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Drug Use Research & Management Program

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New Drug Evaluation: Ebglyss™ (lebrikizumab-lbkz) injection, for subcutaneous use

Date of Review: October 2025 End date of Literature Search: 7/25/2025

Generic Name: lebrikizumab-lbkz

Brand Name (Manufacturer): Ebglyss (Eli Lilly and Company)

Plain Language Summary:

- Atopic dermatitis, also known as eczema, is a common condition that causes dry, itchy, and red skin and can affect limbs, head, face, and other areas of body. While mild cases can be managed with topical moisturizers, moderate-to-severe cases often require other topical or systemic therapy.
- Lebrikizumab is a medicine that has been approved by the United States Food and Drug Administration for people aged 12 years and older who weigh at least 40 kg with moderate-to-severe atopic dermatitis whose disease is not adequately controlled with topical medicines. It can be used with or without topical corticosteroids (i.e. hydrocortisone).
- Lebrikizumab is a self-administered injection given every 2 weeks for 16 weeks and then every 4 weeks if symptoms have improved.
- In clinical studies, lebrikizumab improved skin symptoms, reduced itching, and enhanced quality of life better than placebo (or sugar pill).
- Lebrikizumab was relatively well tolerated. In studies, the most frequent side effect was eye inflammation (conjunctivitis).
- Providers must explain to the Oregon Health Authority (OHA) why someone needs lebrikizumab before OHA will pay for it. This process is called prior authorization.

Research Questions:

- 1. What are the benefits of lebrikizumab in patients with moderate-to-severe atopic dermatitis (AD)?
- 2. What are the harms of lebrikizumab in patients with moderate-to-severe AD?
- 3. Are there subpopulations for which lebrikizumab may be better tolerated or more effective?

Conclusions:

- Data from 4 randomized, double-blind clinical trials indicate that 16-week induction of lebrikizumab (administered every 2 weeks) is significantly more effective than placebo for improving skin clearance (Strength of Evidence: high), itching (Strength of Evidence: high), and quality of life (Strength of Evidence: high) for adults and adolescents with moderate-to-severe AD unresponsive to standard topical treatments.
- One trial, which re-randomized responders from two identical induction trials, indicated that continuing lebrikizumab (every 4 weeks) was associated with significantly better skin clearance, itching, and quality of life outcomes (Strength of Evidence: moderate) relative to placebo withdrawal.
- No head-to-head trials comparing lebrikizumab to other targeted immune modulators (TIMs) or other immunosuppressives have been conducted (Strength of Evidence: very low).

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- Lebrikizumab was generally well tolerated; the most commonly reported adverse effect was conjunctivitis (~5%).
- No evidence exists to indicate that treatment efficacy or safety differs by key demographic or disease-related characteristics.
- Safety of lebrikizumab in pregnant women has not been established. In animal studies, lebrikizumab was not associated with adverse fetal development.

Recommendations:

• Add lebrikizumab to the prior authorization criteria for targeted immune modulators (TIMs) for AD and asthma to ensure safe and appropriate use for adults and adolescents with moderate-to-severe AD. See Atopic Dermatitis Class Update for full criteria.

Background

Atopic dermatitis (AD), also known as eczema, is a chronic inflammatory skin disorder that presents as persistent or relapsing episodes of pruritus and eczematous lesions that can vary in morphology and distribution.^{1,2} AD is common and affects both children (11%) and adults (6%) with peak incidence occurring in the first year of life.³ Although most AD develops during childhood, active AD often persists into adolescence and adulthood. In the United States (US), the prevalence of AD is higher in Black children compared to White Children.⁴ Although the cause is unknown, AD is believed to be influenced by a mix of genetic, immunologic, and environmental risk factors. In some individuals, AD is associated with increased immunoglobulin E (IgE) allergic reactivity and often presents with other allergic diseases (e.g. asthma, rhinitis).

AD is heterogenous with respect to its presentation and severity. Essential features of AD include eczematous lesions, intense pruritis, and a chronic or relapsing course of disease. Other presenting characteristics (e.g. xerosis), can vary by age, race or ethnicity, and disease severity. In particular, eczematous lesions manifest in distinct ways across age groups, with infants having higher rates of acute lesions that are widely distributed on head, face (especially the cheeks), and limbs, whereas adolescents are typically affected on flexural surfaces; adults typically have involvement limited to hands and feet. There are no definitive laboratory tests for AD, and diagnosis is based on clinical presentation. The American Academy of Dermatology mandates the presence of essential characteristics (pruritic, eczema) and important and supportive features (early age of onset, xerosis) as well as supportive, but non-specific signs for diagnosis of AD.

AD has a substantial psychosocial impact on patients and their relatives. Intense itching is a hallmark of AD and is frequently reported as the most burdensome symptom, affecting sleep, daily activities, and social relationships.^{6,7} The visible nature of AD can cause self-consciousness, social embarrassment, and isolation.⁸ Patients with AD are at an increased risk of developing mental health disorders, including depression, anxiety, and suicidal ideation.⁹ Caring for a child with moderate-to-severe eczema can significantly affect the mental wellbeing of caregivers. The economic burden of AD is also considerable, including direct costs of treatment and indirect costs such as loss of productivity.¹⁰

The management of AD is guided by disease severity, which is often categorized into mild, moderate, and severe categories, as well as age, co-occurring conditions and treatments. Mild AD is characterized by erythema and xerosis with limited itching. Moderate AD can include areas of excoriation and lichenification impacting sleep and activities of daily living. Severe AD presents as widespread skin involvement that includes excoriation, extensive lichenification, bleeding, oozing, cracking, and changes in pigmentation with severe impact on sleep and quality of life. Treatment goals for AD include symptom alleviation and long-term disease control. Treatment is typically individualized based on clinical severity, skin area involved, and other patient factors (other medication or co-occurring disorders).

