

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	The Health Auctions: a Valuation Experiment (HAVE) study protocol
<b>AUTHORS</b>	Kularatna, Sanjeewa; Petrie, Dennis; Scuffham, Paul; Byrnes, Joshua

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Matthew Rousu Susquehanna University, USA
<b>REVIEW RETURNED</b>	20-Jul-2015

<b>GENERAL COMMENTS</b>	<p>The authors describe an auction they hope to perform to value health states. They haven't actually conducted the auction, so the paper is designed to describe the methods.</p> <p>I have several concerns:</p> <ol style="list-style-type: none"><li>1. I've reviewed a number of papers describing economic experiments (over 100) and read many more. I don't recall a paper like this where an economic experiment is described but it hasn't actually been conducted. I don't see the value in publishing something a description of an experiment that hasn't been conducted – unless you wanted reviewer feedback on your design prior to actually running the experiment. (If so – then you succeeded.)</li><li>2. I don't think you've reviewed the literature thoroughly enough. Jason Shogren ran a number of experiments examining the willingness to pay for food safety in the early 2000s (E.g, his JRU paper – I think it was published in 2002). Those are pretty close to what you hope to do, as it examined the amount people will pay to lower their risk of death or severe pain. You should certainly read/cite those.</li><li>3. I don't think your experiment will work as designed, however. You are putting people in an auction, but then having them bid on a contrived health state. It's more of a contest than an actual valuation of health. You can't actually give people the health state you're describing – so the auction becomes hypothetical.</li><li>4. It would be overstating things to say you are actually obtaining a person's value for a QALY, unfortunately. I applaud your ambition to examine the willingness to pay for a QALY through auctions, but this approach isn't going to get there. I would think the approach by Shogren of having participants bid on food products with alternative levels of risk of death or severe pain would be more appropriate.</li></ol>
-------------------------	---

<b>REVIEWER</b>	David Gillette Truman State University, USA
<b>REVIEW RETURNED</b>	18-Dec-2015

<b>GENERAL COMMENTS</b>	<p>I appreciate the thought and planning that has gone into this paper and look forward to seeing the outcome of this experiment. However, the overall purpose of the paper, as a proposal for a pilot study, was unclear until I got to the end of the paper. The aim of the article is first stated at the end of page 3 (about line 42), but even after that I was still expecting to see some data outcomes by the end of the paper.</p> <p>The auction is well designed. One possible limitation however, might be regarding the role of third party payers. The authors have been careful to control for almost all aspects of the auction including randomized health states selection, interaction between the participants, and the possibility of their gaming the system. My only concern is regarding the role of insurance. What provisions are made to deal with people's expectations that insurance plays a substantial role in their consumption of health care? Perhaps those provisions already exist in the descriptions of the various health states, but the paper only describes full health and the worst state. Since insurance and financial burdens pervade how people think about health care purchases, it seems needful to address.</p>
-------------------------	---

### VERSION 1 – AUTHOR RESPONSE

#### Response to reviewer

<b>Reviewer 1</b>	
<p>I've reviewed a number of papers describing economic experiments (over 100) and read many more. I don't recall a paper like this where an economic experiment is described but it hasn't actually been conducted. I don't see the value in publishing something a description of an experiment that hasn't been conducted – unless you wanted reviewer feedback on your design prior to actually running the experiment. (If so – then you succeeded.)</p>	<p>Thank you for your comments. In health interventions we publish protocols to describe methods of a proposed experiment. This is a typical approach strongly encouraged in clinical and biomedical research that is extending to all health-related interventions – including those that are purely experimental. There are a number of journals that publish protocols, including "Trials", "BMJ Public Health", "Springer Plus" and "BMJ Open". The BMJ Open state "Publishing protocols in full also makes available more information than is currently required by trial registries and increases transparency, making it easier for others (editors, reviewers and readers) to see and understand any deviations from the protocol that occur during the conduct of the study." Overall, this process aims to reduce publication bias and the opportunity for authors to "tamper" with results by, for example, selecting outcomes or any subgroups where there may be a significant effect.</p>
<p>I don't think you've reviewed the literature thoroughly enough. Jason Shogren ran a number of experiments examining the willingness to pay for food safety in the early 2000s (E.g, his JRU paper – I think it was published in 2002). Those are pretty close to what you hope to do, as it examined the amount people will pay to lower</p>	<p>Thank you for this advice. We have now cited "Auction mechanisms and the measurement of WTP and WTA" by Jason Shogren et al. We had already cited "Experimental Auctions: Methods and Applications in Economic and Marketing Research" by Lusk and Shogren. We developed our methodology based on the auction exercises</p>

