E-com@eu work package 5 – Erasmus University MC Rotterdam, the Netherlands

Acceptance of preventive measures in epidemic outbreaks across Europe:

A Discrete Choice Experiment

Deliverable 5.1: Report on attributes and attribute levels for the DCE

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Introduction

According to the E-com@eu work plan, we needed to identify relevant attributes and attribute levels for both the general public's and health care workers' choices to adhere to preventive policies or not, in the case of future epidemic outbreaks. When investigating the acceptance of preventive measures in epidemic outbreaks across Europe by using a discrete choice experiment (DCE), this selection of attributes and attribute levels is an important first step.

This deliverable is a short report on how we selected attributes and attributes levels for the DCE. Also, we will give an overview of the attributes and attribute levels that we will use in the DCE.

Methods

To identify relevant attributes and attribute levels, for both the general population and the health care workers choice to adhere to preventive policies or not, we conducted 1) a literature search, 2) a focus group study and 3) expert interviews.

1. Literature search

We used an Endnote database (which was the result of an extensive systematic literature search performed by WP 4) consisting of a body of literature about risk perception and acceptance of preventive measures during the H1N1 pandemic. We performed an additional strategic search in Pubmed, Embase, Cochrane and Psych Info (see Appendix for search terms)   to identify studies on the acceptance of preventive measures in the case of other communicable diseases. We organised the attribute and attribute levels we found, using two theoretic models of preventive behaviour, i.e. the Health Belief Model [1] and the Protection Motivation Theory [2].

2. Focus group study

First, based on the literature search and based on the theoretic models [1,2] we created a topic list to structure the focus groups. Second, using a pilot focus group, we tested this topic list. Third, we conducted seven focus group interviews with the general population from the Netherlands; targeting urban populations (2 groups); targeting populations of more rural areas (2 groups), and targeting ethnic minorities in the Netherlands (3 groups). Additionally, we conducted two focus group interviews with health care professionals from the Netherlands (i.e., one focus group interview with nurses and one focus group with medical students). To take differences between countries from different European key-clusters into account, we conducted two focus group interviews with Spanish citizens during their temporary stay in the Netherlands. Furthermore, we conducted two focus groups in Poland and two focus groups in Sweden. Hence, our WP considered all four European key-clusters.

 At the beginning of each focus group session, the moderator introduced a hypothetical scenario of a new epidemic outbreak, which was the basis of the discussion: 'Imagine, a new communicable disease emerged abroad. People already died of the disease there. People got sick in <insert your country> as well, but no one died yet'. It was stated that this outbreak was purely fictive. The group was then asked questions about the perceived threat: information they would like to have about this new disease, where they would get this information from, how they would like to get informed, if they would be afraid to get sick and if they would look for preventive measures. After this the group was asked questions about barriers and triggers to get vaccinated. Finally, different fictitious scenarios, based on the H1N1 outbreak, were discussed. Some additional questions, such as: 'What would you do if all your friends are getting vaccinated?' and 'Do you want your children to get vaccinated as well?' were asked. If new relevant themes arose during a FG discussion, these were added to the topic list.

To evaluate the most important reasons to get vaccinated or not in the case of a new worldwide outbreak of a communicable disease, participants filled in an assignment twice during the focus groups discussion. They were asked just before the break and at the end of the discussion: 'If the disease will break out, what are the five most important reasons to get vaccinated or not'?

3. Expert interviews

We interviewed both Dutch and international experts (n=9) in different relevant fields (e.g. infectious diseases, vaccination, preventive behaviour and implementation of preventive measures). We used a semi-structured interview guide based on the results of our literature search.

4. Selection of attributes and attributes levels

When selecting attributes for a DCE, one need to take into account that only a limited number of attributes can be used in a DCE design to prevent of making the DCE too complex for the respondents. When a DCE is too complex, the precision and reliability of the results will decrease. On the contrary, one needs to try to include

all relevant attributes to avoid that respondents make significant inferences on omitted attributes. Each attribute should be described as clearly as possible in the DCE questionnaire, which can especially be challenging if attributes present probabilities. Previous research has shown that some respondents may have difficulties with interpreting probabilities [3].

We aimed at selecting realistic attribute levels, i.e. relevant to policy as well as plausible and understandable for the participants. Additionally we used a sufficient wide range of levels to cover all realistic attribute levels as well as levels that may be plausible in the near future. Furthermore, for each continuous attribute we selected three levels to be able to test for non-linear relationships. We defined both quantitative and qualitative attribute levels.

Although we focused on all possible preventive measures in the literature study, focus group discussions and expert interviews, the DCE will be focused on vaccination programmes only due to practical reasons. To conduct a DCE on anti-viral prophylaxis (or e.g. hygiene measures), one needs to adapt the attributes and attribute levels according to anti-viral prophylaxis programmes (or e.g. hygiene measures).

