# Clinical Practice Patterns and Evidence-based Medicine in Abdominoplasty: A Sixteen-year Review of Maintenance of Certification Tracer Data from The American Board Of Plastic Surgery

Joshua P. Weissman, BBA<sup>1</sup>, Michael J. Stein, MD FRCSC<sup>2</sup>; John Harrast, PhD<sup>3</sup>; Peter Ruben MD<sup>4</sup>; Alan Matarasso MD FACS<sup>2</sup>; Arun K. Gosain MD FACS<sup>1</sup> <sup>1</sup>Division of Plastic and Reconstructive Surgery, Northwestern University Feinberg School of Medicine, Chicago, IL; <sup>2</sup>Department of Plastic and Reconstructive Surgery, Lenox Hill Hospital, New York, NY, <sup>3</sup>Data Harbor Solutions, Chicago, IL; <sup>4</sup>American Board of Plastic Surgery

### Introduction

The American Board of Plastic Surgery (ABPS) has collected data on cosmetic surgery tracers as part of the Continuous Certification (CC) process since 2005. The present study was performed to analyze evolving trends in abdominoplasty in the ABPS cosmetic module and to compare changes in practice patterns to publications in Evidence-Based Medicine (EBM) over this timeframe.

### Methods

- Cumulative tracer data for abdominoplasty were grouped into practice patterns from 2005 through 2014 and 2015 through February 2021.
- Fisher's exact tests and two-sample t-tests compared **patient demographics**, common techniques, and complication rates between tracer data from 2005-2014 and 2015-2021.
- Tracer data results were compared EBM articles published in Plastic and Reconstructive Surgery. Topics were placed into categories based on their presence in EBM articles.

### Table 1. Patient Demographics and Preoperative Assessment

Preoperative Assessment	2005-2014 (n=4,740)	2015-2021 (n=4,250)	P value
Smoker	297 (6%)	202 (5%)	.002
<b>Previous Pregnancies</b>	3,637 (77%)	3,095 (73%)	<.001
Previous intra-abdominal operations	1,750 (37%)	1,270 (30%)	<.001
BMI	27	28	<.001
No previous scars	1,720 (36%)	1,685 (40%)	.002
Presence of striae	2,520 (53%)	2,379 (56%)	.008
Hospital inpatient	1,086 (23%)	788 (19%)	<.001

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### Table 2: Surgical Techniques

Surgical Techniques	2005-2014 (n=4,740)	2015-2021 (n=4,250)	P value
DVT Prophylaxis			
Static compressive stockings	1,351 (29%)	1,032 (24%)	<.001
Sequential compression devices after surgery	1,319 (28%)	975 (23%)	<.001
Low molecular weight heparin	632 (13%)	872 (21%)	<.001
Liposuction with Abdominoplasty			
Abdominal Flap	836 (18%)	1,068 (25%)	<.001
Thighs	457 (10%)	308 (7%)	<.001
Undermining (Full)	3,861 (81%)	3,201 (75%)	<.001
Fascial Repair (Vertical plication)	4,236 (89%)	3,645 (86%)	<.001
Drains	4,398 (93%)	3,791 (89%)	<.001

Cumulative data included 4740 cases from 2005 to 2014 and 4250 cases from 2015 to 2021. There were 390 participating surgeons, of which 104 surgeons participated only in the first cohort, 107 surgeons participated only in the later cohort, and 179 surgeons participated in both cohorts.

A review of the national ABPS abdominoplasty tracer data allows surgeons to compare their practice with national trends and EBM. Analysis of this CC tracer data highlights important trends in clinical practice over the last 16 years. Overall, we find that despite surgeons operating on higher BMIs and more aggressively liposuctioning the abdominoplasty flap, more abdominoplasties are being done with no complications and without the need for revisionary surgery.

## Table 3. Postoperative Adverse Events

Adverse Events	2005-2014 (n=4,740)	2015-2021 (n=4,250)	P value
None	3 677 (78%)	3 445 (81%)	<.001
	5,077 (7670)	5,115 (0170)	
Infection requiring oral antibiotics only	198 (4%)	141 (3%)	.035
Umbilical necrosis	44 (1%)	12 (0%)	<.001
Seroma	391 (8%)	282 (7%)	.004
Prolonged Edema	57 (1%)	66 (2%)	.172
Asymmetry	28 (1%)	28 (1%)	.690
Hematoma	50 (1%)	50 (1%)	.615
DVT	15 (0%)	10 (0%)	0.550
Pulmonary emboli	13 (0%)	10 (0%)	0.835
Contour irregularities	61 (1%)	48 (1%)	0.501
Recurrent skin laxity	37 (1%)	31 (1%)	0.808
Other	241 (5%)	192 (5)	0.212
Reoperation	488 (10%)	350 (8%)	<.001

### Results

### **Patient Demographics**

Comparing patient selection practices, the latter group had significantly fewer pregnancies (77% vs 73%, p<.001), previous intra-abdominal surgeries (37% vs 30%, p<.001), body scars (64% vs 60%, p=.001), and excess skin over the umbilicus (74% vs 71%, p=.009). The later cohort also had a significantly higher BMI (p<.001) and presence of striae (53% vs 56%, p=.008).

### Surgical techniques

- Comparing surgical practices, more abdominoplasties are being done in the outpatient setting (77% vs 81%, p<.001) and more surgeons are prescribing LMWH heparin (13% vs 21%, p<.001) instead of postoperative sequential compression devices (28% vs 23%, p<.001).
- Liposuctioning the abdominal flap, hips, and flank is becoming more common while liposuctioning the thighs less common (p<.001).
- There has also been a decline in the use of wide undermining (81% vs 75%, p<.001), vertical plication of the abdomen (89% vs 86%, p<.001), and surgical drains (93% vs 89%, p<.001).

### **Complications Rates and Need for Revision**

Significantly more abdominoplasties in the later cohort were being done with no complications (78% vs 81%, p<.001) and without the need for revisionary surgery (90% vs 92%, p<.001). The most common complication amongst both cohorts was seroma (7%).

## Conclusions