Policy Number	RX501.164
Policy Effective Date	01/01/2026

Gene Therapies for Treatment of Wounds in Dystrophic Epidermolysis Bullosa

Related Policies (if applicable)
None

Disclaimer

Medical policies are a set of written guidelines that support current standards of practice. They are based on current generally accepted standards of and developed by nonprofit professional association(s) for the relevant clinical specialty, third-party entities that develop treatment criteria, or other federal or state governmental agencies. A requested therapy must be proven effective for the relevant diagnosis or procedure. For drug therapy, the proposed dose, frequency and duration of therapy must be consistent with recommendations in at least one authoritative source. This medical policy is supported by FDA-approved labeling and/or nationally recognized authoritative references to major drug compendia, peer reviewed scientific literature and generally accepted standards of medical care. These references include, but are not limited to: MCG care guidelines, DrugDex (IIa level of evidence or higher), NCCN Guidelines (IIb level of evidence or higher), NCCN Compendia (IIb level of evidence or higher), professional society guidelines, and CMS coverage policy.

Carefully check state regulations and/or the member contract.

Each benefit plan, summary plan description or contract defines which services are covered, which services are excluded, and which services are subject to dollar caps or other limitations, conditions or exclusions. Members and their providers have the responsibility for consulting the member's benefit plan, summary plan description or contract to determine if there are any exclusions or other benefit limitations applicable to this service or supply. **If there is a discrepancy between a Medical Policy and a member's benefit plan, summary plan description or contract, the benefit plan, summary plan description or contract will govern.**

Legislative Mandates

EXCEPTION: For members residing in the state of Ohio, § 3923.60 requires any group or individual policy (Small, Mid-Market, Large Groups, Municipalities/Counties/Schools, State Employees, Fully-Insured, PPO, HMO, POS, EPO) that covers prescription drugs to provide for the coverage of any drug approved by the U. S. Food and Drug Administration (FDA) when it is prescribed for a use recognized as safe and effective for the treatment of a given indication in one or more of the standard medical reference compendia adopted by the United States Department of Health and Human Services or in medical literature even if the FDA has not approved the drug for that indication. Medical literature support is only satisfied when safety and efficacy has been confirmed in two articles from major peer-reviewed professional medical journals that present data supporting the proposed off-label use or uses as generally safe and effective. Examples of accepted journals include, but are not limited to, Journal of American Medical Association (JAMA), New England Journal of Medicine (NEJM), and Lancet. Accepted study designs may include, but are not limited to, randomized, double blind, placebo controlled clinical trials. Evidence limited to case studies or case series is not sufficient to meet the standard of this criterion. Coverage is never required where the FDA has recognized a use to be contraindicated, and coverage is not required for non-formulary drugs.

Coverage

Beremagene geperpavec-svdt (Vyjuvek™) **may be considered medically necessary** for individuals if they meet criteria 1 through 3:
≥ 6 months of age.
Diagnosis of dystrophic epidermolysis bullosa confirmed by:
> Documented mutation(s) in the *COL7A1* gene.
> Presence of clinical manifestations of dystrophic epidermolysis bullosa including, but not limited to, chronic and recurring wounds of the skin, blistering of skin, and blistering, ulcerations, and scarring of visceral mucosal tissues.

No active infection, active squamous cell carcinoma, or history of squamous cell carcinoma in the targeted wound(s).

Beremagene geperpavec-svdt (Vyjuvek™) **is considered experimental, investigational and/or unproven** for all other non-Food and Drug Administration approved indications.

Policy Guidelines

Beremagene geperpavec-svdt

<u>Recommended Dose</u>

Per the FDA-Label, beremagene geperpavec-svdt should be applied once weekly by a healthcare professional. It may not be possible to apply beremagene geperpavec-svdt to all the wounds at each treatment visit. Beremagene geperpavec-svdt should be applied to wounds until they are closed before selecting new wounds, and previously treated wounds that re-open should be prioritized over new wounds.

