

Assessing the Societal Value in Rare Diseases by Decision Makers and Patients

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◆ BACKGROUND

- ➔ Because of their small market, orphan drugs are often very expensive and they do not usually prove to be cost-effective (Cost per QALY).
- ➔ The difficulties of conducting randomized clinical trials, we have to identify alternative robust sources of data to accumulate knowledge on the effectiveness and societal value of orphan treatments.
- ➔ Consequently, relatively high incremental cost-effectiveness ratios and the poor value for money, lead to denial of coverage (Drummond et al, 2007a).

◆ BACKGROUND

- ➔ The multicriteria decision analysis (MCDA) approach provides opportunities for evaluation of process effects and non-health outcomes additional to traditional QALY analysis.
- ➔ One MCDA technique, the discrete choice experiment (DCE) is a technique for investigating individual preferences for adding criteria to traditional QALY analysis.

◆ BACKGROUND

- ➔ DCE provides opportunities for evaluation whether a given health, non-health or process attribute of a health care intervention or service is important.
- ➔ To know the relative importance of these various attributes and the individuals trade-offs are made between these attributes.

◆ OBJECTIVES

- ➔ To select the attributes and levels for the DCE survey through a systematic review of the literature and expert opinion.
- ➔ To design a DCE survey to develop and validate a framework to support decision-making relating to orphan drugs for rare diseases.

◆ METHODS

- ➔ A DCE survey was conducted, using an online questionnaire, in order to explore the preferences of decision makers over health-care scenarios in five different countries in Europe (Spain, United Kingdom, France, Germany and Italy).
- ➔ A DCE survey was conducted, using online questionnaire, in order to explore the preferences of patients with cystic fibrosis and haemophilia from Registries in Italy.

◆ METHODS

➔ DCE Attributes and Attributes Levels

- A DCE survey has been designed with the systematic review of the literature (7 attributes) and the experts (1 attribute) to get the attributes and levels.
- Pilot work to test the best way to present information (10 experts).

Survey on preferences around financing health technologies in the NHS

Thank you for agreeing to participate in this survey. Your opinion is very important to us.

This survey is being conducted as part of a European-funded FP7 project called Advance HTA, which aims to contribute to improving decision-making processes relating to the financing of health technologies. More specifically, this survey focuses on citizen preferences around the financing of treatments for different diseases.

The objective of this survey is in line with the essential tasks and responsibilities shared by all citizens in contributing to improving the efficiency in how our health care system is financed, as well as the quality of care provided. Your contribution is essential to elicit societal preferences and in this sense, we ask you to reply to the questions that are formulated in the following survey. It will not take more than 30 minutes of your valuable time.

Your responses, along with those from other citizens, will provide key information to those responsible for the health care system around societal preferences in terms of how public healthcare resources should be used. Survey results will contribute to improving existing guidelines to reflect citizen opinions, which are necessary to be accounted for within the process of financing new treatments in our health system.

Your responses to this survey are confidential and anonymous.

The questions in the survey relate to the financing of treatments for various diseases. For each question, two options are given: A and B. You should carefully read each of the options and mark with an "X" the one you consider being the most appropriate. Only the options you select will be considered as being your preferred option to receive public funding by the National Health System, whereas unmarked choices will be discarded. It should be understood that there are no right or wrong answers, only different opinions.

The response options were designed based on the following attributes and levels:

SEVERITY OF THE DISEASE

Severity of the disease refers to **the pre-treatment health state** of patients who have severe problems in at least one of the following areas: (1) mobility (e.g. unable to walk), (2) self-care (e.g. unable to wash or dress themselves), (3) unable to perform usual activities (e.g. work, study, housework, family or leisure activities), (4) extreme pain or discomfort, (5) extreme anxiety or depression.

The following levels are used to measure the severity of the disease:

- a. Moderate
- b. Severe

IMPROVEMENT IN HEALTH

Improvement in health refers to the benefits that the patient feels following treatment (e.g. improvements in their mobility, improvement in self-care, improvement in their ability to perform usual activities, reduced pain, reduced anxiety).

The following levels are used to measure improvement in health:

- a. Large improvement in health
- b. Moderate improvement in health
- c. Small improvements in health
- d. Very small improvements in health

WAITING TIMES

Waiting time refers to the time a patient must wait for treatment.

The following levels are used to measure waiting time :

- a. Short waiting time
- b. Moderate waiting time
- c. Long waiting time



AVAILABILITY OF OTHER TREATMENTS

Availability of other treatments refers to the existence of alternative treatments for the same disease.

