

# Needs Assessment for a Targeted Health Promotion Campaign

Greta Tam, MBBS, MS

## ABSTRACT

Since the first human A/H7N9 infection in Hong Kong, there has been an ongoing threat of human-to-human transmission, potentially causing a pandemic. Because there is no vaccine for A/H7N9, the individual preventive measures become all the more important for reducing transmission. However, due to the ongoing threat of numerous avian influenza viruses, the public may suffer from pandemic-media-fatigue. This study was done to assess the need for a targeted A/H7N9 health promotion campaign. Steven and Gillam's framework using epidemiological, comparative, and corporate approaches was used to assess the need for a targeted A/H7N9 health promotion campaign.

Local surveillance data showed that Hong Kong faces a double burden of increasing seasonal influenza activity and threat of an avian influenza pandemic. Experts warned of potential severity and difficulties in A/H7N9 control. In contrast, surveys showed that the Hong Kong public were suffering from pandemic-media-fatigue, lacked anxiety, had misconceptions, and were not vigilant in preventive practices. This was more evident in certain demographics. Content analysis showed that health promotion materials were not targeted or tailored in countries with human A/H7N9 cases. Targeted health promotion campaigns and framing the issue to increase public and media awareness are crucial in preventing the current pandemic-media-fatigue. (*Disaster Med Public Health Preparedness*. 2019;13:596-604)

**Key Words:** avian influenza, disaster, health promotion

Influenza is estimated to infect 1 billion people annually worldwide. Five million cases will result in severe illness, causing 500,000 deaths. These figures are set to rise in the event of a pandemic. In developed countries, annual seasonal influenza epidemics already infect 20% of the population.<sup>1</sup>

The first notified case of human A/H7N9 infection was reported in March 2013, catching global attention. Since then, at least 783 cases have been reported globally with cases rapidly progressing to severe pneumonia and a case fatality rate of 40%.<sup>2</sup> Of these, 760 cases were in Mainland China, with 16 in Hong Kong. Globally, there were cases in Taiwan (4), Canada (2), and Malaysia (1).<sup>3</sup> A/H7N9 is a particular cause for concern due to its high case fatality rate, lack of preexisting immunity among humans, and potential for human-to-human transmission, resulting in a pandemic.<sup>4</sup>

Although vaccination is recognized as the first-line defense against seasonal influenza,<sup>5</sup> this cannot be applied to A/H7N9 prevention. Thus, individual preventive measures become all the more important for reducing transmission. However, due to an ongoing threat of avian influenza, such as A/H7N9, A/H5N6, and A/H5N1, the public may start to ignore

the public health preparedness messaging and fail in following recommended preventive practices. This has been called *pandemic-media-fatigue*.<sup>6</sup> Relevant health promotion campaign strategies include correcting public misconceptions, communicating risks, and targeting messages to increase vigilance of neglected and poor preventive practices. Would a structured health promotion campaign aimed at relevant issues combat the public's fatigue of a public health messaging about avian flu?

There is a need to review local epidemiology and assess how health promotion campaigns should be targeted, in terms of content and audience. A review of mass media materials can be used to assess existing services. In addition, a survey of public knowledge, attitude, and preventive practice toward A/H7N9 can provide information on how health promotion can be targeted to fill gaps in existing services. The public's perceived need can be compared to experts' views to discern discrepancies. In addition, a review of mass media materials in overseas countries with A/H7N9 cases may serve as a useful comparison to the local situation. This study aims to use epidemiological, comparative, and corporate approaches to assess the need for a targeted A/H7N9 health promotion campaign, including persons with low

risk awareness, poor knowledge, and preventive practice of A/H7N9 infection.

