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## Original Communications

## Educational content and the use of social media at US departments of surgery

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## ABSTRACT

**Background.** The growth of the social media platform Twitter has prompted many to consider its potential as an educational tool. Little is known about how surgery training programs are utilizing this resource and whether this platform can provide educational content effectively. We sought to determine national utilization of Twitter by departments of surgery in the United States and evaluate if educationally driven content heightened engagement with the Twitter followers.

**Methods.** We conducted a cross-sectional analysis of social media presence for all Accreditation Council for Graduation Medical Education accredited general surgery training programs between October 1, 2016 and December 31, 2016. Each tweet was characterized as either promotional or educational. Metrics related to account engagement, including impressions (number of times a tweet is seen) and retweets (number of times a tweet is shared), were compared. These results were compared against a single departmental account focused primarily on educational content.

**Results.** Thirty-two departmental Twitter accounts were identified from the 272 programs approached associated with accredited general surgery training programs. Training programs posted a median of 1.0 unique tweets (interquartile range: 0.6–2.3) per week. Tweets were primarily promotional (81% of posts) and generated marginal engagement with followers (3.4 likes/tweet; 1.5 retweets/tweet). In contrast, a single, resident-run departmental account at our institution (University of Michigan) focused on educational content generated consistent, educational content (19.6 unique tweets/week, 48% of which were educational), which resulted in increased engagement with followers (11.4 likes/tweet; 5.9 retweets/tweet) compared to other accounts.

**Conclusion.** Though Twitter is being widely adopted widely by departments of surgery, it is primarily utilized for promotional content. Use of educational content may improve engagement from followers. (Surgery 2017;160:XXX-XXX.)

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During the past decade, social media has evolved from communication between friends to a valuable professional tool for development of various avenues.<sup>1</sup> A variety of social media platforms now allow users to share, create, and discuss ideas in real-time with a broad audience.<sup>2</sup> Within the academic surgical community, Twitter, a micro-blogging platform, has gained an avid following among physicians interested in networking, sharing information, and staying abreast of new developments in their fields of interest.<sup>3</sup> Twitter utilizes a real-time news feed composed by short, 140 character entries (“tweets”) that use hashtags (#) to highlight and unify discussion topics created by users.<sup>4</sup> The benefits associated with social media have been harnessed by some individual surgeons who now utilize this resource to amplify their

academic presence<sup>5</sup> and by academic journals to disseminate their research publications.<sup>6</sup> The growth of this social media platform has prompted many to consider its potential as an educational tool.<sup>7-9</sup> As such, an increasing number of surgery training programs have established Twitter accounts to explore opportunities to engage with other institutions and communicate information from their department.

Despite adoption of social media platforms by departments of surgery, little is known about how these accounts are being utilized. Content may be generated by a broad range of members, including medical students, residents, faculty, and/or administrators. With such a breadth of contributors, the material shared may be similarly broad, including topics such as departmental announcements, institutional events, or educational content. On this latter point, data and opinions remain mixed on how well social media curricula contribute to objective educational benefits.<sup>7</sup> To date, there are no comprehensive examinations characterizing the utilization of social media accounts among US departments of surgery.

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**Table 1**  
Content specific hashtags.

Hashtag	Content	Frequency of posts	Content focus
#UMSurgUpdates	Tweeting a link and highlighting a recent UM peer reviewed publication	Weekly	Publicity
#What2ReadWednesday (not account specific)	Highlights an article recommended by a faculty member or resident to help with upcoming lectures or meetings	Weekly	Education
#UMSurgucation	Clinical pearls, references, thoughts from education conference/grand rounds/morbidity and mortality conference	Weekly	Education
#UMSurgeryFlashback	Installments of significant articles from the past that have shaped the state of research at Michigan today	Weekly	Education
#UMichSurgJC	Monthly highlights of departmental journal club with special guests to include lead authors/faculty/residents from other institutions	Monthly	Education
#UMichMISMOTM	Highlights critical MIS techniques as a "move of the month"	Monthly	Education
#UMInternBootcamp	Intern curriculum posted for medical students who have recently matched into surgery	Weekly	Education

In this context, we designed a study with 2 specific aims. First, we sought to comprehensively evaluate how departments of surgery in the United States are utilizing Twitter accounts currently. Second, we used this information to help inform development of our own social media account at the University of Michigan and to determine if an account focused on educational content to generate more engagement with followers.

