MOC-PS™ CME Article: Patient Safety in the Office-Based Setting

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Learning Objectives: After studying this article, the participant should be able to: 1. Discern the importance of the physician’s office administrative structure. 2. Recognize the necessity of a system for quality assessment. 3. Assess which procedures are safe in the office-based setting. 4. Know the basic steps for properly evaluating patients for office-based plastic surgery.

Summary: This article reviews the literature on office-based patient safety issues. It places special emphasis on the statements and advisories published by the American Society of Plastic Surgeons’ Convened Task Force on Patient Safety in the Office-Based Setting. The article divides patient safety in the health care delivery system into four broad categories. First, patient safety starts with emphasis at the administrative level. The physician or independent governing body must develop a system of quality assessment that functions to minimize preventable errors and report outcomes and errors. Second, the clinical aspects of patient safety require that the physician evaluate whether the procedure(s) and the patient are proper for the office setting. Third, this article gives special attention to liposuction, the most frequently performed office-based plastic surgery procedure. Finally, the article reviews the management of postoperative pain, nausea, and vomiting. Patient safety must be every physician’s highest priority, as reflected in the Hippocratic Oath: primum non nocere (“first, do no harm”).

The Maintenance of Certification module series is designed to help the clinician structure his or her study in specific areas appropriate to his or her clinical practice. This article is prepared to accompany practice-based assessment of preoperative assessment, anesthesia, surgical treatment plan, perioperative management, and outcomes. In this format, the clinician is invited to compare his or her methods of patient assessment and treatment, outcomes, and complications with authoritative, information-based references. This information base is then used for self-assessment and benchmarking in parts II and IV of the Maintenance of Certification process of the American Board of Plastic Surgery. This article is not intended to be an exhaustive treatise on the subject. Rather, it is designed to serve as a reference point for further in-depth study by review of the reference articles presented. (Plast. Reconstr. Surg. 122: 1, 2008.)

Primum non nocere (“first, do no harm”).

—Hippocratic Oath

According to the Institute of Medicine,1 44,000 to 98,000 Americans die annually as a result of preventable medical errors. Using the lower of these estimates, medical mistakes become the eighth leading cause of American death—more than motor vehicle accidents, breast cancer, or acquired immune deficiency syndrome.1 The annual cost of adverse and preventable adverse events lies between $54.6 and $79 billion, which accounts for 6 percent of total national health care expenditures—more than the entire cost of caring for people with human immunodeficiency virus and acquired immune deficiency syndrome.1 The cost of medical mistakes is even more staggering when considering expenses associated with malpractice litigation, which encompasses increased physician malpractice premiums2 and intangible

Disclosure: None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this article.

expenses such as additional testing performed primarily to avoid legal repercussions as opposed to optimizing patient care.

Because some 80 percent of operations are today performed as outpatient procedures, some blame office-based surgery for a disproportionate share of the cost associated with preventable medical errors and adverse events. Furthermore, because office-based surgery is largely unregulated, such critics controversially label office surgery as the “wild, wild west of health care.” Outpatient plastic surgery, however, can be safe, as demonstrated by Byrd et al. in their 5316-consecutive-case review, which found a complication rate of less than 1 percent. Furthermore, multiple studies have shown outpatient complication rates between 0.33 and 0.7 percent and a mortality rate of approximately 0.002 percent. Indeed, many if not most of the office-based plastic surgery injuries arise from physicians practicing outside their medical training. Recognizing safety as a top priority, in 2002 the American Society of Plastic Surgeons Board of Directors convened the Task Force on Patient Safety in Office-Based Surgery Facilities (chaired by Ronald E. Iverson). The Task Force has published several statements and advisories to help assist physicians in clinical decision-making, emphasizing patient safety as the foremost concern in the practice of plastic surgery.

This CME article attempts to highlight and summarize these patient safety practice statements and advisories. It organizes patient safety health care delivery in a fourfold manner. First, patient safety starts at the administration level with the qualified physician’s or independent governing body’s recorded emphasis on patient safety. This emphasis requires a documented system of quality assessment that effectively functions to minimize preventable errors—a system that includes regular reporting of outcomes and errors. Second, the clinical aspects of patient safety mandate the careful evaluation of procedures and patients for office-based procedures. The physician must assess the risks inherent in each procedure or combination thereof to determine whether the office-based setting is safe. The physician must also appraise each patient’s medical risk factors and capacity to undergo anesthesia. Third, because liposuction is the most frequently performed office-based plastic surgery procedure, this CME article gives liposuction safety individual attention. Finally, this CME article discusses proper postoperative pain, nausea, and vomiting management.

This CME article does not define rules, is not inclusive or exclusive, and does not serve as the medical care standard. The individual physician, after considering all the circumstances, holds the ultimate judgment regarding patient care. “We must continue to be physicians first, always putting patient safety first . . . Patient safety is our priority and primum non nocere, ‘do no harm,’ is our motto.”

**ADMINISTRATION**

Patient safety improvement is the surgeon’s responsibility, and through the surgeon’s leadership, impressed onto office staff. Office-based operations should only be performed in accordance with written policies that clearly set forth a focus on patient safety and document the hierarchy of responsibility and oversight. Physicians must obtain and maintain appropriate qualifications and training for the procedures they perform.

**Governance**

Office-based surgical practices require policies describing the organization’s structure. The medical director, governing body, or solo practitioner must procure these policies, which should include employee obligations, accountabilities, and supervision. The primary focus of such policies must be quality health care and patient safety. They should include a patient’s bill of rights that emphasizes patient respect, privacy, and confidentiality.

**Physician Qualifications**

Physicians performing office-based surgery must obtain and maintain certification by one of the boards recognized by the American Board of Medical Specialties, the American Osteopathic Association, or an approved state medical board. Physicians must attain such licensure within 5 years of completing an approved residency training program. Perhaps most important, the physician must perform only procedures for which he or she was trained and within the certifying board’s obvious scope.

**SYSTEM OF QUALITY ASSESSMENT**

The patient safety problem, according to the Institute of Medicine, lies not with bad physicians working in good systems, but with good physicians working in bad systems. Office-based practitioners should develop a system of quality care, with an emphasis on continuously improving patient safety.
A system of quality care involves the maintenance of the appropriate facilities, equipment, personnel, protocols, and procedures. The facility and personnel must be properly accredited and licensed, and the equipment should be regularly inspected and maintained. Emergency and transfer protocols must be in place, as should procedures for medical records, informed consent, and discharge. Physicians should directly supervise anesthesia administration unless state law specifically provides otherwise. Physicians should report adverse events and outcomes as part of their quality care improvement and patient safety initiative.