<p>their risk of death or severe pain. You should certainly read/cite those.</p>	<p>of willingness to pay for food safety described in the above text book. Our experimental auctions of health states follow the steps described in this book.</p> <p>We have included limitations of experimental auctions and the need to expand it in order to derive values over the full spectrum of health states. The revised section can be found in the discussion (page 11)</p>
<p>I don't think your experiment will work as designed, however. You are putting people in an auction, but then having them bid on a contrived health state. It's more of a contest than an actual valuation of health. You can't actually give people the health state you're describing – so the auction becomes hypothetical.</p>	<p>Hypothetical health states are usually used in health state valuations. Widely accepted studies had valued health states described by instruments such as the EQ-5D and the SF-6D. The utilities produced from these studies are widely accepted and used in healthcare decision-making by organisations including NICE (UK), the PNBAC and MSAC (Australia) and Canada. Limitations of the current health state valuations include inability to produce a monetary value for health states and hypothetical trade-off with full health. Thus, we developed this novel method that includes the contest mechanism in an attempt to decrease the hypothetical nature of existing mechanisms.</p>
<p>It would be overstating things to say you are actually obtaining a person's value for a QALY, unfortunately. I applaud your ambition to examine the willingness to pay for a QALY through auctions, but this approach isn't going to get there. I would think the approach by Shogren of having participants bid on food products with alternative levels of risk of death or severe pain would be more appropriate.</p>	<p>Thank you for your observation. We have now included a discussion on the limitation of Shogren's work and reasons to extend experimental auctions mechanisms to value health states (page 11). We agree that it is difficult to derive an absolute value of a QALY but a relative value in monetary terms is what we aim to develop.</p>
<p>Reviewer 2</p>	
<p>I appreciate the thought and planning that has gone into this paper and look forward to seeing the outcome of this experiment. However, the overall purpose of the paper, as a proposal for a pilot study, was unclear until I got to the end of the paper. The aim of the article is first stated at the end of page 3 (about line 42), but even after that I was still expecting to see some data outcomes by the end of the paper.</p>	<p>Thank you. We have included following description to reiterate this is only a protocol publication.</p> <p>“The aim of this article is to describe the protocol for a study to use experimental auctions to derive a monetary value of health states the Health Auctions: a Valuation Experiment (HAVE) study. After the conclusion of our data collection we will publish the results of this pilot study.”</p> <p>Discussion Page 10: “Methods described in this This study will produce the first ever health state values using an experimental auction approach. “</p>
<p>The auction is well designed. One possible limitation however, might be regarding the role of third party payers. The authors have been careful to control for almost all aspects of the auction including randomized health states selection, interaction between the participants, and the</p>	<p>Thank you for raising this point. Though valid attributes such as private health insurance of participants are not considered in current health state valuations. We revised the discussion to explain this. The below paragraph was added to the discussion. However, we have updated our</p>

<p>possibility of their gaming the system. My only concern is regarding the role of insurance. What provisions are made to deal with people's expectations that insurance plays a substantial role in their consumption of health care? Perhaps those provisions already exist in the descriptions of the various health states, but the paper only describes full health and the worst state. Since insurance and financial burdens pervade how people think about health care purchases, it seems needful to address.</p>	<p>data collection material to capture participant characteristics including private insurance and will conduct secondary analysis.</p> <p>Page 8 Methods: "Using the available we will conduct secondary analysis to examine the effect of participant characteristics on valuations."</p> <p>Page 11 Discussion: "The health state valuations only ask the participants to compare a given health state with full health to obtain the preference for that health state. Participants' individual attributes are not considered in health state valuations as the idea is only to consider the hypothetical health state. When utility is estimated using these value sets on individual patients only their health related quality of life attributes are measured to allocate the given utility. Similarly, we are standardizing the participants of the HAVE study by asking them to consider the funds given as their only income and imagining them to live in the worst possible health state. "</p>
---	--

**VERSION 2 – REVIEW**

<b>REVIEWER</b>	David Gillette Truman State University USA
<b>REVIEW RETURNED</b>	02-Mar-2016

<b>GENERAL COMMENTS</b>	I find that my earlier concerns have been adequately addressed and extend my best wishes for the successful completion of you your study. I look forward to seeing the results.
-------------------------	---