Liposuction Complications Reporting Occurring In Ambulatory Surgery Centers: An Analysis Of The American Association For Accreditation Of Ambulatory Surgery Facilities (AAAASF) Patient Safety Data Reporting From 2019-2021

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American Association of Plastic Surgeons 101st Annual Meeting May 1, 2023
Disclosures

Grant funding from the AAAASF (QUAD A) organization was utilized in the completion of this study.

McGraw-Hill Royalties (SJL)

AAAASF is now Quad A
A Systematic Review Evaluating the Impact of Medical Administration on Racial Disparities in Breast Surgery from the ACS-NSQIP Registry

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J Reconstr Microsurg 2020;36:592–599

Ensemble, The Renaissance

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Background

• American Association for Accreditation of Ambulatory Surgery Facilities (AAAASF, QUAD A)

• Currently accredits 2,969 facilities overall
  • 937 specifically plastic surgery-focused

• Only one of 3 accreditation agencies that requires mandatory complication reporting
Data Collection

• **1999**: Internet-Based Quality Assurance and Peer Review (IBQAP) reporting system was created

• **2004**: Keyes at al. analyzed data from IBQAP
  • Found 1.94 deaths per 100,000 from 2001-2002 (0.002% mortality rate) among all procedures
  

• **2008**: Keyes at al. found 2.02 deaths per 100,000 (0.002% mortality rate) from 2001-2006

Quantifying the Crisis: Opioid-Related Adverse Events in Outpatient Ambulatory Plastic Surgery

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**Background:** The United States is currently in the midst of an opioid epidemic precipitated, in part, by the excessive outpatient supply of opioid pain medications. Accordingly, this epidemic has necessitated evaluation of practice and prescription patterns among surgical specialties. The purpose of this study was to quantify opioid-related adverse events in ambulatory plastic surgery.

**Methods:** A retrospective review of 43,074 patient profiles captured from 2001 to 2018 within an American Association for Accreditation of Ambulatory Surgery Facilities quality improvement database was conducted. Free-text search terms related to opioids and overdose were used to identify opioid-related adverse events. Extracted profiles included information submitted by accredited ambulatory surgery facilities and their respective surgeons. Descriptive statistics...
Patient Safety Data Reporting (PSDR) System

- **2018-2022**: Restructuring and reorganization of more than 20 years of data collection to a new standardized format
  - Improved data used in this study

- Multi-year project that involved manual consolidation and recoding of ~750,000 index cases into usable search terms and CPT listings

- Required careful clinician involvement and oversight to serve as quality control

- **End product**: updated and refined database that facilitates efficient and organized tracking
Purpose

• Find the **highest accuracy** of a true incidence of complications

• Provide an updated window into the outpatient surgery space on a national level

• Ultimate goal of enabling evidence-based improvements in patient safety
Methods

• Years 2019-2021

• Cases involving liposuction were identified by CPT codes and each note was queried

• Divided complications into categories

Seroma  Hematoma  Infection  ED visit  Wound disruption  Reoperation  Intra-op Complication  VTE

• Statistics: R version 4.2.2
Methods

- Total number of liposuction procedures was estimated by QUAD A team members using facility data.
- Survey distributed to accredited facilities to collect number of completed cases per quarter that were missing.
- QUAD A used collected data in conjunction with facility averages to model reported periods → yield estimated total liposuction cases.
Results: Demographics

- 984 patients with complications
- Median age: 44 years
- Majority of cases involved trunk liposuction (753, 77%)
- Median length of procedure: 225 minutes

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N = 984 ¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>44 (37, 53)</td>
</tr>
<tr>
<td>BMI</td>
<td>28.7 (25.7, 32.2)</td>
</tr>
<tr>
<td>Region</td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>90 (9)</td>
</tr>
<tr>
<td>Midwest</td>
<td>106 (11)</td>
</tr>
<tr>
<td>Southwest</td>
<td>125 (13)</td>
</tr>
<tr>
<td>Southeast</td>
<td>431 (44)</td>
</tr>
<tr>
<td>West</td>
<td>232 (24)</td>
</tr>
<tr>
<td>Site</td>
<td></td>
</tr>
<tr>
<td>Head and neck</td>
<td>41 (4)</td>
</tr>
<tr>
<td>Trunk</td>
<td>753 (77)</td>
</tr>
<tr>
<td>Upper extremity</td>
<td>51 (5)</td>
</tr>
<tr>
<td>Lower extremity</td>
<td>139 (14)</td>
</tr>
<tr>
<td>Length of procedure (minutes)</td>
<td>225 (150, 305)</td>
</tr>
<tr>
<td>Annual average liposuction volume</td>
<td>165 (84, 341)</td>
</tr>
</tbody>
</table>

