

Case study: using social media monitoring to measure qualitative impact and inform communication strategy

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Abstract

Objective

Medical communications are adapting to embrace new technologies, increasing the variety of communication channels that are available, and also facilitating the collection of feedback from a given target audience. Our aim was to monitor social media over time to assess the dissemination of information, the resulting topics and opinions, and the potential use of feedback from social media in publication planning.

Research design and methods

References in social media to one drug and two of its competitors were captured following regulatory approval and over the subsequent year. Qualitative information on the topics discussed was collected and compared to publication activity.

Results

We present a quantitative overview of social media activity for the drug and its competitors over the subsequent year with heuristic analysis and qualitative observations. We also discuss a selection of free online tools that were trialled and assessed for their utility with respect to both automating the monitoring process and visualizing the findings.

Conclusion

Social media has the potential to facilitate better engagement with a target audience and could help tailor future communications to meet their needs.

Introduction

- Social media presents an opportunity for publication planners to gain insight into what is being discussed about a topic in the real world and what information may be of interest to various target audiences.
- By following the spread of information over social media channels such as Twitter, the flow of information from individual publications to physicians or patients can be followed. This may be useful in the planning of future publications to maximise the dissemination of information.

Objective

- This was an exploratory assessment of Twitter activity relating to three novel anticoagulants over the course of 1 year to identify key drivers of Twitter activity and assess the utility of available information for publication planning.

Methods

- Tweeted references to three novel anticoagulants were monitored for 1 year following the approval date of Drug 3 for stroke prevention in atrial fibrillation in the US (end of December, 2012).
- Twitter was monitored by carrying out a weekly check on each agent, searching for entries by common name and related dictionary terms (including generic names, trade names and variations) (www.twitter.com/search).
- Retrieved tweets were screened to remove non-related tweets (e.g. usernames that happened to include a drug name) and subsequently manually categorized as positive, negative or neutral in sentiment.
 - Sentiment categories were based on both content and wording of the individual tweet. Tweets referring to the same event could therefore be categorized differently depending on how they were presented.
 - Tweets posted in languages other than English were included in the total number but categorized as neutral unless a definite sentiment could be determined using Google translate (www.google.com/translate).
- Summaries for each of the three agents were graphed to show changes over time in the observed Twitter sentiment.
 - Timelines for each agent were compared with a second archive of article publication dates, congress activity and regulatory milestone events, as well as blog and news outlet activity to identify drivers of social media activity.
- Trending topics and key articles being linked or shared in each given week were identified.
 - Specific questions and opinions from individuals who identified themselves as medical professionals or patients were noted to identify topics of interest to these audiences.
- Similar searches and analyses were performed using a selection of freely available online automated tools to evaluate their utility, comparing the results with those obtained from the manual analysis.
 - Different visual outputs from the automated analyses were also assessed for ease of use and utility.

Results

- The analysis included over 16,000 tweets, 887 publications and 383 congress abstracts (**Figures 1–3**).

Drug 1

- Approximately 40% of Drug 1 tweets over the course of the year were negative, concerning topics such as bleeding issues, negative side effects and lack of an appropriate reversal agent.
 - Negative publications and news items were regularly retweeted by legal groups, possibly seeking litigation opportunities rather than for medical reasons, amplifying the effect.
- Drug 1 is relatively widely available and negative patient experiences or case studies may be more likely to be tweeted than positive experiences.

Drug 2

- The majority of Drug 2 Twitter activity identified was related to publications and regulatory decisions.
- There was a low but steady background of negative opinions on Drug 2 deriving from the long list of bleeding side effects mentioned in a Drug 2 TV commercial aired in the USA.
 - While there were very few legal groups echoing negative news items as seen with Drug 1, these did start to become apparent towards the end of the year.
- Tweets relating to patient and physician experiences became significantly more prevalent over the course of the year.

Drug 3

- The majority of tweets related to publication and regulatory activities, with little patient or physician experiences appearing until later in the year. This may have limited the potential for the type of negative comments seen with Drugs 1 and 2.
- On airing, a low background of negative opinions based on the bleeding risks mentioned in an Drug 3 TV commercial started to emerge, similar to that seen with Drug 2.

