Comparison of eligible patient pool and treatment regimen

	12 months sequential treatment	9 weeks concurrent treatment
Eligible patient population	Eligible patients were those presenting with HER-2 positive early breast cancer, with acceptable heart function (assumes some patients excluded from treatment for inadequate heart function). The weight of patients (and correspondingly, the dose per patient) was calculated using the appropriate distributions as per the age and weight distributions for HER 2 positive early breast cancer patients in New Zealand.	
Patient Numbers	Year 1: 280[1] Year 5: 339	Year1: 340[2] Year 5: 413
Regimen	1 loading dose (8mg/kg) trastuzumab, then 6mg/kg every 3 weeks for one year following completion of standard chemotherapy. Total of 17 infusions (each requiring an extra visit to the hospital).	9 trastuzumab infusions at 1 week intervals. Loading dose 4mg/kg, remaining doses 2mg/kg. If administered as per the FinHer protocol, total of 9 infusions (up to 6 more visits than standard chemotherapy in node positive patients)[3].

[1] Note that these are revised patient numbers from the initial budget impact analysis. PHARMAC staff now estimate that a further 15-20% of HER-2 positive patients eligible for treatment would be excluded following anthracycline treatment, and therefore up to 15-20% less patients than initially calculated would not receive trastuzumab in clinical practice under the sequential regimen (note that this also means that 15-20% less patients would potentially benefit from trastuzumab).

[2] Note that more patients are eligible for treatment under the 9 week regimen because this allows treatment with trastuzumab before patients receive their cardiotoxic anthracycline chemotherapy (Belgian Health Care Knowledge Centre (KCE). Trastuzumab in early stage breast cancer. KCE reports vol. 34C, 2006. http://kce.fgov.be/index_en.aspx?ID=0&SGREF=5211&CREF=7198)

[3] An alternative dosing regimen is 3 trastuzumab infusions at 3 week intervals, loading dose 8mg/kg, remaining doses 6mg/kg. Total of 3 infusions (no extra visits compared with standard chemotherapy).

Comparison of Annual Drug Cost and Impact on DHB services

	12 months sequential treatment	9 weeks concurrent treatment
Total dose	104mg/kg	20mg/kg
Drug cost per patient ($NZ) Trastuzumab Docetaxel	 $71,000 n/a	 $13,000 ~$7,000
Total drug cost	~$20 million	$5 million
Approximate DHB services costs	$5 million	$700,000
Total Cost	~$25 million per annum	~$6 million per annum
Description of costs	DHB services costs include the costs of compounding, administration (infusion and monitoring costs) and cardiac monitoring. Patients who experienced an adverse event that lead to treatment discontinuation were assumed to accrue the costs of drug up until the time of drug discontinuation (drop out rates were as per the drop outs reported in the HERA trial). This does not include costs incurred for treating patients who experience cardiac adverse events (however, this is included in the cost-utility analysis). In addition, this does not include the cost offsets anticipated from reduced disease recurrence (however, these are included in the CUA and this information is documented in TAR 75).	

Cost- effectiveness comparison

The cost-utility analysis for 12 months of trastuzumab given after chemotherapy had a base-case result of about $75,000 per QALY[4]. However, this analysis showed a large range of plausible outcomes, largely due to the uncertainty surrounding duration of benefit and untreated disease progression. None of the plausible outcomes gave sufficient confidence that 12 months of trastuzumab treatment would be a cost-effective use of health funds compared with other investments.

PHARMAC has estimated the revised cost-utility analysis of a nine-week concurrent regimen to be, under fairly conservative assumptions, less than $20,000 per QALY (or 50 QALYs per million spent). At less than $20,000 per QALY, trastuzumab would be as, or more, cost-effective than many other medicines PHARMAC has funded.

The nine week concurrent regimen is likely to be four times more cost-effective than the 12 month sequential regimen (50 QALYs per million for 9 weeks, 12.5 QALYs per million spent for 12 months).

[4] A QALY stands for a Quality adjusted life year. A QALY considers how treatment affects patient quality of life and quantity of life. The cost/QALY is a standard measure used to compare medicines for cost-effectiveness, with a lower cost per QALY being more cost-effective.