Approximately 1.2 million Americans have moderate to severe psoriasis, a chronic, inflammatory disease of the skin and joints that has substantial impact on health-related quality of life and is associated with excess cardiovascular risk and mortality.1 Despite the rapid growth of treatments for psoriasis, insufficient data exist to distinguish between first- and second-line therapies. Thus, as emphasized by the Institute of Medicine,2 there exists a critical need for comparative effectiveness research (CER) in psoriasis treatment. Since a crucial component of CER is to identify the priorities of stakeholders such as physicians, we conducted a study to describe US dermatologists’ preferences for which treatments to compare in future randomized controlled trials (RCTs) in moderate to severe psoriasis.

Methods. We surveyed 1000 US dermatologists (500 National Psoriasis Foundation [NPF] members and 500 American Academy of Dermatology [AAD] members who self-reported that they treat psoriasis) as part of a larger study on preferences for psoriasis therapy. Dermatologists were asked to select 3 treatments they would most like to compare in an RCT for moderate to severe psoriasis from a list of 10 US Food and Drug Administration (FDA)–approved biological and oral systemic treatments and phototherapies (Figure 1). The order of treatment listings was randomized in 6 ways to reduce bias. Detailed data on the survey methods have been published elsewhere.3,4 The study was approved by the University of Pennsylvania institutional review board and conducted from May to August 2010.

The primary outcome was dermatologists’ preferences for treatments to compare in an RCT, as indicated by each treatment’s cumulative frequency of first, second, or third choice selection. Preferences were summarized descriptively and compared with respect to major provider characteristics.

Results. We received questionnaire responses from 387 dermatologists (39% response rate). Responding dermatologists were mostly male (72%), NPF members (64%), and private practitioners (70%). Respondents were similar to nonrespondents with respect to sex, duration of practice, and geographic region. Additional data on respondents’ baseline characteristics have been previously described.4 Of note, respondents indicated that a median of 90% of their patients with psoriasis being treated with systemic medications or phototherapy also concurrently used topical agents by prescription.

The treatments dermatologists most wanted to compare in an RCT were etanercept (58.7% [95% CI, 53.6%-63.6%]), adalimumab (50.9% [95% CI, 45.8%-56.0%]), ustekinumab (50.1% [95% CI, 45.0%-55.2%]), and methotrexate (45.5% [95% CI, 40.4%-50.6%]) (Figure 2). When preferences were stratified by provider characteristics, including sex, NPF vs AAD membership, geographic region, duration of practice, practice setting, duration of membership in the NPF, and duration of membership in the AAD, the top preferences remained consistent. The most commonly selected treatments were etanercept, adalimumab, and ustekinumab, followed by methotrexate. In general, preferences were consistent across provider characteristics with the exception of sex and practice setting, where men were more likely to select etanercept and women were more likely to select methotrexate.

1. Which three treatments would you most like to see compared in a randomized controlled trial for moderate-to-severe psoriasis?

Please rank your top three choices by filling in one circle in each column below:

<table>
<thead>
<tr>
<th>Treatment</th>
<th>1st Choice</th>
<th>2nd Choice</th>
<th>3rd Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phototherapy (PUVA)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Phototherapy (UV-B)</td>
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<tr>
<td>Acitretin</td>
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<tr>
<td>Cyclosporine</td>
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<tr>
<td>Methotrexate</td>
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<tr>
<td>Adalimumab</td>
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<td>Alefacept</td>
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<tr>
<td>Etanercept</td>
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<td>Infliximab</td>
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<td>Ustekinumab</td>
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<tr>
<td>Other (Please specify):</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Figure 1. Questionnaire item assessing dermatologists’ preferences for treatments to include in future trials. Note that treatment options were randomized in 6 different orders to reduce bias. PUVA indicates psoralen plus UV-A.

Figure 2. Preferences for treatments to compare in a randomized controlled trial. Error bars indicate 95% CIs. PUVA indicates psoralen plus UV-A.
tice type, patient volume, and infusion center affiliation, the top 4 overall treatments remained the same, although the order of treatments within the top 4 occasionally differed. The presence of phototherapy units in the practice affected the degree of preference for including UV-B phototherapy in CER trials: 34.1% (95% CI, 28.3%-40.3%) of dermatologists with phototherapy units vs 14.6% (95% CI, 8.9%-22.1%) of dermatologists without phototherapy units selected UV-B therapy. However, the top 4 overall treatments were the same regardless of phototherapy availability.

