Reduction mammaplasty and resource allocation—are patients being treated fairly? An examination of the current New Zealand situation, and looking towards the future

Eloise E Dickie, Jeremy W Simcock

Abstract

Aim To review the access to publically-funded reduction mammaplasty for New Zealand (NZ) women. Additionally, to evaluate quality of life gains from reduction mammaplasty and other surgical treatments of chronic conditions. Ultimately to determine whether access to surgical treatment for this condition is equitable.

Method Four tertiary referral centres for Plastic Surgery in NZ completed a survey to characterise patient access. A literature search was done to investigate the global situation and obtain quality of life information following breast reduction and other operations for chronic conditions.

Results The survey showed there was significant inequity in allocation and access to breast reduction surgery in NZ over time and geographical location. There were hopes that the Ministry of Health Prioritisation Tool would ensure more equitable access to plastic surgical procedures nationally in the future. A similar situation exists in Europe in regards to allocation, and insurance companies dictate access in the US. There was overwhelming evidence to support quality of life gains with reduction mammaplasty, which are equal to if not greater than more accessible operations.

Conclusion In NZ there is inequitable access to surgery for patients who would be treated by breast reduction surgery, with substantial variation across geography and time. A new Prioritisation Tool may address this discrepancy. Much evidence exists that quality of life gains for reduction mammaplasty are equivalent to other surgical procedures, which are more readily available. The challenge is to improve equity of access across all surgical conditions.

A public health system is characterized by an excess of demand over supply, necessitating rationing of scarce resources. This is particularly evident within surgery, where there are many patients who, despite having a surgically treatable condition, will never receive a publically funded operation. This results in a growing group of patients who have no other option but to continue to suffer, with reduced quality of life.

All clinicians want the best for the patients in their care. When treatment cannot be provided due to resource limitations, it is important that we are able to convey to the patient that the situation for them is as fair as possible. By investigating a common condition, we aim to assess the fairness of access to surgery for patients across New Zealand.

Symptomatic macromastia is one of many chronic conditions, which is effectively treated by surgery. It is a common complaint, as demonstrated by over 63,000 breast
reduction procedures being completed in the United States in 2011.\textsuperscript{1} For some conditions (such as cancers), it is a question of when rather than if a patient will be treated. Here we wish to focus on the likelihood of a patient suffering from breast hypertrophy, receiving treatment in New Zealand.

Macromastia is a disease, with chronic symptoms, that do not relapse nor remit. For those who are not obese, medical management is ineffective. Yet, the allocation of resources to treat macromastia, in the form of breast reduction surgery, a highly effective treatment appears not to match the burden of disease. This may be due to a perception in some quarters that reduction mammoplasty is a cosmetic rather than reconstructive procedure. Or, perhaps due to ignorance as to the extent of the health burden for these women, and the effectiveness of breast reduction surgery.

Surgical treatments remain inaccessible to many patients in New Zealand. The aim of this paper is to illustrate the equity of access to breast reduction surgery both across the country and between conditions. Our focus is on access to surgery, not waiting time prioritisation for patients who have already been accepted for treatment—a topic explored previously by MacCormick,\textsuperscript{2} Doughty\textsuperscript{3} and Hadorn.\textsuperscript{4}

We will compare the effects of surgical treatment of macromastia with other surgically treated chronic conditions. This will inform our response to the patient’s question – am I getting a fair chance of surgery?

**Method**

A survey was completed by the tertiary referral centres for Plastic Surgery in New Zealand (Auckland, Waikato, Wellington and Christchurch). These were the four units performing publically funded breast reduction surgery during the study period (March 2007 to March 2010).

Oncoplastic surgery within general breast surgery services were not surveyed. The survey focused on the factors affecting the progression of the patient from referral to breast reduction surgery. These included patient and non-patient factors. We also enquired after each centre’s plan for the future.

A literature review was performed to determine the quality of life gains from breast reduction surgery and other operations, for comparable conditions, such as joint replacements and cataract surgery.

**Results**

The survey was completed by three of the four centres. Despite similar catchment populations, over the three years reviewed, there was a geographical difference in operative numbers in the order of up to nine-fold (Table 1). Although not surveyed, anecdotal information indicates that two secondary referral centres, with plastic surgeons on staff, complete few, if any breast reduction operations, and one does not accept any referrals.

