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Assessing a nephrology-focused YouTube channel's potential to educate health care providers

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Abstract

Introduction: **YouTube has emerged as a potential teaching tool. Studies of the teaching potential of YouTube videos have not addressed health care provider (HCP) satisfaction; a necessary prerequisite for any teaching tool. We conducted a 4-month investigation to determine HCP satisfaction with a nephrology-specific YouTube channel.**

Methods: **The Nephrology On-Demand YouTube channel was analyzed from January 1 through April 30, 2011. Sixty-minute nephrology lectures at East Carolina University were compressed into 10-minute videos and uploaded to the channel. HCPs were asked to answer a 5-point Likert questionnaire regarding the accuracy, currency, objectivity and usefulness of the digital format of the teaching videos. Means, standard deviations and 2-sided chi-square testing were performed to analyze responses.**

Results: **Over 80% of HCPs considered the YouTube channel to be accurate, current and objective. A similar percentage considered the digital format useful despite the compression of videos and lack of audio.**

Conclusions: **The nephrology-specific YouTube channel has the potential to educate HCPs of various training backgrounds. Additional studies are required to determine if such specialty-specific channels can improve knowledge acquisition and retention.**

Key words: *Internet learning, Medical informatics, Social media*

Introduction

Medical educators are investigating how best to teach health care providers (HCPs) through social media sites. One such medium, YouTube, has emerged as a potential adjunctive teaching tool. However, YouTube offers little quality control, and studies have questioned both the degree of medical misinformation and teaching potential of the site (1, 2). Few investigations have used user responses to evaluate YouTube as an educational tool. These studies have been limited by (i) assessments of YouTube videos in a single 24-hour period, (ii) user responses that were focused on the popularity of the content rather than its quality, (iii) the inability to determine how various user groups viewed medical information, (iv) examining all YouTube videos rather than HCP-focused YouTube channels and (v) the inability to determine if negative user feedback was due to poor content quality or inherent limitations in disseminating medical information through YouTube (3, 4). In an attempt to fill this gap in knowledge, we conducted a 4-month preliminary investigation to determine the teaching potential of a nephrology-focused YouTube channel for HCPs.

Methods

From January 1 to April 30, 2011, we evaluated user responses to the Nephrology On-Demand YouTube channel (5). The channel was created and maintained by the Division of Nephrology and Hypertension at East Carolina University (ECU)

