

Collaboration in best practices for care of patients with atopic dermatitis

Sarah Meadows, MS, CHCP^a, Deborah Fending, RN^b, and Mark Boguniewicz, MD^c



Clinical Implications

- This initiative aimed to improve assessment and treatment of patients with atopic dermatitis at a network of safety-net primary care clinics for medically underserved children, using education and practice improvement efforts to substantially increase performance on measures of atopic dermatitis care.

TO THE EDITOR:

Atopic dermatitis (AD) is a chronic, relapsing skin disorder that affects up to 25% of children younger than 14 years, with up to 6% severely affected.¹ The prevalence of AD has been increasing.² AD may negatively affect sleep, school performance, behavior, and social activity.² Health-related quality of life among children with AD by parental assessment has been shown to be worse than among children with other chronic diseases, including diabetes and cystic fibrosis.^{3,4}

AD is often the first step in the “atopic march,” in which infants with AD go on to develop food allergies, asthma, and allergic rhinitis. It has been hypothesized that early diagnosis and better treatment of AD at the primary care level may reduce the risk of allergy and asthma, thus reducing patient distress and lowering future medical costs.⁵ Although there is no cure for AD, it can be effectively managed. Education of patients and health care professionals is essential to the team-based approach to chronic disease management. This report outlines an initiative to provide training, tools, and resources to health care professionals and patients in safety-net primary care clinics.

This study used a quasi-experimental design, with outcomes measured before and after a multidimensional educational program. Measures for AD care were selected using clinical recommendations and developed in collaboration with a multidisciplinary clinic team.⁶ Measures were incorporated into a 15-item checklist used in patient visits, focused on assessment of AD severity, incorporation of team-based care, provision of patient education, prescription of medications as appropriate, and follow-up care (see [Figure E1](#) in this article’s Online Repository at www.jaci-inpractice.org). The study was approved by the National Jewish Health (NJH) Institutional Review Board.

The initiative was conducted at Rocky Mountain Youth Clinics (RMYC), a network of 3 stand-alone, 2 school-based, and 2 mobile clinics that provides comprehensive primary care services to medically underserved children and adolescents in Denver, Colorado. RMYC health care providers identified practice gaps in diagnosing and treating patients with AD. The importance of addressing these practice gaps was documented by AD literature review and the clinical experience of physicians and specialty practice nurses at NJH. RMYC leaders distributed a

survey to assess practice gaps and barriers in managing patients with AD at the beginning of the initiative and were advocates for engagement throughout the program (see [Table I](#)). A leadership team, established among RMYC and NJH, met monthly during the 1-year initiative. NJH certified the program for performance improvement continuing medical education, and the activity was approved by the American Board of Pediatrics for Maintenance of Certification Parts 2 and 4 points.

A collaborative approach to educational interventions engaged the entire multidisciplinary team: physicians, nurse practitioners, physician assistants, registered nurses, and medical assistants. The first intervention—a half-day training with all staff—included didactic instruction and small hands-on group sessions to practice topical steroid and moisturizer application. Additional interventions included multiple in-clinic visits by NJH nurse educator and professional education staff. Interventions addressed practice gaps identified by the leadership team and evidenced in the barrier survey administered to clinic providers at the onset of the initiative. Critical AD care checklist items were built into the RMYC electronic health record. Tools and resources were developed for providers and patients. Electronic tablets at each clinic housed patient information and were part of resource carts, which also included dolls for demonstration, quality-of-life indexes in English and Spanish (Children’s Dermatology Life Quality Index⁷ and Infant’s Dermatitis Quality of Life Index⁸), itch severity scales, and resource books. A provider- and patient-targeted Web site housed educational resources, patient information, and interactive games (www.theADzone.org). Videos featured on the tablets and the Web site demonstrated proper bathing and moisturizing techniques for caregivers, as well as other self-management practices.

