP, knowledge of medication regimens and patient eligibility, and perceptions of pharmacy's role in PrEP management
- Pharmacists are effective educators in initiatives that target other healthcare providers to affect change in patient care activities
- Additional education about HIV PrEP provided by pharmacists should be considered in medical resident training programs

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Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation. All authors are employees of Cone Health.

Preventing Disease Progression: Using a Digital Tool to Identify and Intervene on Patients with Worsening Patient Reported Outcomes in Inflammatory Bowel Disease

HIGHLIGHTS

- Alerting IBD pharmacists to a drop in SIBDQ score led to 81 pharmacist actions
- Patients on a standard dose of specialty medication or who did not have a recent or in process specialty medication change were more likely to receive more than 1 pharmacist action

PURPOSE

- The Short Inflammatory Bowel Disease Questionnaire (SIBDQ) is a patient-reported outcome (PRO) measure used in inflammatory bowel diseases (IBD) [Crohn's disease (CD) and ulcerative colitis (UC)] to evaluate how patients feel about their disease symptoms and control.
- Lower SIBDQ scores indicate the disease is more severely impacting the patient's quality of life.
- **The purpose of this study is to evaluate the impact of alerting pharmacists to a clinically significant drop in SIBDQ scores.**

METHODS

Design	Single-center, prospective randomized comparative analysis of patients prescribed a specialty medication from the Vanderbilt Health IBD Clinic • Enrollment period: June 26, 2024 – December 26, 2024 • Follow-up period: December 27, 2024 – June 26, 2025
Population	**Inclusion** • On specialty therapy for CD or UC • Initial benefits investigation completed by Vanderbilt Specialty Pharmacy (VSP) • Documented SIBDQ score within 9 months of study initiation **Exclusion** • < 2 SIBDQ assessments in 9 months • Transferred care

Analysis

- Wilcoxon signed rank test (p-value: < 0.001) to assess SIBDQ score change
- Univariate logistic regression to assess factors associated with number of pharmacist actions

Definitions

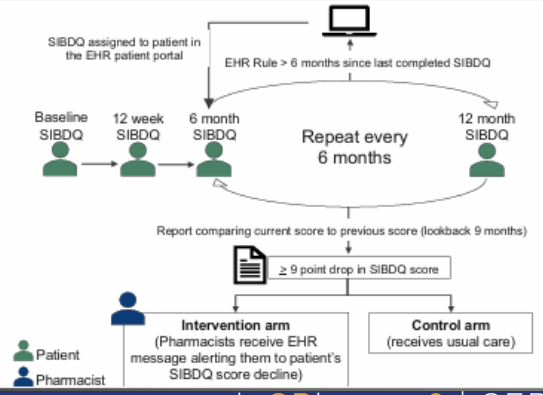
- *Escalated dose* = medication dose or frequency higher than standard FDA-approved dose
- *Recent or in process medication change* = medication or dose change within 6 months prior to or in process at the time of SIBDQ score drop

Primary Outcome

Number of pharmacist actions completed after SIBDQ score drop alert

This analysis will focus on the intervention arm only.

Figure 1. Study Process



RESULTS

Table 1. Baseline Characteristics (Intervention Arm)

Characteristics (n = 65)	n (%)
Age, years [median (IQR)]	43 (33 – 57)
Gender, Female	48 (74)
Race, White	56 (86)
Pharmacy Insurance	
Commercial	45 (69)
Medicare/Medicaid	17 (26)
Specialty Pharmacy, VSP	37 (57)
Diagnosis	
Crohn's disease	50 (77)
Ulcerative colitis	15 (23)
Disease duration, years [median (IQR)]	12 (5 – 22)
SIBDQ score [median (IQR)]	
Baseline	58 (51 – 63)
Current (score triggered alert)	42 (37 – 50)
Specialty medication	
risankizumab	21 (32)
ustekinumab	19 (29)
adalimumab	17 (26)
upadacitinib	5 (8)
other	3 (6)
Specialty medication dose type	
Standard FDA-approved dose	35 (54)
Escalated dose	30 (46)
Recent or in process med change	42 (65)

Figure 2. Intervention Arm Alerts and Pharmacist Actions

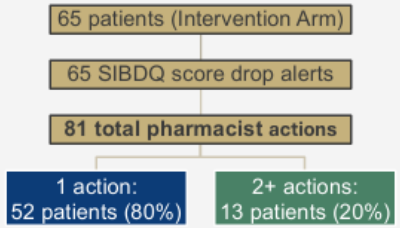
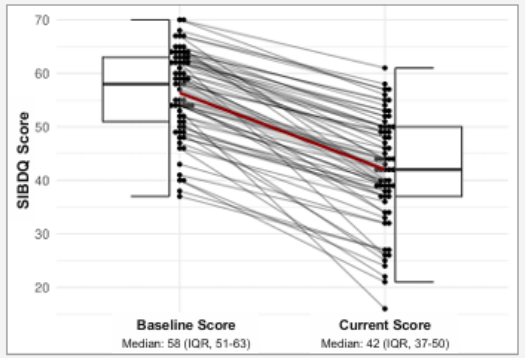
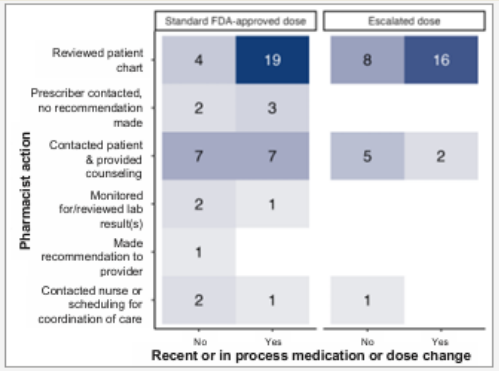


Figure 3. SIBDQ Score Change



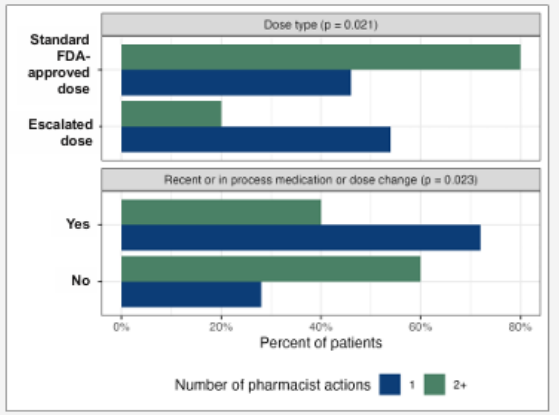
Median SIBDQ score at baseline was 58, which decreased to a score of 42. The SIBDQ score drop to the current score triggered the alert message to the pharmacists.

Figure 5. Type of Pharmacist Actions



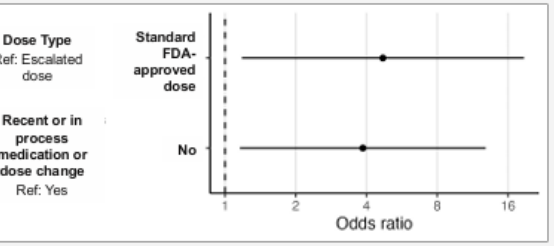
The most common pharmacist action was reviewing the patient's chart, followed by patient counseling

Figure 4. Number of Pharmacist Actions



Patients that received 2 or more pharmacist actions:
- 80% on standard FDA-approved medication dosing
- 60% did not have a recent or in process medication change

Figure 6. Univariate Regression of Actions



- Patients on the **standard dose were 4.7x** more likely to have 2+ actions
- Patients with **no recent or in process** medication or dose change were **3.9x more likely** to have 2+ actions

The Role of Artificial Intelligence in Streamlining Prior Authorizations within a Health-System Specialty Pharmacy

Background

- Prior authorizations (PA) are required for most specialty medications in which can delay therapy, increase administrative burden, and negatively affect patient care.[1]
- At The Ohio State Wexner Medical Center (OSUWMC), PAs are primarily completed electronically (ePA) through CoverMyMeds by dedicated prior authorization coordinators (PACs).
- Manual processes contribute to inefficiencies, treatment delays, and increased workload for pharmacy and clinic teams.
- Artificial intelligence (AI) has emerged as a potential solution to streamline PA workflows, reduce turnaround time, and improve approval rates.[2,3]
- No published studies currently evaluate AI's impact on PA efficiency within a health-system specialty pharmacy setting.

