

## Original Investigation

# 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.

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A practice gap is the gap between what the medical professional is doing or accomplishing in clinical practice (current reality) compared with what is or should be achieved in practice based on the best available evidence or professional knowledge.<sup>1</sup> The Practice Gaps section in *JAMA Dermatology* was launched in October 2010.<sup>2-8</sup> The purpose of the Practice Gaps section was to highlight gaps in dermatology knowledge, competence, performance, or patient outcomes supported or suggested in articles found in each month's issue of *JAMA Dermatology*. In addition to highlighting the problems occurring in practice, Practice Gaps suggest methods to close these gaps and to identify potential barriers to overcoming them.

Dermatology Practice Gaps attempt to practically interpret the preceding literature in an action-oriented manner, answering the question "What change to my practice might the gap-triggering article suggest I make?" In addition, Practice

Gaps are designed to trigger introspection by the practitioner, stimulate discussion among colleagues, launch practice gap-closing quality improvement activities, and stimulate more research to support or refute the gap discussed.

Practice gaps may be classified into 1 or more of the 6 competency areas of the American Board of Medical Specialties.<sup>9</sup> These competencies include patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice. The American Board of Dermatology adopted these 6 competencies and further categorized medical knowledge and patient care competencies into 1 of 4 focus areas pertinent to the specialty: medical dermatology, pediatric dermatology, procedural dermatology, and dermatopathology. During the first 26 months of implementing the Practice Gaps concept, a total of 56 Practice Gaps commentaries were published in *JAMA Dermatology* (Box).

## 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 psoriasis, 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 sclerosis 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 electrodesiccation 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

### Gaps in Pediatric Dermatology

#### Therapy

- Failure to identify the ideal duration of antibiotic treatment to maximize patient improvement and minimize bacterial resistance in patients with acne
- Possible undertreatment by pediatricians and overtreatment by dermatologists in patients with pediatric psoriasis

#### 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.<sup>10</sup> 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.<sup>11</sup> A web-based questionnaire of 17 questions comprised the survey (eAppendix 1 in the Supple-

Table. Demographic Characteristics of 48 Program Directors and Their Residency Programs

| Characteristic  | Participants, No. (%) | Potential Respondents From the Region, % |
|---|-----------------------|--|
| Region  |                       |  |
| Northeast (Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, District of Columbia)               | 16 (33)               | 50                                       |
| Midwest (Iowa, Indiana, Illinois, Kansas, Michigan, Minnesota, Missouri, North Dakota, Nebraska, Ohio, South Dakota, Wisconsin)   | 12 (25)               | 50                                       |
| South (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, Puerto Rico) | 15 (31)               | 48                                       |
| West (Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming)   | 5 (10)                | 29                                       |
| No. of residents in the program   |                       |  |
| 0-3   | 1 (2)                 | NA                                       |
| 4-6   | 9 (19)                | NA                                       |
| 7-12  | 26 (54)               | NA                                       |
| 13-21   | 10 (21)               | NA                                       |
| >21   | 2 (4)                 | NA                                       |

Abbreviation: NA, not applicable.

ment), 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

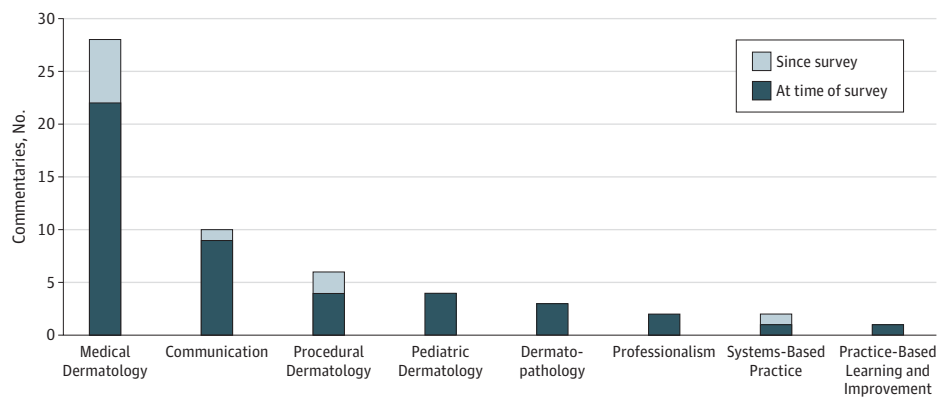
### Respondent Demographics

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.<sup>12</sup> 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

