The Profession

Reputation Management and Content Control: An Analysis of Radiation Oncologists' Digital Identities

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Summary

The authors identified all Medicare-participating radiation oncologists in the United States and Puerto Rico and developed a customized Google-based search engine. Up to the top 10 search results for each physician were extracted and categorized. Results for academic and nonacademic radiation oncologists were compared. Most radiation oncologists lacked self-controlled online content in the first page of Google search results. Strategies for radiation oncologists to improve their digital presence are discussed.

Introduction: Google is the most popular search engine in the United States, and patients are increasingly relying on online webpages to seek information about individual physicians. This study aims to characterize what patients find when they search for radiation oncologists online.

Methods and Materials: The Centers for Medicare and Medicaid Services (CMS) Physician Comparable Downloadable File was used to identify all Medicare-participating radiation oncologists in the United States and Puerto Rico. Each radiation oncologist was characterized by medical school education, year of graduation, city of practice, gender, and affiliation with an academic institution. Using a custom Google-based search engine, up to the top 10 search results for each physician were extracted and categorized as relating to: (1) physician, hospital, or health care system; (2) third-party; (3) social media; (4) academic journal articles; or (5) other.

Results: Among all health care providers in the United States within CMS, 4443 self-identified as being radiation oncologists and yielded 40,764 search results. Of those, 1161 (26.1%) and 3282 (73.9%) were classified as academic and nonacademic radiation oncologists, respectively. At least 1 search result was obtained for 4398 physicians (99.0%). Physician, hospital, and health care—controlled websites (16,006; 39.3%) and third-party websites (10,494; 25.7%) were the 2 most often observed domain types. Social media platforms accounted for 2729 (6.7%) hits, and peer-reviewed academic journal websites accounted for 1397 (3.4%) results. About 6.8% and 6.7% of the top 10 links were social media websites for academic and nonacademic radiation oncologists, respectively.

Conclusions: Most radiation oncologists lack self-controlled online content when patients search within the first page of Google search results. With the strong presence of third-party websites and lack of social media, opportunities exist for radiation oncologists to increase their online presence to improve patient–provider communication and better the image of the overall field. We discuss strategies to improve online visibility. © 2017 Elsevier Inc. All rights reserved.

Introduction

Patients are increasingly turning to the Internet to search for information regarding their health and health care providers (1-3), and this trend is likely to continue with patients having an increased choice of provider. Google is the most popular search engine and website in the United States (4, 5). More than 90% of Americans do not look beyond the first page of results (first 10 website links) (6), suggesting that the information on the first page of Google may disproportionally influence patients' knowledge and opinions.

The online presence of physicians can be described in a variety of ways. One categorization looks at physician-controlled and -uncontrolled content. Physician-controlled content, as its name suggests, refers to media that physicians and hospitals can tailor to their individual or group's brand. This includes hospital or health care network sites and personal websites. By contrast, physician-uncontrolled content can be thought of as "online word of mouth" or webpages created about a physician but not directly controlled or influenced by that individual; examples include third-party health and physician information websites such as healthgrades.com or vitals.com (7).

This study aims to characterize what patients find when they search for radiation oncologists online using Google. We hypothesize that radiation oncologists' digital identities lack physician-controlled content and are dominated by physician-uncontrolled third-party websites.

Methods and Materials

This study did not require institutional review board approval because it used publicly available federal databases and web-accessible data sources. The methods of this study follow those presented by Vijayasarathi et al (8).

Study population

The Centers for Medicare and Medicaid Services (CMS) Physician Comparable Downloadable File (PCNDF) was used to generate a list of radiation oncologists (9). The data were accessed and de-duplicated using National Provider Identifier (NPI) numbers on September 23, 2016. All remaining entries were included for analysis (n=4443). The PCNDF captures all physicians enrolled in Medicare fee-for-service, or about 91% of the physicians in the United States (10), and is comprehensive and representative of U.S. physicians.

Data collection

The PCNDF list of all radiation oncologists was downloaded as a.csv file and analyzed using Python (version 2.7) and Pandas, an open-source library for working with data in Python. Information on first name, last name, NPI number, gender, degree type (MD or DO), medical school graduation year, and practice location city and state was extracted from the PCNDF dataset. The following search term was generated for each radiation oncologist: [firstname] + [lastname] + [degree] + radiation + oncologist + [city] + [state]. The majority of radiation oncologists in the dataset were MDs rather than DOs; consequently, in cases where the degree was not reported in the PCNDF, an MD was assumed.

To search 4443 names efficiently, we set up a custom search engine (CSE) through Google. CSE allows users to submit searches to Google's servers programmatically, passing a list of queries through the CSE application programming interface (API). The default API parameters were used, and the duplicate content filter was used to prevent nearly identical links from being returned as separate entries. The search term for each radiation oncologist was sent to CSE and returned up to 10 website links, or URLs (total n=40,764 results). These URLs were saved in another.csv file using the Python Data Analysis Library (Pandas) (11). The script used to send and receive data from Google was built using Python (version 2.7) (12). The April 2017 Association of Residents in Radiation Oncology (ARRO) Directory (13) and the departmental websites of academic programs were used to compile an external database listing academic radiation oncologists in the United States. Departmental websites were accessed in June and July 2017. This was then consulted to verify the academic status of physicians in this study.

The website domains (ie, first part of website URLs, such as facebook.com, doximity.com) that made up the 40,764 URL results were roughly split into 4 groups, and 4 reviewers manually categorized the domain names in 2 groups into 1 of 5 categories, which are presented in Table 1. In this way, each domain was reviewed by at least 2 reviewers. If a reviewer was uncertain about an assigned category or there was a discrepancy between 2 reviewers, a third reviewer would examine the domain name to reach a final consensus.