Chapter 3

New Approaches to Survey Design and Implementation

Given the methodological complications associated with the valuation of health risk reductions for children, a considerable amount of survey development work was undertaken in the VERHI project. This involved innovative ways to communicate risk, present scenarios of wealth-risk trade-offs, and incorporate a rich set of alternative risk characteristics and types of risk reduction. Two different survey instruments were developed, one involving a conjoint choice experiment (Italy and Czech Republic) and the other a chaining methodology (United Kingdom and Czech Republic). In both cases contingent valuation methods were also applied, and in the Czech Republic a method involving direct "person trade-offs" was applied.

Introduction

The VERHI project focuses on the value of reducing environmental health risks to children and adult populations. The survey development work undertaken for the VERHI project was motivated by the need to assess how such issues could be addressed. This Chapter reviews the main insights obtained from the large number of laboratory experiments, large-scale pilot studies, focus group discussions, and one-on-one interview undertaken from early 2006 through to late 2008. (See Annex for a summary of the objectives and main results of the individual exercises.) The main elements of the final questionnaires are then presented.

How risk was communicated to the respondents

As the review by Hunt and Ortiz (2006a) indicated, baseline environmental mortality health risks are generally low and unfamiliar, and particularly so for children. Communicating such risks to respondents is a challenge for researchers. Moreover, low baseline risks leave little margin for risk reductions (changes in risk with the intervention). As such a considerable amount of survey development work was devoted to the identification of risks and corresponding scenarios which would be "meaningful" to respondents and to the development of good risk communication strategies.

Low and Unfamiliar Risks

As a first step in exploring such issues, a laboratory experiment using 99 students from University of East Anglia as respondents was implemented in January 2006 to investigate the separate and dual influence of both risk probability comprehension and familiarity with the good upon responses. Experimental subjects were presented with three goods of decreasing familiarity:

1. Avoiding losses of money (GBP 75).
2. Avoiding a temporary stomach complaint.
3. Avoiding a condition causing temporary blindness.

These goods were provided at a variety of probabilities and WTP sought. A first test combining both the familiarity and risk perception issue was to elicit, for each of the three goods, respondents' values for reducing risk from two different levels:

a) from 5/10 to 0/10; and

b) from 1/10 to 0/10.

A simple scope sensitivity test then compared the consistency of values obtained from these two scenarios, testing the simple hypothesis that values obtained for avoiding one risk should be different than those obtained for avoiding another risk. Note that both of these risk levels were deliberately chosen to be much more familiar probabilities than the small risks typically used in VSL studies and so any anomalous insensitivity to scope is likely to underestimate that which might occur in real VSL valuations. To go some way to address this we also elicit, for each of the three goods, respondents values for the following further risk reductions

a) from 100/1 000 to 0/1 000; and

b) from 20/1 000 to 0/1 000.

Again a scope sensitivity test examined the hypothesis that the value of avoiding one risk is higher than associated with avoiding another risk. A second analysis looked at within-good valuations of different representations of what is the same risk. For each good the value of reducing risk from 1/10 to 0/10 was compared to the value of reducing risk from 100/1000 to 0/1000. Here the null hypothesis is of course that the values should not be significantly different. Findings from the first test, the scope sensitivity tests, are presented in Table 3.1 below. The upper three rows show the values associated with risk reductions (a) and (b) and the final three rows show findings for risks (c) and (d).

Table 3.1. **Tests of scope sensitivity in split-samples**

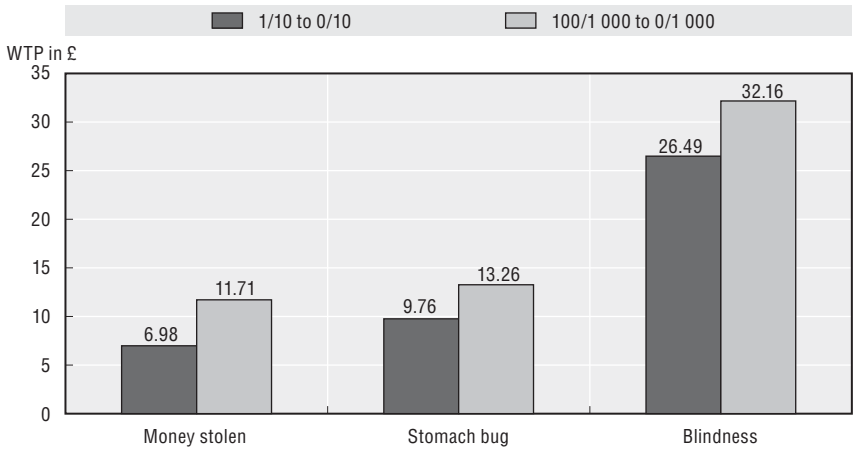
	Man WTP (GBP)		H_0^1: WTP (larger risk reduction) = WTP (smaller risk reduction)	
	Larger risk reduction	Smaller risk reduction	*t*	p-value
Risk in 10	*5/10 to 0/10*	*1/10 to 0/10*		
Money stolen	18.35	8.46	4.182	0.000
Stomach bug	22.87	13.03	2.622	0.005
Blindness	57.36	34.84	1.202	0.116
Risk in 1 000	*100/1 000 to 0/1 000*	*20/1 000 to 0/1 000*		
Money stolen	8.91	7.83	0.416	0.339
Stomach bug	10.67	8.53	0.903	0.185
Blindness	24.44	25.64	–0.132	0.448

Results from Table 3.1 show that, when risks are presented as the more readily comprehended chances out of 10 and the goods are familiar (such as avoiding money being stolen and the stomach bug) respondents present a degree of sensitivity to the scope of the risk reduction, and WTP is significantly different (as can be seen from the low p-values in the fifth column). On the other hand, when the goods are less familiar (avoiding temporary blindness) and/or risks are presented as chances out of 1000, respondents' WTP is not significantly different

for reducing risks which are in objective terms five times different from each other. These findings indicate that the theoretical consistency and hence validity of SP-based estimates of VSL declines both as the degree of familiarity falls and as the level of the risk denominator increases. This is, as mentioned, a common finding in the literature (see *e.g.* Braathen *et al.* 2009).

The results of the second test, whether WTP is the same for the same risk change displayed in two different ways for the three goods, are given in Figure 3.1 below. The figure shows that for each good respondents state a higher WTP to reduce risks from 100/1000 to 0/1000 than from 1/10 to 0/10, although these changes are the same. In absolute terms the discrepancy is roughly similar in each case. It appears that the larger numbers used as the numerator and denominator make respondents feel that risks are somehow greater, responding with higher WTP values. This is consistent with previous findings (see, for example, Beattie *et al.* 1998.)

Figure 3.1. **Mean WTP for equivalent risk reductions for different goods**



The importance of scope effect was confirmed in personal interviews with 14 respondents in the Czech Republic in May 2007. The strong framing effects identified in the lab results emphasise the importance of identifying risk which are familiar and meaningful to respondents, and communicating such risks to respondents in a manner which reduces potential framing effects.

Perceptions of Environmental Health Risks

Given the apparent importance of "familiarity", considerable efforts were made to determine which "environmental" risks were most meaningful to respondents, and how the perception of such risks differed from other types of risk more commonly assessed in the literature (*i.e.* road traffic accidents). To

this end, four focus group discussions (approx. 26 parents) were held in Milan and Mestre in September 2006, in which parents were requested to indicate their *i)* concerns about their children's health, *ii)* perceptions of environmental exposures and their effects on their children's health, and *iii)* opinions on how such exposures should be addressed (through government regulations and intervention, or individual behaviors). The different "environmental" pressures explored included: air pollution, pesticides, mercury, pathogens, drinking water, endocrine disruptors and lead, as well as other non-environmental risks (*i.e.* road-traffic accidents).