For all patients, AD management includes avoidance of individual trigger factors, skin barrier restoration using moisturizers, and a step-up and step-down

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approach to reduce inflammation according to disease severity. Regardless of disease severity, all patients should regularly apply topical moisturizers, optimally fragrance-free emollients based on patient preference. In addition to moisturizers, most patients with AD will also require topical anti-inflammatory treatment, typically topical corticosteroids (TCS), which are the cornerstone to management of AD. For patients who wish to avoid TCS or have lesions in sensitive areas more adversely impacted by steroid side effects, topical calcineurin inhibitors (TCIs) can be used alone or in conjunction with TCS. Other topical anti-inflammatory therapies that are FDA-approved for management of mild-to-moderate AD include topical phosphodiesterase inhibitors (i.e. crisaborole, roflumilast) and topical Janus kinase inhibitors (JAK) (ruxolitinib). There is inadequate evidence to assess the relative efficacy and safety of topical crisaborole, roflumilast or ruxolitinib compared with TCI and TCS treatments.¹³ For those with moderate-to-severe symptoms unresponsive to topical therapies, systemic immunomodulatory medications and/or phototherapy (narrowband ultraviolet B) can be added. Systemic immunomodulatory medications include oral JAK inhibitors (e.g. upadacitinib, abrocitinib), targeted immune modulators (TIMs) (e.g. dupilumab, tralokinumab, nemolizumab), or off-label immunosuppressants (e.g. methotrexate, azathioprine, cyclosporine, mycophenolate mofetil).

Several instruments and scales have been developed to assess severity of illness, disease impact, and quality of life for patients with AD.¹⁴⁻¹⁷ Two of the most used scales include Eczema Area and Severity Index (EASI) and Investigators Global Assessment (IGA) severity score. The EASI assesses the severity of, and body surface area affected by, AD symptoms including erythema, induration/papulation/edema, excoriations, and lichenification.¹⁵ Each symptom is graded systematically for specific anatomical regions (the head, trunk, arms and legs) and summarized in a composite score. EASI scores range from 0 to 72 points, with higher scores indicating greater severity and extent of AD.¹⁵ EASI outcomes are measured as a percentage improvement in EASI score from baseline as EASI 50, 75, or 90.¹⁵ The IGA is a clinician-reported outcome measure that has been used to evaluate severity of AD at a given point in time using a 5-point rating scale ranging from 0 (clear) to 4 (severe) symptoms.¹⁶ In most clinical trials, scores less than or equal to 1 were generally classified as "treatment success," whereas scores greater than 1 were considered "treatment failure."¹³

Lebrikizumab-lbkz (Ebglyss™; Eli Lilly) is a monoclonal antibody that targets interleukin-13 (IL-13), which is a proinflammatory cytokine that is important in the pathogenesis of AD. With its approval in September 2024, lebrikizumab joined tralokinumab (IL-13) and dupilumab (IL-4) as FDA-approved monoclonal antibodies for the treatment of moderate to severe AD. Nemolizumab (Nemluvio™; Galderma) which targets IL-31 was approved for moderate to severe AD in December of 2024 and is reviewed in a separate new drug evaluation.

See **Appendix 1** for Highlights of Prescribing Information from the manufacturer, including Boxed Warnings and Risk Evaluation Mitigation Strategies (if applicable), indications, dosage and administration, formulations, contraindications, warnings and precautions, adverse reactions, drug interactions and use in specific populations.

Table 1: Pharmacology and Pharmacokinetic Properties¹⁸

Parameter						
Mechanism of Action	IL-13 antagonist that interrupts IL-13 mediated inflammatory signaling, important to the pathogenesis of AD					
Distribution and Protein Binding	Volume of distribution = 5.14 L					
Elimination	Lebrikizumab is enzymatically degraded into constituent peptides and amino acids similar to endogenous IgG.					
Half-Life	24.5 days					
Metabolism	No significant hepatic or renal elimination. Lebrikizumab is enzymatically degraded into constituent peptides					
	and amino acids					
Abbreviations: AD = atopic dermatitis: IgG = Immunoglobulin G: IL = interleukin: L = liter						

Clinical Efficacy:

Approval by the US FDA was granted on the basis of three phase 3 randomized controlled trials (RCTs) in adults and adolescents at least 12 of age (weighing ≥ 40 kg) with moderate-to-severe AD who remained uncontrolled with topical therapies. Herapies. All trials were placebo-controlled, double-blind, and enrolled subjects with moderate-to-severe AD affecting at least 10% of their body surface area for at least one year. Moderate-to-severe AD was based on an EASI score of at least 16 and an IGA score of at least 3. Patients with prior treatment with immunomodulating agents (systemic corticosteroids, JAK inhibitors) and phototherapy within 4 weeks and dupilumab or tralokinumab either entirely (ADvocate1, ADvocate2) or within 8-16 weeks (ADhere) were excluded.

For all 3 trials, enrolled patients were randomized (2:1) to lebrikizumab 250 mg subcutaneously (SC) every two weeks (Q2W) or placebo for 16 weeks with a 500 mg loading dose administered at baseline and at week 2. The 3 trials were differentiated in two important ways. ADvocate1 and ADvocate2 evaluated lebrikizumab monotherapy; the co-administration of topical (e.g. TCS, TCI) or systemic (e.g. oral steroids) therapies were prohibited. ADhere allowed co-administration of TCS (or TCI for sensitive areas). A second differentiating feature of ADvocate1 and ADvocate2, was that after 16 weeks (induction phase), subjects who responded (IGA score of 0 or 1 and ≥ 2 point reduction from baseline [IGA 2+] or a 75% improvement in EASI [EASI-75]), were re-randomized to either lebrikizumab dosed 250 mg Q2W, 250 mg every 4 weeks (Q4W), or placebo for 36 additional weeks (maintenance period).²¹ Participants who did not respond received open-label lebrikizumab (250 mg Q2W); patients assigned to this "escape arm" who did not maintain an EASI-50 were terminated from the study.

For all 3 trials, the primary outcome was an IGA score of 0 or 1 with a reduction of 2 or more points from baseline (IGA 2+) which was assessed following the induction phase (week 16). Other secondary outcomes included:

- 1) a 75% improvement in EASI score (EASI-75),
- 2) a 90% improvement in EASI score (EASI-90),
- 3) a 4-point reduction in the Pruritus Numeric Ratings Scale (NRS-4),
- 4) a 2-points reduction on the Sleep-Loss Scale (SLS), and
- 5) a 4-point reduction in the Dermatology Life Quality Index (DLQI).