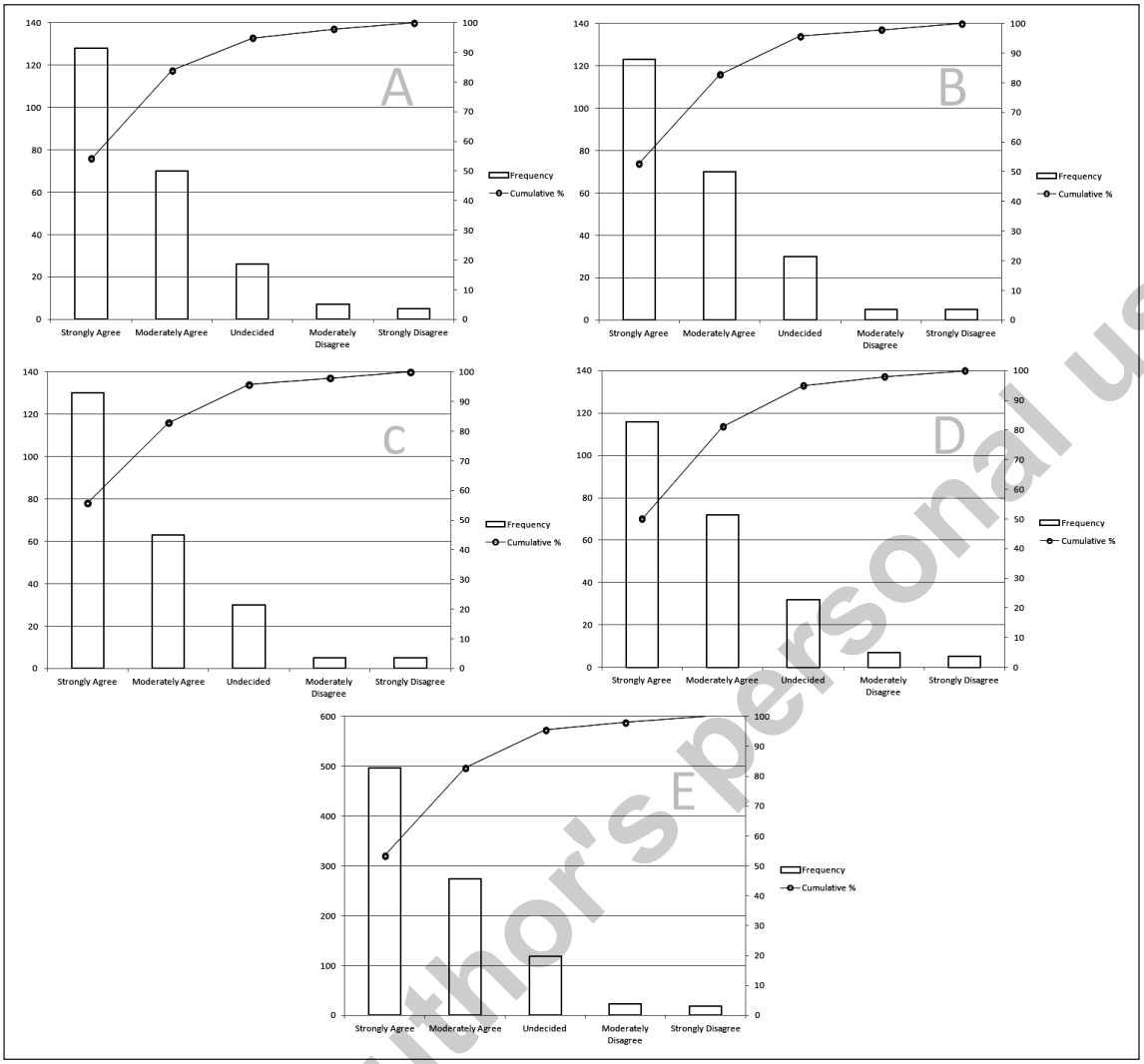

Fig. 1 - Frequency distributions and Pareto plots of user responses. User responses for accuracy (A), currency (B), objectivity (C), usefulness (D) and all responses (E).

and has received Health on Net (HON) certification (number 783135). Nephrology faculty members at ECU compressed 60-minute nephrology conferences into 10- to 15-minute video files without audio by decreasing the total video duration to the specified time range and allowing each slide to be presented proportionally. Total uploaded views from the channel was measured, and users were asked to complete a Qualtrics-hosted Likert survey (1 = strongly agree, 2 = moderately agree, 3 = undecided, 4 = moderately disagree, 5 = strongly disagree) regarding content (i) accuracy, (ii) currency, (iii) objectivity and (iv) usefulness of the digital format (http://goo.gl/9kX7M). The survey was programmed to prevent "ballot box stuffing." Respondents were divided into 3 groups (nephrologists, nonnephrology physicians and nonphysician HCPs), and responses from each group were compared to one another using a 2-sided chi-square test. Mean and standard deviations were calculated for responses within each group.

Results

Eighty-seven videos were available for a total of 4,041 uploaded views. Three quarters of the videos were faculty authored; the remaining were authored by nephrology fellows or internal medicine residents. A total of 232 surveys were completed (96% completion rate). The mean (±SD) score for accuracy was 1.7 ± 0.9, currency 1.7 ± 0.9 and objectivity 1.7 ± 0.9. Of respondents, 81% strongly or moderately agreed that the YouTube digital format was useful; 85% of respondents agreed (strongly or moderately) that the videos were accurate; and 83% agreed that the videos were current or objective (Fig. 1). For each question, chi-square analyses revealed that respondents were equally likely to view the videos positively regardless of their level of training (Tab. I). In addition, a positive answer to 1 question was highly correlated with a similarly positive answer to the remaining 3 questions (Tab. II).