**Surgical Facility Standards**

The facility must be accredited by the American Association for Accreditation of Ambulatory Surgery Facilities, the Accreditation Association for Ambulatory Health Care, the Joint Commission on Accreditation of Healthcare Organizations, or a state-recognized entity such as the Institute for Medical Quality or Medicare Certified under Title XVIII.8,18,19,24

**Emergency and Transfer Protocols**

A system of quality assessment must have written policies that describe protocols for handling emergency situations, including not only medical emergencies but also other foreseeable disasters or acts of God (e.g., fire, power outage). The medical director, governing body, or solo practitioner must ensure appropriate employee training for these protocols, and must secure immediate availability of cardiopulmonary resuscitation equipment.4,8,22,24

Written protocols must further include measures for timely and safe transfer of patients to a prespecified alternate nearby care facility. The physician performing office-based procedures must have admitting privileges at such facility, or a transfer agreement with another physician who has admitting privileges at such facility; alternatively, the physician must maintain an emergency transfer agreement with the nearby facility. The physicians may show competency by maintaining core privileges at an accredited or licensed hospital or ambulatory surgical center for the office procedures they perform.8,21,24

**Personnel**

An effective quality assessment system incorporates office personnel who are appropriately licensed or certified and that have the necessary erudition and expertise to deliver the facility’s services. Such personnel must have clearly specified responsibilities with appropriate supervision.4,22 Personnel with advanced resuscitative technique training (Advanced Cardiac Life Support or Pediatric Advanced Life Support) must be available until all patients have been discharged. All personnel should maintain basic cardiopulmonary resuscitation training.21,22,24

**Informed Consent**

According to insurance industry data, “failure to inform” is one of the most common secondary claims in malpractice lawsuits.26 Thus, the American Society of Plastic Surgeons developed the “Statement of Principle on Informed Consent,” which details the information that should be discussed with and understood by the patient and documented by both physician and patient. Informed consent should include the type and risks of anesthesia, “the details of the surgery, benefits, possible consequences and side effects of the operation, potential risks and adverse outcomes as well as their probability and severity; alternatives to the procedure being considered and their benefits, risks, and consequences; and the anticipated outcome.”27

If a patient watches a video, reads a brochure, or views before-and-after photographs of other patients, the physician should thoroughly document such education processes, as signed consent forms may not be helpful in defending claims without evidence of other documented educational processes.28 For specific procedures, the physician should provide uniform preoperative and postoperative patient education.8

**Medical Records**

Medical records must be decipherable, correct, inclusive, available, and up to date. The record should include the history, physical examination, progress notes, relevant laboratory information, procedural reports such as radiographs or magnetic resonance imaging scans, and important exchanges with other medical personnel. The records must emphasize allergies and adverse drug reactions.4 The physician should document and update medical records contemporaneously with the patient visit or procedure and should include patient comments, whether positive or negative.28 Finally, medical records are confidential; the quality assessment system must include dictates that protect patient information from illicit, unsanctioned, or unintended abstraction, intrusion, alteration, destruction, or divulgence.4
Patient discharge is the surgeon’s and/or anesthesiologist’s responsibility. The patient can be discharged only upon fulfilling physician-defined, written criteria that encompass stable vital signs, alertness and orientation (baseline status), voluntary movement, controlled pain, minimal nausea/vomiting, and per os toleration. Written discharge instructions should include an emergency phone number (Fig. 1).

Reporting Adverse Events

Many physicians do not report their errors because of the justified fear of liability. Lack of reporting is an obstacle to peer review, which is key to improving patient safety. Consequently, the American Society of Plastic Surgeons/Plastic Surgery Educational Foundation and the American Board of Plastic Surgery joined forces to create the Tracking Operations and Outcomes for Plastic Surgery, a Health Insurance Portability and Accountability Act–compliant web-based collection database that compiles plastic surgery procedures and outcomes information. The database information is an internal quality control mechanism for the strict purpose of reducing morbidity and mortality and improving quality control and patient care. Because information reported to Tracking Operations and Outcomes for Plastic Surgery is confidential and is not discoverable or admissible as evidence in a court of law, physicians need not fear liability for reporting their adverse events.

Tracking Operations and Outcomes for Plastic Surgery is an incentive-based program: the plastic surgeon submitting data can earn up to 30 category 1 CME credits (up to 5 hours for each month). It also gives the plastic surgery practice the ability to follow patients over time and create reports that will help the practice negotiate hospital privileges and managed care contracts. Most important, Tracking Operations and Outcomes for Plastic Surgery is a program designed to enhance patient safety in plastic surgery by allowing physicians to learn from their collective mistakes.

Another program is the Internet-based quality improvement and peer review program of the American Association for Accreditation of Ambulatory Surgery Facilities. To participate in the program, the participant must meet certain minimum standards, including maintaining a quality improvement program that monitors, evaluates, and improves patient care; responds to recurrent problems in the facility; and ensures that the facility’s director is aware of and addressing reported problems. At least six cases or 2 percent of a facility’s cases must be reviewed by an independent physician every 6 months to be accredited. All cases must be reported to the program, citing all adverse events.

For reporting purposes, the American Society of Plastic Surgeons, the American Association for Accreditation of Ambulatory Surgery Facilities, the
Accreditation Association for Ambulatory Health Care, and the Joint Commission on Accreditation of Healthcare Organizations agree that an adverse event includes death, unplanned hospitalization or transport, and “other serious events.” These other serious events encompass any event, occurrence, or situation involving a patient’s clinical care that compromises patient safety and results in unanticipated injury requiring the delivery of additional patient healthcare services.30

Finally, Section 101 under Title I of the 2006 Tax Relief and Health Care Act establishes the Physician Quality Reporting Initiative, which is a financial incentive system controlled by the Centers for Medicare and Medicaid Services. The system is a voluntary quality reporting program in which physicians who successfully report a designated set of quality measures on claims may earn a bonus payment, subject to a cap of 1.5 percent of total allowed charges for covered Medicare physician fee schedule services.31

Anesthesia and Analgesia

The physician is primarily responsible for providing and supervising anesthesia and analgesia. A certified registered nurse anesthetist or other qualified health care provider may administer anesthesia,8 but only under direct physician supervision, unless state law specifically provides otherwise.4 The surgeon should follow the American Society of Anesthesiologists Guidelines for Office-Based Anesthesia,22 the American Society of Anesthesiologists Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists,23,24 and the American Society of Anesthesiologists Guidelines for Preoperative Fasting22 (Fig. 2).

