

BACKGROUND

- Most health technology assessment (HTA) occurs before a technology enters the market.
- The actual uptake of a technology in practice can influence both the cost-effectiveness and budget impact.
- In rheumatoid arthritis (RA), there is excitement about the potential to identify people at high risk of developing the disease and preventing onset with anti-rheumatic drugs.
- Preventative strategies will have considerable uncertain risks and benefits from in practice.
- A number of potential 'preventive treatments' are currently being studied in clinical trials (Figure 1), all powered on potential risk reduction.

Figure 2. Example choice set

Imagine that you have taken a test to predict your risk of developing rheumatoid arthritis (RA), and this is the result:

- Risk of developing rheumatoid arthritis in the next 5 years: 60% (60 out of every 100 people like you are expected to develop RA)

Imagine that you are now offered the choice between two treatments, which could prevent you from developing RA. Both are thought to be appropriate, but differ in a number of ways. [Click here](#) if you are unsure what to do

	Treatment A	Treatment B	No treatment
Your risk of developing rheumatoid arthritis	Your predicted risk of RA would reduce from 60 people out of 100 to 44 people out of 100 over the next 5 years	Your predicted risk of RA would reduce from 60 people out of 100 to 24 people out of 100 over the next 5 years	Your predicted risk of RA would stay the same at 60 people out of 100 over the next 5 years
The way you take treatment	IV/slow drip, given by a physician or nurse at their office or hospital, which takes 3-4 hours. Twice, 15 days apart, repeated once (2 doses total)	An oral pill Once daily for one year	You don't take anything
The risk of side effects	Common: minor side effect, which is reversible Very rare: very serious side effect, which is not reversible	Common: minor side effect which is reversible	None
The certainty in estimates	Very little: the true effect is likely to be substantially different from the estimate of the effect	Limited: The true effect may be substantially different from the estimate of the effect	High: The true effect is likely to be close to the estimate of the effect
Your health care professional's opinion:	Your health care professional would not prefer this treatment	Your health care professional would prefer this treatment	Your health care professional does not offer an opinion about this option
I prefer:	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Would you choose not treatment for now over your chosen treatment?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Figure 3. Preferences for treatment attributes and levels