Temporal differences in each centre were also evident. Two of the three centres had four and five-fold variation in treated patients from year to year.
Table 1. Patient operation numbers per financial year in three New Zealand centres

<table>
<thead>
<tr>
<th>Period</th>
<th>Centre A</th>
<th>Centre B</th>
<th>Centre C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007–2008</td>
<td>12</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>2008–2009</td>
<td>47</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>2009–2010</td>
<td>18</td>
<td>23</td>
<td>16</td>
</tr>
</tbody>
</table>

The same inclusion and exclusion criteria for patients to receive a specialist appointment were used in different ways across the country. The presence of physical symptoms was universally required. Non-smoking status was a strict criterion in two institutions and preferred in the third. Body Mass Index (BMI) was variably utilized as a threshold.

One consistently accepted BMI’s less than 30, another reduced the threshold from 35 to 30 over the three-year survey period, and another centre accepted a BMI up to 40. In addition, a single centre also utilised an algorithm developed locally, called the Breast Reduction Index (BRI). This score was calculated based on measured breast volume, estimated volume of the torso, degree of ptosis, and asymmetry. Those with the highest BRI scores progressed to surgery. Surgical thresholds were typically reviewed annually, and did not tend to change over time.

Limited information was available on what proportion of referred patients were offered a specialist appointment, and then progress on to surgery. In one hospital, less than 10% of those referred received a specialist appointment, and two-thirds of those were booked for an operation. Once booked, approximately 90% had surgery completed. In another centre, virtually all seen in clinic progressed on to surgery.

The main determinant of numbers of operations performed was staff and theatre capacity in all centres. Therefore fluctuating “spare” surgical capacity after other conditions had been treated determined the number of breast reductions performed.

In regards to the future situation, all units acknowledged that the Ministry of Health Breast and Body Prioritisation Tool would most likely determine triaging of breast reduction surgery. The impact of life component of the tool was seen as a significant benefit compared to the current stratification tools. Additionally, all centres appreciated the greater spread of scores obtained with the new tool.

Discussion

What the survey results mean to a patient with macromastia is that without any change to the severity of their condition or health, the chance of their referral progressing through to surgical treatment is likely to vary a huge amount from year to year. Similarly, a move to another region will also result in much variation. This is despite the departments utilising similar indications for surgery.

The survey illustrated the marked variation in service provision depending on geographical location and time, and the resultant inequity that currently exists in our public health system. The Ministry of Health Breast and Body Prioritisation Tool, if adopted nationally, we expect would improve equity of access.
It is of interest to compare local circumstances with the global situation in respect to patient prioritisation for reduction mammoplasty and resource provision.

In the United Kingdom, the NHS and British Association of Plastic Surgeons produced national guidelines, which the Primary Care Trusts could adapt for local implementation in 2005. Indications for surgery were neck ache, backache and/or intertrigo, and a BMI less than 30. In 2007, only 11 of 303 were accurately following the guidelines.

Almost two-thirds of Trusts had stipulated a maximum BMI (ranging from 25 to 32), and a similar number accepted musculoskeletal symptoms as an indication. Many Trusts included further restricting criteria, which weren’t in the recommended guidelines, and 21 Trusts indicated they would not normally fund the operation. This study showed that despite agreed national guidelines, there was considerable variation in local funding criteria for breast reduction.\

It is disheartening that these findings followed a sentinel study published in the BMJ in 1996, examining whether breast reduction surgery should be rationed, and by what means. It wholeheartedly supported the inclusion of breast reduction surgery in NHS purchasing contracts, yet debate continues years later, and the discrepancies in access are as significant as they have ever been.

The European publically funded health system is not too dissimilar to our own. An internal market results in so called ‘cosmetic’ operations, such as breast reduction, being increasingly pushed from the repertoire due to rationing pressures.

In Finland, breast reduction operations are covered in the public system provided certain criteria are met, including physical measurements, neck and shoulder symptoms, and performance limitations. Barriers to access persist though, in that operations regarded as functional, reconstructive or therapeutic warrant public financing, but breast reduction, which is often considered aesthetic, does not. Consequently, many patients who wished to have a reduction were not referred to a plastic surgical consultation.

Healthcare resources in the United States are almost exclusively available to those with private insurance, and there is significant policy variation in regards to coverage of reduction mammoplasty. The majority of third party payers are amenable to paying for futile alternate treatment options, such as physical therapy, special brassieres, and weight loss programmes, although there is much greater resistance when it comes to covering the costs of the proven treatment, in the form of surgery. A study conducted in 2007 reviewed the criteria for different medical policies in regards to their coverage of breast reduction surgery. It acknowledged that insurance companies would evaluate the medical necessity of surgery based on internal company medical policies, which often seemed ill informed, and lacking of any scientific basis.