In the first instance respondents were requested to indicate whether they had heard of particular risks, and if so if they felt that their children were vulnerable to such risks. Amongst the environment-related concerns air pollution and pesticides consistently rank highest in terms of awareness and perceived risk for their children, with the majority of respondents indicating it was a concern. Respondents were also requested to prioritise different possible initiatives, taking into account that resources are limited. Not surprisingly, measures to reduce pollution are given the highest priority, by some margin (see Table 3.2).

Table 3.2. **Priority for Government Interventions Given to Different Concerns**

	Low or no priority (1)	(2)	Medium priority (3)	(4)	High priority (5)
Reduce pollution	0	0	0	2	14
Improve the school system	0	0	13	2	1
Tighten food quality regulations and inspections	0	0	1	4	11
Improve hygiene in schools	0	1	5	4	6
Create public parks and playgrounds	0	2	5	4	5
Improve road safety	0	0	1	7	8
Initiatives to improve children's hospital stays	1	1	1	5	8
Improve children's emergency rooms	0	0	4	6	6
After-school recreational and educational activities for children	0	4	6	5	0

Interestingly, the results of the focus group discussions are consistent with the epidemiological evidence, insofar as that when people think about pollution, they think first and foremost about air pollution. They seemed knowledgeable about the short-term effects of air pollution (bronchitis, allergic respiratory ailments) as well as the long-term effects (chronic respiratory illnesses, cancer). This was confirmed in personal interviews undertaken in Venice, Vittorio and elsewhere in Northern Italy in January 2007. Interestingly, cardiovascular diseases were seen as primarily a consequence of lifestyle, and not exposure to environmental risks.

A set of personal interviews and focus groups was undertaken with 15 parents in the Czech Republic in October 2006 in order to explore similar issues. In this case parents indicated that they felt their children were directly affected by air pollution (11), risk of road traffic accident (10), noise (5), mercury and heavy metals in food (4). Testing undertaken in January 2007 in the Czech Republic (18 personal interviews) confirmed the importance of air pollution, although in this case road traffic accidents were cited somewhat more frequently.

In survey development work undertaken in the United Kingdom, a scenario was presented to respondents in which respiratory problems arising out of exposure to air pollution resulted in hospitalisation. However, many people felt that could only happen to people with existing respiratory problems (such as asthmatics), and they did not believe they themselves would be affected.

In summary, the main finding from the personal interviews and focus group discussions was, therefore, that an environmental context *is* feasible and credible. The findings suggested that the risks associated with the environment and its health impacts are relevant for respondents. They were broadly familiar with most of the impacts presented, especially those related to air pollution. As such, on this basis it was decided that air pollution and associated health impacts (*e.g.* respiratory problems) are a good candidate for the valuation scenarios.

In addition, a majority of respondents in the focus group discussions undertaken in the Czech Republic were aware of concerns related to water pollution, which was also considered as the basis for an alternative scenario. The other environmental pressures considered did not seem to be as meaningful for respondents, and it was these two which were retained in the final survey instruments.

Communicating Risks

With relatively low baseline risks (and thus potential risk reductions) the means of communication of risk is central to survey design. In the survey development work undertaken it Italy and the Czech Republic, extensive testing of different visual aids was undertaken. In particular the use of grids has been used previously with success (Corso *et al*. 2001), and their use in the context of the VERHI project was examined. While grids with 100 000 squares were considered, this was not feasible, given the means of survey implementation (CAPI) in which the size of the screen poses a constraints. However, the use of grids with 10 000 squares clearly helped respondents understand the probability figures presented in the CCE scenario. Different risk reductions were proposed, generally involving small probabilities.

An example of these grids is illustrated in Figures 3.2 and 3.3. These Figures show that 10 people out of these 10 000 will die within the next 5 years, while 9 990 people will survive that period. The dark squares can be

Figure 3.2. **Risk Communication (Grid A)**

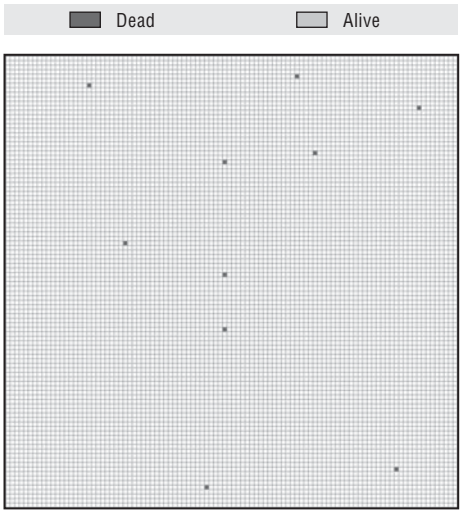
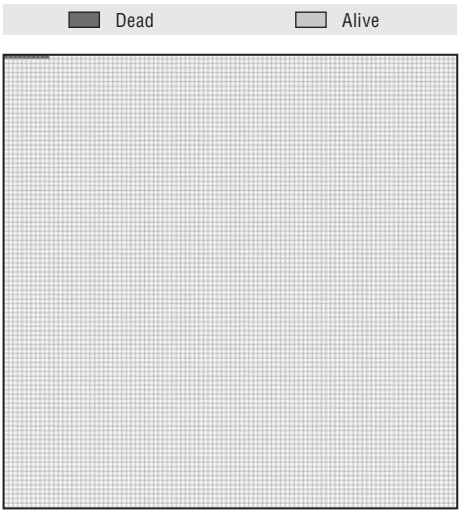


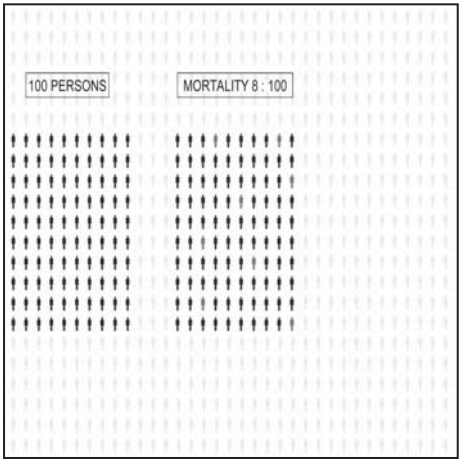
Figure 3.3. **Risk Communication (Grid B)**



scattered (Figure 3.2) to give an idea of randomness, or placed next to one another (Figure 3.3) to give a sense of the proportion.

A change in the risk reduction can then be presented with different coloured grids. This was tested extensively in all three countries, varying the scale of the grid and the visual means of presentation (*e.g.* Prague January 2007; Prague May 2007; Rome October 2006; Venice and elsewhere January 2007). For instance, in the figure below (taken from the May 2007 tests in Prague), a mortality rate of 8 in 100 is presented.

