

# COST-EFFECTIVENESS OF LAPATINIB PLUS CAPECITABINE FOR WOMEN WITH HER2+ METASTATIC BREAST CANCER PREVIOUSLY TREATED WITH TRASTUZUMAB IN FINLAND



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## BACKGROUND

Breast cancer is the most common malignancy among women in Finland. The incidence of breast cancer was 4,079 and prevalence 47,977 in 2006.<sup>(1)</sup>

Around 15% of patients with newly diagnosed breast cancer have metastatic breast cancer (MBC) and a further 40-50% diagnosed with early breast cancer will go on to develop metastatic disease. Overexpression of HER2 protein is found with 25-30% of patients with breast cancer<sup>(2)</sup>. HER2+ predicts a worse prognosis and higher metastatic risk.<sup>(3)</sup> Trastuzumab is the only HER2 targeted therapy currently used in Finland and is widely used beyond disease progression.

Lapatinib (Tyverb<sup>®</sup>, GlaxoSmithKline) is an oral dual targeted inhibitor that specifically targets EGFR and HER2 receptors.

## OBJECTIVE

To evaluate the cost-effectiveness of lapatinib plus capecitabine (L+C) vs. currently used regimens in Finland for women with HER2+ metastatic or advanced breast cancer which has progressed following trastuzumab treatment.

## METHODS

The analysis is based on data drawn from a phase III randomized open label multi-centre trial EGF100151 comparing (L+C) with (C) alone in women with progressive, HER2-positive, advanced or metastatic breast cancer who had received prior treatment with an anthracycline, a taxane, and trastuzumab (T). In this study L+C significantly improved the time to progression compared with using C alone.<sup>(4,5)</sup>

Effectiveness of trastuzumab-containing regimens was based on a pooled analysis of data from published studies.

The analysis was performed from a societal perspective. Costs and outcomes were discounted at 5%, consistent with Finnish guidelines.

### Outcome measures

- Incremental cost per quality adjusted life year (QALY)
- Incremental cost per life year gained.

### Comparator

The cost effectiveness has been assessed against a 'blended' comparator base representing the profile of key treatments currently used in this setting. According to market research it was assumed that half of patients continue trastuzumab-containing regimens beyond progression (TBP) (Figure 1).

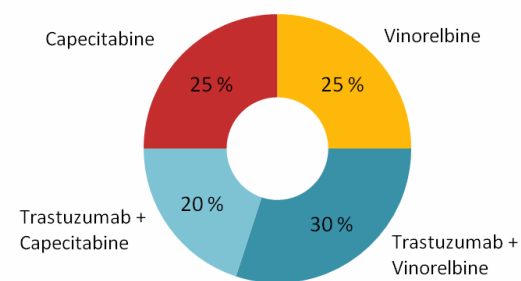


Figure 1. Currently used regimens in MBC in Finland

### Utility values

- QALYs were calculated using utilities derived from the EGF100151 study and an international publication<sup>(6)</sup>.
- The utility value is driven by the presence of disease progression.

## Costs

- Unit costs were obtained from official price-lists and adjusted to the 2007 price level<sup>(7)</sup>.
- Wholesale-prices were used for drug acquisition. Resource use was assessed based on Current Care Guidelines and expert opinion<sup>(8)</sup>.
- Costs of managing adverse events were assumed the same and thus excluded.
- Only incremental resource use was incorporated.
- Study medications are assumed to be discontinued upon disease progression.

Costs (€) /year

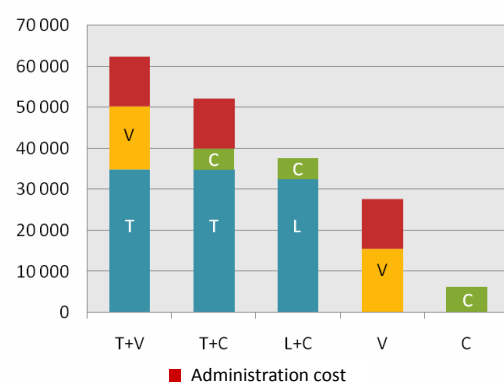


Figure 2. The annual cost of drug care.

## Modelling

A survival analysis model with a lifetime horizon was used to calculate expected costs and effects. The time spent in three distinct health states was modeled directly from EGF100151 patient level survival data. Kaplan-Meier method was used to estimate the overall survival and progression-free survival. Beyond the observation period survival curves were simulated by a Weibull model.