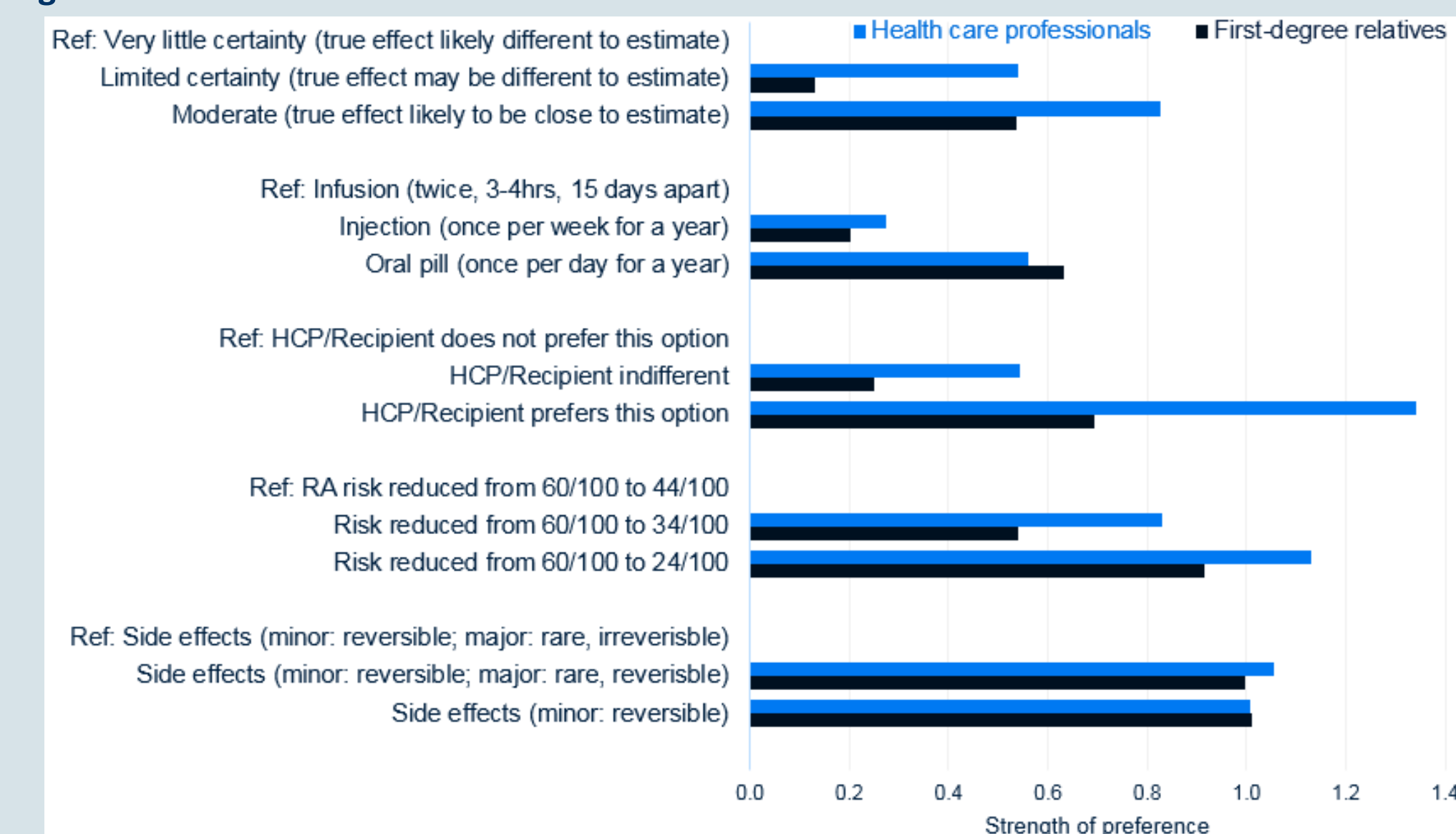