Observations

- The most common drivers of both positive and negative sentiments related to regulatory decisions and key trial publications. Mainstream news articles, though less frequent, also resulted in significant social media activity.
- The Twitter activity for the three products shows some predictable signs of differences relating to changes over the product lifecycles.
- A lack of information can itself be a source of negative sentiment, particularly when relating to safety or management of side effects.
- Journal impact factor does not necessarily reflect social media impact.
 - While studies published in high impact journals are frequently picked up by key blogs and news services, publications in some low impact journals also resulted in significant social media activity.
- While patient and physician experiences were rarely retweeted or repeated, they frequently referred to similar events, problems or questions.

FIGURE 1. Drug 1 publication and congress activity showing the total (negative in tone or findings) number of items identified.

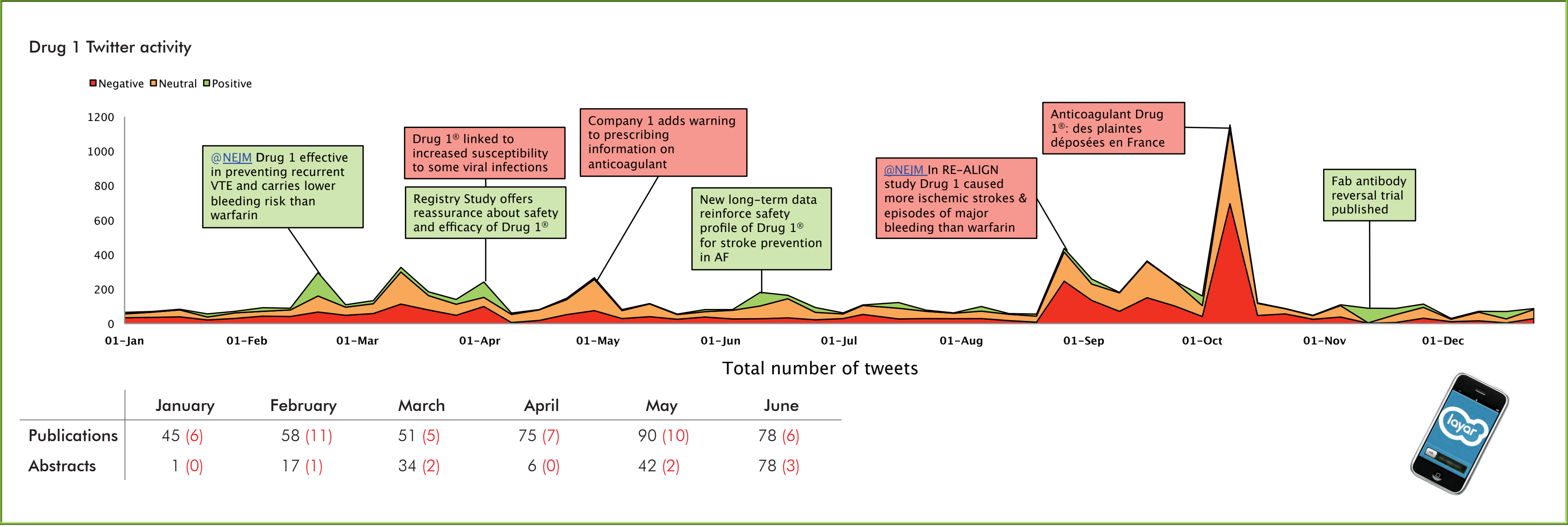


FIGURE 2. Drug 2 publication and congress activity showing the total (negative in tone or findings) number of items identified.