Participants included 63 health care providers, 24 of whom were prescribing providers. Because the prescribing provider as well as the nonprescribing health care provider team interacted with the same patients, we advocated for only the prescribing providers to complete the checklists in order to avoid overlap. Over the entire initiative, 643 self-assessment checklists were completed by the 24 prescribing providers. The 643 patient visits represent all visits by patients with AD for phases 2, 3, and 4. Phase 1, which was used as a baseline, represents patients with AD seen by each prescribing provider over the 3 months before the initial intervention in September 2012, for 10 or more patient visits (although some had fewer than 10 total visits from patients with AD during that time). Checklist data were gathered at 4 intervals following a rapid-cycle improvement model, and compiled by a third-party educational outcomes provider. Data represent the percentage of patient visits in which specific practice elements occurred. The results show immediate improvement on performance measures following the multidisciplinary training and fairly consistent performance for most indicators for the duration of the initiative ([Table II](#)). Measures were studied either for change in utilization, or for implementation if a particular tool or approach was not existent. Nearly all the measures that were targeted for increase (noted with an * in the table), regardless of specific patient characteristics, improved to 80% or better. Utilization of tools that assess disease severity and itch severity increased by more than 50%. Emergency

TABLE I. Results of practice gaps and barriers assessment survey question administered to RMYC providers and staff (N = 21)

In regard to your patients with symptoms or a diagnosis of atopic dermatitis/eczema, to what degree do you feel the following are **BARRIERS** to providing quality patient care in your practice?

Potential barriers to providing quality care for AD patients	NOT a barrier	SOMEWHAT of a barrier	OFTEN a barrier	SIGNIFICANT barrier
Patient/parents underestimate the severity of the symptoms	28.6%	33.3%	38.1%	0.0%
Patient/parents are noncompliant with medications prescribed or suggested treatments	0.0%	38.1%	42.9%	19.0%
Patient/parents overestimate the risk of side effects from treatments	28.6%	57.1%	14.3%	0.0%
Patient/parents do not schedule follow-up visits after being seen initially	4.8%	23.8%	38.1%	33.3%
Difficult for me to determine a diagnosis of atopic dermatitis	63.2%	36.8%	0.0%	0.0%
Lack of resources for me to provide patients with tools for managing their atopic dermatitis	23.8%	61.9%	9.5%	4.8%
Lack of time in the office for me to educate patients appropriately about managing their atopic dermatitis	20.0%	40.0%	30.0%	10.0%

Boldface percentages represent the largest frequency of responses received in each row.

TABLE II. Percentage of self-assessment AD care checklists documenting elements of care

Indicator of AD care	Phase 1 (n = 238)	Phase 2 (n = 108)	Point increase phase 1 to 2	Phase 3 (n = 143)	Phase 4 (n = 154)	Point increase phase 1 to 4
Outcomes goal: Assess AD severity						
AD severity assessed and documented*	39%	78%	+39	76%	77%	+38
Itch scale used*	1%	67%	+66	57%	51%	+50
Outcomes goal: Incorporate team-based care						
Document visit to ED for AD in last 6 mo	4%	8%	+4	5%	1%	−3
Referral made to specialist for AD	8%	4%	−4	12%	6%	−2
Outcomes goal: Provide patient education						
Home management plan provided*	52%	81%	+29	69%	66%	+14
Skin care reviewed*	89%	97%	+8	94%	90%	+1
Home moisturizing plan reviewed*	61%	93%	+32	85%	87%	+26
Chronic nature of AD reviewed*	45%	80%	+35	83%	82%	+37
Potential AD triggers discussed*	32%	66%	+34	62%	69%	+37
Outcomes goal: Prescribe medications for AD						
Received a topical corticosteroid	83%	85%	+2	86%	78%	−5
Nonsteroidal topical drug recommended/prescribed	76%	73%	−3	34%	31%	−45
Oral antiitch drug prescribed	16%	26%	+10	15%	25%	+9
Outcomes goal: Arrange for follow-up care						
Follow-up plan discussed*	52%	80%	+28	81%	80%	+28

Phase 1: Before live, multidisciplinary training on September 20, 2012 (providers were asked to “audit” 10 patients with AD seen before the training by applying the checklist).

Phase 2: September 20, 2012, and November 2012.

Phase 3: November 2012 and February 2013.

Phase 4: February 2013 and April 2013.

