

Conflict of Interest Disclosures: This study used observational data from the Dutch Melanoma Treatment Registry (DMTR). The DMTR is funded by ZonMw (start-up grant), Bristol-Myers Squibb, Merck Sharp & Dohme, Novartis and Pierre Fabre (since 2019). Roche ceased funding in 2019.

The Erasmus logo, featuring a stylized, handwritten-style script of the word "Erasmus" in black.

Development of a flexible and easy to tailor disease model to estimate the outcomes of treatment sequences in advanced melanoma by combining trial and real-world data

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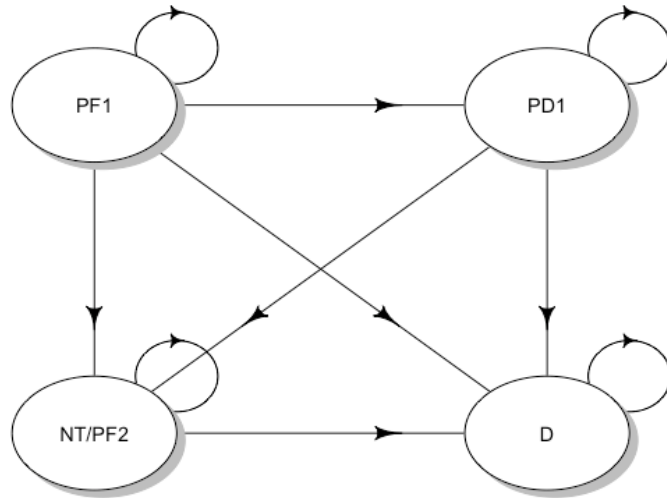
Objective

To develop a flexible disease model for advanced melanoma to estimate long-term effectiveness of treatment sequences to support clinical guideline development and reimbursement decision making.

Method: semi-Markov model

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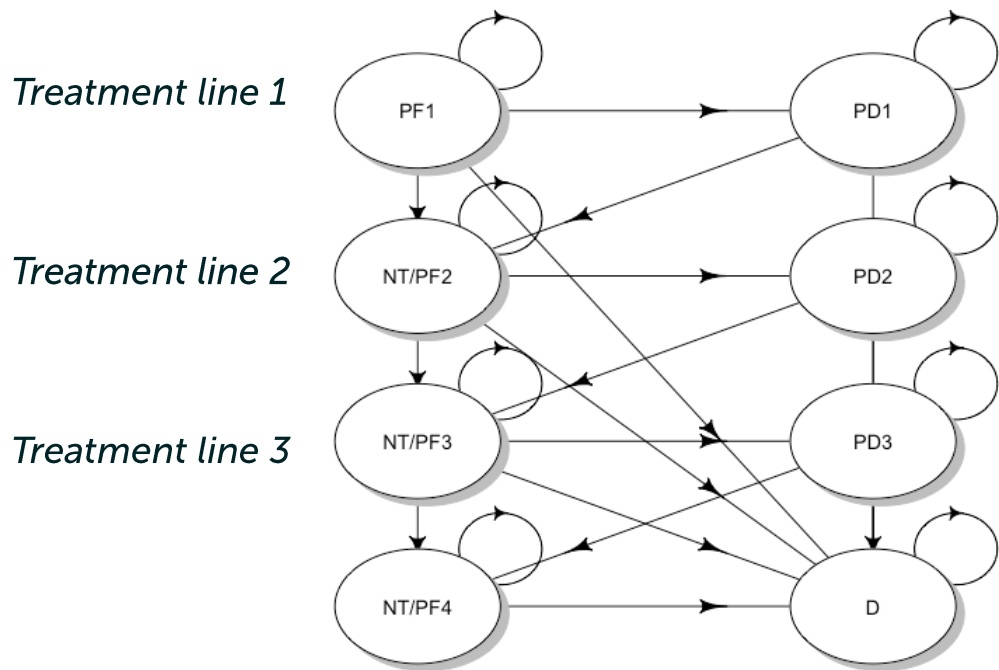
Model structure – treatment line 1