Figure 3.4. **Communicating Mortality Risks**

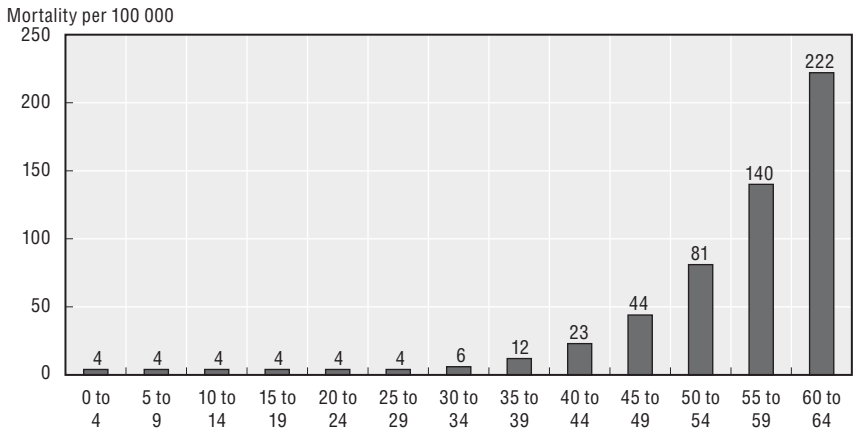


In all of the survey development work undertaken the use of grids proved to be readily understandable to respondents. However, one interesting finding was that if the numerator in the risk reduction presented is one, respondents had a tendency to identify this child as their own (Czech Republic January 2007).[1] This has important implications for values estimated, and should be avoided.

These grids were complemented through the use of histograms which give mortality rates, based on real data from national and European statistical offices (*e.g.* ISTAT and EUROSTAT), were also provided on charts – to familiarise people with such concepts and to "personalise" the risk that was being considered. This helped reduce the degree of uncertainty surrounding the perception of the risk presented in the scenario.

For instance, as displayed in Figure 3.5, respondents were presented with probabilities of dying from cancer over the next five years, differentiated by age group. Similar graphs were provided to the respondents for road accident and respiratory disease probabilities. As such, respondents could determine their baseline risk, and could more easily accept these probabilities (because they come from "official" or "reliable" sources).

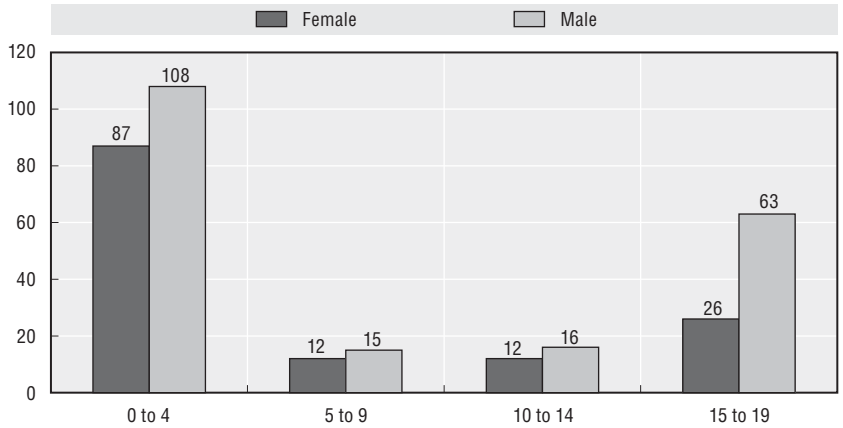
Figure 3.5. **Communication of probability and risk**
(Probability of dying from cancer over the next 5 years)



Source: ISTAT and EUROSTAT.

In this case, risk reductions can be presented as histograms, with the height of the additional bars reflecting the reduced risk following the intervention, the difference representing the associated risk reduction. This was readily understood in all of the testing work undertaken. The data can also be disaggregated (*e.g.* by gender as in Figure 3.6 below for the Czech Republic) in order to ensure that respondents understand differences in baseline risks for different groups.

Figure 3.6. **Communication of probability and risk**
(mortality per 100 000)



In some of the focus group discussions undertaken (*e.g.* in Rome in October 2006) survival curves were also presented. Changes in risk reductions could then be presented in terms of shifts outward in the survival curve. Some respondents spontaneously mentioned the "positive" spin this gave on changes in risk.

However, there was some confusion about the precise meaning of this curve (and its relationship to other means of risk communication). As a test, one interviewer provided her focus group with an explanation of the meaning of the curve, while another interviewer did not do so with another group. The degree of understanding was very different, indicating the need for considerable inputs from the interviewer. Given the likely means of survey implementation and time constraints, this approach was not further considered.

Based upon this work it was decided that the principal visual means of risk communication would be via grids. However, with the number of squares in the grid constrained to 10 000 in order to present credible baseline risks and risk reductions to respondents, it was found in the course of the survey development work that risks had to be aggregated over a number of years in order to have reasonable "numerators" for the baseline risk and risk reduction. Moreover, such an approach was consistent with the results of other work (*e.g.* Czech Republic in Oct. 2006) which indicated that respondents preferred to pay for risk reductions through annual payments equal to the period of risk reduction. On the basis of these results, it was decided that mortality risk over five years would be used, both to communicate risk and in the scenarios for the CCE.

Accounting for Risk Characteristics

As discussed in previous chapters, it is well-known that different risk characteristics can have an effect on the estimated WTP for reductions of risk of equal magnitude. As such, considerable effort was devoted toward the testing of alternative presentation of risk characteristics, and their implications for values obtained.

Dread

In focus group and personal interviews undertaken in Italy (January 2007) and the Czech Republic (October 2006 and January 2007), respondents were requested to indicate the level of "dread" they attached to different mortality risks (road traffic accidents, leukaemia, chronic respiratory illnesses, cancer, workplace accidents, etc.). In general, the results do not indicate that "dread" of cancer was not much different from other causes of death.

For instance, of 11 personal interviews conducted in the Czech Republic in October 2006, only two respondents declared that they would prefer a risk reduction of 4 in 100 000 for cancer relative to 8 in 100 000 for traffic accidents. Indeed, in the survey development work undertaken in Italy in January 2007, respondents appeared to express more "dread" with respect to violent or "drawn-out and protracted" deaths, than cancer *per se*. Other areas cited in personal interviews undertaken in Northern Italy in January 2007 included neonatal mortality.

Controllability

The degree of "involuntariness" and "controllability" of risk may also significantly affect the valuation of children's health. Research has shown that individuals generally prefer voluntary risks to involuntary ones and that the degree of "risk voluntariness" could therefore have impacts on the WTP (Fischhoff *et al.*, 1978; Slovic, 1987). In the context of valuation of children's health, this may have a greater influence on the estimates. Those risks which are "voluntary" for adults might be considered "involuntary" for children, since at least some risk exposure decisions are made on their behalf by their parents. Therefore, parental WTP to protect their children's health may be significantly affected by the perceived degree of voluntariness of risks faced by the children.

Interestingly, the focus group discussions also indicated that cancer was not only associated with "dread", but also had implications for perceived "controllability". In the survey development work undertaken in the Czech Republic in October 2006, respondents seemed to perceive cancer as "destiny", and were thus less amenable to risk reductions.

Private and Public Risk Reductions

A key determinant of the degree of "voluntarism" of a particular risk is the perceived extent to which individual preventive action will be effective in reducing the risk relative to government programmes. Results of focus group discussions in Italy show that, in general individual actions are not considered as effective as public programmes except in limited areas (*e.g.* heat waves). This finding was confirmed in interviews held in the Czech Republic, where there was a strong feeling that "the state should solve 'environmental" concerns, while for road accidents the individual is better able to solve the problem him or herself (October 2006 and January 2007).

Latency

Given the inherent nature of most environmental health risks for children, from the outset of the project it was seen as important to ensure that issues of latency were addressed in a robust manner. In the focus group discussions held in Italy in September 2006, participants were requested to indicate whether they thought the risk reduction was incurred immediately or after some time. Interestingly there was considerable congruence amongst the respondents concerning the links between air pollution and respiratory problems and cardiovascular diseases, with most respondents suggesting between seven and 15 years. However, there were some respondents who felt it might be 20 years or more.

