Optimizing Biologic Utilization in Atopic Dermatitis: Impact of a Proactive Dosing Frequency Program at a Specialty Pharmacy

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BACKGROUND

Atopic dermatitis (AD) is a chronic, pruritic, inflammatory skin disease characterized by xerosis, erythema, excoriation, exudate, and lichenification.[1] Pathological skin damage and subsequent scratching frequently compromise the skin barrier, predisposing patients to secondary cutaneous infections.[1]
As the most prevalent form of eczema, AD impacts a significant portion of the United States population across all age demographics.[2]

- Pediatric Population: Approximately 9.6 million children under the age of 18 are affected, with 80 percent experiencing disease onset prior to age six.[2] One-third of these pediatric cases are classified as moderate-to-severe.[2]
- Adult Population: An estimated 16.5 million adults live with AD, 6.6 million of whom meet criteria for moderate-to-severe disease.[2] While primarily childhood-onset, roughly 25 percent of adults report adult-onset symptoms, with approximately 40 percent of this cohort experiencing moderate-to-severe manifestations.[2]

The economic impact of managing AD is substantial and highly variable, influenced by geographic location, specific therapeutic products, and heterogeneous insurance coverage. As of recent estimates, the annual economic burden of AD in the United States exceeds $5 billion, driven heavily by healthcare utilization and prescription drug costs.[3]
Advanced biologic therapies have revolutionized the management of moderate-to-severe AD. Many of these agents possess FDA-approved dosing regimens that allow for interval adjustments based on a patient's evolving clinical response. In real-world clinical practice, however, patients frequently remain on standard, fixed-dose schedules longer than clinically necessary. This inertia contributes to excess drug utilization and avoidable healthcare expenditures. Proactive, pharmacist-led interventions offer a strategic solution to optimize therapy, ensuring that dosing frequencies align precisely with individual patient characteristics, clinical stability, and value-based outcomes.

OBJECTIVE

To evaluate the impact of a pharmacist-driven Dosing Frequency Program designed to optimize biologic dosing intervals for patients with AD by aligning therapy with FDA labeling, patient weight, and clinical response.

METHODS

Computational logic was employed to identify potential cases and schedule pharmacist reviews at specific intervals post-initial dispense between January 1, 2025, and December 31, 2025, for AD patients prescribed 1 of 3 select specialty medications with dispenses from the specialty pharmacy's central fill and community-based locations (Table 1). Following initial approval of a select specialty biologic claim, a case is automatically scheduled for pharmacist review. This review occurs a set number of weeks post-dispense, and cases are initially included or excluded based on the therapy's FDA-recommended dosing interval relative to the patient's diagnosis, weight if applicable, and clinical response. The success of the program and availability of products with similar dosing protocols will determine if additional medications are included in the future.
A retrospective evaluation was conducted within a specialty pharmacy to assess the impact of an initiative-taking dosing frequency optimization program among patients receiving biologic therapy for AD. Computational logic embedded outside the dispensing workflow identified eligible patients and triggered pharmacist reviews at predefined intervals following the initial dispense. During each review, pharmacists evaluated clinical appropriateness using information available in the patient's electronic medical record (EMR), including documented treatment response, disease severity, body weight when applicable, and adherence history. These factors were assessed against FDA-approved prescribing information and dosing parameters to identify patients who may be appropriate candidates for extended dosing intervals. Pharmacists communicated evidence-based recommendations to prescribers and engaged patients to confirm treatment effectiveness, tolerability, and ongoing adherence prior to implementation of any regimen modification.
Program outcomes included the number and type of pharmacist interventions performed, prescriber acceptance of dosing recommendations, and resulting changes in biologic utilization. Financial impact was estimated by calculating the annualized difference in medication acquisition costs between the original dosing schedule and the optimized extended dosing interval among accepted interventions.

METHODS (CONTINUED)

Table 1. Included Specialty Medications

tralokinumab-ldrm	lebrikizumab-lbkz	nemolizumab-ilto

RESULTS

Figure 1 illustrates the case inclusion process:

- 341 patients were identified as filling 1 of 3 drugs (tralokinumab-ldrm, lebrikizumab-lbkz, nemolizumab-ilto); 254 of which had a documented atopic dermatitis diagnosis
- 160 patients were excluded for various reasons:
  - 39 patients did not meet clinical criteria for intervention
  - 31 prescriptions were proactively changed by the prescriber to an optimized dosing interval based on FDA-approved dosing guidelines
  - 15 patients discontinued therapy prior to pharmacist review
  - 10 patients transferred to another specialty pharmacy provider based on insurance requirements
  - 65 patients did not respond to outreach attempts to refill again after initial review
- 94 patients were eligible for dosing frequency intervention (Table 2)

