Introduction

In June 2010, BCNA surveyed members with early breast cancer about their experiences with the breast cancer drug Herceptin (trastuzumab).

Herceptin is a targeted treatment for women with HER2-positive breast cancer and has been found to be very effective in treating this particular type of cancer.

A side effect of Herceptin can be an increased risk of heart problems, such as heart failure (reduced pumping capacity of the heart), valvular disease (problems with the heart valves) and unstable arrhythmias (irregular beating of the heart).

For this reason, the National Breast and Ovarian Cancer Centre (NBOCC) clinical guidelines for the use of Herceptin recommend regular heart monitoring during treatment with Herceptin, and heart monitoring is a government requirement for women receiving Herceptin for early breast cancer through the Pharmaceutical Benefits Scheme (PBS).

BCNA was concerned at the results of a data study on heart monitoring rates undertaken by researchers at the University of New South Wales in 2007. That study found that only 3% of women treated with Herceptin for secondary breast cancer between December 2001 and March 2005 had received regular heart monitoring. While there is no Government requirement for heart monitoring of women receiving subsidised Herceptin for secondary breast cancer (unlike early breast cancer), this low rate of monitoring was still cause for concern.

We decided to investigate whether women with early breast cancer were receiving heart monitoring according to the guidelines and so surveyed some of our members. We asked women:

- what information they were given by their doctors about Herceptin and its side effects
- whether they had regular heart monitoring during their treatment
- what out-of-pocket costs, if any, they incurred for their heart tests, and
- whether they developed a heart condition while undergoing treatment with Herceptin.

Emails were sent to 1,215 women, as follows, inviting them to complete an online survey:

- BCNA’s Review & Survey Group (799 women)
- Women who responded to a request in Issue 51 of The Beacon (267 women)
- Women who had been on BCNA’s contact list for our 2006 Herceptin campaign (149 women).

To be eligible to participate, women must have been treated with Herceptin for early breast cancer. As we do not know which of the women who received our email had been treated with Herceptin, we asked women to self-select.
Women who had been diagnosed with secondary breast cancer were not included in this survey, primarily because there is no government requirement that they receive heart monitoring while being treated with Herceptin.

Three hundred women self-selected as being eligible to participate and 275 completed the survey. The response rates to different questions may vary slightly, as not all women were required to answer all questions.

The survey included quantitative and qualitative questions, so women were able to tell us in their own words about their personal experiences.

Demographics

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Number of Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 20</td>
<td>0</td>
</tr>
<tr>
<td>21-30</td>
<td>7</td>
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<tr>
<td>31-40</td>
<td>19</td>
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<tr>
<td>41-50</td>
<td>105</td>
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<tr>
<td>51-60</td>
<td>98</td>
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<td>61-70</td>
<td>64</td>
</tr>
<tr>
<td>71-80</td>
<td>7</td>
</tr>
<tr>
<td>80+</td>
<td>0</td>
</tr>
</tbody>
</table>

*Figure 1 - Age range of women responding to the survey*

The age range of women who responded to the survey reflects the general population of women diagnosed with breast cancer, apart from the 41-50 year age group which is somewhat over-represented in our results.

The majority of women told us they live in metropolitan areas (61%), followed by regional areas (26%) and rural areas (13%). One woman classified her area as remote.

Background information

Herceptin treatment
Eighty respondents (28%) told us they were undertaking their Herceptin treatment at the time the survey. Of the 208 women (72%) who had completed their treatment, 21 (7%) received Herceptin as part of a clinical trial.

Heart health prior to Herceptin treatment
Twenty-nine women (10%) told us they had a heart condition prior to being treated with Herceptin. The majority of these (24) had high blood pressure that required treatment.
Herceptin and Chemotherapy
All women who responded to this question (287) told us they were treated with Herceptin after or with a course of chemotherapy. 67% of women reported receiving Herceptin with a course of chemotherapy, and 33% said they received it on its own after a course of chemotherapy.

