

Axillary Management for Patients With In-Situ and Invasive Breast Cancer: A Concise Overview

Purpose

To outline axillary management of patients with in situ and invasive breast cancer.

Associated ASBrS Statements, Guidelines, or Quality Measures

1. Consensus Statement: Consensus Guideline on the Management of the Axilla in Patients With Invasive/In-Situ Breast Cancer – *Approved September 19, 2019*
2. Performance and Practice Guidelines for Sentinel Lymph Node Biopsy in Breast Cancer Patients – *Revised November 25, 2014*
3. Performance and Practice Guidelines for Axillary Lymph Node Dissection in Breast Cancer Patients – *Approved November 25, 2014*
4. Quality Measure: Sentinel Lymph Node Biopsy for Invasive Breast Cancer – *Approved November 4, 2010*
5. Resource Guide: Technical Considerations for Axillary Surgery in Breast Cancer Patients- *Anticipate approval May 2025*

Methods

A literature review inclusive of recent randomized controlled trials evaluating the use of sentinel lymph node surgery and axillary lymph node dissection for invasive and in-situ breast cancer as well as the pathologic review of sentinel lymph nodes and indications for axillary radiation was performed. This is not a formal systematic review but rather, a comprehensive review of recent relevant literature. A focused review of non-randomized controlled trials was then performed to develop consensus guidance on management of the axilla in scenarios where randomized controlled trials data are lacking. The ASBrS ALND Work Group developed a consensus document, which was reviewed and approved by the ASBrS Board of Directors on March 14, 2022. In 2025, the ASBrS Critical Writing, Editing, and Review Committee (CWERC) updated this resource guide, which was further revised after membership comment and approved by the ASBrS Board of Directors.

Summary of Data Reviewed

Background

Axillary management for breast cancer has become increasingly complex and often requires multidisciplinary discussion. The surgical oncologist can offer sentinel lymph node (SLN) surgery vs axillary lymph node dissection (ALND) vs omission of surgical axillary staging. The medical oncologist has many choices for systemic therapy, adjuvant and neoadjuvant. The radiation oncologist can offer partial versus whole breast radiation therapy (RT) versus no RT after breast conserving surgery, chest wall RT versus no RT after mastectomy, and decide whether or not to include nodal field RT (RNI).

Progress in each subspecialty compounds complexity, with advances in systemic therapy and RT allowing selective de-escalation in the extent of surgery. Finally, clinicians must draw on extensive literature comprising retrospective studies, randomized controlled trials (RCTs), systematic reviews, and meta-analyses.

Many ASBrS Official Statements (Consensus Guidelines, Quality Measures, and Performance and Practice Guidelines) address the axilla. Here, the objective was to provide a single “Quick Access” position statement combining all of these and outlining clinical indications, a departure from our usual guideline process. This document was further updated in 2025 to reflect new literature on the topic and transitioned to an ASBrS Resource Guide to align with society resource definitions.

Similar to earlier ASBrS guidelines on axillary management, we did not aim to satisfy the demanding requirements of formalized guideline development, and to this end, provide links to the recent and comprehensive ASCO Guideline and 2025 SLNB Update¹ for a deep dive into the topic.² We aimed to provide a practical, data-based, and concise summary of the current literature and an outline of our group consensus on axillary management (no axillary surgery vs SLN surgery vs ALND). Consistent with the American College of Surgeons Commission on Cancer standards, shared decision-making with patients is supported in all treatment decisions.^{3,4} This document is therefore not intended to be prescriptive; there is room for multidisciplinary collaboration and patient-centered care throughout. Additionally, a limitation to the present document is that these guidelines apply to highly resourced settings and we acknowledge that not all resources discussed here may be available to those practicing in less resourced environments.

Recommendations

A. Ductal Carcinoma In Situ (DCIS)

Indications for no surgical axillary lymph node staging

1. Pure DCIS undergoing breast-conserving surgery (BCS).
 - Patients with DCIS and no pathologic suspicion of invasion do not require surgical axillary staging.^{5,6} The overall risk of nodal metastasis for DCIS alone is approximately 1-2%,^{7,8} While upstage to invasive cancer occurs in 7-28% of cases, clinical variables associated with increased risk of upstage at surgery for DCIS have varied between retrospective studies without clear consensus.⁹⁻¹² Thus, no axillary surgery is recommended at initial BCS for DCIS; delayed SLN surgery can be performed if necessary for invasive cancer upstage on surgical pathology. However, when large oncoplastic procedures are performed that would compromise future SLN mapping, up-front SLN surgery can be considered (see #3 below in “Indications for SLN surgery”).

Indications for sentinel lymph node (SLN) surgery

1. DCIS requiring mastectomy, undergoing excision in anatomic location compromising future SLN surgery mapping, or with pathologic suspicion of invasion.
 - SLN surgery should not be performed for biopsy-proven DCIS treated with breast-conserving surgery unless there is pathologic concern for invasion or micro-invasion, or discordance between clinical presentation and pathology.¹³
 - Upfront SLN surgery can be considered for DCIS undergoing large oncoplastic procedures and is common practice for DCIS undergoing mastectomy due to the concern for failure of delayed SLN surgery mapping should upgrade to invasive cancer be found on surgical pathology.^{14,15}
 - Another option to facilitate delayed SLN surgery for DCIS upgraded to invasive cancer after mastectomy is pre-operative injection of superparamagnetic iron oxide (SPIO). With this technique, mapping occurs when lymphatics are intact at initial surgery and SPIO remains detectable in SLNs for up to 30 days. SPIO can be combined with other tracers to facilitate SLN identification in these settings.^{16,17}