The operating room environment is founded on interaction and communication among surgical team members, which include anesthesiologists or anesthesia personnel, support staff, and surgeons. This environment should emphasize patient safety. The surgical team should periodically evaluate its performance in peer review and morbidity conferences.8

Facilities and Equipment

The facility should be outfitted with the appropriate medical equipment, materials, and drugs necessary to provide anesthesia, recovery administration, cardiopulmonary resuscitation, and provisions for potential emergencies.4 Anesthesia equipment should include suctioning apparatus, appropriately sized airway equipment, means of positive-pressure ventilation, intravenous equipment, pharmacologic antagonists, basic resuscitative medications, and in the event of deep sedation, defibrillator equipment23 (Fig. 3). Facilities dispensing anesthesia must also have readily available backup support for all vital equipment failures such as anesthesia equipment and the oxygen delivery system.8 Appropriate equipment must be available to allow proper documentation and monitoring in accordance with the American Society of Anesthesiologists Standards of Basic Anesthetic Monitoring.4

The operating facility should further have basic patient safety devices such as “humidifiers, oximeters, capnography, warming blankets, and pneumatics/compression leg garments.”8 It must also have appropriate “fire-fighting equipment, signage, emergency power capabilities, and lighting.”4 All operative equipment should be inspected, maintained, and tested on a regular basis as recommended by the manufacturer.4,22

The personnel, equipment, and procedures must be adequate to handle potential medical and other emergencies.4 Such emergency preparedness includes the requirement that key operative personnel are certified in Advanced Cardiac Life Support and regularly participate in continuing medical education regarding outpatient surgery advances.8,24

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**Example II. Summary of American Society of Anesthesiologists Preprocedure Fasting Guidelines**

<table>
<thead>
<tr>
<th>Ingested Material</th>
<th>Minimum Fasting Period†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear liquids‡</td>
<td>2 h</td>
</tr>
<tr>
<td>Breast milk</td>
<td>4 h</td>
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<tr>
<td>Infant formula</td>
<td>6 h</td>
</tr>
<tr>
<td>Nonhuman milk§</td>
<td>6 h</td>
</tr>
<tr>
<td>Light meal¶</td>
<td>6 h</td>
</tr>
</tbody>
</table>

* These recommendations apply to healthy patients who are undergoing elective procedures. They are not intended for women in labor. Following the Guidelines does not guarantee a complete gastric emptying has occurred.
† The fasting periods apply to all ages.
‡ Examples of clear liquids include water, fruit juices without pulp, carbonated beverages, clear tea, and black coffee.
§ Since nonhuman milk is similar to solids in gastric emptying time, the amount ingested must be considered when determining an appropriate fasting period.
¶ A light meal typically consists of toast and clear liquids. Meals that include fried or fatty foods or meat may prolong gastric emptying time. Both the amount and type of foods ingested must be considered when determining an appropriate fasting period.

**Fig. 2.** Summary of American Society of Anesthesiologists preprocedure fasting guidelines. (Reprinted from the American Society of Anesthesiologists Task Force on Sedation and Analgesia by Non-Anesthesiologists. Practice guidelines for sedation and analgesia by non-anesthesiologists. *Anesthesiology* 96: 1004, 2002, with permission from the American Society of Anesthesiologists.)
OFFICE-BASED SURGERY PROCEDURE SELECTION

The surgeon must consider the risk factors associated with certain procedures when deciding whether such procedures should be performed in the office-based setting. Hypothermia and intraoperative blood loss can lead to patient instability. Liposuction in combination with multiple procedures increases the likelihood of complications, as can extended procedure duration. The risk of deep vein thrombosis and pulmonary embolus is small but significant, and factors such as nausea, vomiting, pain, and dizziness are common occurrences that can lead to unplanned hospital admissions. The physician must consider these risks factors cumulatively when deciding whether procedures are appropriately suited for the office-based setting.

Hypothermia

Factors contributing to hypothermia include (1) the typical cold operating room environment; (2) the unclothed/unprotected patient; (3) unwarmed intravenous fluids; and (4) the potential anesthetic-induced impairment of thermoregulatory responses. The office surgery suite must have adjustable temperatures that can be monitored appropriately. Warming equipment, including “cutaneous warming devices (Bair Huggers [Aristant, Inc., Eden Prairie, Minn.]), forced air warming blankets, and intravenous fluid warmers,” should also be available. If such antihypothermia measures are not available, the procedure should be limited to less than 2 hours and no more than 20 percent body surface area exposure.

Intraoperative Blood Loss

If the blood loss anticipated is more than 500 cc for an average patient, the procedure should be performed only where adequate blood components are immediately available. If such antihypothermia measures are not available, the procedure should be limited to less than 2 hours and no more than 20 percent body surface area exposure.

Duration of Procedure

Some studies indicate that increased length of surgery correlates with higher postoperative admission rates, whereas others demonstrate that the type of surgery performed and the patient’s general health are better indicators of outcome. Another study suggests that the type of anesthesia used most closely correlates with hospital admission. Extended procedures that end after 3 PM and that are associated with increased incidences of postoperative nausea, vomiting, inflammation, and bleeding may require an overnight stay.

Consequently, the overall procedure duration should be less than 6 hours. For longer operations, special attention should be paid to “patient selection, intraoperative management, and postoperative care.” Longer procedures should also be completed by 3 PM to allow adequate recovery time.
Liposuction

Large-volume liposuction combined with other procedures such as abdominoplasty can cause serious complications. Death associated with isolated lipoplasty is rare (0.0021 percent, or one per 47,415), but mortality increases significantly when lipoplasty is combined with other procedures. When combined with nonabdominoplasty procedures, lipoplasty mortality increases to 0.0305 percent, or one per 7314; when combined with abdominoplasty, with or without other procedures, the lipoplasty mortality increases to 0.0305 percent, or one per 3281.38 The presumed benefits of combined procedures must thus be weighed against potential untoward events. Regardless of the number of procedures, the surgeon should restrict total aspirant to 5000 cc in the office-based setting.18 Liposuction is discussed in greater detail below.

