Social Media in Radiology: Early Trends in Twitter Microblogging at Radiology's Largest International Meeting

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Purpose: Twitter is a social media microblogging platform that allows rapid exchange of information between individuals. Despite its widespread acceptance and use at various other medical specialty meetings, there are no published data evaluating its use at radiology meetings. The purpose of this study is to quantitatively and qualitatively evaluate the use of Twitter as a microblogging platform at recent RSNA annual meetings.

Methods: Twitter activity meta-data tagged with official meeting hashtags #RSNA11 and #RSNA12 were collected and analyzed. Multiple metrics were evaluated, including daily and hourly Twitter activity, frequency of microblogging activity over time, characteristics of the 100 most active Twitter users at each meeting, characteristics of meeting-related tweets, and the geographic origin of meeting microbloggers.

Results: The use of Twitter microblogging increased by at least 30% by all identifiable meaningful metrics between the 2011 and 2012 RSNA annual meetings, including total tweets, tweets per day, activity of the most active microbloggers, and total number of microbloggers. Similar increases were observed in numbers of North American and international microbloggers.

Conclusion: Markedly increased use of the Twitter microblogging platform at recent RSNA annual meetings demonstrates the potential to leverage this technology to engage meeting attendees, improve scientific sessions, and promote improved collaboration at national radiology meetings.

Key Words: Social media, Twitter, education, microblogging

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INTRODUCTION

In recent years, various social media platforms have proliferated. In health care, Twitter (twitter.com, San Francisco, CA) has attracted the most attention. Twitter is a microblogging platform that allows users to share messages, information, questions, and links via short online posts (known as tweets) consisting of 140 characters or less. Twitter posts are shared with followers of the user who posts information. Those messages can subsequently be passed along to other Twitter users in an exponential (or "viral") manner.

Recent evidence indicates that Twitter is no longer simply a medium for young people to share random idioms and status updates, but rather an increasingly accepted platform for thought-leaders, politicians, health care innovators, physicians, and educators to exchange information and ask questions [1,2]. Literature is now emerging regarding how physicians can use Twitter as a resource to learn and to engage patients in new, creative ways [3-5]. A recent review of the use of social media in medical education concluded that social media is an emerging field of scholarship that warrants further investigation [6].

Researchers from various medical specialties have described the use of social media at their annual meetings [7-10]. To our knowledge, however, there is no published data regarding the use of microblogging technology by radiology meeting attendees. Thus, the purpose of this study is to assess and quantify the use of Twitter as a microblogging platform at radiology meetings, focusing on the specialty's largest international scientific gathering—the RSNA Annual Meeting.

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METHODS

Before the 2 most recent RSNA annual meetings, the hashtags #RSNA11 and #RSNA12 were formally registered with Symplur (Upland, CA), a health care social media analytics organization, as part of its Healthcare Hashtag Project for medical social media tracking. Hashtags are words or phrases prefixed with the symbol # and serve as metadata tags for following and tracking conversations and groups of messages in various social media platforms. A glossary of additional, commonly used Twitter terms is included in Table 1. Twitter users are encouraged to insert these searchable hashtags into tweets related to health care meetings and topics so that meeting- or topic-related activities can be efficiently followed and tracked by other interested Twitter users.

Symplur collected data for all Twitter activity that was metadata tagged using official annual meeting hashtags for each year (#RSNA11 and #RSNA12). These data were initially aggregated and then subsequently analyzed both quantitatively and qualitatively, focusing on activities during each meeting, and also in the 1-week periods before and after each meeting. Analytics included daily and hourly Twitter activity, frequency, and various other characteristics of microblogging activity over time; trends related to and characteristics of the 100 most active Twitter users (defined by number of tweets) at each meeting; frequency and characteristics of meeting-related content; and the geographic origin and other identifiable characteristics of meeting microbloggers. Data were accessed by Symplur through Twitter's application programming interface via a MySQL database (Oracle, Redwood Shores, CA). Initial analytics were performed via proprietary solutions that included PHP Hypertext Processor and Javascript programming languages. Subsequent calculations were performed using commercially available spreadsheet software (Excel 2010, Microsoft Corporation, Redmond, WA).

RESULTS

A total of 9,691 RSNA meeting-related tweets were identified (4,061 for #RSNA11 and 5,630 for #RSNA12). Most meeting-related Twitter activity occurred during the formal meeting days themselves, and increased from 3,260 meeting-related tweets (out of 4,061 total tweets [80.3%]) in 2011 to 4,478 meeting-related tweets (out of 5,630 total tweets [79.5%]) in 2012 (+37.4%). Additionally, considerable Twitter activity was noted during the week before the 2011 (661 of 4,061 [16.3%]) and 2012 (882 of 5,630 [15.7%]) meetings (+33.4%). Less activity was present in the week after each the 2011 (140 of 4,061 [3.4%]) and 2012 meetings (270 of 5,630 [4.8%]) (+92.8%) (Fig. 1).

The total number of RSNA meeting Twitter microbloggers increased from 755 in 2011 to 1,116 in 2012 (+48%). The number participating in microblogging during the meeting week itself increased from 661 in 2011 to 913 in 2012 (+38.1%). Although the average tweets per participant during the meeting remained unchanged at 4.9 (2011: range, 1-156; SD, 12.4; 2012: range, 1-235; SD, 15.1), increases were present in overall average meeting tweets per hour (23 to 31; +34.8%) and per day (543 to 746; +37.4%).

Although most RSNA Twitter microbloggers were most active during the meeting itself, the number of Twitter users using official meeting hashtags increased during the week immediately before (232 users in 2011 to 329 in 2012; +41.8%) and after (76 users in 2011 to 147 in 2012; +93.4%) the meeting (Fig. 2).

The top 100 Twitter users increased average activity from 22 meeting-related tweets in 2011 (range, 6-156) to 29 in 2012 (range, 8-235); +31.8%. The number of Twitter users with 5 or more meeting-related posts increased from 135 in 2011 to 179 in 2012 (+33%). The proportion of individual meeting participants (rather than vendors and media outlets) using official

Table 1. Glossary of commonly used Twitter abbreviations and terms

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Tweet	Messages composed of 140 characters or less sent to followers of the microblogger
Hashtag	Words or phrases prefixed with the symbol "#" that serve as metadata tags
RT	Retweet; a tweet that a microblogger receives from another user that is sent out (forwarded) to his/her followers
MT	Modified tweet; similar to a retweet except that content of the original tweet is slightly altered
#FF	Follow Friday; a commonly encountered hashtag denoting #FollowFriday, when Twitter users share with their followers other Twitter users that they enjoy following. This hashtag is traditionally only used on Friday
DM	Direct message; a message that is sent directly to another Twitter user, which is visible only to that user and not to the followers of the message sender
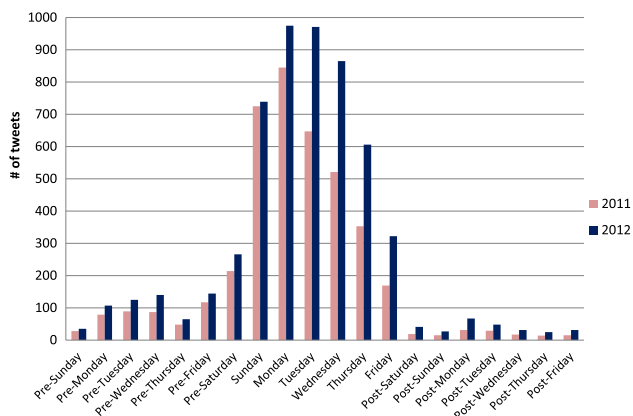
Fig 1. Twitter activity (tweets per day) before, during, and after the 2011 and 2012 RSNA annual meetings.