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Authors

St Claire, Kayla M
Rietcheck, Hope R
Patel, Ravi R
[et al.](#)

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Dermatology on YouTube — an update and analysis of new trends

Kayla M St Claire¹ MBA, Hope R Rietcheck² BS, Ravi R Patel³ MD, Cory Dunnick⁴ MD, Robert P Dellavalle^{4,5,6} MD PhD MSPH

Affiliations: ¹University of Illinois College of Medicine, Chicago, Illinois, USA, ²University of Colorado School of Medicine, Aurora, Colorado, USA, ³Center for Clinical Studies, Houston, Texas, USA, ⁴Department of Dermatology, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA, ⁵Department of Epidemiology, Colorado School of Public Health, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA, ⁶Dermatology Service, US Department of Veteran Affairs, Eastern Colorado Health Care System, Denver, Colorado, USA

Corresponding Author: Robert P. Dellavalle MD PhD MSPH, Professor of Dermatology and Public Health, University of Colorado School of Medicine, Colorado School of Public Health, Chief, Dermatology Service, US Department of Veteran Affairs, Eastern Colorado Health Care System, 1700 N Wheeling Street, Room E1-342, Aurora, CO 80045, Tel: 720-851-5562, Fax: 720-723-7876, Email:

Robert.Dellavalle@ucdenver.edu

Abstract

Because YouTube is one of the most popular search engines, it is an instrumental tool to stay up to date on the most relevant dermatology trends and content in order to better direct patients and improve health outcomes. Twelve select terms (i.e. Dermatology, Sun protection, Skin cancer awareness, Skin cancer, Skin condition, Sun safety, Tanning, Melanoma, Basal cell carcinoma, Squamous cell carcinoma, Skin cancer treatment, Skin cancer prevention) were searched on YouTube. Overall, the results included 240 videos with over 160 million views. Educational content was most prevalent at 35% of the total search results. Of the total videos, 42% were uploaded by or featured a medical health professional (MD, DO, PhD, RN, ND), with 28% involving a board-certified dermatologist. Trends in content type have changed: educational and personal videos have increased, while advocacy and advertising have decreased. Most search terms are moving in a positive, informative direction, specifically the term “tanning.” Other search terms such as “skin condition” and “skin cancer treatment” should be more closely monitored for misleading and perhaps harmful information. Therefore, dermatologists and other medical personnel should keep pace with relevant and popular dermatology content on YouTube in order to understand, advise, market, educate, and address patients’ questions and concerns.

Keywords: dermatology, YouTube, social media, sun protection, sun safety, tanning, melanoma, basal cell carcinoma, squamous cell carcinoma, skin cancer, skin cancer treatment, skin cancer prevention, skin cancer awareness, skin conditions

Introduction

Founded in 2005, YouTube is the largest online video platform worldwide featuring a wide variety of user-generated and corporate media content that includes music videos, TV clips, video blogs, instructional tutorials, and educational content. Without question, YouTube’s popularity has grown over the past few years. According to Statista, YouTube currently has around 1.58 billion users worldwide and is projected to grow to 1.86 billion by 2021 [1]. Additionally, YouTube’s interactions such as likes and comments have grown by more than 60% year over year with live streams increasing by 10x over the last three years [2].

Looking for health or medical information is one of the most popular activities online. According to a study released by the Pew Internet and American Life Project, 80% of Internet users, or about 93 million Americans, have searched for health-related topics online, most frequently to look up information about a specific disease, medical problem, particular treatment, or procedure [3].

With YouTube estimated to be the 2nd most popular search engine [4], it is crucial to keep pace with its latest dermatology content and examine its evolution. Since our first publication examining the presence of dermatology items on YouTube [5], this arena has continued to grow and evolve at a rapid pace. Our study aims to update and expand our previous data from 2014 with regard to the dermatology presence and content on YouTube.