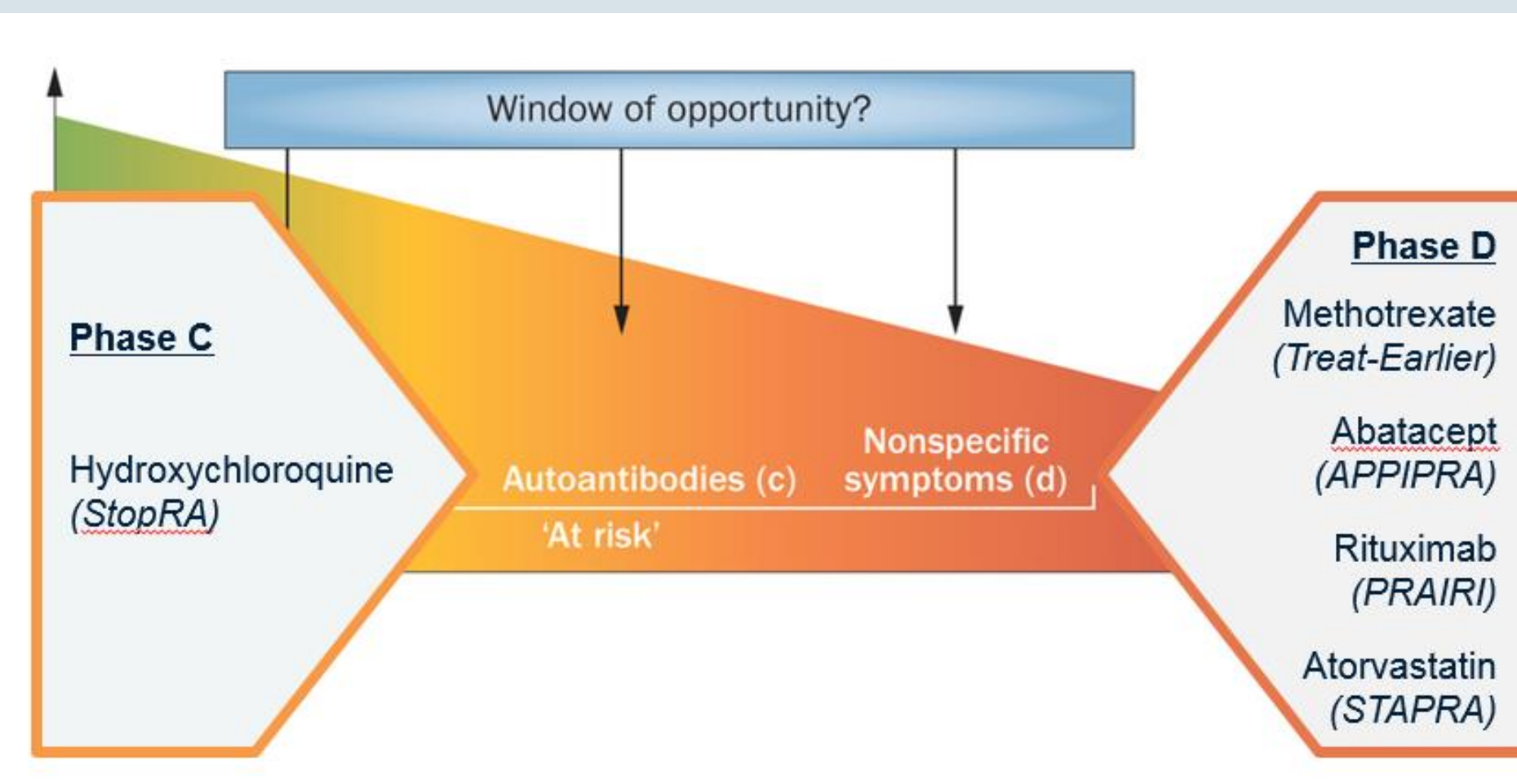