## METHODS

A framework was generated by summarizing 3 approaches to needs assessment described by Steven and Gillam.<sup>7</sup> They consist of the following: (1) Epidemiological approach: analyzing the effectiveness of practices and for population groups (2) Comparative approach: comparing services received by populations in different areas (3) Corporate approach: collecting knowledge and views of informants on services and needs

Based on these approaches and their descriptions, relevant tasks were generated as follows:

- (1) Epidemiological approach: Steven and Gillam described the necessity of setting out the prevalence and incidence of people affected.<sup>7</sup> Epidemiological data, which could be obtained from the local Department of Health Centre for Health Protection (CHP) and World Health Organization (WHO), could therefore help identify the problem and its impact. Identifying the effectiveness of interventions is another necessary step.<sup>7</sup> Therefore, a literature review was conducted to assess the effectiveness of interventions. Setting out the current services available is another critical step in the epidemiological approach<sup>7</sup>: As health promotion services in this area are provided by the local government, CHP's mass media materials were reviewed.
- (2) Comparative approach: To compare services received by different affected populations, A/H7N9 health promotional materials were compared between affected countries (Hong Kong, Taiwan, Canada, and Malaysia), as well as studies reporting the effectiveness of these services.
- (3) Corporate approach: To collect knowledge and views of informants on services and needs, 2 groups of stakeholders' opinions were considered: the public and experts. This is a population health care needs

assessment,<sup>7</sup> because the concern is with the health of populations (ie, Hong Kong citizens) who are at risk of A/H7N9. One contemporary approach to a service-related assessment of needs includes a population survey<sup>7</sup>: A telephone survey of a representative sample of Hong Kong citizens was conducted. To test whether the sample was demographically representative, the differences in proportion between the sample and the Hong Kong Population Census data in 2011 were examined using the Pearson's chi-square test. For a population health care needs assessment, needs are determined by expert knowledge.<sup>7</sup> To gather a range of opinions from experts worldwide, a review of the literature and government press releases was conducted.

Table 1 summarizes the approach, task, information, and sources for needs assessment of the study.

## RESULTS

### Epidemiological Approach

#### *Problem Identification: Public health impact of influenza*

There have been major A/H7N9 outbreaks in poultry worldwide. Highly pathogenic avian influenza (HPAI) H7 viruses have been identified in poultry and in sporadic cases of human infection. In China, Asian lineage low pathogenic avian influenza (LPAI) A(H7N9) viruses have been detected in poultry or live poultry markets since 2013 in the eastern, southern, and northern areas. These viruses generally do not cause observable illness in poultry but cause severe illness and death in people. However, these virus strains may have evolved to become HPAI H7N9, because Asian lineage HPAI A(H7N9) virus infection of humans was reported in southern China in early 2017. In addition to causing severe illness and death in people, these Asian lineage HPAI A(H7N9) viruses could also cause illness and death in infected poultry. Asian lineage LPAI and HPAI H7N9 viruses reported in China have not yet been detected in poultry, wild

## TABLE 1

### Approach, Task, Information, and Sources for Needs Assessment

Approach	Task	Information On	Information Source
<b>Epidemiological</b>	Problem identification and impact	Epidemiology	Surveillance data from CHP and WHO
	Find most appropriate and effective intervention	Methods to prevent A/H7N9 and effectiveness of targeted health promotion campaign	Published literature
<b>Comparative</b>	Review existing services	Local service	CHP mass media materials
	Compare overseas A/H7N9 health promotion campaign	Overseas service	Health departments' mass media materials
<b>Corporate</b>	Explore stakeholders' opinion	Effectiveness of overseas services	Published literature
		Users' knowledge, attitude, and practice toward A/H7N9 prevention	Survey of representative sample of Hong Kong citizens
		Experts' opinion	Published literature Government press release

birds, or humans in the United States.<sup>8</sup> In Hong Kong, influenza activity has increased in recent years. There have been increasing seasonal peaks of influenza-like illness (ILI)<sup>9</sup> and influenza-associated hospital admission rates and deaths.<sup>3</sup> Hong Kong had 10 cases of imported A/H7N9 during the 2013-2014 winter season<sup>10</sup> and 6 more since then.<sup>11</sup> Influenza transmission in Hong Kong can become rapidly uncontrollable due to proximity to Mainland China and high population density.