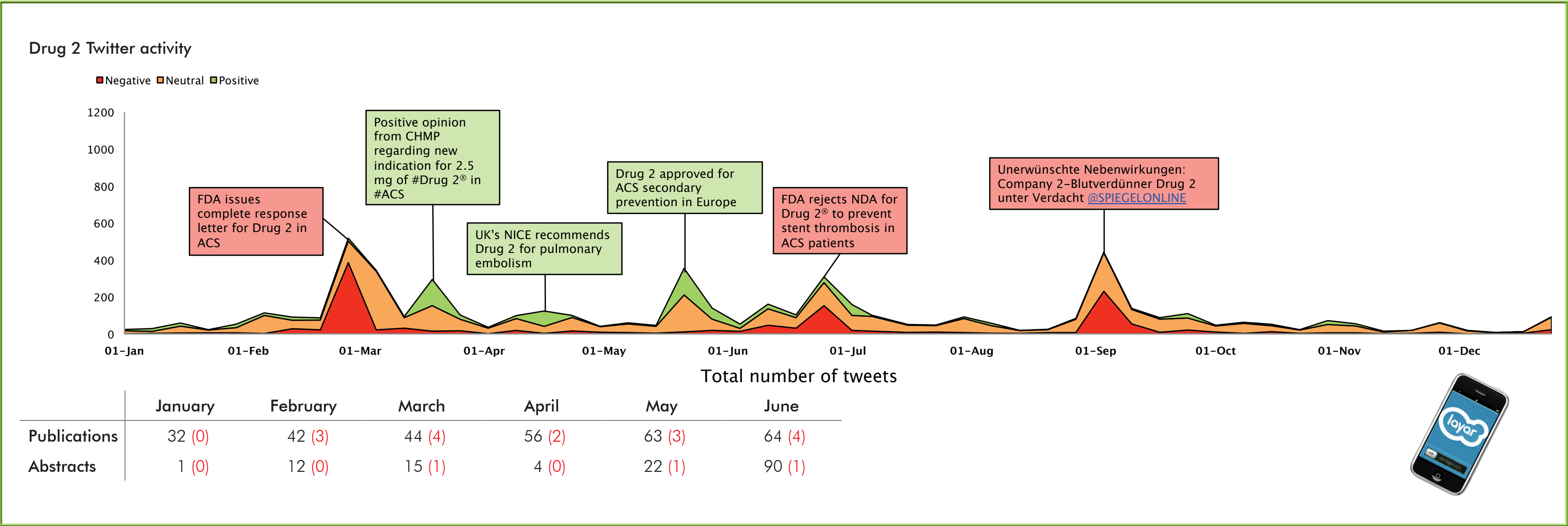
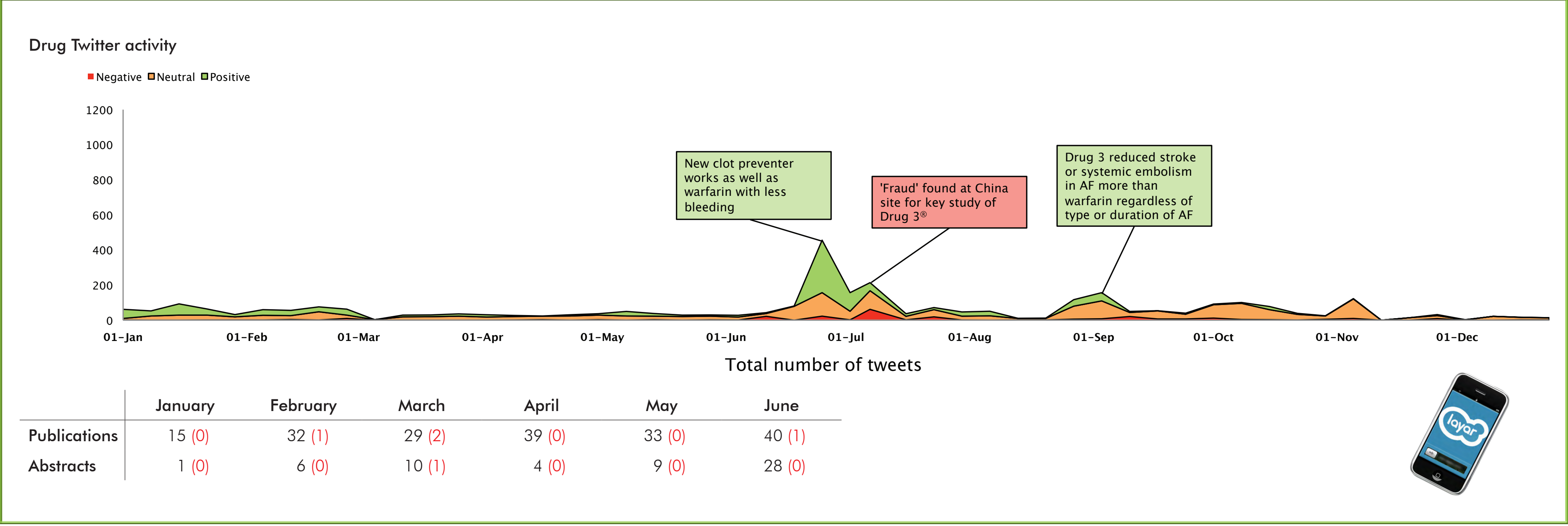