Results

The results of the focus group study and expert interviews suggest that although preferences for certain attribute levels differ across respondents of different countries, similar attributes are important when they need to make a decision about adherence to preventive measures. These attributes are: 1) susceptibility to the disease, 2) severity of the disease, 3) effectiveness of the vaccine, 4) safety of the vaccine, 5) advice about the vaccine from doctors, family and friends, the government and public health institutions, and international organizations (e.g. WHO) , 6) messages about the vaccine in media, and 7) out-of-pocket costs. In other words, these attributes were marked as most important in previous research and were discussed most frequently in the focus groups of each country as well as in the expert interviews. As a result, we are able to conduct the same DCE across all countries and compare the results across countries directly. Since the countries of interest (Netherlands, Sweden, Poland and Spain) have different currencies and different purchasing power, we adapted the monetary attribute levels according to the most recent OECD price levels [4].

Finally, we made a list of selected attributes and attribute levels and discussed these with all members of the E-com@eu project at the Munster meeting in January 2013, and reached consensus.

Conclusion

The seven attributes and attributes levels that we will use in the DCE are:

Attributes	Attribute levels
Disease specific attributes	
Susceptibility to the disease (described as the percentage of people that will get sick (that will develop symptoms))	5%, 10% 20%
Severity of the disease (described as the percentage of sick people that will develop severe symptoms, including death)	5%, 25%, 50%, 75%
Vaccine specific attributes	
Effectiveness of vaccine (described as the percentage of people that will be protected by the vaccine)	30%, 50%, 70%, 90%
Safety of the vaccine (described as the long term severe side effects)	- Unknown, however, due to previous experience with the same sort vaccination, this new vaccine is supposed to be safe - Unknown, no previous experience with this vaccine
Advice about the vaccine	- Your doctor recommends - Your doctor advised against - Your family and/or friends recommend - Your family and/or friends advise against - The national government recommends - International organizations recommend
Messages about the vaccine in the media	- Newspapers, television and radio are positive - Newspapers, television and radio are negative - Blogs, Twitter and social network sites are positive - Blogs, Twitter and social network sites are negative

Price of the vaccine

Netherlands	- 0 euro
	- 50 euro
	- 100 euro

Spain	- 0 euro
	- 45 euro
	- 90 euro

Poland	- 0 Polish Zloty
	- 120 Polish Zloty
	- 240 Polish Zloty

Sweden	- 0 Swedish Krona
	- 500 Swedish Krona
	- 1000 Swedish Krona

References

[1] Janz, N.K. and M.H. Becker, The Health Belief Model: a decade later. Health Educ Q, 1984. 11(1): p. 1-47.

[2] Rogers, R.W., A protection motivation theory of fear appeals and attitude change. Journal of Psychology: Interdisciplinary and Applied, 1975. 91(1): p. 93-114.

[3] Peters E, Vastfjall D, Slovic P, et al. Numeracy and decision making. Psycholog Sci 2006; 17 (5): 407-13

[4] http://stats.oecd.org/Index.aspx?QueryId=24057

Appendix

Search string for Pubmed:

(vaccination [Mesh] OR immunization [Mesh] OR vaccines [Mesh] OR vaccin* [tiab] OR immunization* [tiab] OR immunisation* [tiab] OR inoculation* [tiab])AND (patient preferences [Mesh] OR patient preference* [tiab] OR discrete choice* [tiab] OR DCE [tiab] OR conjoint analysis [tiab])

Search string for Embase:

(vaccination/exp OR immunization/exp OR immunisation/exp OR inoculation/exp OR vaccine/exp OR vaccin*:de,ab,ti OR immunization*:de,ab,ti OR immunisation*:de,ab,ti OR inoculation*:de,ab,ti) AND ('patient preference'/exp OR (patient NEAR/1 preference*):de,ab,ti OR (discrete NEAR/1 choice*):de,ab,ti OR DCE:de,ab,ti OR (conjoint NEAR/1 analysis):de,ab,ti)

Search string for Cochrane Central:

(EXP vaccination / OR EXP immunization / OR EXP vaccines / OR vaccin*:ti,ab OR immunization*:ti,ab OR immunisation*:ti,ab OR inoculation*:ti,ab) AND (EXP ('patient preferences') / OR (patient NEAR/1 preference*):ti,ab OR (discrete NEAR/1 choice*):ti,ab OR DCE:ti,ab OR (conjoint NEAR/1 analysis):ti,ab)

Search string for Psychinfo:

(vaccin*.ti,ab. OR immunization*.ti,ab. OR immunisation*.ti,ab. OR inoculation*.ti,ab.) AND (patient preference*.ti,ab. OR discrete choice*.ti,ab. OR DCE.ti,ab. OR conjoint analysis.ti,ab.)