The following levels are used to measure the availability of other treatments:

- a. Yes, there is at least one other alternative treatments
- b. No, there is no other alternative treatment

SIDE EFFECTS

Side effects refers to the undesired effects caused by the treatment. Any medical treatment carries risks.

The following levels are used to measure side effects:

- a. Few side effects
- b. Moderate side effects
- c. Many side effects

VALUE FOR MONEY

Value for money refers to how efficiently resources are used (e.g. doctor time, hospital beds, drugs) in the National Health System. It is based on the relationship between the costs of treatment and the health benefits it produces.

The following levels are used to measure the value for money of a treatment:

- a. Very good value for money
- b. Fairly good value for money
- c. Fairly poor value for money
- d. Very poor value for money

BEGINNING OF LIFE

Beginning of life refers to the age patients are diagnosed with this disease, referring to situations in which the patients are younger than 10 years (children).

When we refer to the beginning of life, we use the following levels:

- a. Yes it is the beginning of life
- b. No it is no the beginning of life

COST OF TREATMENT

Cost of treatment refers to the resources that must be mobilized to ensure the financing of the treatment. The provision of care is usually financed through general taxation, although patients may also have to take certain inputs / co-payments for some treatments. If future treatments were to have higher costs, higher taxes and / or higher co-payments for patients will be required.

The following levels are used to measure the cost of the treatment:

- a. Zero tax increase/co-payments
- b. Lower tax increase/co-payments
- c. Moderate tax increase/co-payments
- d. High rise tax/co-payments

The estimated time to completion is 15 minutes.

Are you ready to start?



◆ METHODS

➔ Experimental design and scenario for the DCE

- The experimental design used has a full factorial of 36 combinations of attribute levels and choices were blocked into two sets of 18 choices, for two versions of the questionnaire.
- Respondents were asked to make a series of forced choices involving two alternative scenarios.

Opinion about NHS (b1)

Advance HTA



If you only have these two options, what you would finance the A or B? Choose one of the two options

B

- Severe disease
- Large improvement in health
- Long waiting time
- No, there is no other alternative treatment
- Moderate side effects
- Fairly poor value for money
- Yes it is the beginning of life
- High Rise Tax / co-payments

A

- Moderate disease
- Large improvement in health
- Moderate waiting time
- Yes, there is at least one other alternative treatment
- Moderate side effects
- Very good value for money
- Yes it is the beginning of life
- Zero tax increase / co-payments

Next

Exit and clear survey

◆ METHODS

➔ Data analysis

- We run 2 models and got 2 sets of coefficients of conditional logistic model by Decision Makers in 5 countries and patients with rare diseases in Italy (cystic fibrosis and haemophilia).
- The coefficients reflect the utilities (coefficiente multiple by proportion) associated with changes in each of the attribute levels (compared with the reference case).
- All statistical analyses were performed on STATA MP (STATA Corporation, 2015).

◆ RESULTS

Sample size by country: Decision Makers

	Country after exclusion criteria				
	Germany	England	Spain	France	Italy
Block 1	10	7	36	18	20
Block 2	16	10	40	19	15

◆ RESULTS

Sample size by country: Decision Makers

Country	Total number
France	36
Germany	26
Italy	35
England	17
Spain	76
Total	190

◆ RESULTS

The question was easy to understand (Decision Makers)

	Agree	Somewhat agree	Indiferent	Somewhta disagree	Disagree
France	31.6%	39.5%	2.6%	23.7%	2.6%
Italy	25.7%	31.4%	20%	17.1%	5.7%
England	52.9%	17.6%	11.8%	17.6%	0%
Germany	29.6%	38.5%	3.8%	11.5%	19.2%
Spain	67.1%	18.4%	3.9%	7.9%	2.7%



◆ RESULTS

It was easy to choose the answer (Decision Makers)

	Agree	Somewha t agree	Indiferent	Somewhta disagree	Disagree
France	18.40%	21.10%	7.90%	44.70%	7.90%
Italy	20.00%	37.10%	14.30%	17.10%	11.40%
England	23.50%	5.90%	29.40%	35.30%	5.90%
Germany	7.70%	11.50%	15.40%	57.70%	7.70%
Spain	28.90%	28.90%	11.80%	15.80%	14.50%



◆ RESULTS

Mean time by country

Country	Time by choice (Seconds)	Total survey time (Minutes)
France	46.02	14.9
Germany	45.15	14.5
Italy	32.81	10.4
England	33.9	10.8
Spain	35.54	11.7