B. Invasive Disease Undergoing Upfront Surgery

Indications for no surgical axillary lymph node staging

1. ≥ 70 years of age with cT1N0 hormone receptor positive (HR+) breast cancer undergoing BCS.¹⁸
 - 62% of patients in the CALGB 9343 RCT did not have surgical axillary staging and only 3% developed axillary recurrence. This trial is the basis of the SSO Choosing Wisely guideline recommendation against routine SLN surgery in patients age 70+ with HR+/HER2- invasive breast cancer, which is also an American College of Surgeons Commission on Cancer quality measure.^{18,19}
 - This recommendation is further supported by several clinical trials which showed no significant difference in overall survival or breast cancer-specific survival when axillary surgery was omitted in women >70 years old with early stage HR+ breast cancer and clinically negative axillae treated with primary breast surgery and adjuvant endocrine therapy.²⁰⁻²²
2. *Consider* omission of surgical axillary staging in postmenopausal patients >50 years old with HR+/HER2- cT1N0 grade 1-2 invasive ductal breast cancer, a negative axillary ultrasound (or one suspicious node with FNA/core needle biopsy benign and concordant) and treated with BCS followed by adjuvant radiation.
 - In the INSEMA international, prospective, randomized non-inferiority trial 5-year invasive disease-free survival and 5-year overall survival were similar in the no axillary surgery vs. SLN surgery groups (91.9% vs. 91.7% iDFS and 98.2% vs. 96.9% OS). Axillary recurrence rates and distant metastasis were low and similar between groups.²³
 - With a similar design, the SOUND trial also found that omission of axillary surgery was non-inferior to SLN surgery for 5-year distant DFS (98.0% vs. 97.7%), overall DFS (93.9%

vs. 94.7%), and overall survival (98.4% vs. 98.2%). Further, adjuvant treatments were not different between study groups regardless of whether pathological information from SLN surgery was available.²⁴

- Acknowledging that the majority of patients in both the SOUND and INSEMA trials were treated with WBRT, and that patients with invasive breast cancer enrolled in the RCTs of APBI were required to have axillary lymph node sampling, evidence supporting the safety and utility of APBI when surgical axillary staging is omitted is currently lacking. However, the low likelihood of nodal involvement in those satisfying criteria for SLN surgery omission in SOUND, INSEMA, and Choosing Wisely guidelines also suggests that this patient population may be suitable candidates for APBI. Furthermore, extrapolating from the PRIME II trial and CALGB 9343, for patients ≥ 65 years of age, radiation therapy can be omitted in patients committed to endocrine therapy without compromising overall survival, though local recurrence rates are slightly higher ($\sim 9\%$).²⁵
- While SOUND and INSEMA enrolled patients of all ages and receptor subtypes, the findings best support the safety of omitting axillary surgery in post-menopausal women with HR+/HER2- cT1N0 grade 1-2 invasive ductal breast cancer* and negative axillary ultrasound evaluation. While longer follow-up is needed to assess late recurrences, this approach can be carefully considered in the context of multidisciplinary discussion when axillary pathology will not affect adjuvant treatment (i.e. de-escalation of radiation, indications for systemic therapy), and is supported by the 2025 ASCO Guideline Update on SLNB in Early-Stage Breast Cancer.²

* Please note that invasive lobular carcinoma and other histologic subtypes were underrepresented in these RCTs.

Indications for sentinel lymph node (SLN) surgery

1. cT1mi-3N0 (palpably node-negative) cancer with normal axillary imaging
 - While indications for SLN surgery are evolving, it remains an important staging tool for many patients with cN0 breast cancer. Patients in whom surgical axillary staging can be omitted are discussed above.
 - As ACOSOG Z0011 required no palpable axillary adenopathy but not negative axillary imaging, SLN surgery can be considered even if a previously non-palpable, image-detected node was found to contain metastasis.^{26,27} (see #3 below).
 - SLN surgery is indicated for patients with TNBC and HER2 positive breast cancer, which have a higher rate of nodal metastasis and were underrepresented in the SOUND and INSEMA trials.
 - SLN surgery for cT3 disease has limited data regarding accuracy in the upfront surgery setting and data is relatively absent for non-inflammatory cT4 tumors, making application

of SLN surgery to these populations controversial. SLN surgery in cT4d (inflammatory) breast cancer remains contraindicated in all consensus guidelines.²⁸⁻³⁰

2. cT1-3N0 (palpably node-negative) cancer with abnormal axillary imaging and/or a positive percutaneous lymph node needle biopsy undergoing BCS
 - About 70% of patients with a normal axilla on physical examination but abnormal axillary imaging - and about 50% of those with a positive FNA/core needle biopsy – will have 1-2 SLN+ and retain the option to avoid ALND.³¹ (see SLN #4 and 5 below)
3. cT1-3N0 (palpably node-negative) cancer having BCT, with 1-2 SLN+, and receiving WBRT, with or without RNI
 - SLN surgery without ALND is appropriate for patients undergoing BCT who meet the entry criteria of the IBCSG 23-01, ACOSOG Z0011, AMAROS and SENOMAC trials and are found to have 1 or 2 positive SLN.³²⁻³⁴
 - In cT1-2 patients with no palpable axillary lymphadenopathy but who are found to have limited axillary involvement on imaging, SLN surgery with pre-operative localization of the most suspicious lymph node may be performed in the upfront surgery setting with omission of ALND if they meet all ACOSOG Z0011 criteria, including having only 1 or 2 positive SLN (including the localized node) on surgical staging.³⁵
 - Although not included in ACOSOG Z0011, the SENOMAC trial included an expanded cT3 cohort and demonstrated the oncologic safety of omitting ALND in patients undergoing BCT in cT3 cancer with 1-2 SLN+.³⁴
4. cT1-3N0 (palpably node-negative) cancer having mastectomy, with 1-3 SLN+, and receiving RNI.
 - Current ASCO and ASTRO guidelines support postmastectomy radiation (PMRT) with regional nodal irradiation (RNI) and omission of ALND in patients with cT1-2 as well as cT3-4c N0 invasive breast cancer who undergo mastectomy and have 1-2 positive SLN(s).² The recent inclusion of cT3-4c tumors was based on results of the SENOMAC trial which included an expanded cT3 cohort, adding to prior trials validating SLN surgery in smaller tumors (including NSABP B-32 and the Milan sentinel node trial).³⁶⁻³⁸ SLN surgery for non-inflammatory cT4 however, has limited data regarding accuracy in the upfront surgery setting and is not recommended by the NCCN. SLN surgery in cT4d (inflammatory) breast cancer remains contraindicated in all consensus guidelines.²⁸
 - SLN surgery without ALND *may* be appropriate for patients undergoing mastectomy with 1-3 positive SLN who meet entry criteria for the AMAROS, OTOASOR, and SENOMAC trials. Omission of ALND with 3 positive SLN should be carefully considered in select patients as the data for 3 SLN+ is sparse: 95% of AMAROS patients had 1-2 SLN+, and only 17% had mastectomy.^{39,40} While over 1/3 of the SENOMAC trial cohort underwent mastectomy, only 2% (52/2540) of patients had >2 SLN+.³⁴
 - When PMRT is not otherwise indicated (T1-2 cancer) and axillary disease is limited to 1-2+ SLN, ALND may still be considered if it will allow omission of PMRT with RNI, and surgery is preferred over radiation in shared decision making with the patient and

multidisciplinary team. In a retrospective study of cN0 mastectomy patients with 1-2+ SLN, 5-year nodal recurrence rates were very low across the groups who received cALND alone, PMRT alone, cALND and PMRT, or no additional axillary treatment.⁴¹

