Understanding Public Concerns about Food Risks and Food Safety: Role and usefulness of Twitter
Understanding public concerns and perceptions of risk from food is important for managing food safety, both to gauge public thinking and reaction, and to show how policy has responded where appropriate.

Social media, and Twitter in particular, has the potential to offer useful rapid insights into how concerns spread, by examining networks of conversations (who is talking to whom) and by improving analytical granularity (e.g. looking at comment by second or hour, as opposed to less nuanced time periods of month, quarter, or even year). The analysis can be done quickly and cheaply, opening up the possibility of authorities using social media to guide a rapid response to addressing public concerns.

Using statistical modelling, this paper looks at how people in the UK responded on Twitter to a relatively recent food safety incident, namely the ‘horsemeat scare’ of 2013, and explores what we potentially can and cannot learn from it.
What Twitter told us

We found it funny

Real world events did manifest in the virtual world: when the story broke people did start talking about it on Twitter. However, the responses were essentially hijacked by humour, and this stance was magnified by one or two well-known individuals, whose witticisms dominated conversations. Any genuine public concerns were masked by the strength of response from those who simply thought the issue very funny.

The focus was on cultural transgressions (“Brits don’t eat horses”), particularly because sources were traced to the Irish racing industry and the insult to a national cultural icon (“British beef”) rather than human health, which was largely a minor concern. Of course, such an interpretation required a human reader to make sense of it; computer driven analysis of public sentiment could not interpret the jokes, thus it was not possible to categorise ‘negative’ and ‘positive’ language around the issue in a reliable and systematic manner. So big data still needs thick data (Wang, T. (2013) Big data needs thick data. ethnographymatters.net/2013/05/13/big-data-needs=thick-data. Accessed 18.08.16).

Who gets retweeted?

Tweeting from the Food Standards Agency’s @foodgov account significantly increased the retweet likelihood as did tweeting from a mainstream media account compared to everyone else. An increase in googletrend score was also significantly associated with increased retweets demonstrating that public interest and higher retweeting activity corresponds with higher levels of search activity online.

Factors that decreased the likelihood of retweeting included: sending a tweet during the morning commute, working hours, evening commute or evening (compared to sending it at night); sending a tweet on any day of the week apart from Wednesday;
an increase in newspaper headlines that mentioned horsemeat; and inclusion of a URL in the tweet. Interestingly, an increase in positive language resulted in a significant decrease in retweet likelihood, although the problems with measuring sentiment mentioned earlier question the reliability of this finding.

Tweets produced at night survived longer than tweets produced at any other time of day, which may be explained by people having the time to check their Twitterfeed and retweet content when they wake up.

Although the findings are event specific, some are counterintuitive and may help to inform communications strategy in similar future events.
Here are some of the most retweeted tweets from that period.

Update: Horsemeat found in burgers on sale in Aldi, Dunnes Stores, Iceland, Lidl and Tesco

‘Fresh Meat’ series 1. May contain horse.

In ten years time you’ll be praying for some horsemeat in your cockroach burgers

Ikea meatballs pulled from shelves because they contain horse meat. Man, that’s the last time I buy meatballs at a furniture store

Given we’ve all clearly been eating horse meat quite happily for years without dying, maybe everyone should just calm down?
What Twitter could not tell us

Twitter did not pick up a constant theme (that had emerged from focus groups and survey data) which was the break in trust between consumers and suppliers or the supermarkets. This loss of trust was described by many as having been profound at the time; although people may, or may not, have changed their behaviour (and many did), the event added to their sense of ongoing mistrust in provenance, labelling and the general integrity of the food supply chain. Little of these reactions explicitly emerged from Twitter.

Geotagging allows us to plot where a user was when they made their tweet which in turn allows us to explore regional variation in emergent themes. The geotagged tweets prevalence was very low, which meant it was impossible to discern differences in response by location. An alternative explanation is that, notwithstanding the low proportion of geotagged tweets, there really was little difference in tweet content between geographical areas. It might be that something which was more locally based (such as an outbreak of E.Coli) or more significant for human health would show a more nuanced geographical pattern.

The generalizability of the statistical modelling (which is based on characteristics that make a tweet more likely to be retweeted or general survivability of a tweet) is not clear. This particular event (‘horsemeat scare’) may have had particular features (such as the potential for bad-taste jokes, and general sarcasm about meat and/or food system controls) which made it less like other ‘food scares’. One possibility is to replicate the analytical modelling to examine what influences remain constant (e.g. is a tweet more likely to ‘survive’ if it is sent at night?).
Policy implications

• Twitter data is event specific and the analytical approach and statistical modelling needs to be replicated to investigate whether findings can be generalised. However, in this instance, analysis of Twitter data did tell us that people were concerned about eating horsemeat.

• Replication is a valid endeavour as some of the characteristics that increase retweeting or survivability are not intuitive and may have a significant impact on social media communications strategies.

• Low preponderance of geotagging limits ability to investigate at a lower geographical level.

• There is a body of work indicating that Twitter users are not representative of the UK population, and that those who geotag are in turn not representative of the Twitter population.

• However, Twitter gives us timely insights into public attitudes for part of the population (which is better than having no insight at all).
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