Thromboprophylaxis Measures

Although deep vein thrombosis and pulmonary embolism are among the most widespread surgical procedure complications, most plastic surgeons (up to 60 percent in certain procedures)39 do not use any form of prophylaxis.40 The incidence of deep vein thrombosis could reach as high as 18,340 cases annually.40 Inheritable hypercoagulable conditions include factor V Leiden mutation, hyperhomocysteinemia, prothrombin gene mutation, protein C and S deficiency, antiphospholipid antibody (or lupus anticoagulant) and antithrombin III deficiency, dysfibrinogenemia, polycythemia vera, and heparin-induced thrombocytopenia. Noninheritable risks factors for deep vein thrombosis include surgery, increased age, malignancy, previous miscarriage, pregnancy, oral contraceptives, smoking, postmenopausal hormone replacement therapy, previous thromboembolism, heart failure, obesity, and paralysis.18,41

The physician must identify the patient’s risk factors for deep venous thrombosis by obtaining a detailed patient history and performing a physical examination. The physician should use a comprehensive system or model to assess the patient’s thromboembolic risk. One such risk assessment model is shown in Figure 4.41 This model divides risk factors into “exposing” and “predisposing.”41 The physician sums these risk factors and provides the patient with an overall score. On the basis of this score, the physician assigns the patient to a risk group as follows:

- Moderate risk (two factors):
  - Any age, uncomplicated surgery, additional risk factors.
  - Ages 40 to 60 years, no risk factors.
  - Younger than 40, major surgery, no risk factors.

- High risk (three factors):
  - Uncomplicated surgery and older than 60 years or additional risk factors.
  - Major surgery and older than 40 years or additional risk factors.

- Highest risk (four or more factors):
  - Age 40 years or older, major surgery, and history of venous thromboembolism, cancer, or hypercoagulable state; hip or knee arthroplasty; hip fracture surgery; major trauma; or spinal cord injury.41

The surgeon then provides prophylaxis based on the patient’s thromboprophylaxis risk assessment (Fig. 4)41:

- Low risk:
  - Flexion of knees at a 5-degree angle to maximize blood flow through the popliteal veins.
  - Ambulation three times daily.

- Moderate risk:
  - Low-risk thromboprophylaxis plus:
    - Use of intermittent pneumatic compression stockings with elastic compression stockings (placed before anesthesia induction and continued at all times when the patient is not ambulating).
    - Frequent alteration of operating room table.

- High risk:
  - Low-risk and moderate-risk thromboprophylaxis plus:
    - Consideration of preoperative and postoperative antithrombotic therapy (low-molecular-weight heparin in patients without extensive dissection).18,40

- Highest risk:
  - Low-risk through high-risk thromboprophylaxis plus:
    - Enoxaparin (Lovenox; Sanofi-Aventis, Bridgewater, N.J.) 40 mg subcutaneously once daily postoperatively (first dose 12 hours postoperatively).18
**Office-Based Surgery Patient Selection**

The history and physical examination are among the most important steps a surgeon can take to ensure appropriate patient selection for an office-based procedure. They allow the physician to determine the most appropriate time and facility setting for the operation, and they also provide vital information that helps guide the physician and medical staff with intraoperative and postoperative patient monitoring.

**History and Physical Examination**

The physician must obtain the patient's health, social, and family history, and ascertain allergies (e.g., drug, latex, tape) and medications...
The physician must acquire a review of body systems and document all comorbidities or infirmities (e.g., diabetes, cardiac disease, respiratory disease). The physician or the physician’s designee must perform a thorough physical examination and document the patient’s age, weight, height, appearance, vital signs, and the name of the responsible adult who will assist with postoperative instructions and care (Fig. 6).

(include nonprescription medications). The physician must acquire a review of body systems and document all comorbidities or infirmities (e.g., diabetes, cardiac disease, respiratory disease). The physician or the physician’s designee must perform a thorough physical examination and document the patient’s age, weight, height, appearance, vital signs, and the name of the responsible adult who will assist with postoperative instructions and care.

### Preoperative Tests

The history and physical examination provide physicians with knowledge necessary to order further testing, which should include:

- **Electrocardiogram for patients older than 45 years.**
- **Electrocardiogram at any age when known cardiac conditions are present.**
- **Complete blood count with chemistries as needed for anemia, diabetes mellitus, hypertension, and diuretic therapy.**
- **Pregnancy test for women of child-bearing age unless documented surgical sterilization exists.**

### Preoperative Tests

<table>
<thead>
<tr>
<th>Test</th>
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<tbody>
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**Fig. 6.** Patient data form to be completed by the physician. (Reprinted from Iverson, R. E., and Lynch, D. J. Patient safety in office-based surgery facilities: II. Patient selection. *Plast. Reconstr. Surg.* 110: 1785, 2002.)
American Society of Anesthesiologists Physical Classification Rating

Based on the patient’s history, physical examination, review of systems, laboratory testing, and/or a medical specialist’s evaluation, the physician should select the patient’s American Society of Anesthesiologists physical classification rating:

Type 1: A normal healthy patient.
Type 2: A patient with mild systemic disease.
Type 3: A patient with severe systemic disease.
Type 4: A patient with a systemic disease or multiple significant mild systemic diseases, organic heart diseases, severe diabetes with vascular complications, moderate-to-severe degrees of pulmonary insufficiency, angina pectoris, or healed myocardial infarction, e.g.:  
- Any third-degree or fourth-degree burn patient who is hemodynamically stable and undergoing graft surgery
- A 15-year-old woman for earlobe reconstruction after congenital anomaly, with a symptomatic ventricular septal defect
- A 20-year-old man for breast augmentation with cranial obesity
- A 55-year-old woman for liposuction, who is hypertensive and has occasional chest pain
- A 35-year-old man for cosmetic rhinoplasty, who frequently has sickle cell crisis, with hematocrit of 16.

Large-Volume Liposuction

The American Society of Plastic Surgeons Committee on Patient Safety, in its Practice Advisory on Liposuction, defines large-volume liposuction as more than 5 liters of lipoaspirate at one operation. Such liposuction induces substantial fluid alterations. The “tumescent technique,” where 2 to 3 cc of wetting solution is infiltrated for every 1 cc of anticipated lipoaspirate, leaves behind 50 to 70 percent of the infiltrated volume, which can potentially result in fluid overload. Wetting solution infiltration greater than 70 ml/kg is more likely to cause such overload, which can present as increased blood pressure, jugular vein distention, and bounding pulses (70 percent of subcutaneous infiltrate is presumed to be intravascular) as well as cough, dyspnea, lung crackles, and pulmonary edema. These complications require extended observation and potential diuresis.

The surgeon should use the total lipoaspirate (fluid plus fat removed) to track liposuction volume, and should perform large-volume liposuction in a hospital setting. An appropriate facility with qualified and competent staff must monitor postoperative vital signs and urinary output. The physician should decide whether the patient’s best interests dictate separately staged procedures. The surgeon can safely combine limited liposuction with additional plastic surgery procedures but should not join...
large-volume liposuction with such procedures because of the risk of severe complications. The surgeon must carefully monitor the perioperative and postoperative fluid intake and output. The surgeon is responsible for communicating with the anesthesia care provider about fluid management, which encompasses accounting for maintenance requirements, preexisting deficiencies, aspirated tissue removal, and third-space losses. Hemoglobin measurements may help confirm blood loss estimates, although such estimates can be inaccurate, especially in the setting of acute loss and potential hemodilution caused by the wetting solution. Accurate fluid management will guide the physician in postoperative care, including patient warming, blood restoration, postanesthesia administration, and safe discharge measures.

