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The New Standard in Breast Cancer-Related Lymphedema Risk Management

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ABSTRACT

For decades, Breast cancer-related lymphedema (BCRL) management has relied on conservative precautions like avoiding ipsilateral blood draws and blood pressure measurements despite limited empirical evidence. These restrictions may contribute to unintended consequences on the psychosocial well-being of survivors. Recent data indicates that nearly 73% of patients fear lymphedema, and those diagnosed with BCRL show significantly higher rates of antidepressant use and movement avoidance.

This paper reviews the shift from historical restrictions to evidence-based risk reduction strategies. It highlights evidence-based recommendations from the 2023 summit convened by the American Cancer Society and the Lymphology Association of North America, which align with updated international guidelines from organizations in the United Kingdom and Japan.

Current evidence supports a transition toward a prospective surveillance model, which emphasizes shared responsibility between patient and provider for early symptom detection. Key updates include the removal of universal restrictions on ipsilateral medical procedures and prophylactic compression during air travel for at-risk patients, provided no BCRL symptoms are present. Institutional implementation of these relaxed protocols has demonstrated that such changes are safe and do not increase BCRL incidence.

Aligning clinical practice with modern, evidence-based guidelines reduces the psycho-emotional burden on survivors by eliminating unnecessary lifestyle limitations. By prioritizing tailored risk assessment and longitudinal metrics that include mental health, clinicians can balance effective risk reduction with improved quality of life. Professional organizations and institutions are urged to adopt these updated standards to foster a more resilient recovery for breast cancer survivors.

Introduction

For decades, clinicians have taken a conservative approach to preventing and managing breast cancer-related lymphedema (BCRL) based on lymphatic anatomy, physiology, and the effects of cancer treatment. Rigid lifestyle restrictions limiting medical access to the ipsilateral upper extremity, air travel, and extreme temperatures have been prescribed despite limited evidence. Unfortunately, conservative precautions may have had unintended consequences. The precautions focused on patient responsibility, potentially encouraging hypervigilance.

Women at risk for BCRL have reported anxiety and fear-avoidance behaviors associated with lymphedema precautions.[1-3] Breast cancer-related lymphedema precautions are often presented during the neoadjuvant therapy stage when patients are under considerable physical and psychological stress. Stress, inconsistent or overly restrictive precautions, and the emotional burden of symptom monitoring can contribute to depression and anxiety. Empirical data underscores the prevalence of these fears, noting that the fear of lymphedema was reported by 73% of patients (N=247) who underwent axillary lymph node dissection.[2] A review reported that anxiety in breast cancer patients ranged from 5.5% to 54% during neoadjuvant therapy, with a single longitudinal study reporting a reduction to 27% after therapy.[4] Depression among women with breast cancer is also high, with a meta-analysis reporting worldwide prevalence as 30.2%, and by continent: Africa, 32.4%; Asia, 34.2%; Europe, 28.9%; North America, 24.9%; and South America, 17.3%.[5] Psychological burden may persist as a significant barrier to movement for those already diagnosed. Kinesiophobia, fear of movement, was present in 87.7% (N=114) of women with BCRL, with significantly higher ($p<.05$) fear reported by those with BCRL in the dominant extremity.[6] The impact of BCRL on mental health is further underscored by the antidepression medication fill rates of people with BCRL (26%) being significantly higher (OR1.55, $p<.001$) than that of breast cancer survivors without BCRL (16.5%).[7] These findings highlight the need for clear, evidence-based education about precautions that balance risk reduction with psychosocial well-being.