### *Most Appropriate and Effective Intervention*

*[H4]Methods to prevent influenza A/H7N9.* Efficacy of human A/H7N9 vaccines has not been proven.<sup>12</sup> Thus, WHO advocates good hygiene measures for individual infection prevention.<sup>5</sup> Previous studies regarding measures to prevent pandemics suggested that close contact with live poultry, visiting places in public, and having confirmed cases were risk factors, whereas frequent mask use, hand washing, disinfection, and avoidance of eating improperly prepared, raw, or undercooked poultry were protective factors.<sup>13-15</sup>

*Effectiveness of targeted health promotion campaign.* A study conducted between 2006 and 2010 suggested that prolonged warning of a future pandemic was likely to cause pandemic-media-fatigue in the public and therefore decreased vigilance toward preventive behaviors.<sup>16</sup> Health promotion campaigns often involve health education, where effectiveness is defined as changing knowledge, attitude, and/or lifestyle.<sup>17</sup> Targeted campaigns offer opportunities to tailor messages to groups most in need,<sup>18</sup> because this brings greater impact.<sup>19</sup> These are important strategies for effective risk communication about pandemic influenza, which poses a challenging context due to its occurrence as a prolonged risk incident instead of one big event<sup>20</sup>; prolonged warnings run the risk of generating pandemic-media-fatigue.<sup>16</sup> Moreover, the common occurrence of seasonal influenza can confuse the public into assuming avian influenza transmission and risks to be identical to seasonal influenza.<sup>21</sup>

### *Review Existing Services*

The CHP avian influenza e-resources page<sup>22</sup> was reviewed for content analysis (Table 2). Media materials provided included pamphlets, poster booklets, as well as TV and radio announcements. Except for one pamphlet targeted at enterprises, all targeted individuals or households (5 pamphlets). Three of the pamphlets gave information on influenza: 1 on avian influenza, 1 on pandemic influenza, and 1 on seasonal, avian, and pandemic influenza. The remaining 2 pamphlets detailed using masks and hand hygiene. Nine posters were available, with 1 on avian influenza; the others dealt with hand hygiene and cough manners. Only the pamphlet and poster on avian flu mentioned A/H7N9. A/H5N1 and A/H9N2 were mentioned, but no information was provided on the differences. One booklet detailed hygiene. The TV and radio announcement had 5 topics – 4 dealing with different

aspects of avian influenza prevention. The remaining announcement detailed hand hygiene.

All media materials specific to avian influenza advised wearing a mask when sick and avoiding live poultry contact. Some advised washing hands properly, avoiding public places, and avoiding eating poultry. None of the materials mentioned bringing one's own utensils, avoiding sharing utensils, and places with confirmed A/H7N9 cases.

### *Summary Using Epidemiological Approach*

Local surveillance data show that Hong Kong faces a double burden of increasing seasonal influenza activity and threat of a avian influenza pandemic. Most media materials from CHP cover general hygiene measures, whereas those specific to avian influenza deal with different aspects of prevention with varying levels of comprehensiveness. Targeted health promotion and tailored messages should be considered for better risk communication and improving preventive practices.

### **Comparative Approach Overseas Services**

Among overseas countries reporting human A/H7N9 cases, only Taiwan had media materials concerning avian influenza prevention.<sup>23</sup> Canada had a web page detailing avian flu<sup>24</sup> and A/H7N9 prevention.<sup>25</sup> Malaysia had a web page devoted to A/H7N9 but did not mention prevention measures.<sup>26</sup>

Taiwan had 11 pamphlets on influenza prevention: 1 on avian influenza prevention mentioning A/H5N1 but not A/H7N9 and advising hand hygiene, using mask, as well as avoiding poultry contact and consumption. There were 8 booklets on influenza prevention, with 2 on avian flu. The content covered was similar to the pamphlets. There were 17 posters with 1 mentioning A/H7N9 and warning against selling live poultry.