This was confirmed in later testing undertaken in Rome in October 2006. In focus group sessions the interviewers explored people's decisions regarding the size of risk reductions and their timing. The responses indicated that people were able to make such choices – trading off smaller risk reduction incurred immediately with larger ones incurred in the future.

In the interviews and focus groups conducted in the Czech Republic in October 2006 respondents were requested to choose between risk reductions of 15 in 100 000 which occurred in 25 years, against one of 10 in 100 000 in ten years. The latter was chosen by the majority of respondents. Part of the reason cited by a number of respondents was that the child would necessarily be an adult by the time the health impact arose with the longer latency period.

The scenarios presented to the respondents

As a means to develop meaningful scenarios, considerable work was undertaken to assess the capacity of respondents to make trade-offs between affected populations, different risk attributes, etc. In this section this work is summarised, classified by the nature of the choice (*i.e.* direct contingent valuation for a programme or product, contingent valuation through location decisions, person trade-offs, risk-risk trade-offs,[2] and multi-attribute choice decisions).

Direct Contingent Valuation

While the notion of basing all the results upon the implementation of a contingent valuation scenario was quickly discarded, it was seen to be important to include such an approach as an element within the survey instruments, and testing was undertaken on alternative CV methods.

In the case of the UK a contingent valuation scenario was proposed in a pilot involving 300 respondents in the Cambridge area in August/September 2006. The questions for the contingent valuation part of the questionnaire were based on the survey in Krupnick *et al* (2002). In order to present respondents with a comparison of their overall mortality risk they were presented with risks from some of the largest single causes. The scenario presented involved a risk reduction (either 5 in 10 000 or 1 in 10 000) arising from the purchase of a product which would reduce mortality risks over the course of 10 years.

A large percentage provided a WTP of zero. More significantly, a relatively high proportion of these can be considered as "protests" (see Table 3.3). This raised concerns about the viability of using a direct CV question to elicit WTP for a mortality risk reduction.

Table 3.3. **Percent of total sample who stated a contingent valuation WTP of zero by reason**

	5/1 000		1/1 000	
	No protest	Protests	No protest	Protests
Adult	41.3	7.0	64.0	7.0
Child	20.0	4.7	45.3	5.0

In survey development work undertaken in Rome in October 2006, and in Prague in May 2007 and March 2008, a scenario was presented which proposes to the respondent the possibility to move from his/her actual city to two hypothetical cities whose attributes vary according what we want to value. The "City A v. City B" scenario was presented as follows:

"*Imagine that there are two cities that are identical to each other and to the city where you actually live in all respects, except for the mortality rates and cost of living.*

In city A, X in 10 000 children aged 5-9 (same age group as one of the respondent's children) die every year. The cost of living is the same as where you live now. In city B, Y (Y < X) in 10 000 children aged 5-9 die every year. In city B, the cost of living is EUR 1 000 a year higher than in city A (and than where you live now).

Where would you prefer to live, in city A or city B?"

With appropriate follow-up questions, the "City A v. City B" alternative can provide an exact indifference point between cities A and B – determining precisely the value of the risk reduction. The "City A v. city B" questions elicit information about the WTP and VSL for any desired age group. However, in general the work undertaken indicated a very high WTP for risk reductions relative to other methods, and it was decided to abandon this approach and use a direct CV question in further pilot testing.

Person Trade-Off

As a means to assess the "marginal rate of substitution" between reducing risks for adults and children, people are asked to choose between two programmes in which the programmes differ with respect to the beneficiary populations. While this can not be used to derive a VSL it can provide valuable information for policy makers (*i.e.* by adjusting the anchor VSL figure depending upon the composition of beneficiary populations).

Two alternatives were tested. In one case a policy intervention is proposed which results in different numbers of lives of adults and children being saved. Several pairs of programmes are proposed to the respondents, which then allows for the estimation of the trade-off point. This PTO approach was tested by the Italian research team and the Czech Republic, as follows:

"*Suppose now one has to choose between other public health interventions. Intervention A saves 10 lives in 10 000 children aged 0-4 this year, whereas this year intervention B saves 30 lives in 10 000 adults older than 30.*

As before, there is funding for only one of these two interventions. Which would you choose? (Please check the appropriate answer.)

- *Intervention A: saves 10 lives in 10 000 children aged 0-4.*
- *Intervention B: saves 30 lives in 10 000 adults older than 30.*
- *A and B are equally attractive.*"

However, the ratio was exceedingly high with respondents favouring relatively programmes in which a relatively small number of children are saved (relative to one in which a larger number of adults are saved). An alternative involving the provision of medical treatments tested well, providing credible ratios. It is presented in the next section below.

The Chaining Exercise/Standard Gamble

The initial survey development work undertaken in the UK in August/ September 2006 indicated that the potential for zero and protest responses with a direct CV scenario for mortality risk reductions was significant. For this reason, the possibility was considered of "chaining" a WTP question for morbidity risk reductions with a second question in which morbidity and

mortality risks were traded off against each other. As noted above, this approach is known as risk-risk trade-off.

In the first instance, a so-called modified standard gamble question was tested in which respondents were told to imagine that they have been injured or have become ill and are taken to hospital where the doctors tell them that if they are not treated then they will die. However, they are told that there are two possible treatments available to them and this time both are free of charge (see example in Figure 3.7):

Treatment A: *If successful, the treatment will result in the respondent experiencing the consequences of a specified non-fatal injury or illness. However, if the treatment is unsuccessful then the patient would fall unconscious and die shortly afterwards with probability of 1/1 000 (this risk can be set at any level).*

Treatment B: *If successful, this treatment will result in a return to normal health after a couple of days but if unsuccessful there is a chance that the treatment will result in immediate unconsciousness followed shortly by death (this risk is unspecified).*

Figure 3.7. **Example of Trial Modified Gamble Question**

Treatment A	Treatment B
If successful: – Hospital for 3 weeks – Severe pain for 4 months – Permanent slight to moderate pain in your hip	If successful: – Leave hospital that day – Full health in 3-4 days – No permanent disability
If fails: – Immediate unconsciousness – Followed shortly by death	If fails: – Immediate unconsciousness – Followed shortly by death
1/1 000	?

The respondent is asked for the highest level of risk she would accept for treatment B given that treatment A has a risk of failure of 1/1 000 (or whatever level of risk is set by the researcher). As treatment B has a better successful outcome than treatment A, *i.e.* full health *versus* some level of remaining disability, it is expected that the respondent is willing to take on some additional mortality risk for the chance of this better successful outcome. While this step requires respondents to deal with small changes in risk, it does not involve a wealth-risk trade-off and is therefore thought to be easier for respondents to answer. For information, the VSL's derived from the pilot chaining exercise and the direct elicitation through CV are presented in Table 3.4.

Table 3.4. **VSL Results for the CV and Chaining Exercise Pilot Study**

	Parent (GBP)	Child (GBP)	Child/Adult Ratio
Chaining Approach: X*	471 063	2 174 422	4.6
Chaining Approach: Y*	221 710	2 611 465	11.8
Direct: 5/1 000	2 300 767	4 996 105	2.2
Direct: 1/1 000	3 015 233	14 070 910	4.7

* X refers 3 weeks hospitalisation; 4 months severe pain; permanent pain in hip and Y refers to 2 months hospitalisation; 4 months moderate pain; permanent pain in knee

Overall, the risk-risk trade-off appeared to be well-understood and respondents were engaged when providing their answers. However, many respondents reported that the trade-off in the modified standard gamble (with two treatments) was difficult, and this point was taken into consideration when designing the final survey instrument.