The Shift Toward Evidence-Based Risk Reduction

Evidence supporting the relaxation of risk-reduction precautions for breast cancer–related lymphedema has been steadily accumulating. The strongest evidence is highlighted below; this summary is not exhaustive but focuses on the most salient and methodologically robust studies. Prospective studies[8-10] support the safety of performing medical procedures in the ipsilateral upper extremity, including blood pressure measurement (three studies; at-risk N=941; BCRL cases N = 5), blood draws (three studies; at-risk N=1,144), and injections (three studies; at-risk N= 590). Though skin trauma occurring in daily life has generally not been associated with increased risk of BCRL (at risk N=201)[8-10], Fu and colleagues[11] provide recent evidence (N=567) that significant odds are associated with a known BCRL risk factor, infection (odds ratio [OR] 2.58, 95% confidence interval [CI] 1.95–3.42), likely from inciting events like cuts/scratches (OR 2.65, 95% CI 1.97–3.56) among others. Air travel has not been associated with increased risk for those with BCRL[12] (N=156) or those at risk[9-10,12-13] (four studies N=1617). Hot climate[13-14](two studies N=250) was not linked to increased BCRL in those at risk, though sauna use[14] (N=13) may increase the risk of BCRL diagnosis or exacerbation.

In acknowledgement of the advances in evidence and practice, the American Cancer Society and the Lymphology Association of North America convened a summit of clinical, research, and patient experts to update the medical community's approach to lymphedema in 2023. Evidence supporting Evidence-based BCRL risk reduction precautions, tailored separately for people at risk for BCRL and people who have been diagnosed with BCRL now inform a balanced approach.[8] These guidelines emphasize the importance of prospective surveillance, balancing the responsibility for symptom monitoring between

healthcare providers and patients. Patients enrolled in prospective surveillance have reassurance that they are partners in monitoring for early signs or symptoms of BCRL, hopefully decreasing the psycho-emotional burden and minimizing stress. Historical precautions regarding ipsilateral blood draws, blood pressure measurements, hot climate and air travel without compression sleeves have shifted. Current guidelines no longer advise at-risk patients to avoid these activities or to wear prophylactic sleeves during flights. Skin care to avoid infection in the at-risk area are evidence-based recommendations. For those already diagnosed with BCRL, while avoiding ipsilateral procedures remains recommended, when possible, the strictness of these restrictions has been softened to allow for clinical flexibility to tailor risk reduction education in consideration of individual risk factors. A summary of evidence-based recommendations[8] based on a systematic mapping review[1] are illustrated in Figure 1a and Figure 1b.

Evidence-based recommendations regarding Risk reduction practices for people AT RISK for Breast Cancer-Related Lymphedema (BCRL)

PROSPECTIVE SURVEILLANCE
- Seek access to screening for lymphedema, including baseline measurements of the affected areas.
- Request follow-up for five years on measurements, etc., as the risk for BCRL is life-long.

INDIVIDUAL RISK FACTORS
- **Type of surgery:** lymph node dissection poses 3x greater risk than sentinel node biopsy
- **Patient factors:** BMI >25 at breast cancer diagnosis, Black race, Hispanic ethnicity
- **Treatment factors:** lymph node radiation, some types of chemotherapy
- **Complications:** skin infection/cellulitis, seroma, cording

PATIENT EDUCATION
- Seek education before and after surgery on personal risk factors and symptoms of BCRL.

EXERCISE
- Supervised, slowly progressive, strengthening, and cardio exercise is safe and encouraged.

BLOOD PRESSURE
- Isolated blood pressure measurement has **not** been shown to trigger the onset of BCRL.

BLOOD DRAWS AND INJECTIONS
- Isolated blood draws/injections have **not** been shown to increase arm volume in people at risk for BCRL.

SKINCARE AND SKIN INFECTION
- Skin protection (sunscreen, bug repellant) and hygiene of the affected area are important.
- Apply first aid to cuts and scratches to avoid infection/cellulitis, which increases the risk for BCRL.
- Seek immediate medical attention if any signs and symptoms of infection/cellulitis appear.

ELECTIVE SURGERY POST BREAST CANCER TREATMENTS
- Discuss with the surgeon the benefits and risks of any elective surgery and its impact on the area at risk.
- Request lymphedema assessment before and immediately following surgery.