Methods

Authors (KS and HR) collected data from September 10th to September 15th, 2018. Twelve search terms were selected to measure the presence of dermatology items on YouTube and assess for new trends in content. Search terms included: 1) Dermatology, 2) Sun protection, 3) Skin cancer awareness, 4) Skin cancer, 5) Skin condition, 6) Sun safety, 7) Tanning, 8) Melanoma, 9) Basal cell carcinoma, 10) Squamous cell carcinoma, 11) Skin cancer treatment, 12) Skin cancer prevention. The first 5 search terms were selected to keep data consistent with the previously published investigation on YouTube circa June 2014. In order to make the study more comprehensive, we expanded our search to also include 7 additional relevant terms in dermatology. These terms were entered into the YouTube search query with filter settings adjusted to sort clips in order of relevance. There were no restrictions in terms of upload date, type of by media, features, or duration. Data was collected from the first twenty videos returned for each search term. Paid advertisements were excluded from data collection. Data collection for each video included documenting the following in an Excel spreadsheet: name of posted clip, content type, number of views, number of subscriptions, number of likes, number of dislikes, number of comments, length of clip, year uploaded, quality (informational or misleading), and source posting. We identified if the post sources included a medical professional (MD, DO, PhD, RN, ND). Content was deemed informational if it provided factual information, statistics, or research. Content was deemed misleading if there were incorrect medical facts, statistics, or factitious conditions. Content type and quality were mutually reviewed and agreed upon by KS and HR. Questions

were discussed with authors RP and RD; a group consensus was reached.

Results

Data was collected from the first 20 relevant results for each designated search term, resulting in a total of 240 videos. Out of 240 videos, 14 videos were duplicated in two search terms and 2 were duplicated in three search terms. Subtracting the duplicates, the videos have amassed over 160 million views. Compared to our 2014 study [5], several differences were noted.

Dermatology

The primary type of content was clinical demonstration (45%) followed by personal (25%), ([Table 1](#)). This differed from the 2014 study in which educational content was most popular (45%) followed by clinical demonstration (20%), [5]. Of the personal content, 3/5 (60%), all uploaded after 2017, featured medical students discussing their experience with dermatology rotations or matching. Interestingly, 17/20 (85%) of the videos included a medical health professional; 11/20 (55%) were dermatologists ([Table 2](#)).

Sun protection

The primary type of content was educational (30%), personal (30%), and user product review (30%), ([Table 1](#)). All the educational content videos were deemed informational, whereas 50% of the personal content videos and 17% of the user product review videos were deemed misleading ([Table 1](#)). Interestingly, 6/20 (30%) of the videos and 4/6 (66.7%) in the user product reviews category were specific to sun-protective fishing gear such as gloves, shirts, and neck covers. Previously, this category focused on advocacy and sunscreen advertisements [5].

Skin cancer awareness

The primary type of content was tied between educational (35%) and news/ medical feature (35%), ([Table 1](#)). All the educational videos were deemed informational ([Table 1](#)). Previously, this category was mainly advocacy (80%), [5]. Furthermore, 8/20 (40%) of the videos were uploaded by or included a dermatologist ([Table 2](#)).

Skin cancer

Educational videos were the predominant (60%) type of content ([Table 1](#)). Of the educational videos, 25% were deemed misleading ([Table 1](#)). Common misleading comments included: "chemical sunscreens cause cancer," "tans protect from skin cancer and sun damage," and "blacks don't need sunscreen." Overall, only 4/20 (20%) of the videos were uploaded by or included a dermatologist ([Table 2](#)). Previously, complementary/ alternative medicine and educational items were tied in popularity at 25% each [5].

Skin condition

Entertainment videos were the predominant type of content (60%), ([Table 1](#)). Only 2/20 (10%) of the videos were uploaded by or involved a medical health professional, with 1 being a dermatologist ([Table 2](#)). The majority of the videos emphasized severe or rare dermatologic conditions: harlequin ichthyosis (25%), epidermolysis bullosa (25%), and epidermodysplasia verruciformis (15%). More prevalent dermatologic conditions were less common: acne (10%), moles (5%), and skin cancer (5%). Previously, clinician demonstration, educational, and news/medical feature/show were tied in popularity at 20% each [5].

Sun safety

Educational (35%) and kid-targeted/entertaining educational (35%) were tied for the main type of content ([Table 1](#)). Kid-targeted/entertaining educational items typically featured vivid cartoons or short stories that pertained to a younger audience. Although only 4/20 (20%) featured a dermatologist, none of the videos in this category were deemed misleading ([Table 2](#)). Many videos emphasized sunscreen, protective clothing, and facts about UV rays and skin cancer.