Conjoint Choice Experiments

The decision, to pursue the CCE methodology for at least one of the survey instruments necessitated that considerable survey development work was devoted toward more general issues of cognitive burden. For instance, in personal interviews conducted in the Czech Republic in January 2007, the difficulty of making choices was assessed with different numbers of attributes. Initially, the respondent might be asked to choose between two programmes which varied only according to the size of the risk reduction, its duration, and period of latency (as in Table 3.5)

Table 3.5. **Example of 3-attribute Conjoint Choice Question**

	A	B
Reduction of mortality risk by...	20:10 000	20:10 000
The measure will have the effect of reducing the risk of dying...	Immediately	in 5 years
The risk will be reduced for the period...	3 years	5 years

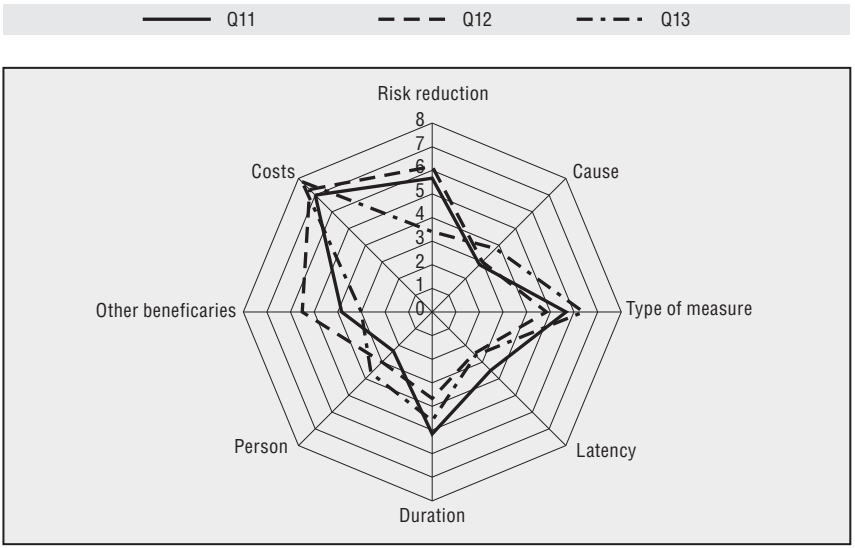
The number of attributes was incrementally increased from three to maximum of eight (risk reduction, cause, type of measure, latency period, duration of risk reduction, identity of beneficiary, whether other beneficiaries, cost). Respondents were requested to indicate how difficult they found different choices to be with different numbers and characteristics of attributes. In general, with additional attributes and the inclusion of cause of death there is a distinct increase in the perceived difficulty.

However, it is not only the number of attributes which affects the difficulty of responding. For instance, the introduction of the context (*e.g.* cancer, car accident, respiratory disease) in CE5 appeared to have a disproportionately large effect on difficulty of the choice. In addition, as noted above, addressing the question of latency appears to be particularly difficult for respondents, and considerable care was taken to address this in the survey development work.

In particular, the relationship between the length of the latency period and the identity of the respondent (self or child) was closely evaluated. Irrespective of the identity of the beneficiary, beyond a certain latency period (approximately 15-20 years), the immediate risk reduction was systematically chosen irrespective of relative size. This appeared not to be due entirely to discounting per se, but also to perceptions about possible improvements in medical care over the period.

The relative importance of different attributes in the choices was also assessed, and the results of an analysis undertaken on three different choice questions in the Czech Republic are presented in Figure 3.8 below. Latency and cause are very important. In addition, it is interesting that the relative importance of the different attributes does not vary greatly with precise choices presented. These results were used to inform the design of the final survey instruments.

Figure 3.8. **Relative Importance of Different Attributes in CC Decisions**
(Importance of the attributes, 1 = most important; 8 = least important)



Design of the final questionnaires

Given the uncertainties and difficulties associated with the valuation of children's environmental health risks it was decided to implement a combination of different methods/approaches in two distinct survey instruments. In total, four different methods were applied, all of which had been tested extensively: contingent valuation; conjoint choice experiments, standard gamble risk-risk trade-offs (chaining), and person trade-offs. However, not all methods were applied in all countries, and some of the methods are linked (See Table 3.6 below.) The two survey instruments will now be discussed.

Table 3.6. **Methods Implemented in the Three Countries**

	CR	IT	UK
Contingent Valuation	Yes (mortality and morbidity)	Yes (mortality)	Yes (morbidity)
Conjoint Choice Experiment	Yes	Yes	No
Standard-Gamble (Chaining)	Yes	No	Yes
Person Trade-Off	Yes	No	No

Chaining Exercise

In the United Kingdom and the Czech Republic a novel "chaining approach" was implemented, as well as a contingent valuation question. The questionnaire was in five parts:

1. Recruitment section.
2. Warm-up section.
3. Step 1 Chaining method: direct illness valuation.
4. Step 2 Chaining method: standard gamble.
5. Socio-economic details.

In the first step, respondents are requested to indicate how much they would be willing to pay for a treatment which would avoid all of the effects associated with one of four states of ill-health. This procedure is undertaken for all four possible health states (see below).

They are then requested to imagine that they (or their child) have one of these conditions and that if they are not treated then a worse outcome (including in some cases death) will ensue. However, they are told that there are two possible treatments available, one of which involves a measure of risk. For example, respondents may be told that they are now afflicted with the permanent health reduction Pa. One treatment results in the certain outcome Ta (stomach pains with diarrhoea and vomiting for 12 months) while the alternative treatment offers the possibility of a quick

return to full health but with a specified risk of death. The illness cards, are described as follows:

- **Temporary Adult (Ta):** Severe stomach pains affecting the respondent with diarrhoea and vomiting for 2-3 days every 2 weeks for 12 months.
- **Temporary Child (Tc):** Severe stomach pains affecting the respondents' child with diarrhoea and vomiting for 2-3 days every 2 weeks for 12 months.
- **Permanent Adult (Pa):** Severe stomach pains affecting the respondent with diarrhoea and vomiting for 2-3 days every 2 weeks for the rest of life.
- **Permanent Child (Pc):** Severe stomach pains affecting the respondents' child with diarrhoea and vomiting for 2-3 days every 2 weeks for the rest of life.

All elements of this problem (the initial health state, the various treatment outcomes and the risk of success/failure) can be varied. An example of a standard gamble is provided in Figure 3.9 below.

Figure 3.9. **Example of Standard Gamble Question in Final Survey Instrument**

Treatment A	Treatment B
For sure: Your child has severe stomach pains, diarrhoea and vomiting for 2-3 days every 2 weeks for the rest of your child's life.	50% chance Your child avoids all effects from this illness 50% chance Your child becomes unconscious and subsequently die

By "chaining" the responses to these two exercises, *i.e.* the WTP to avoid a health state and the trade off between this health state and risk of death, a VSL can be derived. The aggregated WTP stated in the first step can be equated to the average risk of dying provided in the second step so that an estimate of the VSL can be calculated as:

$$VSL = \frac{WTP}{\delta}$$

where δ indicates the average mortality risk level at which the population was indifferent between the illness and the treatment.

Other sections of the questionnaire elicited information on demographics and personal data; the health states of the respondent and child; the socio-economic characteristics of the respondent, as well as views on the questionnaire.