Of the 90 insurance companies medical policies reviewed, in most, the policies were arbitrary with little support from the literature. Common determinants of surgical cover in the policies were weight of breast tissue resection, symptom presentation, failed trial of conservative therapy, obesity, and mammography requirements.
evidence supporting these determinants was at best scant, at worst often to the contrary.11–16

As a result, women have been denied insurance coverage for a medically necessary procedure, which would have provided them with significant quality of life benefits. Thus both publically and privately funded, access to reduction surgery is difficult.

Conservative measures, such as weight loss regimes and special brassieres are not successful for treatment of macromastia.8,10 Alleviation of symptoms is solely achieved with surgical management, and so reduction mammoplasty is analogous to joint replacement and cataract surgery. These are chronic diseases whose only definitive management is surgical.

Breast reduction surgery is an example of access to treatment for a chronic condition in New Zealand—particularly timely given the recent New Zealand Medical Journal article entitled ‘Unwarranted variation in healthcare organization and practice for long-term conditions’17. Evidence of the effectiveness of breast reduction surgery is compelling. Many outcome studies, using a variety of different measures, show clear quality of life gains in women who have had a reduction mammoplasty.

Disproportionately large breasts cause both physical and psychosocial symptoms. Commonly reported physical symptoms include headache, upper and lower back pain, neck pain, shoulder pain, arm pain, hand numbness or pain, painful bra-strap grooving of the shoulders, and intertrigo.

Psychosocial symptoms include difficulty in participating in sports and running, difficulty finding clothes to fit, very expensive underwear and swimwear, discomfort sleeping, being subject to embarrassing comments and scrutiny, low self-esteem, self-consciousness, intimacy issues, feelings of unattractiveness, depression, and anxiety in social situations.

Numerous quality of life studies have examined the changes following breast reduction surgery.18–24 Most utilised the Health Survey Short Form 36 (SF-36) and the Rosenberg Self-esteem Scale in conjunction with other assessment tools, including customized breast symptom questionnaires.

All studies, irrespective of which health outcome measures were used, reported improvements in health related quality of life in both physical and psychosocial spheres postoperatively compared with pre-operative assessment. These health gains are maintained well into the future.25

The Health Utilities Index Mark 3 score evaluates the effect of different ailments on quality of life. In this tool, 1.0 is equal to perfect health. Breast reduction candidates pre-operative score was 0.76; for age matched non-institutionalised women in the general population of Canada, it was 0.93. Twelve months following breast reduction surgery, the score increased to 0.89.

Living with breast hypertrophy confers a significant reduction in quality of life compared to the age-matched norm, comparable to some other serious health
conditions, such as moderate angina (0.90), and kidney transplant (0.84). Other chronic diseases mean utility scores were: stroke 0.68, asthma 0.86, arthritis 0.78, back problems 0.81, diabetes 0.79, heart disease 0.77, and epilepsy 0.78.¹⁶

A phenomenological study examining women’s perception of life following breast reduction found four themes that emerged—enhanced physical health, increased self-esteem, self-confidence, and improved body image.²⁷ No studies found evidence to the contrary.

One can prioritise rigorously within a specialty, but what is often of greater relevance is a comparison between specialties, when establishing equity of resources and maximization of benefit. Examination of quality of life gains achieved, where quality of life is impacted by the severity of the pre-operative condition and the subsequent improvement from surgery, enables this comparison.

Saariniemi et al²⁸ published an article in 2008, which directly compared breast reduction with large joint arthroplasty in Finland, where musculoskeletal disorders are associated with the greatest loss of quality of life among 29 chronic conditions. The 15D quality of life index was used, which assesses 15 different health dimensions including breathing, mobility, vitality and distress. The health deficit in those waiting for breast reduction was comparable to that of patients awaiting major joint arthroplasty.

Postoperatively, both reduction mammaplasty and total hip replacement gave a greater improvement in health-related quality of life than total knee replacement. Furthermore, it highlighted that breast hypertrophy tends to affect a younger demographic, ultimately resulting in patients following reduction having a cumulatively greater improvement in health-related quality of life than those after major joint replacement. There is potential for greater disability if definitive treatment is delayed, so the aim should be early intervention, and consequently an increased number of illness-free and illness-reduced life years.

The SF-36 is one of the more widely used tools to assess quality of life, and a point of reference when comparing different operations from different specialties. The eight subscales examined are physical functioning, role physical, bodily pain, general health, energy and vitality, social functioning, role emotional, and mental health.

Following cataract surgery, the SF-36 found a statistically significant improvement in the mental health subscale only in one study;²⁹ a second study showed an improvement in visual symptoms, but no difference in any SF-36 subscale post-operatively.