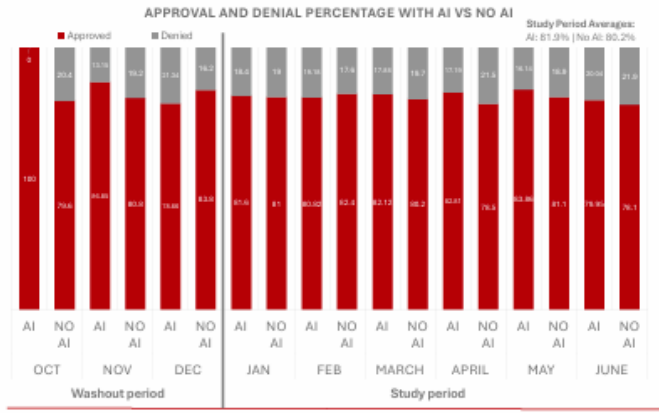
Study Objective

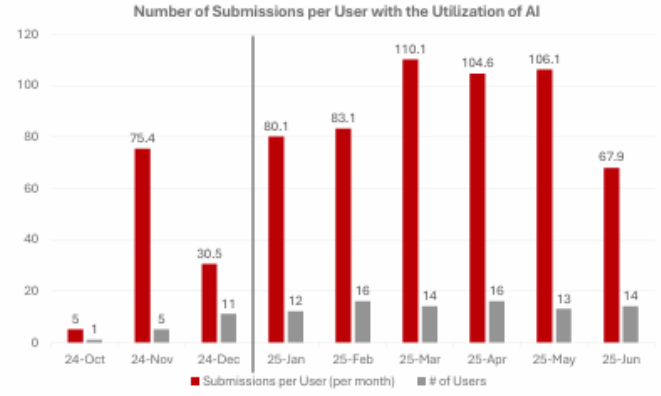
To determine the impact of artificial intelligence on prior authorization approval rates and turn-around time within a health-system specialty pharmacy.

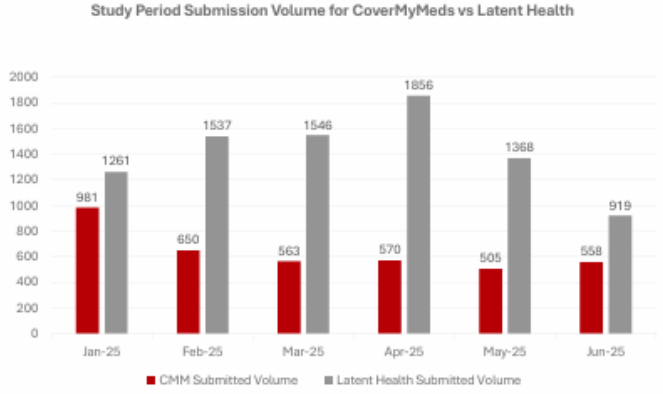
Methods

- Prospective, single-center quality improvement study evaluating all specialty pharmacy PAs from providers at The Ohio State University Wexner Medical Center between September 2023–October 2025. Pre-implementation data (Sept 2023–Dec 2024) compared to post-Latent Health implementation data (Oct 2024–Dec 2025). The washout period for the implementation of Latent Health was Oct-Dec 2024.
- Data collected included total active time on PA, clinical time, and approval/denial status from CoverMyMeds and Latent Health dashboards.
- **Inclusion:** Patients prescribed medications requiring PA by OSUWMC providers.
- **Exclusion:** Prescriptions not requiring PA.

Results







Conclusion

- Implementation of Latent Health improved PA approval rates, with an average increase from 80.2% to 81.9% across the study period.
- These findings potentially support the utility of AI as a scalable solution for health-system specialty pharmacies aiming to reduce administrative burden and optimize medication access.

References

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Implementation of oral anticancer early monitoring using electronic questionnaires

PURPOSE

Evaluate the effectiveness of implementing early oral anticancer medication monitoring questionnaires sent through an electronic patient portal at identifying adverse effects that require pharmacist intervention.

METHODS

Study Design
Single-center, randomized, pragmatic, cohort study.
1:1 stratified randomization based on age and sex

Study Setting
Vanderbilt Ingram Cancer Center,
Integrated Health System Specialty Pharmacy

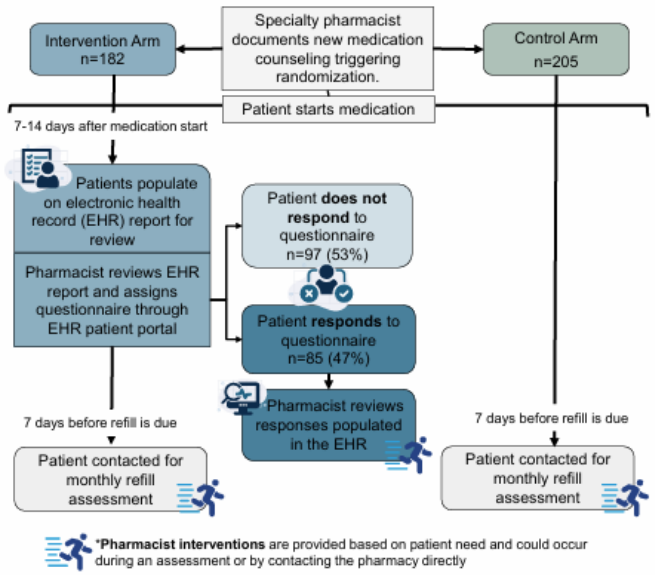
Study Sample
Adults with an active patient portal filling new oral anticancer medications at Vanderbilt Specialty Pharmacy at least once between August 15, 2023 and February 29, 2024

Aim 1
To evaluate differences in **timing and frequency of adverse effect identification** resulting in a pharmacist intervention during the **first 45 days** of treatment between intervention and usual care (control).

Aim 2
To evaluate the difference in **medication changes and clinical outcomes** at **90 days** after initial medication dispense between intervention and usual care (control).