Conjoint Choice Experiment

A conjoint choice experiment was implemented in Italy and the Czech Republic, alongside a contingent valuation question. The revised questionnaire incorporated a probability tutorial and tested respondents for comprehension of risks in this and in other contexts (*e.g.*, lottery tickets). The following experimental design was implemented for the valuation questions in the final questionnaire:

1. Valuation questions were exclusively of the respondent or one of his or her children, selected at random from all children (but not both to avoid cueing respondents); respondents were assigned at random to the treatment where they valued own risk reductions or risk reductions for the selected child.[3]
2. There were a total of 5 pairs of risk-reducing profiles. Half of the respondents were assigned to one treatment whereby for each pair they faced a forced choice question (choose A or B?), followed by a choice question that allowed for an opt-out response (choose A, B or neither?). The other half of the respondents were given the A, B or neither question directly.
3. The context (cause of death) was held the same across alternatives in the first two pairs of risk reducing profiles in the conjoint choice questions. The latency period was always the same for both risk reduction profiles, but was varied pairs within a respondent and across respondents.
4. The conjoint choice questions used the following attributes and attribute levels:
   A) Context (cancer, road traffic accidents, respiratory illnesses).
   B) Private good or public program.
   C) Latency (0, 2, 5 and 10 years).
   D) Size of the risk reduction (2, 3, 5 and 7 in 10 000 over 5 years).
   E) (One time) cost to the respondent (EUR 200, 500, 1000, and 2 000).
5. All attributes were varied independently of one another for full identification.

Attribute and attribute levels are summarised in Table 3.7 below. To further elaborate on the reasons why the attribute levels shown were selected, it is noted that the risk reductions were similar to those assigned to the respondents in the contingent valuation exercise earlier in the questionnaire

Table 3.7. **Summary of attributes and attribute levels in the conjoint choice experiments**

Attribute	No. levels	Levels
Context (cause of death)	3	Cancer Road traffic accidents Respiratory illnesses
Private good or public program	2	Private good (no other beneficiaries); Nationwide public program (other beneficiaries)
Latency	4	0, 2, 5, 10 years
Size of the risk reduction	4	2, 3, 5, 7 in 10 000 over 5 years
(one-time) Cost to the respondent	4	EUR 200, 500, 1000, 2000 (Italy) CZK 3 200, 8 000, 16 000, 32 000 (Czech Republic)

(where the risk reductions are 2, 3, 4, 5, 6 and 7 in 10 000 over 5 years). Combined with the cost information and with plausible discount rates, they span VSL figures ranging from EUR 200 000 to EUR 25 million.

The final questionnaire is divided into 9 sections. The conjoint choice experiments were placed roughly in the middle of the questionnaire. Section 0 begins with querying the respondent about his or her age, gender, and marital status. Respondents were prompted to enter the names, ages and gender of each of their children. The computer then selected at random one child among the eligible children, *i.e.*, those aged 17 and younger. Throughout the survey, the questionnaire always refers to this selected child using his or her first name, *e.g.* "Paolo".

Section A asks several questions about the health status of the child, and section B asks questions about the health status of the parent (*i.e.*, our survey respondent). In section C, extensive information is elicited about the health, lifestyle, and perceptions of environmental exposures and exposure to road-traffic risks for both the selected child and the parent. Section D presents a simple probability tutorial and some quizzes to test the respondent's comprehension of probabilities. Probabilities naturally lead to the risk of dying, which is depicted using a grid of 10 000 squares (when the respondent was supposed to focus on the magnitude of the risks) or with bar charts (when the respondent was supposed to focus on the different mortality risks across age groups, as a child grows up, and as a person gets older). People were also requested to indicate how much they "dread" certain causes of death.

In section E, it is explained that it is possible to reduce the risk of dying both through individual actions (*e.g.*, pap smears, medical tests) as well as public programs (*e.g.*, road safety programs, air pollution control regulations). In section F, respondents are queried about purely quantitative aspects of risk, and then asked a contingent valuation question about their WTP for a

specified risk reduction (for either themselves or the selected child). Section G focuses on the three causes of death the CCE are about namely, respiratory illnesses, cancer, and road-traffic risks.

In section H, respondents were encouraged to think about the effectiveness of private vs. public risk reductions, and about the timing of the risk reductions. The conjoint choice questions were placed immediately thereafter, in section I, and were followed by extensive debriefing about reasons for wanting to pay (or not) and ways of financing the cost of the risk reduction. Section L asked various questions about risk perceptions and preferences for risk reductions now or in the future, and section M asked the usual socio-demographic questions.

Implementation of the questionnaires

Chaining Exercise

As noted above, for the chaining exercise, two surveys with the same questionnaire format have been conducted in the UK and the Czech Republic. In the Czech Republic, the survey was implemented in Prague and Brno, as well as in six provinces. In the UK, observations were obtained from a wide distribution of locations.

In the UK, in order to collect an approximately representative sample of parents, 14 UK locations have been selected. The precise geographical distribution of the respondents in the UK is listed in Table 3.8 below.

Table 3.8. **Sampling Locations in the UK**

Location	*Number of interviews*
Leeds	*59*
Hull	*85*
York	*61*
Sheffield	*104*
Glasgow	*108*
Cardiff	*70*
Romford	*84*
Southend	*24*
Holloway Road	*41*
Colchester	*64*
Bexleyheath	*167*
Lewisham	*65*
Croydon	*62*
Chiswick	*6*
Total	*1 000*

The target was parents with children aged less than 18 years of age. Respondents were recruited on the street using a recruitment questionnaire which aimed to select a representative quota sample. Subsequently, respondents were invited into a hall, adequately equipped with laptops, and they undertook the survey administered by professional interviewers. Respondents were given a GBP 5 voucher to thank them for their time in taking part. A professional survey company was responsible for data collection and data cleaning. Thirty-one days of face-to-face interviewing took place, including some weekends to ensure inclusion of working people. Interviewers were trained to deal with emotive topic such as child safety and to minimise the well-documented interviewers' bias.

A similar procedure was implemented in the Czech Republic. This involved quota sampling of parents with at least one child below 18 years of age (that doesn't necessarily have to live in respondent's household). Quotas were also used for respondent age (18-34, 35-44, 45+), gender, level of education (three levels), regions (six), and size of municipality *(cities, 50k-100k, 10k-50k, 2k-10k, 2k less)*. As in the UK, the interview mode was via computer-administered personal interviews. However, unlike the UK it took place at the respondent's home.

Overall, a good spread of respondents was obtained in terms of age, gender and socio-economic group and the main sample characteristics are reported. The mean of respondent' age is 37 in the UK and 39.5 years in the Czech Republic. The British sample consists of slightly larger families (3.66 compared with 3.46) having more children (1.75 versus 1.66). About half of selected children were boys in both countries. On average, the child selected in the Czech survey was older (9.8 years old) compared with the child selected in the UK survey (8 years).

Conjoint Choice Experiment

For the second survey instrument, the approach also involved quota sampling. However, in the case of Italy, only residents of Milan (where air pollution is a problem) were sampled. The final survey took place in two dedicated facilities in Milan, and, as in the pilots, respondents self-administered the questionnaire using the computer. Interviewers were present for the first few days of the final survey, and personally observed about 20 respondents while the latter were taking the survey. Conversations with respondents suggest that respondents traded off the attributes when they answered the conjoint choice questions. Respondents were paid EUR 10 for their participation in the survey.

Descriptive statistics of the key demographic variables from the final survey show that the sample is consistent with the sampling frame. Respondents were between the ages of 20 and 60, and only parents were included in the sample. The maximum child age was 17. The sample was evenly split between mothers and fathers, but homemakers were restricted to no more than 20% of the women in the sample. In addition equal quotas for three age categories (30-34; 35-44; and 45-49) were applied.

