Editorial

Social media for rapid knowledge dissemination: early experience from the COVID-19 pandemic

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The current COVID-19 pandemic is threatening global health. Rates of infection outside of China are rapidly increasing, with confirmed cases reported in over 160 countries as of 19 March 2020 [1]. During the Severe Acute Respiratory Syndrome (SARS) epidemic, 21% of the global cumulative case total were healthcare workers [2]. However, a recent study from Wuhan, China reported that 1716 healthcare workers were infected with COVID-19, representing 3.8% of confirmed cases [3]. During the SARS epidemic, it is likely that a lack of awareness and preparedness put healthcare workers at risk [4]. Thus, delivering rapid, reliable information that addresses critical infection control issues is of key importance, and tracheal intubation is known to be associated with a high risk of transmission of viral infections to healthcare workers [5, 6].

The challenge is how to transfer knowledge of current best practices to the people who need it most, at a pace equal to or better than the spreading epidemic. The paths for, and rate of dissemination of traditional scholarly publications [7], static websites and even email are known to be slow. During the SARS epidemic, worldwide internet access was well established, yet gaining access to potential medical users was largely reliant on email contact and personal communication [8].
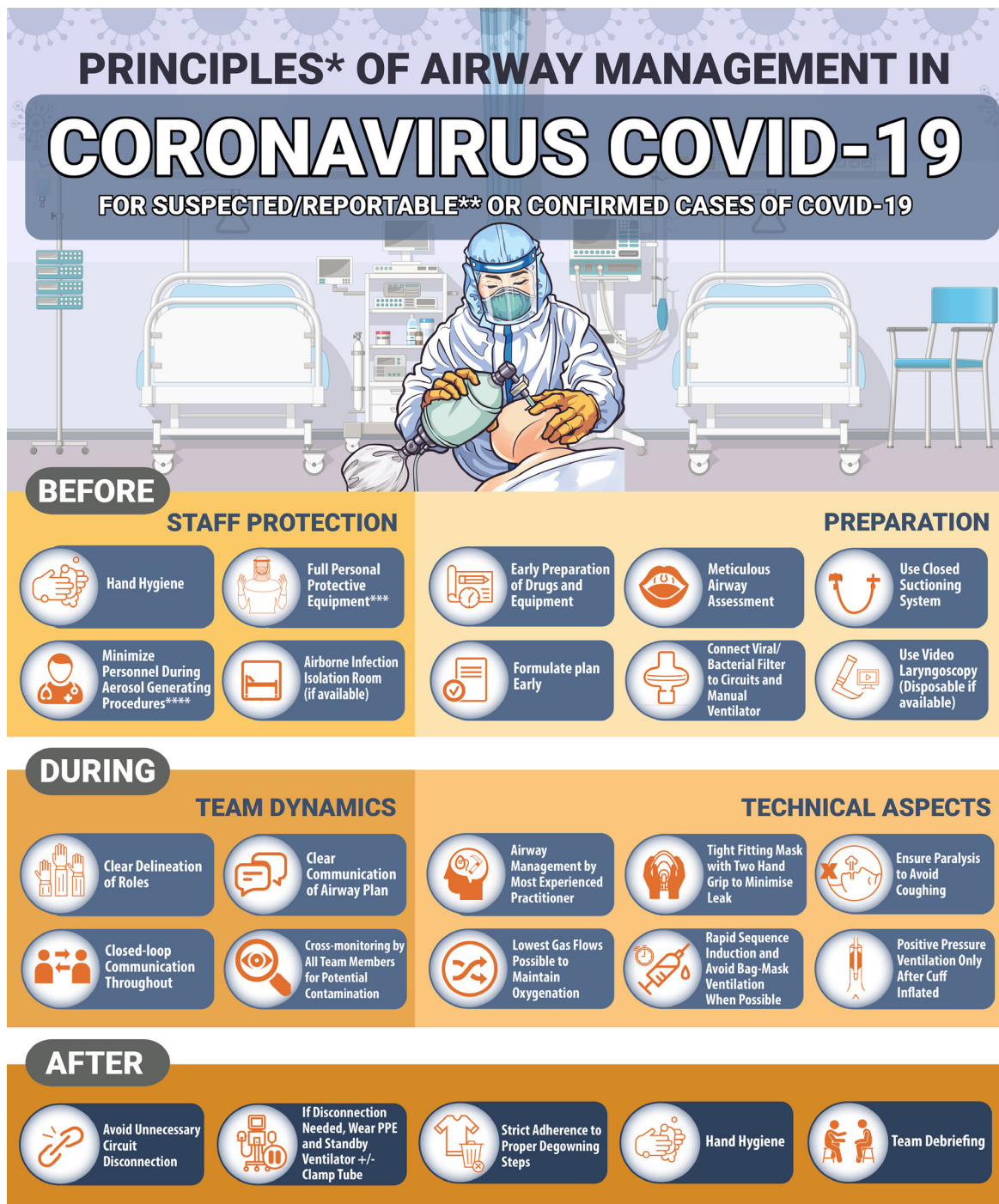
Well-designed free open access educational material should distil key information in a clear, actionable format, while paired with social media–powered dissemination using social networks, in addition to traditional communication methods. Utilising social media in this way has shown promise as a speedier alternative [9]. The use of the principles of the Free Open Access Medical education (FOAM) networks further provide good examples of the effectiveness of making information freely available. We describe an example of an efficient and rapidly disseminated infographic describing a practical intubation guideline for use in operating theatres and other critical care areas during a pandemic.