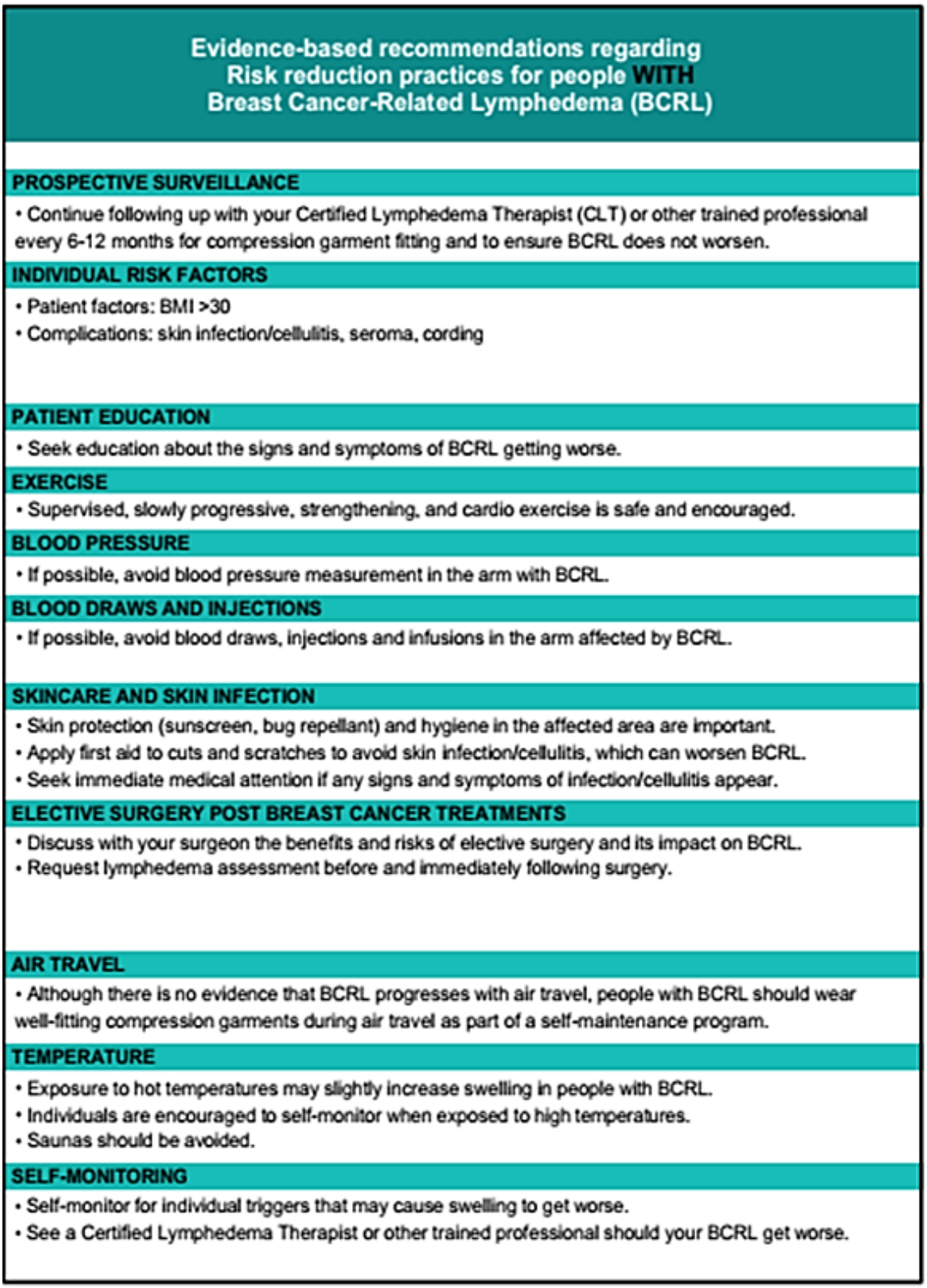
PROPHYLACTIC COMPRESSION
- Post-surgical compression garments that are well-fitted may help prevent BCRL in people at high risk.

AIR TRAVEL
- Air travel has **not** been associated with an increased risk of BCRL.
- If you prefer to wear a preventative garment during travel, ensure it is properly fitted.

