Measuring Impact of *JAMA Dermatology* Practice Gaps Section on Training in US Dermatology Residency Programs

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**Importance.** *JAMA Dermatology* Practice Gaps commentaries are intended to aid in the interpretation of the literature to make it more practical and applicable to daily patient care. Practice Gaps commentaries have had an impact on physician clinical practice and dermatology residency curricula.

**Objective.** To assess the impact of *JAMA Dermatology* Practice Gaps commentaries on dermatology residency training programs in the United States, including journal club discussions and local quality improvement activities.

**Design, Setting, Participants.** A web-based questionnaire of 17 questions was sent via e-mail to US dermatology residency program directors (PDs) in February 2012.

**Main Outcomes and Measures.** Program director report of incorporating Practice Gaps themes and discussions into resident journal club activities, clinical practice, quality improvement activities, or research projects in the residency programs, as a result of a Practice Gaps commentary.

**Results.** Of the 114 surveys distributed to US dermatology residency PDs, 48 were completed (42% response rate). Sixty percent of PDs reported familiarity with the Practice Gaps section of *JAMA Dermatology*, and 56% discuss these commentaries during resident journal club activities. Quality improvement and research projects have been initiated as a result of Practice Gaps commentaries.

**Conclusions and Relevance.** Practice Gaps commentaries are discussed during most dermatology residency journal club activities. Practice Gaps have had an impact on physician practice and dermatology residency curricula and can serve as a tool for enhanced continuing medical education and quality improvement initiatives.

Box. Practice Gaps in Dermatology

Gaps in Medical Dermatology

**Therapy**
- Failure to screen or monitor liver function test results in patients receiving ketoconazole for more than 1 week or itraconazole for any length of time
- Failure to recognize and treat patients with drug reaction eosinophilia and systemic symptoms (DRESS)
- Failure to attempt discontinuation of dapsone therapy and reintroduction of dietary gluten in patients with dermatitis herpetiformis in long-standing remission
- Underrecognition that some commercial sunscreen products have inadequate sunscreen concentrations to be protective when recommending sunscreen products to patients
- Underprescribing antimalarial agents as first-line therapy in reticular erythematous mucinosis
- Failure to identify when therapy for one skin disease is likely to exacerbate another coexisting skin condition
- Failure to avoid concurrent immunosuppressive agents when possible when prescribing rituximab for autoimmune blistering diseases because of elevated mortality
- Underprescribing gabapentin to prevent postherpetic neuralgia in patients older than 50 years with acute zoster pain scores higher than 4 of 10
- Failure to optimize antimalarial agents for cutaneous lupus before selecting more potentially dangerous drugs
- Failure to identify the ideal dosing strategy of intravenous immunoglobulin in patients with toxic epidermal necrolysis
- Use of intravenous immunoglobulin to treat patients with DRESS should be avoided

**Screening and Prevention**
- Failure to target men older than 50 years for melanoma screening examinations
- Failure to prescribe bisphosphonates, calcium, and/or vitamin D in patients receiving long-term glucocorticoid therapy for dermatologic diseases
- Failure to train and encourage other health care providers to perform a skin examination on white men older than 50 years
- Failure to screen for metabolic syndrome in patients with who are smokers, leading to underrecognition and undertreatment of these comorbid diseases
- Failure to include discussions and review of systems regarding inflammatory bowel disease in patients taking isotretinoin
- Underscreening Hispanics leads to delayed melanoma diagnosis and greater mortality
- Failure to screen for genital lichen sclerosus in patients with morphea
- Hispanic and black patients have been disproportionately affected by later stage at melanoma diagnosis and higher melanoma-related mortality
- Failure to counsel patients with nonmelanoma skin cancer about tobacco cessation
- Failure to test lipid levels in patients with granuloma annulare

**Office Diagnostics**
- Failure to compare dermoscopy findings of clinically suspicious pigmented lesions to other nevi on your patient before deciding next action
- Failure to perform enzyme-linked immunosorbent assay instead of indirect immunofluorescence to confirm diagnosis of bullous pemphigoid
- Underutilization of dermoscopy in diagnosis of hair disorders
- Failure to overcome logistical and interpersonal barriers to perform dermoscopy on genital and mucosal lesions
- Inadequate ability to interpret significance of patch test results in the preimplant and postimplant orthopedic patient receiving an artificial joint
- Lack of availability of and incorporation into practice of measure and tools that assess progression and/or reversal of cutaneous fibrosis in an objective and efficient manner

Gaps in Communication

**Patient Education**
- Failure to counsel patients about sun protection related to an active outdoor life not involving sunbathing
- Failure of health care providers and dermatologists to screen for and counsel patients against indoor tanning
- Failure to counsel patients with psoriasis against smoking and alcohol intake
- Failure to incorporate strategies in the office to improve patient adherence to regimens
- Failure to provide appropriate patient education materials to non-English-speaking patients
- Failure to provide adequate patient education, including justification, for skin self-examination and regular dermatologic screening in patients with kidney transplant
- Failure to use multicultural patient education strategies and materials to reinforce sun-safe behaviors
- Failure at times to involve patients in care plan decision making, provide clear patient instructions, and clearly answer patient questions