Figure 1. Practice Gaps Commentaries by Competency



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 curricula 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 a 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

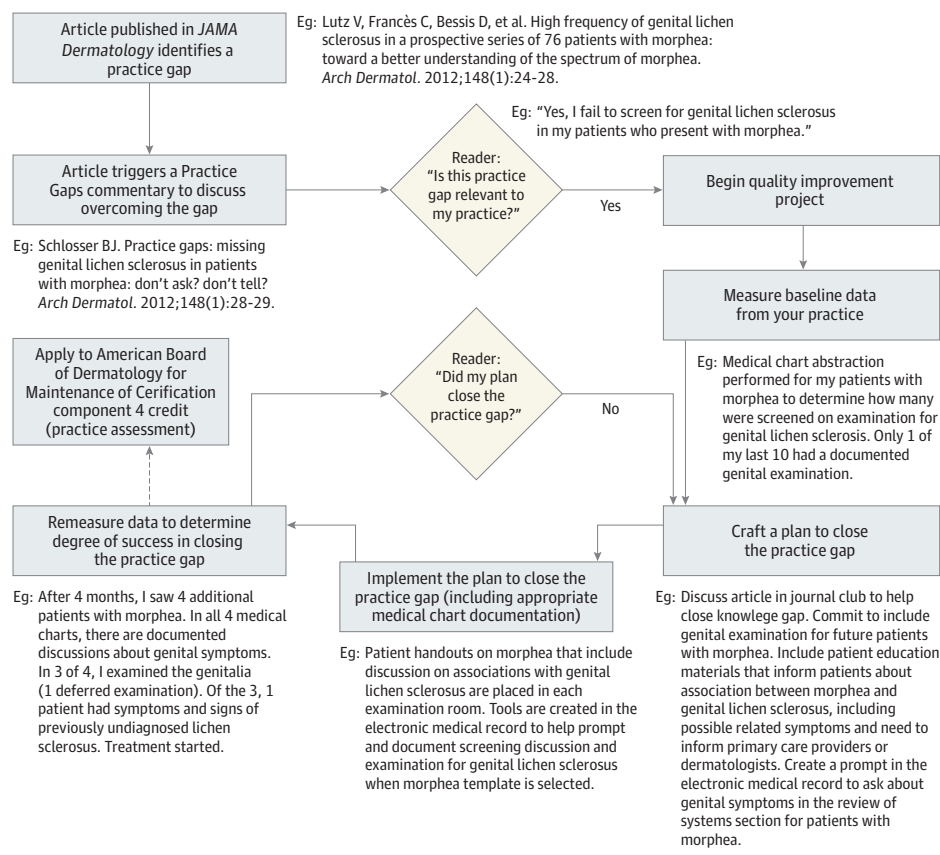
Of the 56 Practice Gaps commentaries published between October 2010 and December 2012, 46 were published before the survey. At least 1 commentary had been published in each of the competency areas, including medical dermatology (n = 28), interpersonal and communication skills (n = 10), procedural dermatology (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.<sup>9</sup> 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

**Figure 2. Flow Diagram Demonstrating How a Practice Gaps Article May Trigger a Local Quality Improvement Project**



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.<sup>13,14</sup> 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 proj-

ects. 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.<sup>3</sup> 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.

### ARTICLE INFORMATION

**Accepted for Publication:** January 27, 2013.

**Author Contributions:** Dr Stratman had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

*Study concept and design:* Britton, Stratman.

*Acquisition of data:* Britton, Stratman.

*Analysis and interpretation of data:* Britton, Stratman.

*Drafting of the manuscript:* Britton, Stratman.

*Critical revision of the manuscript for important intellectual content:* Britton, Stratman.

*Administrative, technical, and material support:* Britton, Stratman.

*Study supervision:* Stratman.

