Eastern Health

Clinical Practice Guidelines – Breast Disease Site

Guideline Title:	Recommendations for Use of Immediate Breast Reconstruction in Early-Stage Breast Cancer	**Date:**	**(O):** **(R):**	June 30, 2011
Tumor Group:	Breast Disease Site Group	**Page:**		1 of 8
Issuing Authority:	Dr. Rod Martin Clinical Chief, Surgery, Eastern Health	**Date Signed:**		**August 20,2012**
Adapted From	National Institute for Health and Clinical Excellence (NICE) CG 81 "Early and locally advanced breast cancer: Diagnosis and treatment", February 2009 (51).			

Introduction:

Immediate breast reconstruction (IBR) has become increasingly more available, both in terms of access and the expansion of the suitability criteria. There are arguably several reasons for advocating for IBR such as potentially reducing the need for multiple surgeries, decreasing cost, improving cosmetic outcome and lessening psychological morbidity (1-6). Controversy still remains however, regarding the oncological safety and the patient selection criteria for the procedure. The difficulties between oncological and reconstructive intervention begins with the lack of reliable evidence from randomized controlled trials, which from an ethical standpoint, will likely remain so. The alternative is to rely on comparative, observational and retrospective data, which even when the basis of oncological safety is satisfied, still encourages a more cautious and conservative approach to patient eligibility criteria for IBR.

The use of both systemic and loco-regional adjuvant treatment is derived from a large base of evidence from randomized controlled trials, which define the risks and benefits to a patient population. The threat to oncological safety may be the impact of breast reconstruction on the disease-related outcomes and/or its potential interaction with proven adjuvant oncological interventions, such as chemotherapy and radiation therapy. To try and determine if immediate breast reconstruction is indeed oncologically safe, the evidence will be examined for recurrence risk, detection of recurrences, complications of IBR, and the impact of IBR on the initiation and morbidity of chemotherapy and radiotherapy adjuvant treatments.

Questions:

1. Does the evidence support the oncological safety of immediate breast reconstruction?

2. What are the recommendations for patient selection criteria for the use of immediate breast reconstruction in early-stage breast cancer within Eastern Health?

Target Population:

The recommendations are aimed toward patients who have been diagnosed with early-stage cancer of the breast and meet the selection criteria for immediate breast reconstruction.

Supporting Evidence and Recommendations:

Several studies have shown the psychological benefits of IBR by helping patients recover an acceptable body image and re-establish 'psychological equilibrium' (1-5). Nevertheless the primary focus should always be on the treatment of the patient's cancer, and such treatment should not be compromised when decisions regarding breast reconstruction are made (7). The oncological safety of IBR has been studied of late, in terms of local and distant recurrences, breast cancer specific deaths and esthetic results (6-10).

- *Recurrence* – Evidence suggests that there is a low incidence of local recurrences after skin-sparing mastectomy (SSM) and IBR, and appears to be more closely associated with advanced disease at presentation (11-17). A study at M. D. Anderson Cancer Center, over a ten year period, found that a local recurrence rate of 2.3% in patients who had undergone IBR. Most local recurrences were found in the skin or subcutaneous tissue (72%), with the remainder (28%) were found in the "chest wall" (15). Also, the majority of patients who recurred locally did so in the same quadrant of their primary breast cancers (16).

Recommendations: Though recurrences are rare in early breast cancer, it still remains a risk. The present practice in the province of Newfoundland and Labrador is not to screen the reconstructed breast. Physical clinical exam is the best follow-up tool for detecting skin recurrences since most are detected this way. Though if symptoms warrant, breast magnetic resonance imaging can be performed on a case-by-case basis to assess for chest wall recurrences.

- *Complications* – The evidence suggests that IBR is associated with significantly higher complication rates than delayed procedures, and that procedure type had no significant effect on complication rates (18-20). The most frequent complications of IBR include seromas, hematomas, skin problems (defined as 'wound dehiscence and all ischemic skin changes ranging from epidermolysis to full-thickness skin flap necrosis) and infection. Several studies have also identified patient related characteristics that may influence the risk of post op complications (18-22). These risk factors include:
  - age (increased age over 43 years elevates the risk)
  - smoking habits
  - BMI (body mass index)
  - overall general health.