In terms of education, 23% of the sample has a university degree, which reflects the composition of the city's population. 51% had a high school diploma and 26% a junior high school diploma, which represents the minimum legal requirement. In addition, quotas were used for relative wealth – 50% of respondents lived in household with income less than 30 000 EUR/year, and 50% were above this threshold.

The Czech sample followed the same quotas as for the Milan sample, but was representative of the Czech population, including major cities (Prague, Ostrava and Brno), as well as smaller towns and rural areas. Interviewers were sent to people's homes, where they conducted the survey in-person using the computer in a manner similar to that used in Italy, *i.e.*, self-administered by the respondent.

As noted above, respondents were requested to indicate their health status (excellent, very good, etc.) and that of their child. The frequency of responses are presented in Figure 3.10 below, with respondents more likely to report that the health status of their child is excellent than for themselves.

Figure 3.10. **Health Status of the Respondent and Child**
(Percentage of the sample indicating each health status category)

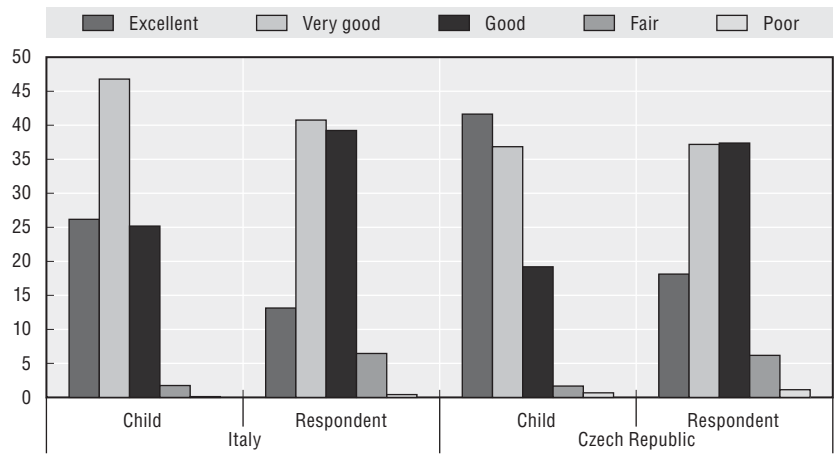


Table 3.9 shows that only minor proportions of the respondents reported chronic respiratory illnesses that require regular medication or inhalers, or cause limitations in physical activities. These proportions are slightly higher in the Czech sample, because the interviewers visited the respondents' homes. We expected persons with severe physical limitations to decline to participate in the study in Milan, since participation implies being willing to go to two centralised facilities in the winter. These expectations are borne out in the data.

Table 3.9. **Prevalence and Severity of Chronic Respiratory Illnesses in the Sample**

Has chronic respiratory illnesses that…	Italy				Czech Republic			
	Adult		Child		Adult		Child	
	N Valid	Percent	N Valid	Percent	N Valid	Percent	N Valid	Percent
Require regular medication or inhalers	1 893	5.55%	1 894	4.07%	1 506	4.45%	1 506	7.10%
Cause small limitations in physical activities	1 887	4.66%	1 885	1.91%	1 506	6.18%	1 506	7.57%
Cause serious limitations in physical activities	1 870	0.80%	1 880	0.27%	1 506	2.19%	1 506	1.66%
Force him to stay home from work or school often	1 871	1.07%	1 882	1.38%	1 506	0.80%	1 506	2.92%

Notes

1. Disconcertingly, some respondents did not protest to the presentation of risk reductions which exceeded baseline risks.
2. Risk-risk tradeoffs do not directly estimate dollar values for risk reductions, but rather, provide rankings of relative risks based on preferences. For related risks such tradeoffs may be linked to provide a value of WTP.
3. In the Czech survey, three additional choice pairs were included for the purpose of inferring the trade-offs between the parent and children risk reductions (labelled choice experiment). The data are currently being analysed.

ANNEX 3.A1

Chronology and Main outcomes of Survey Development Work

Date	Location	Sample	Type	Purpose	Main outcomes
January 2006	Norwich (UK)	99 UEA students	Experiment design	Look at the impact of risk and familiarity on scope sensitivity of WTP estimates.	Unfamiliar risks or large risk denominators impose a large cognitive burden, resulting in scope insensitivity of WTP estimates
July 2006	Cambridge (UK)	25 parents	Pilot study	Obtain WTP and VSL estimates for both adults and children using the chained method.	Premium on WTP to avoid morbidity to children; aversion to mortality risks to children; child premium for mortality risks: VSL for a child greater than VSL for an adult
August-September 2006	Cambridge (UK)	300 parents with at least a child aged 13 or under	Pilot study	Obtain WTP and VSL estimates for both adults and children using a contingent valuation survey.	Premium on reducing mortality risks to children; VSL for a child between 2 to 10 times greater than VSL for an adult
September 2006	Milan and Mestre (Italy)	16 parents in each city with at least one child aged 0-12 (8 respondents each)	Focus group discussions	Explore parents' concerns and perceptions about environmental pollution, children's health and test some methodological aspects as well.	Risks associated with the environment and its health impacts are salient to people. They focus on air pollution. People found the tools used to display risks really clear and helpful. People understood the notion of latency while extensions in life expectancy (tested in Mestre's focus groups) were difficult to convey.
October 2006	Roma (Italy)	14 parents with at least one child aged 0-12	Focus group discussions	Test the materials related to mortality rates, survival curves, life expectancy, risk reductions at different ages and conjoint choice experiment.	Mortality rates expressed as relative frequencies worked well. The bar charts and survival curves used were well understood. The grid used to display risk probabilities was found to be useful. Evidence that people trade-off the size of risk reduction with the timing of the risk reduction. People understood the concept of life expectancy and extensions in life expectancy.
October 2006	Prague (Czech Republic)	15 parents of children aged 0-14	Focus group discussions and individual interviews.	Know people perceptions about risks, environmental health risks, dread effects and test some methodological aspects as well.	People are aware of environmental health risks. No evidence of dread effect. People understood the concept of latency. Extensions in life expectancy were found to be easier to value than reductions in mortality risks.

Date	Location	Sample	Type	Purpose	Main outcomes
December 2006	Venice (Italy)	15 parents	Focus group discussions	Test for possible conjoint choice experiments. Special focus on the presentation of mortality risks, the breaking down of a risk into its possible attributes and on the conjoint choice exercises.	The approach and materials were understood by the respondents. They used all attributes to make their decisions. Person trade-off questions were well understood although people tend to always choose to save children's lives.
January 2007	Venice, Vittorio Veneto and Garda (Italy)	13 parents with children aged 0-14	One-on-one interviews	To test the concept and materials for a conjoint choice experiment (CCE) (using different ill-health causes, latency periods and modes of delivery) and person trade-offs (followed by a CV question).	Concerning the person trade-offs, respondents always chose to save children, whatever the age of the adult and the number of adult lives saved. As such, respondents are more likely to pay more to reduce risks to children than to reduce similar risks to adults. Concerning the CCE, respondents considered all the attributes when making their decisions, including context and cause of death. Dread effects seem to be associated with cancers.
January 2007	Prague (Czech Republic)	18 parents with child aged 0-14	One-on-one interviews	To test PTO questions, the workability of the conjoint choice experiment (using different ill-health causes, latency periods, as well as different modes of delivery, and changing the order of the attributes) and the feasibility of the chaining method.	Concerning the conjoint choice experiment (CCE), the order of attributes does not affect the importance of the attributes. Respondents considered all attributes when answering, including cause of death and context. The number of attributes included increased the difficulty of respondents to make a choice. In general, cause/context, beneficiary and duration of the effects were considered the most important. The chained approach was well understood and was perceived as easier (than the CCE) by the respondents. Concerning PTO the choice set which reduces risks for the respondent's own child did not dominate the choice set that reduces risks for adults.

