Utility Values

The utility values used in the early economic evaluation of a stratified breast cancer screening programme were taken from a study of the health related quality of life of Swedish women with different states of breast cancer [1]. This study was published in 2007 and it is likely that the experience of women with breast cancer will have changed in the preceding 15 years given changes in available treatments for different stages of breast cancer. As such, new utility values were sought for inclusion in the full version of the model.

Two recent systematic reviews have sought to identify health state utility values to represent different health states, adverse events, and treatments associated with living with breast cancer [2,3]. Pourrahmat et al. (2021) sought to identify utility values for different stages of a range of cancers including breast cancer. This systematic review identified 9 studies reporting utility values. Kaur et al. (2022) aimed to create a catalogue of health utility value associated with “different stages of breast cancer and treatment interventions”. This systematic review identified 79 relevant studies for inclusion.

To identify potentially relevant utility values for inclusion in the discrete event simulation model, the combined included studies of these two systematic reviews were searched. A number of criteria were used to identify a sub-set of potentially relevant utility values for the model. Studies had to have been conducted in a high income country as treatment regimens and therefore utility values would be more likely to be similar to those in the UK. Included studies must have included estimates for utility values for all stages of breast cancer or utility values that could be easily adapted to represent the different stages of breast cancer. Finally, a preference ordering was placed on the method used to derive the utility values: EQ-5D with value set derived for the country the study was conducted in; EQ-5D with value set derived from another country; time-trade off; standard gamble; visual analogue scale; other methods.

Only two potentially relevant studies were identified from the candidate set. Naik et al. (2017) estimated utility values for local or regional (0.82) and distant or metastatic (0.75) breast cancer from EQ-5D questionnaires completed by women with cancer in Canada [4]. No differentiation was provided for first year or subsequent year utility values. Rautalin et al. (2018) sought to investigate the health related quality of life of Finnish women with breast cancer using three instruments: the EQ-5D 3L, visual analogue scale, and the 15D (a HRQoL instrument developed in Finland) [5]. Values were estimated for primary treatment, recovery, remission, metastatic disease, and palliative care. These were mapped to the values required for the model such that primary treatment (0.85 EQ-5D) was used to represent the utility of stages I, II, and III in the first year while metastatic disease (0.74 EQ-5D) was used for stage IV disease. Subsequent year utilities for stage I, II, and III were taken from the recovery value (0.87 EQ-5D) while the metastatic value continued to be used for stage IV.

In order to select the most appropriate utility values for inclusion in the model, a focus group was held with 3 women who had previously been diagnosed with breast cancer. The researchers (SW and KP) first provided a brief presentation explaining the research and why the patients’ input was being sought. Two exercises were conducted wherein the participants were asked to consider their quality of life now and during the cancer treatment that had the greatest impact on their quality of life. Participants were asked to consider what number they would have rated their health out of 100 in these scenarios. Participants were then shown visual analogue scales with values representing those reported in Naik et al. (2017), Rautalin et al. (2018), and Lidgren et al. (2007) for comparison. Values were shown for the first year and then for subsequent years. Participants were not told which values came from which study. Following a group discussion of the values, a consensus was sought as to which values were most appropriate.

The final values chosen for inclusion in the model were those from Naik et al. (2017). One of the main reason these values were chosen was because they were the same in the first and subsequent years. The women in the focus group emphasised the ongoing psychological impact of breast cancer even post-recovery. For example, the women discussed the worry that the cancer was coming back whenever they experienced episodes of ill health.

While the values in Naik et al. (2017) were deemed appropriate for use in the update model, areas for further research arose in the group discussion. The women felt that they could not speak for women with metastatic cancer given that they had each recovered from stage I cancer. Furthermore, the women emphasised that people are likely to have different types of treatment and those treatments have different impacts on quality of life. In the women’s experience chemotherapy had a very large impact on their quality of life. It was suggested that weighted values representing the expected utility of women given the proportion of women receiving different treatment types for each stage of cancer and the utility values of those treatments may be more appropriate. It was also recommended that studies of the HRQoL of women in the UK be conducted to provide more valid utility values.

References

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