PG1. Dosing Recommendations

Age Range	Maximum Weekly Dose (plaque forming units)	Maximum Weekly Volume (mL)*
6 months to < 3 years old	1.6×10^9	0.8
≥ 3 years old	3.2×10^9	1.6
Wound Area ** (cm²)	**Dose (plaque forming units)**	**Volume (mL)**
< 20	4×10^8	0.2
20 to < 40	8×10^8	0.4
40 to 60	1.2×10^9	0.6

Maximum weekly volume is the volume after mixing beremagene geperpavec-svdt biological suspension with excipient gel.

** For wound area of 60 cm², recommend calculating the total dose based on the recommended dosing until the maximum weekly dose is reached.

Description

Dystrophic Epidermolysis Bullosa

Dystrophic epidermolysis bullosa is a rare and clinically and genetically heterogeneous skin fragility disorder characterized by blistering of the skin and mucosal membranes that heal with scarring. The onset of symptoms is usually at birth or in early childhood. There may be associated complications, including malnutrition, anemia, infection, and skin cancer. Death may occur prematurely due to multiple causes, including infection, progression of disease, organ failure, and malignancy. (1)

Dystrophic epidermolysis bullosa is caused by variant in the *COL7A1* gene, encoding the alpha-1 chain of type VII collagen. Collagen VII is the main structural constituent of the anchoring fibrils located below the lamina densa of the epidermal basement membrane zone, which hold the epidermis and dermis together and is essential for maintaining the integrity of the skin. It can be inherited in an autosomal dominant or recessive fashion. (2-4) Recessive dystrophic epidermolysis bullosa is more severe than dominant disease variants; however, there is a considerable phenotypic overlap among all types. More than 600 distinct mutations in the *COL7A1* gene have been identified in dystrophic epidermolysis bullosa. Although a few mutations are recurrent in some populations due to the founder effect, most families carry unique mutations. (5)

The 2020 consensus classification (1) recognizes four major subtypes and several rare, dominant or recessive subtypes of dystrophic epidermolysis bullosa.
Localized dominant dystrophic epidermolysis bullosa
Intermediate dominant dystrophic epidermolysis bullosa (previously known as generalized dominant dystrophic epidermolysis bullosa)
Intermediate recessive dystrophic epidermolysis bullosa (previously known as recessive dystrophic epidermolysis bullosa generalized intermediate, non-Hallopeau-Siemens recessive dystrophic epidermolysis bullosa)
Severe recessive dystrophic epidermolysis bullosa (previously recessive dystrophic epidermolysis bullosa generalized severe, Hallopeau-Siemens recessive dystrophic epidermolysis bullosa)

Based on the National Epidermolysis Bullosa Registry in the U.S. from 1986 to 2002 (6), the prevalence of recessive dystrophic epidermolysis bullosa in the U.S. was estimated to be 1.35 persons per million inhabitants and dominant dystrophic epidermolysis bullosa was estimated to be 1.49 persons per million inhabitants.

Prior to the Food and Drug Administration (FDA) approval of beremagene geperpavec-svdt, there were no FDA-approved treatments for dystrophic epidermolysis bullosa. Disease management is supportive and includes wound care, pain management, control of infection, nutritional support, and prevention and treatment of complications. FDA previously approved a Humanitarian Devices Exemption for the product, Composite Cultured Skin to be used as a wound dressing in patients with mitten hand deformity due to recessive

dystrophic epidermolysis bullosa as an adjunct to standard autograft procedures [i.e., skin grafts and flaps for covering wounds and donor sites created after the surgical release of hand contractions (i.e., "mitten" hand deformities)].

Regulatory Status
In May 2023, beremagene geperpavec-svdt (Vyjuvek; Krystal Biotech) was approved by the FDA for the treatment of wounds in patients 6 months of age and older with dystrophic epidermolysis bullosa with mutation(s) in the *collagen type VII alpha 1 chain (COL7A1)* gene.

