perceptions of easier access, less ambivalent attitudes, and parental modeling.²

Physicians interested in decreasing indoor tanning in young patients should be aware of the mother’s tanning status. Parents are often willing health educators, and previous parent-based interventions have resulted in reductions in sunbathing activity in middle-school children.⁹ Interventions directed at mothers before the child initiates tanning have the potential to lead to reduced tanning in the mother and reduced tanning initiation and frequency in the child. Informing mothers of the risks of tanning and the strong influence their tanning behavior will have on their child’s current and future risks may have significant effects, ultimately resulting in less UV exposure.

As 31.7% of our sample indoor tanned with a friend during their first experience, future interventions should target peers as well as mothers. We must note that this study is limited by its relatively small sample size, and future studies need to confirm these findings in a wider population.

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A Randomized Controlled Pilot Study of the Effects of an Extra Office Visit on Adherence and Outcomes in Atopic Dermatitis

Medication adherence has a tendency to increase around the time of follow-up visits, a phenomenon known as “white coat compliance.”¹¹ By scheduling a follow-up visit shortly after starting therapy, physicians may be able to stimulate patients to maintain an appropriate level of adherence. We performed a randomized clinical pilot study to assess the impact of an early follow-up visit as a means of improving patient adherence to topical therapy.

Methods. After receiving approval from the Wake Forest University institutional review board, we enrolled 30 subjects with moderate to severe atopic dermatitis (AD) in a randomized, open-label pilot study. Subjects, aged 2 to 15 years, were required to have AD affecting more than 5% of their body surface area and a moderate or severe rating by Investigator Global Assessment (IGA)² (scale, 0-4). Subjects were excluded if they had used other prescription therapies for AD within 2 weeks of enrollment.

See Practice Gaps at the end of this letter

Subjects were randomized to 1 of 2 groups. Subjects in the extra visit group were scheduled follow-up visits at weeks 1 and 4. Subjects in the control group were scheduled only for a week 4 visit. All subjects were given topical tacrolimus, 0.03%, ointment (Protopic; Astellas Pharma US Inc, Deerfield, Illinois) to apply to affected body areas twice daily for 4 weeks.

Adherence was assessed by Medication Event Monitoring Systems (MEMS; Aardex Corp, Freemont, California) cap technology. The MEMS cap has a microprocessor inside that records the date and time of every tube opening. Clinical efficacy was assessed at each visit using the IGA, the Eczema Area and Severity Index (EASI),³ and the IGA, the Eczema Area and Severity Index (EASI).³ All statistics were performed using SAS statistical software, version 9.1 (SAS Institute, Cary, North Carolina).

Results. Treatment with tacrolimus, 0.03%, ointment was well tolerated, and no serious adverse events were reported. Thirty subjects were enrolled in the 4-week study (Table). Twenty-six subjects completed the study and were evaluated for clinical efficacy, and 20 of these 26 had usable MEMS data for adherence analysis (Figure 1).

Adherence ranged from 39% to 114% in the extra visit group and 15% to 79% in the control group. Overall, mean
adherence was 69% in the extra visit group and 54% in the control group. Mean adherence in the extra visit group decreased from 88% at week 1 to 50% by week 4, while mean adherence in the control group decreased from 83% at week 1 to 43% by week 4 (Figure 2). The difference in percentage adherence between the groups did not reach statistical significance (Kruskal-Wallis test, \( P > .05 \)). No correlation was found between adherence and clinical outcomes or between baseline disease severity and adherence.

Baseline severity was similar between the 2 groups (Kruskal-Wallis test for difference in IGA, VAS, and EASI scores between groups, \( P > .10 \)). Both groups had significant improvements in all assessments by week 4 (\( P < .01 \)). There was no difference between the groups in the percentage of subjects achieving clear or almost clear status on IGA (Fisher exact test, \( P > .10 \)). The mean percentage improvement in the VAS and EASI scores for the control group were 36% and 45%, respectively (Figure 3). The mean percentage improvement in the VAS and EASI scores for the extra visit group were 65% and 76%, respectively. The extra visit group showed better improvements in outcomes than the control group, although the difference did not reach statistical significance (\( P = .06 \) for the difference in EASI outcomes).

Comment. Nonadherence rather than nonresponse is a common cause of treatment failure in children with AD. Forgetfulness, change in disease severity, lack of efficacy, and fear of potential medication adverse effects are common reasons for medication nonadherence.\(^3,6\) In our study, it is possible that the increased adherence noted at 1 week led to disease improvement, which then suppressed adherence later in the month.