Total hip joint replacement results in clear improvement in quality of life. Most studies have found an improvement in at least half of the eight SF-36 subscales.³⁰–³⁵ These results following THJR are comparable, or slightly less than quality of life improvement following breast reduction. Less research has been published looking at outcomes following total knee joint replacement.

Those utilizing the SF-36, found an improvement in less than half of the subscales.³⁶–³⁹ Two further papers were identified which compared quality of life outcomes between hip and knee arthroplasty. Their findings were consistent with other
literature, that, total hip arthroplasty confers superior short-term outcomes when compared with total knee arthroplasty, and total knee replacement patients experience a significantly poorer functional outcome than total hip replacement patients 5 to 8 years postoperatively. Joint replacement procedures have a major positive impact on pain in the actual joint, but improvement is less in other dimensions of health.

A Finnish study has reported that the cost per quality adjusted life year following breast reductions is similar to that following hip replacement.

Clearly symptomatic breast hypertrophy is a significant health burden, and the evidence that reduction mammoplasty successfully relieves the symptoms of breast hypertrophy is consistent. There is no basis for macromastia to be considered a cosmetic condition. Quality of life improvement measures show that breast reduction surgery effectively relieves a substantial health burden for these patients. This should be the basis of prioritisation of patients for access to healthcare.

In recent years, the Ministry of Health has developed a Clinical Prioritisation System for Breast and Body Surgery, with the aim of creating a reproducible method of triaging many conditions referred for Plastic and Reconstructive Surgery. It is a simple tool, covering conditions as diverse as post-massive weight-loss surgery, breast hypertrophy, breast reconstruction, and soft tissue disease such as neurofibromatosis.

An ‘Impact on Life Questionnaire’ is completed by prospective patients, assessing their difficulty with social interaction, personal interaction, personal care, personal safety, and leisure activities. Based on their responses, a score is calculated. Further scores are yielded from predicted degree of reversal of impact on life, risk of complications/adverse effect of the surgical procedure, and likelihood and degree of avoidable developmental and/or psychosocial consequence of delaying surgery.

The scores are added to obtain a total, which facilitates triage. A benefit of this, is you would expect that those most debilitated by their disease would receive a higher total score, and gain access to surgery. An advantage of this approach is that different conditions are triaged using the same methodology—i.e. it is a patient-centered approach rather than a condition-centered approach. A disadvantage is that conditions are compared within a single specialty, and not compared with conditions treated by other specialties.

We would encourage private health funders to consider surgical conditions in the same way. The development of evidence-based criteria for defining medical necessity may simplify the process of insurance coverage, and add a measure of consistency and predictability, which until recent years has been lacking. Acknowledgement that macromastia is a chronic health burden, which can be remedied with surgery, greatly improving quality of life will result in fairer access for patients.

Future demand for health services will result in a greater number of patients going without surgical treatment. The challenge for the sector is to ensure that patients are treated fairly, irrespective of their particular condition.
Conclusion

Doctors can reduce the increasing dissatisfaction by steadily improving equity of access to treatment. We have demonstrated that we have a long way to go for those suitable for breast reduction surgery. Firstly, there is significant geographical and yearly variation in service provision nationally for the procedure. Secondly, there is substantial evidence that the quality of life gains for reduction mammaplasty are at least equivalent to those for other surgical conditions whose procedures are more readily available. Therefore, a patient presenting today faces inequity in access when compared with others with the same condition (macromastia), based on time and geography, and also between conditions treated by other specialties.

The Ministry of Health Prioritisation Tool should address the first discrepancy, if nationally adopted, and reduce variation in access within the specialty based on time and geography. The greatest challenge is the development of equity in access across surgical conditions from different specialties, so that those operations with the greatest quality of life gains are those most available to patients.

Patients have not been getting fair access to breast reduction surgery based on the year that they are referred, the region in which they live, nor their condition. Steps are being taken to reduce variation in prioritisation within plastic surgical conditions nationally, however without addressing the inequity between health conditions, these steps will provide little benefit to women with macromastia.

Competing interests: Nil.

Author information: Eloise E Dickie, Surgical Registrar, Christchurch Hospital, Christchurch; Jeremy W Simcock, Senior Lecturer, Department of Plastic and Reconstructive Surgery, University of Otago, Christchurch Hospital, Christchurch

Correspondence: Jeremy Simcock, Department of Plastic and Reconstructive Surgery, Christchurch Hospital, Private Bag 4710, Christchurch, New Zealand. Email: Jeremy.simcock@cdhb.health.nz

References:


