International observational atopic dermatitis cohort to follow natural history and treatment course: TARGET-DERM AD study design and rationale

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Background and Aims: As new topical and systemic treatments become available for atopic dermatitis (AD), there is a need to understand how treatments are being utilized in routine clinical practice, their comparative effectiveness and long-term safety in diverse clinical settings. This report describes the creation of an international cohort of AD patients receiving care in the real-world clinical setting. The primary aims of this study are characterization of AD treatment regimens, evaluation of response to therapy, and description of adverse events. The relationship between AD and comorbid conditions will also be investigated as a secondary aim.[1]

Study Design and Population: The TARGET-DERM AD cohort is a longitudinal, observational study begun in 2019 with broad inclusion criteria to allow for capture of AD patient populations that may be under-represented in clinical trials. Adult and pediatric patients with physician-diagnosed AD receiving topical or systemic prescription treatment are currently being enrolled at academic institutions and community clinical centers throughout the United States (US) and Europe. No specific treatments are dictated by enrollment in the study, and patient management follows each site's local standard of care. The recruitment goal for TARGET-DERM AD is enrollment of 4,000 participants from 100 clinical centers. Implementation of an adaptive recruitment strategy will ensure adequate cohort diversity. The patient population is engaged through the sharing and communication of study results.

Data Collection and Clinical Outcomes Assessment: The study relies on standardized data extraction from routinely collected medical records. Up to 3 years of retrospective medical records as of enrollment, 5 years of prospective medical records, validated investigator global assessment scores for atopic dermatitis (vIGA-AD),[2] and optional biospecimens and patient-reported outcome (PRO) measures are collected. The primary outcomes of interest are response to therapy based on changes in vIGA-AD, patient-reported outcomes, and adverse events. Changes in therapy, including discontinuations, stepping-up and stepping-down are also collected. Secondary outcomes include the occurrence and impact of comorbid medical conditions on treatment regimens and vice versa. Several categories of structured clinical record data are extracted including: demographics (sex at birth, age, race/ethnic group, employment status, country of origin, insurance type); AD characteristics (age of onset, standardized vIGA-AD score, total body surface area affected); medical history (diagnoses, pregnancies, family history of allergic disease including rhinitis, asthma and hay fever, personal history of other immune-mediated inflammatory skin conditions); substance use (alcohol, tobacco, vaping, marijuana, other recreational drugs); current medications (concomitant medications with reasons); clinical/laboratory measures (height, weight, white blood cell count, neutrophils, lymphocytes, hemoglobin, platelet count, serum alanine, aminotransferase, aspartate, transaminase, gamma-glutamyltransferase, total bilirubin, direct and indirect bilirubin, albumin, creatinine, glucose, calcium, magnesium, phosphorus, potassium, sodium, urea nitrogen, creatine kinase, low-density lipoprotein, high-density lipoprotein, triglycerides, total cholesterol); procedures (allergy testing, skin biopsies with type and reason, location and pathology report); AD treatment (current and past systemic therapy/medication with start/stop/treatment vehicle, phototherapy type with dose

changes/interruptions/discontinuations and reasons); AD treatment safety (adverse events, serious adverse events, alternative treatments used with type, treatment vehicle and concentration). As part of the study protocol, principal investigators at each site are asked to perform a standardized vIGA-AD assessment at each standard of care visit. Validated PRO questionnaires tailored for adult or pediatric populations are administered at baseline and every 3 months thereafter for assessment of itch, pain and sleep, quality of life, severity, work productivity, and activity impairment.[3] Optional biospecimens are collected via regular clinical blood work. All data collected from participating sites are stored centrally via a secure electronic system maintained by Target RWE Health Evidence Solutions and monitored for quality and completeness.

Clinical and Public Health Impact: TARGET-DERM AD is a pragmatic, real-world study designed to capture long-term variability in AD disease activity and management and to provide complementary data to clinical trials. Recruitment of a diverse cohort of participants from academic and community sites across the US and Europe will supply a valuable resource for investigation into the natural history and long-term management of AD with generalizability of knowledge gained to benefit the broader population of patients living with this highly prevalent disease.

1. Abuabara K, Silverberg JI, Simpson EL, et al. International observational atopic dermatitis cohort to follow natural history and treatment course: TARGET-DERM AD study design and rationale. BMJ Open 2020;10:e039928.
2. Eli Lilly and company. *Validated investigator global assessment used with the permission of Eli Lilly and company under a creative commons Attribution-NoDerivatives 4.0 International license*, 2017.
3. Harmonising outcome measures for eczema. Available: www.homeforeczema.org.