This pilot study was not powered to detect small differences in adherence or outcomes. The better adherence in the extra visit group, while not statistically significant, suggests an opportunity to improve outcomes using an extra office visit. This study provides impor-

### Table. Baseline Demographic Characteristics of the 2 Study Groups\(^a\)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Control (n=17)</th>
<th>Extra Visit (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>6.9 (4.4)</td>
<td>5.4 (3.6)</td>
</tr>
<tr>
<td>Male, No. (%)</td>
<td>10 (59)</td>
<td>3 (23)</td>
</tr>
<tr>
<td>White, No. (%)</td>
<td>20 (65)</td>
<td>23 (77)</td>
</tr>
<tr>
<td>IGA</td>
<td>3.1 (0.3)</td>
<td>3.9 (0.4)</td>
</tr>
<tr>
<td>SGA</td>
<td>4.9 (0.3)</td>
<td>5.0 (0.0)</td>
</tr>
<tr>
<td>VAS</td>
<td>69 (27)</td>
<td>67 (21)</td>
</tr>
<tr>
<td>EASI</td>
<td>9.1 (5.6)</td>
<td>7.5 (4.8)</td>
</tr>
</tbody>
</table>

Abbreviations: EASI, Eczema Area and Severity Index; IGA, Investigator Global Assessment; SGA, Subject’s Global Assessment of Response to Treatment; VAS, visual analog scale.

\(^a\)Unless otherwise indicated, data are presented as mean (SD) values. There were no statistical differences in any baseline characteristic between the groups (\( P > .05 \) for all comparisons).

Figure 2. Mean adherence over time. We assessed adherence behavior in the 2 study groups at each week of the study. Over 4 weeks, adherence rates decreased in both groups. While there was a large drop in adherence in the control group by week 2, this difference did not reach statistical significance at any time (Wilcoxon rank sum and Kruskal-Wallis tests, \( P > .05 \) at each time point). Adherence of 100% required twice-daily applications.

Figure 3. Mean percentage improvement in objective assessments. Both groups had significant improvements in all assessments by week 4 (Wilcoxon signed rank test, \( P = .01 \)). There was a better mean percentage improvement in the extra visit group, but the difference did not reach statistical significance (Wilcoxon rank sum test, \( P = .06 \)). Error bars indicate 95% confidence intervals, and negative improvement indicates worsening assessment.
tant preliminary data that can be used to power a larger and longer trial to confirm these hypotheses.

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**PRACTICE GAPS**

**Failure to Maximize Patient Adherence Strategies in Clinical Practice**

Patient adherence to topical medications averages only 25% to 35%. Sagransky et al found that an additional office visit 1 week after the initial consultation was associated with higher medication adherence in patients with atopic dermatitis. While this difference did not reach statistical significance, and trials with larger sample sizes are necessary to examine the precise impact of this intervention, the pilot study presents an opportunity to deliberate on the failure to maximize adherence strategies in clinical practice and the role of dermatologists and their medical staff in implementing these strategies.

Although increasing evidence suggests that nonadherence is a major contributor to perceived treatment failure, few studies have evaluated whether dermatologists are using methods to increase adherence in real-world practice.

Interventions by dermatologists to improve patient adherence can be categorized into nonpharmacologic and pharmacologic approaches. Nonpharmacologic approaches include patient education, reminders, frequent follow-ups, and encouragement of self-monitoring. Pharmacologic interventions include simplification of medication regimens and consideration of patient preferences in choosing formulations for more individualized therapy.

Patient education has been the primary nonpharmacologic approach studied to increase adherence. Patient education will be more effective if it begins with identification of patients’ perceptions and misperceptions regarding medications. This type of tailored counseling may help patients overcome misconceptions that contribute to nonadherence. While most dermatologists would agree that good clinical practice includes giving patients clear and detailed instructions on the proper use of medications and their associated adverse effects, short encounter times in most practices make such face-to-face counseling challenging. Therefore, innovative methods for disseminating patient educational materials need to be considered. For example, educational materials for commonly recommended topical agents may be posted on a practice’s Web site as either static text-based Web pages or instructional videos. The nonvideo online materials could also be printed and handed to patients during the visit. As a systems solution, electronic medical record systems may be configured to create automated and customizable patient educational materials that are linked to prescription orders and delivered to patients with their prescription. For practices that are primarily paper based, hard-copy handouts are still a time-honored means of con-