Liposuction Anesthesia

Anesthetic agents added to liposuction wetting solutions provide the benefit of postoperative analgesia. These agents, however, warrant caution. Bupivacaine is poorly reversed and rapidly absorbed, and has a long half-life. Toxic effects include cardiac arrhythmias, seizures, respiratory depression, coma, and death if injected intravascularly.

Unlike bupivacaine, lidocaine is more easily reversed, and up to 7 mg/kg can be injected with epinephrine into subcutaneous fat. Still, lidocaine toxicity has been associated with liposuction-related deaths. Toxicity presents with dizziness, agitation, lethargy, tinnitus, metallic taste, peri-oral paresthesias, and slurred speech. Lidocaine plasma levels peak at 10 to 12 hours after infiltration of wetting solution. To decrease the risk of lidocaine toxicity, the Task Force recommends the following: (1) using smaller concentrations of lidocaine in the wetting solution; (2) using super-wet technique rather than tumescent technique; and (3) not using lidocaine with general or regional anesthesia.

The Task Force further recommends that surgeons avoid epinephrine use in patients with "pheochromocytoma, hyperthyroidism, severe hypertension, cardiac disease, or peripheral vascular disease." The physician should try to keep epinephrine dosing below 0.07 mg/kg, although higher doses have been reported to be safe.

Plastic surgeons should use the American Society of Anesthesiologists Guidelines for Sedation and Analgesia (Fig. 8). General anesthesia can be safe in an accredited office-based surgical facility, and is especially useful for complex or long operations because of precise dosing. Moderate sedation or analgesia (intravenous or oral) is also safe and adjunctively augments the patient’s level of comfort. Because of the possibility of vasodilation, hypotension, and fluid overload, however, the physician should avoid the use of epidural and spinal anesthesia in liposuction procedures.
Liposuction Patient Selection

Liposuction is a surgical procedure; the surgeon must assess the liposuction patient with the same standards as those used for any surgical patient, including a complete preoperative history and a physical examination. Unfortunately, the same patient population that stands to benefit most from large-volume liposuction also carries the most significant inherent surgery risks, including “poor wound healing, infection, deep venous thrombosis, and sleep apnea.”20 Because of these risks, liposuction is not a treatment for the severely obese patient (body mass index >30).20

MANAGEMENT OF POSTOPERATIVE PAIN, NAUSEA, AND VOMITING

Sixty-five percent of patients underreport their pain,58,59 resulting in widespread ambulatory patient pain undermanagement.59–61 Uncontrolled pain can cause myocardial irritability, pulmonary infection, and increased platelet aggregation/thrombosis,59 which can lead to postoperative complications. Pain causes nausea and vomiting: although 30 percent of patients experience postoperative nausea or vomiting within 24 hours, many do not start experiencing these symptoms until after they are discharged to home—with no access to prescription medication.62 Postoperative pain, nausea, and vomiting tarnish the patient’s perception of surgery; they also cause 10 percent63 of the unanticipated hospital admissions after ambulatory surgery.59,61

Patients with higher body mass generally experience more pain (physicians likely inadequately compensate for larger body mass).18 That said, men usually experience more pain than women (less body mass).59 Also, pain severity tends to be associated with greater anesthesia time, presumably secondary to increased tissue trauma.59,64 Breast augmentations, hand operations, and liposuction are associated with increased pain.59,64

Women, children, and persons with either a motion sickness history or previous experiences of postoperative nausea and vomiting are more likely to experience nausea and vomiting.59 Ear, nose, and throat operations; breast augmentations; and longer anesthesia times correlate to a higher incidence of postoperative nausea and vomiting.65

To diminish postoperative nausea and vomiting, the Task Force recommends a thorough preoperative history, which includes inquiring about motion sickness and previous incidents of postoperative nausea and vomiting. For the patient without a predisposing history, the Task Force recommends serotonin antagonists, which include ondansetron, dolasetron, and granisetron.59,65 If the patient’s history suggests susceptibility, however, the Task Force recommends a multimodal plan for postoperative nausea and vomiting.59 Specifically, if the patient reports a history of motion sickness, the physician should apply a scopolamine patch to a hairless area behind the ear 4 hours before administration of anesthesia. If the patient has a previous experience of postoperative nausea and vomiting, the physician should administer Decadron (Merck & Co., Inc., Whitehouse Station, N.J.) with the serotonin antagonist during surgery.59 With either motion sickness or previous postoperative nausea/vomiting history, the surgeon should avoid large opioid doses and the fenanyl-nitrous oxide combination.59

The Task Force recommends a preemptive, multimodal analgesia with nonsteroidal anti-inflammatory combination; this combination controls pain better, shortens dismissal time, and decreases unplanned hospital admissions.59 Nonsteroidal anti-inflammatory drugs, with a preference for COX-2 inhibitors, can reduce opioid use by 30 percent66 (thus reducing opioid side effects such as sedation, nausea, hypoxemia, bladder dysfunction, and sleep disturbance).59,67 Although the surgeon should not use COX-2 inhibitors for long-term pain regimens, no data support increased myocardial complications with short-term use for postoperative pain control. However, the surgeon must balance the benefits of nonsteroidal anti-inflammatory drugs for pain relief against the increased risk of bleeding.

Before the operation, the physician should give the patient antiemetic and pain medication prescriptions. The patient or the patient’s caretaker can thus have the prescriptions filled so that they will be available immediately at discharge.59 Before surgery, the surgeon should also thoroughly educate the patient regarding the pain medications, their side effects, and their different administration routes. The surgeon must emphasize the need for appropriate pain control to avoid postoperative complications.59

Intraoperatively, the Task Force recommends a time-efficient, atraumatic surgery technique.59 The surgeon should inject long-acting anesthetics at the surgical site before incision and during surgery.59 Studies suggest that preincisional and intraoperative injection is superior to postoperative injection.59,66,68 Closed continuous pain pumps, which deliver controlled doses of anesthetic into the surgical site postoperatively, significantly reduce nausea/vomiting (up to 50 per-
cent) and pain, thus decreasing postoperative narcotic and antiemetic requirements. The Task Force recommends regional anesthesia when possible, because it extends the analgesia period postoperatively and allows immediate oral pain medication administration when the regional anesthesia recedes. General anesthesia, in contrast, usually results immediately postoperatively in impaired consciousness and nausea; consequently, oral pain medication is contraindicated secondary to the risk of aspiration. Although the best time to administer COX-2 inhibitors is at anesthesia induction (or, in longer cases, early intraoperatively) because of their longer induction period, the best time for ondansetron administration is immediately before the end of the operation.