For the maintenance phase (week 52) of ADvocate1 and ADvocate2, outcomes included maintenance of EASI-75, IGA 2+, NRS-4, and percentage change in EASI from baseline. ADvocate1 and ADvocate2 study populations were combined in a pooled analyses of both efficacy and safety.

In addition to the trials used as the basis for US approval, a phase 3 induction trial conducted in Japan was identified (ADhere-J; NCT04760314). Similar to ADhere and ADvocate1& 2, Adhere-J was a 16-week randomized, double-blind trial in adults and adolescent with moderate-to-severe AD. In contrast to the US trial program, Adhere-J evaluated two different induction doses of lebrikizumab: 250 mg SC Q2W and 250 mg SC Q4W relative to placebo. Similar to ADhere, co-administration with TCS was permitted. Co-primary outcomes were IGA 2+ and EASI-75 measured at week 16. The secondary outcomes were similar to the US trial program (ADvocate1&2, ADhere).

Results

Induction Trials 19,20,22

Across all 3 induction trials evaluated by the FDA^{19,20}, a total of 717 participants were randomized 2:1 to lebrikizumab 250 mg Q2W (Adhere n=153; ADvocate1 n=283; ADvocate2 n=281) and 362 participants were randomized to placebo (Adhere n=75; ADvocate1 n=141; ADvocate2 n=146). The mean age of participants ranged from 34 to 37 years, and 12% to 22% of participants were under 18 years of age. About 50% of participants were female and 58% to 62% were White,

with the next most prevent race being Asian (12% to 30%) and Black (7% to 14%). The average percentage of body surface area affected ranged from 38% to 48%, and average EASI scores at baseline were 26 to 31 points. About half of participants (46% to 60%) had prior systemic treatment. Patient characteristics across randomized groups at baseline were similar.

Lebrikizumab was statistically significantly superior to placebo for the primary and secondary outcomes (**Table 2**). For the primary outcome of IGA 2+, treatment effects varied from 18.3 to 29.7% difference compared to placebo after 16 weeks (number needed to treat [NNT] 4-6). The treatment effect was smallest within the ADhere trial (difference 18.3%; NNT=6) where co-administration of TCS was permitted. Lebrikizumab induction was also associated with significant improvements in secondary endpoints including EASI-75 (difference 26.4% to 42%; NNT 3-4), pruritis (P-NRS 4+ difference 19.2% to 32.9%; NNT 4-6), and quality of life (DLQI 4+ difference 19.2% to 32.9%; NNT 4-6) compared to placebo. Similar to the primary outcome, the treatment effects were lowest in the ADhere trial for secondary outcomes.

The treatment effect for the primary outcome (IGA 2+; 22.3%; NNT=4) and key secondary outcomes were similar within the Japanese trial ADhere-J. For the primary outcome and most secondary outcomes, symptom improvement was qualitatively similar for both dosing arms of lebrikizumab, although statistical tests were not reported and these data were not evaluated by FDA.

Only one trial (ADhere) reported conducting analyses by key demographic characteristics (subgroup analyses). In this study, the authors report that lebrikizumab efficacy, as measured by EASI-75 and EASI-90, differed significantly by sex with male participants exhibiting "a greater risk difference." However, a detailed summary of this analysis was not provided.

Although all trials were sponsored by, and had significant input from, the manufacturer (Eli Lilly and Company), they generally had low risk of selection, performance, attrition, and detection bias. Except for ADhere-J, which was conducted exclusively in Japan, the 3 trials conducted for US approval were demographically diverse and broadly applicable to a US population. Consistency of treatment effects across trials, precision of estimates, clinical endpoint relevance and strong internal validity of trials indicates lebrikizumab improve skin clearance (IGA 2+, EASI-75), pruritis (P-NRS 4+), and quality of life (DLQI 4+) compared to placebo after 16 weeks (Strength of Evidence: high). The comparative efficacy of lebrikizumab relative to other targeted immune modulators (i.e. dupilumab, tralokinumab) or other immunosuppressive has not been established (Strength of Evidence: very low). Additionally, no studies have been conducted to evaluate the efficacy of lebrikizumab following non-response or intolerance to TIMs or other immunosuppressives (Strength of Evidence: very low).

Table 2: Summary of treatment effect across 16-week lebrikizumab induction trials

Outcomes at 16		Strength of Evidence (SoE)				
weeks	ADhere	ADvocate1	ADvocate2	ADh	ere-J	
	(n=228)	(n=424)	(n=427)	(n=2	286)	
IGA 2+	LEB: 41.2%	LEB: 43.1%	LEB: 32.2%	LEB (Q2W	/) [‡] : 33.4%	RoB: low risk
	PLB: 22.1%	PLB: 12.7%	PLB: 10.8%	LEB (Q4V	V): 29.1%	Imprecision: sufficiently precise
				PLB:	6.1%	Inconsistency: consistent
	Difference 18.3%	Difference 29.7%	Difference 21.9%			Indirectness: none
	(95% CI 5.1% to	(95% CI 21.6% to	(95% CI 14.2% to	Difference Q2W [‡] :	Difference Q4W:	Publication bias: likely none
	31.5%)	37.8%)	29.6%)	27.3%	22.6%	SoE Conclusion: High
	NNT= 6	NNT = 4	NNT = 5	(95% CI 17.%5 to	(95% CI 11.6% to	
				37.0%)	33.6%)	