Indications for axillary dissection (ALND)

1. cN0 with positive SLNs and ineligible for IBCSG 23-01/Z0011/AMAROS/OTOASOR
 - In the setting of upfront surgery, ALND is appropriate for BCT patients with >2 SLN+ and for mastectomy patients with >3 SLN+.
 - As above in SLN #5, ALND may be considered for mastectomy patients with 1-2 SLN+ to allow omission of PMRT/RNI when there are no other indications for radiation based on tumor size or clinical features.
2. cN1-3 (palpably node-positive and biopsy-proven) and ineligible for neoadjuvant therapy
 - ALND is appropriate for patients with cN+ disease who are not candidates for neoadjuvant systemic therapy (see ALND #1 above) and are suspected to have higher volumes of nodal disease (i.e. not eligible for SLN #4/5 above).

C. Invasive Disease Undergoing Neoadjuvant Systemic Therapy

Indications for sentinel lymph node (SLN) surgery

1. cN0 (palpably node-negative) cancer post neoadjuvant therapy
 - Upfront image-guided needle biopsy is indicated for any patient with clinical or radiologic suspicion of node metastasis – SLN surgery should not be done prior to neoadjuvant therapy. SLN surgery performs well in the post-neoadjuvant setting, and while axillary US can suggest treatment response, it is not reliable enough to determine the surgical approach. SLN surgery is suitable for patients who were palpably node-negative, or biopsy-proven node-positive upfront, as long as they are palpably node-negative post-neoadjuvant.
 - For patients who were biopsy-proven node-positive upfront, the false-negative rate (FNR) of SLN surgery in ACOSOG Z1071 was minimized by the retrieval of >2 SLN, by dual mapping, and by retrieval of the biopsied/clipped node.⁴² However, if clipping of the nodes and/or retrieval is not performed, SLN surgery with retrieval of 3 or more negative sentinel nodes has been shown to be safe with a low rate axillary nodal recurrence.⁴³
 - Targeted axillary dissection (TAD), which is the combination of SLN surgery and removal of previously biopsied and clipped lymph node(s) with intraoperative localization, can also decrease the FNR for cN1 patients with no palpable axillary disease post-neoadjuvant therapy, with FNRs as low as 6.8% in the subset of the Z1071 patients who had clipped nodes, and 2.0% in the prospective TAD registry at MD Anderson.⁴⁴⁻⁴⁶
 - The data for SLN surgery following neoadjuvant therapy in patients presenting with cN2 disease is sparse – in ACOSOG Z1071, 95% of patients had cN1 disease at

presentation.^{42,44,47-51} (see ALND #1 below)

- Two international prospective clinical trials are investigating whether surgical axillary staging can be omitted in selected cN0 patients treated with neoadjuvant systemic therapy, ASICS and EUBREAST-01. Both are enrolling patients with cN0 HER2+ or TNBC disease who achieve a complete radiographic response in the breast, the population identified as lowest risk for SLN+ disease post-neoadjuvant therapy.^{52,53} In the interim, SLN surgery should be performed in this setting as the estimated FNR was 6% (range 0-33%) in a meta-analysis of 16 studies of cN0 patients who underwent neoadjuvant chemotherapy and SLN surgery followed by ALND.⁵⁴ Techniques to reduce the FNR for cN0 patients are similar to cN+ (i.e. dual tracer mapping and removal of 2 or more SLN).^{55,56}
2. cN0 patients found to be ypN0(i+) on SLN surgery post neoadjuvant therapy
 - For patients with cN0-cN1 disease treated with neoadjuvant therapy who are found to have residual isolated tumor cells only (ypN0(i+)), nodal burden is low and axillary recurrence after ALND omission is rare. ALND may be omitted in this setting with multi-disciplinary discussion regarding implications around other adjuvant therapy decision making, including radiation therapy.⁵⁷

Indications for axillary dissection (ALND)

1. cN0 with SLN+ post neoadjuvant therapy
 - For upfront surgery, the oncologic outcomes of RNI versus ALND for patients with cN0 disease are comparable, with less morbidity for RNI. This has not yet been demonstrated for the post-neoadjuvant setting, and ALND is indicated for patients who are cN0 but SLN+.
 - For patients with cN0-cN1 disease treated with neoadjuvant therapy, ALND is indicated with the findings of residual micrometastasis or macrometastasis.
 - The Alliance A011202 trial (a randomization of patients SLN+ post-neoadjuvant to ALND+RNI vs RNI without additional axillary surgery) evaluating RNI as an alternative to ALND has completed accrual and mature results are eagerly awaited.⁵⁸
 - The ongoing international phase III TAXIS trial investigates whether tailored axillary surgery (TAS), a new technique for selectively removing positive lymph nodes, is non-inferior to ALND for cN+ disease. Patients who receive TAS followed by RNI including the axilla are compared to those who receive ALND and RNI excluding the axilla; outcomes include recurrence rates, disease-free survival, and treatment related morbidity.⁵⁹
2. cN1-2 (palpably node-positive) post-neoadjuvant therapy³⁵
 - ALND is indicated for patients who remain palpably node-positive following neoadjuvant therapy.

3. cN2-3 on presentation (palpably node-positive and biopsy-proven)²⁸
 - To avoid false-positives, percutaneous needle biopsy is indicated to confirm node status in all patients with clinical or radiologic suspicion of nodal metastasis. Most patients with cN2-3 disease will receive neoadjuvant therapy, and since the performance of SLN surgery in this setting is uncertain (see SLN #6 above), ALND is appropriate either upfront (for patients who are ineligible for neoadjuvant) or post-neoadjuvant.
 - Supraclavicular and/or internal mammary nodal disease is best treated with systemic therapy and RNI.
4. Inflammatory breast cancer
 - Limited data on the performance of SLN surgery post-neoadjuvant for inflammatory breast cancer indicate low success and high false-negative rates.^{29,30,60} ALND is indicated in this setting.