Tanning

Personal videos (50%) comprised the majority of the content ([Table 1](#)). Personal videos ranged from dangerous tanning bed challenges to proponents of anti-tanning and sunless methods of tanning (spray tan or other topical products). Of the tanning videos, 20% focused on outdoor tanning, 20% focused on

tanning beds, and 60% focused on anti-tanning and sunless tanning. A few posters of the sunless/anti-tanning bed videos discussed moving away from self-tanners and embracing their natural paler skin. Non-medical health professionals posted 85% of these videos ([Table 2](#)).

Melanoma

The primary type of content was educational (30%), ([Table 1](#)). Medical health professionals posted 10/20 (50%) of these videos, with 6 featuring dermatologists ([Table 2](#)). Several of these videos mentioned the ABCDEs and shared pictures of melanoma.

Basal cell carcinoma

The primary type of content was educational (45%), ([Table 1](#)). Of these videos, 14/20 (64%) were posted by a medical health professional with 10 featuring a dermatologist ([Table 2](#)). None of the educational content was deemed misleading ([Table 1](#)). Clinical demonstration was the second most popular content (25%) and had the most engagement with YouTube users evidenced by the highest number of views, subscriptions, and likes ([Table 1](#)).

Squamous cell carcinoma

Educational videos (60%) were the most prevalent type of content ([Table 1](#)). Educational videos also had the most engagement with YouTube users evidenced by the highest number of views, subscriptions, and likes compared to other categories of content ([Table 1](#)). In addition, 10/20 (50%) of the videos were posted by a medical health professional, with 6 featuring dermatologists ([Table 2](#)). All educational content was deemed to be informative ([Table 1](#)).

Skin cancer treatment

Alternative medicine (50%) was the primary type of content ([Table 1](#)). Alternative medicine videos also had the highest number of views and likes compared to other categories of content ([Table 1](#)). Of the alternative medicine videos, 70% mentioned black salve as a home remedy. Other therapies included: hydrogen peroxide, B17, cannabis oil, Curaderm, and dietary modifications. Non-medical professionals posted 13/20 (65%) of the videos ([Table 2](#)).

Skin cancer prevention

The predominant type of content was educational (45%), (Table 1). Educational videos had the most engagement with YouTube users as evidenced by the highest number of views, subscriptions, and likes compared to other categories (Table 1). Of the videos with educational skin cancer prevention content, 11/20 (55%) were posted by medical health professionals, with 8 featuring dermatologists (Table 2). The educational content was deemed to be informative and typically discussed the ABCDEs, sunscreen and sun protection tips, and research studies (Table 2).

Overall, educational content was the most prevalent at 35% of the total search results (Table 3). Additionally, 42% of the videos featured medical health professionals, with 28% of the videos featuring a board-certified dermatologist (Table 2). Personnel not identified to be healthcare providers posted 58% of the videos (Table 2). Lastly, the top-viewed YouTube video out of all the search terms was "How the sun sees you" with 17,967,295 views.

Discussion

Dermatological content is evolving and gaining popularity on YouTube. This is evidenced by the differing representation of content type from each of the original search terms compared with our previous study [5].

There are a few interesting takeaways from our study. First, clinical demonstration became the most popular category for the search term "dermatology" and was the second most popular type of content for "melanoma" and "basal cell carcinoma" with high YouTube user engagement via views, subscriptions, and likes (Table 1). Interestingly, in 2015 shortly after the time of our prior publication, Dr. Sandra Lee's (aka Dr. Pimple Popper) popularity erupted on YouTube when she began to heavily post minor dermatologic procedures. Owing to her overwhelming presence and following on social media, it was estimated that her YouTube channel brought in hundreds of thousands of dollars in 2016 [6]. Thus, perhaps her influence has propelled other dermatologists and medical personnel to showcase

their clinical talents on YouTube. Additionally, we saw the emergence of medical student videos giving advice on dermatology rotations or the Match. As dermatology training becomes increasingly competitive, perhaps we will see an increase in these types of videos in the future.