A more recent American study concluded that autologous tissue reconstruction (ATR) can be performed immediately or delayed with optimal aesthetic outcome and low flap loss risk (22).

Recommendations: There is enough evidence to suggest that an increased BMI and a smoking history will increase the likelihood of complications, which in turn could affect the reconstruction choices being offered by the plastic surgeon. However, this should not restrict the patient's right to a plastic surgery referral.

- *Delays in adjuvant chemotherapy* **-** The potential for post-IBR complications to create a delay in the delivery of adjuvant chemotherapy, thereby potentially adversely affecting recurrence and

survival rates, remains a cause for concern of patients and oncologists. Though there continues to be no consensus in the literature as to what timeline would constitute an adjuvant treatment delay, many studies use 4 to 12 weeks as an acceptable timeframe to commence chemotherapy. A fairly large retrospective study (2594 patients) from British Columbia, looked at whether time to start adjuvant chemotherapy after curative surgery influences survival in early-stage breast cancer (23). The analysis suggested that adjuvant chemotherapy is equally effective up to 12 weeks after definitive surgery but that relapse-free survival and overall survival appear to be compromised by delays of more than 12 weeks after definitive surgery.

Using these parameters, the available literature claim that complications from IBR did not delay chemotherapy, though there was an increased incidence of wound complications for those who underwent IBR compared to those who did not (24-27). Another study concluded that IBR after neoadjuvant chemotherapy did not delay the start of adjuvant chemotherapy and had no significant effect on local relapse-free and distant disease-free free survival (28). While another indicated that IBR did not delay the administration of high-dose chemotherapy (29).

Recommendations: Significant underlying co-morbidities, such as elevated BMI, smoking history, heart disease, diabetes, etc… are prevalent in this province's breast cancer patient population. All of which can predispose these patients to complications and poor wound healing, causing treatment delays that could potentially risk the efficacy of the adjuvant chemotherapy. This is potentially riskier for younger women since they tend to have more aggressive tumor biology, which in turn is more likely to warrant the need for chemotherapy. The consensus of the working group was to present candidates, that surgeons and plastic surgeons felt were eligible for IBR, to a multidisciplinary tumor board. The group recommended having available the estrogen and progesterone receptor status and Her2 neu status on the tumor biopsy specimen. Following the initial biopsy, the surgeon would order these tests when filling out the pathology requisition, with the knowledge that these results are not always pathologically reproducible. The results would provide vital information which would allow prediction with greater accuracy, those patients likely to require chemotherapy, and thereby, possibly allowing more patients the option of IBR (30).

- *Radiation* **-** The desirable advantage of IBR to plastic surgeons, in the absence of radiation therapy, is the preservation of larger native breast skin flaps and the natural inframammary fold which provides a better aesthetic outcome (31). Radiation-induced changes to the breast, however, are one of the greatest obstacles faced when breast reconstruction is performed. Radiation results in deformation of the parenchyma, leading to retraction, fibrosis, vasculitis, and skin breakdown. Wound healing is also inhibited and the vascular supply is impaired (32).

A systematic review of the available data on ATR and the optimal timing of radiation therapy found that radiation had a 'deleterious' effect on the reconstructed breast and advised delayed reconstruction as the safer option (33). Other studies, including a literature review by the M.D. Anderson Cancer Center, all conclude that the optimal approach is for patients who are to receive, or have already received post-mastectomy radiation therapy, is delayed breast reconstruction (34-36). In general, however, radiation therapy increases complications in both immediate and delayed reconstruction, with its effects more pronounced in implant-based reconstruction.

In 2004, Health Canada's Canadian Breast Cancer Initiative recommended post-mastectomy radiation therapy for breast cancer patients with advanced disease described as T3 or T4 tumors or at least 4 positive axillary nodes (37). However, mature data suggests that post-mastectomy radiation therapy may also decrease the risk of loco-regional recurrence in patients with T1 or T2 tumors and one to three positive axillary lymph nodes as well (38). Independent predictors of loco-regional recurrence, even in patients with one to three nodes, were found in a University of Texas, M. D. Anderson Cancer Centre study to include extranodal extension of a least 2 mm, fewer than 10 nodes excised, and a tumor size greater than 4 cm (39). A BC Cancer Agency study, of patients with T1 and T2 tumors with one to three positive nodes, showed that age younger than 45 years, more than 25% of excised nodes positive, and estrogen receptor-negative status were significantly associated with loco-regional recurrence risk greater than 20% (40). Therefore, not only will the number of patients receiving post-mastectomy radiation therapy increase, but determining who is a candidate for IBR becomes more complicated as well.