				NNT = 4	NNT = 4	
EASI-75	LEB: 69.5%	LEB: 58.8%	LEB: 52.1%	LEB (Q2W	/) [‡] : 51.2%	RoB: low risk
	PLB: 42.2%	PLB: 16.2%	PLB: 18.1%	LEB (Q4V	V): 47.2%	Imprecision: sufficiently precise
				PLB: 1	13.4%	Inconsistency: consistent
	Difference 26.4%	Difference 42%	Difference 33.3%			Indirectness: none
	(95% CI 12.1% to	(95% CI 33.3% to	(95% CI 24.4% to	Difference Q2W [‡] :	Difference Q4W:	Publication bias: likely none
	40.8%)	50.6%)	42.2%)	37.6%	33.2%	SoE Conclusion: High
	NNT = 4	NNT = 3	NNT = 3	(95% CI 26.2% to	(95% CI 20.6% to	
				49.0%)	45.8%)	
				NNT = 3	NNT = 3	
P-NRS 4+	LEB: 50.6%	LEB: 45.9%	LEB: 39.8%	LEB (Q2W	/) [‡] : 32.7%	RoB: low risk (1)
	PLB: 31.9%	PLB: 13.0%	PLB: 11.5%	LEB (Q4V	V): 23.8%	Imprecision: sufficiently precise
				PLB:	3.3%	Inconsistency: consistent
	Difference 19.2%	Difference 32.9%	Difference 28.3%			Indirectness: none
	(95% CI 4.3% to	(95% CI 24.6% to	(95% CI 20.0% to	Difference Q2W [‡] :	Difference Q4W:	Publication bias: likely none
	34.1%)	41.3%)	36.5%)	29.2%	20.6%	SoE Conclusion: High
	NNT = 6	NNT = 4	NNT=4	(95% CI 17.9% to	(95% CI 8.7% to	
				40.4%)	32.4%)	
				NNT = 3	NNT = 5	
DLQI 4+	LEB: 77.4%	LEB: 71.2%	LEB: 62.3%	LEB (Q2V	V): 68.8%	RoB: low risk (1)
	PLB: 58.7%	PLB: 29.3%	PLB: 31.3%	LEB (Q4V	V): 53.3%	Imprecision: sufficiently precise
				PLB: 2	20.6%	Inconsistency: consistent
	Difference 17.2%	Difference 41.9%	Difference 31.4%			Indirectness: none
	(95% CI 0.1% to	(95% CI 31.8% to	(95% CI 20.7% to	Difference Q2W [‡] :	Difference Q4W:	Publication bias: likely none
	34.3%)	52.0%)	42.1%)	48.1%	32.8%	SoE Conclusion: High
	NNT = 6	NNT = 3	NNT=4	(95% CI 34.5% to	(95% CI 16.6% to	·
				61.7%)	48.9%)	
				NNT = 2	NNT = 3	

Abbreviations: LEB = lebrikizumab, NNT = number needed to treat; PLB = placebo; SoE = Strength of Evidence; Q2W = every 2 weeks dosing; Q4W = every 4 weeks dosing; 95% CI = 95% confidence interval; [‡] FDA approved regimen

Maintenance Trial²¹

Participants enrolled in ADvocate1 and ADvocate2 who achieved an IGA 2+ or EASI-75 response by week 16 were re-randomized to a maintenance phase where they received lebrikizumab 250 mg SC Q2W, lebrikizumab 250 mg SC Q4W, or placebo (randomization ratio 2:2:1) from week 16 through week 52. Higher proportions of patients who were randomized to lebrikizumab compared to the placebo withdrawal group maintained their response as measured by EASI-75 (Q2W 78%, Q4W 82% vs. 66% for placebo; p-values not reported) or IGA 2+ (Q2W 71%, Q4W 77% vs. 48% for placebo; p-values not reported). A dose response was not evident and those receiving the less frequently dosed regimen (Q4W) had qualitatively similar rates of response to the more frequent administration schedule (Q2W). Although a substantial proportion of patients randomized to placebo after initial response maintained their IGA 2+ (48%) and EASI-75 (66%) response, the FDA approved maintenance dose for responders at week 16 is 250 mg Q4W. Although two trials with high internal validity provide evidence that

maintenance with lebrikizumab improves relevant outcomes relative to placebo withdrawal, precision of estimates is uncertain (Strength of Evidence: moderate).

Clinical Safety:

Lebrikizumab was generally well tolerated during the 16-week induction and 52-week maintenance trials reviewed by the FDA. As summarized in **Table 3,** rates of serious adverse events (AEs) were uncommon and occurred at similar rates between groups for both the induction and maintenance phase. The most frequently reported treatment emergent AE was conjunctivitis and herpes among those receiving lebrikizumab and atopic dermatitis for those receiving placebo. The significance of the higher incidence of COVID-19 among lebrikizumab patients (Q2W) is unclear and may be due to delta variant emergence during the pandemic. Injection site reactions, which were slightly more common with lebrikizumab, were uncommon (<5%).

Table 3: Adverse events occurring during the lebrikizumab trial program (ADvocate1, ADvocate2, ADhere)²³

Adverse events occurring during the 16-we	eek lebrikizumab induction trials (A	Dvocate1, ADvocate2, AD	here)
Subjects with AE	Lebrikizumab		Placebo
	(n=805)		(n=417)
Serious AEs	1.4%		1.7%
AEs leading to discontinuation	2.3%		1.4%
Treatment emergent AEs >=5%	·		•
Any AE	48.9%		53.0%
Conjunctivitis	6.3%		1.7%
Atopic dermatitis	5.8%		17.7%
Adverse events occurring during week 16	through week 52 of maintenance tr	rial (ADvocate1, ADvocate	2) ²¹
	Lebrikizumab Q4W	Lebrikizumab Q2W	Placebo
	(n=118)	(n=113)	(n=60)
Serious AEs	1.7%	1.8%	1.7%
AEs leading to discontinuation	1.7%	0.9%	0%
Treatment emergent AEs >=5%			
COVID-19	9.3%	2.7%	3.3%
Conjunctivitis	5.9%	1.8%	3.3%
Atopic dermatitis	5.9%	4.4%	11.7%
Nasopharyngitis	7.6%	3.5%	5.0%
Herpes infections	5.9%	2.7%	3.3%

Other warnings and precautions

Patients with parasitic infections were excluded from trial participation. It is recommended patients be treated for these infections prior to treatment with lebrikizumab. Lebrikizumab may affect an individual's response following administration of live vaccines. It is recommended that all age-appropriate vaccinations be administered prior to treatment with lebrikizumab and to avoid live vaccines immediately prior to, or during, treatment.

Conclusions and Policy Recommendations

Lebrikizumab is a monoclonal antibody approved for the treatment of moderate to severe atopic dermatitis in patients \geq 12 years old who weigh \geq 40 kg and are not adequately controlled with topical prescription therapies. It can be used with or without other topical therapies (TCS or TCI). During the 16-week induction period, patients treated with lebrikizumab experienced improved skin clearance (High Strength of Evidence; IGA 2+, EASI-75), reduced pruritus (High Strength of Evidence; NRS 4+), and enhanced quality of life (High Strength of Evidence; DLQI 4+). Among responders continuing on maintenance therapy, lebrikizumab was also superior to placebo at improving these outcome in trials up to 52 weeks (Moderate Strength of Evidence). Lebrikizumab has not been directly compared to other monoclonal antibodies or other systemic immunomodulators for AD (Very low Strength of Evidence). Lebrikizumab was generally well tolerated with low rates of AEs during the induction and maintenance phases with conjunctivitis and herpes most frequently observed (~5%).