◆ RESULTS

Coefficients of conditional logistic model by Decision Makers

Criteria	Level	Model Coefficients				
		Spain	Italy	England	Germany	France
IMPORTANCE OF THE DISEASE	Severe	0.082	0.035	0.216	-0.055	-0.057
IMPROVEMENT IN HEALTH	Moderate	0.047	0.264	-0.626	0.153	0.294
	Small	-0.081	0.023	-1.235	0.061	0.422
	Very small	0.012	-0.344	-2.804	0.043	-0.014
WAITING TIMES	Moderate	-0.176	0.158	0.375	-0.206	0.103
	Long	-0.081	-0.123	-0.259	0.09	-0.141
AVAILABILITY OF OTHER TREATMENT	No	-0.126	0.06	0.766	0.044	0.347

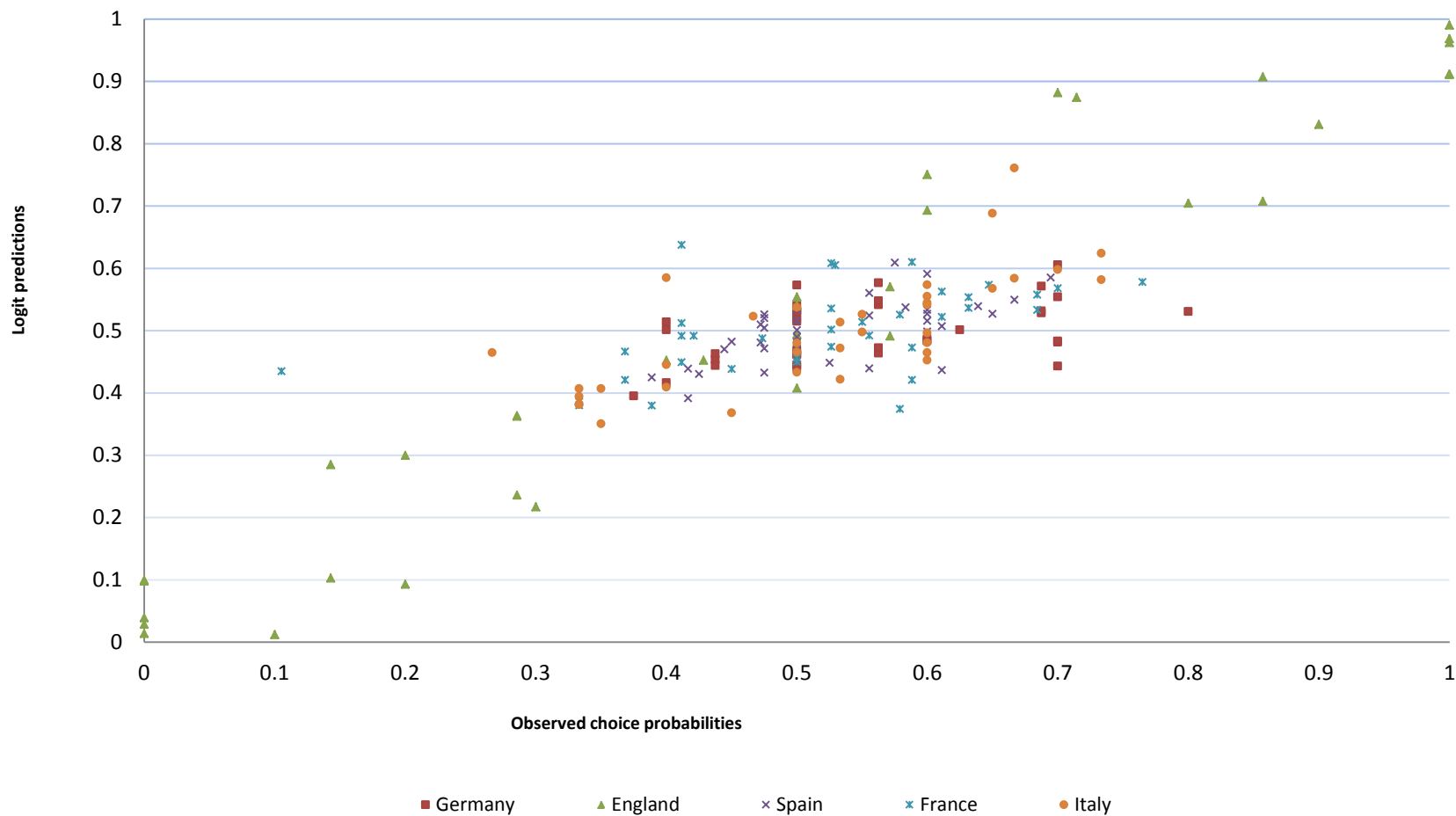
◆ RESULTS

Coefficients of conditional logistic model by Decision Makers

Criteria	Level	Model Coefficients				
		Spain	Italy	England	Germany	France
SIDE EFFECTS	Moderate side effects	-0.009	-0.461	-0.419	-0.039	-0.037
	Many side effects	0.043	0.261	-0.624	-0.032	0.093
VALUE FOR MONEY	Fairly good value for money	-0.032	0.053	-0.799	-0.034	-0.303
	Fairly poor value for money	0.023	0.161	-0.663	0.08	0.269
	Very poor value for money	-0.011	0.115	-1.86	-0.117	0.129
BEGINNING OF LIFE	It is not at the beginning of the life	-0.027	-0.048	-0.537	0.101	0.121
COST OF TREATMENT	Low tax increase / copayments	-0.027	0.012	0.878	0.022	0.207
	Moderate tax increases / copayments	0.122	-0.433	0.018	-0.023	-0.1
	High Rise Tax / copayments	0.045	-0.029	-0.786	0.061	0.2

◆ RESULTS

Observed choice probabilities versus logit model prediction by country



◆ RESULTS

The attributes receiving greatest attention:

- ➔ "Cost of the treatment" (Spain, **France**, **England** and Italy),