### *Effectiveness of Overseas Services*

Two Taiwan studies reported avian influenza knowledge, risk perception, and preventive behavior from 2007-2012, before human infection with A/H7N9 occurred.<sup>27, 28</sup> At the time, Taiwan was concerned with A/H5N2. In response, the government announced a new policy detailing individual preventive measures. One study reported that respondents with correct knowledge and awareness of avian influenza severity were more likely to wear face mask and wash hands.<sup>27</sup> These measures were practiced by more than 70% of respondents in another study.<sup>28</sup> By comparison, less than half of the respondents stopped going to live poultry markets. Risk perception and preventive behavior differed according to the demographics.<sup>28</sup>

One Canadian study reported avian influenza knowledge, attitudes, and practices among residents of a remote

TABLE 2

Content of Media Materials on Avian Influenza Prevention in Hong Kong

Media Channel	Main Theme (Influenza)	Wash Hands Frequently	Wash Hands With Soap	Wear Mask When Sick	Bring Own Utensils	Avoid Sharing Utensils	Avoid Public Places	Avoid Live Poultry Contact	Avoid Eating Poultry	Avoid Places With Confirmed A/H7N9 Cases
Pamphlet	Avian	✓	✓	✓			✓	✓	✓	
Pamphlet	Avian		✓	✓			✓	✓	✓	
	Seasonal Pandemic									
Pamphlet	Pandemic flu	✓	✓	✓			✓	✓		
Poster	Avian			✓				✓	✓	
TV, radio	Avian			✓				✓		
TV, radio	Avian	✓		✓			✓			
TV, radio	Avian			✓				✓	✓	
TV, radio	Avian			✓				✓	✓	

community hunting birds in 2014. In this high-risk group, more than half were aware of avian influenza, but less than a third perceived themselves at risk due to harvesting birds. Avian influenza awareness influenced risk perception, whereas knowledge influenced preventive practices.<sup>29</sup> No Malaysian studies were found on avian influenza knowledge, attitudes, and practices.

### Summary Using Comparative Approach

Among countries reporting A/H7N9 cases, only Taiwan had media materials regarding avian influenza prevention, with only one on A/H7N9. Taiwan was the only country reporting knowledge, attitudes, and practices of urban residents toward avian influenza prevention. These indicated that, despite government policy, more effective health promotion was needed to improve citizens' preventive practices.

### Corporate Approach

#### Users' Knowledge, Attitude, and Practice

A cross-sectional telephone survey was conducted in February 2014 among citizens representative of the Hong Kong general population, and the results were published.<sup>30</sup>

The public had an anxiety score of 1.85 during the second wave of A/H7N9 infection. Regarding practice of protective measures against infections, 7% avoided going to public places and using public transport, and 55.8% avoided going to places having A/H7N9 confirmed cases. For mask wearing and utensils sharing, the proportion of actual practices was far lower than perceived usefulness. Hand hygiene was most commonly practiced during the A/H7N9 period.

#### Experts' Opinion

Togather local academic opinion, Cochrane Library, MEDLINE, and Embase were searched from 2013 to 2016 using the combination of search terms "H7N9" AND expanded keywords "risk" AND "Hong Kong." Fifteen articles were

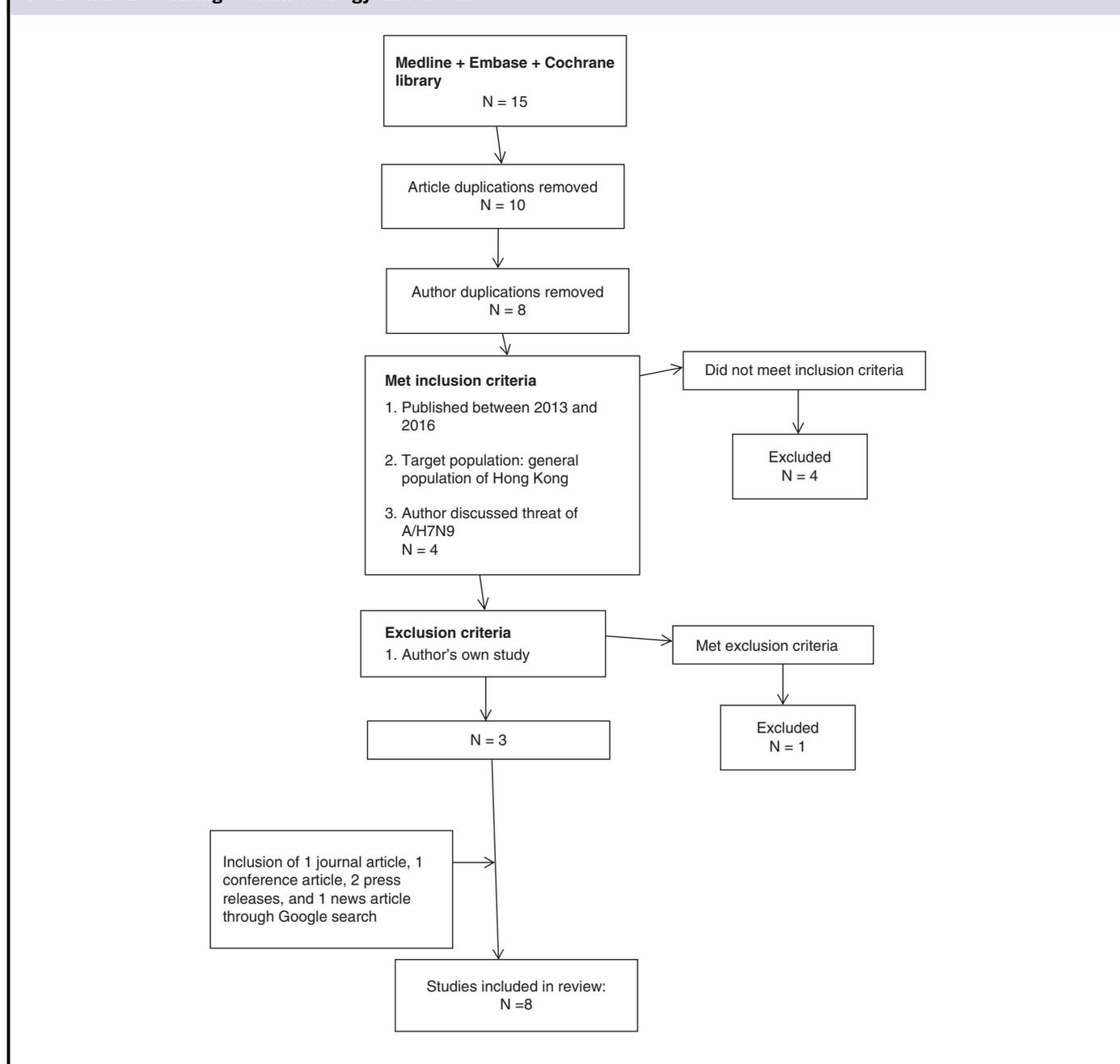
retrieved. Article duplications were removed, resulting in 10 articles. To ensure a variety of opinions, if author duplications were found, only the latest paper was kept. Two author duplications were found, therefore 2 papers excluded, resulting in 8 articles. Selection of studies was based on several inclusion and exclusion criteria. Inclusion criteria include (1) Published between 2013 and 2016, (2) Target population was the general population of Hong Kong, and (3) The author discussed the threat of A/H7N9; whereas exclusion criteria include whether the article was published by this study's own author.<sup>30</sup> After screening, 3 were relevant. A Google search was carried out to identify gray literature, with 5 relevant sources, including a conference abstract, 2 press releases, a newspaper, and a journal article (Figure 1 and Table 3).

Both local and international experts are concerned that the rapid increase in severe A/H7N9 human cases is unprecedented for avian influenza.<sup>38</sup> Government officials activated the serious response level of the Preparedness Plan for Influenza Pandemic during the first wave of A/H7N9 human infection.<sup>39</sup> They agree with international experts that prevention, surveillance, and control of A/H7N9 are more difficult than for A/H5N1, due to lack of poultry die-off preceding human cases.<sup>40</sup> There is concern it would be difficult to produce an effective A/H7N9 vaccine. Thus, government officials advise early antiviral treatment to prevent A/H7N9 complications.<sup>41</sup> Citizens would need sufficient A/H7N9 risk awareness to seek timely medical care. However, local academics are concerned that perceived susceptibility and severity of A/H7N9 are low. They advise better risk communication and targeted messages for promoting perceived risk of A/H7N9 associated with live poultry markets.<sup>42</sup>

Regarding agricultural biosecurity, government officials recommend poultry owners to practice the following: monitor flocks for unusual signs of illness and increased mortality, practice personal biosecurity, allow only authorized visitors to have poultry contact, avoid contact between poultry and wild

## FIGURE 1

Flow Chart Describing Search Strategy and Results



birds, clean and disinfect farm vehicles or equipment, and report sick or unusual bird deaths to authorities.<sup>43</sup>

### Summary Using Corporate Approach

Based on a representative sample of the Hong Kong public, the majority agrees that individual influenza prevention measures are useful, but there is a gap between perception and practice. A/H7N9 anxiety level is low. In contrast, international experts, local academics, and government officials

advise better risk communication due to potential severity and difficulties in A/H7N9 control.

### DISCUSSION

Routine surveillance data quantified the burden of seasonal and A/H7N9 influenza that Hong Kong faced. However, there were limitations. Confounders, such as demographics, were not controlled for, and ILI rates may not accurately reflect influenza activity, because the definition of ILI (fever, cough, and/or sore throat) is nonspecific.<sup>44</sup> Some citizens with influenza symptoms

TABLE 3

## Summary of Articles Relating to Expert Opinions

Source	Author, Date, Country	Author Affiliation	Conclusion
Journal (Embase)	Liao et al, 2015, Hong Kong <sup>31</sup>	School of Public Health, University of Hong Kong (HKU)	A/H7N9 public health messages should be targeted at the young, singles, males, and those with lower educational achievement.
Journal (Embase)	Peiris et al, 2016, Hong Kong <sup>32</sup>	School of Public Health, HKU Center for Disease Control and Prevention (CDC), China	A/H7N9 is a potential pandemic threat.
Journal (Embase)	To et al, 2014, Hong Kong <sup>33</sup>	Department of Microbiology, HKU	A/H7N9 is a significant health threat. High vigilance is required.
Journal (Google)	Leung et al, 2015, Hong Kong <sup>10</sup>	Department of Health	Early antiviral treatment to prevent A/H7N9 complications is advised.
Conference (Google)	Chuang SK, 2014, Hong Kong <sup>34</sup>	Department of Health	Prevention, surveillance, and control of A/H7N9 is more difficult than for A/H5N1, due to lack of poultry die-off preceding human cases.
Press release (Google)	2014, Hong Kong <sup>35</sup>	Hospital Authority	Serious response level of the Preparedness Plan for Influenza Pandemic was activated.
Press release (Google)	Margaret Chan, 2013, Switzerland <sup>36</sup>	Director-general, WHO	Future course of the outbreak is unpredictable. High vigilance is needed.
News article (Google)	Nancy Cox, 2013, USA <sup>37</sup>	Influenza Division, CDC	There may be difficulties producing an effective A/H7N9 vaccine.

prefer to stay at home, resulting in missed cases. Sentinel clinics chosen for surveillance may not be representative of all clinics. Hospital admission rates differ according to doctors' preference in admitting patients. Surveillance of A/H7N9 confirmed cases also had limitations due to reporting bias<sup>45</sup> and differing accuracy of tests.<sup>46</sup> Only surveillance data from 2013-2015 were shown; however, further analysis of long-term data confirms the findings. Data showed that with the double burden of seasonal and A/H7N9 influenza, there is a need for vigilant measures to prevent seasonal influenza transmission and potential A/H7N9 human-to-human transmission. A Cochrane review concluded that targeted health promotion campaigns have consistent positive effects on behavior.<sup>47</sup> However, there is lack of high quality quantitative research. These limitations are due to the nature of mass media interventions, making it difficult to conduct randomized controlled trials and to compare studies.

Although mass media materials were available on the government website, there was no record of targeted health promotion campaigns or whether the materials had changed according to the updated situation on A/H7N9. There was lack of comprehensive information in the materials. Most concentrated on hand hygiene and wearing masks but neglected to mention transmission through utensils, even though sharing utensils is common in Chinese culture. A/H7N9 was rarely mentioned. There was no explanation of differences between avian influenza viruses, severity of A/H7N9, and need for avoiding places with confirmed A/H7N9 cases. This could lead citizens to assume that, like other influenza viruses, A/H7N9 is included in vaccines and is not particularly severe. When visiting Mainland China, citizens might be less aware of the need to avoid places with confirmed A/H7N9 cases. The review of materials showed a need for targeted A/H7N9 prevention messages.

Results of the local survey worryingly confirmed that the public indeed harbored misconceptions of A/H7N9. They were not anxious about A/H7N9, even during the second wave of human infection. The anxiety score was low at 1.85, compared with a high 2.50 score during severe acute respiratory syndrome (SARS).<sup>48</sup> The public were not sufficiently practicing protective measures against infections. Only 7% avoided going to public places and used public transport, and 55.8% avoided going to places having A/H7N9 confirmed cases. In comparison, during SARS, 74.8% avoided going to crowded places, whereas 74.7% and 71.8% avoided going to Mainland China and hospitals, respectively.<sup>49</sup> For mask wearing and utensils sharing, the proportion of actual practices was far lower than perceived usefulness. In contrast, during the A/H5N1 period, 92.4% wore face masks.<sup>14</sup> Hand hygiene was most commonly practiced during the A/H7N9 period, likely due to numerous mass media materials promoting its importance.

It was not feasible to interview local experts face-to-face due to their time constraints, thus their published views were gathered via a literature search. In contrast to the public's lack of anxiety, experts were concerned about the severity of the A/H7N9 situation. There was a gap between experts' normative need and the public's felt need. The public may be suffering from pandemic-media-fatigue after the mild clinical outcome of the A/H1N1 influenza pandemic in 2009 and the limited transmissibility of the A/H5N1 avian influenza outbreaks in humans in 2007.<sup>30,50</sup> A study conducted between 2006 and 2010 suggested that prolonged warning of a future pandemic was likely to cause pandemic-media-fatigue in the public and therefore decreased vigilance toward preventive behaviors.<sup>20</sup> These findings point to a need for targeting messages at groups with poor preventive behavior, as well as correcting misconceptions and better risk communication.

Overseas countries with A/H7N9 cases did not have better mass media materials than Hong Kong. Only Taiwan had health promotion campaigns specific to avian influenza. A/H7N9 was also rarely mentioned in Taiwan. Study findings on effectiveness in Taiwan had similarities to those in Hong Kong. First, hand hygiene was more commonly practiced than avoiding sources of avian influenza. Second, avian influenza severity awareness was positively associated with preventive practices. Third, preventive behavior differed according to demographics. Overseas practices and study findings are not directly applicable to Hong Kong as A/H7N9 risk and disease pattern differs. In addition, Hong Kong studies were done during A/H7N9 period, whereas those in other countries were done before A/H7N9 cases appeared.