*Electronic questionnaire implementation evaluation and results were previously presented at SERC 2024 and published in AJHP (see QR code)

Figure 1. Study Procedures and Attrition



*Pharmacist interventions are provided based on patient need and could occur during an assessment or by contacting the pharmacy directly

Table 1. Demographics

Characteristic	Intervention n=182	Usual care n=205
Sex: Male, n (%)	111 (61)	116 (57)
Age group: >= 60, n (%)	123 (68)	144 (70)
CCI*, Median (IQR)	7 (5 - 9)	8 (5 - 9)
Drug class category, n (%)		
Anti-androgens/HRAs*	70 (38)	59 (29)
Anti-neoplastic agents	112 (62)	146 (71)
Diagnosis category, n (%)		
Breast	32 (18)	30 (15)
Central nervous system	24 (13)	20 (10)
GI	18 (10)	40 (20)
GU	83 (46)	81 (40)
Other**	25 (14)	34 (17)
Cancer stage, n (%)		
Stage I or II	36 (20)	30 (15)
Stage III	36 (20)	30 (15)
Stage IV	107 (59)	142 (69)
Staging not available	3 (2)	3 (1)

*Abbreviations: CCI (Charlson Comorbidity Index), IQR: interquartile range/HRAs (hormone receptor antagonists), GI: gastrointestinal, GU: genitourinary
** Other: Gynecologic, Head/neck, Lung, Melanoma/sarcoma

CONCLUSIONS

- Patients who responded to the early monitoring questionnaire had a higher rate and faster time to pharmacists identifying and addressing adverse events from newly initiated oral anticancer therapy.
- Patients in the usual care arm were 2x more likely to have healthcare utilization than intervention patients.
- Increasing response rate to the electronic early monitoring questionnaire is needed to optimize its impact on outcomes.

RESULTS

Figure 2. AE-Related Intervention Within 45 Days

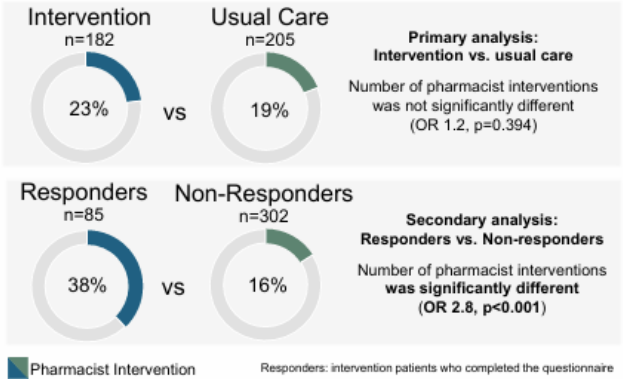
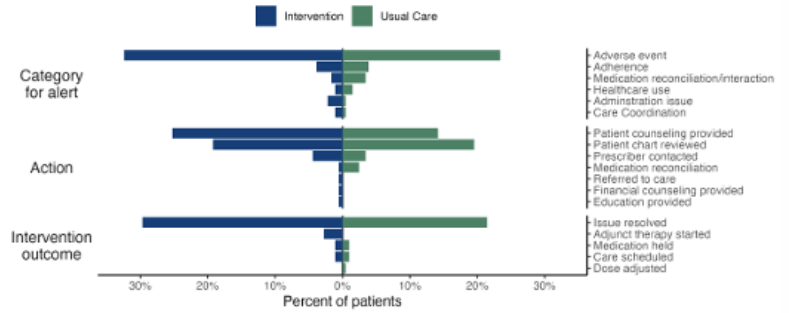
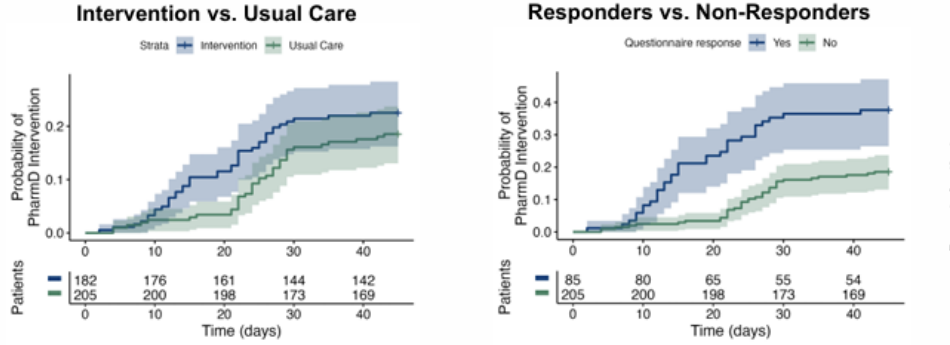


Figure 3. Types and Outcomes of Interventions within 45 Days



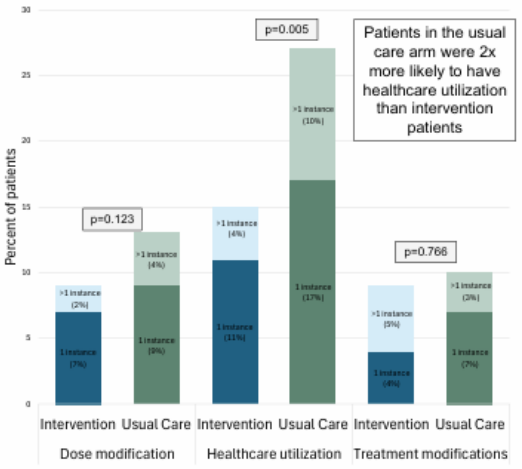
Patients could have multiple interventions. Within a single intervention, patients could have multiple categories of alert, actions, and intervention outcomes.

Figure 4. Time to Pharmacist Interventions



Responders: intervention patients who completed the questionnaire,
Non-Responders: intervention patients who did not complete the questionnaire + control patients

Figure 5. 90-day Outcomes



Acknowledgments and Disclosures: funded by a grant from ASHP Foundation

Clinical Outcomes Evaluation of a Pharmacist-Led Social Determinants of Health Screening and Intervention Pilot

SCAN ME

Key Findings

A pharmacist-led SDOH program effectively addresses patient barriers, demonstrates high intervention acceptance and benefit, and may improve rheumatoid arthritis outcomes.

Background

- Social determinants of health (SDOH) are non-medical factors that impact patients' medication use and health outcomes.[1]
- Integrated health system specialty pharmacies (HSSPs) and clinical pharmacists are uniquely positioned to identify and address barriers to SDOH, however there is a lack of published evidence supporting the impact of these programs on clinical outcomes.[2,3]
- An SDOH screening and intervention pilot program was implemented in a HSSP in their rheumatoid arthritis (RA) population.

Objective

- To evaluate the impact on clinical outcomes of a pharmacist-led SDOH screening and intervention program within the RA population of a HSSP

Methods

Process development: Upon literature review and a gap analysis, a pharmacist workflow was established for screening, intervention, documentation, and follow-ups.

Inclusion Criteria: Patients actively filling medications for RA with RAPID3 score indicating high disease activity were enrolled in the SDOH pilot program during the study period of September 2023 through September 2024.

Data Collection: The following metrics were collected for the enrolled population during the study period: screening categories and acceptance rate, intervention acceptance, pharmacist intervention time, post-intervention RAPID-3 score.