Secondly, contrary to Hossler and Conroy's 2008 study [7] that showed the majority of YouTube videos portrayed tanning positively, our study discovered that the majority of YouTube videos under "tanning" had anti-tanning bed or anti-sun tanning content. In 2012, California became the first state to ban indoor tanning for minors, and during the last 6 years, at least 13 more states followed suit [8]. Recently, many activists and politicians have made moves to minimize the use of tanning devices on the national level. As the evidence on the dangers of tanning continues to rise, perhaps interest in tanning beds will decrease in popularity and become an item of the past. Furthermore, through searching the terms "tanning," "sun safety," and "sun protection" we noticed many trends. Several of these videos were geared toward sunscreen and protective clothing for sporting and occupational sun safety and targeted fishermen, golfers, and construction workers. Several videos also featured vivid cartoons of short stories geared toward sun-safety education in younger audiences. It appears that videos on YouTube pertaining to sun safety are evolving and reaching different audiences (young females, athletes, and children) in a beneficial manner.

Third, the two most viewed YouTube videos were "How the sun sees you" and "Dear 16-year-old me," both advocacy clips. "Dear 16-year-old me" was also a top-viewed video in our previous study [5]. Thus, regardless of our ever-changing societal trends, evoking emotion in others continues to attract and engage society.

Fourth, educational content was the predominant category (35%), (Table 3). Educational content regarding dermatology topics has increased since our last study in which it was the 2nd most common content type at 19% [5]. Additionally, 42% of our videos involved a medical health professional, with 28% featuring a board-certified dermatologist

(Table 2), which has increased from our last study in which 35% of the videos involved medical personnel [5]. With educational content increasing and more physicians and dermatologists utilizing this platform, it appears that useful dermatology communication on YouTube is moving in a positive direction.

Fifth, regarding the search term “skin conditions,” we found many uncommon dermatological disorders being discussed, with some being factitious. Additionally, with “skin cancer treatment,” we found certain alternative medicine therapies gaining increasing popularity, particularly black salve. Most of these related YouTube videos were misleading and might even dissuade viewers from visiting a dermatologist, as they might feel they do not have a severe or rare enough skin condition. They also might conclude that they can treat themselves at

home with natural remedies. As dermatologists it is important to monitor these trends on YouTube in order to better understand and advise patients appropriately and responsibly.

Conclusion

Overall, dermatological content continues to be widely available and expanding on YouTube. Our study aimed to keep up with dermatology’s evolving YouTube presence and relevant trends in order to be aware of the content that is potentially influencing our population’s decision to see a dermatologist. We encourage more health care providers and dermatologists to share information on YouTube to increase the presence of factual knowledge and combat common myths and misleading videos posted by non-medical personnel.

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Table 1. Dermatology content on YouTube for 12 relevant search terms.

Search Term	Content Type	%	Views	Subscriptions	Likes	Dislikes	% Misleading
Dermatology n = 20							
	Clinical Demonstration	45	12,180,256	17,169,300	44,274	6,254	33
	Personal	25	127,829	403,200	3,752	41	0
	Educational	15	130,204	1,073,000	2,289	20	0
	Job Description	10	2,633,035	125,321	5,640	70	0
	Advertising	5	16,208	56,000	133	2	0
Sun Protection n = 20							
	Educational	30	1,018,646	12,809,788	17,041	381	0
	Personal	30	332,642	2,860,148	10,569	346	50
	User Product Review	30	349,186	3,018,293	4,926	178	17
	Advocacy	5	17,967,295	8,000	74,000	2,200	0
	News/Medical Feature/Medical Show	5	4,108	1,000,000	24	0	0
Skin Cancer Awareness n = 20							
	Educational	35	39,233	113,547	105	14	0
	News/Medical Feature/Medical Show	35	28,500	1,578,000	157	10	0
	Advocacy	25	10,311,148	466,419	44,199	840	0
	Personal	5	7,249	199,000	242	22	0
Skin Cancer n = 20							
	Educational	60	1,445,028	2,838,179	2,868	636	25
	News/Medical Feature/Medical Show	25	690,160	6,129,000	10,019	805	20
	Personal	5	177,642	45,000	1,200	75	0
	Alternative Medicine	5	129,889	41,000	0	0	100
	Advertising	5	82,775	265,000	375	15	0
Skin Condition n = 20							
	Entertainment	60	67,008,646	40,612,000	363,026	31,473	42
	Personal	20	11,558,489	76,677	298,533	4,890	0
	Educational	15	4,556,692	16,002,670	25,916	3,413	33
	News/Medical Feature/Medical Show	5	10,770	881	32	3	0