TEMPERATURE
- Hot climate does **not** appear to increase the risk for the onset of BCRL.
- Saunas should be avoided.

SELF-MONITORING
- Self-monitor for any individual triggers that may cause early swelling.
- Seek timely treatment from a Certified Lymphedema Therapist if signs and symptoms arise.

Figure 1a: Breast cancer-related lymphedema risk reduction recommendations (at-risk)[8]



Evidence-based recommendations regarding Risk reduction practices for people WITH Breast Cancer-Related Lymphedema (BCRL)

PROSPECTIVE SURVEILLANCE

- Continue following up with your Certified Lymphedema Therapist (CLT) or other trained professional every 6-12 months for compression garment fitting and to ensure BCRL does not worsen.

INDIVIDUAL RISK FACTORS

- Patient factors: BMI >30
- Complications: skin infection/cellulitis, seroma, cording

PATIENT EDUCATION

- Seek education about the signs and symptoms of BCRL getting worse.

EXERCISE

- Supervised, slowly progressive, strengthening, and cardio exercise is safe and encouraged.

BLOOD PRESSURE

- If possible, avoid blood pressure measurement in the arm with BCRL.

BLOOD DRAWS AND INJECTIONS

- If possible, avoid blood draws, injections and infusions in the arm affected by BCRL.

SKINCARE AND SKIN INFECTION

- Skin protection (sunscreen, bug repellant) and hygiene in the affected area are important.
- Apply first aid to cuts and scratches to avoid skin infection/cellulitis, which can worsen BCRL.
- Seek immediate medical attention if any signs and symptoms of infection/cellulitis appear.

ELECTIVE SURGERY POST BREAST CANCER TREATMENTS

- Discuss with your surgeon the benefits and risks of elective surgery and its impact on BCRL.
- Request lymphedema assessment before and immediately following surgery.

AIR TRAVEL

- Although there is no evidence that BCRL progresses with air travel, people with BCRL should wear well-fitting compression garments during air travel as part of a self-maintenance program.

TEMPERATURE

- Exposure to hot temperatures may slightly increase swelling in people with BCRL.
- Individuals are encouraged to self-monitor when exposed to high temperatures.
- Saunas should be avoided.

SELF-MONITORING

- Self-monitor for individual triggers that may cause swelling to get worse.
- See a Certified Lymphedema Therapist or other trained professional should your BCRL get worse.

Figure 1b: Breast cancer-related lymphedema risk reduction recommendations (BCRL)[8]

Global Alignment and Clinical Implementation

Global recommendations for BCRL risk reduction have been updated to align with current clinical evidence. Recent updates from the National Institute for Health and Care Excellence[9] and the Japanese Lymphedema Association[10] align with a growing body of evidence.[1,8,11] Furthermore, a focused review[12] reinforces the safety of skin puncture procedures for at-risk patients. Notably, major organizations in the United States like the National Cancer Institute[13] and Centers for Disease Control and Prevention[13] have not yet changed historical BCRL precautions. The National Lymphedema Network is currently revising its lymphedema risk reduction recommendations.[14]

There is early evidence that changing BCRL precautions is safe. A large healthcare institution ceased placing BCRL precaution bracelets on the ipsilateral wrists of patients at risk for BCRL in several hospitals and outpatient centers without increasing the incidence of BCRL.[15] The "new policy recommendation stating the following: for individuals with BC status postmastectomy or post–node removal or biopsy, medical procedures (e.g., blood pressure measurements, injections, blood draws, IV placement) in the ipsilateral arm should be avoided when possible. However, if this is not possible, the ipsilateral arm should be used unless the patient has existing BCRL, deep vein thrombosis, or a peripherally inserted central catheter. The feet should not be used for blood draws, nor should the contralateral only be used repeatedly."[15, p. 213] This policy is very similar to other evidence-based BCRL risk reduction recommendations,[8-10] and provides a model for other institutions to initiate and study the effects of adopting evidence-based BCRL risk reduction recommendations. Then, clinicians and patients can balance BCRL risk reduction with psychosocial well-being through tailored risk reduction that considers individual risk factors and is monitored by prospective surveillance.

