**Supplementary material 3: Further details of statistical estimation**

Summary results are based on two chains with 200 000 samples each after a 50 000 ‘burn-in’ period. WinBUGS is very slow at computing recursive functions as required to obtain , and so these are programmed in the WinBUGs add-on package WBDev[1](#_ENREF_1" \o "Lunn, 2004 #1280). The WinBUGS and WBDev code can be found in[2](#_ENREF_2). The calibration parameter , the ratio of PID incidence in women who have not had a PID in the last two years, and the incidence of all-cause PID, was varied in order to find the value at which model predictions best fitted the age-specific all-cause PID incidence (see Table SDC3.1). The best fitting value was 0.85.

**Table S3.1**. Calibration of the Markov model. Estimated all-cause PID incidence rate per 100 person years from Chapter 6 and predictions of the Markov model with the rescaling factor  set to 0.85.

|  |  |  |
| --- | --- | --- |
| Age | From Cumulative incidence model | Estimated PID incidence |
| 16 – 44 | 1.9 (1.2, 2.8) | 1.8 (1.3, 2.5) |
|  |  |  |
| 16 – 19 | 2.0 (1.4 ,2.9) | 2.1 (1.5 ,2.9) |
| 20 – 24 | 3.0 (2.0 ,4.6) | 2.8 (2.0 ,3.8) |
| 25 – 34 | 2.0 (1.2 ,3.2) | 1.9 (1.3 ,2.8) |
| 35 – 44 | 1.2 (0.72,2.0) | 1.3 (0.78,1.9) |

**REFERENCES**

1. WinBUGS Development Interface (WBDev). <http://www.winbugs-development.org.uk/> [program], 2004.

2. Price M, Ades A, Soldan S, Welton N, Macleod J, Simms I, et al. The natural history of Chlamydia trachomatis infection in women: a multi-parameter evidence synthesis. *Health Technology Assessment Methodology report* 2016;in press.