TABLE I
USER RATINGS OF VIDEOS

Question	User Group	Strongly agree (%)	Moderately agree (%)	Undecided (%)	Moderately disagree (%)	Strongly disagree (%)	Mean score (SD)	Chi-square (p value)
Information is accurate	All groups (n=232)	55	30	11	3	2	1.7 (0.9)	3.23 (0.92)
	Nephrologists (n=155)	52	32	11	3	2	1.7 (0.9)	
	Nonnephrology physicians (n=39)	62	23	13	3	0	1.6 (0.8)	
	Nonphysician HCPs* (n=38)	61	26	8	3	3	1.6 (0.9)	
Information is current	All groups	53	30	13	2	2	1.7 (0.9)	4.63 (0.80)
	Nephrologists	52	32	13	2	2	1.7 (0.9)	
	Nonnephrology physicians	56	26	18	0	0	1.6 (0.8)	
	Nonphysician HCPs*	55	29	11	3	3	1.7 (1.0)	
Information is objective	All groups	56	27	13	2	2	1.7 (0.9)	4.63 (0.80)
	Nephrologists	57	26	13	1	3	1.7 (0.9)	
	Nonnephrology physicians	62	23	13	3	0	1.6 (0.8)	
	Nonphysician HCPs*	50	32	11	5	3	1.8 (1.0)	
Information is presented in a useful digital format	All groups	50	31	14	3	2	1.8 (0.9)	5.07 (0.75)
	Nephrologists	48	32	14	4	2	1.8 (1.0)	
	Nonnephrology physicians	56	28	15	0	0	1.6 (0.8)	
	Nonphysician HCPs*	50	32	11	3	5	1.8 (1.1)	

HCP = health care provider.
*Nonphysicians include medical students, registered nurses and registered dieticians.

Discussion

The important points of this preliminary investigation are (i) that specific subgroups of HCPs viewed the medical information presented on the YouTube channel in a positive manner and (ii) that the restrictions placed on video production by YouTube did not impact their satisfaction.

Overall, HCPs viewed the nephrology-specific YouTube channel as highly accurate, current and objective. Unexpectedly, however, over 80% of nonnephrology physicians and nonphysician HCPs viewed the content favorably in these 3 categories. Given that individuals in these groups were less likely to be familiar with concepts in nephrology than nephrologists, the fact that they viewed the accuracy, currency and objectivity of teaching videos in the same positive manner as nephrologists suggests that the YouTube channel had broad appeal. Such appeal would be a necessary prerequisite for determining the teaching potential for any specialty-specific YouTube channel. To our knowledge, previous investigations have been unable to analyze appeal of specific user groups (3, 4). Moreover, these investigations relied on the YouTube-provided evaluation system to measure user satisfaction. This system focuses more on popularity of a video than quality of a video's content (6). Meaningful aspects of video content, such as accuracy, currency and objectivity, are not measured by YouTube. Our results provide a clearer picture of how appealing the substantive features of nephrology-focused videos are for HCPs.

There are notable limitations to this early investigation. YouTube constrained our channel videos to 15 minutes or less (7). As a result, we compressed medical conferences of 60-minute duration into approximately 10- to 15-minute video files. This compression prevented us from synchronizing audio with the lecture slides. The teaching material contained lecture slides (in video format) without accompanying audio. Thus, HCPs viewed teaching videos in a manner less realistic than what occurs at a live conference. Despite these limitations, over 80% of all HCPs felt audio-deficient lectures were useful. Surprisingly, this positive view was shared by nonnephrology physicians (84%) and nonphysician HCPs (82%). One would have expected that these groups would find this format less useful because individuals in either group were likely to be unfamiliar with the nephrology-focused content of the videos. The results suggest that such technical constraints may not have a significant impact in how useful YouTube videos are to HCPs. Next, we examined only one YouTube channel, which may limit the generalizability of the results. An examination of multiple specialty-specific or physician-authored YouTube channels would be helpful, but could not be performed because of the lack of other such YouTube channels during the study period. Moreover, we did not measure the ability to learn through this YouTube channel by HCPs. Our initial focus was to determine the teaching potential of a physician-authored YouTube channel by measuring user satisfaction in content quality and digital formatting. Given the high appeal, future investigations can focus on quantitative measurements of knowledge acquisition and retention. Finally, given our initial focus of determining if YouTube could be a legitimate learning venue, we did not survey students who viewed the videos in different digital formats or websites.

Conclusion

Our preliminary investigation suggests that HCPs of all training levels view the content of a physician-authored YouTube channel in a highly positive manner. Moreover, the technical limitations placed on video production do not impact how useful these videos are to HCPs. As a result, we believe that

TABLE II
CORRELATION BETWEEN RESPONSES

Question asked:	Information is current	Information is objective	Information is presented in a useful digital format
Information is accurate	533.3 (<0.001)	554.9 (<0.001)	450.9 (<0.001)
Information is current		566.7 (<0.001)	515.5 (<0.001)
Information is objective			438.4 (<0.001)

Chi-square analysis (p value) of answer choices for each question.

a physician-produced YouTube channel has the potential to educate HCPs of various training backgrounds. Future investigations must analyze how HCPs view medical information on multiple physician-authored YouTube channels and how effective these channels are at communicating medical information.

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