- ➔ "Improvement in health" (Germany, **France**, **England** and Italy),
- ➔ "Value for money" (**England**, Germany and **France**),
- ➔ "Availability of other treatment" (**England** and **France**),
- ➔ "Waiting times" (Germany, Spain and Italy),
- ➔ "Side effects" (Italy) and
- ➔ "Beginning of life" (Germany).

◆ RESULTS

The attributes receiving less attention:

- ➔ "Importance of the disease (severity)" (**France**, **England** and Germany),
- ➔ "Value for money" (Spain),
- ➔ "Availability of other treatment" (Italy and Spain),
- ➔ "Waiting times" (**France** and **England**)
- ➔ "Beginning of life" (Italy) and
- ➔ "Side effects" (France and Spain).

◆ RESULTS

Sample size by patients in Italy

	Before exclusion criteria	After exclusion criteria
	Italian Patients	Italian Patients
Block 1	25	23
Block 2	29	23

◆ RESULTS

The question was easy to understand (patients)

	Agree	Somewhat agree	Indiferent	Somewhat disagree	Disagree
taly	47.8%	32.6%	10.9%	6.5%	2.2%

It was easy to choose the answer (patients)

	Agree	Somewhat agree	Indiferent	Somewhat disagree	Disagree
taly	39.1%	30.4%	17.4%	10.9%	2.2%

◆ RESULTS

Coefficients of conditional logistic model by Italian patients

Criteria	Level	Italy Model Coefficients
IMPORTANCE OF THE DISEASE	Severe disease	0.005
IMPROVEMENT IN HEALTH	Moderate improvement in health	-0.425
	Small improvements in health	-0.369
	Very small improvement in health	-0.07
WAITING TIMES	Moderate time waiting	-0.102
	Long time waiting	0.02
AVAILABILITY OF OTHER TREATMENT	No, there is no other alternative treatment	-0.008