**Professional Behavior**
- Failure to establish a strong therapeutic rapport with delusional patients

**Risk Factor Identification**
- Failure to modify melanoma counseling to accommodate sex-specific issues in sun protection behavior and subsequent quality of life impact

Gaps in Procedural Dermatology

**Therapy**
- Variance in the management of high-risk squamous cell carcinoma
- Lack of clarity for indications and value for sentinel lymph node biopsy in patients with melanoma
- Lack of standardized training and performance of electrodessication and curettage for treating nonmelanoma skin cancer
- Inability to determine ideal abobotulinum toxin dilution to maximize effect
- Lack of evidence-based algorithms for the treatment of nonmelanoma skin cancer leads to regional variations of care
- Failure to use Mohs micrographic surgery for the treatment of dermatofibrosarcoma protuberans

**Screening and Prevention**
- Failure to screen for ocular complications in patients with severe atopic dermatitis

**Office Diagnostics**
- Removing too many pigmented nevi in the pediatric population based on the criteria of “a changing mole”

(continued)
Box. Practice Gaps in Dermatology (continued)

Gaps in Dermatopathology
Office Diagnostics
• Failure to submit adequate biopsy specimens to dermatopathologists
• Overreliance by dermatologists and pathologists on tissue eosinophilia to diagnose drug eruptions
Communication With Other Professionals
• Failure to maximize use of clinical photography to assist dermatopathologist interpretation of pathologic specimens

Gaps in Professionalism
Professional Behavior
• Failure to consider what patients think you should wear in the office and failure to regularly launder your white coat
Biases
• Failure of dermatologists to identify potential biases and motives when reviewing the literature or literature-based recommendations

Gaps in Systems-Based Practice
Communication With Other Professionals
• Underappreciation of potential interprofessional communication with hair salon professionals to increase earlier recognition and referrals of skin cancers on the head and neck
Access
• Failure to use teledermatology to improve dermatologic access because of real and perceived barriers

Gaps in Practice-Based Learning and Improvement
Quality of Life
• Failure to incorporate quality of life assessments as an objective measure of treatment success

References to the articles describing the practice gaps can be found in eAppendix 2 of the Supplement.

Many practicing dermatologists review dermatology journals regularly. Many also participate in structured journal reviews (journal clubs). Regular structured journal reviews are required in US dermatology residency training programs. To assess the initial perceived impact of this new Practice Gaps section, we chose to survey dermatology residency training programs as a geographically diverse population of journal club participants. The goal of this study was to assess the attitudes and perceived impact of the first 15 months of Practice Gaps commentaries on US dermatology residency programs that regularly review JAMA Dermatology.

Methods
This study was exempted from review by Marshfield Clinic’s institutional review board. Program directors (PDs) of US dermatology residency programs were solicited through the e-mail list-serve of the Association of Professors of Dermatology, an organization of PDs, chairpersons of academic dermatology departments and divisions, and faculty involved in academic dermatology in the United States. A web-based questionnaire of 17 questions comprised the survey (eAppendix 1 in the Supplement), which was sent to all 114 PDs of US residency programs accredited by the Accreditation Council of Graduate Medical Education through an e-mail solicitation that included a survey hyperlink. Program directors were given 2 weeks to complete the survey, with an e-mail reminder sent after 1 week. Survey questions assessed basic program demographic data including region of country and residency program size. In addition, PDs reported journal club activity and department actions taken as a direct result of Practice Gaps commentaries. Descriptive statistics were tabulated, including totals and percentages, using Excel software (Microsoft Corporation, 2010).

Results
Respondent Demographics
A total of 48 dermatology residency PDs responded to the survey, for a response rate of 42%. There were PDs from each region of the United States and from varying sizes of residency programs. The Table summarizes the demographic characteristics of responding PDs and their residency programs.

Survey Results
JAMA Dermatology is regularly reviewed during journal club by 96% of programs, with the PD or other faculty members leading the journal club discussion in 79% of programs. One or more additional full-time faculty participates in 96% of journal clubs when JAMA Dermatology is discussed. Part-time or
contributed-service faculty also participates in 48% of journal clubs. We were unable to determine how often residents were performing journal club without faculty present. One quarter of the respondents indicated that their journal club was approved for continuing medical education (CME) credit for their faculty.

Sixty percent of journal club leaders were familiar with the JAMA Dermatology Practice Gaps section, with 56% responding that they either sometimes, usually, or always purposefully discuss the Practice Gaps commentaries during resident journal club activities. Also, 60% of PDs responded that they either sometimes, usually, or always specifically assign their groups to read the gap-triggering article that precedes the Practice Gaps commentary. In addition, 70% of PDs apply the concept of practice gap identification in articles from other journals reviewed during journal club.

Fifteen percent of PDs reported that they had changed their personal practices as a direct result of a Practice Gaps commentary. Several examples of practice changes provided by PDs include the following: looking for lichen sclerosus in patients with morphea, performing more thorough melanoma screening in patients with skin of color, prescribing gabapentin in patients with herpes zoster to prevent postherpetic neuralgia, and performing formal range of motion measurements in patients with sclerosing and fibrosing diseases.

