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Commentary

Impact of a dermatology wiki website on dermatology education

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Abstract

Background: The Dermatology Education Wiki (dermwiki) website serves as a resource platform for medical students and residents. The readily accessible interface provides dermatology articles, survival guides, didactic lectures, and links to faculty talks as well as research opportunities.

Objective: To assess medical student and resident satisfaction with the dermwiki website.

Methods: Fourth-year medical students taking a dermatology elective were provided with a temporary password to access relevant dermwiki information. A satisfaction survey was created to assess whether medical students found the website helpful. Second- and third-year dermatology residents were also surveyed to compare satisfaction scores prior to and after the introduction of the dermwiki website. End-of-rotation medical student exam scores were tabulated and compared to the average scores from years prior to the development of the dermwiki website.

Results: Medical students rated the dermatology elective with the dermwiki website higher than rotations without a wiki (8.12 vs 7.31). Students planning to go into dermatology were more satisfied with the dermwiki website, reported accessing the website more frequently (11 times vs 9.5 times), and reported more time spent studying (12.2 hours vs 6.7 hours) than students not going into dermatology. End-of-rotation medical student exam scores did not differ from those prior to the development of the dermwiki website. Ten second- and third-year dermatology residents unanimously stated that they were more satisfied with the program after the institution of the dermwiki website.

Conclusions: Overall, addition of the dermwiki website to the dermatology elective curriculum has improved medical student and resident satisfaction scores. The improvement is greater among students planning to enter the field of dermatology. This study serves as a model for the incorporation of internet-based interactive tools to transform and supplement the learning environment.

Keywords: dermatology, education, wiki, social media

Introduction

The Dermatology Education Wiki (dermwiki) website is a resident-designed website containing many pages for different dermatology topics, where trainees and mentors can upload articles and up-to-date information. The website was built with DotNetNuke® (DNN®), an open source web content management platform (CMS) for building professional websites with dynamic content and interactive features. The website utilizes Microsoft® SQL Server® 2008 as the back-end database to store the website content. A third-party service (Server Intellect™) hosted the site. There are “Frequently Used Links” include links to useful dermatology-related sites, such as New Innovations, the ACGME procedure log sites, online textbooks, and the *Journal of the American Academy of Dermatology* (JAAD) website. The dermwiki also houses training site-specific information for dermatology residents. For example, all weekly didactic lectures in the University of Colorado dermatology training program, including the “jump start” curriculum for newly arrived trainees and journal club articles are posted on the site and a “new resident survival guide” for the newly arrived residents to navigate through different hospitals’ systems. Telephone and pager numbers, clinic schedules, call schedules, vacation schedules, and a “Calendar” section with all conferences, department events, and call assignments are available on the dermwiki.

Methods

During the 2011 Rocky Mountain Evidence-Based Health Care (EBHC) Workshop, second year dermatology residents planned the dermwiki quality improvement project with faculty guidance. Medical student-specific information such as schedules, lectures, and links to educational modules were added to the dermwiki. Fourth-year medical students taking a dermatology elective were provided with a temporary password to access relevant dermwiki information. Because the website houses a large amount of dermatology teaching material designed for medical students rotating in the department, the end-of-rotation medical student exam scores were tabulated and compared to the average scores from years prior to the development of the dermwiki. A satisfaction survey was created to assess whether the students found the dermwiki helpful (see appendix 1) and to compare this satisfaction to other rotations without a similar website. The satisfaction score compares the difference in satisfaction of the dermatology rotation (plus dermwiki) with other rotations lacking wiki components. A negative satisfaction score indicates that students prefer rotations without wiki components. A positive satisfaction score indicates that students prefer the dermatology rotation. Second- and third-year dermatology residents in the University of Colorado dermatology training program were also surveyed to compare satisfaction scores prior to and after the introduction of the dermwiki. This study was funded by the 2011 Sulzberger Institute for Dermatologic Education seed grant for the development of technology-based programs.

Results

On average, medical students rotating in dermatology (n=17) rated the dermatology elective with the dermwiki component 8.12 (on a scale of 1-10) compared with rotations without wiki at 7.31 (Table 1). This represents a 9.9% improvement in satisfaction. Students planning to go into dermatology were more satisfied with the wiki website (19.6% improvement in satisfaction) compared with students who were not going into dermatology. The non-dermatology students overall had a negative satisfaction score (-14.1%), indicating that these students may prefer electives that do not have a wiki or simply do not prefer dermatology.

Table 1. Satisfaction scores for students entering dermatology versus those entering other fields

	Average for all Students	Students going into Dermatology	Students going into other field
Overall satisfaction	8.12	8.82	6.83

for dermatology elective			
Overall satisfaction for elective without wiki	7.31	7.09	7.80
% change	9.9%	19.6%	-14.1%

Medical students going into dermatology reported accessing the dermwiki site more frequently (11 times compared with 9.5 times for students entering fields other than dermatology) (Table 2). These students also reported spending more time studying (12.2 hours compared with 6.7 hours).