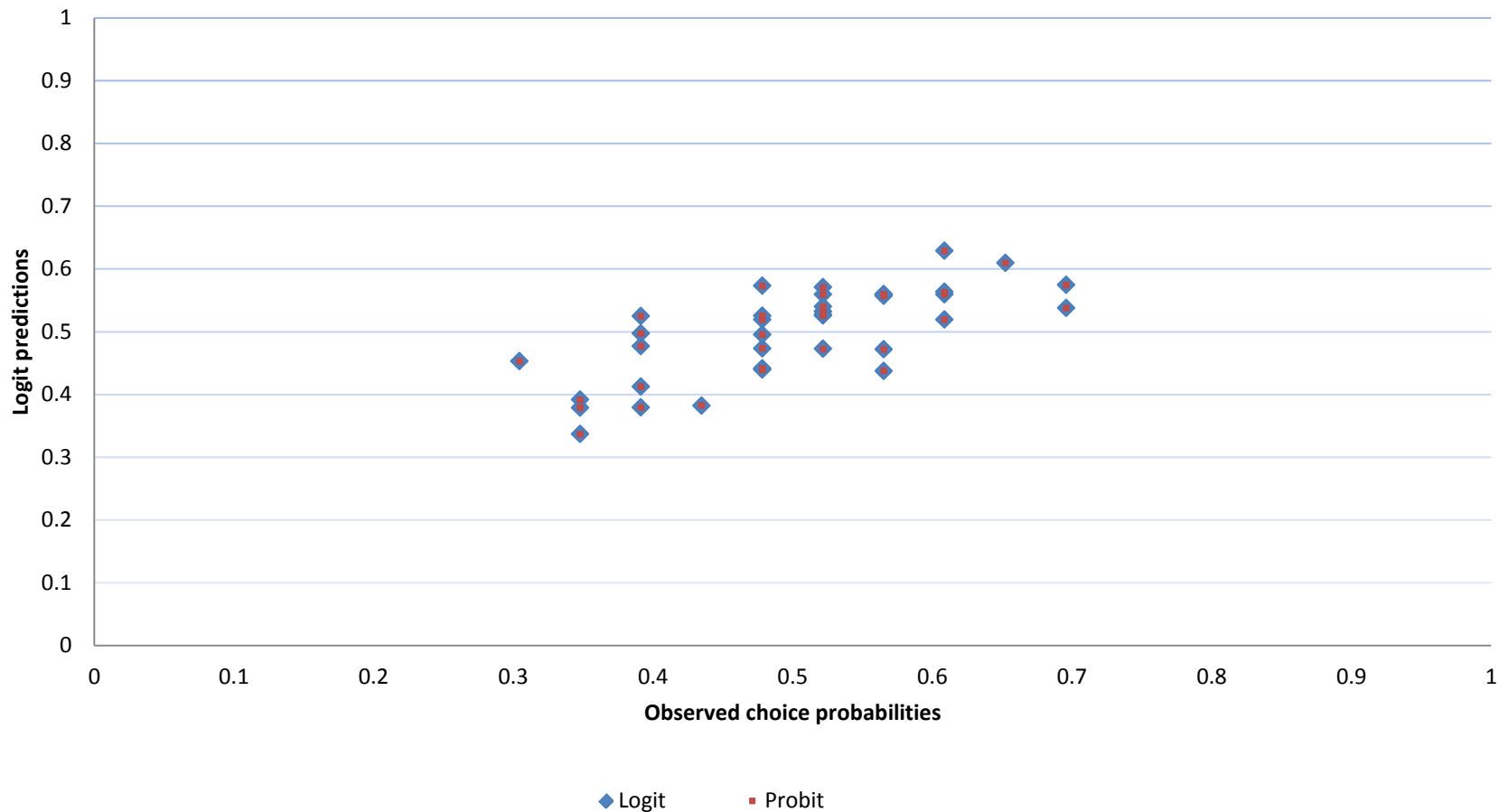
◆ RESULTS

Coefficients of conditional logistic model by Italian patients

Criteria	Level	Italy Model Coefficients
SIDE EFFECTS	Moderate side effects	-0.079
	Many side effects	-0.002
VALUE FOR MONEY	Fairly good value for money	-0.285
	Fairly poor value for money	-0.042
	Very poor value for money	-0.301
BEGINNING OF LIFE	It is not at the beginning of the life	0.158
COST OF TREATMENT	Low tax increase / copayments	0.396
	Moderate tax increases / copayments	0.361
	High Rise Tax / copayments	0.112

◆ RESULTS

Observed choice probabilities versus logit model prediction by country



◆ RESULTS

The attributes receiving greatest attention:

➔ "Improvements in health"

➔ "The cost of treatment"

➔ "Value for money".

◆ RESULTS

The attributes receiving less attention:

➡ "Importance of the diseases (severity)"

➡ "Available of other treatment".

◆ CONCLUSIONS

- ➔ The DCEs conducted in this study provided additional information to complement QALYs when assessing health care interventions (orphan drugs).
- ➔ DCE is also a useful tool to directly compare the determinants driving preferences for health care interventions from different groups such as decision makers in different countries and patients.
- ➔ DCE data can be used to consider the strength of preference over alternative scenarios in a priority-setting context.

◆ POLICY IMPLICATIONS

- ➔ The prior information reported here could inform a Bayesian efficient design to obtain a general algorithm to facilitate making uniform decisions over the health system.
- ➔ This study adds to the sparse literature informing on the use of DCE methods to explore preferences about funds in health systems.

◆ FUTURE RESEARCH

- ➔ To measure the preferences of general population face to face.
- ➔ To address many of the limitations highlighted, for example, using qualitative methods to investigate the interpretation of attributes, terminology used, and the considerations when respondents make their choices.
- ➔ To generate DCEs which are as easy as possible for respondents, but still provide adequate answers to the research question.

THANK YOU VERY MUCH FOR
YOUR ATTENTION

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