Results

Within the RA population, 27 patients were identified as not meeting outcomes (mean RAPID3 Score: 16.7). Patient demographics included a population comprised mainly of white, non-Hispanic women (mean age: 51 years) with comorbidities, Medicare insurance, and an average of 1 intervention before screening. Of the 27 patients enrolled, 18 (67%) completed screening, 4 (15%) declined, and 5 (18%) were unable to be reached. **Figure 1** shows clinical outcomes for patients included in the study. Post-intervention RAPID-3 scores were available for 8 (62%) of the 13 patients who accepted pharmacist intervention. A mean reduction in RAPID-3 score of 3 points (range: 1.3-27.3) was demonstrated. The most frequent screening categories included food security, physical activity, housing, utilities, social support, transportation documented using Z-codes **(Figure 2).** Upon follow-up, 80% of patients required ongoing support **(Figure 3).**

Figure 1: Program Outcomes

72% Patients accepted intervention

62% Patients found resources beneficial

75% Improvement in RAPID-3 Score

Figure 2: Intervention Types

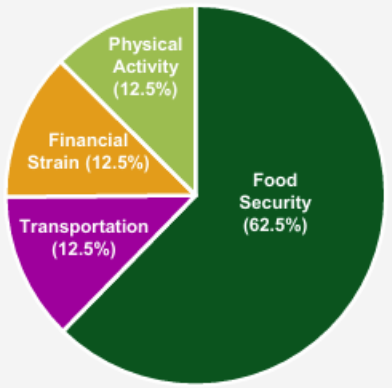
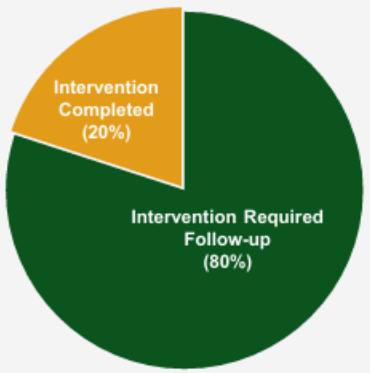


Figure 3: Intervention Outcomes



Conclusions

- The high acceptance rate and perceived benefit of pharmacist interventions suggest that this model can effectively identify and address SDOH barriers and highlights the value of HSSP pharmacist role in care and securing trusted patient relationships.
- While this program showed effectiveness in patient-reported RA outcomes, the impact of this program could be further assessed with a larger patient population over an extended period of time, as a majority of the patients in the pilot program required further follow-up.

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Validation of a Pharmacist Monitoring Tool for Patients with Inflammatory Bowel Disease

BACKGROUND

- Monitoring specialty medications utilized for treating inflammatory bowel diseases (IBD) is important due to their potential to cause adverse effects and need for dose adjustments to ensure optimal response
- Validated IBD physician assessment tools standardize assessment of disease state activity, but do not address medication-related concerns which lead to lower applicability of the tools for pharmacists
- In 2019 at University of Wisconsin (UW) Health, a pharmacist IBD patient monitoring tool, the gastro-intestinal metric (GIM) Score, was developed in collaboration with payors, patients, physicians, and pharmacists to standardize assessments and identify suboptimal medication efficacy

Gastro-Intestinal Metric (GIM) Score

Assessment Question Category	
General well-being	Disease state progression
Abdominal pain	
Bowel frequency	
Blood in stool	
Resolution of symptom attempts	
Work/school productivity	
Next dose awareness	
Missed doses	Medication efficacy
Medication adverse effects	

- The GIM Score is currently being utilized by the specialty pharmacy team during routine telephone follow-ups with patients taking IBD specialty medications

OBJECTIVES

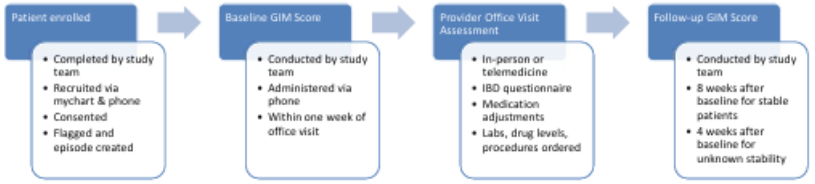
1. Validate the GIM Score through comparison of pharmacist and physician assessments of patients' IBD control at the time of office visit (baseline)
2. Measure the **accuracy** of the GIM Score to develop a cutoff score for IBD stability and **responsiveness** of the GIM Score for patients with changing disease activity

A validated pharmacist-specific IBD patient monitoring tool can standardize pharmacist assessments, allowing for a consistent approach to recommending medication optimization and disease state follow-up

METHODS

Type: Prospective cohort study
Time frame: August 1, 2024 to July 31, 2025
IRB: Minimal risk research approval
Study team: specialty pharmacists, student researchers, biostatistician
Inclusion criteria: Established with a UW Health gastroenterologist (GI) and has an office visit scheduled during the study period; gastroenterologist is the prescriber of the patient's adalimumab (or adalimumab biosimilar), certolizumab, ustekinumab, risankizumab, tofacitinib, upadacitinib or ozanimod; adherent to IBD medication (PDC>0.7); participant in UW Health Specialty Pharmacy Medication Management Program
Exclusion criteria: Pediatrics (<18 years old), pregnant, prisoners

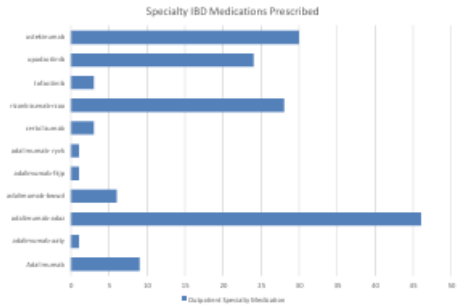
Study Design & Workflow



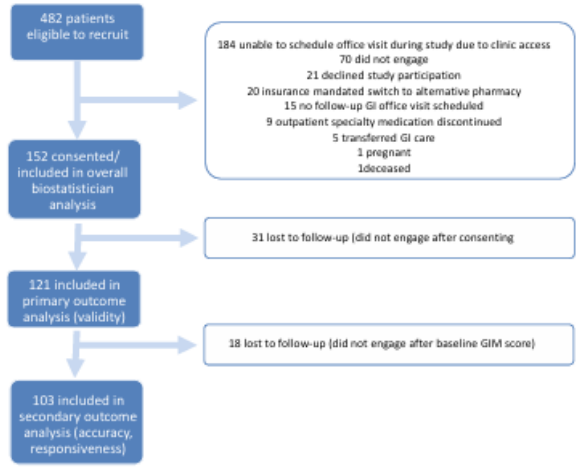
RESULTS

Table 1. Demographic Information (n=152)

Variables	Value (%)
Age	
median (range) years	48 (19-82)
Sex	
Female	80 (52.6)
Male	71 (46.7)
Non-binary	1 (0.7)
Race	
White	140 (92.1)
African American	5 (3.3)
Asian	4 (2.6)
Unknown	2 (1.3)
Indian or Alaska Native	1 (0.7)
IBD diagnosis	
Crohn's disease	112 (73.7)
Ulcerative colitis	40 (26.3)
Severe disease	
J-pouch or ostomy	22 (14.5)



RESULTS IN PROGRESS



DISCUSSION

- Integration of recruitment processes into specialty pharmacy workflows supports patient enrollment
- Collaborating with gastroenterology clinic providers and staff can increase visibility of specialty pharmacy research
- Limited gastroenterology clinic access can be a barrier to gathering clinic visit data
- Patient contact methods in addition to telephone, electronic health record messaging and letters are needed to support engagement

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Health Disparities Among Patients with Moderate to Severe Asthma in a Health System with Specialty Pharmacy: A retrospective chart review

HIGHLIGHTS

- **Black or African American/Other** patients may be more likely to **miss scheduled appointments** than White patients.
- **Black or African American/Other** patients were exposed to certain **harmful air particles at a higher rate** than White patients.
- **Few patients experienced an exacerbation or healthcare utilization** in the first year of biologic therapy. No differences in response outcomes were seen by race.

PURPOSE

This study described clinical outcomes in patients with moderate to severe asthma in the first year of biologic therapy and evaluated air quality and clinic engagement by race.