Table 2. Average time spent on dermwiki site for students entering dermatology field compared with those entering other specialties

	Average for all students	Students going into dermatology	Students going into other field
Number of times accessed wiki	10-19	10-19	5-9
Hours spent studying	10-19	10-19	5-9

End-of-rotation medical student exam scores did not differ from those prior to the development of the dermwiki, indicating that although this resource may provide easy access to dermatology study materials, students are able to find all necessary materials even without the convenience of the dermwiki.

Ten second- and third-year dermatology residents in the University of Colorado dermatology training program were surveyed to compare satisfaction scores prior to and after the introduction of the dermwiki. The residents unanimously stated that they were more satisfied with the program after the institution of the dermwiki website.

Discussion

A projected 3 billion people worldwide will be using the Internet by the end of 2014 [1]. Wiki websites provide an interactive resource for trainee education and support at the convenience of the World Wide Web. Crotty et al. explored this novel tool in an internal medicine resident training program [2]. All housestaff residents (100% of n=91) reported satisfaction with the wiki to improve task completion, whereas 90% and 89% reported improvement with the residency experience and efficiency and 57% reported improvement in education. The wiki website was regarded as a popular tool to engage housestaff in a dynamic and interactive environment.

We report a pilot study of the use of a wiki website in fourth year medical student dermatology education. Discrepancies in the use and satisfaction of the dermwiki amongst medical students may be explained by the greater number of hours spent on the site by students going into dermatology (see below) compared with students pursuing other fields of medicine. A potential bias of this study was that medical students going into the field of dermatology are “auditioning” for a residency position during their dermatology electives and are thus more motivated to study the material and offer favorable responses to the survey. Additionally, the results of this pre-post study design may be confounded by other changes occurring concurrently with the implementation of the dermwiki. Potential confounders and selection bias, as well as small sample size, limit our conclusions.

The implementation of the dermwiki website was an important first step for the dermatology program and was successful as a pilot program demonstrating the benefits of webpage-based technology in improving access to educational materials for both medical students and residents. As with other forms of rapidly innovating information technology, there continues to be room for future improvement. Since its implementation, the dermwiki website has already met several limitations that has led to this platform being phased out in favor of more advanced, cloud-based information storage platforms. The original dermwiki website, owing to its web storage limitations, was unable to store large files such as high-resolution photos, PowerPoint® lecture

presentations, or PDF® resources. This is particularly of concern for education in the field of dermatology that relies heavily on viewing images and, occasionally, videos. Moreover, accessing and uploading files to the dermwiki page platform was cumbersome and required training by the webpage administrators, which limited the ability of all residents and medical students to upload files that may be of educational interest. Residents and medical students are shifting towards using smartphones over the use of laptops for quick access to the Internet; the dermwiki page platform was simply not optimized to be viewed or edited on smartphones. For our residents and medical students who are constantly moving to and from various locations, the ability to access quick resource facts and trainee schedules on their smartphones would be of great convenience. The residents at the University of Colorado dermatology residency program, to overcome the aforementioned limitations of the dermwiki website, have shifted towards the use of high capacity, user-friendly, interactive information storage platforms such as DropBox® and Google Cloud®, that could be accessed easily on traditional computers as well as smartphones and tablets. Given the success of the pilot dermwiki page and its positive impact on education, we foresee that internet based information technology may continue to supplement and enhance educational experiences for residents and medical students, but the need for updates (and the staff to accomplish this) will be constant, as information technology continues to evolve.

In summary, based on the above preliminary data, the addition of the dermwiki website to the dermatology elective curriculum was well received by medical students and residents. Satisfaction scores were greater among students planning to enter the field of dermatology, likely because these students utilize the website more frequently. Future research might nationally compare residents' satisfaction with the training programs with and without an educational website such as the dermwiki. As technology advances virtually every facet of modern life, this study demonstrates that online ingenuity can transform and supplement the learning environment.

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Appendix 1

CUDERMWIKI.COM MEDICAL STUDENT SURVEY

This month, how often did you access derm wiki ? >20, 10-19, 5-9, 1-4.

This month, how many hours did you spend studying >20, 10-19, 5-9, 1-4

material that you accessed on dermwiki?

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Check the appropriate number to indicate your level of satisfaction

1-strongly disagree, 2-disagree, 3- slightly disagree, 4-sometimes agree, 5-agree, 6-strongly agree

I think that having the schedule on dermwiki was helpful 1 2 3 4 5 6

I think that the lectures posted on dermwiki were helpful 1 2 3 4 5 6

I think the articles posted on dermwiki were helpful 1 2 3 4 5 6

Dermwiki saves me time by having necessary info on the site 1 2 3 4 5 6

Dermwiki is easy to navigate 1 2 3 4 5 6

I think Dermwiki improves medical student training 1 2 3 4 5 6

I recommend other departments have similar websites

1 2 3 4 5 6

=====

Dermatology Elective without wiki

Overall satisfaction score with accessibility of information necessary to the rotation 0-10 () 0-10 ()

How long was your dermatology rotation? 2 weeks 4 weeks

What medical specialty do you hope to enter at the end of your education? _____

What is your home medical school? _____

Do you have any suggestions for how to make dermwiki more helpful for medical students?
