

## New Horizons for Stroke Medicine Understanding the Value of Social Media

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Social media (SM) has provided individuals and organizations with an openly accessible platform encouraging participation and engagement in different forms of media (blogs, photos, infographics, and videos). In the past decade, there has been an exponential increase in platforms supporting user-driven content all encouraging differing degrees of SM interaction. Despite the initial SM revolution being based on social interaction, increasingly medical professionals are harboring such streams of communication to further medical knowledge and develop professional networks. An example of a SM platform is Twitter, a well-established microblogging tool,<sup>1</sup> which supports communities<sup>2</sup> of medical professionals interacting regularly. Importantly, data support an increasing coverage of biomedical literature on Twitter ( $\approx 10\%$  of all published literature).<sup>3</sup> Stroke medicine is constantly evolving to adapt to new technologies, which have supported new therapies and new diagnostic tools. However, little is known about the benefit of new technologies to our ways of communicating. In this article, we discuss how stroke trainees in particular could benefit from using SM to communicate and improve their educational, professional, and academic development. Furthermore, we provide for the first time Twitter analytic data from an international stroke trainee-based meeting to demonstrate real-world value to trainees and importantly organizations.

### Benefits to Patients

In the past decade, several medical and surgical specialties have developed international SM platforms to disseminate a variety of professional and patient relevant outputs. These include online journal clubs, anonymized cases, and patient-friendly information. Interestingly, patients seem to value online health communities in which both physicians and patients participate. The benefits are colocated information from both medical experts and experiential experts. In an online 95 stroke patient community, patients' reasons for use of such a platform included medical activities (gathering information about disease or being informed about scientific research programs), emotional activities (gaining recognition and expressing emotions and thoughts), and lifestyle activities (reading tips and tricks about combining the activities of daily living with the disease process).<sup>4</sup> Innovation harboring

the essence of these benefits acknowledging the ethical considerations associated with the patient–clinician interaction is under development for IgA nephropathy patients.<sup>2</sup> Such innovation has the potential to use the positives of the digital age to further understand the biopsychosocial aspects of patient need to provide more robust and widely available patient resources. From a stroke perspective, efforts to raise the profile of Stroke Awareness Month using the internet and SM expanded the size and increased the interaction of the community than previous years without such technology.<sup>5</sup>

### Benefits to Stroke Organizations

Several studies to date have demonstrated the significant potential that Twitter holds as a learning tool during an academic conference. These include an analysis of information dissemination via Twitter at a medical education conference, which concluded that Twitter was used to discuss the key topic of medical education themes more than any other topic. Furthermore, an analysis of Twitter metrics at the International Conference on Residency Education demonstrated spikes in tweet activity during conference days, tweets revealed content areas of presentations on conference days, and importantly trainee career-related tweets (ePortfolio and continuing professional development) predominated.<sup>6</sup>

To provide a stroke organization and trainee perspective, we describe the experiences of using the #ESOSS17 during a recent international stroke trainee event. The European Stroke Organisation (ESO) Summer School is organized each year by a team of stroke physicians in an European city. Stroke specialists from Europe provide their expert knowledge to young physicians with a major interest in cerebrovascular diseases. The local committee selects the participants, often a maximum of 2 people per European country on the basis of a letter of motivation, curriculum vitae, and letter of support. The last meeting took place in Leptokaraya, Greece, from the 10th–15th September and gathered 50 participants from 32 countries.

We have retrospectively analyzed the #ESOSS17 hashtag using the SM metrics website Twitter Analytics. In all, 118 tweets were sent generating >50300 impressions (Figure). During the 5-day summer school period, the number of new

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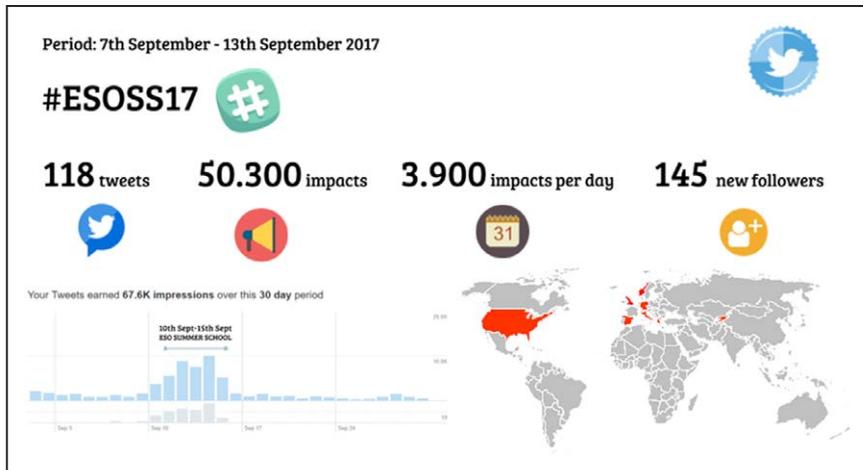
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**Figure.** Twitter Analytics and International Impact for #ESOSS17 hashtag for the European Stroke Organisation Summer School, Leptokaralya in Greece.

