**Appendix 1**

**Search strategies**

#1 ((((((((((((((((((((((((aircraft[Title/Abstract]) OR aeroplane[Title/Abstract]) OR airline[Title/Abstract]) OR flight[Title/Abstract]) OR aircrew[Title/Abstract]) OR airflight[Title/Abstract]) OR airplane[Title/Abstract]) OR aviation[Title/Abstract]) OR airport[Title/Abstract]) OR aeroport[Title/Abstract]) OR aero transport[Title/Abstract]) OR air port[Title/Abstract]) OR steward[Title/Abstract]) OR stewardess[Title/Abstract]) OR flight[Title/Abstract]) OR flights[Title/Abstract]) OR inflight[Title/Abstract]) OR in-flight[Title/Abstract]) OR cabin crew[Title/Abstract]) OR cabin[Title/Abstract]) OR cabins[Title/Abstract]) OR fly[Title/Abstract]) OR flying[Title/Abstract]) OR tour[Title/Abstract]) OR travel[Title/Abstract]) OR journal[Title/Abstract]) OR passenger[Title/Abstract])

#2 (((((((influenza[Title/Abstract]) OR flu[Title/Abstract]) OR influenzae[Title/Abstract]) OR grippe[Title/Abstract]) OR influenzas[Title/Abstract]) OR Influenza A[Title/Abstract]) OR H1N1[Title/Abstract])

#3 ("2009/01/01"[Date - Publication] : "3000"[Date - Publication])

#4 #1 AND #2 AND #3

Limits: not limits

Results: 637

**Appendix 2**

**Derivation of the linear increase in the attack rate with an increase in the product of the flight duration and the total infectivity of all the index cases by using the Wells–Riley equation for low infection risk**

The Wells–Riley equation is as follows:

$$P\left(inf\right)=1-e^{-\frac{pIqt}{Q}}=1-(1+\left(-\frac{pIqt}{Q}\right)+\frac{\left(-\frac{pIqt}{Q}\right)^{2}}{2!}+\frac{\left(-\frac{pIqt}{Q}\right)^{3}}{3!}…)$$

Here, $I$ represents the number of infectious people, and $p$ indicates the pulmonary ventilation rate (m3/s) of susceptible individuals. $q$ represents a unit of infection termed a ‘quantum’, introduced by Wells (1955) to express the response of susceptible individuals to inhaling infectious droplet nuclei. $Q$ is the ventilation rate (m3/s).

When the infection risk is low, $\frac{pIqt}{Q}$ is small.

$$P\left(inf\right)=1-e^{-\frac{pIqt}{Q}}=1-\left(1+\left(-\frac{pIqt}{Q}\right)+\frac{\left(-\frac{pIqt}{Q}\right)^{2}}{2!}+\frac{\left(-\frac{pIqt}{Q}\right)^{3}}{3!}…\right)≌\frac{pIqt}{Q}+O(\frac{pIqt}{Q})$$

This implies that at a low exposure dose, the infection risk via an airborne route increases linearly with an increase in the product of the flight duration $(t)$ and the total infectivity of all the index cases ($Iq$, the Wells–Riley equation assumes that all index cases having the same ‘quantum’ generation rate). The attack rate during flight remains at a low level (less than 4%); therefore, the linear increase in the attack rate with the increasing product of the flight duration and the total infectivity of all the index cases can be cited as evidence for airborne transmission of influenza A(H1N1)pdm09 during air travel.

**Appendix Table 1.** Flight information, number of passengers and number of interviewed passengers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Reference | Airplane type | Flight duration (h) | Departure data | Origin  | Destination  | Total seats |  No. of passengers | No. of interviewed passengers  |
| [14] | NA | 3 (estimated) | 9 May 2009 | Beijing, China | Chengdu, China | NA | 141 | 141 (100%) |
| [25] (Flight 1) | Boeing 757 | 2.6 | 2 June 2009 | Hong Kong, China | Chengdu, China | NA | 91 | 91 (100%) |
| [25] (Flight 2) | Boeing 757 | 0.75 | 3 June 2009 | Chengdu, China | Jiuzhaigou, China | NA | 87 (only non-tour group members) | 87 (100%) |
| [25] (Flight 3) | Boeing 757 | 0.75 | 5 June 2009 | Jiuzhaigou, China | Chengdu, China | NA | 87 (only non-tour group members) | 87 (100%) |
| [20] | Boeing 747-400 | 13 | 25 April 2009 | Mexico City, Mexico | Auckland,New Zealand | 128(rear section) | 102 (only non-student group members) | 97 (95%) |
| [23] | Boeing 747-400 | 13 | 25 April 2009 | Los Angeles,USA | Seoul, Korea | NA | 191(passengers living in Korea) | 177 (93%) |
| [31] | NA | 22 | NA | New York,USA | Singapore | NA | 596 | 135 (23%) |
| [19] (Flight 1) | Airbus A380-800 | 14 | 24 May 2009 | Los Angeles,USA | Sydney,Australia | NA | 445 | 188 (42%) |
| [19] (Flight 2) | Boeing 747-400 | 8 (estimated) | 23 May 2009 | Singapore | Sydney,Australia | NA | 293 | 131 (45%) |
| [26] (Flight A1, A2) | NA | 2.3 | 3 April 2009 | San Diego, USA | Dallas, USA | NA | 265 | 146 (55%) |
| [26] (Flight B1) | Boeing 737 | 2.4 | 18 April 2009 | Cancun, Mexico | Houston,USA | 144 | 128 (89%) | 108 (84%) |
| [32] | Boeing 767-300 | 9.5 | 21 April 2009 | Cancun, Mexico | Birmingham,UK | 291 | 278 (96%) | 239 (86%) |
| [16] (Flight 1 and 2) | NA | 22 | 27 and 28 May 2009 | New York, USA | Fuzhou, China | 448  | 396 (88%) | 213 (54%)  |
| [33] | Boeing 767-300 | 14 (estimated) | 20 April 2009 | Mexico City, Mexico | Birmingham, UK | NA | 277 | 277 (100%) |