*Measure targeted for increase regardless of specific patient characteristics.

department (ED) visits for AD decreased between phases 1 and 4: 10 of 238 patients (4%) had visited an ED for AD in the previous 6 months in phase 1, compared with 1 of 154 patients (0.5%) in phase 4.

In self-assessment surveys administered at the conclusion of the initiative, participants were asked to describe the degree to which they had made changes in their AD care practices, and whether they thought these changes were sustainable. Nearly all (93%) the respondents said that they made at least some change in behaviors such as assessing AD severity, reviewing the chronic nature of AD with patients, and discussing follow-up plans. Most respondents felt that behavior changes outlined in the checklist were sustainable, with the exception of recommending nonsteroidal topical treatments (67%).

This 1-year educational, practice improvement initiative increased performance on target measures of quality care for children and adolescents with AD in a safety-net, primary care clinic network. Interventions and assessments were conducted during 7 months of the 1-year initiative. The limitations of this project include its quasi-experimental design, relatively short duration, and use of self-reported (vs objective) performance data. Although some improvements were maintained over the initiative, others fell off (Table III). Although ED visits for AD decreased over the course of the program, the numbers of patients with ED visits were small, limiting interpretation. Performance improvement was possible through continuous engagement with the health care team and collaborative quality improvement efforts, including tools for better care of patients

TABLE III. Percentage of providers that improved or stayed the same in relation to each checklist item, across each phase of the initiative

	Percentage of providers that improved			Percentage of providers that Stayed the same		
	Phase 1 to 2 N = 14	Phase 2 to 3 N = 12	Phase 3 to 4 N = 16	Phase 1 to 2 N = 14	Phase 2 to 3 N = 12	Phase 3 to 4 N = 16
Potential barriers to providing quality care for AD patients						
AD severity assessed and documented*	93	17	50	7	33	31
Itch scale used*	93	17	44	7	33	31
Document visit to ED in past 6 mo	43	17	0	43	42	81
Referral made to specialist for AD	14	42	31	50	58	25
Home management plan provided*	71	25	38	14	33	19
Skin care reviewed*	43	0	19	50	67	63
Home moisturizing plan reviewed*	71	8	25	7	58	56
Chronic nature of AD reviewed*	86	33	31	7	50	50
Potential AD triggers discussed*	79	25	38	21	33	19
Received a topical corticosteroid	29	42	31	21	33	19
Nonsteroidal topical drug prescribed/recommended	36	8	19	14	33	50
Oral antiitch drug prescribed	64	33	38	7	17	25
Follow-up plan discussed*	64	42	38	7	25	25

Boldface percentages indicate the largest percentage among each checklist item. *Improvement* is defined as an increase in the providers' completion of that checklist task for patients seen in a clinic visit for each interval indicated (phase 1 to phase 2, etc). Stayed the same meant that there was no change. The remaining percentage indicates how much documentation declined. For example, from phase 1 to phase 2 in the checklist item "Home moisturizing plan reviewed," 71% of the providers increased review of a plan with patients, 7% had no change, and therefore the remaining 22% decreased the number of patients with whom they reviewed a plan in that interval.

*Measure targeted for increase regardless of specific patient characteristics.

with AD that have been integrated into the clinical environment. As the feedback survey results confirm, primary care providers in safety-net clinics face multiple barriers in caring for patients with AD. However, our results demonstrate that it is possible to substantially improve performance on measures of AD care in this challenging setting through an intensive educational, practice improvement initiative.

^aOffice of Professional Education, National Jewish Health, Denver, Colo

^bDepartment of Nursing, National Jewish Health, Denver, Colo

^cDepartment of Pediatrics, National Jewish Health, Denver, Colo

This study was funded by an educational grant from GlaxoSmithKline.

Conflicts of interest: The authors have received research support from Glaxo-SmithKline and are employed by National Jewish Health.

Received for publication July 2, 2015; revised October 30, 2015; accepted for publication November 9, 2015.

Available online January 2, 2016.

Corresponding author: Sarah Meadows, MS, CHCP, National Jewish Health, 1400 Jackson St, S745, Denver, CO 80206. E-mail: meadowss@njhealth.org.