Postoperatively, the Task Force recommends that health care professionals treat pain as the fifth vital sign, and encourages the use of pain rating scales. The surgeon should use rapid-acting intravenous pain medications immediately postoperatively, especially in the presence of sedation, nausea, or vomiting. Low-dose fentanyl is a good choice for short-term postoperative pain relief secondary to its ease of titration, rapid onset, and short half-life. The surgeon must watch for respiratory depression, however, and should avoid fentanyl skin patches and lollipops. The Task Force also discourages intramuscular administration because of wide absorption rate variances.

CONCLUSIONS

To function at our best, we must make patient safety our highest priority. In the office setting, this priority means vigorous administrative emphasis and an effective quality assessment system (including peer review). It means diligently assessing whether the procedure and the patient are proper for the office setting, notwithstanding the influences of cost, privacy, efficiency, and profitability. The physician who gives the healing touch of quality care must always have patient safety as the foremost priority. “In the end, putting patient safety first simply comes down to being a caring physician and exercising prudent judgment in the care of our patients. When in doubt, do not do it!”

Pride goeth before destruction, and before honour is humility.
—St. Augustine; City of God, Book 14:13

GLOSSARY

Advanced Cardiac Life Support Recertification is dependent on the individual state but is usually required every 3 years. At least one qualified person should be present until all patients are discharged.

Adverse event An injury caused not by the underlying patient condition but rather by medical management.

Ambulatory surgery center A licensed and accredited freestanding or hospital-based facility with an organized professional staff that provides surgical services to patients who do not require an inpatient bed.

Deep sedation/analgesia A drug-induced depression of consciousness during which patients cannot easily be aroused but respond purposefully to repeated or painful stimuli. The patient may or may not be able to independently maintain ventilatory function. Patients may require assistance with patent airway maintenance but usually maintain cardiovascular function (Fig. 8).

Error The failure of a planned action to be completed as intended (i.e., error of execution) or the use of a wrong plan to achieve an aim (i.e., error of planning).

External ultrasound assistance Adjunctive ultrasound is delivered through an external paddle in coordination with liposuction; the clinical benefits of external ultrasound assistance are in question.

General anesthesia A drug-induced loss of consciousness during which patients are not arousal even by painful stimuli. The patient often will not maintain independent ventilatory function and often will require assistance with patent airway maintenance and positive-pressure ventilation. Cardiovascular function may be impaired.

Institute of Medicine A nonprofit organization created for the purpose of providing unbiased, evidence-based, and authoritative information and advice concerning health and science policy to policy-makers, professionals, leaders in every sector of society, and the public at large. It is a component of the National Academy of Sciences. The Institute works outside the framework of government to ensure scientifically informed analysis and independent guidance. The Institute of Medicine’s mission is to serve as adviser to the nation to improve health.

Minimal sedation (anxiolysis) A drug-induced state during which a patient responds normally to verbal commands. The patient usually maintains ventilatory and cardiovascular functions, although the induced state may cause cognitive function and/or coordination impairment.
Moderate sedation/analgesia (conscious sedation) A drug-induced depression of consciousness during which patients respond purposefully to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are usually required to maintain a patent airway, and spontaneous ventilation is usually adequate. Cardiovascular function is usually maintained.23

Negligent adverse event A preventable adverse event that satisfies legal criteria (i.e., whether the care provided failed to meet the standard of care reasonably expected of an average physician qualified to take care of the patient in question).76

Office-based surgery Surgery and other procedures performed in the office of a licensed physician.4

Outpatient surgery Surgery performed in any regulated or unregulated free-standing or hospital-based facility, clinic, or office that is organized for the purpose of providing care to patients without hospital admission.4

Outpatient surgery facility Any facility, clinic, office, licensed ambulatory surgical center, or hospital where outpatient surgery and/or other procedures are performed.4

Pediatric Advanced Life Support Certification is required only if the office-based procedure involves neonates, infants, or children.

Preventable adverse event An adverse event attributable to error.77 More than two-thirds of adverse events are preventable.76

Quality of care The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.78

TOPS Tracking Operations and Outcomes for Plastic Surgery a shared initiative between the American Society of Plastic Surgeons/Plastic Surgery Educational Foundation and the American Board of Plastic Surgery to gather plastic surgery procedures and outcomes information. The information is an internal quality control mechanism for the strict purpose of reducing morbidity and mortality and improving quality control and patient care. The information is confidential and is not discoverable or admissible as evidence in a court of law. Moreover, by participating in Tracking Operations and Outcomes for Plastic Surgery, the plastic surgeon can earn up to 30 category I CME credits (up to 5 hours for each month that data are submitted).29

OFFICE-BASED SURGERY CHECKLIST

Disclaimer: The following is not meant to be an inclusive checklist; rather, it is merely a guide for the reader to help formulate an idea of whether he or she may or may not be compliant with the basic quality care and patient safety criteria for office-based surgical procedures.

Administration

Governance and Physician/Personnel Qualifications

☐ Does my office have a written policy that describes the organization’s structure, including medical director or governing body?

☐ Does my office have a written policy that describes employee responsibilities and accountabilities, and does such policy clearly delineate supervisory personnel?

☐ Have the physicians, nurses, and staff personnel in my office obtained and maintained the appropriate licensures, and are they performing procedures and duties within the obvious scope of such licensures and training?

☐ Does my office have a written policy on a patient’s bill of rights, one that clearly emphasizes quality of care and patient safety?

☐ Is everyone in my office current and knowledgeable about our written policies?

☐ Does my office have a method for tracking which personnel have and have not read these policies and the last time the policies were read?

System of Quality Assessment

Surgical Facility Standards

☐ Is my facility accredited by the American Association for Accreditation of Ambulatory Surgery Facilities, Accreditation Association for Ambulatory Health Care, Joint Commission on Accreditation of Healthcare Organizations, or AOS, or is it certified by a state recognized entity such as the Institute for Medical Quality or Medicare?

Emergency and Transfer Protocols

☐ Does my office have a written policy describing protocols handling emergency situations?

• Fire

• Power outage

• Weather disaster (tornado, flood, earthquake, and so on)

• Cardiac/respiratory arrest

☐ Do these emergency protocols include measures for timely and safe transfer of patients to a prespecified alternate nearby care facility?
□ Does my office have admitting privileges with, or a transfer agreement to admit to, a nearby care accredited or licensed hospital or ambulatory surgical facility? Alternatively, does my office have a transfer agreement with another physician who has such privileges?