- PF, progression-free
- PD, progressive disease
- NT/PF, next treatment/ progression-free
- D, death

Ezafun

Model structure – treatment line 1 to 3



- PF, progression-free
- PD, progressive disease
- NT/PF, next treatment/ progression-free
- D, death

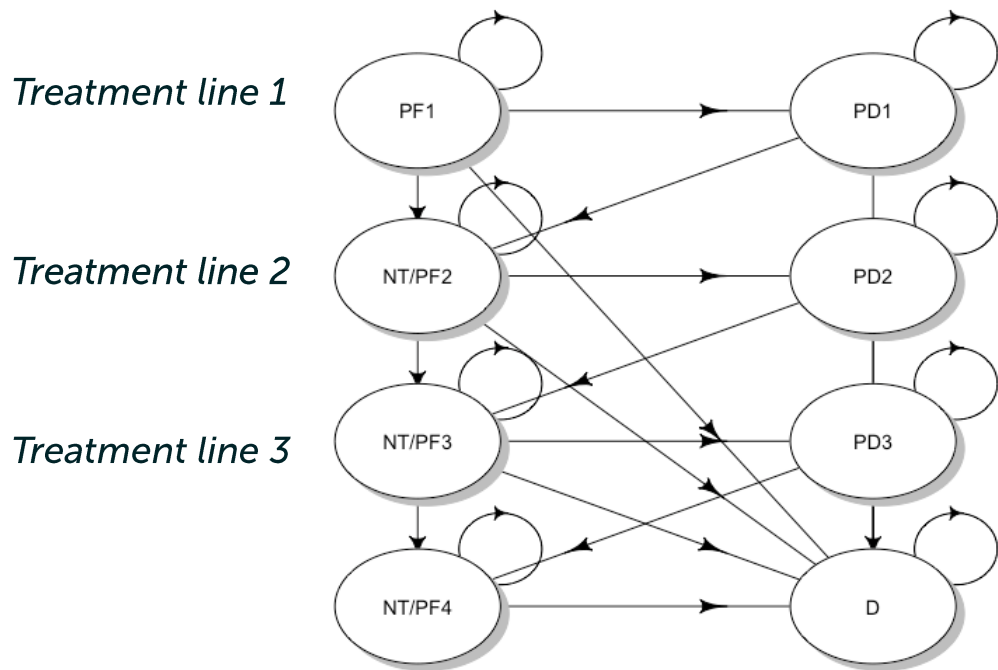
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Model structure – treatment line 1 to 3

Input data:

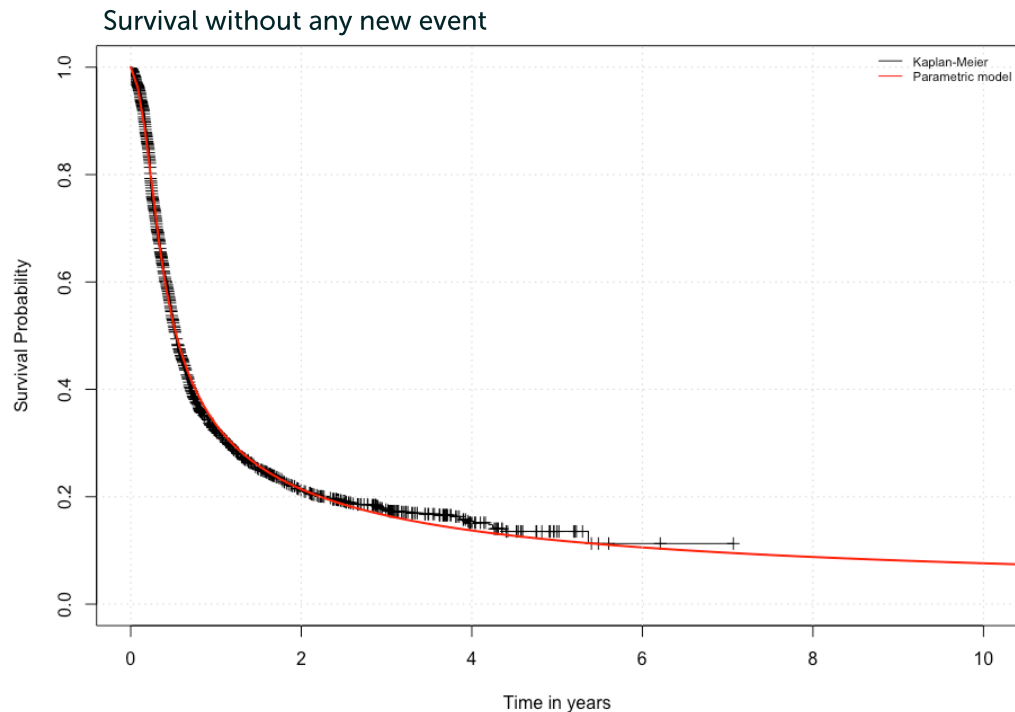
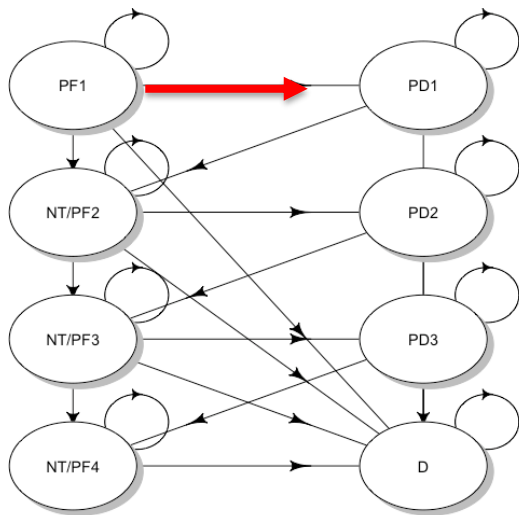
Transition probabilities
- Real-world data from the
Dutch melanoma treatment
registry (DMTR)

Treatment-effect
- Network meta-analysis based
on RCTs (Franken et al. EJC 2019)



E2afms

Transition probabilities based on real-world data; all transitions are time-dependent



Treatment effect based on network meta-analysis

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M.G. Franken et al. / European Journal of Cancer 123 (2019) 58–71

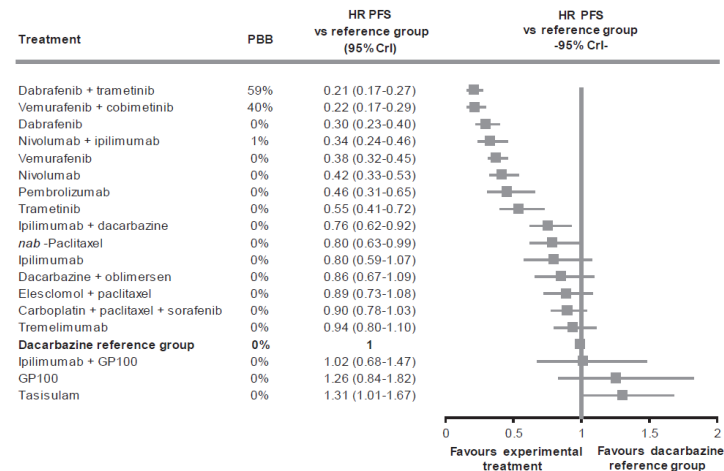
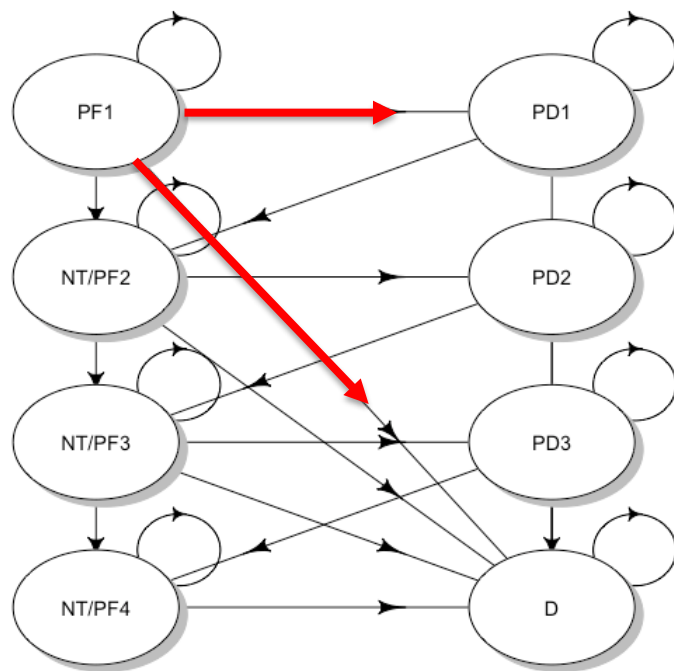


