Implementation of the atopic dermatitis yardstick via the electronic medical record: a pilot study to improve clinical documentation and patient education

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To the Editor:

Gaps in the management of atopic dermatitis (AD) include the lack of disease severity measurements in clinical notes and limited patient education in clinical encounters [1-3]. We developed an integrated SmartSet system (AD yardstick), tested incorporating it into the electronic medical record (EMR) to address these gaps, and assessed the utilization of disease severity measures and patient education materials at an academic dermatology center.

Patients with mild-to-severe AD at Atrium Wake Forest Baptist Medical Center were recruited from January 2021 to April 2023 and were randomly assigned to either AD yardstick or control groups. For patients in the AD yardstick group, physicians utilized the AD yardstick SmartSet in their clinic note, which automatically queried for Investigator Global Assessment (IGA) and body surface area (BSA) assessments and generated a step-up treatment plan based on disease severity. The SmartSet also automatically generated patient education material described as an Eczema Action Plan (**Table 1**) and a Dermatology Life Quality Index (DLQI) survey, which was electronically sent to intervention patients one week after their appointment.

A total of 20 patients with mild-to-severe AD were enrolled in the study (control: N=7, yardstick: N=13). The initial IGA scores of patients were 2.0 (control) and 1.9 (yardstick), and the initial BSA for patients was 9.6% (control) and 8.8% (yardstick). At enrollment, patients were treated with topical corticosteroids (control: N=3; yardstick: N=7), dupilumab (control: N=4; yardstick: N=7), upadacitinib (control: N=0; yardstick N=1), and tralokinumab (control: N=0; yardstick: N=2). More patients had disease severity documented in the yardstick cohort (BSA: 92% of patients; IGA: 77% of patients) compared to the control group (BSA: 43% of patients, P=0.015; IGA: 29% of patients, P=0.08, **Table 2**). Atopic dermatitis educational materials were provided at higher rates to patients in the yardstick (69%) versus the control group (0%, P=0.03). The electronic DLQI surveys were answered by 46% of patients in the yardstick group and 0% of patients in the control group had quality of life measures documented in the EMR (P=0.05).

Dermatologists often do not document IGA and BSA scores in the EMR and patient education material is often not distributed during clinical visits. The successful implementation of yardstick into a standard EMR system increased documentation of disease severity scores in the EMR and incorporated educational materials rapidly into patients' after-visit

Table 2. *The documentation of disease severity and educational materials utilized in 20 patients with atopic dermatitis.*

Characteristic	Value, N (%)	
	Control	Yardstick
Mean initial IGA	2.0	1.9
Mean initial BSA	9.6	8.8
Patients with documented disease severity in the EMR:		
BSA	3 (43)	12 (92)*
IGA	2 (29)	10 (77)
Patients with educational materials provided	0 (0)	9 (69)*
Patients who answered DLQI survey or had QOL measures documented in EMR	0 (0)	6 (46)

*, P value <0.05 when comparing the control versus the yardstick cohort.
BSA, body surface area; DLQI, dermatology life quality index; EAP, eczema action plan; EMR, electronic medical record; IGA, investigator global assessment.

summaries. Although our study is limited by a small sample size, its primary aim was to test the feasibility of incorporating yardstick into the EMR. This work lays a foundation for future studies with larger samples to assess whether yardstick integration improves patients' treatment outcomes. Proper and longitudinal tracking of disease severity and response to treatment is increasingly becoming required for authorization and continued use of newer, more expensive AD therapeutic agents. Dermatologists often feel that they do not have enough time during a clinical visit to adequately educate patients on their disease [4]. The yardstick SmartSet is an example of leveraging EMR technology to improve disease severity documentation, provide patient education, and assess the quality of life of patients with AD.