The model follows the disease pathway and includes three conceptual health states (Figure 3).

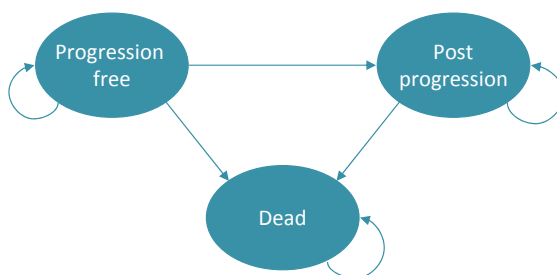


Figure 3. Structure of the model

The model was originally developed by PAI<sup>(9)</sup>.

## RESULTS

Results are presented in Table 1 with 50% assumption of TBP as a base case.

	L+C	Blended comparator	Incremental
LYs gained	1.46	1.25	0.22
QALYs gained	0.84	0.68	0.16
Study drug costs	27,594	15,541	12,053
Administration costs	0	4,177	(4,177)
Other costs	4,305	3,871	434
Total costs	31,899	23,589	8,310
Cost per LY gained			38,481
Cost per QALY gained			52,911

Table 1. Costs and outcomes with 5% discount rate.

A budget impact analysis indicated that switching to L+C from currently used treatments in women with progressive, HER2-positive, advanced or metastatic breast cancer would increase overall costs from a societal perspective by around 1M€ per year.

## SENSITIVITY ANALYSIS

One-way and probabilistic sensitivity analysis was carried out both for cost and outcome variables to test the uncertainty of the results. Also, cost-effectiveness acceptability analysis was examined (Figure 4).

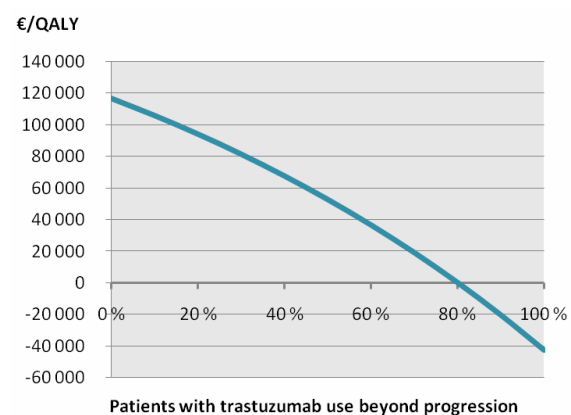


Figure 4. One-way sensitivity analysis for TBP

Based on sensitivity analysis it was shown that results are driven by the trastuzumab use beyond progression in comparator arm (Figure 5).

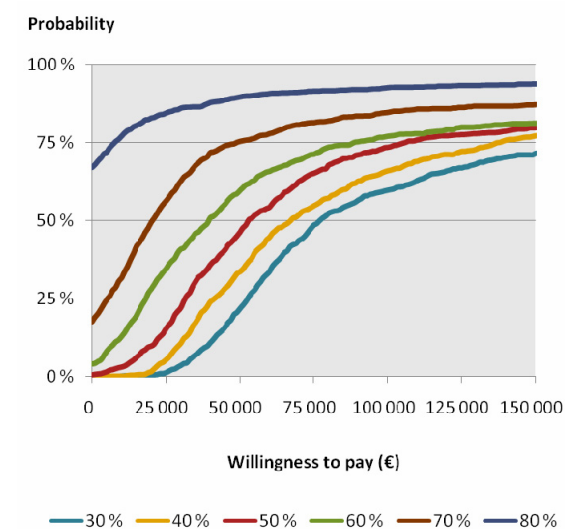


Figure 5. One-way sensitivity analysis for TBP

## CONCLUSIONS

- For patients with HER2+ MBC who have progressed on trastuzumab, treatment with L+C meets a high unmet clinical need and is cost-effective in this setting.
- The cost-effectiveness result is highly driven by the proportion of patients with extended trastuzumab use in advanced setting.
- IV administered treatment can result over 12,000€ of additional costs per year compared with oral formulations.
- Lapatinib, in combination with capecitabine, is the only treatment option specifically targeting the HER2 receptor, which is licensed for use in MBC patients that have progressed on trastuzumab.

## REFERENCES

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