Final Report
Executive Summary

HSC Public Health Agency
Research and Development

HSC R&D Division Final Progress Report

Final Reports should be submitted via electronic copy to HSC R&D Division within 6 weeks of the request.
The report should be completed on the attached form in clear typescript. Please extend boxes as required.
Please adhere to any word limits. These reports may be subject to external peer review.
Details from the Final Report may be placed on the HSC R&D Division website and shared with appropriate key stakeholders or members of the public.

HSC Public Health Agency
Research and Development

HSC R&D Division Award Details

HSC R&D File Reference	COM/5594/20
HSC R&D Funding Scheme	COVID-19 Rapid Response Funding Call
Project Title	Possible options for analysis and interventions via social media
Award Holder Name (Employer)	Queen's University Belfast
Host Research Organisation	Queen's University Belfast
Award Duration	12 months
Award Start Date	11.05.20
Award End Date	10.05.21
Name of Lead Supervisor: ***(only applicable to training awards)***	

HSC Public Health Agency
Research and Development

Evidence Brief

(1 page: which may be used for dissemination by HSC R&D Division)

Why did we start? (The need for the research and/or Why the work was commissioned)	This project aimed to track social media information and misinformation being produced and consumed in Northern Ireland around (i) the state of the COVID-19 pandemic; (ii) control measures being taken by public health bodies; and (iii) the public sentiments around these.
What did we do? (Methods)	We created a social media observatory and Dashboard (see later). The system makes use of a number of pre-defined sources of publicly available information such as the news media, social media platforms and public forums, retrieving publicly available data from the following websites and services: Twitter; Online news outlets such as (but not limited to) BBC, Belfast Telegraph, Sky, Independent and The Sun; Reddit; Facebook (note that access to FB data is extremely limited). Additional sources of information such as websites and online newsletters can be manually added to list of sources to be scanned and searched.
What answer did we get? (Findings)	We were able to track the trends in use of particular search terms and posts on social media to get a broad-brush picture of public sentiment to the pandemic and PHA control measures. The findings over the course of the period June 20 – June 21 are summarised in the attachment.
What should be done now? (Practice/Policy Implications and/or Recommendations)	Given the penetration on social media of conspiracy theories and anti vax sentiment, the PHA could consider taking a more proactive approach to suppress misinformation, eg with the use of bots.

Final Report

(no more than 20 pages)

Please structure the report using the headings below

- Background
- Aims and objectives
- Methods
- Personal and Public Involvement (PPI)
- Findings
- Conclusion
- Practice and Policy Implications/Recommendations
- Pathway to Impact
- References
- Relevant Logos

Background

Several years before COVID-19 emerged, some researchers predicted that the next viral pandemic would actually be of two sorts, both dangerous to health: one linked to the spread of a novel respiratory virus and the other attendant upon the "viral spread" of misinformation on social media. Indeed over the previous decade, new terms emerged at the intersection of digital research and practice – such as infodemiology and infoveillance (https://www.jmir.org/2009/1/e11/), which signalled the need to harness methods from computer science to understand the public's sentiments around the spread of infectious disease in order to design or tailor necessary control measures and adapt public awareness campaigns.

Aims and objectives

Our initial aim was to create a social media analytics dashboard to inform the PHA's social media and communications response to the pandemic.
Using the data aggregated by the dashboard, our objectives were to:

1. To use sentiment analysis techniques to detect unrest/non-compliance with social distancing interventions that might offer early warning signals for targeted interventions;
2. Where unrest/non-compliance are detected, to provide automated response via a public health *Bot* (using a range of social media accounts, such as PHA, BCC, QUB) to sign-post the individual to accurate information;
3. Where instances of 'fake news' are detected or mentions of unrest/non-compliance with social distancing interventions, to "*catch and kill*" such news with accurate information;
4. To develop a social media strategy that directly addresses issues such as compliance with social distancing, hand-washing and other advised interventions, and what to do if you have COVID-19.

Methods

Personal and Public Involvement (PPI)

There was no explicit PPI resource built into the award. Potentially, a role that PPI representatives could play would relate to the choice of search terms for the initial extraction the social media data. However, this role was covered by the eclectic membership of the PHA's Behaviour Change cell.

Findings

A Social Media dashboard was developed, drawing data from Twitter, Online news outlets such as (but not limited to) BBC, Belfast Telegraph, Sky, Independent and The Sun; Reddit and Facebook. This was presented at several meetings of the Behaviour Change cell whose members helped devise the search terms. Examples of the outputs are illustrated in the Appendix.

Algorithms have been developed which can automatically categorise social media posts into categories of positive or negative sentiment. While, in theory, these could have been adapted for use on our Northern Ireland data, the highly prevalent use of ironic language and idioms in the local social media vernacular, made these automated categorisations of sentiment somewhat unreliable. Nevertheless the BC cell found the Dashboard's identification of the main types of "influencer" in Northern Ireland useful and the information was passed on to the PHA Comms department.

While the information presented was deemed useful by the Behaviour Change cell, it is difficult to judge how the PHA Communications Department exploited this social media intelligence as their competing priorities limited their capacity to engage fully. In particular, advancing objectives 2 and 3 became difficult because the direct involvement of the PHA Communications Department was deemed essential but not forthcoming, despite the endorsement of the objectives by the Director of Public Health.

Devising a Bot to engage and respond to misinformation in order to "catch and kill" fake news would require an investment of time and effort from more than the QUB researchers and this proved impossible for the Comms department staff who had other priorities.

Conclusion

It has proved possible to track and analyse the main sources of social media information and misinformation related to the pandemic and the enacted control measures and to produce a useable Dashboard tool.

Practice and Policy Implications/Recommendations

PHA NI should follow PHE and PH Scotland and adopt modern algorithm driven methods for gleaning social media intelligence on public sentiments around pandemic control.

Pathway to Impact

At our own expense, the Centre for Public Health has renewed the Talkwalker license (that was procured for one year under this award) that will allow us to continue to exploit social media data streams to populate the dashboard.

Given the “in flight” re-organisation of public health intelligence within the PHA that has been triggered by the Hussey report, it is our hope that intervention and evaluation/research will be elevated within the priorities of the Comms Department so that eventually we may pursue objectives 2, 3 and 4 at least on a trial/feasibility basis.

Preparatory to that, Kee will discuss the issue again with the Director of Public Health.