Preventing rheumatoid arthritis: a general population pilot study of perspectives on potential preventative interventions

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Funded by 2015 CIORA grant "Preventing rheumatoid arthritis (Pre-RA): perspectives of people at risk and of rheumatologists on selected interventions"

BACKGROUND

- Evidence suggests treating people at high risk of rheumatoid arthritis (RA) with disease modifying anti-rheumatic drugs (DMARDs) could prevent the onset of disease.
- There are currently multiple ongoing randomized controlled trials studying the efficacy of preventing RA, for example:
  - Rituximab, a biologic DMARD
  - Hydroxychloroquine, a non-biologic DMARD.
- Even if these trials successfully meet their primary endpoint and are considered successful, the demand by asymptomatic people for preventative treatment is unclear because of:
  - Uncertainty in the precise benefits/harms of treatment, as well as the convenience of treatment
  - Uncertainty in the ability to predict those at risk of RA

OBJECTIVE

To determine the features of a preventative treatment program for people at high risk of RA that is likely to drive demand in pre-symptomatic people.

PREFERENCE ELICITATION DESIGN

- We focus on preferences for treatment, the values and most important attributes of preventative treatment programs, and the likely uptake of preventative treatment.
- Discrete choice experiment (DCE) where respondents were:
  - Told to imagine a test had classified them as at high risk of developing RA.
  - Asked to choose between sets of 2 hypothetical preventative RA treatments, then between their preferred treatment and 'no treatment for now'.

The treatment attributes identified in focus groups with RA patients, first-degree relatives of RA patients and rheumatologists, were:

1. Risk of developing RA,
2. The way treatment is taken,
3. Chance of side effects,
4. Certainty in estimates,
5. Health care provider's opinion

- Respondents were also given a background scenario which described the chance that the test is wrong.
- Experimental design (SAS) developed 18 choice sets, blocked into 4 sets of 9 choices.

METHODS & ANALYSIS

- The DCE was given to a representative sample of the US general population via a market research panel.
- Responses were analyzed using a conditional logit regression model to estimate the significance and relative importance of attributes in influencing preferences.
- Potential uptake of the treatment was estimated using the opt-out question in part 2 of the survey

SAMPLE

- 201 respondents started and completed all tasks in the survey.
- The majority were 25-54 years old (modal 30-39 years (38%)), and 50% were female.
- 23 members (11%) reported having a physician diagnosis of RA, and 91 (45%) had a family member or close friend with RA.

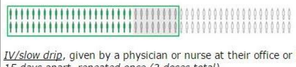
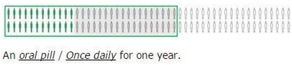
Figure 1. Example choice set

Imagine that you have taken a test to predict your risk of developing rheumatoid arthritis (RA), and these are the results:

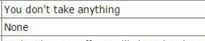
• **Risk of developing rheumatoid arthritis** in the next 5 years: 60% (60 out of 100 people like you are expected to develop RA)

• **Chance that the test is wrong:** 20% (20 out of 100 people are expected to get inaccurate information from this test)

Imagine you are now offered the choice between two treatments which could prevent you developing rheumatoid arthritis. Both are thought to be appropriate, but differ in a number of ways.

	Treatment A	Treatment B
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. 
The way you take the 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.
Chance 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*
Certainty in estimates	Very little: The true effect is *likely to be substantially different* from the estimate of effect.	Limited: The true effect *may be substantially different* from the estimate of the effect.
Your health care provider's opinion	Your health care provider would *not prefer* this treatment.	Your health care provider would *prefer* this treatment.
I prefer:	○	○

Part 2: Would you choose **no treatment for now**, over your chosen treatment above?

	No treatment
Your risk of developing rheumatoid arthritis	Your predicted risk will stay the same at *60 people out of 100*. 
The way you take the treatment	You don't take anything
Chance of side effects	None
Certainty in estimates	High: The true effect is *likely to be close* to the estimate of the effect.
Your health care provider's opinion	Your health care provider *does not offer an opinion* about this option.

I choose to:

○ Stay with selected treatment
○ Choose no treatment

RESULTS

Discrete Choice Experiment

- All attributes' levels significantly influenced treatment preferences, but the risk reduction, the way treatment is taken, and health care provider's preference were most influential.
- Respondents were most willing to trade a reduction in risk of RA for a treatment preferred by their health care professional and an oral route of administration.
- Respondents had similar strength preferences for reducing uncertainty in evidence and reducing risks of side effects.
- The preferred preventative treatment was chosen over no treatment in 67% of choices.

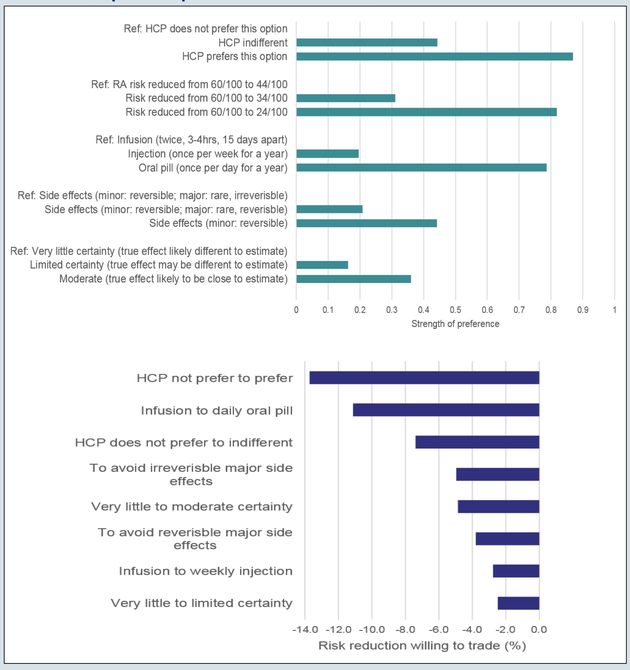
Potential uptake

- Across the 9 choices we asked people to make, when asked whether they would choose no treatment over there preferred treatment, between 24% and 49% preferred no treatment.

Survey

- 87% of respondents would be willing to pay something out of pocket for a preventative treatment (41% maximum $200; 39% maximum $1000; 7% maximum $5000)
- Only 9% believed that preventative treatment should be paid out of pocket; 60% believed that insurance providers should pay, 28% believed the government or health care system should pay

Figure 2. Estimated preferences and marginal rates of substitution for different aspects of preventative treatment



CONCLUSIONS

- The general population values the potential benefits of preventative treatments, but equally values how the treatment is taken and the preference of their health care provider, highlighting the importance of agency and perceived asymmetry of information.
- The degree of confidence in a treatment's risk/benefit estimates is as important to people as the risk of side effects.
- The uptake of a preventative strategy will depend on these key factors.
- Evidence from a full survey will help policymakers understand whether different preventative treatment strategies are likely to be acceptable to people to whom they are offered.