## Methods

### *Evaluation of Twitter utilization among US departments of surgery*

We used a listing by the Accreditation Council for Graduation Medical Education (ACGME)<sup>10</sup> of all ( $n = 272$ ) US departments of surgery as listed to manually search on Twitter for each department's account as of January 2017 (Appendix 1, online version only). All accounts were evaluated for activity during the last quarter of 2016 (October 1 to December 31) representing 3 consecutive months of the most recent data available to allow for adequate catchment of typical usage.

Each tweet was evaluated by 2 independent reviewers to determine the type of content being shared. Educational content was defined as media which provided didactic information or tweets that contained Web links or references to supplemental educational materials. Promotional tweets were determined as those with department-specific content announcing events or achievements of its members. After coding independently, any disagreement about categorization was resolved by consensus discussion.

For each departmental account, we also assessed the level of engagement from each account. To do this, we used 3 standard metrics reported by Twitter including "impressions" (the number of times the times a post has been seen), "likes" (the number of times a post has been "liked" by different users), and "retweets" (the number of times a tweet was shared) that are publically available through Twitter Analytics within each tweet.

### **Development of a Departmental Twitter Account**

To develop our own departmental account, we initiated an iterative process guided by input from communication analysts, faculty, and residents who were both familiar and unfamiliar with social media. We first reviewed the content analysis of other surgery department on social media to understand possible ways in which our account could be used. Then, we established content goals for the account which included publicizing departmental and individual accomplishments, highlighting current events, disseminating educational content, and connecting with individuals outside of our institution. Residents with familiarity of the Twitter platform were recruited to develop the account (@UMichSurgery). Specific hashtags were developed to unify content. Samples of these hashtags are summarized in Table 1. All individuals within the department were

informed about the goals of our Twitter account and encouraged to utilize the account.

### *Disseminating educational content*

While our account aimed to mirror other department of surgery accounts with respect to announcements and promotional material, we focused primary on generating new educational content in our Twitter account.

### *Supplementing internal educational programs with social media*

We used existing educational programs at our institution as a framework for developing social media adjuncts. Faculty and residents leading the discussions during regularly scheduled conferences were asked to submit recommended reading assignments and/or infographics capturing the primary message of their presentation. Additionally, resources and articles related to topics discussed at our weekly Death and Complications Conference were tweeted to provided supplemental reading for residents. These resources were either posted the night before each conference or within 24 hours of the event.

### *Generating educational material for an external audience*

Educational content was developed for an extramural audience as well. Content for this section was organized by theme specific hashtags.

The first series of posts were shared under the hashtag: #UMichMISMOTM (Umich Minimally Invasive Surgery Move of the Month). Our faculty members have developed a free, open access program for the dissemination of essential laparoscopic techniques and methods through monthly installments of 3 to 5 minutes, high-yield intraoperative videos posted to the YouTube video-sharing platform.

A second series of posts, #UMInternBootcamp focused on education of medical students and junior trainees and were initiated after the National Resident Matching Program (Match) of 2017. We used the Match to provide fundamental curricula to residents preparing to enter surgery residency.

A third series of tweets used the #UMichSurgJC to share content from the departmental regularly scheduled journal club. A resident social media advisor (V.C.N.) was appointed to develop content to supplement the regularly scheduled journal club. The advisor contacted authors of the articles being discussed as well as faculty and residents from around the country, informing them about the planned event. The Twitter component would take place after the in-person journal club at our institution, serving to supplement the intramural discussion. During the weeks leading up to each Twitter journal club, the account would post content related to the anticipated discussion, which would include links to the journal

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