D. Special Situations & Recurrent Disease

Indications for no surgical axillary lymph node staging

1. When surgical nodal staging will not affect adjuvant therapy recommendations.
 - Surgical axillary staging is of little value in the setting of limited life expectancy due to advanced age, serious comorbidities, or when it will not affect decisions regarding adjuvant therapy.⁶¹
2. Prophylactic mastectomy⁶²⁻⁶⁴
 - Surgical axillary staging is not recommended for risk-reducing prophylactic mastectomy, as the likelihood of incidentally finding breast cancer (DCIS or invasive disease) is < 5%, approximately 1% for nodal metastases (3 refs).
 - Axillary staging is recommended after an incidental invasive breast cancer is identified during prophylactic mastectomy if the axilla is clinically node-negative and SLN surgery is feasible. While ALND is the standard approach when SLN surgery is not technically feasible, axillary management should consider tumor size and characteristics, and multidisciplinary team input in order to avoid surgical morbidity when axillary staging is unlikely to affect adjuvant systemic therapy or radiation decisions.
3. Primary breast sarcoma or phyllodes tumor.
 - The risk of nodal metastasis for breast sarcoma - including angiosarcoma and malignant phyllodes tumor - is negligible due to hematogenous spread. Surgical axillary staging is not recommended.

Indications for sentinel lymph node (SLN) surgery

1. Invasive local recurrence post-BCT with a cN0 axilla
 - SLN surgery is feasible for patients with prior BCT/SLN surgery or BCT/ALND

who present with invasive local recurrence and a cN0 axilla. All patients with invasive local recurrence require systemic adjuvant therapy, so it is not yet clear if the results of a re-operative SLN surgery are meaningful in this setting.⁶⁵

- Surgical axillary staging may be appropriate to omit in cN0 patients with a prior ALND who fail to map to the ipsilateral axilla during SLN surgery for recurrent disease. Management strategies for the axilla with recurrent cN0 disease and prior axillary surgery are discussed in ASBrS Resource Guide “Technical Considerations for Axillary Surgery in Breast Cancer Patients”.

Indications for axillary dissection (ALND)

1. Invasive local recurrence with cN1-2 (palpably node-positive and biopsy-proven) axilla
 - ALND is indicated for patients with invasive local recurrence and clinically positive lymph nodes.
2. Axillary metastasis from occult breast primary
 - ALND is the guideline concordant care for patients with occult breast cancer presenting with axillary metastases.¹³ Most patients with axillary metastasis from an unknown breast primary are candidates for neoadjuvant therapy. Recently, smaller studies have reported excellent rates of nodal pCR, questioning the role of ALND and suggesting that targeted axillary dissection and SLN surgery alone may be feasible in selected patients if no residual disease is identified.^{66,67} ALND is appropriate for those who are ineligible for neoadjuvant therapy or remain node-positive post-neoadjuvant as per item #5 above..

Sequencing treatment to minimize the odds of ALND

Tumor subtype is an important predictor of lymph node response to neoadjuvant chemotherapy, with rates of nodal pathologic complete response (pCR) ranging from about 20% for ER+/PR+/HER2- to over 90% for ER-/PR-/HER2+. Most patients with palpably node-positive axillae will be referred for neoadjuvant therapy - regardless of tumor subtype - to downstage the breast/axilla. For patients who are palpably node-negative, the rates of ALND for the less responsive subtype ER+/PR+/HER2- (most of whom will remain node-positive post-neoadjuvant) will be minimized by a strategy of upfront surgery, in that most will have only 0-2 SLN+ and can avoid ALND. Genomic testing to aid decision making for treatment sequence in HR+ disease may be considered. For those with the more responsive subtypes ER-/PR-/HER2- and ER-/PR-/HER2+, the rates of ALND will be minimized by a strategy of neoadjuvant chemotherapy.^{67,68}

Prevention of lymphedema

Lymphedema is a significant complication of ALND, affecting approximately 20% of patients. The only clear risk factors are BMI and extent of axillary surgery, but chemotherapy and especially radiation are additive. Newer surgical techniques, such as axillary reverse mapping, lymphatic

transfer, and lympho-venous anastomosis are promising both for prevention and for treatment of established lymphedema. However, well-designed prospective studies with uniform criteria for patient selection, procedure, and outcome assessment are needed. In institutions where these techniques are readily available, they should be considered whenever ALND is required.⁶⁹⁻⁷¹ Please see the ASBrS statements on “Diagnosis, Prevention, and Treatment of Breast Cancer-Related Lymphedema” for additional information.

Summary of Key Recommendations for Surgical Axillary Lymph Node Staging

Recommendation	Clinical setting	References/ Key studies
No surgery	When surgical nodal staging will not affect adjuvant therapy decisions	61
	Pure DCIS undergoing BCS	5-8
	Patients ≥ 70 years old with cT1-2N0 HR+ breast cancer	18-22
	<i>Consider</i> omission of surgical axillary staging in postmenopausal patients >50 years old with HR+HER2- cT1N0 grade 1-2 invasive ductal breast cancer, a negative axillary ultrasound (or one suspicious node with FNA/CNB benign and concordant) and treated with BCS followed by adjuvant radiation	2, 23-25
	Prophylactic mastectomy	62-64
SLN surgery	Primary breast sarcoma or phyllodes tumor	
	DCIS requiring mastectomy, undergoing excision in anatomic location compromising future SLN surgery mapping including large oncoplastic rearrangement, or with pathologic suspicion of invasion or microinvasion; consider using SPIO for delayed SLN surgery if upgrade to invasive cancer found on surgical pathology	13-17
	cT1mi-3N0 (palpably node-negative) breast cancer with normal axillary imaging undergoing upfront surgery	26-28
	cT1-3N0 (palpably node-negative) breast cancer with abnormal axillary imaging and/or a positive percutaneous lymph node needle biopsy	26
	cT1-3N0 (palpably node-negative) breast cancer with 1-2 SLN+ having upfront BCT with WBRT	32-35