Date	Location	Sample	Type	Purpose	Main outcomes
May 2007	Prague (Czech Republic)	14 parents with child aged 0-14	One-on-one interviews	Test the perception of the true size of annual risk of dying for children, the usability of CCE, the second PTO alternative (to derive indifference point), and the "City A v. City B" scenario.	Using three approaches creates a very long questionnaire (average time of completion 74 minutes). The most important attributes of the CCE are the cause of death and the beneficiary. The PTO question was found to be difficult to answer because people had to choose between saving children and saving adults, but in the end all respondents were able to make a choice. Trade-off point between adults and children estimated at 52 (*i.e.* people are indifferent between saving 52 children and 100 adults). The "City A v. City B" led to a mean WTP of approximately EUR 1 000 which is significantly higher than the cost figures used and accepted by individuals in the CCE.
October 2007	Norwich (UK)	10 parents	One-on-one interviews	Verify the credibility of questions, the length of the survey and the clarity of the show card information	The questionnaire was originally composed of three main sections: willingness to pay (WTP), standard gamble (SG) and personal trade-off (PTO) questions. Respondents found the survey quite credible and interesting but they suggested some fundamental changes. Respondents showed fatigue and difficulties in answering the PTO questions and some of them gave no rational answers. They asked for some rewording in this section of the questionnaire. Given the average length of the survey of more than 40 minutes, we decided to focus the survey on the first two sections (WTP and SG).

Date	Location	Sample	Type	Purpose	Main outcomes
November-December 2007	Norwich (UK)	13 parents	One-on-one interviews	Test the clarity of questions, the ability of respondents to understand risk values and the coherence of their answers throughout the questionnaire.	Significant changes were made to improve the show card information. Respondents found the survey interesting, fairly easy to understand and they gave coherent and rational answers to the WTP and SG questions. However, some of them found that the budget constraint question was too generic to be able to represent the ability to pay for health treatments. For this reason, it was decided to split the final sample in: 800 respondents with the budget constraint question and 200 respondents without. Furthermore, in the latest version of the questionnaire some questions were added to allow the respondent to reconsider their budget allocation decisions.
March 2008	Prague (Czech Republic)	9 parents with child aged 0-17	One-on-one interviews	Test the final version of the questionnaire using the conjoint choice experiment approach as well as the "City A vs. City B" questions (as applied in Italy)	The questionnaire including a conjoint choice experiment and the "City A vs. City B" questions worked very well. This suggests that using this scenario would enable to elicit respondents' WTP for reducing mortality risks to adults and children. In the conjoint choice experiment, all respondents chose the dominant variant which was purposely included.
March 2008	Prague (Czech Republic)	9 parents	One-on-one interviews	Test the applicability of the choice experiment and "city A vs. city B method" questionnaire (applied at the same time in Italy) to the Czech conditions, and the applicability of the translation. Propose alternative values of risk reduction and bids, and alternative wording of selected questions previously tested in Italy.	The choice experiment and "city A vs. city B" scenarios are feasible methods for elicitation of respondents WTP for reduction of risk of dying for both adult and their selected child. All respondents chose purposely included dominant variant. Only minor changes regarding the language or measurement of the total amount of time spent on activities which may increase respective baseline risks were proposed. Based on the positive experience with the testing in the Czech Republic the proposed questionnaire is going to be used in the final survey.

Date	Location	Sample	Type	Purpose	Main outcomes
May 2008	Colchester (UK)	30 parents	Pilot study	Test the CAPI version of the questionnaire before final survey. Verify the coherence of answers and the accessibility of the CAPI system. Test the ability of the questionnaire to elicit the value of statistical life for adult and child.	Small problems with software needed to be resolved. Some concerns about the combined use of monthly payments and one-off payments.
June 2008	Milan (Italy)	7 parents	Pilot study	Test improved visual communication of the magnitude of baseline risks and risk reductions (*i.e.* grids). Verify the new presentation of the nature of the risk and the means of risk reduction in the scenarios.	The survey is long, and there are a lot of questions which require much concentration on the part of the respondent (choices city A/B, technology A/B, conjoint, etc). There are problems with the software which need to be checked carefully.
July 2008	Prague	9 parents	One-on-one	Testing CVM	
August 2008	Prague	106 parents	Pilot	Tested CCE (56) and Ch (50)	
Sept-October 2008?	nation-wide	323 parents	Pilot	Tested CCE	

Table 3.A1.1. **Summary of Main Findings**

Issues to be addressed	Evidence	Suggestions
Third party elicitation	The parental perspective was adopted in the CCE and the chained approach as empirical evidence suggests it is the most appropriate manner to reveal children's preferences. Although it may be affected by altruism and risk perception, it worked well in both cases. Parents did state higher WTP to reduce risks to their children than to themselves.	The parental perspective was adopted in the final instrument. Although a collective approach seems preferable, it has never been used in an empirical context, probably because of modelling complexity. As such, a unitary approach was adopted.
Latency issues	People understood very well the difference between immediate and latent risks. People tend to favour reducing immediate risks when the programme deals with adults.	Latency attributes could be included in the final survey instrument.
Environmental context	Respondents declare being aware of environmental health issues and their exposure to those hazards. In the CCE, context plays an important role in decision-making. The chained method has not been tested in an environmental context, and pre-tests suggest that a context-free scenario would work better.	For policy-making purposes, the final survey instrument should use an "environmental context", as far as possible. However, for purposes of comparison, other contexts should also be included.
Health impact	Respiratory diseases worked well in the CCE but not as well in the chained method. Road accidents worked well in both approaches but they are not environment-related hazards. Cancers (tested in the CCE) worked well.	Respiratory ailments, traffic accidents and cancer adopted for the CCE. In the case of the chaining exercise, a stomach ailment was adopted, rather than an "injury", which had been used previously.
Low probabilities	Expressions such as "10 in 10 000" or "10 for every 10 000" were used in the CCE and were clearly understood by respondents. Different risk reductions were used in the chained approach, such as 20/1 000, 100/1 000 and they were well understood by respondents. Good comprehension of probabilities is associated with communication in the first part of the questionnaire on risk and probabilities using visual tools (grids). However, real probabilities of death were not presented.	The use of grids to display risk and probabilities clearly helps respondents understand the probability figures presented in the scenarios. Such tools should be used in the final instrument as well.
Comparison of values for adults and children	Distinct values could be obtained for both children and adults from both survey instruments. Depending upon the precise approach chosen for the PTO questions, people may have a tendency to choose programmes which save children, irrespective of the number of adults saved.	Split samples to ensure values obtained for both children and adults. Apply PTO questions, but not as the sole means to obtain a MRS.
Good to be valued	People are not always able to understand correctly extensions in life expectancy.	Mortality risk reductions valued in the final instrument survey.
Risk perception	The first questions of the questionnaire deal with risk comprehension and propose to train people in understanding the concept of mortality risks and of probabilities using grids. These aids were greatly appreciated by the respondents who found them very clear and easy to understand.	The use of such preliminary tools in the final survey instrument.
Valuation approach	Conjoint choice experiments were well accepted in Italy and the Czech Republic. The chaining approach was promising as respondents seem to fully engage in the exercise.	The two approaches (CCE and chaining) could be used in at least two of the three countries to be able to compare results between two countries.
Survey sampling	Only parents have been interviewed in the preparatory work.	As it would be awkward to ask a non-parent to value a risk reduction to a child, it is suggested to interview only parents.

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