Future Directions

Aligning clinical practice with evidence-based BCRL guidelines ensures survivors receive effective risk-reduction strategies without facing unnecessary lifestyle restrictions. Essential recommendations for reducing BCRL risk are provided in Figure 2. Adopting a prospective surveillance model that includes mental health metrics and tracks patients longitudinally is essential to understanding the etiology of BCRL and improving long-term outcomes. Professional organizations and healthcare institutions should prioritize these evidence-based approaches to optimize both risk reduction and clinical management.

Category	For Patients AT RISK	For Patients WITH BCRL
Surveillance	Regular baseline & follow-up (for at least 5 years)	Follow-up every 6–12 months with a Certified Lymphedema Therapist
Medical Procedures	Procedures (blood pressure, blood draws) are generally safe	Avoid ipsilateral arm *when possible, use if necessary.*
Exercise	Supervised slow and progressive cardiovascular and resistance exercise is safe and highly encouraged.	Supervised slow and progressive cardiovascular and resistance exercise is safe and highly encouraged.
Air Travel	No flight restrictions; sleeves optional	Wear well-fitted compression garments
Skin Care	**Critical:** Avoid infection/cellulitis	**Critical:** Avoid infection/cellulitis
Temperature	Avoid saunas; hot climates are safe	Avoid saunas; monitor for increased swelling when in hot climates

Figure 2: Essential recommendations for reducing BCRL risk (Adapted from Brunelle et al., 2023)

Conclusion

The evolution of BCRL risk reduction has shifted from rigid, fear-based restrictions toward a balanced, evidence-based framework that prioritizes both physical health and psychosocial well-being. Healthcare providers can mitigate the significant psychological burden experienced by survivors by aligning institutional policies with these updated guidelines that ensure that patients receive effective risk-reduction strategies without facing unnecessary lifestyle limitations, ultimately fostering a higher quality of life and more resilient recovery.

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Conflict of Interest:

The author has no conflicts of interest to declare.

References:

1. Hunley J, Doubblestein D, Campione E. Current evidence on patient precautions for reducing breast cancer-related lymphedema manifestation and progression risks. *Med Oncol*. 2024;41(11):262. doi:10.1007/s12032-024-02408-3

2. Gandhi A, Sineshaw HM, Ward EM, et al. Prospective, early longitudinal assessment of lymphedema-related quality of life among patients with locally advanced breast cancer: the foundation for building a patient-centered screening program. *Breast*. 2023;68:205-215. doi:10.1016/j.breast.2023.02.004

3. Reztsova M, Walker JC. Breast cancer-related lymphedema risk factors and precautionary behaviors. *Curr Breast Cancer Rep*. 2025;17(1):21. doi:10.1007/s12609-024-00531-1

4. Omari M, Amaadour L, El Asri A, et al. Psychological distress and coping strategies in breast cancer patients under neoadjuvant therapy: a systematic review. *Womens Health (Lond)*. 2024;20:17455057241276232. doi:10.1177/17455057241276232

5. Biparva AJ, Raoofi S, Rafiei S, et al. Global depression in breast cancer patients: systematic review and meta-analysis. *PLoS One*. 2023;18(7):e0287372. doi:10.1371/journal.pone.0287372

6. Keskin Kavak S, Aktekin L. Exploring the causes of kinesiophobia in patients with breast cancer-related lymphedema: a comprehensive study. *J Health Sci Med*. 2024;7(6):626-631.