Figure 1. Example choice set



OBJECTIVE

This case study, set in the window of opportunity before ongoing trials report results and HTA begins, aims to predict likely uptake of preventive treatment for RA based on treatment preferences.

PREFERENCE ELICITATION DESIGN

- Discrete choice experiment (DCE) where respondents
- Five key treatment attributes identified in focus groups with RA patients, first-degree relatives of RA patients and rheumatologists (Figure 2)
- Experimental design (SAS) developed 18 choice sets, blocked into 4 sets of 9 choices.

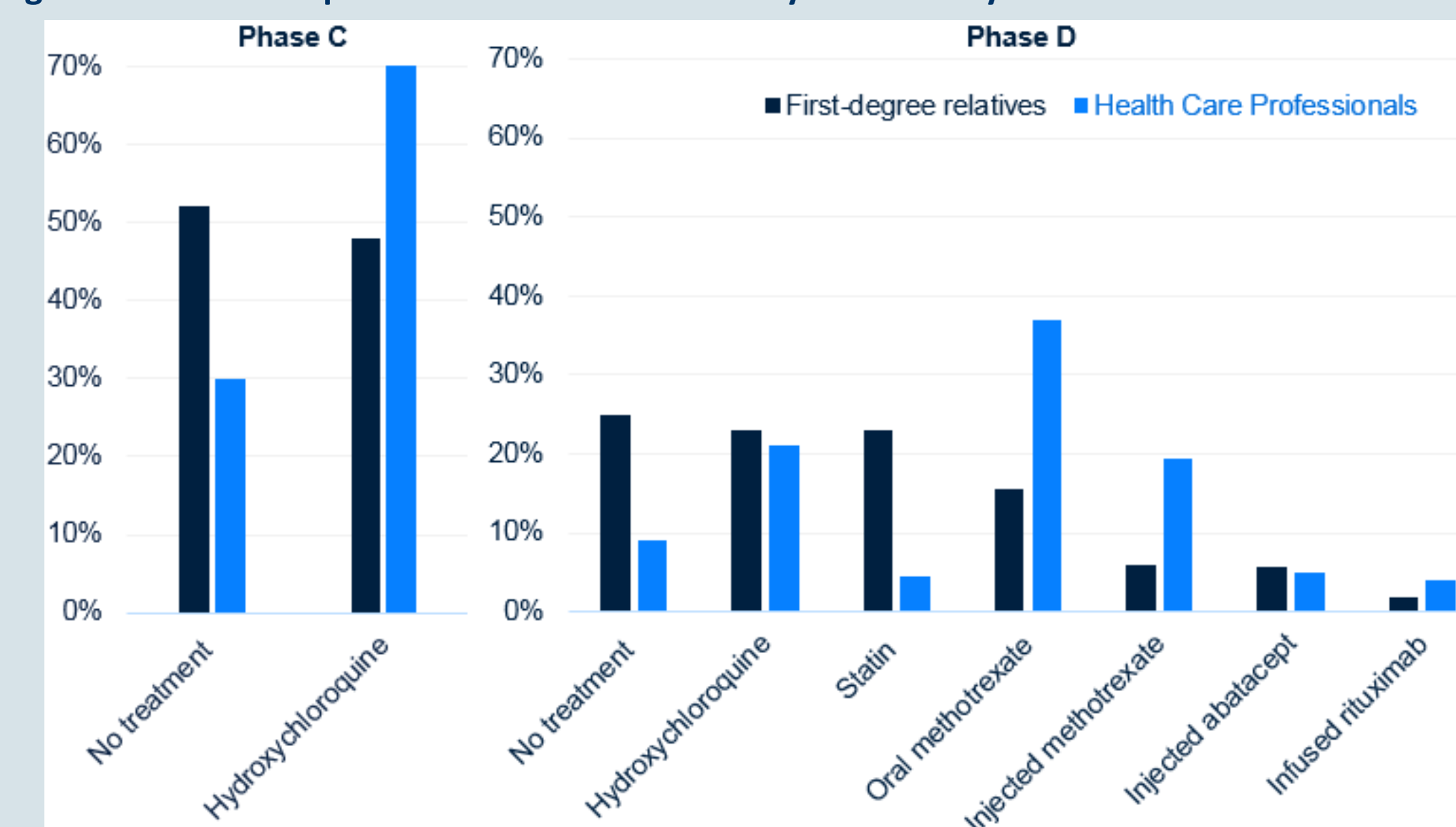
METHODS & ANALYSIS

- The DCE was sent in English and French to samples of:
 - First-degree relatives (FDRs) of patients via RA; patients on the JointHealth mailing list.
 - Health care professionals (HCPs); via email to members of the Canadian Rheumatology Association
- Responses analyzed using:
 - Conditional logit regression models to estimate the significance and relative importance of attributes in influencing preferences
 - Logit models with random effects (to account for repeated observations within individuals)
 - Coefficients each attribute level used to predict uptake of each preventive treatment

RESULTS

- 30 FDRs (73% female; province: AB 23%, BC 47%, ON 13%, QC 10%; 8 provinces), and
- 48 HCPs (81% rheumatologists, 8% nurses, 4% pharmacists; 60% female; 8 provinces)
- Treatment preferences were most strongly influenced by discussions of preferred options between providers and recipients, and potential risks and benefits (Figure 3).
- Predicted uptake of hydroxychloroquine in phase 3 was 48% for FDRs and 70% for HCPs.
- In a simulated situation where any potential preventive treatment was available, predicted uptake was
 - 75% for FDRs (highest for hydroxychloroquine and statins)
 - 91% for HCPs (highest for oral methotrexate)
- Predicted uptake of biologics for prevention was predicted to be very low ($\leq 9\%$) for any group

Figure 4. Predicted uptake for treatments currently under study



CONCLUSIONS

- Potential benefits of preventative treatment are not the most important consideration in the decision to initiate preventive treatment; other factors including safety, alignment of preferences and convenience influence uptake.
- Our results offer important insights and parameters for HTA considering potential budget impact, cost-effectiveness & acceptability of preventive RA strategies.