



Operative Time and RVU Efficiency of Lymphatic Reconstruction (ILR, LVB, VLNT): A National NSQIP Study

RUTGERS

Nitya Devisetti BS¹, Nishitha Chaayanath BS¹, Shanen Mulles MD¹, Yida Cai MD¹, Alex K. Wong MD¹

1. Rutgers New Jersey Medical School

BACKGROUND

Lymphedema: A Preventable Complication

Breast cancer-related lymphedema (BCRL) affects up to 30–40% of patients following axillary lymph node dissection, causing chronic swelling, pain, and reduced quality of life.

Immediate Lymphatic Reconstruction (ILR) performed concurrently with ALND anastomoses disrupted lymphatics to a nearby vein — preventing lymphedema at the time of initial surgery.

Therapeutic LVB/VLNT addresses established lymphedema by creating new lymphatic drainage pathways or transferring vascularized lymph node tissue.

PROBLEM: Despite proven efficacy, no dedicated CPT codes exist for ILR. Both ILR and therapeutic lymphatic reconstruction are captured under non-specific codes, leaving national benchmarks for operative time and efficiency undefined.

ILR penetration remains at only 0.29% of ALND cases nationally, likely reflecting limited access to specialized microsurgical centers rather than low demand.

METHODS

- 1.Database:** ACS-NSQIP Participant Use Files (2005–2023); adult female breast reconstruction patients
- 2.Cohorts:** Neurotization identified by concurrent nerve repair/neurorrhaphy CPT codes (64910–64912, 64831–64868)
- 3.Outlier control:** Operative times below 10th and above 90th percentile excluded
- 4.Outcomes:** Median operative time (min), wRVU/hour efficiency, temporal trends
- 5.Statistics:** Wilcoxon rank-sum tests; linear regression for temporal modeling

RESULTS

0.29%

ILR PENETRATION
OF ALND CASES

–54%

WRVU/HR: ILR
VS. CONTROL

–36%

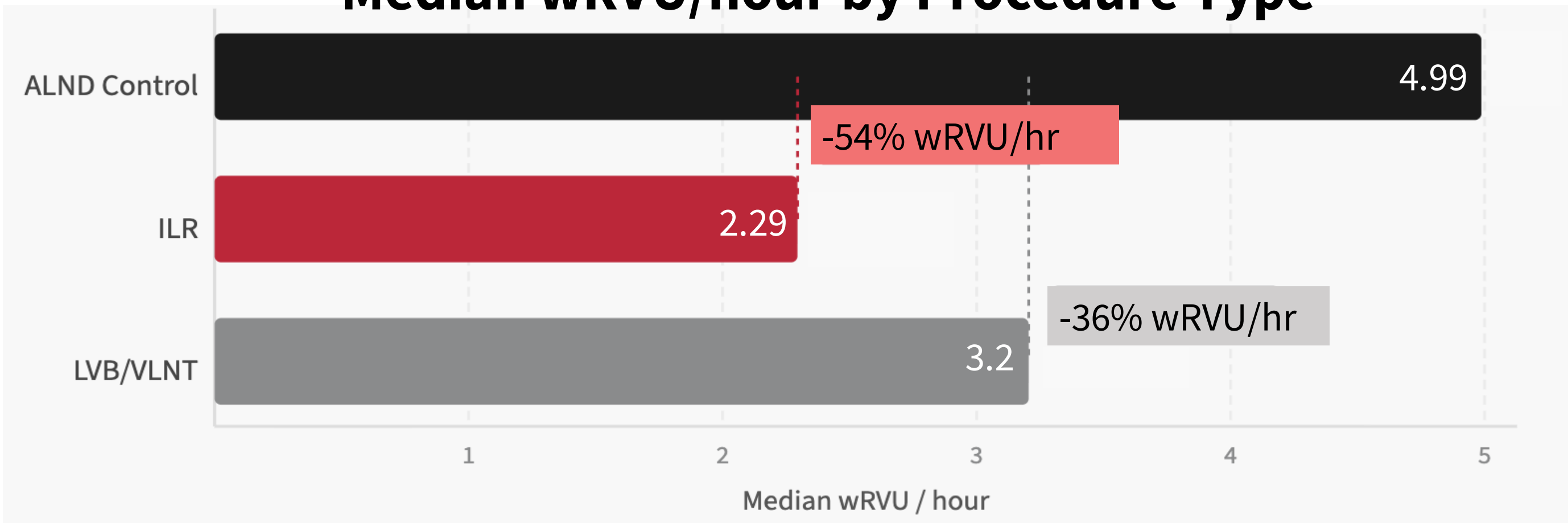
WRVU/HR: LVB/VLNT
VS. CONTROL

Operative Time & RVU Efficiency of Lymphatic Reconstruction v.s. ALND

Cohort	Case Count	Median OpTime, min (IQR)	Median wRVU/hr (IQR)	p-value*
*Control (ALND ± mastectomy)	230,188	150 (126)	4.99 (4.09)	Ref
Immediate Lymphatic Reconstruction	663	78.5 (183.5)	2.29 (2.07)	<0.001
Therapeutic LVB/VLNT	145	238 (189)	3.20 (2.48)	<0.001

* p-values reflect comparison with ALND controls using Wilcoxon rank-sum test; "Ref" indicates reference group.
** ILR operative time reflects incremental plastic surgery contribution after subtracting mean ALND control time.

Median wRVU/hour by Procedure Type



ILR and LVB/VLNT yield **54% and 36% lower wRVU/hour** respectively vs. ALND controls — demonstrating systemic undervaluation of lymphatic microsurgery under current CPT coding.

DISCUSSION

Systemic Undervaluation of Lymphatic Microsurgery

- Both ILR and therapeutic LVB/VLNT yield significantly lower wRVU efficiency than ALND — 54% and 36% reductions, respectively — despite demanding specialized microsurgical expertise
- Therapeutic LVB/VLNT represents the first national benchmarks for these procedures; prior data were limited to single-center series
- ILR penetration at only 0.29% of ALND cases nationally likely reflects limited access to microsurgical centers rather than low demand for a procedure proven to prevent lymphedema
- Inadequate reimbursement is a structural barrier to adoption: surgeons performing lymphatic reconstruction earn significantly less per hour than those doing ALND alone, disincentivizing the procedure despite proven patient benefit
- These findings corroborate prior ILR value data (Rochlin et al.) while extending the evidence base to therapeutic lymphatic reconstruction at a national scale
- Findings support dedicated CPT code creation and wRVU revaluation through the AMA-RUC process to align compensation with operative effort
- Without revaluation, patients lose access to lymphedema prevention** — appropriate coding and valuation is a prerequisite for equitable access to lymphatic microsurgery

LIMITATIONS

- NSQIP does not capture all ILR — unlisted CPT codes excluded
- ILR incidence (0.29%) likely an underestimate
- wRVU adjustment is an approximation; individual billing variation not captured