	cT1-3N0 (palpably node-negative) breast cancer having upfront mastectomy, with 1-3 SLN+ and receiving RNI	2, 28, 34, 36-41
	cN0/cyN0 (palpably node-negative) breast cancer post neoadjuvant therapy	42- 51
	Invasive local recurrence post-BCT with a cN0 axilla	65, ASBrS RG “Technical Considerations for Axillary Surgery”
ALND	cN2-3 on presentation (palpably node-positive and biopsy-proven)	28
	cN0 with positive SLNs and ineligible for IBCSG 23-01/Z0011/AMAROS/OTOASOR	
	cN1-3 (palpably node-positive and biopsy-proven) and ineligible for neoadjuvant therapy	
	cN1-2 (palpably node-positive) post-neoadjuvant therapy	13
	SLN+ post neoadjuvant therapy	13, 58, 59
	Inflammatory breast cancer	29, 30, 60
	Invasive local recurrence with cN1-2 (palpably node-positive and biopsy-proven) axilla	
	Axillary metastasis from occult breast primary (SLN surgery/TAD can be considered if cN0 post-NAC)	13, 66, 67

Abbreviations:

BC- breast cancer
 ER- estrogen receptor
 PR- progesterone receptor
 HER2- HER2 neu
 TNBC – triple negative breast cancer
 BCS-breast conserving surgery
 BCT- breast conserving therapy (BCS + radiation)
 SLN- sentinel lymph node
 ALND- Axillary lymph node dissection
 cALND- completion axillary dissection
 TAD- Targeted axillary dissection
 PMRT- post-mastectomy radiation
 RNI- regional nodal irradiation
 APBI- accelerated partial breast irradiation
 RT- radiation therapy
 WBRT- whole breast radiation therapy

NAC- neoadjuvant chemotherapy
NST- neoadjuvant systemic therapy
SPIO- superparamagnetic iron oxide
FNA- fine needle aspiration
CNB- core needle biopsy
pCR- pathologic complete response
US- ultrasound

This statement was initially developed by the Society’s Research Committee and approved by the Board of Directors March 14, 2022. Substantive updates were made by the CWER Committee, posted for public comment, revised, and similarly approved by the Board February 24, 2026.

2026 Lead Authors

Megan E. Miller MD, FACS
Zahraa AlHilli MD, MBA, FACS
Anna Beck MD, FACS

Critical Writing Editing and Research Committee: Jessica E. Maxwell, MD; Samilia Obeng-Gyasi, MD, MPH; Zahraa Al-Hilli MD, MBA; Anna C. Beck, MD; Meghan E Garstka, MD; Cathy L. Graham, MD; Kathie-Ann P. Joseph MD, MPH; David W. Lim MDCM, MEd, PhD; Regina Matar-Ujvary, MD; Megan Miller, MD; Rita Adele Mukhtar, MD; Stephanie Serres, MD, PhD; Xuanji Wang, MD

References

1. Brackstone M, Baldassarre FG, Perera FE, et al. Management of the Axilla in Early-Stage Breast Cancer: Ontario Health (Cancer Care Ontario) and ASCO Guideline. *J Clin Oncol*. Sep 20 2021;39(27):3056-3082. doi:10.1200/jco.21.00934
2. Park KU, Somerfield MR, Anne N, et al. Sentinel Lymph Node Biopsy in Early-Stage Breast Cancer: ASCO Guideline Update. *J Clin Oncol*. May 10 2025;43(14):1720-1741. doi:10.1200/jco-25-00099
3. Nelson H, Mullett TW. Commission on Cancer: One Hundred Years, Past and Future. *Bulletin*. 2022-01-05 2022;
4. Committee on Improving the Quality of Cancer Care: Addressing the Challenges of an Aging P, Board on Health Care S, Institute of M. In: Levit L, Balogh E, Nass S, Ganz PA, eds. *Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis*. National Academies Press (US) Copyright 2013 by the National Academy of Sciences. All rights reserved.; 2013.
5. Shaaban AM, Hilton B, Clements K, et al. The presentation, management and outcome of patients with ductal carcinoma in situ (DCIS) with microinvasion (invasion ≤ 1 mm in size)-results from the UK Sloane Project. *Br J Cancer*. Dec 2022;127(12):2125-2132. doi:10.1038/s41416-022-01983-4
6. Champion CD, Ren Y, Thomas SM, et al. DCIS with Microinvasion: Is It In Situ or Invasive Disease? *Ann Surg Oncol*. Oct 2019;26(10):3124-3132. doi:10.1245/s10434-019-07556-9
7. Correa C, McGale P, Taylor C, et al. Overview of the randomized trials of radiotherapy in ductal carcinoma in situ of the breast. *J Natl Cancer Inst Monogr*. 2010;2010(41):162-77. doi:10.1093/jncimonographs/lgq039

