

Background

- Advances over the past decades have simplified aspects of breast reconstruction; these advances include prepectoral implant placement, acellular dermal matrix (ADM), and oncoplastic surgery.
- Considering these simplifications, there is a potential opportunity for surgeons without plastic surgical training to perform breast reconstructive procedures.
- Purpose: Evaluate US trends in the **plastic surgical market share of breast reconstructive operations** using two nationwide databases.
- Hypothesis: Plastic surgeons have lost market share of alloplastic and oncoplastic reconstruction, while rates of free flap reconstruction remain unchanged due to the high technical demands of microsurgical operations.

Methods

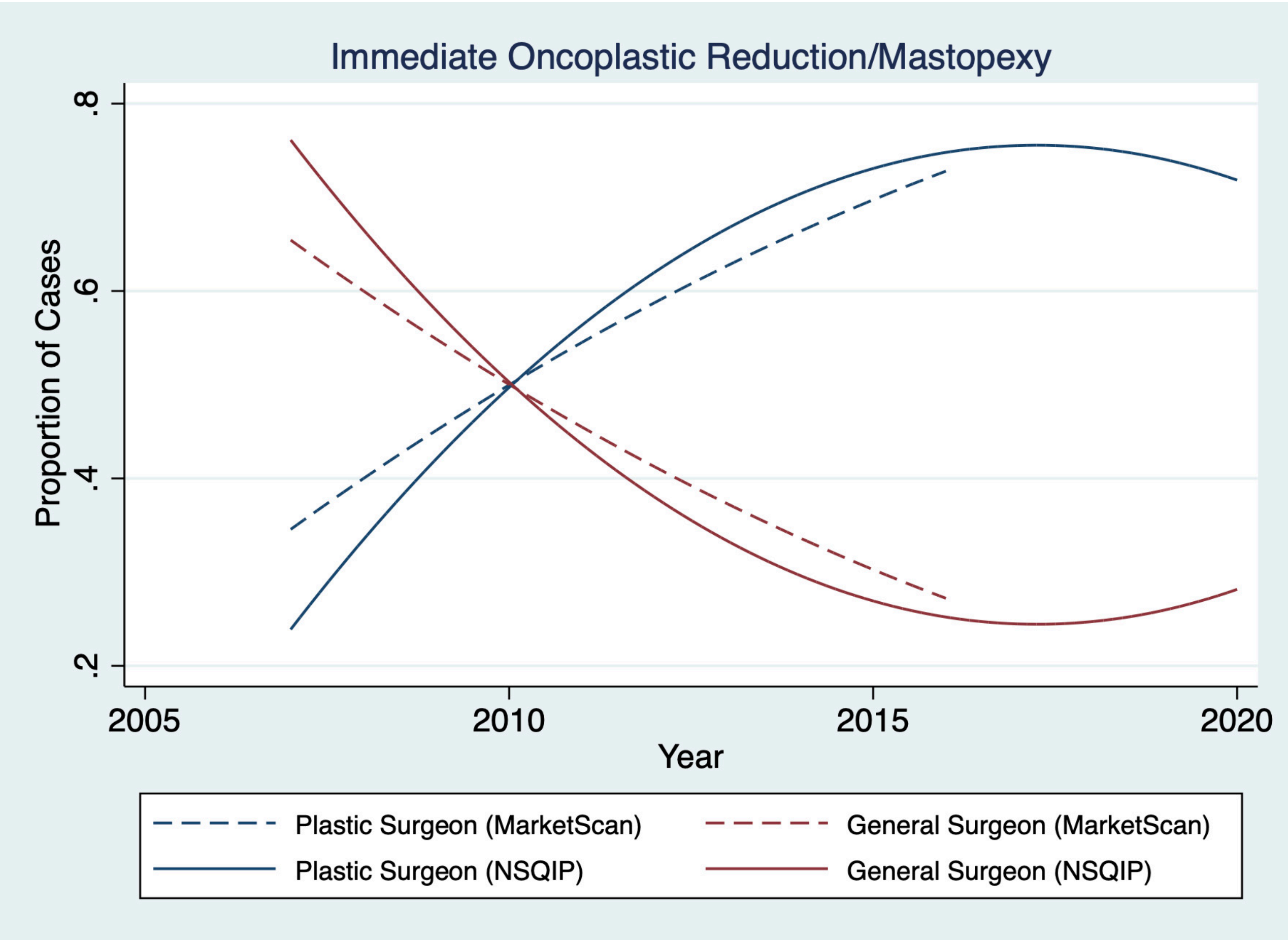
- American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) database (2005-2020) and IBM® MarketScan® Research Databases (2006-2017) were queried to identify women who underwent mastectomy with alloplastic (tissue expander or implant-based) or free flap reconstruction, or lumpectomy with oncoplastic reconstruction (breast reduction, mastopexy, or local/regional flap).
- MarketScan included immediate and delayed reconstructions, while all NSQIP reconstructions were immediate.
- Poisson regression with incident rate ratios (IRRs) modeled trends in surgeon type over time.