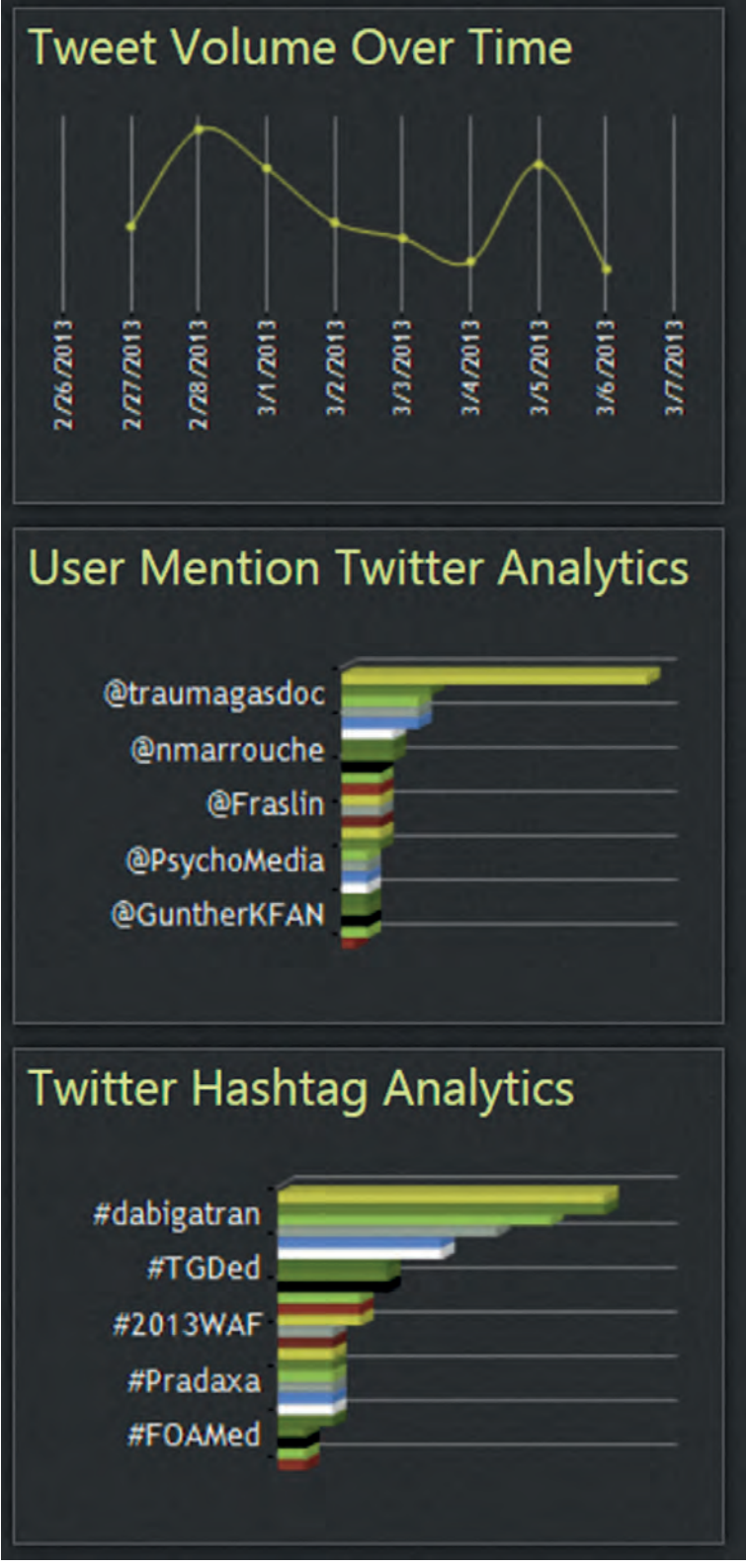
FIGURE 3. Drug 3 publication and congress activity showing the total (negative in tone or findings) number of items identified.