Potential conflicts of interest

Steven Feldman has received research, speaking and/or consulting support from Eli Lilly and Company, GlaxoSmithKline/Stiefel, AbbVie, Janssen, Alovtech, vTv Therapeutics, Bristol-Myers Squibb, Samsung, Pfizer, Boehringer Ingelheim, Amgen, Dermavant, Arcutis, Novartis, Novan, UCB, Helsinn, Sun Pharma, Almirall, Galderma, Leo Pharma, Mylan, Celgene, Ortho Dermatology, Menlo, Merck & Co, Qurient, Forte, Arena, Biocon, Accordant, Argenx, Sanofi, Regeneron, the National Biological Corporation, Caremark, Teladoc, BMS, Ono, Micreos, Eurofins, Informa, UpToDate and the National Psoriasis Foundation. He is founder and part owner of Causa Research and holds stock in Sensal Health. Lindsay Strowd has received research, speaking and/or consulting support from Pfizer, Novartis, Galderma, and Sanofi. Funding for this study was provided by Pfizer. The remaining authors disclose no conflicts.

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Table 1. *Eczema Action Plan (EAP) that is automatically attached to the patient's after-visit-summary documents and electronically sent to patient's portal in the EMR system. The EAP that is sent to t he patient is based on the combined IGA+BSA (investigator global assessment+body surface area) score that was registered in the assessment using the yardstick SmartSet.*

	Clear skin (IGA + BSA score 1-2)	Mild ezema (IGA + BSA score 3)	Moderate eczema (IGA + BSA score 4)	Severe eczema (IGA + BSA score 5-6)
Maintenance treatment to follow if skin is clear:	**Skin care** • Use a fragrance-free moisturizer of your choice liberally and frequently (at least daily) • Take warm (not hot) baths or showers using non-soap cleansers usually once daily and follow with moisturizer (even on clear areas) **Trigger avoidance** • Avoid proven allergens and common irritants (e.g. soaps, wools, extreme temperatures)	**Skin care** • Use a moisturizer of your choice liberally and frequently (at least daily) • Take warm (not hot) baths or showers using non-soap cleansers usually once daily and follow with moisturizer (even on clear areas) **Antiseptic measures** • Dilute bleach bath (fill bath with warm water and ¼ cup household bleach. Soak for 10 minutes) ≤2x/week depending on severity of redness and itching **Trigger avoidance** • Avoid proven allergens and common irritants (e.g. soaps, wools, extreme temperatures) **Further steps** • Ask your provider about other treatment options if your skin is still red and itchy skin after these steps	**Skin care** • Use a moisturizer of your choice liberally and frequently • Take warm (not hot) baths or showers using non-soap cleansers usually once daily and follow with moisturizer (even on clear areas) • Apply topical eczema prescriptions on areas where you previously had or usually have symptoms of red, itchy skin **Antiseptic measures** • Dilute bleach bath (fill bath with warm water and ¼ cup household bleach. Soak for 10 minutes) ≤2x/week depending on severity of redness and itching **Trigger avoidance** • Avoid proven allergens and common irritants (e.g. soaps, wools, temperature extremes) **Further steps** • Ask your provider about other treatment options if your skin is still red and itchy after these steps	**Skin care** • Use a moisturizer of your choice liberally and frequently • Take warm (not hot) baths or showers using non-soap cleansers usually once daily and follow with moisturizer (even on clear areas) • Apply topical medications prescribed by your doctor on areas where you usually have symptoms of red, itchy skin **Antiseptic measures** • Dilute bleach bath (fill bath with warm water and ¼ cup household bleach. Soak for 10 minutes) ≤2x/week depending on severity of redness and itching **Trigger avoidance** • Avoid proven allergens and common irritants (e.g. soaps, wools, temperature extremes) **Further steps** • Ask your provider

				about other treatment options if skin is still red and itchy after these steps
Acute treatment to follow if skin is red and itchy:	• Apply topical eczema prescription to areas of red, itchy skin for 3-7 days AFTER skin becomes clear • Ask your provider about other treatment options if your skin is still red and itchy skin after these steps		• Apply topical eczema prescriptions twice daily for 3-7 days AFTER skin becomes clear again • If it is wintertime, run a cool humidifier in bedroom at night • If your skin is not improved within 7 days, please contact your provider for next steps	

BSA, body surface area; DLQI, dermatology life quality index; EAP, eczema action plan; EMR, electronic medical record; IGA, investigator global assessment.