

# Prevention, Surveillance, and Treatment of Breast Cancer–Related Lymphedema: The Role of the Advanced Practice Provider

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Breast cancer–related lymphedema is a lifelong disease associated with decreased quality of life and increased healthcare costs. Evidence supports early detection and prompt treatment through prospective surveillance models as standard of care. Additional research on risk stratification and predictive modeling may lead to patient-centered treatments. Advanced practice providers are uniquely positioned to develop and implement comprehensive lymphedema programs focused on treatment and prevention pathways.

## AT A GLANCE

- Lymphedema is the result of progressive, inflammation-induced fibrosis and responds more favorably to early intervention as compared to late-stage disease.
- Best practice and national clinical guidelines recommend prospective lymphedema surveillance models as standard of care.
- Investigating mechanisms behind individual susceptibility can aid in the development of risk-driven and personalized treatment pathways.

## KEYWORDS

breast cancer–related lymphedema; risk factors; quality of life; early intervention

## DIGITAL OBJECT IDENTIFIER

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**B**reast cancer–related lymphedema (BCRL) is a complex and often devastating complication of BC treatment. Because of the high prevalence of BC, BCRL is the leading cause of lymphedema in the United States and other high-income countries (Rockson, 2018). This chronic inflammatory condition involves the accumulation of protein-rich fluid in the interstitial tissue secondary to the inability of the lymphatic system to adequately transport lymph fluid, causing progressive abnormal swelling in the extremity (Rockson, 2018). Patients with lymphedema may report pain, heaviness, swelling, decreased limb function, and decreased quality of life. In later stages, there may be significant functional impairment, physical disfigurement, and an increasing lack of response to treatments, which often leads to profound psychosocial implications (Pusic et al., 2013; Taghian et al., 2014; Togawa et al., 2021). Recurrent cellulitis is a risk in all stages of disease, frequently requiring hospital admission for IV antibiotics and, in some cases, long-term prophylaxis. In addition, infections secondary to lymphedema are often associated with further exacerbation of the disease (Dayan et al., 2018). The available treatments for BCRL are often inadequate, labor intensive, time-consuming, and expensive, with a well-demonstrated economic burden. Costs associated with BCRL range from \$14,877 to \$23,167 per individual patient for two-year treatment in the United States, with additional expenses incurring with each episode of cellulitis and hospital admission (Bian et al., 2023; Shih et al., 2009). The financial burden to patients and society increases further when accounting for indirect costs, which can include lost wages, reduced productivity, and time away to attend intensive therapy sessions (De Vrieze et al., 2020).

## Incidence

BCRL affects 20%–35% of patients who undergo axillary lymph node dissection. Despite significant advances in the de-escalation of axillary surgery using lymphatic mapping and sentinel lymph node biopsy—a procedure in which only a few lymph nodes are removed—the risk of lymphedema