# S1 Table. Input parameters used in the discrete event simulation model

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| --- | --- | --- |
| Parameter | **Estimate** | **Source** |
| Screening |  |  |
| Re-invitation | 0.1360 | MASS (1) |
| Attendance proportion | 0.750 | NAAASP (2015/16) |
| Non-visualisation proportion | 0.0121 | MASS |
| Age and AAA size distribution at baseline  Invited cohort§  Surveillance cohort | 65-year old, AAA distribution obtained from first 700,000 men screened  Age and AAA distribution obtained from NAAASP surveillance cohort | NAAASP (2009-2014)(2)  NAAASP (May 2020) |
| AAA growth \*§ | Mean growth rates:  1.8mm/yr for 3.0cm AAA  2.3mm/yr for 4.0cm AAA  2.9mm/yr for 5.0cm AAA | MASS |
| AAA rupture †§ | 3.0cm AAA: 0.03 per 100 p-years  4.0cm AAA: 0.17 per 100 p-years  5.0cm AAA: 0.64 per 100 p-years  5.5cm AAA: 1.13 per 100 p-years | RESCAN (3) (11 studies) that record rupture rates for men |
| Surveillance |  |  |
| Dropout rate | 5.72 per 100 p-years | MASS |
| Incidental detection rate | 4.59 per 100 p-years | Glover et al.(4) |
| Delay from 5.5+cm scan to consultation | 71 days | MASS |
| Consultation scan | CT diameter:  Mean = US + 0.244cm, SD 0.19cm | RESCAN & Singh et al.(5) |
| Non-intervention proportion | 0.125 | MASS |
| Delay from consultation to surgery | 59 days | MASS |
| Elective operations |  |  |
| Proportion receiving EVAR vs. Open | 0.74 at age 80, AAA diameter 6.0cm. Odds ratio 1.10 per year increase in age, 0.74 per cm increase in diameter | National Vascular Registry(6) |
| Elective EVAR 30-day mortality | 0.008 at age 80, AAA diameter 6.0cm. Odds ratio 1.10 per year increase in age, 1.33 per cm increase in diameter | National Vascular Registry |
| Elective Open 30-day mortality | 0.051 at age 80, AAA diameter 6.0cm. Odds ratio 1.09 per year increase in age, 1.12 per cm increase in diameter. | National Vascular Registry |
| Re-intervention rate after successful elective EVAR | 13.5 and 3.6 per 100 person-years during 31-120 and >120 days respectively | EVAR-1(7) |
| Re-intervention rate after successful elective open repair | 1.6 and 1.3 per 100 person-years during 31-120 and >120 days respectively | EVAR-1 |
| Long-term AAA mortality after elective EVAR | 0.8 per 100 person-years | EVAR-1 |
| Long-term AAA mortality after elective Open | 0.07 per 100 person-years | EVAR-1 |
| Emergency operations |  |  |
| Proportion operated after rupture | 0.368 | MASS |
| Proportion receiving EVAR vs. Open | 0.22 at age 80. Odds ratio 1.05 per year increase in age | National Vascular Registry |
| Emergency EVAR 30-day mortality | 0.22 at age 80. Odds ratio 1.05 per year increase in age | National Vascular Registry |
| Emergency Open 30-day mortality | 0.44 at age 80. Odds ratio 1.07 per year increase in age | National Vascular Registry |
| Re-intervention rate after successful emergency EVAR | 10.9 per 100 person-years | IMPROVE(8, 9) |
| Re-intervention rate after successful emergency open repair | 6.1 per 100 person-years | IMPROVE |
| Long-term AAA mortality after emergency EVAR | 1.0 per 100 person-years | IMPROVE |
| Long-term AAA mortality after emergency open repair | 1.4 per 100 person-years | IMPROVE |
| Miscellaneous |  |  |
| Non-AAA mortality rate | UK population age/sex specific | Office for National Statistics(10) |
| QoL utilities | Annual utilities from 0.81 at age 65, 0.77 at age 75, 0.74 at age 85 | Love-Koh et al.(9) |
| Discounting rates | 3.5% per year for life-years and costs |  |

MASS – Multicentre Aneurysm Screening Study

NAAASP – National Abdominal Aortic Aneurysm Screening Programme

**§** Assumed the same for non-attenders

\* Longitudinal linear mixed model for log AAA diameter: Slope (), Intercept (), Slope log SD (), Intercept log SD (), Arctanh correlation (), Residual log SD ()

\*\* where , and

† Data for rupture rates obtained from 11 RESCAN studies (Western Australia, Chichester, Gloucestershire, Huntingdon, MASS, Manchester, Tromso, Galdakao, Stirling, UKSAT, Viborg). See eTable 2 of (3) for further information on these studies. Joint model for log rupture rates and log underlying AAA diameter were fitted to each study separately then combined using multivariate meta-analysis: association with diameter (), Intercept (

‡ where , and

# References

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