Fig. 4. Results of the network meta-analysis for progression-free survival. CrI, credible interval; GP100, glycoprotein 100 peptide vaccine; PBB, probability of being the best; HR, hazard ratio; PFS, progression-free survival.

Ezra

Treatment effect based on network meta-analysis

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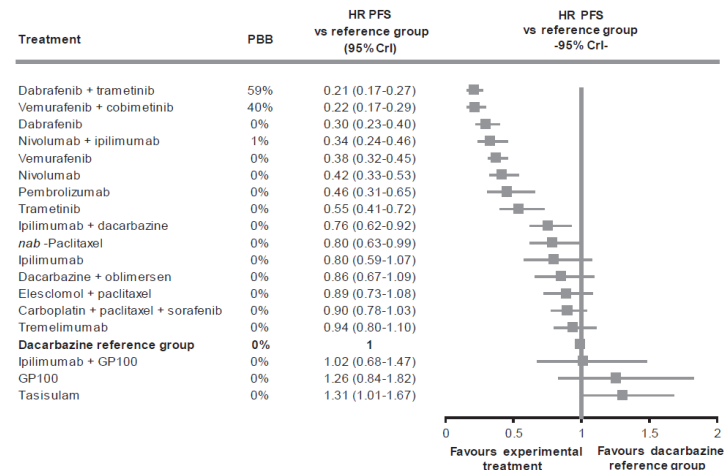
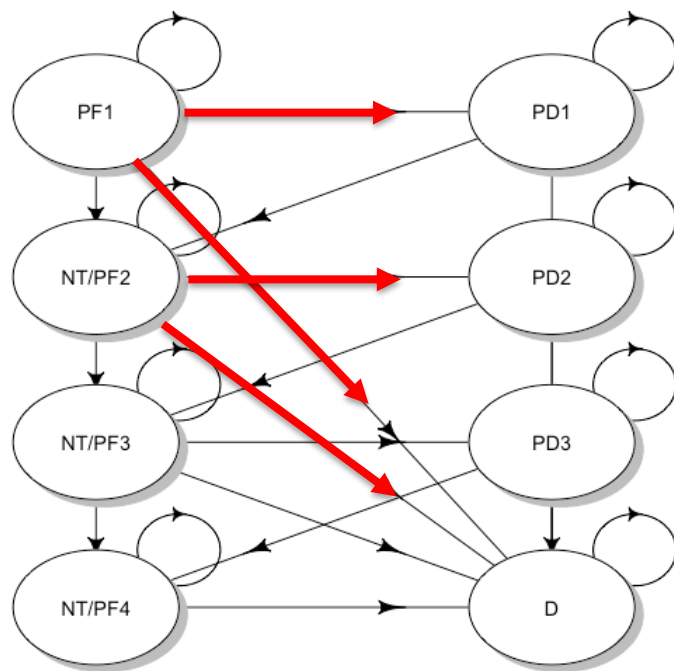


Fig. 4. Results of the network meta-analysis for progression-free survival. CrI, credible interval; GP100, glycoprotein 100 peptide vaccine; PBB, probability of being the best; HR, hazard ratio; PFS, progression-free survival.