Sun Safety n = 20							
	Educational	35	1,218,717	7,431,228	5,287	274	0
	Kid-Targeted (Entertaining Education)	35	374,787	2,178	336	65	0
	Advocacy	20	85,059	115,615	132	15	0
	News/Medical Feature/Medical Show	10	2,067	18,296,000	15	2	0
Tanning n = 20							
	Personal	50	7,660,536	12,088,300	177,866	5,679	10
	News/Medical Feature/Medical Show	20	9,864,139	15,500,001	42,435	4,182	25
	Educational	15	436,495	1,215,000	3,911	269	33
	Entertainment	5	3,718,384	4,200,000	168,000	2,800	100
	User Product Review	5	726,033	3,800,000	14,000	263	0
	Advertising	5	137,304	67	248	53	100
Melanoma n = 20							
	Educational	30	206,945	1,406,774	1,116	50	0
	Clinical Demonstration	20	475,276	356,700	1,213	343	0
	Personal	20	448,317	107,443	2,457	153	0
	News/Medical Feature/Medical Show	20	174,242	10,730,000	638	49	0
	Advertising	5	22,650	8,200	100	4	0
	Alternative Medicine	5	102,041	104,000	1,400	49	0
Basal Cell Carcinoma n = 20							
	Educational	45	977,101	276,139	1,957	252	0
	Clinical Demonstration	25	1,320,851	4,540,833	4,109	291	0
	Personal	20	182,727	104,275	1,410	69	25
	Alternative Medicine	5	15,407	11,000	65	6	100
	News/Medical Feature/Medical Show	5	24,384	7,500	25	4	0
Squamous Cell Carcinoma n = 20							
	Educational	60	356,324	462,160	1,027	88	0
	Personal	20	29,753	116,337	301	15	25
	Clinical Demonstration	10	44,268	7,404	133	15	0
	Advocacy	5	1,201	18,000	12	0	0
	Alternative Medicine	5	4,666	12,000	13	2	100

Skin Cancer Treatment n = 20							
	Alternative Medicine	50	2,107,118	500,924	6,490	1,324	80
	Educational	30	240,745	7,392,700	323	42	0
	Personal	5	114,385	138	180	20	0
	Clinical Demonstration	5	28,685	210,000	380	12	0
	Advertising	5	4,515	164	2	0	0
	Entertainment	5	151,321	45,000	354	68	0
Skin Cancer Prevention n = 20							
	Educational	45	994,697	8,179,700	5,823	239	0
	News/Medical Feature/Medical Show	25	5,464	323,100	17	0	0
	Alternative Medicine	15	57,294	297,000	226	28	100
	Personal	15	14,748	83,566	180	5	0
Total			163,134,276	204,839,869	1,351,501	68,418	

Table 2. Summary statistics of main source of information identified for the 240 videos analyzed.

Search Term	Healthcare-provider (MD, RN, ND)	Dermatologist (Board-certified)	Other (Non-medical)
"Dermatology"	17	11	3
"Sun Protection"	4	2	16
"Skin Cancer Awareness"	11	8	9
"Skin Cancer"	6	4	14
"Skin Condition"	2	1	18
"Sun Safety"	6	4	14
"Tanning"	3	3	17
"Melanoma"	10	6	10
"Basal Cell Carcinoma"	14	10	6
"Squamous Cell Carcinoma"	10	6	10
"Skin Cancer Treatment"	7	5	13
"Skin Cancer Prevention"	11	8	9
Total Count	101	68	139
Total Percentage	42%	28%	58%

Table 3. Summary statistics of content for the 240 dermatology-related YouTube videos analyzed.

Content Type	Percentage
Educational	35
Personal	18
News/Medical Feature/Medical Show	13
Clinical Demonstration	9
Alternative Medicine	7
Entertainment	6
Advocacy	5
User Product Reviews	3
Kid-Targeted	3
Advertising	2
Job Description	1