Results

Table 1. Breakdown of reconstructive procedures by surgeon specialty

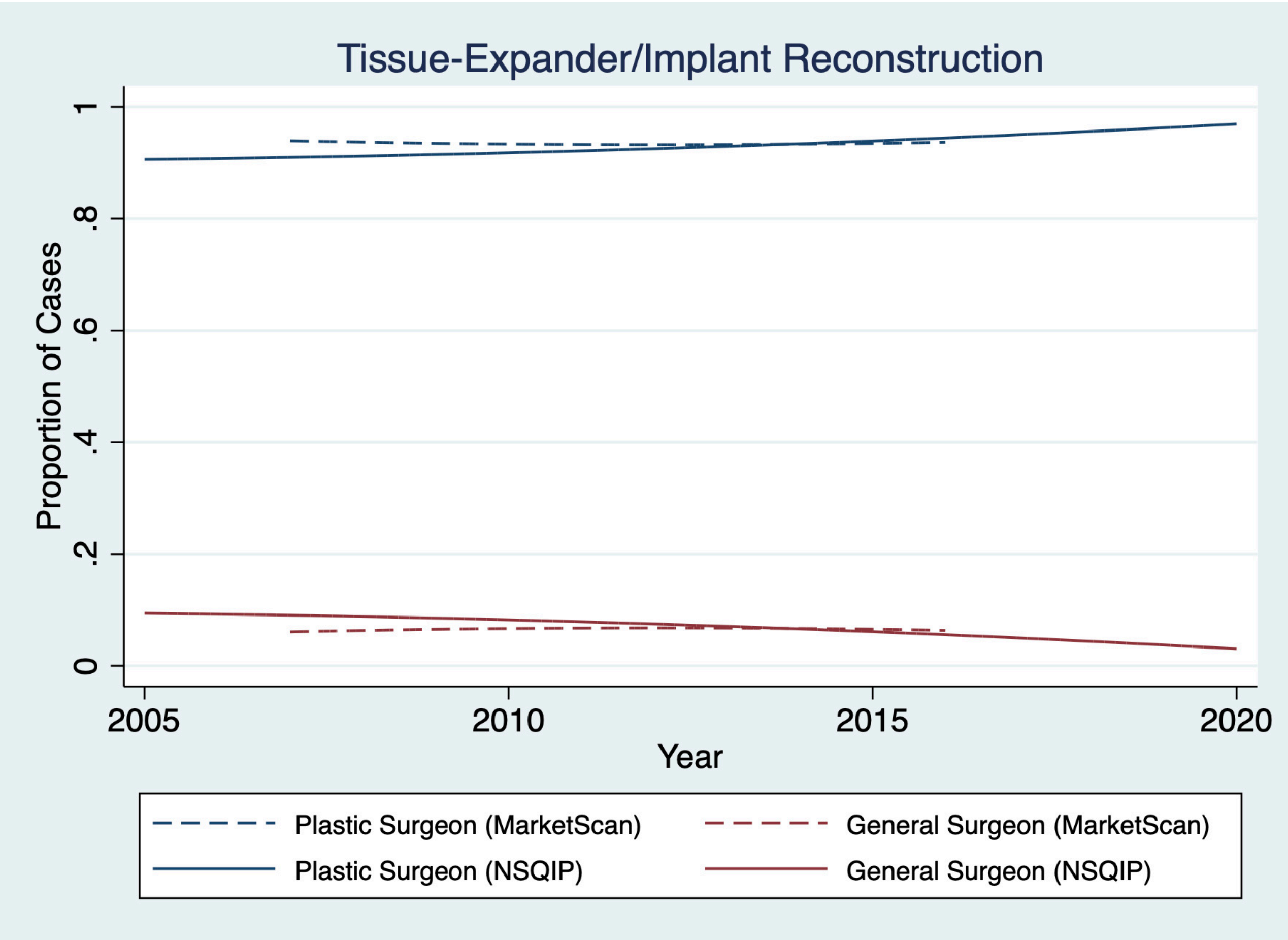
	NSQIP 2005 – 2020			MarketScan 2007 – 2016		
	Total	Plastic	General	Total	Plastic	General
<i>Mastectomy</i>	186,100			121,407		
Immediate free flap	7,533	7,363 (97.7%)	170 (2.3%)	3,204	2,821 (92.5%)	229 (7.5%)
Delayed free flap	-	-	-	1,318	1,175 (92.0%)	102 (8.0%)
Immediate TE/implant	60,925	57,214 (93.9%)	3,711 (6.1%)	50,480	45,093 (93.4%)	3,198 (6.6%)
Delayed TE/implant	-			5,209	4,920 (95.4%)	235 (4.6%)
<i>Lumpectomy</i>	345,545			440,570		
Immediate mastopexy/reduction	4,593	3,147 (68.5%)	1,446 (31.5%)	4,356	2,408 (57.8%)	1,759 (42.2%)
Delayed mastopexy/reduction	-	-	-	246	229 (95.4%)	11 (4.6%)
Immediate locoregional flap	300	227 (75.7%)	73 (24.3%)	355	248 (73.6%)	89 (26.4%)