followers increased in 145, leading to >1500 people following European Stroke Organisation Conference Twitter Account. We assume they were directly interested in our coverage (ie, the conference and the tweets about it). One interesting finding was that the majority of retweets were nonattendees, and picture-containing tweets were most commonly retweeted. Despite achieving 3900 impacts per day, the number of conferences using a Twitter account for attendees is low. The pre-conference announcements and closing tweets earned 67 600 impressions during the 30-day periconference period.

### Benefits to Medical Education

The use of SM to enhance learning is a natural step in the evolving area of medical education technology. A systematic review of the published literature on SM use in medical education identified both the benefits and challenges of such interventions.<sup>7</sup> The benefits included learner engagement, feedback, collaboration, and professional development.<sup>7</sup> The challenges included technical issues, variable learner participation, and privacy/security concerns.<sup>7</sup> SM platforms provide varying restrictions on character counts, numbers of images, and video length.<sup>7</sup> An example of a highly successful radiology SM platform is Radiopaedia.org, which uses Facebook to post image content and highlight upcoming scheduled education events, Twitter for image quizzes, and Instagram for anatomic or spot diagnoses.<sup>3</sup> Importantly, the authors use a hashtag #FOAMRad, based on the concept of #FOAMed (Free Open Access Medical Education).<sup>3</sup> The use of a hashtag helps with analytics of audience interactions as demonstrated in Figure. Importantly, it is crucial to use SM as an additional resource to develop alongside existing medical education methods and consider that any SM interaction complies with your institution's internal SM guidelines and policies.

### Benefits to Medical Research

Increasingly, biomedical and clinical journals are using SM platforms to disseminate published original research. *Stroke* has a Twitter handle @StrokeAHA\_ASA, which currently has ≈6500 followers and is used to update readers on the latest original articles and editorials. Unfortunately, a 2012 randomized control trial found no effect of a SM intervention on 30-day page views in the journal *Circulation*, despite prior

literature suggesting a positive relationship between SM interactions and citation numbers.<sup>8</sup> However, research impact is measured beyond page views and citations, a change in health policy is considered a true impact. As stroke trainees, some of whom have aspirations to be clinician scientists, establishing connections via SM to experienced stroke researchers is vital. These individuals are able to provide mentorship and guidance in multicenter study design and conduct, as well as dissemination internationally. Furthermore, SM is an increasingly crucial metric for peer-reviewed journals, funding bodies, and host academic institutions. Ultimately, analysis of altmetric data is an increasingly novel way of characterizing the impact of peer-reviewed research.

### SM Ethics

During the digital age, physicians have developed a multitude of mechanisms to use SM both personally and professionally. This has led to both the American Medical Association (2013) and General Medical Council (2013) developing clear guidance covering doctors' use of SM.<sup>9,10</sup> The GMC guidance includes key themes including maintaining boundaries, maintaining confidentiality, respect for colleagues, and anonymity.<sup>10</sup> Importantly, although highlighting the clear ethical issues, there is an outline of the potential benefits that include

1. engaging people in public health and policy discussions;
2. establishing national and international professional networks;
3. facilitating patients' access to information about health and services.

Ultimately, whether the interactions via SM involve patients or not, it is imperative professional standards are maintained and the principles of good medical practice are upheld in all SM activity.

### Forward View

Internationally, stroke physicians often train in one of several parent specialties including neurology, geriatric medicine, acute medicine, or rehabilitation medicine. Importantly, with an aging population with increasing comorbidity, the relevance of each of these parent specialties to overall stroke care is apparent. SM offers the opportunity to follow a variety of different specialties latest research providing a low-cost,

readily accessible, platform to learn and engage. There is the potential for significant benefit to be derived from rigorous mixed methods studies of the use of stroke-related SM. These studies could examine SM as a potential resource for patients and carers to seek information and support to improve the recognition and management of stroke disease. Ultimately, with the drive to combat the global burden of stroke, SM offers a unique opportunity for patients, practitioners, researchers, and the wider public the opportunity to share our views and ideas about how we are progressing with achieving this goal.

### Conclusions

Despite a relative paucity in stroke-specific examples of SM practice, by understanding innovation and positive examples from other specialties, stroke trainees can gain significant educational, professional, and academic benefits from engaging with SM. Furthermore, the authors have demonstrated exposure of science and discourse among academic colleagues via altmetric data.

### Disclosures

Drs Cabrera-Maqueda (@josema\_olvera) and Minhas (@DrJMinhas) are Twitter users.

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