2213-2198

© 2015 American Academy of Allergy, Asthma & Immunology

<http://dx.doi.org/10.1016/j.jaip.2015.11.005>

REFERENCES

1. Odhiambo JA, Williams HC, Clayton TO, Robertson CF, Asher MI. Global variations in prevalence of eczema symptoms in children from ISAAC Phase Three. *J Allergy Clin Immunol* 2009;124:1251-8.e1223.
2. Schneider L, Tilles S, Lio P, Boguniewicz M, Beck L, Le Bovidge J, et al. Atopic dermatitis: a practice parameter update 2012. *J Allergy Clin Immunol* 2013;131:295-9.
3. Beattie PE, Lewis-Jones MS. A comparative study of impairment of quality of life in children with skin disease and children with other chronic childhood diseases. *Br J Dermatol* 2006;155:145-51.
4. Su JC, Kemp AS, Varigos GA, Nolan TM. Atopic eczema: its impact on the family and financial cost. *Arch Dis Child* 1997;76:159-62.
5. Santer M, Lewis-Jones S. Could good eczema care prevent development of other atopic conditions? *Br J Gen Pract* 2011;61:246-7.
6. Hanifin JM, Cooper KD, Ho VC, Kang S, Krafchik BR, Margolis DJ, et al. Guidelines of care for atopic dermatitis, developed in accordance with the American Academy of Dermatology (AAD)/American Academy of Dermatology Association "Administrative Regulations for Evidence-Based Clinical Practice Guidelines". *J Am Acad Dermatol* 2004;50:391-404.
7. Children's Dermatology Life Quality Index (CDLQI). Cardiff University School of Medicine Section of Dermatology website. <http://www.dermatology.org.uk/quality/cdlqi/quality-cdlqi.html>. Accessed July 9, 2012.
8. Infant's Dermatitis Quality of Life Index (IDQoL). Cardiff University School of Medicine Section of Dermatology website. <http://www.dermatology.org.uk/quality/idqol/quality-idqol.html>. Accessed October 3, 2012.

Atopic Dermatitis (AD) Visit Form

(infant through 18 years of age)

Provider Name: _____ **Date of Visit:** ____ / ____ / ____**RELEVANT TO TODAY'S VISIT:**

	Yes	No	Unknown
1. Is this an initial visit (with an RMY provider) for this condition or an episode?	☐ Y	☐ N	☐ U
2. Was eczema / AD severity assessed and documented?	☐ Y	☐ N	☐ U
3. Did the patient visit an emergency department because of AD within 6 months prior to this visit?	☐ Y	☐ N	☐ U
4. Has the patient had any skin infections (bacterial or viral)?	☐ Y	☐ N	☐ U
5. Was an itch scale used to assess itch severity?	☐ Y	☐ N	☐ U
6. Were the patient's potential AD triggers discussed?	☐ Y	☐ N	☐ U
7. Was skin care reviewed, including moisturizers?	☐ Y	☐ N	☐ U
8. Did the patient receive a topical corticosteroid?	☐ Y	☐ N	☐ U
9. Were non-steroidal topical treatments recommended or prescribed (calcineurin inhibitors or prescribed barrier creams / medical devices)?	☐ Y	☐ N	☐ U
10. Were oral anti-itch medications prescribed?	☐ Y	☐ N	☐ U
11. Was a written home management plan provided to the patient / family?	☐ Y	☐ N	☐ U
12. Did the patient receive or review a home bathing and moisturizing plan?	☐ Y	☐ N	☐ U
13. Was the chronic nature of AD and normal progression of disease reviewed?	☐ Y	☐ N	☐ U
14. Was a follow-up plan and recommended follow-up visit discussed?	☐ Y	☐ N	☐ U
15. Was a referral to a specialist made?	☐ Y	☐ N	☐ U
Comments:			

FIGURE E1. AD visit form (infant through age 18 years). A 15-item checklist was developed for use by health care providers at RMYCs to assess care of their patients with AD. Measures for AD care were selected using clinical recommendations and developed in collaboration with a multidisciplinary clinic team.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.