**Conflict of Interest Disclosures:** None reported.

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## Supplementary Online Content

Britton KM, Stratman EJ. Measuring impact of *JAMA Dermatology* Practice Gaps section on training in US dermatology residency programs. *JAMA Dermatol*. doi:10.1001/jamadermatol.2013.389

**eAppendix 1.** Dermatology Practice Gap Survey Questions

**eAppendix 2.** Referenced Practice Gap Articles

This supplementary material has been provided by the authors to give readers additional information about their work.

## eAppendix 1

### Dermatology Practice Gap Survey Questions

- 1) Does your residency program journal club include regular review of Archives of Dermatology?
  - Yes
  - No
  - I don't know
  
- 2) If so, who is the journal club leader in charge of reviewing the Archives of Dermatology articles with your residents?
  - Program Director
  - Key Faculty member
  - Volunteer Faculty member
  - Residents
  - Other [free text]
  
- 3) Is your residency journal club leader(s) familiar with the Archives of Dermatology Practice Gap commentary section?
  - Yes
  - No
  - I don't know
  
- 4) Which of the following best describes your resident journal club activities relating to Practice Gap commentaries?
  - Always discuss Practice Gap commentaries
  - Usually discuss Practice Gap commentaries
  - Sometimes discuss Practice Gap commentaries
  - Rarely discuss Practice Gap commentaries
  - Never discuss Practice Gap commentaries
  
- 5) When you discuss Practice Gap commentaries in Archives of Dermatology during journal club, what is the typical discussion centered around (check all that apply)
  - Is this gap relevant to our patient population?
  - Do we agree that the gap identified is valid?
  - Is it possible to close the gap identified?
  - Is there something that we should be doing differently in practice?
  - What specifically can we do at our institution to close this gap in our patient population?
  - The conclusions are not supported by evidence to change our care just yet.
  
- 6) Practice Gap commentaries are preceded by a gap-triggering article. Which of the following best describes your resident journal club activities relating to gap-triggering article(s)?
  - Always discuss gap-triggering article(s)
  - Usually discuss gap-triggering article(s)
  - Sometimes discuss gap-triggering article(s)
  - Rarely discuss gap-triggering article(s)
  - Never discuss gap-triggering article(s)



7) Have any quality improvement projects been initiated in your residency program or Dermatology department/division as a result of a Practice Gap?

- Yes
- No
- I don't know
- If yes, please provide example(s)

8) Have any research projects been initiated in your residency program or Dermatology department/division as a result of a Practice Gap?

- Yes
- No
- I don't know
- If yes, please provide example(s)

9) A practice gap is the difference between actual and ideal patient care performance or patient outcomes. Have you found that your Journal Club participants are applying the concept of practice gap commentaries and identifying specific practice gaps in articles from other journals reviewed in Journal Club?

- Often
- Sometimes
- Rarely
- Never

10) Have you ever changed your practice as a direct result of any Archives of Dermatology Practice Gap commentaries?

- Yes
- No
- If yes, please identify how practice has changed

11) Is your journal club approved for CME credit for the faculty?

- Yes
- No
- I don't know

12) Which of the following best describes the Quality Improvement curriculum in your training program? (Select all that apply)

- We provide dermatology-specific didactics on Quality Improvement
- Our institution provides institutional curriculum for all residents, including dermatology residents
- We have specific quality improvement projects performed throughout our department, and our residents actively participate as part of the department team in specific projects
- Our residents are involved in proposing and designing quality improvement initiatives in our department.
- We don't yet have a specific quality improvement curriculum in our training program
- Other, please explain [free text explanation]

13) Region of institution:

- Midwest (IA, IN, IL, KS, MI, MN, MO, ND, NE, OH, SD, WI)
- Northeast (CT, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT, District of Columbia)
- South (AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV, Puerto Rico)
- West (AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY)

14) Number of residents in your program:

- 0-3
- 4-6
- 7-12
- 13-21
- >21

15) Number of full-time faculty that typically participates in resident journal club when Archives of Dermatology is discussed:

- 0
- 1
- 2-4
- 5 or more

16) Number of part-time or contributed service faculty that typically participates in resident journal club when Archives of Dermatology is discussed:

- 0
- 1
- 2-4
- 5 or more

## eAppendix 2

| Referenced Practice Gap Articles   |  |
|--|--|
| Gaps in Medical Dermatology  |  |
| Therapy  |  |
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