We recommend prior authorization criteria for lebrikizumab consistent with other monoclonal antibodies for AD to ensure safe and appropriate use for adults and adolescents with moderate-to-severe AD. For individuals approved for lebrikizumab, we recommend approving for 16 weeks at induction doses (250 mg Q2W including initial loading dose) with renewal criteria assessed at 16 weeks to ensure patients have responded and are prescribed the maintenance dose (250 mg Q4W).

Comparative Endpoints:

Clinically Meaningful Endpoints:

1) IGA 2+

2) EASI-75 / EASI-90

3) P-NRS 4+

4) DLQI 4+

5) Serious adverse events

6) Study withdrawal due to an adverse event

Primary Study Endpoint(s):

1) IGA 2+

Table 4: Evidence Tables: Lebrikizumab induction and maintenance clinical trials

Study	Treatment	Patient Population	Sample Size	Efficacy Endpoints	NNT	Safety	Quality Rating
Summary	Descriptions					Endpoints	(Risk of Bias)
Simpson EL,	A. LEB Q2W;	<u>Demographics</u> :	ITT (mITT)	Primary Endpoints:		Important AEs	Risk of Bias
et al. ¹⁹	500 mg SC	-Mean age: 37 years	A.153 (145)	(at 16 weeks)		Serious AE:	(low/high/unclear):
	injection for first 2	-age <18: 22%	B. 75 (66)	% with 2+ IGA (0,1)		A. 1.4%	Selection Bias: Low.
ADhere	doses, then 250	-age <u>></u> 18: 78%		A. 41.2%		B. 1.5%	Randomized via electronic
NCT0425033	mg Q2W	-Female: 49%	<u>Attrition</u>	B. 22.1%			randomization stratified by
7		-White: 62%	A. 8 (5%)	RD: 18.3% (95% CI 5.1% to 31.5%) P<0.05	6	DC due to AE:	region, age, IGA severity.
DB, PC, RCT,	B. PLB SC injection	-Black: 13%	B. 9 (12%)			A. 2.1%	Performance Bias: Low.
MC	Q2W	-Asian: 15%		Secondary Endpoints:		B. 0%	Patients, investigators,
16-week			mITT was	(at 16 weeks)			personnel blinded. Placebo
induction	Low- to mid-	-Prior systemic	used as 17	% with EASI-75		<u>Deaths:</u>	identical in appearance to LEB.
	potency TCS/ TCI	treatment: 47%	subjects	A. 69.5%		None	<u>Detection Bias</u> : Low. Patients,
	allowed	-IGA-4: 31%	from a study	B. 42.2%			investigators, personnel
		-Mean EASI: 26-27	site were	RD: 26.4 % (95% CI 12.1% to 40.8 %) P<0.01	4	Common AEs:	blinded. Placebo identical in
	Randomized 2:1	-Mean P-NRS: 6.8-7.3	excluded			<u>Infections</u>	appearance to LEB.
		-Mean BSA affected:	because of	% with 4+ P-NRS		A. 17%	Attrition Bias: High. Post
	`	38%-40%	eligibility	A. 50.6%		B. 14%	randomization exclusion may
			could not be	B. 31.9%			have introduced systematic
		Inclusion:	confirmed.	RD: 19.2% (95% CI 4.3% to 34.1 %) P<0.05			differences between groups.
		-Age: ≥12 years			6		Other potential biases: Eli Lilly
		-ADCC moderate-to		% with 4+ DLQI			involved in funding, design,
		severe AD >=1 year		A. 77.4%			data collection, analysis, and
		-EASI >=16		B. 58.7%			preparation of manuscript.
		-IGA >=3		RD: 17.2% (95% CI 0.1 to 34.3%)			
		-BSA >=10%		P<0.05	6		External validity
		-History of inadequate					Patient: Patients were
		response to topical					typical with those with AD.
		medications					Exclusions for prior
							treatment not overly
		Exclusions:					•
		-TCS, TCI, PDE-4, rx					restrictive.
		moisturizers within 1					Intervention: Intervention
		week					dosed appropriately
		-TIMs,					Comparator: placebo control
		Immunosuppressives,					appropriate to determine
		phototherapy within 4					efficacy
		weeks – 6 months					Outcomes: use of multiple
		-Ongoing chronic					symptom scales appropriate
		disease requiring oral					Setting: 45 outpatient sites in
		steroids					US, Europe, and Canada
		-chronic or acute					25, 23, 5pc, and canada
		infection					

