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Commentary

Headlines and hashtags: communicating science during an outbreak

ABSTRACT

Science and medical professionals are often looked to as experts in the event of a health crisis, but relatively few have received formal training in science communication. We provide a brief review of the current outbreak situation and suggestions for engaging in reliable, effective science communication online.

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In a time of crisis, curation of accurate information by scientists on social media is especially crucial. While experts in their content area, few scientists are formally trained in science communication, particularly when it comes to risk communication in a time of uncertainty. LINES between generally-accepted facts within the scientific community and opinions of a single or small number of scientists may be blurred or uncertain. Twitter in particular is a medium where most tweets (posts of 280 characters maximum) are public and available to the general populace. Re-tweets can lead to the expansion of a tweet's reach through the medium, so that in some cases posts of an individual who may have a small number of followers end up having a disproportionate reach and effect. For scientists, this potential virality can be a benefit or a disadvantage: it can serve as an excellent way to spread important information, but what if an inaccurate tweet ends up "going viral"? There is potential for lost trust in an individual (and the broader scientific community as well), as a new source of misinformation must be countered. When communicating on social media, scientists need to know what engages the general public and how to communicate complex scientific information in a responsible way that can be accurately understood by the general public. Here, we suggest some best practices for scientific communication in a time of crisis, using examples from the current SARS-CoV2 epidemic.

1. Misinformation and coronavirus (SARS-CoV2)

In December 2019, reports of an atypical pneumonia surfaced out of China. After approximately a month of reported cases, a novel coronavirus was identified as a cause on January 9 [1]. The epidemic quickly spread from dozens of cases to tens of thousands in a matter of weeks. Several large cities in China were quarantined in an attempt to stem the spread, but cases were soon found in other countries, spreading to all continents except Antarctica by March. Individuals turned to traditional as well as social media in order to gain information about the epidemic.

Misinformation regarding coronavirus quickly became ubiquitous, especially on social media. Platforms such as WhatsApp, Facebook, and Twitter have all been used to spread fear and panic about the virus [2,3]. In late January, 2020, Facebook, Twitter, and Google began providing a link to the CDC's summary page about the illness whenever a user entered the search term "coronavirus" [4]. However, providing a link to the CDC or WHO summary page does not necessarily mean that users will click on it, and even if they do, the structure and presentation of credible information are not as accessible, interactive, and stimulating as that found on social media. Preference for user-generated social media posts over traditional news sources and health organizations has been documented previously with the Zika virus [5]. Fig. 1 shows evidence (generated by the software platform, Brandwatch) that this trend is also true of social media discussions of Coronavirus between January 21 and February 3, 2020 as the number of mentions is driven by individuals rather than organizations. As such, while communication by organizations is important, users are really searching for trusted individuals for information on topics such as SARS-CoV2.

Scientists face a challenging information environment when it comes to disseminating public health information during emerging crises. In response to prior disease outbreaks (e.g., 2009 H1N1 flu, 2014 Ebola outbreak), the news media tended to highlight death-rates and severe outcomes while inadequately balancing information that might enhance perceived efficacy to control and manage infection [6,7]. It can be difficult to effectively elicit concern (rather than panic) and public vigilance that will encourage proactive action from the public (e.g., effective illness management practices like hand washing), rather than maladaptive fear management practices like information avoidance and denial [8]. The uncertain environments in which these crises emerge add additional complexity. Unsurprisingly, social media conversations not only reflect these uncertainties, but may also amplify them [9]. The resulting sensationalism, combined with heightened misinformation, presents significant health communication challenges.

1.1. Maximizing the message

Given that media coverage of emerging public health crises often contributes to fear and anxiety, scientists and public health
practitioners should be mindful of not contributing to these problems. The CDC’s Guide to Writing for Social Media provides a comprehensive overview of how to use social media platforms effectively, including examples and exercises [10]. In an emergent crisis, responsible scientists using social media platforms must consider much more than how many characters their message includes. Communication experts Lin, Spence, Sellnow, and Lachlan provide seven best practices for leveraging social media during a crisis [11]. These practices include integrating different forms of social media; engaging actively in ongoing dialogue with the audience; optimizing the distinct characteristics of each social media platform; creating unique and identifiable hashtags; partnering with other credible experts and organizations (especially if they have large followings); and monitoring and correcting misinformation and rumors. When utilizing social media platforms (especially Twitter), content creators must do so in a way that parallels the tone, content, and presentation of other social media producers. Posts should be conversational, action-oriented, culturally appropriate, visual, interactive, and timely.

2. Sharing information responsibly

In the age of social media and 24-h news, the implication is often that speed is essential. However, responsible communication should place value on accuracy and context over speed and sensationalism. Fact-checking and being careful not to spread rumor or innuendo are critical aspects of a trusted communicator, as are distinguishing fact from opinion and providing clarity on that which we currently know to be true versus that which we believe to be true based on various assumptions or extrapolations [12]. Although adding hype and hyperbole may have short-term payoffs for the scientist (increased number of followers, invitations for media appearances that prioritize clicks over accuracy), it can result in long-term negative implications on an individual’s scientific reputation and, more critically, on the public’s understanding of and reaction to the epidemic. Studies have shown that scientists and medical professionals still rank highly among trusted professions [13], and we should be cognizant of that trust as a community in the midst of a public health emergency.

3. Summary

An epidemic is a constantly moving target, and information may change daily. It is challenging to balance the communication necessary to respond quickly, accurately, and with minimal sensationalism, but scientists and other perceived experts involved in sharing information on social media need to consider carefully the ramifications of each tweet or post sent out to a public audience. These words carry extra weight as individuals look to them for guidance and knowledge in an emergency situation. We serve our communities best when we promote facts over fear and preparedness over panic.

Declaration of Competing Interest

There is no conflict of interest.

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Fig. 1. Comparison of individual versus organizational twitter mentions over time.