8. van Roozendaal LM, Goorts B, Klinkert M, et al. Sentinel lymph node biopsy can be omitted in DCIS patients treated with breast conserving therapy. *Breast Cancer Res Treat.* Apr 2016;156(3):517-525. doi:10.1007/s10549-016-3783-2
9. Tanaka K, Masuda N, Hayashi N, et al. Clinicopathological predictors of postoperative upstaging to invasive ductal carcinoma (IDC) in patients preoperatively diagnosed with ductal carcinoma in situ (DCIS): a multi-institutional retrospective cohort study. *Breast Cancer.* Jul 2021;28(4):896-903. doi:10.1007/s12282-021-01225-0
10. Vanni G, Pellicciaro M, Materazzo M, et al. Radiological and pathological predictors of post-operative upstaging of breast ductal carcinoma in situ (DCIS) to invasive ductal carcinoma and lymph-nodes metastasis; a potential algorithm for node surgical de-escalation. *Surg Oncol.* Oct 2024;56:102128. doi:10.1016/j.suronc.2024.102128
11. Sheaffer WW, Gray RJ, Wasif N, et al. Predictive factors of upstaging DCIS to invasive carcinoma in BCT vs mastectomy. *Am J Surg.* Jun 2019;217(6):1025-1029. doi:10.1016/j.amjsurg.2018.12.069
12. Grimm LJ, Ryser MD, Partridge AH, et al. Surgical Upstaging Rates for Vacuum Assisted Biopsy Proven DCIS: Implications for Active Surveillance Trials. *Ann Surg Oncol.* Nov 2017;24(12):3534-3540. doi:10.1245/s10434-017-6018-9
13. Invasive Breast Cancer. National Comprehensive Cancer Network Accessed June 6, 2025. https://www.nccn.org/login?ReturnURL=https://www.nccn.org/professionals/physician_gls/pdf/breast.pdf
14. Intra M, Veronesi P, Gentilini OD, et al. Sentinel lymph node biopsy is feasible even after total mastectomy. *J Surg Oncol.* Feb 1 2007;95(2):175-9. doi:10.1002/jso.20670
15. Martin TA, Choudhry S, Holton LH, Tafra L, Jackson RS. Is Sentinel Lymph Node Biopsy Reliable After Recent Oncoplastic Breast Reduction? *Am Surg.* May 2023;89(5):2056-2058. doi:10.1177/00031348211023408
16. Karakatsanis A, Eriksson S, Pistiolis L, et al. Delayed Sentinel Lymph Node Dissection in Patients with a Preoperative Diagnosis of Ductal Cancer In Situ by Preoperative Injection with Superparamagnetic Iron Oxide (SPIO) Nanoparticles: The SentiNot Study. *Ann Surg Oncol.* Jul 2023;30(7):4064-4072. doi:10.1245/s10434-022-13064-0
17. Karakatsanis A, Hersi AF, Pistiolis L, et al. Effect of preoperative injection of superparamagnetic iron oxide particles on rates of sentinel lymph node dissection in women undergoing surgery for ductal carcinoma in situ (SentiNot study). *Br J Surg.* May 2019;106(6):720-728. doi:10.1002/bjs.11110
18. NCDB Quality Measure Improvements Announced. American College of Surgeons. Accessed June 5, 2025. <https://www.facs.org/quality-programs/cancer-programs/national-cancer-database/quality-of-care-measures/>
19. Hughes KS, Schnaper LA, Bellon JR, et al. Lumpectomy plus tamoxifen with or without irradiation in women age 70 years or older with early breast cancer: long-term follow-up of CALGB 9343. *J Clin Oncol.* Jul 1 2013;31(19):2382-7. doi:10.1200/jco.2012.45.2615
20. Martelli G, Boracchi P, De Palo M, et al. A randomized trial comparing axillary dissection to no axillary dissection in older patients with T1N0 breast cancer: results after 5 years of follow-up. *Ann Surg.* Jul 2005;242(1):1-6; discussion 7-9. doi:10.1097/01.sla.0000167759.15670.14
21. Chung A, Gangi A, Amersi F, Zhang X, Giuliano A. Not Performing a Sentinel Node Biopsy for Older Patients With Early-Stage Invasive Breast Cancer. *JAMA Surg.* Jul 2015;150(7):683-4. doi:10.1001/jamasurg.2015.0647
22. Rudenstam CM, Zahrieh D, Forbes JF, et al. Randomized trial comparing axillary clearance versus no axillary clearance in older patients with breast cancer: first results of International Breast Cancer Study Group Trial 10-93. *J Clin Oncol.* Jan 20 2006;24(3):337-44. doi:10.1200/jco.2005.01.5784
23. Reimer T, Stachs A, Veselinovic K, et al. Axillary Surgery in Breast Cancer - Primary Results of the INSEMA Trial. *N Engl J Med.* Mar 13 2025;392(11):1051-1064. doi:10.1056/NEJMoa2412063
24. Gentilini OD, Botteri E, Sangalli C, et al. Sentinel Lymph Node Biopsy vs No Axillary Surgery in Patients With Small Breast Cancer and Negative Results on Ultrasonography of Axillary Lymph Nodes: The SOUND Randomized Clinical Trial. *JAMA Oncol.* Nov 1 2023;9(11):1557-1564. doi:10.1001/jamaoncol.2023.3759
25. Kunkler IH, Williams LJ, Jack WJL, Cameron DA, Dixon JM. Breast-Conserving Surgery with or without Irradiation in Early Breast Cancer. *N Engl J Med.* Feb 16 2023;388(7):585-594.