Figure 1. Case Inclusion Process

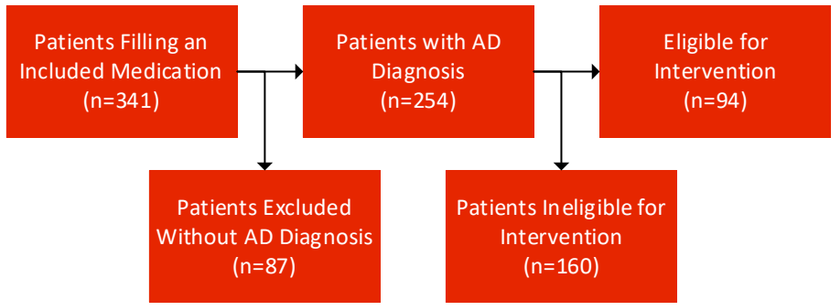
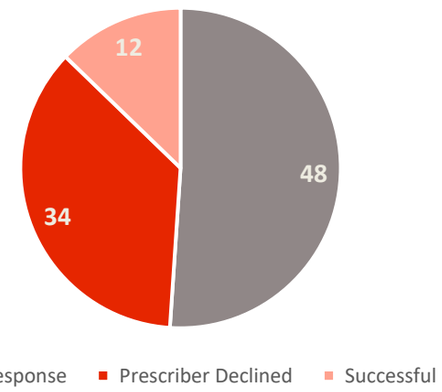


Table 2. Successful Interventions, Days Saved, and Savings Outcomes

Medication	Total Eligible Cases	Successful Interventions
tralokinumab-ldrm	32	3
lebrikizumab-lbkz	16	3
nemolizumab-ilto	46	6
Total	94	12

- Of the 94 eligible cases, 48 were deemed unsuccessful due to no response from the prescriber, 34 were unsuccessful because the prescriber declined the intervention suggestion, and 12 interventions were successful (Graph 1)

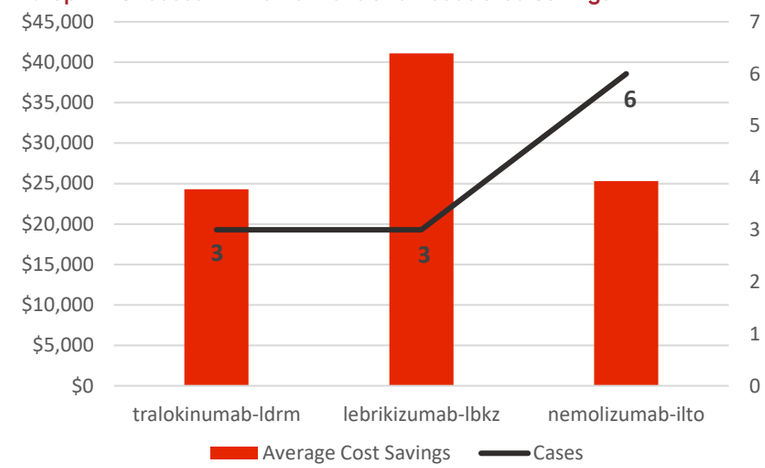
Graph 1. Eligible Cases



RESULTS (CONTINUED)

- Of the 12 successful cases, 3 tralokinumab-ldrm cases resulted in $72,935 annualized savings ($2,026 per dispense), 3 lebrikizumab-lbkz cases yielded $123,338 annualized savings ($3,426 per dispense), 6 nemolizumab-ilto cases showed $151,907 annualized savings ($2,110 per dispense).
- Average cost savings of $29,015/successful intervention. tralokinumab-ldrm average savings was $24,312, lebrikizumab-lbkz average savings of $41,113 and nemolizumab-ilto average savings was $25,318 (Graph 2)

Graph 2. Successful Interventions and Associated Savings



- Lebrikizumab-lbkz represented the highest cost savings. This is due to a higher acquisition cost for this drug vs tralokinumab-ldrm and nemolizumab-ilto[4]
- Both tralokinumab-ldrm and lebrikizumab-lbkz interventions result in a dosing frequency change from every 2 weeks to every 4 weeks, a reduction of 1 dose per month and 12 doses per year.
- Nemolizumab-ilto interventions result in dosing frequency change from every 4 weeks to every 8 weeks, a reduction of approximately 6 dispenses per year.

CONCLUSIONS

AD is a chronic, inflammatory skin condition that can be managed by a variety of therapies. Biologics have proven an effective method to treat moderate to severe AD, with medication adherence being essential for patients to achieve and maintain therapeutic outcomes.[5] Many AD-approved biologics include FDA labeling allowing an alternative extended dosing schedule after clear/almost clear skin is achieved, with evidence that less frequent dosing may maintain symptom control while decreasing overall cost and medication usage. In real-world practice, these frequency changes are often overlooked or delayed, causing excess drug utilization and avoidable costs.
A structured, pharmacist-led Dosing Frequency Program was successful in identifying patients based on specific factors – such as weight, length of therapy, and clinical response – who met the criteria for a reduced frequency. Pharmacist intervention suggesting the frequency change to prescribers for these eligible patients was effective in aligning patients' AD biologic therapy with FDA labeling, allowing many to maintain symptom control with less doses per year and reduced overall cost. These findings reinforce the role of specialty pharmacy in driving clinically appropriate, cost-conscious therapy optimization by addressing opportunities that often remain unrecognized in routine care.

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