Study	Treatment	Patient Population	Sample Size	Efficacy Endpoints	NNT	Safety	Quality Rating
Summary	Descriptions					Endpoints	(Risk of Bias)
Silverberg JI, et	A. LEB Q2W;	<u>Demographics</u> :	<u>ITT</u>	Primary Endpoints:		Important AEs	Risk of Bias
al. ²⁰	500 mg SC	-Mean age: 34-36 years	A. 283	(at 16 weeks)		Serious AE:	(low/high/unclear):
Advocate1	injection for first 2	-age <18: 13%	B. 141	% with 2+ IGA (0,1)		A. 2.1%	Selection Bias: Low.
NCT04146363	doses, then 250	-age <u>≥</u> 18: 87%		A. 43.1%		B. 0.7%	Randomized via interactive
DB, PC, RCT,	mg Q2W	-Female: 51%	<u>Attrition</u>	B. 12.7%			web response system stratified
MC		-White: 68%	A. 4 (1.4%)	RD: 29.7% (95% CI 21.6% to 37.8%)	4	DC due to AE:	by region, age, and IGA
16-week	B. PLB SC injection	-Black: 12%	B. 1 (0.7%)	P<0.001		A. 1.1%	severity.
induction	Q2W	-Asian: 17%				B. 0.7%	Performance Bias: Low.
				Secondary Endpoints:			Patients, investigators,
		-Prior systemic		(at 16 weeks)		<u>Deaths:</u>	personnel blinded. Placebo
	Randomized 2:1	treatment: 54%		% with EASI-75		None	identical in appearance to LEB.
	for 16 weeks	-IGA-4: 40%		A. 58.8%			<u>Detection Bias</u> : Low. Patients,
		-Mean EASI: 29-31		B. 16.2%			investigators, personnel
		-Mean P-NRS: 7.3		RD: 42% (95% CI 33.3% to 50.6%) P<0.001	3	Common AEs	blinded. Placebo identical in
		-Mean BSA affected:				<u>Infections</u>	appearance to LEB.
		45%-47%		% with 4+ P-NRS		A. 21.6%	Attrition Bias: Low. Attrition
				A. 45.9%		B. 19.9%	similar between groups and
		Inclusion:		B. 13.0%			around 1% overall
		-Age: ≥12 years		RD: 32.9% (95% CI 24.6% to 41.3%)		AD exacerbation	Other potential biases: Eli Lilly
		-ADCC moderate-to		P<0.001	4	A. 6.0%	involved in funding, design,
		severe AD ≥1 year				B. 21.3%	data collection, analysis, and
		-EASI ≥16		% with 4+ DLQI			preparation of manuscript
		-IGA ≥3		A. 71.2%		<u>Conjunctivitis</u>	
		-BSA ≥10%		B. 29.3%		A. 7.4%	External validity
		-History of inadequate		RD: 41.9% (95% CI 31.8% to 52.0%)		B. 2.8%	Patient: Patients were
		response to topical		p-value not reported	3		typical with those with
		medications				Skin infection	moderate to severe AD.
						A. 2.8%	Exclusions reflect a sample
		Exclusions:				B. 5.7%	with less prior TIMs
		-Treatment with LEB,					treatment experience.
		dupilumab,					Intervention: Intervention
		tralokinumab					dosed appropriately
		-TCS, TCI, PDE-4, rx					
		moisturizers within 1					Comparator: Placebo control
		week					appropriate
		-Immunosuppressives,					Outcomes: Use of multiple
		phototherapy within 4					symptom scales appropriate
		weeks – 6 months					with consistent direction of
		-Ongoing chronic					effect.
		disease requiring oral					Setting: 94 outpatient sites in
		steroids Chronic or acuto					US, Europe, Korea, Australia,
		-Chronic or acute					and Canada
		infection					

Study	Treatment	Patient Population	Sample Size	Efficacy Endpoints	NNT	Safety	Quality Rating
Summary	Descriptions					Endpoints	(Risk of Bias)
Silverberg JI, et	A. LEB 250 mg SC	Demographics:	<u>ITT</u>	Primary Endpoints:		Important AEs	Risk of Bias
al. ²⁰	Q2W*	-Mean age: 35-37 years	A. 281	(at 16 weeks)		Serious AE:	(low/high/unclear):
	B. PLB SC Q2W	-age <18: 11%	B. 146	% with 2+ IGA (0,1)		A. 0.7%	Selection Bias: Low.
Advocate2		-age ≥18: 89%		A. 33.2%		B. 2.8%	Randomized via interactive
NCT04178967		-Female: 49%	<u>Attrition</u>	B. 10.8%			web response system stratified
DB, PC, RCT,	Randomized 2:1	-White: 59%	A. 1 (0.4%)	RD: 21.9% (95% CI 14.2 to 29.6%)	5	DC due to AE:	by region, age, IGA severity.
MC	for 16 weeks	-Black: 8%	B. 2 (1.4%)	P<.001		A. 3.2%	Slight imbalance in racial
16-week		-Asian: 29%				B. 2.8%	demographics (fewer Asian
induction	*500 mg loading	-Prior systemic		Secondary Endpoints:			patients received LEB)
	dose at baseline	treatment: 56%		(at 16 weeks)		Deaths:	Performance Bias: Low.
	and week 2	-IGA-4: 37%		% with EASI-75		A. 0	Patients, investigators,
		-Mean EASI: 30		A. 52.1%		B. 1	personnel blinded. Placebo
		-Mean P-NRS: 7		B. 18.1%			identical in appearance to LEB.
		-Mean BSA affected:		RD: 33.3% (95% CI 24.4% to 42.2%)	3	Common AEs	<u>Detection Bias</u> : Low. Patients,
		46%		P<.001		<u>Infections</u>	investigators, personnel
		Inclusion:				A. 23.1%	blinded. Placebo identical in
		-Age: ≥12 years		% with 4+ P-NRS		B. 20.7%	appearance to LEB.
		-ADCC moderate-to		A. 39.8%			Attrition Bias: Low. Attrition
		severe AD ≥1 year		B. 11.5%		AD exacerbation	similar between groups and
		-EASI ≥16		RD: 28.3% (95% CI 20.0% to 36.5%)	4	A. 10.3%	around 1% overall
		-IGA ≥3		P<.001		B. 26.9%	Other potential biases: Eli Lilly
		-BSA ≥10%					involved in funding, design,
		-History of inadequate		% with 4+ DLQI		<u>Conjunctivitis</u>	data collection, analysis, and
		response to topical		A. 62.3%		A. 7.5%	preparation of manuscript
		medications		B. 31.3%		B. 2.1%	
		Exclusions:		RD: 31.4% (95% CI 20.7% to 42.1%)	4		External validity
		-Tx with LEB,		p-value not reported		Skin infection	Patient: Patients were
		dupilumab,				A. 1.4%	typical with those with
		tralokinumab				B. 6.2%	moderate to severe AD.
		-TCS, TCI, PDE-4, rx					Exclusions reflect a sample
		moisturizers within 1					with less prior TIMs
		week					'
		-immunosuppressives,					treatment experience.
		phototherapy within 4					Intervention: Intervention
		weeks – 6 months					dosed appropriately
		-Ongoing chronic					<u>Comparator:</u> Placebo control
		disease requiring oral					appropriate
		steroids					Outcomes: Use of multiple
		-Chronic or acute					symptom scales appropriate
		infection					Setting: 94 outpatient sites in
							US, Europe, Mexico, Taiwan,
							Singapore, and Canada