7. Najafali D, Shah JK, Johnstone TM, et al. Psychosocial impact of postmastectomy lymphedema syndrome: insights from a national claims database analysis of antidepressant prescription fills. *PRS Glob Open*. 2025;13(8):e7012. doi:10.1097/GOX.0000000000007012

8. Asdourian MS, Skolny MN, Brunelle C, Seward CE, Salama L, Taghian AG. Precautions for breast cancer-related lymphoedema: risk from air travel, ipsilateral arm blood pressure measurements, skin puncture, extreme temperatures, and cellulitis. *Lancet Oncol*. 2016;17(9):e392-405. https://doi.org/10.1016/s1470-2045(16)30204-2

9. Ferguson CM, Swaroop MN, Horick N, et al. Impact of ipsilateral blood draws, injections, blood pressure measurements, and air travel on the risk of lymphedema for patients treated for breast cancer. *J Clin Oncol*. 2016;34(7):691–8. https://doi.org/10.1200/jco.2015.61.5948.

10. Kilbreath SL, Refshauge KM, Beith JM, et al. Risk factors for lymphoedema in women with breast cancer: a large prospective cohort. Breast. 2016;28:29–36. https://doi.org/10.1016/j.breast.2016.04.011

11. Fu MR, Liu B, Qiu JM, et al. The Effects of Daily-Living Risks on Breast Cancer-Related Lymphedema. *Ann Surg Oncol*. 2024;31(12):8076-8085. doi:10.1245/s10434-024-15946-xHill

12. Koelmeyer LA, Gaitatzis K, Dietrich MS, et al. Risk factors for breast cancer-related lymphedema in patients undergoing 3 years of prospective surveillance with intervention. Cancer.2022;128(18):3408–15. https://doi.org/10.1002/cncr.34377

13. Kilbreath SL, Ward LC, Lane K, et al. Effect of air travel on lymphedema risk in women with history of breast cancer. *Breast Cancer Res Treat*. 2010;120(3):649–54. https://doi.org/10.1007/s10549-010-0793-3.

14. Showalter SL, Brown JC, Cheville AL, Fisher CS, Sataloff D, Schmitz KH. Lifestyle risk factors associated with arm swelling among women with breast cancer. Ann Surg Oncol. 2013;20(3):842–9. https://doi.org/10.1245/s10434-012-2631-9

15. Brunelle CL, Jackson K, Shallwani SM, et al. Evidence-based recommendations regarding risk reduction practices for people at risk of or with breast cancer-related lymphedema: consensus from an expert panel. *Med Oncol*. 2024;41(11):298. doi:10.1007/s12032-025-02510-6

16. National Institute for Health and Care Excellence. Early, locally advanced and advanced breast cancer: diagnosis and management (NG101). Updated February 19, 2025. Accessed January 13, 2026. https://www.nice.org.uk/guidance/ng101

17. Kitamura K, Akita S, Arinaga M, et al. Evidence-based practice guideline for the management of lymphedema proposed by the Japanese Lymphedema Society. *Lymphat Res Biol*. 2022;20 (5):539-547. doi:10.1089/lrb.2022.0034

18. Vivekanandan P, Hashmi-Greenwood M, Omileye A, et al. Are post-operative preventative measures effective in breast cancer-related lymphedema? A systematic review. *Palliat Med Pract*. 2025;19(3): 192-205. doi:10.5603/pmp.101961

19. Hadjistyllis M, Soni A, Hunter-Smith DJ, Rozen WM. A systematic review of the complications of skin puncturing procedures in the upper limbs of patients that have undergone procedures on the axilla or breast. *Ann Transl Med*. 2024;12(4):70. doi:10.21037/atm-23-1815

20. National Cancer Institute. Lymphedema (PDQ®)–Patient Version. Updated August 31, 2023. Accessed January 13, 2026. https://www.cancer.gov/about-cancer/treatment/side-effects/lymphedema

21. Centers for Disease Control and Prevention. Lymphedema. Updated August 26, 2024. Accessed January 13, 2026. https://www.cdc.gov/cancer-survivors/patients/lymphedema.html

22. National Lymphedema Network. Position papers. Accessed January 14, 2026. https://lymphnet.org/page/position-papers

23. Shady KL. Using the ipsilateral arm in patients with breast cancer: an evidence-based practice project and practice change. *Clin J Oncol Nurs*. 2025;29 (3):212-218. doi:10.1188/25.CJON.212-218