Rationale

Medical policies assess the clinical evidence to determine whether the use of a technology improves the net health outcome. Broadly defined, health outcomes are length of life, quality of life, and ability to function including benefits and harms. Every clinical condition has specific outcomes that are important to patients and to managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of a technology, 2 domains are examined: the relevance and the quality and credibility. To be relevant, studies must represent one or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. Randomized controlled trials are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice.

Gene Therapy for Treatment of Wounds in Dystrophic Epidermolysis Bullosa

Clinical Context and Therapy Purpose

The purpose of beremagene geperpavec-svdt in individuals who are 6 months of age and older with dystrophic epidermolysis bullosa with mutation(s) in the *collagen type VII alpha 1 chain (COL7A1)* gene is to provide a treatment option that is an improvement on existing therapies.

The following PICO was used to select literature to inform this policy.

Populations

The relevant population(s) of interest are individuals who are 6 months of age and older with dystrophic epidermolysis bullosa with mutation(s) in the *COL7A1* gene.

Interventions

The therapy being considered is beremagene geperpavec-svdt. It is a live, replication defective herpes-simplex virus type 1 (HSV-1) based vector that has been genetically modified to express the human type VII collagen (COL7) protein. Upon topical application to the wounds, beremagene geperpavec-svdt can transduce both keratinocytes and fibroblasts. Following entry of beremagene geperpavec-svdt into the cells, the vector genome is deposited in the nucleus. Once in the nucleus, transcription of the encoded human *COL7A1* is initiated. The resulting transcripts allow for production and secretion of COL7 by the cell in its mature form. These COL7 molecules arrange themselves into long, thin bundles that form anchoring fibrils. The anchoring fibrils hold the epidermis and dermis together and are essential for maintaining the integrity of the skin. As beremagene geperpavec-svdt is nonintegrating (i.e., its genetic material remains physically separate from the host cell chromosome), it is not anticipated to carry the potential risk of insertional mutagenesis to trigger oncogenesis.

Comparators

The following therapies are currently being used to make decisions about dystrophic epidermolysis bullosa: disease management is supportive and includes wound care, pain management, control of infection, nutritional support, and prevention and treatment of complications.

Outcomes

The general outcomes of interest are symptoms, change in disease status, quality of life, treatment-related mortality and treatment-related morbidity. The primary endpoints of interest for trials of wound healing consistent with guidance from the Food and Drug Administration (FDA) for the industry in developing products for the treatment of chronic cutaneous ulcer and burn wounds are as follows: (7)

Incidence of complete wound closure.

Time to complete wound closure (reflecting accelerated wound closure).

Incidence of complete wound closure following surgical wound closure.

Pain control.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;

In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies.

To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought.

Consistent with a 'best available evidence approach' within each category of study design, studies with larger sample sizes and longer durations were sought. Studies with duplicative or overlapping populations were excluded.

The clinical development program for beremagene geperpavec-svdt is summarized in Table 1. The pivotal phase 3 randomized, double-blinded clinical trial (GEM-3) was the basis for FDA approval of beremagene geperpavec-svdt and is reviewed in detail.

Table 1. Summary of the Clinical Development Program for Beremagene Geperpavec-svdt

Study	Study KB103-001 (GEM-1)	Study B-VEC-03 (GEM-3)	Study B-VEC-EX-02
NCT Number	NCT03536143	NCT04491604	NCT04917874
Phase	1	3	3
Study Population	Individuals 2 years of age or older with genetically	Individuals 6 months of age or older with genetically	Individuals 2 months of age or older with genetically

	confirmed recessive form of dystrophic epidermolysis bullosa	confirmed dystrophic epidermolysis bullosa	confirmed dystrophic epidermolysis bullosa
Status	Completed and published (8)	Completed and published (9)	Ongoing
Study Dates	2018-2019	2020-2021	2021-2023
Design	RCT; placebo controlled[a]	DBRCT; placebo-controlled[a]	Open-label single group assignment
Sample Size	9	31	45
Follow-Up	12 weeks	26 weeks	112 weeks

DMD: Duchenne muscular dystrophy; DBRCT: double-blind randomized controlled study; NCT: national clinical trial; RCT: randomized controlled trial.