Katoh N, et	A. LEB 250 mg SC	Demographics:	ITT	Primary Endpoints: (at 16 weeks)		Important AEs	Risk of Bias
al. ²²	Q2W* (FDA	-Mean age: 35-38 years	A. 123	% with 2+ IGA (0,1)	4	Serious AE:	(low/high/unclear):
ui.	approved	-age <18: 6%	B. 81	A. 33.4%	-	A. 0.8%	Selection Bias: Low.
Adhere-J	induction dose)	-age >18: 94%	C. 82	B. 29.1%	4	B. 0%	Randomized via interactive
NCT04760314	B. LEB 250 mg SC	-Female: 31%	C. 02	C. 6.1%	-	C. 2.4%	web response system stratified
DB, PC, RCT,	Q4W**	-Asian: 100%	Attrition	RD A vs C: 27.3% (95% CI 17.5% to 37.0%)*		DC due to AE:	by age, IGA severity. Baseline
MC	C. PLB SC Q2W	-Asiaii. 100%				A. 1.6%	characteristics balanced.
16-week	C. PLB 3C Q2VV	Historyhiologia	A. 3 (2.4%)	RD B vs C: 22.6% (95% CI 11.6% to 33.6%)* % with EASI-75	3	B. 0%	
	Dive levy en maid	-History biologic	B. 1 (1.2%)		3	C. 0%	Performance Bias: Low.
induction	Plus, low or mid-	treatment: 2%	C. 0 (0%)	A. 51.2%	_		Patients, investigators,
	potency TCS/TCI	History systemic		B. 47.2%	3	Deaths:	personnel blinded. Placebo
	allowed	steroids: 34%-42%		C. 13.4%		A. 0%	identical in appearance to LEB.
		-IGA-4: 32%		RD A vs C: 37.6% (95% CI 26.2% to 49.0%)*		B. 0%	<u>Detection Bias</u> : Low. Patients,
	Randomized 3:2:2	-Mean EASI: 32-34		RD B vs C: 33.2% (95% CI 20.6% to 45.8%)*		C. 0%	investigators, personnel
	for 16 weeks	-Mean P-NRS: 5.1-5.4					blinded. Placebo identical in
		-Mean BSA affected:		Secondary Endpoints: (at 16 weeks)	_	Common AEs	appearance to LEB.
	*500 mg loading	58%-61%		% with EASI-90	5	<u>Pyrexia:</u>	Attrition Bias: Low. Attrition
	dose at baseline	Inclusion:		A. 34.3%		A. 20.3%	similar between groups and
	and week 2	-Age: 12-17 (≥40 kg), ≥		B. 28.4%	6	B. 18.5%	around 1% overall
	**500 mg loading	18 years		C. 9.8%		C. 15.9%	Other potential biases: Eli Lilly
	dose at baseline	-ADCC moderate-to		RD A vs C: 24.2% (95% CI 13.9% to 34.5%) *		Nasopharyngitis:	involved in funding, design,
		severe AD ≥1 year		RD B vs C: 18.4% (95% CI 6.8% to 29.9%)**		A. 5.7%	data collection, analysis, and
		-EASI ≥16		% with 4+ P-NRS	4	B. 6.2%	preparation of manuscript
		-IGA ≥3		A. 32.7%		C. 2.4%	
		-BSA ≥10%		B. 23.8%	5	<u>Allergic</u>	External validity
		-History of inadequate		C. 3.3%		conjunctivitis:	Patient: None, patients
		response to topical		RD A vs C: 29.2% (95% CI 17.9% to 40.4%) *		A. 17.1%	typical with those with AD.
		medications (TCS/TCI)		RD B vs C: 20.6% (95% CI 8.7% to 32.4%)**		B. 12.3%	Exclusions for prior
		Exclusions:		% with 4+ DLQI		C. 4.9%	· ·
		- Recent treatment with		A. 68.8%	3	Conjunctivitis:	treatment not overly
		LEB, dupilumab, JAK		B. 53.3%		A. 9.8%	restrictive. Demographically
		inhibitors, PDE-4, B-cell		C. 20.6%	4	B. 6.2%	homogenous.
		depleting agents (time		RD A vs C: 48.1% (95% CI 34.5% to 61.7%)*		C. 2.4%	Intervention: Intervention
		periods differed for		RD B vs C: 32.8% (95% CI 16.6% to 48.9%)		<u>Headache:</u>	dosed appropriately
		each therapy)		* P<0.001 **P<0.01 (relative to placebo)		A. 3.3%	Comparator: Placebo control
		-High potency TCS,				B. 3.7%	appropriate
		topical JAK, PDE-4,				C. 11.1%	Outcomes: Use of multiple
		within 1 week				Skin infection:	·
		-immunosuppressives,				A. 7.3%	symptom scales appropriate
		phototherapy within 4				B. 8.6%	Setting: Japanese population
		weeks				C. 17.1%	
		-Ongoing chronic					
		disease requiring oral					
		steroids					
		-Chronic or acute					
		infection					
		I III CCCIOII			<u> </u>	I	