Figure 2 shows the chemotherapy drugs women were given. The total numbers equal more than the number of respondents as some women had more than one type of chemotherapy. Half of the women who answered ‘Other” (55 women) told us they had Cyclophosphamide, either on its own or with another chemotherapy drug.

Survey Results

Information about Herceptin and its side effects
We asked women to tell us if they could remember their doctor talking to them about the possible side effects of Herceptin, and whether their doctor gave them any additional information about side effects.

276 women (96%) told us their doctor had talked to them about the possible side effects and provided them with additional information. Figure 3 shows the sources of information that women were given or recommended by their doctor. The total numbers equal more than the number of respondents as some women were provided with more than one type of information.
Figure 3 - Sources of information provided to women

Many women who answered ‘Other’ indicated they received the Roche Herceptin DVD and Information booklet

253 women (89%) said they were satisfied with the information given to them, however 32 (11%) would have liked more information. Some women sought additional information from other sources, including websites, other women who had been treated with Herceptin, and other health professionals such as a Breast Care Nurse, Oncology Nurse or GP.

*My doctor gave me information but I still felt I had to do my own research on the internet and ask other patients how they coped, before I felt confident to go ahead (with the treatment).*

Ten women (3%) said their doctor did not give them any information about possible side effects.

*I was just told that this was the treatment. …. The oncologist was running very behind time and I got a very brief run-down, with little explanation.*

Prior heart conditions

245 women (86%) told us their doctor asked them whether they had any existing heart conditions, or previous heart conditions, prior to starting their Herceptin treatment.

*I had previously had chemotherapy with a heart toxic drug, so my oncologist did not want to give me any more heart toxic chemo. I had Herceptin with a chemo that was not damaging to the heart.*

Heart monitoring

All but two women who responded to our survey were referred by their doctor for a heart function test prior to beginning treatment with Herceptin. Most (60%) were referred for a Multi Gated Acquisition (MUGA) scan (also called a gated heart pool scan), with the remainder (40%) referred for an echocardiogram (ECHO).
283 women (99%) said their doctor referred them for heart monitoring tests during their treatment. Some women had both MUGA and ECHO at different times. Some were also referred for an ECG test.

At first my doctor referred me to nuclear medicine for the radioactive injection (MUGA), but after speaking to another patient I found out it was possible to have the ECHO - it's less invasive. Later my doctor didn't hesitate in referring me for an ECHO. At first, I didn't know I had an option!

253 women (90%) said they had heart monitoring every three months while receiving Herceptin, in line with the government regulations. Figure 4 shows how frequently women were monitored.

![Figure 4 – Frequency of heart monitoring tests](image)

Only three women (1%) said they were not referred for heart monitoring during their Herceptin treatment. While all three said their doctor talked to them about the benefits of heart monitoring, each said she did not have monitoring because her doctor did not think it was necessary.

A fourth woman chose not to have heart monitoring, although it was recommended by her doctor.

**Costs of heart monitoring**

We included questions about the costs of heart monitoring because we had heard, anecdotally, that some women were paying significant out-of-pocket amounts for their heart monitoring tests. While Medicare rebates are payable for echocardiograms and MUGA scans (see table below), many private providers charge above the schedule fee for their services.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>MBS Item Number/s</th>
<th>Schedule Fee</th>
<th>Rebate</th>
<th>In-patient rebate*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echocardiogram</td>
<td>55112 55113 55114</td>
<td>$230.65</td>
<td>$196.10</td>
<td>$173.00</td>
</tr>
<tr>
<td>MUGA</td>
<td>61313</td>
<td>$303.35</td>
<td>$257.85</td>
<td>$227.55</td>
</tr>
</tbody>
</table>

*The in-patient rebate is the rebate payable for in-patient services provided to private patients. Private health funds may cover some or all of these costs on behalf of the patient. In-patient services for public patients in public hospitals are free of charge for Medicare cardholders.
111 women (40%) told us they had an out-of-pocket cost for their heart monitoring tests. Figure 5 shows the amount women had to pay after receiving their Medicare rebate and, where applicable, any rebate from their private health insurance fund. While the majority of women paid between $50 and $200, four told us they paid more than $300 for each test.

With women having up to five monitoring tests over the course of their Herceptin treatment, these out-of-pocket expenses were considerable for some women.

The majority of women who did not have an out-of-pocket cost for their heart tests told us they were bulk-billed or had their tests at a public hospital. Private health insurance covered the costs for a small number of women (15), and women participating in a clinical trial (21) received monitoring through the trial at no cost to themselves.

Some women told us they were able to avoid an out-of-pocket cost by having their heart tests on the same days as their Herceptin infusions.

I did incur costs initially for heart monitoring. However, the Cardio people suggested I have the ECG and echocardiograph done on the same day as the Herceptin and it could be included as a hospital procedure. This was great information and would have been useful to know before I started my treatment.

Most women told us they did not have to wait long to obtain an appointment for a heart monitoring test, although a small number of women (6) had to wait more than 4 weeks. Some women told us they did not have a waiting time as their heart monitoring tests were booked at the same time as their Herceptin infusions.

Figure 6 shows waiting times.
How long do you have to wait to get an appointment for your heart monitoring tests?

<table>
<thead>
<tr>
<th>Length of time</th>
<th>Number of women</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 2 days</td>
<td>71</td>
</tr>
<tr>
<td>3-5 days</td>
<td>81</td>
</tr>
<tr>
<td>6-7 days</td>
<td>52</td>
</tr>
<tr>
<td>1-2 weeks</td>
<td>51</td>
</tr>
<tr>
<td>2-3 weeks</td>
<td>11</td>
</tr>
<tr>
<td>3-4 weeks</td>
<td>4</td>
</tr>
<tr>
<td>more than 4 weeks</td>
<td>6</td>
</tr>
</tbody>
</table>

![Figure 6 – Length of time to obtain an appointment](image)

**Heart health and Herceptin**
Sixty-three of our respondents (22%) indicated they worried about their heart health while undergoing their Herceptin treatment. In the open-ended responses to this question, many women said they were worried their heart may be affected because they knew this was a potential side effect; however most did not in fact experience any heart problems during their treatment.

*As increased heart risk was a known side effect, I was concerned that I might sustain heart damage and need to stop treatment.*

A small number of women developed symptoms such as shortness of breath or mild chest pain that were not severe enough to require treatment.

*There was an increase in my blood pressure readings over the 12 months, but not enough to justify any medication.*

Twenty-nine women (10%) said they developed a heart condition while being treated with Herceptin. **Figure 7** shows the heart conditions developed. Four of these 29 were women who told us they had a heart condition prior to starting their treatment.
What sort of heart condition/s did you develop?

<table>
<thead>
<tr>
<th>Heart condition</th>
<th>Number of women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart failure</td>
<td>8</td>
</tr>
<tr>
<td>Unstable arrhythmia</td>
<td>2</td>
</tr>
<tr>
<td>A change in my heart test results, but with no symptoms</td>
<td>19</td>
</tr>
<tr>
<td>Don't know</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
</tr>
</tbody>
</table>

![Figure 7 – Heart conditions developed](image)

Heart failure = reduced pumping capacity of the heart causing shortness of breath  
Unstable arrhythmia = problems with the heart rhythm requiring treatment  
Other = 3 women indicated Left Ventricular Dysfunction; the remainder indicated some change in test results but not enough to require treatment

Sixteen (55%) of the 29 women who developed a heart condition were treated with anthracycline chemotherapy – epirubicin, doxorubicin or a combination of both. Nine of these women had their Herceptin treatment at the same time as this chemotherapy, and seven had Herceptin after anthracycline chemotherapy.

Of the 29 women who developed a heart condition, 17 had their Herceptin treatment stopped. Eight of these were able to resume Herceptin after receiving treatment for their heart condition.

**Being treated with heart medication and having regular echocardiograms allowed me to finish my course of Herceptin. … I now no longer need to see my heart specialist providing I have continued monitoring by my oncologist.**

Ten women (4%) indicated they had developed a heart condition since completing their Herceptin treatment. One of these was a woman who had a heart condition prior to beginning Herceptin, and six were women who had developed a heart condition during their treatment. It is not known if these heart conditions were due to Herceptin or to other causes, such as age.

**I am unsure whether the symptoms of breathlessness that I now have when putting my body under stress (running or steep hills or stair climbing) is related to Herceptin or not.**
Other issues
A number of women raised other issues in the final question which allowed them to make open-ended comments. These included concerns about other side effects they attributed to Herceptin such as:

- An ongoing runny nose or sinus problems
- Fatigue
- Joint pain
- Mild flu-like symptoms during the two days following infusions
- Split, cracked or flaky finger nails.

> I had terrible sinus problems, and nail problems.

> I get cold/flu symptoms and headaches after every treatment.

Some women also noted that, for their own peace of mind, they would have liked a final heart test after completing their treatment with Herceptin.

> I would have liked a follow-up heart test to see if my levels on the MUGA scan had come back up, even though they didn't drop overly much. My oncologist didn't feel it was necessary.

Many women also said how grateful they were that Herceptin is subsided by the Australian Government through the Pharmaceutical Benefits Scheme (PBS).

> I paid for the first 2 doses and am very happy that Herceptin is now on the PBS for women who can't afford it.

> I am so glad that it was placed on the PBS just before I was diagnosed and therefore I was not up for thousands of dollars to have the treatment.

Conclusion

Herceptin is a targeted treatment that has been shown to be highly effective in women with HER2-positive breast cancer.

A side-effect of Herceptin can be an increased risk of heart problems. Heart monitoring before and during treatment is a Government requirement for women with early breast cancer who are prescribed Herceptin through the PBS.

Nearly all women who completed our survey had been informed by their medical oncologist of the potential side effects of Herceptin, and most received heart monitoring in accordance with the PBS requirements. All but four had received at least some heart monitoring. These four all had a discussion with their doctor about the increased risk of developing a heart condition with Herceptin.

17 women (6.2%) reported developing a heart condition the resulted in them stopping their Herceptin treatment. This finding closely reflects the Herceptin Adjuvant (HERA) trial, which found the incidence of discontinuation of Herceptin due to heart disorders to be 5.1%.¹

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The HERA study also found that ‘most women with cardiac dysfunction recovered in fewer than 6 months’. Nearly half of this group of women in our study (8) were able to resume Herceptin treatment after heart treatment. Seven of the 9 women who had not resumed Herceptin at the time of our survey were still receiving heart medication. It is unclear if any of them may have been able to resume Herceptin at a later time.

Of concern was the finding that 40 per cent of women have an out-of-pocket cost for their heart tests, ranging from $50 to more than $300 per test. This is an added financial burden for women who may incur significant expenses related to their ongoing breast cancer treatment and care.

The findings were presented at the Clinical Oncological Society of Australia (COSA) Annual Scientific Meeting in Melbourne in November 2010. We will be writing to medical oncologists and cancer and breast cancer organisations to inform them of the survey. We will also report the findings in the Summer 2010 edition of *The Beacon* magazine and on the BCNA website.

*I was very relieved to have Herceptin available to me … It made me feel reassured that all was being done to prevent a reoccurrence of my cancer.*

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2 T Suter et al., *Trastuzumab-Associated Cardiac Adverse Effects in the Herceptin Adjuvant Trial*, Journal of Clinical Oncology, Vol 25, Number 25, 1 September 2007