[a] Each participant serves as his/her own control by contributing a primary size-matched wound pair to be randomized to receive weekly topical application of either gene therapy or the placebo (excipient gel).

Pivotal Randomized Trial

Study characteristics, baseline patient characteristics and results are summarized in Table 2 to 4, respectively. The pivotal GEM-3 study was a 26-week, randomized, double-blind, intra-subject placebo-controlled trial in which 2 comparable wounds in each participant were selected and randomized to receive either topical application of beremagene geperpavec-svdt gel or the placebo (excipient gel) weekly for 26 weeks. The placebo gel and the beremagene geperpavec-svdt gel had the same viscosity and were similar in appearance. The principal investigator at each site was the sole individual who assessed each subject's primary wound pair at all timepoints for primary and secondary endpoints assessment. The principal investigators were blinded for the entire duration of the study. The primary end point was complete wound healing of treated as compared to untreated wounds at 6 months. Efficacy was established on the basis of improved wound healing defined as the difference in the proportion of complete (100%) wound closure at 24 weeks confirmed at 2 consecutive study visits 2 weeks apart, assessed at weeks 22 and 24 or at weeks 24 and 26, between the beremagene geperpavec-svdt gel-treated and the placebo gel-treated wounds. At 24 weeks, complete wound healing occurred in 65% of the wounds exposed to beremagene geperpavec-svdt gel as compared with 26% of those exposed to placebo (difference, 39 points; 95% confidence

interval [CI], 14 to 63; p =.012). The most common adverse drug reactions (incidence >5%) were itching, chills, redness, rash, cough, and runny nose. The intra-subject randomization and comparison of dystrophic epidermolysis bullosa wounds confounds the systemic safety evaluation.

Table 2. Summary of Pivotal Randomized Trial

Study	Study GEM-3 (NCT04491604) (9)
Study Type	DBRCT
Country	U.S.
Sites	3
Dates	2020-2021

Participants	Inclusion
	6 months or older
	Clinical manifestations consistent with dystrophic epidermolysis bullosa
	Genetically confirmed mutation(s) in the *COL7A1* gene
	At least 2 cutaneous wounds meeting the following criteria:
	    Location: similar in size, located in similar anatomical regions, and have similar appearance.
	    Appearance: clean with adequate granulation tissue, excellent vascularization, and do not appear infected
	Exclusion
	Receipt of chemical or biological study product for the specific treatment of dystrophic epidermolysis bullosa in the past three months

Interventions - Active	Treatment duration Weekly topical application of beremagene geperpavec-svdt gel for 26 weeks Dose/wound varied by wound area: For <20 cm^2: 4 X 10^8 PFU For 20 to 40 cm^2: 8 X 10^8 PFU For 40 to 60 cm^2: 1.2 X 10^9 PFU Maximum weekly dose varied by age: For ≥6 months to <3 years: 1.6 X 10^9 PFU For ≥3 years to <6 years: 2.4 X 10^9 PFU

	For ≥6 years: 3.2 X 10^9 PFU
Interventions - Control	Placebo-gel (excipient only)
Follow-Up	26 weeks

COL7A1: collagen type VII alpha 1 chain; DBRCT: double-blind randomized controlled trial; PFU: plaque forming units.

Table 3. Summary of Baseline Demographics and Disease Characteristics in the Pivotal Trial

Characteristic	Study GEM-3 (N=31) (9)
Age, median (range), years	16.1 (1-44)
Male, n (%)	20 (65)
Race or ethnic group other than Hispanic or Latino, n (%)	
White	20 (65)
Black	0
Asian	6 (19)
American Indian or Alaska Native	5 (16)
Native Hawaiian or other Pacific Islander	0
Genotype, n (%)	
Dominant dystrophic epidermolysis bullosa	1 (3)
Recessive dystrophic epidermolysis bullosa	30 (97)
Area of primary wound exposed to beremagene geperpavec-svdt, median (range), cm^2	10.6 (2.3–57.3)
Area of primary wound exposed to placebo, median (range), cm^2	10.4 (2.3–51.5)