Comment. Our results indicate that US dermatologists who treat psoriasis prefer to compare the newer subcutaneously administered tumor necrosis factor inhibitors and interleukin-12/23 inhibitor and the traditional oral systemic methotrexate in future CER trials. Etanercept, adalimumab, and ustekinumab gained FDA approval for plaque psoriasis in 2004, 2008, and 2009, respectively. Methotrexate, however, has been widely used since its approval in 1972.

Notably, our research group had previously observed that UV-B was the most preferred first-line treatment by dermatologists who treat psoriasis, followed by etanercept, adalimumab, and methotrexate, while UV-B was only the fifth most requested treatment for RCT inclusion among these providers. Ustekinumab, on the other hand, was the third most requested treatment to include in CER trials but was ranked as only the sixth most preferred first-line treatment for moderate to severe psoriasis.

Our results also indicate that the concurrent use of prescription topical agents with systemic or phototherapy is common, but most RCTs have prohibited combination therapy. Thus, for CER trials to reflect real-world practice, permitting the concomitant use of topical prescription therapy should be considered.

Our findings are highly informative for future trial design because they represent the priorities of hundreds of US dermatologists who actively treat patients with psoriasis. Future studies should examine the priorities of other stakeholders, such as payers and patients, and other elements of CER trial design, such as primary efficacy outcomes, safety end points on which to discriminate, and treatment duration.

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Author Contributions: Ms Wan and Dr Gelfand had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Abuabara, Van Voorhees, Bebo, Krueger, Callis Duffin, and Gelfand. Acquisition of data: Abuabara, Shin, Krueger, and Gelfand. Analysis and interpretation of data: Wan, Troxel, Shin, and Gelfand. Drafting of the manuscript: Wan. Critical revision of the manuscript for important intellectual content: Wan, Abuabara, Troxel, Shin, Van Voorhees, Bebo, Krueger, Callis Duffin, and Gelfand. Statistical analysis: Wan, Troxel, Shin, and Gelfand. Obtained funding: Krueger and Gelfand. Administrative, technical, and material support: Wan, Abuabara, Shin, Bebo, Krueger, and Gelfand. Study supervision: Gelfand.

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A major challenge faced daily by clinical dermatologists is to determine which pigmented lesions are appropriate for biopsy. The present study was designed to determine the effect of guidance provided by a multispectral digital skin lesion analysis (MSDSL A) device (MelaFind; MELA Sciences Inc) on dermatologists’ decision to biopsy a pigmented lesion and the impact of the information provided by the device on the associated melanoma biopsy sensitivity and specificity. MelaFind uses light from visible to near-infrared wavelengths to image up to 2.5 mm beneath the skin and analyzes images from subbands of these wavelengths to provide information about the lesion’s level of structural disorder. The device provides an output of “positive” or “negative” as an additional piece of data that can be integrated into the biopsy decision.

Methods. A total of 179 practicing dermatologists (median duration of practice, 11-15 years) attending an educational conference participated in an interactive melanoma session. Participants were asked to evaluate 24 pigmented lesions (5 melanomas and 19 other pigmented lesions) that had been analyzed as part of a prior study using a MSDSL A system. To make the experience more clinically realistic, the lesions were grouped from 4 composite patients, each having 6 lesions, with matching historic and clinical characteristics. Patient histories were presented, and then distant and close-up clinical and dermoscopic images of each of the lesions were viewed.

Each dermatologist responded yes or no on an electronic keypad to the following question: “Would you biopsy this lesion?” Then, the MSDSL A system information was provided, and the participant responded to this question: “Would you now biopsy this lesion?” Individual responses before and after MSDSL A information were compared to determine the effect of the MSDSL A information on the biopsy decision. The study was deemed exempt by the institutional review board of New York University.

Results. For 179 dermatologists, the MSDSL A information improved the average biopsy sensitivity for the 5 melanomas from 69% prior to receiving the MSDSL A information to 94% after receiving the information (P < .001) (Figure 1). Biopsy specificity declined from 54% before to 40% after MSDSL A information receipt (P < .001). Biopsy rates of lesions that were MSDSL A negative fell from 43% before to 25% after MSDSL A information receipt (P < .001). Of the 4 lesions that were not evaluable by the MSDSL A system, biopsy rates went from 37% before to 42% after the dermatologists learned that no MSDSL A information would be available (P = 16, showing neither a positive nor negative effect when the system provided no additional information).

Integration of the MSDSL A data into the biopsy decision process also led to a more uniform decision by the dermatologists. The multirater k statistic for interobserver agreement improved from 0.32 before to 0.45 (fair to moderate) after receipt of the additional information provided from the MSDSL A system.

The changes in biopsy decisions made as a result of integrating the MSDSL A device increased the overall biopsy sensitivity with a concomitant lesser decrease in over-