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Non-Substantive Change Resulting from the Cognitive Interview Pretest for the *Foodborne Illness Valuation Research*

This memo describes revisions to the survey “*U.S. Adult Food Poisoning Outcomes Survey*. There are 2 versions of the survey: 1) valuing acute non-hospitalized foodborne illnesses (Appendix 1 *Acute Outcomes Survey*); 2) valuing hospitalizations and long-term outcomes that can result from foodborne illnesses (Appendix 2 *Severe Outcomes Survey*). Any single respondent will only see one version of the survey. Each survey includes 10 choices. The survey is designed to estimate individuals’ willingness to pay to prevent/reduce risk of the non-fatal health impacts of food poisoning and other infectious illnesses. The changes do not impact cost, burden, or project objective.

This is a discrete choice experiment (DCE) stated-preference survey. This type of survey is widely used in health economics in situations where, as here, revealed preferences are unavailable or difficult to collect.¹ DCE surveys ask respondents to make choices between alternative hypothetical products or services. This mimics market choices. In making choices, respondents “reveal” their preference between them. Each alternative (or option) has a set of characteristics (attributes). Each attribute has at least 2 levels, e.g., the attribute “diarrhea” has 3 levels: “none, non-bloody, and bloody.” A set of all possible combinations of attributes and attribute levels is created (Appendix 6). Each respondent sees a subset of these alternatives with all alternatives presented multiple times across a population sample. This allows estimation of the value the population places on preventing these illnesses.

Non-substantive changes are being made to this survey to respond to feedback from cognitive interviews with respondents drawn from the AmeriSpeak Panel maintained by the University of Chicago NORC. These changes were made to improve understanding, ease of response, and add new questions responding to needs identified in the cognitive interviews. These include re-wording to clarify text throughout the surveys. They also include removing and adding debriefing questions (questions at the end of the survey). Cognitive interviews showed that we need to treat

1 Szinay D, Cameron R, Naughton F, Whitty JA, Brown J, Jones A. Understanding Uptake of Digital Health Products: Methodology Tutorial for a Discrete Choice Experiment Using the Bayesian Efficient Design. *J Med Internet Res*. 2021 Oct 11;23(10):e32365. doi: 10.2196/32365. PMID: 34633290; PMCID: PMC8546533.

all hospitalizations in the same way as hospitalizations with complications were treated in the original acute version of the survey, that is, including risk of hospitalization as an attribute. Therefore, we moved all hospitalizations to the Severe Outcomes version of the survey.

The survey will be pilot tested with 200 subjects, 100 on each version of the survey.

Changes to the Survey fell under 3 categories:

Editing

1. We simplified the language and shortened sentences to reduce respondent burden. We also divided some text into shorter individual screens to enhance readability and programmability.
2. We moved the EuroQol 5D (EQ5D) health index (Question 1) to the beginning of both the acute and severe outcomes versions of the survey so that respondent responses could be used to customize attributes levels in choices describing health outcomes using the EQ5D attributes.
3. We found in cognitive interviews that we needed further adjustments to introductory material intended to get respondents to focus only on paying to protect themselves from the non-financial impacts of these illnesses and to pay from their own budget rather than accepting gifts to pay for the benefit.

Removing and Adding Questions

1. We removed 9 demographic questions already collected in the AmeriSpeak Panel. NORC will link our survey responses to that information.
2. Based on responses to cognitive interviews, we added 4 debriefing questions on whether respondents were thinking about:
 - a. whether they would need to purchase protection for other household members (7.10),
 - b. whether respondents considered how the illness would affect time spent in household activities and leisure (7.13), and
 - c. reducing risk of death (7.14),
 - d. their understanding of small risks (Severe version 7.15).

Like the other debriefing questions, these questions will be used to control for desired or unwanted effects. Except for the small risk question, these questions were also added to the Acute Version of the survey. We just list the numbers for the Severe Outcomes Survey here to simplify this memo.

3. We substituted two questions on travel time to outpatient care and a hospital (9.2 and 9.3) for one question on the kind of community in which they live (urban, suburban, rural etc.). Respondents found the new questions easier to answer. The previous “urban, rural” question was intended to measure access to medical care.
4. In the Severe version of the survey, we substituted question 2 about experience with the long-term impacts of foodborne illness for questions 2 and 3 about experience with short-term impacts that appear in the Acute version of the survey.

Reframing Questions

1. On the Severe version of the survey, responses from cognitive interviews showed us that we needed to reframe the description of illnesses, so they reflect the way people are used to being presented information about making medical decisions (Appendix 7. Illness Descriptions for Severe Outcomes Survey).
2. Based on cognitive interviews, we moved hospitalization for food poisoning without complications from the acute to the severe version of the survey to include risk of hospitalization as an attribute (Appendix 6. DCE Attributes and Levels).
3. Based on further evaluation of probabilities of illness and on testing in the cognitive interviews, we now describe the survey as being about the impact of “infectious illnesses, like food poisoning or flu” rather the “impact of food poisoning”. We made this change for several reasons:
 - a. It will make the estimates more useable for food safety policy analysts. The purpose of food safety policy is to change the rate of foodborne exposure. What analysts need from this survey is willingness to pay to prevent the health impacts, not willingness to pay to prevent the exposure route.
 - b. The illness risks are small (0.08 to 26 out of 1000), but large enough to communicate to respondents. The rate for only foodborne is smaller.
 - c. This change also makes it possible to use these estimates to value the disease when it is caused by non-foodborne exposures.
4. We changed the choices using the EQ5D to describe health impacts from 2 to 3 options. This significantly enhances the efficiency of the statistical design. Cognitive interviews show respondents are comfortable with 3 option design.

Attachments:

Appendix 1. Acute Outcomes Survey

Appendix 2. Severe Outcomes Survey

Appendix 6. Discrete Choice Experiment Attributes and Levels

Appendix 7. Severe Illness Descriptions