Table 4. Summary of Key Results in Pivotal Trial

Study GEM-3 (N=31) (9, 10)	Beremagene geperpavec-svdt	Placebo	Treatment Difference (95% CI)	P value
Complete Wound Closure, n (%)				

Weeks 22 and 24 or weeks 24 and 26	20 (65)	8 (26)	39% (14 to 63)	.012
Weeks 8 and 10 or weeks 10 and 12	21 (68)	7 (23)	45% (22 to 69)	.003

CI: confidence interval

The purpose of the study limitations tables (see Tables 5 and 6) is to display notable limitations identified in each study. This information is synthesized as a summary of the body of evidence and provides the conclusions on the sufficiency of evidence supporting the position statement. No major study design or conduct limitations were noted. The size of the safety database and the median duration of exposure for beremagene geperpavec-svdt is inadequate to sufficiently assess harms.

Table 5. Study Relevance Limitations

Study	Population[a]	Intervention[b]	Comparator[c]	Outcomes[d]	Duration of Follow-up[e]
Study Gem-3 (9)	4. Enrolled populations do not reflect relevant diversity (65% White with no Black participants enrolled)				2. Not sufficient duration for harms

The study limitations stated in this table are those notable in the current review; this is not a comprehensive gaps assessment.

[a] Population key: 1. Intended use population unclear; 2. Study population is unclear; 3. Study population not representative of intended use; 4, Enrolled populations do not reflect relevant diversity; 5. Other.

[b] Intervention key: 1. Not clearly defined; 2. Version used unclear; 3. Delivery not similar intensity as comparator; 4. Not the intervention of interest (e.g., proposed as an adjunct but not tested as such); 5: Other.

[c] Comparator key: 1. Not clearly defined; 2. Not standard or optimal; 3. Delivery not similar intensity as intervention; 4. Not delivered effectively; 5. Other.

[d] Outcomes key: 1. Key health outcomes not addressed; 2. Physiologic measures, not validated surrogates; 3. Incomplete reporting of harms; 4. Not establish and validated measurements; 5. Clinically significant difference not prespecified; 6. Clinically significant difference not supported; 7. Other.

Table 6. Study Design and Conduct Limitations

Study	Allocationª	Blindingᵇ	Selective Reportingᶜ	Data Completenessᵈ	Powerᵉ	Statisticalᶠ
Study GEM-3						

The study limitations stated in this table are those notable in the current review; this is not a comprehensive gaps assessment.

ª Allocation key: 1. Participants not randomly allocated; 2. Allocation not concealed; 3. Allocation concealment unclear; 4. Inadequate control for selection bias; 5. Other.

ᵇ Blinding key: 1. Participants or study staff not blinded; 2. Outcome assessors not blinded; 3. Outcome assessed by treating physician; 4. Other.

ᶜ Selective Reporting key: 1. Not registered; 2. Evidence of selective reporting; 3. Evidence of selective publication; 4. Other.

ᵈ Data Completeness key: 1. High loss to follow-up or missing data; 2. Inadequate handling of missing data; 3. High number of crossovers; 4. Inadequate handling of crossovers; 5. Inappropriate exclusions; 6. Not intent to treat analysis (per protocol for noninferiority trials); 7. Other.

ᵉ Power key: 1. Power calculations not reported; 2. Power not calculated for primary outcome; 3. Power not based on clinically important difference; 4. Other.

ᶠ Statistical key: 1. Analysis is not appropriate for outcome type: (a) continuous; (b) binary; (c) time to event; 2. Analysis is not appropriate for multiple observations per patient; 3. Confidence intervals and/or p values not reported; 4. Comparative treatment effects not calculated; 5. Other.

