# **Appendix 1. Input parameters in the model**

***Data inputs***

To gather data about influenza disease progression, medical resource utilization, cost of treatment and health state utilities, we conducted a literature review capturing economic evaluations on influenza using Medline database for the period from inception through July 2013. Input parameters such as probabilities, costs and utilities, and their sources used were extracted using a standardized template. We specified the following exclusion criteria to keep those studies with high validity. Studies were excluded if they met one of the following criteria: (i) primary cost source derived before 2000, (ii) assumption and opinion-based costing and (iii) primary source could not be identified for verification from the retrieved source.

The selection of input parameters was performed, in consideration of the health care system, pathways for patients obtaining medical care and published 2009 pandemic H1N1-related literatures in the US.

Additional literature search was undertaken for parameters not included in previous economic evaluations or unclear, using Medline database for the period from inception through September 2013. Searches on the Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) database and US Bureau of Labor Statistics were performed. Where possible, data inputs came from published 2009 pandemic H1N1-related literatures. Meta-analyses were performed when applicable.

To derive hospitalization costs, we identified using the ICD-9 codes 488 and 487 for hospitalization from influenza due to identified 2009 H1N1 influenza virus and influenza with pneumonia, respectively in the HCUP NIS database. Hospitalization cost due to sepsis was identified using CCS code 2.0 from the HCUP NIS database.

***Estimation of productivity loss***

In base-case analysis, we adopted Meltzer’s approach1 which assumed that only 1 additional day would be added to the length of stay or medical visits as total days of productivity loss. We conducted a sensitivity analysis by using the productivity loss calculated based on the sum of 3.1-5.2 additional days for convalescence and the length of stay or medical visits. This was derived based on Treanor et al, Nicholson et al and Roche WV15730.2-4 We assumed that ‘time to return to normal activity’ is the same as the day lost due to influenza. Therefore, we assumed the difference of ‘illness duration’ and ‘time to return to normal activity’ ranged from 3.1-5.2 days.

# **Appendix 2. Scenario analysis under high virulence and high transmissibility**

***Scenario analysis for pandemic influenza scenario with influenza virus of high virulence and high transmissibility***

In addition, to further understand how results may change in the scenario with influenza virus of high virulence and high transmissibility, we varied the probability of ARDS developed from influenza from 0.12 to 0.565 in the scenario analysis. As a result, compared to no treatment, both standard- and high-dose oseltamivir became more cost-saving from both payer and societal perspectives. The detailed results are presented in **Table 1.**

**Table 1.** Scenario analysis: Cost-effectiveness results by assuming ARDS rate as 56% ARDS in the hypothetical pandemic influenza with influenza virus of high virulence and high transmissibility

|  |  |  |  |
| --- | --- | --- | --- |
| **Comparators** |   | **Payer perspective** | **Societal perspective** |
|  | **Base-case ARDS rate = 0.12** | **ARDS rate = 0.56** | **Base-case ARDS rate = 0.12** | **ARDS rate = 0.56** |
| **75 mg vs. No treatment** |   |   |   |   |
|   | 25% uptake | -71,016 | -145,991 | -158,879 | -221,645 |
|   | 50% uptake | -78,371 | -153,147 | -161,963 | -225,030 |
|   | 80% uptake | -79,917 | -154,844 | -161,678 | -225,116 |
| **150 mg vs. No Treatment** |   |   |   |   |
|   | 25% uptake | -69,720 | -145,697 | -153,844 | -218,050 |
|   | 50% uptake | -73,857 | -149,635 | -155,972 | -220,219 |
|   | 80% uptake | -73,364 | -149,450 | -154,390 | -219,075 |
| **150 mg vs. 75mg** |  |  |  |  |  |
|   | 25% uptake | -67,985 | -145,306 | -147,108 | -213,262 |
|   | 50% uptake | -61,357 | -139,938 | -139,384 | -206,934 |
|   | 80% uptake | -34,869 | -117,844 | -111,573 | -183,680 |

# **References**

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