¹Median (IQR); n (%)
Results: Regional Differences

- Complications more common in Southeast region (441, 43.5%) followed by West
- 13 out of 21 deaths occurred in the Southeast (61.9%)
Results: Total Complications

- Death: 21 (2%)
- Hematoma: 163 (17%)
- Intraop Complication: 14 (1%)
- Other Complication: 199 (20%)
- Seroma: 119 (12%)
- ED Presentation: 237 (24%)
- Reoperation: 182 (18%)
- VTE: 196 (20%)
- Wound disruption: 77 (8%)
- Infection: 186 (19%)
Results: Length of Procedure

Wound breakdown: 261.5 minutes (longest)

Hematoma: 205.0 minutes (shortest)
Results: BMI

VTE: 30.1 kg/m$^2$ (highest)

Death: 29.94 kg/m$^2$
Results: Case Volume

Death: 241 annual cases per year (highest)

Infection: 107 annual cases per year (lowest)
Results: Overall Complication Rate

- Estimated total case volume provided by QUAD A from 2019-2021: **246,119 cases**

- Total confirmed complications: **984 complications**

- Overall complication rate: **0.40%**

- Overall mortality rate: **0.009%**
  - 21 deaths
  - 18 (85.7%) were from procedures of the trunk
  - 13 out of 21 deaths occurred in the Southeast (61.9%)
Limitations

• Data dependent on the veracity of reporting from participating facilities

• Notes that accompanied complications lack context and follow-up

• Liposuction associated complications (additional procedures possible)

• Patients that experienced subsequent complications after reporting going unrecognized

Highlights the need for more accurate, detailed and longitudinal tracking of complications
Improving Patient Outcomes

• Updated, standardized reporting systems can more efficiently and accurately be used for analyzing patient outcomes

• Ultimately can be used to influence healthcare policy in the ambulatory surgery center
National Mortality Rates after Outpatient Cosmetic Surgery and Low Rates of Perioperative Deep Vein Thrombosis Screening and Prophylaxis

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**Background:** Concerns have arisen over reports of deaths occurring after certain outpatient plastic surgery procedures. Here, the authors present a national analysis, reporting on deaths occurring after outpatient cosmetic surgical procedures and venous thromboembolism screening.

**Methods:** A retrospective analysis of the American Association for Accreditation of Ambulatory Surgical Facilities database was performed for the years 2012 to 2017. The authors retrieved data for all deaths occurring in association with cosmetic plastic surgery procedures. Patient demographics, procedural data, venous thromboembolism risk factor assessment, and cause of death were analyzed. Deidentified medical records, including coroner’s reports, were reviewed where available.

- Queried 2012 through 2017 → 42 deaths
- VTE risk factor assessment incorrect or absent in 25/42 cases
- Called for optimization of thromboembolism prevention to lower outpatient mortality which led to Quad A policy change
Conclusions

• Liposuction complications
  • Associated with highest length of procedure times: wound breakdown
  • Associated with highest BMI: venous thromboembolism/death
  • Associated with highest case volume: death

• Regional differences – volume competition from non-board certified plastic surgery centers?

• Overall complication rate: 0.40%
• Overall mortality rate: 0.009%
Conclusions

• Outpatient surgery outcomes reporting is traditionally elusive

• Future studies planned to further understand outpatient outcomes
Acknowledgements

-AAPS

-Executive team at QUAD A, Tom Terranova, JD (CEO)
-Paul Hwang, MD
-Research fellows: Lauren Valentine and Allan Weidman, Jose Foppiani for their support and assistance with this project.