



The Current Use of Social Media in Neurosurgery

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■ **OBJECTIVE:** To measure the presence and popularity of neurosurgical departments, journals, and nonprofit organizations on 3 major social networks.

■ **METHODS:** A systematic 2-pronged search strategy was used in June 2015 to identify all accounts on Facebook, Twitter, and YouTube that were relevant to neurosurgery. Online search was conducted by 2 independent authors. All accounts were ranked according to their popularity data.

■ **RESULTS:** Our search yielded 158 social media accounts (86 Facebook, 59 Twitter, and 13 YouTube) of neurosurgical private and academic practice departments. Of the 158 accounts we retrieved, 117 were for private practice centers (74%). Accounts of academic and private departments had a similar median number of “likes” and “followers” on Facebook and Twitter, respectively. Seven neurosurgical journals only had active Facebook and Twitter accounts (of 20 screened journals). When compared with studies of social media in other medical subspecialties, the use of these networks in neurosurgery followed a similar pattern in their presence and popularity.

■ **CONCLUSIONS:** The current study shows different uses of social media platforms and numbers of users of the online neurosurgical community. Content optimization, advanced metrics of user engagement, and their subsequent effects on academic impact remain unanswered queries and require further prospective study.

INTRODUCTION

Social media broadly refers to any online forum that allows group communication through text, audio, images, and/or video. Information on social media is easily accessible, modifiable, and publishable by an online community. Current forms of social media include text blogging (e.g., WordPress, Twitter), photo and video content communities (e.g., Flickr, Instagram, YouTube), and networking sites (e.g., LinkedIn, Facebook, ResearchGate).

The use of social networks in particular is growing rapidly. The Pew Research Center reported that as of January 2014, 74% of online adults use social media,¹ with Facebook (1.44 billion monthly active users)² and Twitter (300 million monthly active users)³ being the most popular sites.

In health care, social networks may provide an online society linking not only physicians, trainees, and researchers, for instance, via ResearchGate, but also physicians and hospitals to patients.⁴ Academic and private practice departments are also increasingly capitalizing on these networks to connect with patients to discuss their treatments options, with the broader public to augment their stature and publicize their accomplishments, as well as with philanthropists and funding institutions to earn greater visibility.⁵ Major medical journals currently are using Facebook and Twitter to boost awareness of their publications, and the number of their users is rapidly growing. The number of followers for *The Lancet* and *Journal of the American Medical Association* on Twitter accounts has tripled between May 2012 and October 2014 (*The Lancet*, 36,730 to 142,000; *Journal of the American Medical Association*, 18,422 to 95,600).⁶

Given the importance of social media in medicine, it is important to identify its use within the neurosurgical community. The use of social networking sites in ophthalmology,⁶

Key words

- Facebook
- Neurosurgery
- Social media
- Twitter
- YouTube

Abbreviations and Acronyms

AANS: American Association of Neurological Surgeons

NASS: North American Spine Society

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dermatology,⁷ urology,⁸ and radiology^{9,10} recently has been studied. Neurosurgery, as an inherently academic specialty, may require far more institutional effort to develop and maintain social media representation. The goal of this study was to evaluate and measure the presence of neurosurgical departments, journals, and nonprofit organizations on the 3 major social networks (Facebook, Twitter, and YouTube). The current study hopes to provide an account of the current usage of social media in neurosurgery and inform future uses by individuals, institutions and societies.

METHODS

To gauge the online footprint of private and academic practices, neurosurgical journals, and professional societies, a comprehensive search strategy was used to determine the extent of social media usage in neurosurgery. A systematic online search strategy was used in June 2015 to identify all accounts on Facebook, Twitter, and YouTube that were relevant to neurosurgery. A 2-pronged approach was used whereby first Facebook, Twitter, and YouTube were searched for the presence of neurosurgical sites and second, neurosurgical websites were searched for external links to these social networking sites. Two authors independently conducted all searches and extracted data. Disagreements between reviewers were resolved by consensus, and if needed, by consultation with a third reviewer.

For every social media account searched, we collected website-specific data on site attendance/popularity: the number of “likes” (Facebook), “followers” (Twitter), or “subscribers” and “total views” (YouTube). For institutional accounts, we collected data on the year that the organization joined the network, the type of practice (academic or private), and country of practice (United States or Canada). Accounts that had less than 100 “likes” or “followers” or “subscriber,” accounts of institutions providing only nonsurgical treatments (e.g., chiropractic, acupuncture, epidural injections, etc.), and unofficial accounts were all excluded.

Neurosurgical Institutions

The official websites for academic neurosurgical units registered with the Accreditation Council for Graduate Medical Education and the Royal College of Physicians and Surgeons of Canada were searched for external links to dedicated Facebook, Twitter, or YouTube pages. If there was no external link available, or for private practice centers, online searches combining the full name and/or abbreviation of the institution (e.g., University of Toronto, U of T) and a general search with key words pertinent to neurosurgery (neurosurgery, neurological surgery, neurosurgical, brain, spine) were conducted on each of Facebook, Twitter, and YouTube. We only included accounts that were solely dedicated to neurosurgery or spine surgery departments or centers in North America.

Neurosurgical Journals

By searching Thomson Reuters’ Master Journal List using the same neurosurgery-related keywords, we identified 20 neurosurgical and spine journals (Table 1). The official website of each journal was visited to find external links to dedicated Facebook, Twitter, and YouTube accounts. If there was no external link

Table 1. List of Screened Neurosurgical and Spine Journals

<i>British Journal of Neurosurgery</i>
<i>Clinical Neurology and Neurosurgery</i>
<i>Journal of Neurological Surgery Part A-Central European Neurosurgery</i>
<i>Journal of Neurology Neurosurgery and Psychiatry*</i>
<i>Journal of Neurosurgery*</i>
<i>Journal of Neurosurgery-Pediatrics*</i>
<i>Journal of Neurosurgery-Spine*</i>
<i>Neurosurgery*</i>
<i>Neurosurgery Clinics of North America</i>
<i>Pediatric Neurosurgery</i>
<i>Stereotactic and Functional Neurosurgery</i>
<i>Turkish Neurosurgery</i>
<i>World Neurosurgery</i>
<i>Journal of Korean Neurosurgical Society</i>
<i>Journal of Neurosurgical Sciences</i>
<i>Neurosurgical Focus*</i>
<i>Neurosurgical Review</i>
<i>European Spine Journal</i>
<i>Spine*</i>
<i>Spine Journal</i>
*Has a dedicated social media network account (Facebook or Twitter).

available, Facebook, Twitter and YouTube were each searched individually using the same strategy as for institutional accounts.

Professional, Scientific, and Educational Associations

A list of professional, scientific, and educational associations and societies was created by searching the affiliated organizations listed on the American Association of Neurological Surgeons (AANS) website (<http://www.aans.org/Related%20Organizations.aspx>). Associations or societies that were affiliated with journals included in our study also were added to this list (Table 2). The official website of each association and/or society was visited to find external links to dedicated Facebook, Twitter, or YouTube accounts. If there was no external link available, each of Facebook, Twitter, and YouTube was searched individually, as before.

Foundations and Support Groups

To identify foundations and support groups related to neurosurgery, we used 2 publicly accessible websites (<https://www.quintly.com/> and <https://followerwonk.com/>) that retrieve and rank Facebook and Twitter pages according to their popularity. We manually examined the top accounts in the “Non-profit organizations” category to identify only the top 5 followed accounts related to the neurosurgical community. Where appropriate, the neurosurgical focus of the account, and numbers of “likes” and or “followers” were recorded for each account.

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