Figure 1. Oncoplastic reconstruction over time by surgeon type



Proportion of immediate cases per year performed by plastic surgeons:
 NSQIP – IRR 1.041, 95% CI 1.030 – 1.052, p<0.001
 MarketScan – IRR 1.077, 95% CI 1.060 – 1.094, p<0.001

Figure 2. Alloplastic reconstruction over time by surgeon type

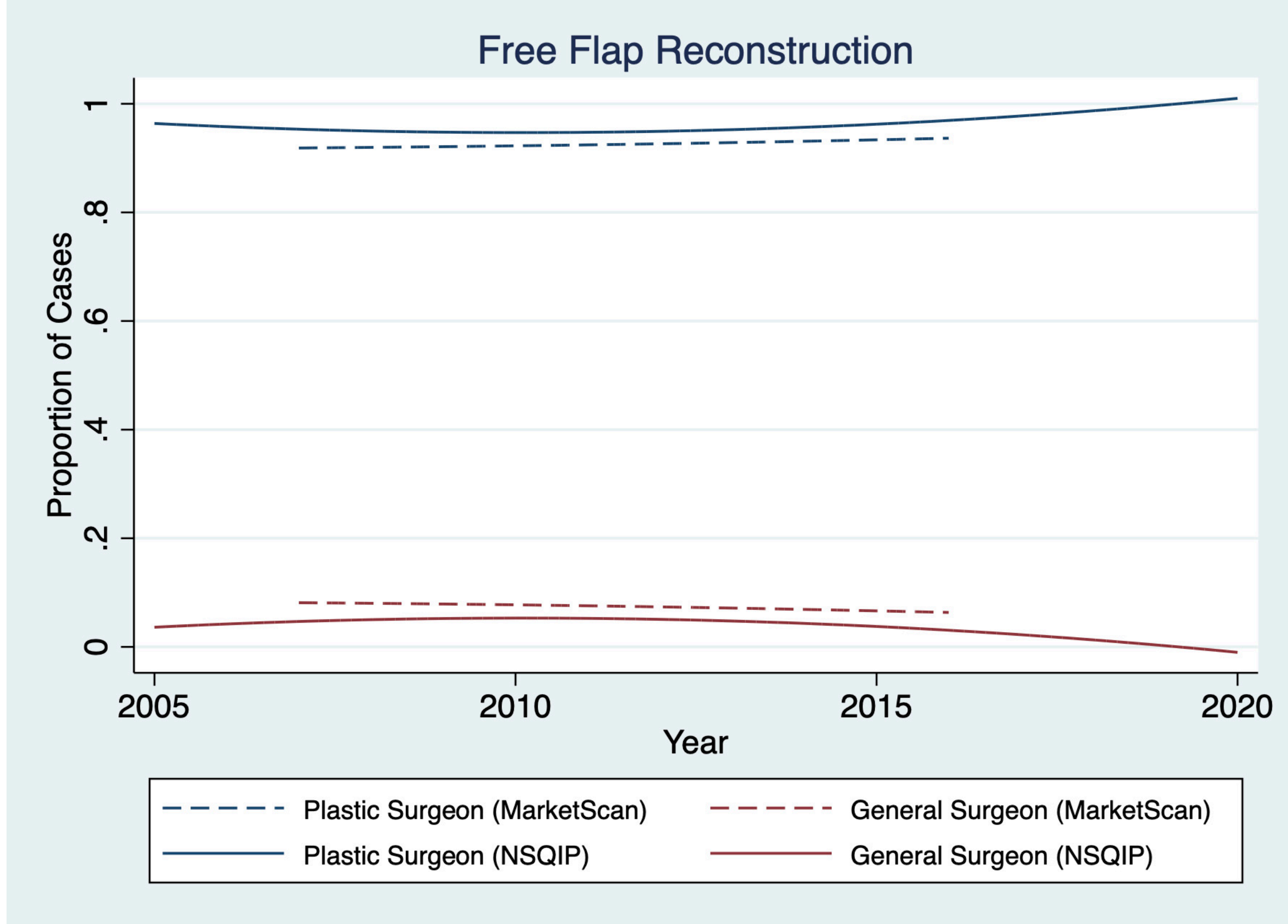


Proportion of cases per year performed by plastic surgeons:
 NSQIP – IRR 1.006, 95% CI 1.004 – 1.008, p<0.001
 MarketScan – no significant trend for immediate or delayed

Conclusions

- Plastic surgeons did not lose market share of alloplastic or oncoplastic breast reconstructions over the past two decades.
- Contrary to concerns within the breast reconstruction community, **plastic surgeons performed an increasing proportion of oncoplastic reductions and mastopexies**, while free flap and alloplastic reconstructive market share remained unchanged.
- Plastic surgeons should lead by innovation, availability, and excellence to reinforce the shared surgeon model for management of breast cancer.

Figure 3. Free flap reconstruction over time by surgeon type



Proportion of cases per year performed by plastic surgeons:
 NSQIP – no significant trend
 MarketScan – no significant trend for immediate or delayed