**Advanced Cardiac Life Support and Pediatric Advanced Life Support**

□ Is everyone current?

□ Do I have someone who is Advanced Cardiac Life Support—qualified available until all patients are discharged?

□ If I work on neonates, infants, or children, do I have someone who is Pediatric Advanced Life Support—qualified available until such patients are discharged?

□ Do all of my personnel maintain basic cardiopulmonary resuscitation training?

**Adverse Event Reporting**

□ Does my office have a quality care Health Insurance Portability and Accountability Act—compliant method and policy for tracking and reporting adverse events?

□ Does this tracking and reporting protocol also allow me to create reports and follow patients over time so that I will be better able to negotiate hospital privileges and managed care contracts?

□ Do I periodically evaluate my office’s quality care and patient safety performance in peer review and morbidity conferences, and do I have a method for documenting such evaluations?

**Anesthesia and Analgesia**

□ Do I have a readily available copy of the American Society of Anesthesiologists’ “Guidelines for Office-Based Anesthesia”?

□ If I administer sedation or analgesia or supervise such administration by a nonanesthesiologist, do I have a readily available copy of the American Society of Anesthesiologists’ “Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists”?

□ Do I know or have a copy of the American Society of Anesthesiologists’ “Guidelines for Preoperative Fasting”?

□ Do I have a readily available copy of the American Society of Anesthesiologists’ “Standards of Basic Anesthetic Monitoring”?

□ Do I know and have documented in my policies and protocols my state’s current legislation regarding the delivery of anesthesia by a certified registered nurse anesthetist or other qualified health care provider?

□ Do I have a written policy that describes the importance of communication between myself and the anesthesiologist or anesthesia personnel as well as support staff?

**Facilities and Equipment**

□ Is my facility equipped with the appropriate medical equipment, supplies, and pharmacological agents necessary to provide the procedures and associated recovery services, including cardiopulmonary resuscitation and other emergency services?

□ Does my facility have a back-up power delivery system?

□ If I administer or supervise anesthesia delivery, does my facility have the necessary anesthesia equipment?

□ Does my office’s anesthesia, sedation, and analgesia equipment allow for proper documentation and monitoring in accordance with the American Society of Anesthesiologists’ “Standards of Basic Anesthetic Monitoring”?

□ Does my facility have basic safety devices?
  • Humidifiers
  • Oximeters
  • Capnography
  • Warming Blankets
  • Forced air warmers
  • Pneumatics/compression leg garments

□ Does my facility have the appropriate firefighting equipment, signs, emergency power capabilities, and lighting?

□ Do I have an effective system that routinely documents the appropriate inspection, maintenance, and testing of my equipment as recommended by the manufacturer?

**Informed Consent**

□ Do I have a detailed informed consent that follows the American Society of Plastic Surgeons’ “Statement of Principle on Informed Consent”?

□ Does my informed consent include the necessary information?
  • Details of the surgery
  • Details of the anesthesia
  • Benefits of the surgery
  • Possible consequences and side effects of the surgery
  • Potential risks and adverse outcomes as well as their probability and severity
  • Alternatives to the procedure being considered and their benefits, risks, and consequences
  • Anticipated outcome

□ Does my informed consent allow me to indi-
vidually document the patient education process, including whether the patient watched any videos, viewed before-and-after photographs of other patients, or read any brochures?

☐ Do I have uniform preoperative and postoperative patient education for specific procedures?

**Medical Records**

☐ Are my medical records legible, accurate, complete, and current?

☐ Do they include the history, physical examination, progress notes, operative reports, laboratory reports, x-ray reports, and communications with other medical personnel?

☐ Do my medical records highlight allergies and adverse drug reactions?

☐ Do I document and update my medical records contemporaneously with the patient visit or procedure?

☐ Do I routinely include patient comments in my medical records, regardless of whether such comments are positive or negative?

☐ Are my medical records confidential? Do I have written protocols in place that protect patient information from loss, tampering, alteration, destruction, and unauthorized or inadvertent disclosure?

**Discharge**

☐ Do I discharge my patients only after they have fulfilled defined written criteria?

☐ Before I discharge a patient, do I document stable vital signs, responsiveness, orientation, voluntary movement, controlled pain, and minimal nausea and vomiting?

☐ Do my written discharge instructions include postprocedure diet, medications, activities, and an emergency phone number?

☐ Do I document that I discharged my patient only in the presence of a responsible adult who accompanied the patient home and who is able to report any postprocedure complications?

**SYSTEM OF EVALUATION FOR OFFICE-BASED SURGICAL PROCEDURES**

For each patient, the physician should have a protocol system that allows the physician to record whether such procedure can safely be performed in the office-based setting. This system should provide a checklist that considers the risk factors inherent in the prospective procedure(s), including hypothermia, intraoperative blood loss, liposuction, thrombolytic, and embolism hazards, and potential postoperative recovery problems.

**Hypothermia**

☐ Do I have the necessary equipment for the office-based surgical procedure that I am considering?

- Cutaneous warming devices (Bair Huggers)
- Forced air warmers
- Intravenous fluid warmers

☐ If I do not have such equipment, will the procedure be limited to 2 hours and 20 percent of the total body surface area?

**Intraoperative Blood Loss**

☐ Does my record system allow me to document that the procedure is expected to involve 500 cc or less of blood loss?

**Duration of Procedure**

☐ Will the procedure be less than 6 hours in duration?

☐ If it is a longer procedure, will it end before 3 PM and consequently provide sufficient recovery time for my patient?

**Thrombosis and Embolism Risks**

☐ Does my history protocol allow me to systematically document the patient’s thrombosis and embolism risks?

- History of deep vein thrombosis
- Unexplained episodes of syncope, dyspnea, or pleuritic pain
- Hypercoagulable states
- Medications such as contraceptives and replacement hormones
- Family history with emphasis on past episodes of thrombosis and embolism

☐ Does my physical examination protocol allow me to systematically document the patient’s thrombosis and embolism risks?

- Unexplained skin discoloration or ulceration
- Unexplained edema or swelling

☐ Does my protocol provide laboratory screening if the history or physical examination so indicates?

**Thromboprophylaxis**

☐ Does my protocol allow me to assign the patient a venous thrombosis or embolism risk status of low, moderate, high, and highest?

**Potential Postoperative Recovery Problems Leading to Unplanned Hospital Admissions**

☐ Have I provided adequate pain medication,
including home medication, based on the patient’s body mass index?

☐ Have I adequately controlled my patient’s nausea, vomiting, and dizziness?