Section Summary: Gene Therapy for Treatment of Wounds in Dystrophic Epidermolysis Bullosa

Evidence for the use of beremagene geperpavec-svdt for the treatment of wounds in individuals with dystrophic epidermolysis bullosa with mutation(s) in the *COL7A1* gene includes a single RCT. In the pivotal GEM-3 trial (n=31), 2 comparable wounds in each participant were selected and randomized to receive either topical application of beremagene geperpavec-svdt gel or the placebo (excipient gel) weekly for 26 weeks. The primary endpoint was the difference in the proportion of complete (100%) wound closure at 24 weeks confirmed at 2 consecutive study visits 2 weeks apart, assessed at weeks 22 and 24 or at weeks 24 and 26, between the beremagene geperpavec-svdt gel-treated and the placebo gel-treated wounds. At 24 weeks, complete wound healing occurred in 65% of the wounds exposed to beremagene geperpavec-svdt gel as compared with 26% of those exposed to placebo (difference, 39 points; 95% CI,

14 to 63; p =.012). The most common adverse drug reactions (incidence >5%) were itching, neoplasms, chills, redness, rash, cough, and runny nose.

Summary of Evidence

For individuals who are 6 months of age and older with dystrophic epidermolysis bullosa with mutation(s) in the *COL7A1* gene and who receive beremagene geperpavec-svdt, the evidence includes a single RCT. Relevant outcomes are symptoms, change in disease status, quality of life, treatment-related mortality and treatment-related morbidity. In the pivotal GEM-3 trial (n=31), 2 comparable wounds in each participant were selected and randomized to receive either topical application of beremagene geperpavec-svdt gel or the placebo (excipient gel) weekly for 26 weeks. The primary endpoint was the difference in the proportion of complete (100%) wound closure at 24 weeks confirmed at two consecutive study visits 2 weeks apart, assessed at weeks 22 and 24 or at weeks 24 and 26, between the beremagene geperpavec-svdt gel-treated and the placebo gel-treated wounds. At 24 weeks, complete wound healing occurred in 65% of the wounds exposed to beremagene geperpavec-svdt gel as compared with 26% of those exposed to placebo (difference, 39 points; 95% CI, 14 to 63; p =.012). The most common adverse drug reactions (incidence >5%) were itching, chills, redness, rash, cough, and runny nose. No major limitations were noted. The size of the safety database and the median duration of exposure for beremagene geperpavec-svdt is inadequate to sufficiently assess harms. The evidence is sufficient to determine that the technology results in an improvement in the net health outcome.

Practice Guidelines and Position Statements

European Reference Network for Rare Skin Diseases

The European Reference Network for Rare and Undiagnosed Skin Diseases published expert consensus clinical position statements in 2021 regarding practical recommendations for the management of patients suspected or diagnosed with epidermolysis bullosa covering diagnosis, wound management, oral care and treatment of pain and itch. (3) They also published consensus clinical position recommendations in 2020 to aid decision-making and optimize clinical care by non-epidermolysis bullosa expert health professionals encountering emergency situations in babies, children and adults with epidermolysis bullosa. (11) Both consensus statements were published prior to the Food and Drug Administration (FDA) approval beremagene geperpavec-svdt.

Dystrophic Epidermolysis Bullosa Research Association
International consensus best practice guidelines skin and wound care in epidermolysis bullosa were published in 2017. (12) These guidelines were also published prior to the FDA approval beremagene geperpavec-svdt.

Ongoing and Unpublished Clinical Trials
A currently ongoing or unpublished trial that might influence this policy is listed in Table 7.

Table 7. Summary of Key Trials

NCT Number	Trial Name	Planned Enrollment	Completion Date
NCT04917874[a]	A Long-term Treatment With B-VEC for Dystrophic Epidermolysis Bullosa	47	Jul 2023

NCT: national clinical trial.
[a] Denotes industry-sponsored or cosponsored trial.