METHODS

Design

- Retrospective cohort study
- Enrollment: 1/1/2019-6/20/2022 with a 12-month follow up through 6/30/2023
- Patients were geocoded then matched with air quality index (AQI) data from the Environmental Protection Agency

Sample

- Inclusion criteria: initiated a new biologic (benralizumab, dupilumab, mepolizumab, and omalizumab) between 1/1/2019 and 6/30/2022
- Exclusion criteria:
  - Indication other than moderate to severe asthma
  - Biologic not prescribed by a Vanderbilt Allergy/ Immunology Clinic provider

Figure 1. Study Design

RESULTS

Baseline Demographics (N=185)

Gender
54% Female (n=100)
46% Male (n=85)

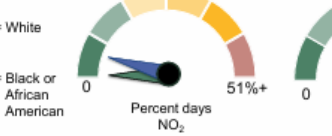
Age
Median
46 years
Interquartile range (IQR)
24, 58

Insurance
56% Commercial (n=103)
16% Medicaid (n=30)
25% Medicare (n=38)
8% Other (n=14)

Race
68% White (n=126)
32% Black/AA/ Other* (n=59)

Asthma Diagnosis
48% Severe-persistent
52% Moderate-persistent

Medication



Smoking status

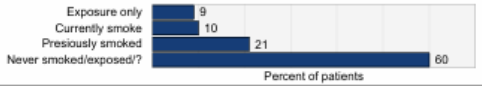
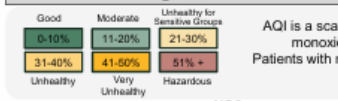


Figure 2. Air Quality Index Differences by Race



AQI is a scale that measures air pollution levels of the 6 major pollutants (ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and two sizes of particulate matter). Patients with moderate to severe asthma are at a greater risk from breathing small particles and irritating gases as they can worsen asthma symptoms.

NO2
A gaseous pollutant that is created by burning fuels like gasoline

Ozone
A gas in the air. Pollutants react chemically in sunlight to create bad ozone

$PM_{2.5}$
A mixture of solids and liquid droplets ≤2.5 micrometers often from motor vehicles, forest fires, and power plants

Median (IQR) of percent days of AQI parameters					
	0 (0, 5.5)	P<0.001	44.5 (33, 100)	P<0.001	51.2 (0, 61)	P<0.001
	5.5 (0, 6)		33.2 (20, 25)		60.8 (60, 75)	

Clinic Engagement

Figure 3. Appointment Cancellations

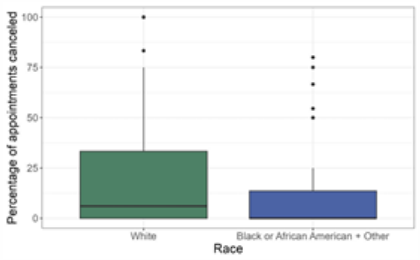
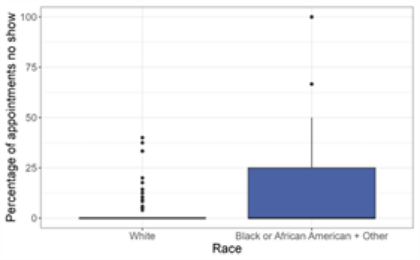
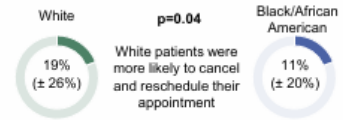


Figure 4. Appointment No Shows



Average (SD) percent of appointments cancelled



Average (SD) percent of appointments missed without rescheduling

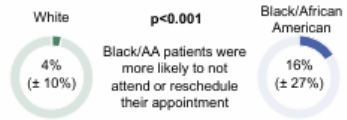


Table 1. Clinical Outcomes 12 months from Biologic Initiation

	Frequency of Outcomes n (%)			
	0	1	2	3+
Hospitalizations	171 (92)	10 (5)	3 (2)	1 (<1)
Urgent care visits	168 (91)	14 (8)	2 (1)	1 (<1)
Ambulatory visits	150 (81)	25 (14)	9 (5)	1 (<1)
Steroid bursts	149 (81)	26 (14)	6 (3)	4 (2)
Rescue inhalers	106 (57)	15 (8)	9 (5)	55 (30)
Injectable steroid administrations	181 (98)	4 (2)	0 (0)	0 (0)
Exacerbations	120 (65)	29 (16)	18 (10)	18 (10)

Differences in clinical outcomes were not significantly different by race.

References: Air Pollutants. Centers for Disease Control and Prevention. Accessed October 22, 2024. https://www.cdc.gov/air-quality/pollutants/index.html.

Acknowledgements: This research was supported by Sanofi, Inc.

Conflicts of Interest: None related to this work.

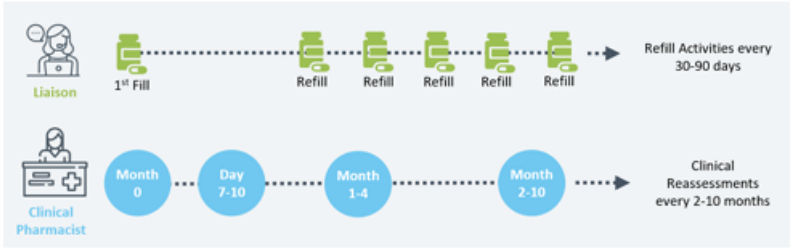
*Other race: American Indian/Alaskan Native, Native Hawaiian/other Pacific Islander, Middle Eastern, Mixed race

Analysis of Oral Oncolytic Waste for Patients Filling at a Health System Specialty Pharmacy

BACKGROUND

Cancer is among the leading causes of death in America, and the rising cost of treatment is increasing the financial burden placed on patients, payers and health systems. While oral oncology medications offer advantages over traditional facility-administered treatments, the frequency of modifications associated with these agents directly contribute to medication waste and ultimately cost incurrence. The objective of this analysis was to evaluate existing oral oncology medication waste events among patients filling at a health system specialty pharmacy (HSSP).

Figure 1: HSSP Program Workflow

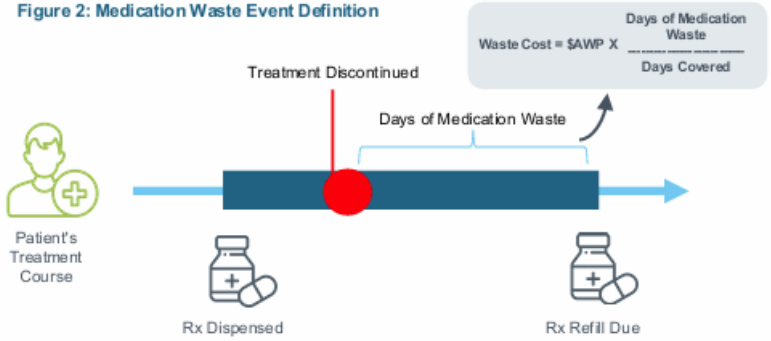


METHODS

Study Design: This was a retrospective evaluation of all oral oncology medication fill records from four targeted oncology clinics associated with a HSSP from January 1 through December 31, 2024. Medication discontinuations occurring prior to the next planned refill date (30-90 days from previous fill date) were evaluated to determine whether a medication waste event occurred.

- **Preventable medication waste events** resulted from dispenses that could have been postponed, filled for a partial quantity or cancelled altogether due to potentially predictable circumstances.
- **Non-preventable medication waste events** resulted from unforeseen therapy discontinuations.

Figure 2: Medication Waste Event Definition



Cost Estimate: Days' supply of medication wasted and the drug average wholesale price (AWP) were used to approximate the total cost associated with each medication waste event. Medication AWPs were obtained from Medi-Span for the associated NDC number identified from each waste event.

