



Estimation of the actual disease burden of human H7N9 infection in Jiangsu of eastern China from March 2013 to September 2017

Haodi Huang^{1,Δ}, Wang Ma^{2,Δ}, Ke Xu¹, Keith Dear³, Huiyan Yu¹, Xian Qi¹, Changjun Bao¹, Minghao Zhou¹, Xiang Huo^{1,∞}

¹Department of Acute Infectious Diseases Control and Prevention, Jiangsu Provincial Center for Disease Control and Prevention, Nanjing, Jiangsu 210009, China;

²Department of Medical Affairs, The First Affiliated Hospital of Nanjing Medical University, Nanjing, Jiangsu 210029, China;

³School of Public Health, The University of Adelaide, Adelaide, SA 5000, Australia.

Supplementary Table 1 Parameters of probabilistic multiplier model for estimating the total H7N9 cases in Jiangsu Province

Steps	Parameters
A. Proportion of medical consultation	Not hospitalized: According to the published reports on health care seeking rate for ILI (influenza like illness) in Chinese populations, the range of proportion was set to be 0.41–0.85 ^[1–3] . Hospitalized: Only patients who seek health care could be hospitalized, so the proportion was set to be 1.
B. Proportion of sampling in health care seekers	Not hospitalized: According to our provincial surveillance data in 2016, a total of 417 116 ILI patients were reported from 29 sentinel hospitals, of whom, 30 143 patients were sampled and tested for influenza virus. Thus, the proportion could be up to 0.07. On the other hand, there are about 31 037 medical facilities in Jiangsu in 2016. Sentinel hospitals only accounted for 0.0009. Thus, the proportion could be as low as $0.07 \times 0.0009 \approx 0$. To sum up, the range of proportion was set to be 0–0.07. Hospitalized: According to our surveillance data, from October 2016 to April 2017, about 2 629 SARI (severe acute respiratory infections) patients were reported in Suzhou city of Jiangsu province. Among them, 561 patients were sampled and tested for influenza virus. Thus, the proportion could be up to 0.21. In 2016, 29 sentinel hospitals reported 37 909 hospitalized pneumonia patients in Jiangsu. Among them, 1 587 patients were sampled and tested for influenza virus. The sampling rate was 0.04. As sentinel hospitals only accounted for 5% of all secondary and tertiary hospitals ($n=540$). The proportion could be as low as $0.04 \times 0.05 = 0.002$. Thus, the range of proportion was set as 0.002–0.21.
C. Proportion of samples sent for testing	As only tested samples were included in the statistic of parameter B, the proportion here was set to be 1.
D. Laboratory detection of H7N9	Use defaults (90%–100%).
E. Reporting of confirmed cases	Use defaults (95%–100%).

^ΔThese authors contributed equally.

[∞]Corresponding author: Xiang Huo, Department of Acute Infectious Diseases Control and Prevention, Jiangsu Provincial Center for Disease Control and Prevention, Jiangsu Road 172, Nanjing, Jiangsu 210009, China. Tel/Fax: 86-25-83759404/86-25-83759549, E-mail: huox@foxmail.com.

Received 11 December 2018, Revised 29 January 2019, Accepted 28 February 2019, Epub 18 April 2019

© 2019 by the Journal of Biomedical Research.

CLC number: R511.7, Document code: A

The authors reported no conflict of interests.

This is an open access article under the Creative Commons Attribution (CC BY 4.0) license, which permits others to distribute, remix, adapt and build upon this work, for commercial use, provided the original work is properly cited.

<https://doi.org/10.7555/JBR.33.20180127>

Supplementary Table 2 Life expectancy table of Jiangsu population, 2015

Age group (year)	Life expectancy (year)	
	Male	Female
<1	78.83	83.44
1–4	78.15	82.73
5–9	74.26	78.82
10–14	69.32	73.86
15–19	64.37	68.90
20–24	59.45	63.94
25–29	54.55	59.00
30–34	49.68	54.06
35–39	44.81	49.14
40–44	40.00	44.24
45–49	35.28	39.39
50–54	30.68	34.63
55–59	26.22	29.94
60–64	21.97	25.36
65–69	17.97	20.93
70–74	14.29	16.75
75–79	11.09	12.98
80–84	8.47	9.77

References

- [1] Yuan J, Zhang L, Xu W, et al. Reported changes in health-related behaviours in Chinese urban residents in response to an influenza pandemic[J]. *Epidemiol Infect*, 2009, 137(7): 988–993.
- [2] Xie X, Lu SQ, Cheng JQ, et al. Estimate of 2009 H1N1 influenza cases in Shenzhen—the biggest migratory city in China[J]. *Epidemiol Infect*, 2012, 140(5): 788–797.
- [3] Meng H, Liao Q, Suen LK, et al. Healthcare seeking behavior of patients with influenza like illness: comparison of the summer and winter influenza epidemics[J]. *BMC Infect Dis*, 2016, 16: 499.