Coding

Procedure codes on Medical Policy documents are included **only** as a general reference tool for each policy. **They may not be all-inclusive.**

The presence or absence of procedure, service, supply, or device codes in a Medical Policy document has no relevance for determination of benefit coverage for members or reimbursement for providers. **Only the written coverage position in a Medical Policy should be used for such determinations.**

Benefit coverage determinations based on written Medical Policy coverage positions must include review of the member's benefit contract or Summary Plan Description (SPD) for defined coverage vs. non-coverage, benefit exclusions, and benefit limitations such as dollar or duration caps.

CPT Codes	None
HCPCS Codes	J3401

*Current Procedural Terminology (CPT®) ©2024 American Medical Association: Chicago, IL.

References

Has C, Bauer JW, Bodemer C, et al. Consensus reclassification of inherited epidermolysis bullosa and other disorders with skin fragility. Br J Dermatol. Oct 2020; 183(4):614-627. PMID 32017015

Tidman MJ, Eady RA. Evaluation of anchoring fibrils and other components of the dermal-epidermal junction in dystrophic epidermolysis bullosa by a quantitative ultrastructural technique. J Invest Dermatol. May 1985; 84(5):374-377. PMID 4039741

Burgeson RE. Type VII collagen, anchoring fibrils, and epidermolysis bullosa. J Invest Dermatol. Sep 1993; 101(3):252-255. PMID 8370960

Dunnill MG, McGrath JA, Richards AJ, et al. Clinicopathological correlations of compound heterozygous COL7A1 mutations in recessive dystrophic epidermolysis bullosa. J Invest Dermatol. Aug 1996; 107(2):171-177. PMID 8757758

Vahidnezhad H, Youssefian L, Zeinali S, et al. Dystrophic Epidermolysis Bullosa: COL7A1 Mutation Landscape in a Multi-Ethnic Cohort of 152 Extended Families with High Degree of Customary Consanguineous Marriages. J Invest Dermatol. Mar 2017; 137(3):660-669. PMID 27899325

Fine JD. Epidemiology of Inherited Epidermolysis Bullosa Based on Incidence and Prevalence Estimates From the National Epidermolysis Bullosa Registry. JAMA Dermatol. Nov 01 2016; 152(11):1231-1238. PMID 27463098

Food and Drug Administration (FDA). Guidance for Industry. Chronic Cutaneous Ulcer and Burn Wounds - Developing Products for Treatment. June 2006. Available at <https://www.fda.gov> (accessed July 25, 2023).

Gurevich I, Agarwal P, Zhang P, et al. In vivo topical gene therapy for recessive dystrophic epidermolysis bullosa: a phase 1 and 2 trial. Nat Med. Apr 2022; 28(4):780-788. PMID 35347281

Guide SV, Gonzalez ME, Bağcı IS, et al. Trial of Beremagene Geperpavec (B-VEC) for Dystrophic Epidermolysis Bullosa. N Engl J Med. Dec 15 2022; 387(24):2211-2219. PMID 36516090

Prescribing label for Vyjuvek (beremagene geperpavec-svdt) biological suspension mixed with excipient gel for topical application. Available at <https://www.krystallabel.com> (accessed July 24, 2023).

Mellerio JE, El Hachem M, Bellon N, et al. Emergency management in epidermolysis bullosa: consensus clinical recommendations from the European reference network for rare skin diseases. Orphanet J Rare Dis. Jun 06 2020; 15(1):142. PMID 32505191

International consensus best practice guidelines skin and wound care in epidermolysis bullosa. Published 2017. Available at <https://www.debra-international.org> (accessed July 24, 2023).

Centers for Medicare and Medicaid Services (CMS)

The information contained in this section is for informational purposes only. HCSC makes no representation as to the accuracy of this information. It is not to be used for claims adjudication for HCSC Plans.

The Centers for Medicare and Medicaid Services (CMS) does not have a national Medicare coverage position. Coverage may be subject to local carrier discretion.

A national coverage position for Medicare may have been developed since this medical policy document was written. See Medicare's National Coverage at <https://www.cms.hhs.gov>.

Policy History/Revision

Date	Description of Change
01/01/2026	New medical document.