

Rivaroxaban for the prevention of stroke and systemic embolism in people with atrial fibrillation

Additional report

Evidence Review Group (ERG) additional report for Rivaroxaban for the prevention of stroke and systemic embolism in people with atrial fibrillation

Produced by BMJ-Technology Assessment Group (BMJ-TAG)

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Additional analysis carried out by the ERG

Following a request from the Appraisal Committee chair the ERG has carried out additional analysis into:

1. The effect of using the correct formulae for converting rates into probabilities.
2. The threshold of warfarin monitoring costs required for an ICER OF £20,000 per quality adjusted life year (QALY).

1. Assessment of the impact of correct formulae for converting rates into probabilities

The original and updated models supplied by the manufacturer converted annual rates into quarterly probabilities using the following formulae:

$$r_Q = 1 - (1 - r)^t$$

where, r_Q is the quarterly rate; r is the annual rate and t the model cycle length; in this case 3 months.

However, as observed by a commentator in their response to the ACD, this formula is incorrect and should in fact be:

$$p = 1 - \exp(-rt)$$

where p is the quarterly probability, r is the annual rate and t the model's cycle length; in this case 3 months.

The ERG has amended the model to use the correct formulae and assessed the impact on the overall ICER. The correction had a minimal impact on the ICER, increasing the revised base case ICER by £39, from £29,537 to £29,576.

2. Threshold analysis on the cost of warfarin monitoring costs

The ERG calculated the annual cost of warfarin monitoring that would be required to obtain an ICER of £20,000 per QALY in the comparison of rivaroxaban with warfarin. The ERG used the manufacturer's updated model, including all of the amendments accepted or recommended by the ERG. The ICER obtained with this model, using an annual cost of primary care monitoring for warfarin of £242 was £29,537 (as discussed in the ERG's response to the manufacturer's comments on the ACD). In order to achieve an ICER of £20,000 using this model, the annual cost of warfarin monitoring in primary care (maintenance) would need to be £414 per year; £480 per year if initiation costs are accounted for.