RESULTS

Figure 3. Sixty-two medication waste events were identified for 55 unique patients, resulting in a total of $504,160 calculated medication waste. Medication waste events were categorized as either preventable or non-preventable events. Just under half of the identified medication waste events (29/62) were considered preventable. **Table 1.** The most common medications identified in a medication waste event are listed. **Figure 4**. The most common reasons for preventable medication waste events were early refills and suspected progression of disease.

Figure 3: Calculated Medication Waste

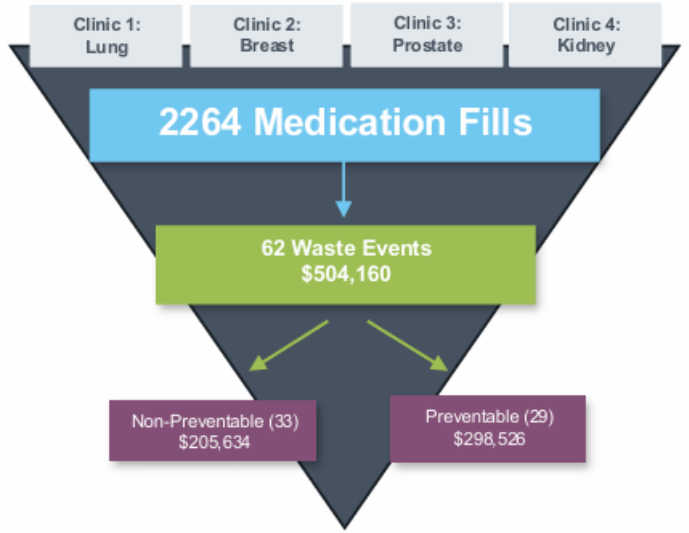
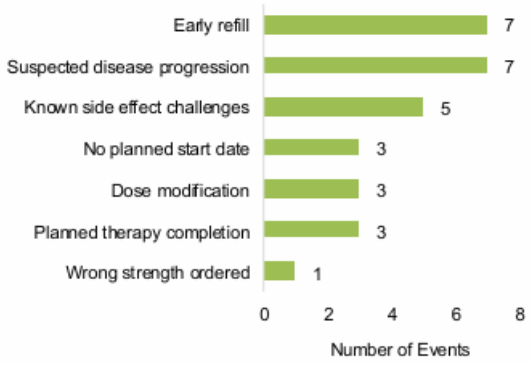


Table 1: Top Medications Wasted (Preventable & Non- Preventable)

Medication	Number of Events	Associated Waste
Osimertinib	11	$110,486
Palbociclib	7	$72,668
Abiraterone acetate	7	$43,439
Abemaciclib	10	$29,044
Capecitabine	4	$11,667

Figure 4: Preventable Waste Event Reasons



CONCLUSIONS

Overall, waste events were low in proportion to the total number of medication fills from the target clinics. Considering the prevalence of preventable medication waste events, this retrospective analysis presents an opportunity to implement targeted interventions to minimize oral oncology medication waste and promote cost avoidance.

Evaluating the Impact of a Health System Specialty Pharmacist Service on Identification and Resolution of Failed Adalimumab Biosimilar Transitions

Background

Biosimilar Approvals and Market[1,2]

- Biosimilars (BS) undergo an abbreviated approval process, often requiring studies in only one indication.
- In recent years, over 60 BS products have been released in the United States.
- Adalimumab has had 10 BS products approved since 2023. This variety of options may lead to patient confusion, difficultly with medication access, and multiple required formulary changes.

Known Specialty Pharmacist (SP) Impacts on BS[3-5]

Provider & Patient Education → Increased Uptake → Cost Savings

SP Place in Care

- Health-system SP are positioned to identify flares following BS changes before the next specialist visit.
- Earlier recognition of BS failure can allow SP to work with prescribers and get medications changed sooner, preventing therapy complications.

Gap in Knowledge

- Limited real-world data exists regarding the occurrence of BS failure, and potential impact SP can have in identifying and addressing failures.

Objectives

This study aims to evaluate the impact of SP on identifying and addressing unsuccessful BS adoptions and explore related prescription characteristics.

Methods

Study Design

This retrospective descriptive study was designed to evaluate adalimumab BS switches for patients being treated for a rheumatology condition at a CHRISTUS clinic. BS prescriptions and clinical data were collected from the electronic medical record.

Data Analysis

- Primary endpoints utilize descriptive statistics to evaluate the drug ordered, SP involvement in identified failure, and order characteristics.

Results

209 BS Prescriptions

8 BS Products

90% Commercial Insurance

Figure 1

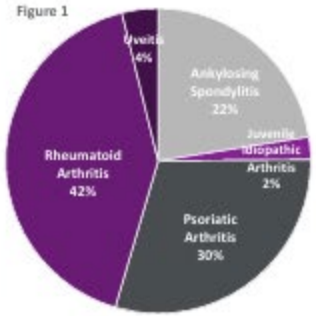
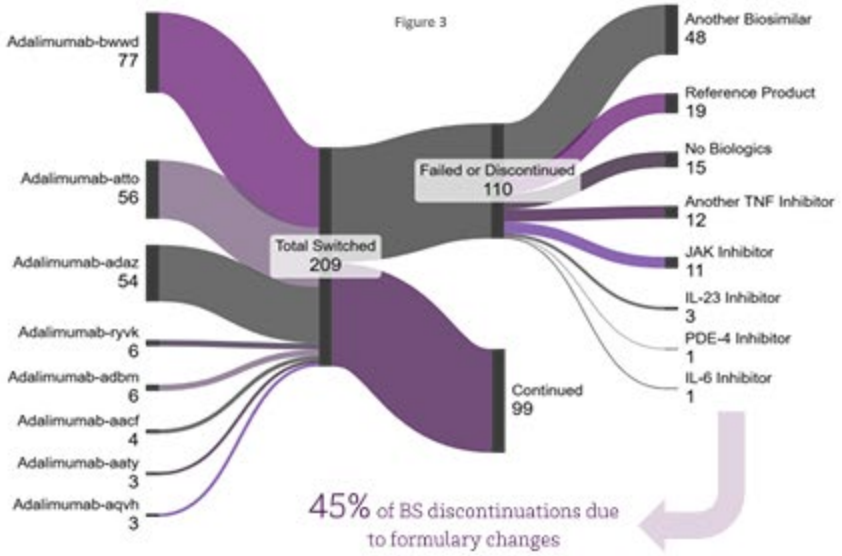


Figure 2

Figure 3



45% of BS discontinuations due to formulary changes

53% of failed BS initiations identified by SP

35% by clinic staff or provider

Table 1

Successful Initiation Per Product	%
Adalimumab-bwwd	66
Adalimumab-atto	69
Adalimumab-adaz	59

Figure 1. Distribution of BS orders prescribed per indicated disease state. **Figure 2.** Unsuccessful BS transition characteristics. Clinical failure defined as loss of stability, adverse effects from BS, increase in inflammatory markers, increase in symptoms or flares, or need for new corticosteroid prescription. **Figure 3.** Distribution of BS products prescribed, how many were failed or discontinued, and distribution of alternative therapies used after BS failure. **Table 1.** BS initiation success rate per top three products.

Conclusions

- This study highlights the importance of SP in monitoring BS transitions and identifying therapy failures.
- Results demonstrate the need for real world evidence in the efficacy of BS and further development of SP-driven BS uptake and monitoring programs.

