

Oncology Clinical Service Line  
 System-wide Consensus Guidelines:  
**Whole Breast Hypofractionation**

These guidelines apply to clinical interventions that have well-documented outcomes, but whose outcomes may not be clearly desirable for all patients.

Reference #: SYS-PC-OCSL-CG-006

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**Approval By: Allina Health Quality Council**

**System-wide Ownership Group:** Allina Health Breast Cancer Program Committee

**System-wide Information Resource:** Manager of Clinical Programs

Hospital Division Quality Council: February 2018
<b>Stakeholder Groups</b>
Virginia Piper Cancer Institute Clinical Service Line

**SCOPE:**

<b>Sites, Facilities, Business Units</b>	<b>Departments, Divisions, Operational Areas</b>	<b>People applicable to</b>
Allina – all facilities that care for breast cancer patients; Abbott Northwestern Hospital, Buffalo Hospital, Cambridge Medical Center, District One Hospital, Mercy Hospital, Mercy Hospital – Unity Campus, River Falls Area Hospital, Regina Hospital, St Francis Medical Center, United Hospital	Breast Surgery Medical Oncology Radiation Oncology	MDs Advance Practice Providers

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**PICO (TS) Framework:**

**Patient Population:** Women aged  $\geq 50$  with early stage invasive breast cancer (T1, T2, N0) undergoing breast-conserving therapy and have not had chemotherapy.

**Intervention:** Discussion with Radiation Oncologist regarding pros and cons of radiation options

**Comparison:** NA

**Outcomes:** Patients, when appropriate, given the opportunity to choose

**Timing:** Prior to starting radiation

**Setting:** Outpatient radiation oncology

**CLINICAL PRACTICE GUIDELINES:**

Women aged  $\geq 50$  with early stage invasive breast cancer undergoing breast-conserving therapy should have a discussion with their radiation oncologist regarding the pros and cons of a hypofractionated course of radiation vs. a conventionally fractionated regimen.

**SUPPORTING EVIDENCE:**

Based on randomized trials, standard treatment after breast conservation surgery has included adjuvant whole breast radiation with a conventionally fractionated regimen which typically includes daily fraction sizes of 1.8-2.0 Gy in 25 to 28 fractions +/- a lumpectomy bed boost consisting of an additional 5-8 fractions. (1, 2)

Conventionally fractionated radiation has traditionally been given with the thought that small daily fractions will lower the risk of late normal tissue toxicity. Despite the large body of data showing its proven effectiveness and safety, there are drawbacks to conventionally fractionated breast radiation including long treatment course of 5-6.5 weeks as well as cost of treatment. (5)

Recent studies have demonstrated equivalent tumor control and cosmetic outcome in specific patient populations with shorter courses of radiation. To date there have been at least 6 randomized clinical trials comparing hypofractionated whole breast radiation to conventionally fractionated whole breast radiation including the following: Hospital Necker, Queen Elizabeth, Canadian, Royal Marsden Hospital/Gloucester Oncology Center and START A and B. (1, 4)

Based on the available evidence, an ASTRO task force came up with guidelines in 2011 stating that evidence supports the equivalence of hypofractionated whole breast irradiation with conventionally fractionated whole breast radiation for patients who satisfy all of the following criteria.

1. Patient is 50 years or older at diagnosis
2. Pathologic stage is T1-2 N0 and patient has been treated with breast-conserving surgery
3. Patient has not been treated with systemic chemotherapy
4. Within the breast along the central axis, the minimum dose is no less than 93% and maximum dose is no greater than 107% of the prescription dose (+/-7%); (as calculated with 2-dimensional treatment planning without heterogeneity corrections) (3)

The task force agreed that the heart should be excluded from the radiation fields and that caution should be exercised for certain subsets of patients not well-represented in these groups including those with the following features:

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- high grade tumors
- left-sided tumors
- DCIS
- those who may benefit from a tumor bed boost

The ASTRO (American Society for Radiation Oncology) Choosing Wisely campaign released a statement regarding hypofractionated radiotherapy in 2013 stating “Don’t initiate whole breast radiotherapy as part of breast conservation therapy in women  $\geq 50$  with early stage invasive breast cancer without considering shorter treatment schedules.” (3)

The ASTRO task force concluded that the data support the non-inferiority of hypofractionated whole breast radiation as compared to conventionally fractionated whole breast radiation in a subset of patients with early stage breast cancer meeting all of the criteria listed above. They also acknowledged that patterns of practice may differ substantially between radiation oncologists, and that for patients who do not meet the aforementioned criteria, conventionally fractionated radiation is appropriate based on the long-term data. (3)

#### **DEFINITIONS:**

**Standard radiation treatment** is when the total dose of radiation is divided into small doses and treatments are given once a day or less often.

**Hypofractionated radiation** therapy is when the total dose of radiation is divided into higher doses and given over a shorter period of time (fewer days or weeks) than standard radiation therapy. The total radiation dose is the same with either regimen.

**SPECIAL ENTITIES:** N/A

**FORMS:** N/A

**ALGORITHM:** N/A

**ADDENDUM:** N/A

#### **Plan for Monitoring and Adherence:**

**Who** will be measured for guideline adherence?

- Physicians

**Where** is the data located?

- EDW/ERS

**How** will the guideline adherence be monitored?

- It will be monitored through the Breast Program Committee

**What** will be measured?

- % lumpectomy patients receiving hypofractionated radiation therapy per site

**When** will adherence data be collected?

- Measure will continue to be monitored annually at minimum

**REFERENCES:**

1. Haviland, Joanne S et al: The UK Standardisation of Breast Radiotherapy (START) trials of radiotherapy hypofractionation for treatment of early breast cancer: 10-year follow-up results of two randomised controlled trials. The Lancet, Vol 14, 2014
2. National Comprehensive Cancer Network Guidelines Version 3.2014. [www.NCCN.org](http://www.NCCN.org)
3. Smith, Benjamin D et al: Fractionation for whole breast irradiation: An American Society for Radiation Oncology (ASTRO) evidence-based guideline. Int. J. Radiation Oncology Biol. Phys., Vol. 81, No. 1, pp. 59–68, 2011
4. Whelan T, MacKenzie R, Julian J, et al. Randomized trial of breast irradiation schedules after lumpectomy for women with lymph node-negative breast cancer. J Natl Cancer Inst 2002;94:1143–1150.
5. Whelan TJ, Pignol JP, Levine MN, et al. Long-term results of hypofractionated radiation therapy for breast cancer. N Engl J Med 2010;362:513–520.

**Alternate Search Terms:** N/A

**Related Guidelines/Documents**

Name	Content ID	Business Unit where Originated
N/A		

**Guidelines/Documents Replacing**

Name	Content ID	Business Unit where Originated
N/A		

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