To further confuse the issue, conflicting evidence has been presented as to the oncological efficacy of radiation therapy following IBR. Some retrospective data suggests that IBR compromises the radiation delivery to the chest wall (41-45), while other newer studies suggest that acceptable 5-year loco-regional control, distant metastases-free survival and overall survival have been achieved (46,47).

Recommendations: Radiation may affect the cosmetic outcome of the reconstructed breast, no matter the technique and therefore reconstruction should be performed after radiation therapy where possible. The group felt the most appropriate approach was to present all candidates for IBR with biopsy proven invasive cancers to a multidisciplinary tumor board, where consensus can be obtained on the best possible course of treatment for the patient. All pertinent tumor information should be available to allow for informed discussion and decision making.

Recommendations for Patient Selection Criteria

1. All patients who require a mastectomy should be informed of the availability of breast reconstruction provided by a plastic surgeon and/or surgeon.
2. Immediate breast reconstruction is a specialized procedure that should be available to patients requiring prophylactic mastectomy due to genetic risk and patients with in situ disease.
3. Patients with early, low-risk invasive breast cancers may also be candidates for immediate breast reconstruction.
4. Delayed breast reconstruction is the optimal choice for patients who require radiation therapy.
5. Patient preference must be considered, as well as any pre-existing co-morbidities of the patient.
6. All candidates for IBR with biopsy proven invasive breast cancer should be presented at a multidisciplinary tumor board, where consensus can be reached on the acceptable treatments options for the patient.

Search Strategy:

Literature searches for this guideline were conducted in Pubmed, CINAHL, and the Cochrane Library and using keywords “immediate breast reconstruction” AND “breast” AND “neoplasms” and also “guidelines”. Guideline searches were also carried out on the websites of the world’s most highly respected cancer organizations and agencies. All selected literature articles and source guidelines were in English and dated after the year 2000 (unless the selection was a landmark study) up to September 2011.The inclusion/exclusion process consisted of selecting source guidelines from reputable international cancer organizations, with preference given to those from Canadian sources where possible. Seven source guidelines were identified and conformed to our search criteria (48-54), from which five were selected due to currency of content.

The five identified source guidelines (50-54) were put through the ADAPTE process (55), including an AGREE II assessment (56), and the National Institute for Health and Clinical Excellence, “early and locally advanced breast cancer: diagnosis and treatment” guideline was chosen to be adapted for use in our guideline (51). The NICE guideline was selected as the optimal choice due to its applicability, quality and currency of content. Note: ‘This adaptation has been produced with permission of NICE. However, NICE has not checked the adaptation to confirm that it accurately reflects the original publication and no guarantees are given by NICE in regard to the accuracy of the adaptation. The NICE guidance that this adaptation is based upon was prepared for the National Health Service in England and Wales. NICE guidance does not apply to Canada and NICE has not been involved in the development or adaptation of any guidance for use in Canada.’

There has been much debate but no consensus on the ‘grading of evidence’ in Canada. Presently, Canadian experts in the field of guideline development are involved in an ongoing in-depth analysis of the functionality of grading. Until such time as a report is released of their findings, and a consensus reached on whether to assign a grade of recommendation to a guideline, this group has decided to forgo the use of grading.

No competing or conflicts of interest were declared.

Disclaimer:

These guidelines are a statement of consensus of the Breast Disease Site Group regarding their views of currently accepted approaches to diagnosis and treatment. Any clinician seeking to apply or consult the guidelines is expected to use independent medical judgment in the context of individual clinical circumstances to determine any patient’s care or treatment.

Contact Information:

For more information on this guideline, please contact Dr. Joy Cluett MD FRCPC, Health Science Center, St. John’s, NL; Telephone 709-753-4600. For access to any of our guidelines, please visit our Cancer Care Program website at www.easternhealth.ca

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