

Indications and Warning of Pandemic Influenza Compared to Seasonal Influenza

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OBJECTIVE

Our aim is to analyze news media for indications and warning (I&W) of influenza to determine if the signals they create differ significantly between seasonal and pandemic influenza years.

BACKGROUND

If the next influenza pandemic emerges in Southeast Asia [1], the identification of early detection strategies in this region could enable public health officials to respond rapidly. Accurate, real-time influenza surveillance is therefore crucial. Novel approaches to the monitoring of infectious disease, especially respiratory disease, are increasingly under evaluation in an effort to avoid the cost- and time-intensive nature of active surveillance, as well as the processing time lag of traditional passive surveillance [2,3]. In response to these issues, we have developed an I&W taxonomy of pandemic influenza based on social disruption indicators reported in news media.

METHODS

We collected reports of respiratory disease from five Chinese- and English-language newspapers, all published in Hong Kong and Southern China, for 1967 (no pandemic), and for 1968 (influenza A/H3N2 pandemic). We examined approximately 120 months of articles and analyzed them using the taxonomy. Specific indicators of social disruption were identified and classified for both years.

RESULTS

The social disruption methodology detected intensive influenza transmission 5 weeks prior to official recognition of the antigenic shift by the WHO (11 July 1968 versus 16 August 1968). Comparing the overall crude number of taxonomy indicators in articles for each year reveals a 5.6-fold increase in pandemic (1968; n=718) over the seasonal year (1967; n=128). For the month of H3N2 emergence (July 1968), the pandemic data exhibited a 22.8-fold increase over the corresponding data from July 1967 (n=205 versus n=9, respectively; see table 1). Further, the specific indicators “local perception of threat,” “official action,” and “report of human disease” increased sharply in 1968 compared to 1967 (27-fold, 13-fold, and 12-fold, respectively). In the peak outbreak month, all indicators except for

“business practice changes” displayed a 10-fold or greater increase in the pandemic year, with “community acknowledgement,” “local perception of threat” and “report of human disease” increasing the most. Individual newspaper articles were also more informative in pandemic years, with 1-10 indicators identified per article, while the seasonal year articles yielded 1-4 indicators per article.

Indicator	Full year		July	
	1967 N=128	1968 N=718	1967 N=9	1968 N=205
Business practice changes	25	41	3	8
Community acknowledgement	7	52	0	23
Integrity of infrastructure	56	151	3	55
Local perception of threat	2	53	0	23
Official action	12	154	2	31
Official acknowledgement	10	64	1	10
Report of human disease	16	195	0	55

Table1: Crude number of each indicator for seasonal (1967) and pandemic (1968) years overall as well as during the pandemic peak month of July.

CONCLUSIONS

We discovered an increase in the number of disease indicators per article in the pandemic year compared to the seasonal year. Thus, indicators in this social disruption taxonomy appear to differentiate between pandemic and seasonal influenza years. The media surveillance approach used here may be useful in the early detection of an anomalous influenza season.

REFERENCES

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