doi:10.1056/NEJMoa2207586

26. Pesek S, Ashikaga T, Krag LE, Krag D. The false-negative rate of sentinel node biopsy in patients with breast cancer: a meta-analysis. *World J Surg.* Sep 2012;36(9):2239-51. doi:10.1007/s00268-012-1623-z
27. Petrelli F, Lonati V, Barni S. Axillary dissection compared to sentinel node biopsy for the treatment of pathologically node-negative breast cancer: a meta-analysis of four randomized trials with long-term follow up. *Oncol Rev.* Oct 2 2012;6(2):e20. doi:10.4081/oncol.2012.e20
28. Beck AC, Morrow M. Axillary lymph node dissection: Dead or still alive? *Breast.* Jun 2023;69:469-475. doi:10.1016/j.breast.2023.01.009
29. Hidar S, Bibi M, Gharbi O, et al. Sentinel lymph node biopsy after neoadjuvant chemotherapy in inflammatory breast cancer. *Int J Surg.* Jun 2009;7(3):272-5. doi:10.1016/j.ijso.2009.04.012
30. Stearns V, Ewing CA, Slack R, Penannen MF, Hayes DF, Tsangaris TN. Sentinel lymphadenectomy after neoadjuvant chemotherapy for breast cancer may reliably represent the axilla except for inflammatory breast cancer. *Ann Surg Oncol.* Apr 2002;9(3):235-42. doi:10.1007/bf02573060
31. Pilewskie M, Mautner SK, Stempel M, Eaton A, Morrow M. Does a Positive Axillary Lymph Node Needle Biopsy Result Predict the Need for an Axillary Lymph Node Dissection in Clinically Node-Negative Breast Cancer Patients in the ACOSOG Z0011 Era? *Ann Surg Oncol.* Apr 2016;23(4):1123-8. doi:10.1245/s10434-015-4944-y
32. Galimberti V, Cole BF, Viale G, et al. Axillary dissection versus no axillary dissection in patients with breast cancer and sentinel-node micrometastases (IBCSG 23-01): 10-year follow-up of a randomised, controlled phase 3 trial. *Lancet Oncol.* Oct 2018;19(10):1385-1393. doi:10.1016/s1470-2045(18)30380-2
33. Giuliano AE, Ballman KV, McCall L, et al. Effect of Axillary Dissection vs No Axillary Dissection on 10-Year Overall Survival Among Women With Invasive Breast Cancer and Sentinel Node Metastasis: The ACOSOG Z0011 (Alliance) Randomized Clinical Trial. *Jama.* Sep 12 2017;318(10):918-926. doi:10.1001/jama.2017.11470
34. de Boniface J, Filtenborg Tvedskov T, Rydén L, et al. Omitting Axillary Dissection in Breast Cancer with Sentinel-Node Metastases. *N Engl J Med.* Apr 4 2024;390(13):1163-1175. doi:10.1056/NEJMoa2313487
35. Invasive Breast Cancer. NCCN Guidelines. National Comprehensive Cancer Network (NCCN). Accessed March 3, 2025.
36. Krag DN, Anderson SJ, Julian TB, et al. Sentinel-lymph-node resection compared with conventional axillary-lymph-node dissection in clinically node-negative patients with breast cancer: overall survival findings from the NSABP B-32 randomised phase 3 trial. *Lancet Oncol.* Oct 2010;11(10):927-33. doi:10.1016/s1470-2045(10)70207-2
37. Veronesi U, Paganelli G, Galimberti V, et al. Sentinel-node biopsy to avoid axillary dissection in breast cancer with clinically negative lymph-nodes. *Lancet.* Jun 28 1997;349(9069):1864-7. doi:10.1016/s0140-6736(97)01004-0
38. de Boniface J, Frisell J, Andersson Y, et al. Survival and axillary recurrence following sentinel node-positive breast cancer without completion axillary lymph node dissection: the randomized controlled SENOMAC trial. *BMC Cancer.* May 26 2017;17(1):379. doi:10.1186/s12885-017-3361-y
39. Donker M, van Tienhoven G, Straver ME, et al. Radiotherapy or surgery of the axilla after a positive sentinel node in breast cancer (EORTC 10981-22023 AMAROS): a randomised, multicentre, open-label, phase 3 non-inferiority trial. *Lancet Oncol.* Nov 2014;15(12):1303-10. doi:10.1016/s1470-2045(14)70460-7
40. Sávolt Á, Péley G, Polgár C, et al. Eight-year follow up result of the OTOASOR trial: The Optimal Treatment Of the Axilla - Surgery Or Radiotherapy after positive sentinel lymph node biopsy in early-stage breast cancer: A randomized, single centre, phase III, non-inferiority trial. *Eur J Surg Oncol.* Apr 2017;43(4):672-679. doi:10.1016/j.ejso.2016.12.011
41. Davis J, Jr., Boughey JC, Hoskin TL, et al. Locoregional Management of the Axilla in Mastectomy Patients with One or Two Positive Sentinel Nodes: The Role of Intraoperative Pathology. *Clin Breast Cancer.* Oct 2021;21(5):458-465. doi:10.1016/j.clbc.2021.02.013
42. Boughey JC, Suman VJ, Mittendorf EA, et al. Sentinel lymph node surgery after neoadjuvant chemotherapy in patients with node-positive breast cancer: the ACOSOG Z1071 (Alliance) clinical trial. *Jama.* Oct 9 2013;310(14):1455-61. doi:10.1001/jama.2013.278932

43. Barrio AV, Montagna G, Mamtani A, et al. Nodal Recurrence in Patients With Node-Positive Breast Cancer Treated With Sentinel Node Biopsy Alone After Neoadjuvant Chemotherapy-A Rare Event. *JAMA Oncol.* Dec 1 2021;7(12):1851-1855. doi:10.1001/jamaoncol.2021.4394
44. Caudle AS, Yang WT, Krishnamurthy S, et al. Improved Axillary Evaluation Following Neoadjuvant Therapy for Patients With Node-Positive Breast Cancer Using Selective Evaluation of Clipped Nodes: Implementation of Targeted Axillary Dissection. *J Clin Oncol.* Apr 1 2016;34(10):1072-8. doi:10.1200/jco.2015.64.0094
45. Boughey JC, Ballman KV, Le-Petross HT, et al. Identification and Resection of Clipped Node Decreases the False-negative Rate of Sentinel Lymph Node Surgery in Patients Presenting With Node-positive Breast Cancer (T0-T4, N1-N2) Who Receive Neoadjuvant Chemotherapy: Results From ACOSOG Z1071 (Alliance). *Ann Surg.* Apr 2016;263(4):802-7. doi:10.1097/sla.0000000000001375
46. Simons JM, van Pelt M, Marinelli A, et al. Excision of both pretreatment marked positive nodes and sentinel nodes improves axillary staging after neoadjuvant systemic therapy in breast cancer. *Br J Surg.* Nov 2019;106(12):1632-1639. doi:10.1002/bjs.11320
47. Boileau JF, Poirier B, Basik M, et al. Sentinel node biopsy after neoadjuvant chemotherapy in biopsy-proven node-positive breast cancer: the SN FNAC study. *J Clin Oncol.* Jan 20 2015;33(3):258-64. doi:10.1200/jco.2014.55.7827
48. Classe JM, Loaec C, Gimbergues P, et al. Sentinel lymph node biopsy without axillary lymphadenectomy after neoadjuvant chemotherapy is accurate and safe for selected patients: the GANEA 2 study. *Breast Cancer Res Treat.* Jan 2019;173(2):343-352. doi:10.1007/s10549-018-5004-7
49. Kuehn T, Bauerfeind I, Fehm T, et al. Sentinel-lymph-node biopsy in patients with breast cancer before and after neoadjuvant chemotherapy (SENTINA): a prospective, multicentre cohort study. *Lancet Oncol.* Jun 2013;14(7):609-18. doi:10.1016/s1470-2045(13)70166-9
50. Tan VK, Goh BK, Fook-Chong S, Khin LW, Wong WK, Yong WS. The feasibility and accuracy of sentinel lymph node biopsy in clinically node-negative patients after neoadjuvant chemotherapy for breast cancer-a systematic review and meta-analysis. *J Surg Oncol.* Jul 1 2011;104(1):97-103. doi:10.1002/jso.21911
51. Tee SR, Devane LA, Evoy D, et al. Meta-analysis of sentinel lymph node biopsy after neoadjuvant chemotherapy in patients with initial biopsy-proven node-positive breast cancer. *Br J Surg.* Nov 2018;105(12):1541-1552. doi:10.1002/bjs.10986
52. Avoiding Sentinel Lymph Node Biopsy in Breast Cancer Patients After Neoadjuvant Chemotherapy (ASICS). National Library of Medicine Accessed June 6, 2025. <https://clinicaltrials.gov/study/NCT04225858>
53. Abstract OT1-07-01: Omission of SLNB in triple-negative and HER2-positive breast cancer patients with radiologic and pathologic complete response in the breast after NAST: a single-arm, prospective surgical trial (EUBREAST-01 trial, GBG 104). Cancer Research. Accessed June 5, 2025. https://aacrjournals.org/cancerres/article/83/5_Supplement/OT1-07-01/717526/Abstract-OT1-07-01-Omission-of-SLNB-in-triple
54. Zaborowski AM, Doogan K, Clifford S, et al. Nodal positivity in patients with clinically and radiologically node-negative breast cancer treated with neoadjuvant chemotherapy: multicentre collaborative study. *Br J Surg.* Jan 3 2024;111(1)doi:10.1093/bjs/znad401
55. Geng C, Chen X, Pan X, Li J. The Feasibility and Accuracy of Sentinel Lymph Node Biopsy in Initially Clinically Node-Negative Breast Cancer after Neoadjuvant Chemotherapy: A Systematic Review and Meta-Analysis. *PLoS One.* 2016;11(9):e0162605. doi:10.1371/journal.pone.0162605
56. Hunt KK, Yi M, Mittendorf EA, et al. Sentinel lymph node surgery after neoadjuvant chemotherapy is accurate and reduces the need for axillary dissection in breast cancer patients. *Ann Surg.* Oct 2009;250(4):558-66. doi:10.1097/SLA.0b013e3181b8fd5e
57. Montagna G, Laws A, Ferrucci M, et al. Nodal Burden and Oncologic Outcomes in Patients With Residual Isolated Tumor Cells After Neoadjuvant Chemotherapy (ypN0i+): The OPBC-05/ICARO Study. *J Clin Oncol.* Mar 2025;43(7):810-820. doi:10.1200/jco.24.01052
58. Comparison of Axillary Lymph Node Dissection with Axillary Radiation for Patients with Node-Positive Breast Cancer Treated with Chemotherapy. National Library of Medicine. Accessed June 6, 2025. <https://clinicaltrials.stanford.edu/trials/c/NCT01901094.html>

