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Social media: A tool to spread information: A case study analysis of Twitter conversation at the Cardiac Society of Australia & New Zealand 61st Annual Scientific Meeting 2013

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Summary
Background: The World Wide Web has changed the way in which people communicate and consume information. More importantly, this innovation has increased the speed and spread of information. There has been recent increase in the percentage of cardiovascular professionals, including journals and associations using Twitter to engage with others and exchange ideas. Evaluating the reach and impact in scientific meetings is important in promoting the use of social media.
Objective: This study evaluated Twitter use during the recent 61st Annual Scientific Meeting at the Cardiac Society of Australia and New Zealand.
Methods: During the Cardiac Society of Australia and New Zealand 2013 61st Annual Scientific Meeting Symplur was used to curate conversations that were publicly posted with the hashtag #CSANZ2013. The hashtag was monitored with analysis focused on the influencers, latest tweets, tweet statistics, activity comparisons, and tweet activity during the conference. Additionally, Radian6 social media listening software was used to collect data. A summary is provided.

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Results: There were 669 total tweets sent from 107 unique Twitter accounts during 8th August 9 a.m. to 11th August 1 p.m. This averaged nine tweets per hour and six tweets per participant. This assisted in the sharing of ideas and disseminating the findings and conclusions from presenters at the conference with a total 1,432,573 potential impressions in Twitter users tweet streams.
Conclusion: This analysis of Twitter conversations during a recent scientific meeting highlights the significance and place of social media within research dissemination and collaboration. Researchers and clinicians should consider using this technology to enhance timely communication of findings. The potential to engage with consumers and enhance shared decision-making should be explored further.

1. Background

The World Wide Web has changed the way in which people communicate and consume information (Bakshy, Rosenn, Marlow, & Adamic, 2012). More importantly, this innovation has increased the speed and spread of information. Once solely the purview of clinicians — now patients, researchers and policy makers have access to scientific information in real time. Moreover, researchers are no longer dependent on formal media outlets; the power to disseminate information is in their hands.

Web 2.0 allows users to independently generate and publish content allowing for instantaneous feedback and ongoing commentary. Twitter is a micro-blogging platform limited to 140 characters in text. There has been recent increase in the percentage of cardiovascular professionals, including journals and associations using Twitter to engage with others and exchange ideas (Redfern, Ingles, Neubeck, Johnston & Semsarian, 2013). Twitter is increasingly being used during scientific conferences to allow for 'real-time' parallel conversations, dissemination, critique and open appraisal of studies, collaboration and professional networking. An example of this was The Cardiac Society of Australia and New Zealand 2013 61st Annual Scientific Meeting held on the Gold Coast, Australia in August 2013 which used the hash tag #CSANZ2013. A Twitter hashtag or the # symbol is used to highlight keywords or topics in a tweet. Hashtags were originally created by Twitter users as a method to categorize messages. (Twitter, 2014). People may use the hashtag #symbol before a relevant keyword; in this case #CSANZ2013 in their tweet to categorize these tweets and help users find them more easily in a Twitter search. This hashtag bound attendees to contribution to debate and discussion before, during and after the conference. Non-attendees were able to read, contribute, engage, review and re-post updates. Evaluating the reach, engagement, potential impact and overall use around scientific meetings is important in understanding the use of social media.

2. Objective

This study evaluated Twitter use during the recent 61st Annual Scientific Meeting at the Cardiac Society of Australia and New Zealand.

3. Methods

During the Cardiac Society of Australia and New Zealand 2013 61st Annual Scientific Meeting Symplur™ (www.symplur.com) was used to curate conversations that were publicly posted with the hashtag #CSANZ2013. The hashtag was monitored via http://www.symplur.com/healthcare-hashtags/csanz2013 with analysis focused on the influencers, latest tweets, tweet statistics, activity comparisons, and tweet activity during the conference. The hashtag #CSANZ2013 was monitored from 8 August 2013 0900 h—11th August 2013 1300 h. (7th August 1600 h—10 August 1900 h LA time adjusted on Symplur). Additionally, Radian6™ social media listening software was used to collect data (Radian6, 2013). A summary is provided in the tables and figures below. Descriptive statistics were used to describe trends and frequencies.

4. Ethical approval

Ethical approval was sought for this study; however, it was deemed not appropriate as the Tweets are published in the public domain, and this study is documenting the frequency, reach and impact rather than the content of the tweets. Tweeters have been de-identified to further protect anonymity.

5. Results

Data were generated using Symplur™ HealthCare Social Media Analytics on 12 August at 9 a.m. There were 669 total tweets sent from 107 unique Twitter accounts during 8th August 9 a.m. to 11th August 1 p.m. This averaged nine tweets per hour and six tweets per participant. This assisted in the sharing of ideas and disseminating the findings and conclusions from presenters at the conference with a total 1,432,573 potential impressions in Twitter users tweet streams.

The pre-conference satellite-meeting day (8th August, 2013) generated the largest number of tweets with a total of 215 tweets posted. A total of 779 tweets were posted during the week of the conference from Monday 5th to Sunday 11th August using the hashtag #CSANZ2013. The peak of

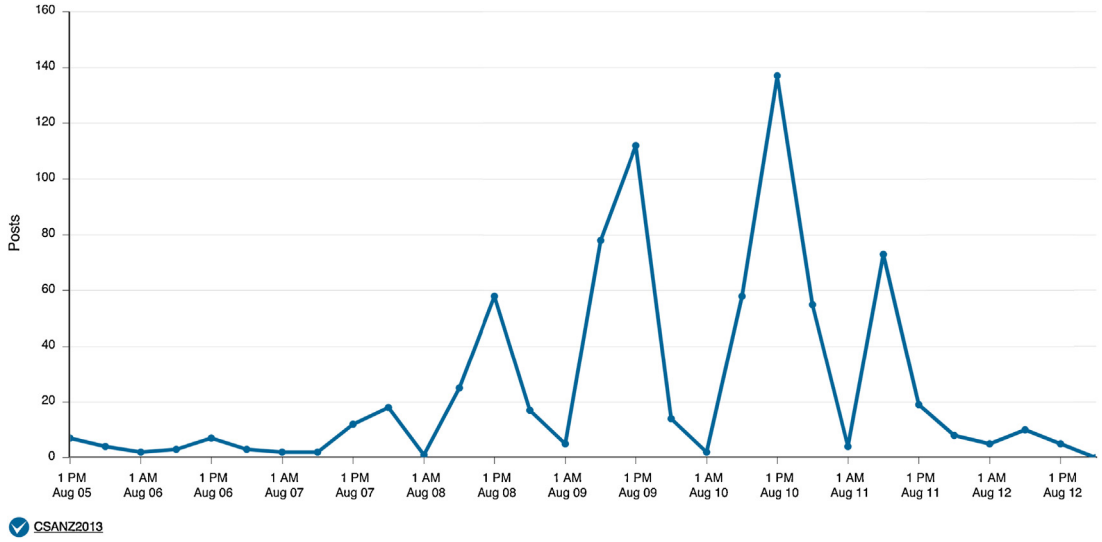

Figure 1 Twitter use during CSANZ 2013.
Data: http://www.salesforcemarketingcloud.com.

Table 1 Number of tweets sent.

Day	Number of tweets sent with #CSANZ2013
Monday August 5th (pre conference day)	15
Tuesday August 6th (pre conference day)	13
Wedday August 7th (pre conference day)	112
Thursday August 8th (pre conference day)	215
Friday August 9th	213
Satday August 10th	181
Sunday August 11th	30
Total	779

Data: www.symplur.com.

Table 2 Top 5 times of tweet activity during conference.

Time and No. of tweets	Proposed rationale
August 7th—7 p.m.—18 tweets	
August 8th—1 p.m.—58 tweets	Council meetings
August 9th—1 p.m.—112 tweets	Sessions in full swing
August 10th—1 p.m.—137 tweets	Sessions in full swing
August 11th—7 a.m.—73 tweets	

Data: Radian6 http://www.salesforcemarketingcloud.com.

conference tweets was on Saturday August 10th at 1 p.m. [As shown in Tables 1 and 2 and Fig. 1] 137 tweets were generated during this period.

Table 3 shows a user mention is the number of times by which a Twitter user's account was mentioned using the hashtag #CSANZ2013. The top mention is unsurprisingly from the official Twitter account of the Cardiac Society of Australia and New Zealand with 151 mentions.

The number of tweets column indicates the number of posts by that user. Of note is the use of Twitter by leading professionals in attendance at the conference. 'Impressions' are a metric of how many times the post has the potential to be on another users Twitter stream based on the followers of that user and followers of users that re-post their tweets. Symplur™ calculates this total number of impressions by taking the number of tweets per participant and multiplying this with the number of followers that a participant has. This is done for all participants in this time period and then finally the numbers are added up (www.symplur.com).

Readers will note that a celebrity features as the user with the largest number of impressions at 979,100. This was due to a Cardiologist successfully requesting a re-tweet from an actor. This highlights the potential reach and power of Twitter to spread an important message or to advocate for a cause.

Fig. 2 represents the global origin of tweets sent with #CSANZ2013 during conference. Of particular interest is the 28.4% emanating from the United States origin, highlighting international attention and engagement. However, users that have not specified their country of origin on their Twitter profile will default to the US as the country of origin. These will disproportionately increase this figure for the US.

6. Discussion

This evaluation demonstrated how Twitter could be used at scientific conferences as a way to promote scholarly discussion and debate, and to engage with others to disseminate information to a wider audience than those who attended the meeting. This is important as this discourse extends beyond the scientific community to consumers and policy makers. The American Heart Association estimated that during the International Stroke Conference, Hawaii, 2013 a total

Table 3 Mentions, tweets and impressions.

@Username mentions		Number of tweets		Impressions	
Professional society	151	Associate professor	83	Celebrity	979,100
Cardiologist	99	Professor of cardiovascular nursing	71	Author	65,049
Cardio-genetic counselor	93	Professional society	68	Cardiologist	64,666
PhD candidate	66	Cardiologist	62	PhD candidate	59,388
Research fellow	63	PhD candidate	49	Professor of cardiovascular nursing	56,303
Nursing council	50	Cardio-genetic counselor	32	Cardiology news source	46,597
Communications officer	45	Cardiology device company	28	Associate professor	36,935
Professor of cardiovascular nursing	42	Research fellow	19	Professional society	21,216
Cardiology news source	38	Cardiology news source	17	Cardio-genetic counselor	14,400
Associate professor	30	PhD candidate	14	Science communicator	9034

Data: www.symplur.com.

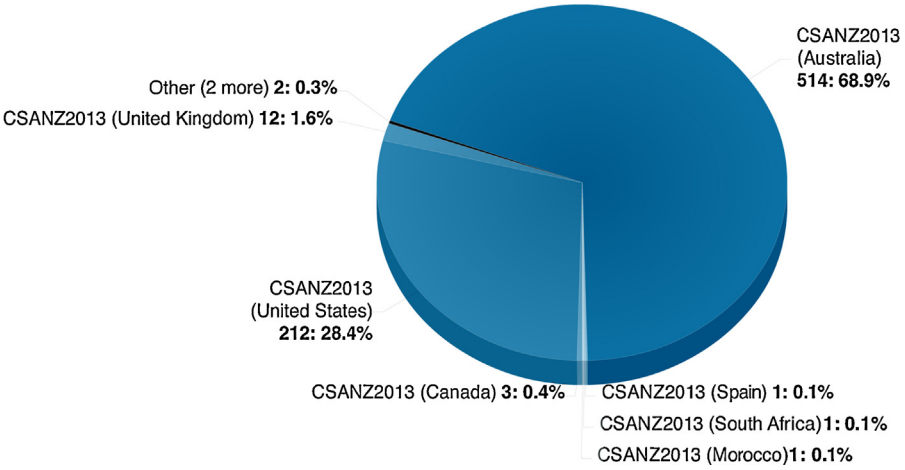

Figure 2 Global origin of tweets sent with #CSANZ2013 during conference.
Data: http://www.salesforcemarketingcloud.com.

of 1309 tweets were sent, generating 7.4 million impressions (American Heart Association, 2013). This also highlights the global reach of Twitter activities during cardiovascular and stroke meetings.

Professional societies and associations should consider adopting the use of social media pre, during and post conferences. This method of communication increases the potential for networking and collaboration. The CSANZ has demonstrated a commitment to social media as a method of communication with its members, clinicians and the wider public. This commitment is also evident through the scheduling of two sessions during the conference on the use of social media in cardiovascular health. Including a session on leveraging the benefits in practice at the Cardiovascular Nurses Council and a second session presented by the Society's Communication Officer.

7. Limitations

Our research has some limitations. We have described the frequency, research and usage of Twitter pre, during and

post a scientific meeting. However, we have not included information on the purpose that Twitter was being used for. Existing research by Ebner and Reinhardt (2009) identifies that Twitter can be used in different ways such as:

- Exchange of resources including hyperlinks, images, photos, videos
- Exchange of social activities and events (conferences tours, practice workshops, etc.)
- Documentation and promotion of conference activities (e.g. posters, slides and notes)
- Delivering rapid conference announcements
- Acting as a platform for audience engagement to ask questions and provide feedback
- Engaging with non physical attendees (or online-only 'attendees')
- Feed background comment and discussion during live presentations (Ebner and Reinhardt, 2009).

Additionally, our research did not examine the dialog or analyze the online social networking patterns between individual Twitter users. This may have been useful to identify key influencers and power relationships amongst participants.

8. Conclusion

This analysis of Twitter conversations during a recent scientific meeting highlights the significance of using social media within research dissemination and collaboration. Many societies use Twitter only as a one-way 'publishing' method of communication, whilst by its very nature, social media platforms are designed to enable effective two-way communication. This study demonstrates the ability of professional bodies and societies to create a dialog and buzz using social media. Researchers and clinicians should consider using this technology and other forms of social media to enhance timely communication of findings. The potential to engage with consumers and other practitioners to enhance shared decision-making and collaboration should be explored further.

9. Relevance to practice

Cardiovascular and similar scientific conferences should be encouraged to promote and make use of Twitter as an additional low-cost method of engaging researchers and clinicians and as a method to enhance communication of findings into clinical practice. Patients and caregivers may also benefit from the increased availability of scientific information via this method of engagement. This low cost method of instantaneous publication of information may benefit patient—clinician interaction and influence patient outcomes.

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