# 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 study 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]

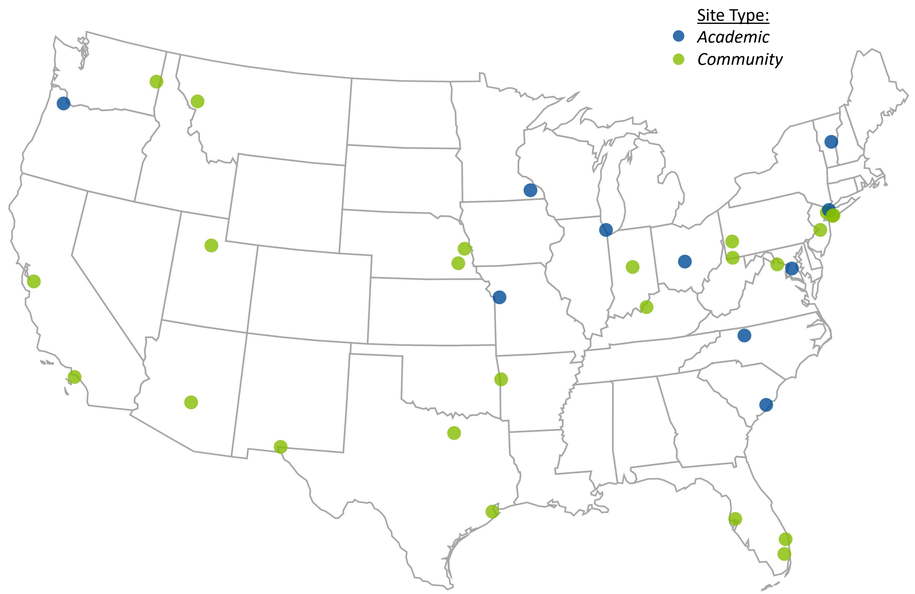
## Study Design and Population: The TARGET-DERM AD cohort

- TARGET-DERM AD 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.
- Patients of any age with physician-diagnosed AD receiving topical or systemic prescription treatment are currently being enrolled at academic and community clinical centers throughout the US, Canada & Europe.
- No specific treatments are dictated by enrollment, and patient management follows each site's local standard of care.
- There are currently 34 active sites in the US and 10 in start up (as of March, 2020); recruitment goal is 4,000 participants at 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, 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.
- 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 and monitored for quality and completeness.

## Figure 1. TARGET-DERM Site Map




## Box 1. Categories for Structured Clinical Record Data Extraction

**Demographic Information:** 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

**Additional Medical History:** medical diagnoses (historical and new), pregnancies (with due date and pregnancy outcome), number/relation of relatives with history of AD, number/relation of family with history of allergic diseases (allergic rhinitis, asthma, hay fever), personal history of other immune-mediated inflammatory skin conditions

**Substance Use:** alcohol, tobacco, vaping use/frequency, marijuana use, other recreational drug history

**Current Medications:** concomitant medications with reasons for medications

**Clinical/Laboratory Measures:** height, weight, WBC, neutrophils, lymphocytes, hemoglobin, platelet count, serum ALT/AST/ALP/GGT, total bilirubin, direct bilirubin, indirect bilirubin, albumin, creatinine, glucose, calcium, magnesium, phosphorus, potassium, sodium, urea nitrogen (BUN), creatinine kinase, LDL, HDL, triglycerides, total cholesterol, other labs

**Procedures:** allergy testing, skin biopsies (with type, reason for biopsy, location and pathology report if available), other procedures with indication and date

**AD Treatment Details:** current and prior systemic therapy/medication name with start/stop/treatment vehicle, topical therapy/medication name with start/stop/treatment vehicle, phototherapy type with start/stop, dose changes/interruptions/discontinuations, reason for dose changes/interruptions/discontinuations

**AD Treatment Safety:** adverse events, serious adverse events, alternative treatments used (type, treatment vehicle, concentration)

## Table 1. Study Measures and Timing

| Activity | Prior 3 years* | Screening/ Enrollment Visit | Follow-Up | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | |
| | | M 0 | M 6 | M 12 | M 18 | M 24 | M 30 | M 36 | M 42 | M 48 | M 54 | M 60 |
| Informed Consent | | X | | | | | | | | | | |
| Inclusion/Exclusion | | X | | | | | | | | | | |
| Demographics & Background Forms | | X | | | | | | | | | | |
| Biologic Sample Collection | | X | | | | | | | | | | |
| Patient Reported Outcome Surveys*** | | X | *Patient Reported Outcomes will be Completed Every 3 Months* | | | | | | | | | |
| Investigator Global Assessment** | | X | *Investigator Assessment will be completed at every standard of care visit* | | | | | | | | | |
| Medical Records Submission* | X | X | X | X | X | X | X | X | X | X | X | X |

*Three years of historical records will be submitted following the Screening/Enrollment visit. During the follow up period, medical records will be submitted every 6 months for up to 5 years. The first submission during the follow-up period will be 6 months following the Screening/Enrollment visit. Additional interim medical records submissions may be requested.
**Investigator Global Assesment (+/- body surface area assessment) will be obtained at baseline and all follow-up visits. *** UK Working Party diagnostic criteria (UKWPC),13,22 Patient-Oriented Eczema Measure (POEM),23 PROMIS-Itch Severity,24 Numerical Rating Scale for Pain (NRS-Pain),25 NRS-Sleep,26-28 PROMIS-General, PROMIS-Mood and Sleep, PROMIS-Activity and Clothing, PROMIS-Scratching Behavior, PROMIS-Anxiety, PROMIS-Depression, PROMIS-Itch Triggers, PROMIS-Itch Quality,,29 Dermatology Life Quality Index (DLQI),30 PO-SCORAD,31 and the Work Productivity and Activity Impairment (WPAI). These are all completed every 3 months except for UKWPC, PROMIS-Itch Triggers and PROMIS-Itch Quality (one time), and DLQI and WPAI (every 6 months). For pediatrics, these include: UKWPC,13,22 POEM-Pediatric/Proxy,33 PROMIS-Itch Severity, NRS-Pain, NRS-Sleep, PROMIS-Pediatric Anxiety, PROMIS-Pediatric Depression, Children's Dermatology Life Quality Index (CDLQI)34 and PO-SCORAD; these are all completed every 3 months except for UKWPC (one time) and POEM-Pediatric/Proxy,35 CDLQI and PO-SCORAD (every 6 months).

## 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 the generalizability of knowledge gained to benefit the broader population of patients living with this highly prevalent disease.**

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**References:**
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