59. University Hospital B. Tailored Axillary Surgery With or Without Axillary Lymph Node Dissection Followed by Radiotherapy in Patients With Clinically Node-positive Breast Cancer (TAXIS). 2018;doi:NCT03513614
60. DeSnyder SM, Mittendorf EA, Le-Petross C, et al. Prospective Feasibility Trial of Sentinel Lymph Node Biopsy in the Setting of Inflammatory Breast Cancer. *Clin Breast Cancer*. Feb 2018;18(1):e73-e77. doi:10.1016/j.clbc.2017.06.014
61. Lai HW, Chen YA, Tam KW. Surgical treatments for older breast cancer patients: A systematic review and meta-analysis of real-world evidence. *Surgery*. Dec 2024;176(6):1576-1590. doi:10.1016/j.surg.2024.08.045
62. Thompson JL, Sinco BR, McCaffrey RL, et al. Prophylactic mastectomy and occult malignancy: Surgical and imaging considerations. *J Surg Oncol*. Jan 2023;127(1):18-27. doi:10.1002/jso.27088
63. Wong SM, Ferroum A, Apostolova C, et al. Incidence of Occult Breast Cancer in Carriers of BRCA1/2 or Other High-Penetrance Pathogenic Variants Undergoing Prophylactic Mastectomy: When is Sentinel Lymph Node Biopsy Indicated? *Ann Surg Oncol*. Oct 2022;29(11):6660-6668. doi:10.1245/s10434-022-11916-3
64. Yao K, Liederbach E, Tang R, et al. Nipple-sparing mastectomy in BRCA1/2 mutation carriers: an interim analysis and review of the literature. *Ann Surg Oncol*. Feb 2015;22(2):370-6. doi:10.1245/s10434-014-3883-3
65. Poodt IGM, Vugts G, Schipper RJ, Nieuwenhuijzen GAP. Repeat Sentinel Lymph Node Biopsy for Ipsilateral Breast Tumor Recurrence: A Systematic Review of the Results and Impact on Prognosis. *Ann Surg Oncol*. May 2018;25(5):1329-1339. doi:10.1245/s10434-018-6358-0
66. Holt AC, Haji F, McCloskey S, Baker JL. De-escalation of surgery for occult breast cancer with axillary metastasis. *Surgery*. Aug 2023;174(2):410-412. doi:10.1016/j.surg.2023.03.020
67. Mamtani A, Barrio AV, King TA, et al. How Often Does Neoadjuvant Chemotherapy Avoid Axillary Dissection in Patients With Histologically Confirmed Nodal Metastases? Results of a Prospective Study. *Ann Surg Oncol*. Oct 2016;23(11):3467-3474. doi:10.1245/s10434-016-5246-8
68. Pilewskie M, Zabor EC, Mamtani A, Barrio AV, Stempel M, Morrow M. The Optimal Treatment Plan to Avoid Axillary Lymph Node Dissection in Early-Stage Breast Cancer Patients Differs by Surgical Strategy and Tumor Subtype. *Ann Surg Oncol*. Nov 2017;24(12):3527-3533. doi:10.1245/s10434-017-6016-y
69. Deldar R, Spoer D, Gupta N, et al. Prophylactic Lymphovenous Bypass at the Time of Axillary Lymph Node Dissection Decreases Rates of Lymphedema. *Ann Surg Open*. Jun 2023;4(2):e278. doi:10.1097/as9.0000000000000278
70. Jakub JW, Boughey JC, Hieken TJ, et al. Lymphedema Rates Following Axillary Lymph Node Dissection With and Without Immediate Lymphatic Reconstruction: A Prospective Trial. *Ann Surg Oncol*. Oct 2024;31(11):7349-7359. doi:10.1245/s10434-024-15715-w
71. Coriddi M, Dayan J, Bloomfield E, et al. Efficacy of Immediate Lymphatic Reconstruction to Decrease Incidence of Breast Cancer-related Lymphedema: Preliminary Results of Randomized Controlled Trial. *Ann Surg*. Oct 1 2023;278(4):630-637. doi:10.1097/sla.0000000000005952