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Model is flexible

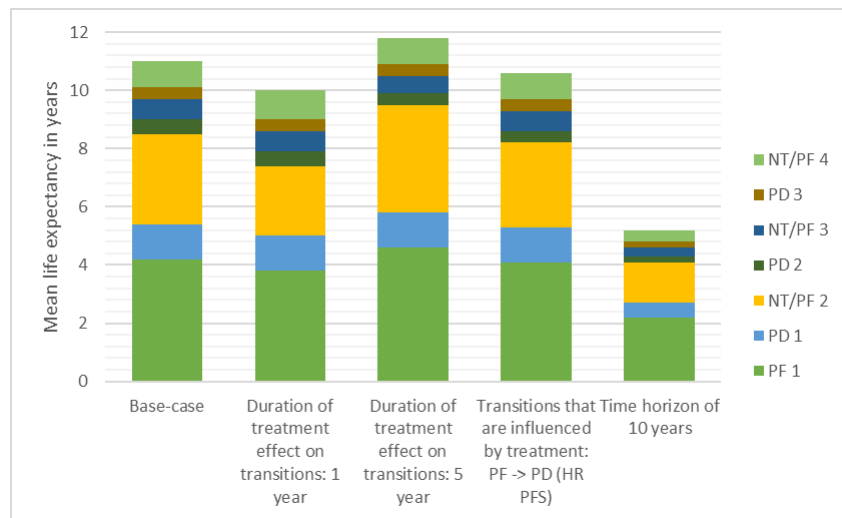
The following can be adjusted:

- Treatments and sequences of treatment;
- Duration of the relative effect of treatment;
- Type of transitions influenced by treatment.

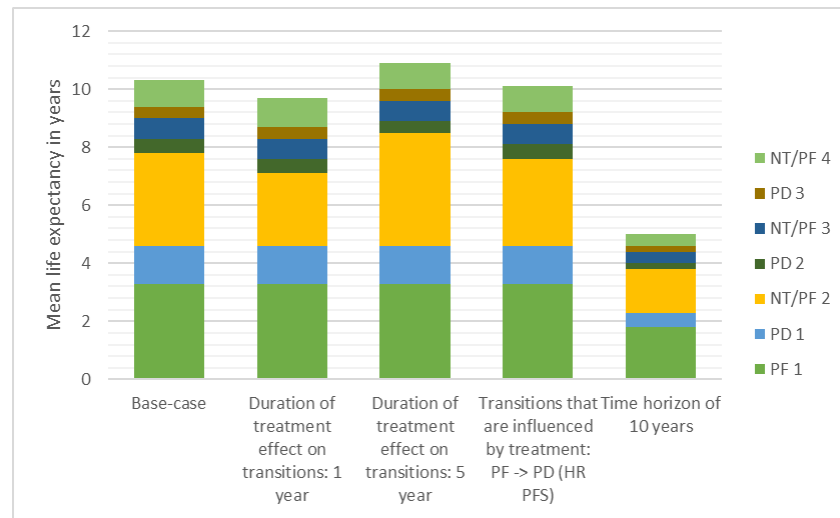
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Preliminary results: impact of different assumptions

Mean life expectancy (years) of patients with BRAF-mutant melanoma and a favourable prognosis, treated with sequence A-C-D



Mean life expectancy (years) of patients with BRAF-mutant melanoma and a favourable prognosis, treated with sequence B-C-D



E2afms

Preliminary definition of a favourable prognosis: a normal serum lactate dehydrogenase (LDH) level, an Eastern Cooperative Oncology Group (ECOG) performance status of 0 or 1 and no or asymptomatic brain metastases.

Conclusion

- With this model we aim to demonstrate differences in life expectancy between **treatments**;
- With this model we aim to demonstrate differences in life expectancy between **treatment sequences**;
- Flexible model;
 - Different assumptions possible within current structure;
 - Combination of real-world data with data from clinical trials.

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Please feel free to reach out to me:

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