It is unclear why health authorities did not provide a targeted health promotion campaign for A/H7N9, despite recommendations from United Nations and the literature. Possible reasons include lack of funding, the perception that risk of A/H7N9 was not severe, that A/H7N9 was similar to other avian influenza viruses, or insufficient evidence.

### Recommendations

First, health education could be targeted at correcting common misconceptions, such as differences between A/H7N9 and seasonal influenza, including transmission routes – in particular, emphasizing avoiding contacts with live poulties and their feces. Certain groups lacking preventive behavior could be targeted: male, younger age, blue-collar workers, people without chronic disease and not living on Hong Kong Island. This could be done using communication channels popular in the younger age group, such as social media. Health promotion could be targeted to settings that are specific to residential districts and occupation, such as primary care clinics and workplaces, respectively.

Second, health promotion campaigns should carry out effective risk communication to combat pandemic-media-fatigue. Research has shown that risks are perceived as more worrying if they contain fright factors.<sup>51</sup> The risk of contracting A/H7N9 includes some of these, including posing a particular danger to small children or pregnant women and being poorly understood by science. Although knowledge of A/H7N9 is not poorly understood at the moment, in the early stages of outbreak, information regarding novel strains of influenza was not yet complete. The fright factors may be emphasized to the public at the time of outbreak to increase risk awareness. The media plays an important role in communicating outbreaks to the public, and topics with “media triggers” increase the likelihood of major media coverage.<sup>52</sup> The risk of contracting A/H7N9 includes some of these triggers, including having signal value and many people exposed to the risk, even if at low levels. It will also have links with high-profile personalities if public health officials and medical experts state their concern over the outbreak. How an issue is framed can influence public perceptions and media awareness. Use of “fright factors” and

“media triggers” will help emphasize the importance of A/H7N9, to increase vigilance. However, caution has to be exercised in media coverage, because an excess of fright factors can lead to the overuse of medical services.<sup>53</sup>

Finally, as there are ongoing cases of A/H7N9 this year, repeated surveys would be helpful for evaluating changes in public knowledge, attitudes, and practices toward preventing A/H7N9, thereby informing health promotion campaigns. This could help with timing the campaign. Using results from the surveys, campaign messages can be refreshed and adjusted in progressive phases of the campaign. This strategy was used for the Centers for Disease Control and Prevention (CDC) Domestic Zika Campaign.<sup>54</sup> In addition, focus groups could identify specific barriers (eg, discomfort when wearing a mask, Chinese norm of sharing utensils, and inconvenience) toward preventive practices. This could increase self-efficacy, thereby improving preventive practices.

### CONCLUSION

Local surveillance data showed that Hong Kong faces a double burden of increasing seasonal influenza activity and threat of an avian influenza pandemic. Experts warned of potential severity and difficulties in A/H7N9 control. In contrast, surveys showed that the Hong Kong public were suffering from pandemic-media-fatigue, lacked anxiety, had misconceptions, and were not vigilant in preventive practices. This was more evident in certain demographics. Content analysis showed that health promotion materials were not targeted or tailored in countries with human A/H7N9 cases. Targeted health promotion campaigns and framing the issue to increase public and media awareness are crucial in preventing the current pandemic-media-fatigue.

### About the Authors

*Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong.*

*\*Correspondence and reprint requests to Dr Greta Tam, Room 404, 4/F, School of Public Health and Primary Care, Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong (e-mail: gretatam@cuhk.edu.hk)*

### Acknowledgment

I would like to thank Dr Emily Chan, Dr S.S. Lee, and Dr May Yeung for their help and comments.

### Conflict of Interest Statement

The author declares no conflict of interests.

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