**SYSTEM OF PATIENT EVALUATION FOR OFFICE-BASED SURGICAL PROCEDURES**

The physical examination and medical history are among the most important patient safety assessment steps. The surgeon should have a systematic protocol to determine whether the patient is appropriate for the office-based procedure.

**Physical Examination and History**

☐ Does my physical examination include all the necessary information that I need to adequately assess whether the patient can safely undergo the office-based procedure?

- Patient’s health history
- Social history
- Family history
- Allergies (drug, latex, tape)
- Medication regimen (including nonprescription drugs)
- Patient’s age, weight, height, appearance, and vital signs
- Comorbidities, especially:
  - Diabetes
  - Cardiac disease
  - Respiratory conditions

**Preoperative Tests**

☐ Electrocardiogram for patients over 45 years old or at any age if cardiac conditions are known

☐ Complete blood cell count with chemistries as needed for anemia, diabetes mellitus, hypertension, and diuretic therapy

☐ Pregnancy test for all women of childbearing age unless there is documented surgical sterilization

**American Society of Anesthesiologists’ Physical Classification Rating**

☐ Does my protocol allow me to document the patient’s American Society of Anesthesiologists’ physical classification rating?

- 1: normal healthy patient
- 2: patient with mild systemic disease
- 3: patient with severe systemic disease
- 4: patient with severe systemic disease that is a constant threat to life

☐ Does my protocol categorize the patient’s candidacy for ambulatory and office-based surgery?

- Type 1 and 2 patients are candidates for ambulatory and office-based surgery.
- Type 3 patients may be candidates for an office-based surgical procedure with local anesthesia (with or without sedation).
- Type 4 patients are only candidates for office-based procedures with local anesthesia and without sedation

**LIPOSUCTION**

**Large-Volume Liposuction**

☐ If I am performing a combination of procedures that includes liposuction, have I carefully weighed the benefits of doing all the procedures contemporaneously against the potential adverse consequences?

☐ Notwithstanding the number of procedures, is the total aspirant limited to 5000 cc?

☐ Does my postliposuction surgery protocol allow me to document the signs of volume overload?

- Increased blood pressure, jugular vein distension, and full bounding pulses
- Cough, dyspnea, lung crackles, and pulmonary edema.

☐ Do I have the necessary qualified and competent staff that can effectively monitor my liposuction patient’s postoperative vital signs and urinary output?

☐ Have I created a documented system that promotes communication with the anesthesia care provider about fluid management?

☐ Does this documentation system include accounting for:

- Maintenance requirements
- Preexisting deficits
- Intraoperative losses of aspirated tissue
- Third-space losses
- Preoperative and postoperative hemoglobin measurements

**Liposuction Anesthesia**

☐ Have I adequately added preemptive and prolonged local anesthesia to my liposuction wetting solutions?

☐ Is my staff trained to recognize the toxic affects of Marcaine, including cardiac arrhythmias, seizures, respiratory depression, and coma?

☐ If I use lidocaine with epinephrine, is such dosing limited to 7 mg/kg when injected into subcutaneous fat?

☐ Is my staff trained to recognize lidocaine toxicities, including light-headedness, restless-
ness, drowsiness, tinnitus, metallic taste, lip numbness, and slurred speech?

☐ Before using lidocaine, have I considered the factors that contribute to lidocaine toxicity, including drug absorption rate, drug interactions, fluid management, and prothrombogenic factors?

☐ Do I take the necessary patient precautions to avoid lidocaine toxicity?
  • Limiting the lidocaine to smaller concentrations in the wetting solution
  • Using the superwet technique rather than the tumescent technique
  • Not using lidocaine with general or regional anesthesia

☐ Do I avoid the use of epinephrine in patients with pheochromocytoma, hyperthyroidism, severe hypertension, cardiac disease, or peripheral vascular disease?

☐ Do I attempt to limit the epinephrine dosing to 0.07 mg/kg?

☐ Do I utilize the American Society of Anesthesiologists’ “Guidelines for Sedation and Analgesia”?

☐ Do I avoid the use of epidural and spinal anesthesia in liposuction procedures?

Liposuction Patient Selection

☐ Have I performed a complete preoperative history and physical examination on my liposuction patient?

☐ Have I adequately warned my patient of the inherent risks of surgery, including poor wound healing, infection, deep venous thrombosis, and sleep apnea?

☐ For severely and morbidly obese patients (body mass index 30), have I thoroughly informed them that liposuction is not a treatment for them and recommended that they seek other surgical counseling for the possibility of gastric banding (restrictive) or gastric bypass (malabsorptive) procedures?

POSTOPERATIVE PAIN, NAUSEA, AND VOMITING MANAGEMENT

Preoperative Management

☐ Have I incorporated questions regarding motion sickness and past experiences with postoperative nausea and vomiting in my history and physical examination?

☐ Do I have a multimodal plan to treat postoperative nausea and vomiting, including the use of a scopolamine patch behind the ear 4 hours before anesthesia in the case of motion sickness and/or dexamethasone (Decadron) with the serotonin antagonist during surgery for a patient with previous experience of postoperative nausea and vomiting?

☐ Have I educated the patient on the amount of pain that the patient may realistically expect to have with the procedure, and explained the importance of controlling pain to avoid postoperative complications?

☐ Have I explained to the patient the doses, timing, and routes of administration of the pain and antiemetic medications, as well as their potential side effects?

☐ Have I familiarized the patient with pain scales or otherwise ensured that pain will be treated as a fifth vital sign postoperatively and checked routinely?

☐ Have I prescribed the medications and given the prescriptions to the patient or the patient’s caregiver so that the prescriptions can be filled and available by discharge time?

Intraoperative Management

☐ Do I have planned a time-efficient, atraumatic surgical technique?

☐ Am I planning to inject long-lasting local anesthetics at the surgical site before incision and during the operation?

☐ Have I given preoperative (at induction) and intraoperative nonsteroidal anti-inflammatory drugs or cyclooxygenase-2 selective inhibitors to reduce postoperative pain?

☐ Do I have an alternative pain regimen so that I can avoid the fentanyl and nitrous oxide combination for patients who have a previous history of postoperative nausea and vomiting or a history of motion sickness?

☐ Do I plan on giving intraoperative serotonin antagonists combined with other effective acute antiemetic agents?

☐ Do I have continuous pain pumps, which deliver controlled doses of anesthetic into the surgical site postoperatively, available for use if appropriate?

☐ Have I considered whether regional anesthesia is appropriate for the patient’s procedure?

Postoperative Management

☐ Do I have intravenous narcotics available for rapid pain relief immediately postoperatively?

☐ Do I have a multimodal plan for pain relief and emetic control in the event that my preoperative and intraoperative steps were not adequate for the patient?
REFERENCES