Study	Treatment	Patient Population	Sample Size	Efficacy Endpoints	NNT	Safety	Quality Rating
Summary	Descriptions	·	•	, .		Endpoints	(Risk of Bias)
Blauvelt A, et	A. LEB 250 mg SC	Demographics:	<u>ITT</u>	Endpoints:		Important AEs	Risk of Bias
al. ²¹	Q2W	-Mean age: 34 to 36	A. 113	(at 52 weeks)		Serious AE:	(low/high/unclear):
	B. LEB 250 mg SC	years	B. 118	% who maintained EASI-75		A. 1.8%	Selection Bias: Low.
Advocate1	Q4W (FDA	-age <18: 13%	C. 60	A. 78.4%	A. 9	B. 1.7%	Randomized via electronic
NCT04146363	approved dose)	-age ≥18: 87%		B. 81.7%	B. 7	C. 1.7%	data capture system.
Advocate2	C. PLB SC Q2W	-Female: 54%	<u>Attrition</u>	C. 66.4%		DC due to AE:	Imbalance in racial
NCT04178967	(LEB withdrawal	-White: 68%	A. 12 (11%)	RD A vs C: 12.0%*		A. 0.9%	demographics (PLB had fewer
	arm)	-Black: 10%	B. 8 (7%)	RD B vs C: 15.3%*		B. 1.7%	White patients)
DB, PC, RCT,		-Asian: 18%	C. 6 (10%)			C. 0%	Performance Bias: Low.
MC	Randomized 2:2:1			% who maintained IGA 2+		Deaths:	Patients, investigators,
52-week	for 36 weeks; 52			A. 71.2%	A. 5	A. 0%	personnel blinded. Placebo
maintenance to	weeks after initial	Inclusion / Exclusion:		B. 76.9%	B. 4	B. 0%	identical in appearance to LEB.
evaluate	induction)	see ADvocate1 &		C. 47.9%		C. 0%	Detection Bias: Low. Patients,
durability of		ADvocate2:		RD A vs C: 23.3%*			investigators, personnel
response	Intermittent	-LEB treated and		RD B vs C: 29.0%*		Common AEs	blinded. Placebo identical in
	rescue with TCS	response at week 16				COVID-19:	appearance to LEB.
	therapy allowed	(75% reduction in EASI-		% who maintained 4+ P-NRS		A. 2.7%	Attrition Bias: Low. Attrition
		75 or 2+ IGA (0,1))		A. 84.6%	A. 6	B. 9.3%	similar between groups and
	Rescue medication			B. 84.7%	B. 6	C. 3.3%	around 10% overall
	use:			C. 66.3%		Nasopharyngitis:	Other potential biases: Eli Lilly
	A. 12.4%			RD A vs C: 18.3%*		A. 3.5%	involved in funding, design,
	B. 16.1%			RD B vs C: 18.4%*		B. 7.6%	data collection, analysis, and
	C. 18.3%					C. 5.0%	preparation of manuscript
				*p-values / 95% CI not reported		<u>Headache:</u>	
						A. 0.9%	External validity
						B. 5.2%	Patient: None, patients
						C. 1.7%	typical with those with AD.
						<u>AD</u>	Exclusions for prior
						exacerbation:	treatment not overly
						A. 4.4%	restrictive.
						B. 5.9%	Intervention: Intervention
						C. 11.7%	dosed appropriately
						Conjunctivitis:	
						A. 0%	Comparator: Placebo control
						B. 5.1%	appropriate
						C. 5.0%	Outcomes: Use of multiple
						Herpes:	symptom scales appropriate
						A. 2.7%	Setting: 94 outpatient sites in
						B. 5.9% C. 3.3%	US, Europe, Mexico, Taiwan,
						C. 3.3%	Singapore, and Canada

Study	Treatment	Patient Population	Sample Size	Efficacy Endpoints	NNT	Safety	Quality Rating
Summary	Descriptions					Endpoints	(Risk of Bias)

Key: Abbreviations: AD = atopic dermatitis; ADCC = American Academy of Dermatology Consensus Criteria; AE = adverse event; BSA = body surface area; CI = confidence interval; DB = double-blind; DC = discontinue; DLQI = Dermatology Life Quality Index score; EASI = Eczema Area and Severity Index score; IGA = Investigators Global Assessment score; JAK = Janus kinase; ITT = intention to treat; LEB = lebrikizumab; MC = multicenter; mITT = modified intention to treat; NNT = number needed to treat; PDE = phosphodiesterase inhibitor; PC = placebo- controlled; PLB = placebo; P-NRS = Pruritus Numeric Rating Scale; Q2W = every 2 weeks; Q4W = every 4 weeks; RCT= randomized controlled trial; RD = risk difference; RX = prescription; SC = subcutaneous; TCI = topical calcineurin inhibitors; TCS = topical corticosteroids

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23. Multi-disciplinary Review and Evaluation Ebglyss (lebrikizumab) injection (BLA 761306) (2024).

Appendix 1: Prescribing Information Highlights

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use EBGLYSS safely and effectively. See full prescribing information for EBGLYSS.

EBGLYSS (lebrikizumab-lbkz), injection, for subcutaneous use Initial U.S. Approval: 2024

-----INDICATIONS AND USAGE -----

EBGLYSS™ is an interleukin-13 antagonist indicated for the treatment of adults and pediatric patients 12 years of age and older who weigh at least 40 kg with moderate-to-severe atopic dermatitis whose disease is not adequately controlled with topical prescription therapies or when those therapies are not advisable. EBGLYSS can be used with or without topical corticosteroids. (1)

-----DOSAGE AND ADMINISTRATION ------

- Prior to EBGLYSS treatment, complete all age-appropriate vaccinations according to current immunization guidelines. (2.1)
- The recommended dosage of EBGLYSS is 500 mg (two 250 mg injections) at Week 0 and Week 2, followed by 250 mg (one injection) every 2 weeks until Week 16 or later, when adequate clinical response is achieved. The maintenance dose is EBGLYSS 250 mg every 4 weeks. (2.2)
- Administer by subcutaneous injection. (2.4)

-----DOSAGE FORMS AND STRENGTHS-----

Injection:

- 250 mg/2 mL in a single-dose prefilled pen (3)
- 250 mg/2 mL (125 mg/mL) in a single-dose prefilled syringe with needle shield (3)

------ CONTRAINDICATIONS ------

Prior serious hypersensitivity to lebrikizumab-lbkz or any excipients in EBGLYSS. (4)

------WARNINGS AND PRECAUTIONS ------

- Hypersensitivity: Hypersensitivity reactions including angioedema and urticaria, have occurred after administration of EBGLYSS.
 Discontinue EBGLYSS in the event of a serious hypersensitivity reaction. (5.1)
- Conjunctivitis and Keratitis: Report new onset or worsening eye symptoms to a healthcare provider. (5.2)
- <u>Parasitic (Helminth) Infections:</u> Treat patients with pre-existing helminth infections before initiating EBGLYSS. If patients become infected while receiving EBGLYSS and do not respond to antihelminth treatment, discontinue treatment with EBGLYSS until the infection resolves. (5.3)
- Vaccinations: Avoid use of live vaccines during treatment with EBGLYSS. (5.4)

-----ADVERSE REACTIONS ------

Most common (≥1%) adverse reactions are conjunctivitis, injection site reactions, and herpes zoster. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact Eli Lilly and Company at 1-800-LillyRx (1-800-545-5979) or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

See 17 for PATIENT COUNSELING INFORMATION and FDAapproved patient labeling.

Revised: 05/2025