Disclosures

The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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Identifying and addressing nonadherence risk with a technology-supported pharmacist-led risk stratification process at a health-system specialty pharmacy

Background

- Health-system specialty pharmacy (HSSP) teams within specialty clinics are often responsible for providing care to high-volume patient populations.[1-3]
- Leveraging technology platforms and utilizing risk stratification models can allow HSSP teams to focus their time on supporting rheumatoid arthritis (RA) patients at risk of nonadherence.[1-3]

Objective

To describe a technology-supported risk stratification model utilized by HSSP teams in providing targeted adherence support to patients with RA at risk of nonadherence, and to observe adherence risk barriers and outcomes.

Methods

Study Design

This prospective pilot study was conducted at Penn State Health Specialty Pharmacy from May 2024 to February 2025. A risk stratification model built into TherigySTM® patient management platform was used to identify and classify enrolled RA patients in specialty services as low, medium, or high risk of nonadherence.

Study Protocols

Endpoints

Results

Table 1: High-Risk & Medium-Risk Patient Demographics

Patient Cohort	N=34
Mean age (years)	54.5
Female	76%
Male	24%

Figure 1: Changes in Nonadherence Risk After 3 Months

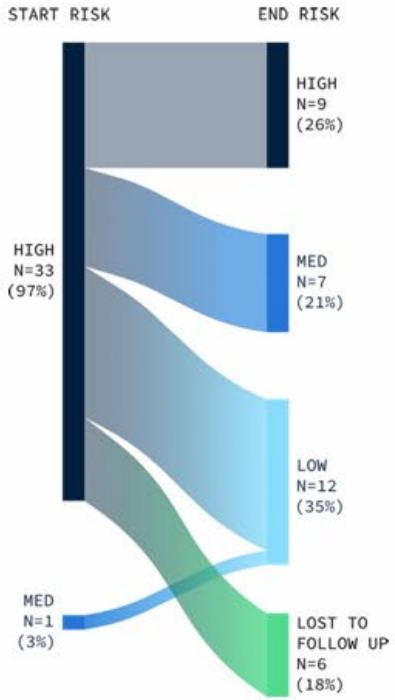
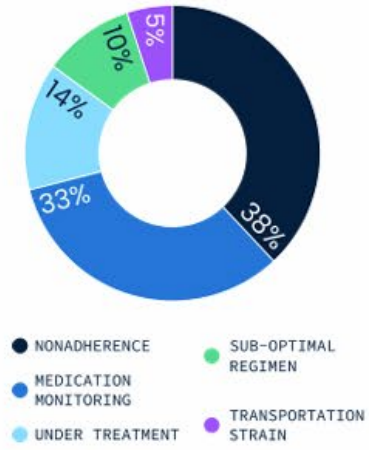


Figure 2: Identified Problems in High-Risk & Medium-Risk Patients

Proactive patient outreach by pharmacists provides targeted adherence support to patients with RA at risk of nonadherence.



Results Cont.

Figure 3: Nonadherence Management Outcomes

56%

Patients who encountered adherence issues and connected with pharmacist for clinical interventions

80%

Patients who reported adherence problems and resolved them three months post-pharmacist intervention

59%

Patients experienced a reduction in nonadherence risk level

- 24% of patients had a reduction of one risk level
- 35% of patients had a reduction of two risk levels

Discussion & Conclusion

- The technology-driven process for identifying patients at risk of nonadherence plays an important role in supporting pharmacists in triaging, assessing, and addressing barriers.
- The proactive pharmacist interventions for patients most at risk provided adherence support for specialty patients by reducing nonadherence risks and mitigating barriers.
- By providing tailored recommendations based on patient-specific factors, pharmacists can play a significant role in addressing and preventing nonadherence in RA patients, potentially before adherence drops significantly.

Next Steps

- This model and process could benefit patients with other chronic conditions, including those receiving treatment for dermatologic conditions, inflammatory bowel diseases, or other inflammatory arthritis conditions.

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Evaluating pharmacist-led interventions focused on infection management in inflammatory conditions at a health-system specialty pharmacy

Background

- Biologic agents and small molecule therapies have transformed the treatment of inflammatory autoimmune conditions like rheumatoid arthritis, psoriatic arthritis, and psoriasis.
- While employing a variety of mechanisms to inhibit unwanted immune responses, these agents are also associated with an increased risk of infection, particularly respiratory tract infections.[1]
- Clinicians are left to manage these potential side effects and often recommend withholding immunosuppressive therapy during active infections, especially when patients are febrile or receiving antibiotic treatment, to minimize complications and expedite recovery.[2]
- Health-system specialty pharmacy (HSSP) pharmacists are in a unique position to identify infections and/or infection risk.
- Patients serviced by HSSP pharmacists can easily contact HSSPs to ask questions regarding infection management while being treated for these inflammatory conditions.
- HSSP pharmacists likely have a positive impact on helping patients manage these therapies during times of suspected or proven infection.

Objectives

- **Primary Objective**:
  - Evaluate the frequency of pharmacist interventions related to infection management in patients receiving biologic or small molecule therapies for inflammatory autoimmune conditions at a health-system specialty pharmacy

Methods

- **Design:** Retrospective chart review of interventions performed by HSSP pharmacists
- **Setting:** West Virginia University Medicine Specialty Pharmacy
- **Timeline:** October 1, 2024 - December 31, 2024
- **Inclusion Criteria:**
  - Diagnosis of psoriasis, psoriatic arthritis, rheumatoid arthritis, spondyloarthritis, and conditions specified as "other inflammatory conditions"
  - Intervention mentioned any suspected or confirmed infection
  - Enrolled in the patient management program

Results

Demographics (n=136)	
Female	79.4% (108)
Age	44 (17-78)
Diagnosis	
Spondyloarthritis	7.4% (10)
Psoriasis	9.6% (13)
Psoriatic arthritis	16.9% (23)
Other inflammatory conditions	26.5% (36)
Rheumatoid arthritis	39.7% (54)

Table 1: Patients receiving specialty medications between October 1st, 2024, and December 31st, 2024

Pharmacist intervention types and recommendations (n=178)

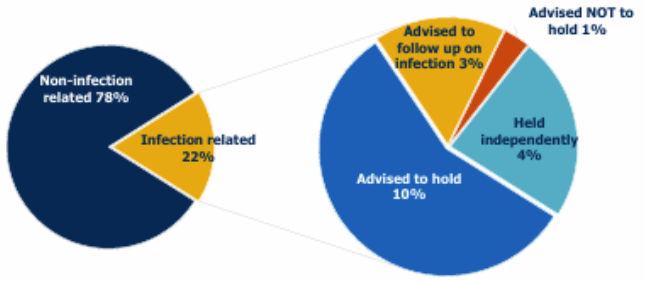

Chart 1: Pharmacist interventions for HSSP patients receiving specialty medications between October 1st, 2024, and December 31st, 2024

100% of pharmacist recommendations were accepted

Disease State	Interventions
Other inflammatory conditions	20% (6)
Psoriasis	7% (2)
Psoriatic arthritis	17% (5)
Rheumatoid arthritis	43% (13)
Spondyloarthritis	13%(4)
Grand Total	**30**

Table 2: Incidence of intervention by disease state

Results

Drug class	Interventions by patient
Tumor Necrosis Factor Inhibitor	36.7% (11)
Janus Kinase Inhibitor	20% (6)
Interleukin-17 Inhibitor	23.3% (7)
Interleukin-6 Inhibitor	13.3% (4)
T-cell Modulator	3.3 % (1)
Antimetabolite	3.3 % (1)
Grand Total	**30 patients**

Table 3: Incidence of intervention by drug class

Infection related interventions across disease type and drug class (n=30)