Automated tools for extracting useful information

- Commercial and free online software is available that can be used to mine potentially useful information from Twitter feeds or searches. Examples of potentially useful information include:

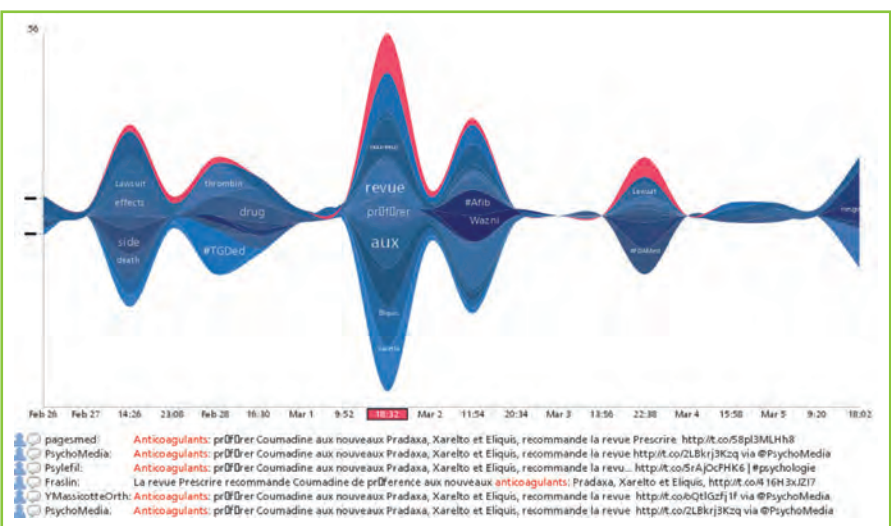
FIGURE 4. Example of analytical output from www.tweetarchivist.com.



- While tools that claim to perform sentiment analysis exist, the accuracy of all programs we have tried remains very poor.

Visualizations/snapshot tools

FIGURE 5. Examples of snapshot outputs from a) Twitter flow and b) Comparison cloud, both from www.neoformix.com/projects.



- The number of tweets over time
 - A measure of noise but not of what is being said.
- The most frequently shared links
 - Many services can identify links that have been shared and this can be used to assess how widely a specific publication is being cited/shared.
 - Owing to the widespread use of different link-shortening services and linking to different news providers or blog coverage of the same story, the information should be considered qualitative not quantitative.
- The proportion of tweets in different languages and, where available, the location from where tweets were made
 - This may be useful in tracking the dissemination of information from specific events, such as congresses, over time.
- Influential individuals or accounts based on number of followers, levels of retweeting user mentions.

Conclusions

- The advent of social media empowers individuals, including both physicians and patients, to express their views in near real-time. This provides a potential conduit for feedback that could aid in publication planning through identification of:
 - topics of interest to a target audience
 - areas where information is lacking, not widely available or unclear
 - issues that have been encountered through user experience.
- By examining the problems and questions that have arisen with related treatments that are further into the product lifecycle, publications and other tactics can be developed to pre-empt these issues before they occur for the treatment in question.
- To maximize the impact of a publication, it may help to take social media activity into account.
 - Publications in top tier journals can generate significant social media activity directly or indirectly via blogs and news feeds. However, unless articles are picked up by other news websites or blogs, many mid-tier journals have little or no social media presence.
 - Some lower impact journals appear to have a disproportionately large social media following, which may be direct or as a result of articles being regularly covered by blogs.

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Disclosures

Both authors are employees of Caudex Medical.

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