



# Surgical Transformation.

## Improved Breast Cancer Care with Surgical Nudges

### **The Challenge: Overcoming Clinical Inertia in Breast Cancer Surgery**

In 2021, breast surgeons at a leading academic health system faced a persistent challenge: translating national guidelines into consistent clinical practice. Despite Choosing Wisely recommendations advocating against routine sentinel lymph node biopsy (SLNB) for older women with early-stage, hormone receptor-positive breast cancer, adoption rates remained stubbornly low. Most patients over 70 were still undergoing SLNB, a procedure with minimal survival benefit in this population but a known risk of complications like lymphedema. The problem was deeply rooted, encompassing established cultural norms, clinical inertia, and the inherent complexities of individual patient cases. The health system recognized that simply educating surgeons wasn't enough; they needed a more integrated approach to support evidence-based de-escalation. Furthermore, their existing data infrastructure lacked the granularity to provide the nuanced insights needed to confidently implement these guidelines, particularly regarding patient-reported symptoms like lymphedema and detailed tumor biology.



### **The Solution: Data-Driven Insights Pave the Way for a Prospective Intervention**

The health system turned to Carta Healthcare, initially focusing on leveraging Carta Healthcare's Natural Language Understanding (NLU) pipeline to unlock the wealth of information within their electronic health records (EHRs). The team conducted a comprehensive retrospective analysis, utilizing Carta Healthcare to analyze over 580,000 clinical documents across their network of 15 hospitals. This in-depth analysis yielded striking results, going far beyond the limitations of traditional chart reviews. The data revealed that in patients with early-stage, ER-positive, node-negative breast cancer, the rates of arm lymphedema consistently exceeded the rates of node positivity, particularly in tumors smaller than 2 cm. These powerful findings suggested that the omission of SLNB could be safely extended to a broader group of women, including younger postmenopausal patients. Crucially, Carta Healthcare's platform demonstrated the ability to capture granular clinical details across both structured and unstructured records with an impressive 95% accuracy, providing insights that standard registry data simply couldn't offer.

### **The Intervention: Embedding Evidence at the Point of Care**

Building upon the compelling insights generated by the retrospective analysis, the team collaborated with Carta Healthcare to implement a prospective intervention: a subtle, context-aware "nudge" directly integrated into their Epic EHR system. When a surgeon accessed their scheduling tool, the system automatically flagged patients who met the Choosing Wisely criteria for potential SLNB omission. This intervention was designed to be seamless and non-disruptive, requiring no extra clicks or forced prompts – just a timely visual cue to remind surgeons of the evidence-based recommendations at the precise moment of clinical decision-making.





# The Impact:

## Immediate and Sustained Improvement in Surgical Practice

The integration of the Carta Healthcare-powered nudge into the EHR yielded immediate and significant results:

**Dramatic Reduction in SLNB Rates:** Within just 12 months of the intervention, SLNB rates for the targeted patient population plummeted by nearly 50%, decreasing from 47% to a more evidence-aligned 24%.

**High Surgeon Acceptability and Feasibility:** Surgeons reported high levels of acceptance and perceived feasibility of the intervention, noting that it effectively standardized care without disrupting their existing clinical workflows.

**No Negative Impact on Downstream Treatment:** The reduction in SLNB procedures did not negatively influence subsequent treatment decisions for breast cancer patients.

**Significant Decrease in Lymphedema Referrals:** Referrals for lymphedema symptoms decreased by nearly half, indicating a tangible benefit for patients.

**Sustained Change in Practice:** Importantly, the positive trend of declining SLNB rates continued even after the initial study period concluded, suggesting a lasting shift in clinical practice.



### **The Conclusion: A Blueprint for Smarter, Less Invasive Cancer Care**

This case study demonstrates the transformative power of combining data-driven insights with subtle, point-of-care interventions to improve adherence to evidence-based guidelines and ultimately enhance patient care. By partnering with Carta Healthcare, this leading academic health system successfully overcame the challenges of clinical inertia and implemented a sustainable change in surgical practice, reducing unnecessary procedures and improving patient outcomes in breast cancer care. The success of this initiative has now become a blueprint, with the health system scaling Carta Healthcare's NLU and nudge interventions beyond breast surgery to drive smarter, less invasive care across their entire oncology service line.