Highlights

1. What is already known about the topic?

Probabilistic sensitivity analysis (PSA) in health technology assessment involves simulating a large number of realisations (‘draws’) as inputs to economic models to appropriately characterise parameter uncertainty and its consequences for decision uncertainty. For some parameters, such as quality of life for a patient with a disease either that is active or in remission, it is expected that draws from one parameter will always be higher than corresponding draws from the other parameter, even though there is uncertainty about the true value of either parameter.

1. What does the paper add to existing knowledge?

In the case where there is an absolute belief that the value of one variable is greater than the value of another, naïve sampling approaches lacked one or both of clinical and statistical validity. The proposed ‘difference method’ approach for generating PSA samples maintains the constraint that one value is greater than another and satisfies both clinical and statistical validity***.***

1. What insights does the paper provide for informing health care-related decision making? (optional)

Failure to account for constraints between parameter values may result in PSA values that do not accurately characterise the uncertainty present in a decision problem. This could result in decisions made on the allocation of scarce health care resources being sub-optimal. The proposed ‘difference method’ approach provides a solution to overcome the problem with naïve sampling methods and should be used as standard in PSA.