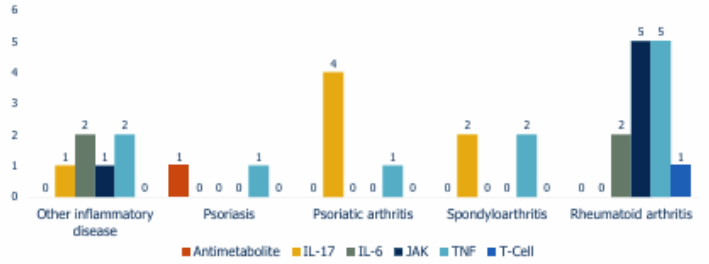

Chart 2: Incidence of intervention by drug class and disease state

Conclusions

- This study highlights the key role of specialty pharmacists in managing patients being treated with biologic or small molecule therapies.
- Many interventions (22%) were related to active or suspected infection management and all the pharmacist recommendations were accepted, suggesting that pharmacists are integral to optimizing patient care and preventing infection-related complications in this population.
- The study data is limited by its short duration and lack of long-term clinical impact data points following a hold.
- Future directions include evaluating:
  - Long-term clinical impact of medication holds through collecting frequency of disease flares following holds due to infection
  - Frequency of infection necessitating hold
  - Clinical outcomes of those patients that do not hold their medications during infection

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Disclosure: Authors have no conflicts of interest to disclose.

VANDERBILT UNIVERSITY MEDICAL CENTER

COMPARING RATES OF TURNAROUND TIME, ADHERENCE, AND PERSISTENCE AMONG PATIENTS AT

PURPOSE

Compare rates of turnaround time (TAT), secondary adherence, and persistence between patients filling specialty medication with Vanderbilt Specialty Pharmacy, an integrated health-system specialty pharmacy (HSSP) to those using external specialty pharmacies (non-HSSP).

METHODS

Study Design	• Retrospective cohort study
Setting	• Vanderbilt Health System Oncology, Inflammatory (Rheumatoid Arthritis [RA], Inflammatory Bowel Disease [IBD], and Dermatology), or Multiple Sclerosis (MS) clinics • Filling pharmacy was categorized into HSSP, non-HSSP, and never filled • For adherence calculations, patients with ≥ 50% of fills at an HSSP were classified as HSSP patient

Sample	• **Inclusion Criteria:** Patients with a specialty medication prescription between June 1, 2021, to May 31, 2022
	• **Exclusion Criteria:** Specialty medication fill within 180 days of the index prescription or used alternative filling methods (e.g., patient assistance programs).
	  • *TAT:* prescribed medication was administered by a prescriber, or the medication required an intravenous loading dose.
	  • *Adherence:* Patients with <3 fills

Analysis	• Wilcoxon rank sum test: comparisons of turnaround time and adherence outcomes • Pearson's Chi squared test: persistence

Turnaround Time

Time from a specialty medication prescription to the first filled claim

Lengthy TAT >14 days

Adherence & Persistence

Computed at 12 months from prescription

Adherence: Proportion of days covered (PDC)

Persistence: Lack of a 60+ day gap

CONCLUSION

Patients who **filled with the HSSP** had **higher adherence.**

Patients with **inflammatory conditions** who **filled with the HSSP** had **shorter turnaround time** and **higher rates of persistence** compared to patients with inflammatory conditions who filled at non-HSSP.

Patients with **MS** who **filled with the HSSP** had **higher adherence.**

RESULTS

Table 1. Baseline Characteristics

Characteristic n (%)	Total N=1792	HSSP n=897	Non-HSSP n=470	Never Filled n=425
Age- median (IQR)	58 (44 - 69)	60 (46 - 70)	53 (41 - 61)	62 (46 - 71)
Gender, female	966 (54%)	469 (52%)	270 (57%)	227 (53%)
Race, White	1456 (85%)	714 (84%)	383 (85%)	359 (90%)
Insurance Type				
Commercial	912 (53%)	400 (46%)	323 (71%)	189 (47%)
Government/ Other	823 (47%)	471 (54%)	135 (30%)	217 (53%)
Clinical Area				
Oncology	1001 (56%)	584 (65%)	233 (50%)	184 (43%)
Inflammatory	623 (35%)	246 (27%)	188 (40%)	189 (45%)
Multiple Sclerosis	168 (9%)	67 (7%)	49 (10%)	52 (12%)

Figure 1. Median Turnaround Time (Days)

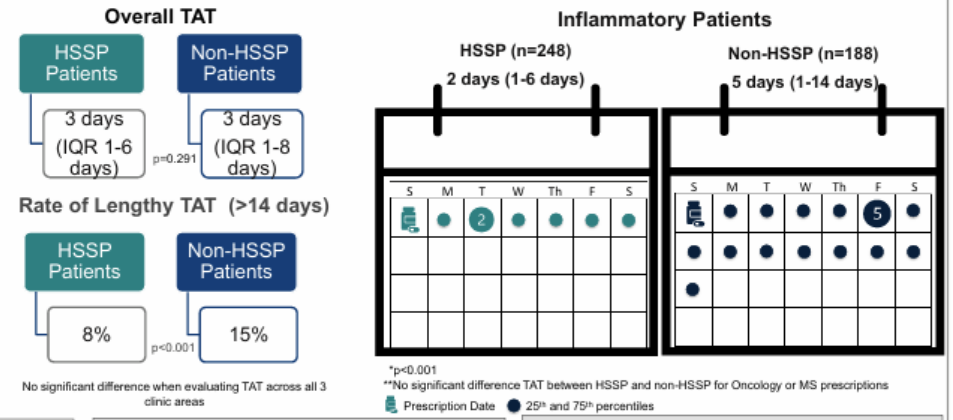


Figure 2. Top Reasons for Lengthy (>14 Days) Turnaround Time

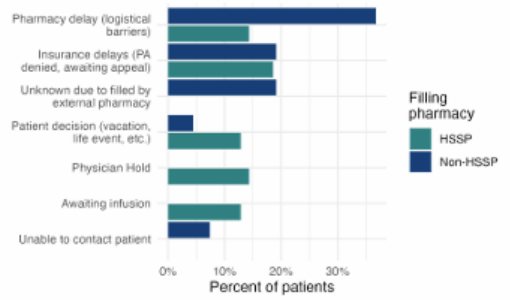


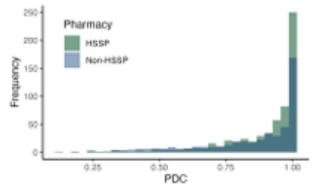
Table 2. Adherence (PDC)

	Pharmacy		
Characteristic	**HSSP** N = 626	**Non-HSSP** N= 473	**p-value**
PDC (Median, [IQR])	0.96 (0.84 - 1.00)	0.94 (0.79 - 1.00)	0.03

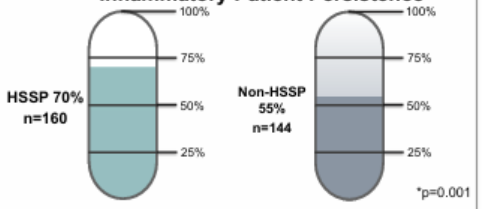
Table 3. Persistence

	Pharmacy		
Characteristic	**HSSP** N = 627	**Non-HSSP** N= 472	**p-value**
Non-Persistent	423 (68%)	343 (73%)	0.063

One-Year PDC



Inflammatory Patient Persistence



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Summary

Question
Start with a meaningful question

Data Collection
Collect high-quality data

Outcomes
Measure outcomes that matter

Analysis
Translate data into research

Dissemination
Communicate findings effectively

Improved patient care

Thank You

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