When polled about the current quality improvement curriculum in their residency program, 71% of PDs reported that they have specific quality improvement projects performed throughout their department or division, and residents actively participate in the projects. Dermatology residents were involved in proposing and designing quality improvement initiatives in 53% of responding programs. In addition, 8% and 4% of PDs reported that a quality improvement or research project, respectively, had been initiated as a result of Practice Gaps commentaries. Examples of quality improvement projects that have been initiated as a result of Practice Gaps commentary include modifying the template isotretinoin review of systems to include inflammatory bowel disease symptoms, improving education materials for non-English–speaking patients, and addressing bone protection in patients prescribed corticosteroids.

Discussion

Of the 56 Practice Gaps commentaries published between October 2010 and December 2012, 46 were published before the survey. At least 1 commentary had been published in each of the competency areas, including medical dermatology (n = 28), interpersonal and communication skills (n = 10), procedural dermatology (n = 6), pediatric dermatology (n = 4), dermatopathology (n = 3), professionalism (n = 2), systems-based practice (n = 2), and practice-based learning and improvement (n = 1) (Figure 1). In addition to core competencies, the Practice Gaps commentaries can be further categorized by topic area, including gaps related to therapy (n = 19), screening and prevention (n = 12), office diagnostics (n = 8), patient education (n = 8), communicating with other professionals (n = 2), professional behavior (n = 2), access to care (n = 1), biases (n = 1), disease monitoring (n = 1), risk factor identification (n = 1), and quality of life (n = 1).

Practice Gaps commentaries are being incorporated into resident journal club activities. Typical Practice Gaps discussions include opportunities for change in practice, the validity (or invalidity) of the gap, and the relevance to the local patient population. The concept of identifying practice gaps is extending beyond JAMA Dermatology to other journals reviewed during resident journal club.

In the attempt to interpret the current literature into a more explicitly practical application for daily practice, Practice Gaps commentaries have changed practice and triggered both quality improvement and research projects in some residency programs.

As medicine enters the era of patient-centered quality outcomes measures, Maintenance of Licensure, and Maintenance of Certification, more practice assessment and quality improvement projects will be required. Dermatology professionals will need to develop and incorporate quality improvement projects into their practices. The majority of the responding programs are already incorporating either dermatology-specific or institution-wide quality improvement curricula within their training programs. The Practice Gaps commentaries can be a resource to help identify practice gaps within...
one’s practice, from which quality improvement projects can arise (Figure 2).

The Accreditation Council for Continuing Medical Education, the accrediting authority on CME in the United States, requires CME providers, like the American Academy of Dermatology, to design and plan CME activities that help close practice gaps for dermatologists.13,14 Currently, a quarter of the responding residency programs already have their journal club approved for CME credit for the faculty. The discussion of Practice Gaps commentaries can be used as a gap-identifying, and possibly also as a gap-closing, CME activity. This may help the institution reach a higher CME accreditation status and elevate dermatology’s value to the CME program and to the institution.

Limitations

There are several limitations to this study. Because only 42% of programs responded, our data may not be representative of all dermatology residency programs. Practice Gaps commentary discussions in residency journal clubs in academic departments may not exert the same influence on subsequent practice compared with the change experienced by other dermatologists reading journals with or without formal group journal discussions. Two-thirds of this study group already receives education in quality improvement, and some programs already require residents to select quality improvement projects. This may influence and overestimate the impact of Practice Gaps on this study group. Additional study of the impact of Practice Gaps commentaries on the practices of dermatologists practicing outside of academic departments is warranted.

The Future of Practice Gaps

There is a paucity of published data on dermatologist performance in practice.2 Ideally, it is this performance data, rather than the presumed performance of dermatologists, that should support the resulting Practice Gaps commentary.

There should be greater effort and transparency by clinician scientists to measure physician practice performance in areas where the literature suggests a gap may exist. To do so would give the dermatology community a general baseline performance assessment that defines the gap to improve. Many CME programs and their dermatology activities could assist by assessing audiences’ performance in practice through well-constructed, practical questions about clinician practice, such as, for example, “Do you prescribe bisphosphonates? If not, why not?” “Do you contact the primary care physician for every patient in which you diagnose melanoma?”

The best practice gaps are not identified through extrapolation and expert opinion but by measuring what is actually happening in the trenches of clinical practice. Audi-
ence response systems, national disease registries, disease claims data, comparative effectiveness findings, and baseline measures from large-group performance improvement CME activities can be useful. Journals have the ability to prioritize, solicit, and provide strong consideration to those studying and reporting on performance in practice. Clinical researchers and their funding sources should consider this as valuable in the current age of quality assessment and improvement. The future direction of clinical research should necessarily include the study and assessment of how and what dermatology care is delivered.

Conclusions

This study indicates that the JAMA Dermatology Practice Gaps commentaries are being incorporated into residency journal club activities and that they have had an impact on physician clinical practice and dermatology residency curricula. Practice Gaps commentaries are intended to interpret the literature to make it more practical and applicable to daily patient care and can add value to the CME provider as well as serve as a source of quality improvement initiatives.