Finding a solution

Preventing infection and promoting psychological well-being to front-line healthcare workers during an epidemic is essential and the negative psychological impact of SARS on healthcare workers was exacerbated by uncertainty and unfamiliarity with infection control measures [4]. Infection of healthcare workers disproportionately increases work-load and reduces the capacity of staff and hospitals to continue to provide patient care [10].

Well-designed infographics have the potential to provide concise and practical information to institutions and healthcare workers and are associated with higher reader preference and lower cognitive load [11, 12]. They aid knowledge translation by increasing information retention

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Figure 1 Infographic for principles of airway management in COVID-19

according to the cognitive load theory and dual coding theory [11]. Moreover, making infographics easily accessible, engaging, reusable and modifiable to fit local needs and user requirements is more likely to meet the imperatives of diffusion of innovation to combat the current pandemic [13].

Prince of Wales Hospital is a tertiary, academic hospital in Hong Kong affiliated with The Chinese University of Hong Kong. The clinical staff had substantial outbreak experience during the SARS pandemic. Utilising this experience, and through iterative systems testing and improvement using in-situ simulation, the unit developed an infographic on the principles of airway management focusing on infection control for staff and patient safety in the context of COVID-19.

We disseminated the infographic via social media including Twitter™ and WeChat™ (Fig. 1) and via the departmental website (http://www.aic.cuhk.edu.hk/covid 19). The method of dissemination was rapidly and well received by the international community, resulting in locally facilitated translations into Italian, Portuguese, French, Spanish, German, Dutch, Polish, Serbian, Farsi, Turkish, traditional Chinese, simplified Chinese and Japanese. All translations were completed and made available for users within a 10-day period. Collaborations also enabled context-specific modifications of the infographic to merge with local practices. For example, double gloving was a technique that the Italian community requested, and the infographic was modified to accommodate this for the Italian translation. As of 19 March 2020, there have been 63,440 impressions on Twitter since publication on 19 February 2020, with many retweets and requests for sharing of the infographic at their respective institutions around the world. There have been 8614 page views on the departmental website since publication on 7 March 2020. More importantly, through social media platforms and personal communication, numerous reputable organisations, including the World Federation of Societies of Anaesthesiologists, Australian and New Zealand College of Anaesthetists, Australian Society of Anaesthetists, UK ICM Anaesthesia Covid-19 Collaboration, Brazilian Anaesthesiology Society, French Society of Anesthesia and Intensive Care Medicine, and others, have utilised the infographic as a resource for their respective healthcare communities. This redistribution of the material through additional, highly accessed and trusted dissemination platforms markedly increases the value of the infographic, and reduces the need for other individuals and units to waste needed resources reproducing similar material. The rapid uptake and sharing across networks, driven by healthcare workers' needs, demonstrates 'just-in-time' health professional information sharing.

Limitations of social media

There are limitations to dissemination of online resources, and before considering implementation, healthcare workers must critically appraise the information provided [14]. Known risks of non-peer–reviewed materials disseminated via social medial include the application of context-specific resources to unsuitable situations; engagement with biased knowledge within echo chambers' (groups consisting of only like-minded individuals) and algorithm-driven filter bubbles that selectively display information based on user preferences [15]; and insufficient source information available to

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Box 1   Criteria for the responsible use of social media disseminated information.

1   Preferential use of established professional forums, or communication groups to deliver information.

2   Clear identification of the information source – allows user to judge the likely veracity and quality of information.

3   Declaration of conflicts of interest, when appropriate.

4   Identify methods to verify the source when appropriate or necessary – website address if source not readily accessible by simple search strategies, or institutional email address of originator.

5   Transparent methods for peer review and feedback, for example, utilising transparent FOAM platforms for post-publication peer review processes, provision of author/institutional contact details so that criticisms can be directed directly to originators.

6   Transparently acknowledge and document collaborations with identified professional experts, and when necessary adjust information to meet contextual needs.

7   Pursue a traditional peer review process as soon as feasible and, if appropriate, reference peer review results once obtained.

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distinguish between valid and invalid information [16]. In medicine, there is the additional risk of early adoption of unvalidated research or practice, and the risk of future medical reversal [17]. Some of these issues are not unique to non-peer–reviewed resources, and peer-reviewed materials face similar challenges [18].

Responsible use of social media–disseminated information

To address these limitations, we propose criteria to be implemented by users of professional social medial platforms to promote the responsible use of social media–disseminated information (Box 1).

Conclusion

In the current COVID-19 pandemic, social media has the potential, if responsibly and appropriately used, to provide rapid and effective dissemination routes for key information. The example provided validates this possibility. In summary, the infographic presented met the majority of above proposed criteria. The success of the dissemination was, we believe, promoted by the existing reputation of the institution, quality of the infographic imagery and content and the rapid dissemination by social media platforms with professional participants. This allowed several institutions to utilise the time-consuming work already done in the original institution, and not have to repeat the investment of time and energy to reproduce similar material. Free and rapid access to high-quality information from verifiable sources is valuable to optimise the global medical response to crises such as the current COVID-19 pandemic.

Acknowledgements

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