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| Guideline for providers of liposuction |
| Best practice guideline for clinicians and those involved in the provision of liposuction |
| OFFICIAL  DRAFT |

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# Acknowledgements

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We gratefully acknowledge the assistance of the working group members listed below, in writing and reviewing this guideline. In addition, we also acknowledge those organisations that provided feedback on the guideline including; …………………………

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# Definitions

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| **Abdominoplasty** | **Radical abdominoplasty** – whereby the rectus abdominis muscle is tightened, the navel is adjusted and excess skin and fat is removed. **Mini abdominoplasty**, or wedge excision – whereby the excess fat and skin beneath the umbilicus is removed only. Adjunct liposuction is permissible. |
| Anaesthesia   1. General 2. Sedation 3. Major regional analgesia, this includes tumescent infiltration | General anaesthesia is a drug-induced state characterised by absence of purposeful response to any stimulus, loss of protective airway reflexes, depression of respiration and disturbance of circulatory reflexes. General anaesthesia is sometimes indicated during diagnostic or interventional medical or surgical procedures and requires the exclusive attention of an anaesthetist, or other trained and credentialed medical practitioner within his/her scope of practice.1  Conscious sedation is defined as a drug-induced depression of consciousness during which patients are able to respond purposefully to verbal commands or light tactile stimulation. Interventions to maintain a patent airway, spontaneous ventilation or cardiovascular function may, in exceptional situations, be required. Conscious sedation may be achieved by a wide variety of drugs including propofol and may accompany local anaesthesia. All conscious sedation techniques should provide a margin of safety that is wide enough to render loss of consciousness unlikely.  Deeper sedation is characterised by depression of consciousness that can readily progress to the point where consciousness is lost and patients respond only to painful stimulation. It is associated with loss of the ability to maintain a patent airway, inadequate spontaneous ventilation and/or impaired cardiovascular function, and has similar risks to general anaesthesia, requiring an equivalent level of care.1  Tumescent infiltration falls into the category of major regional analgesia on the grounds that where a significant dose of local anaesthetic is administered, systemic toxicity may occur due to absorption or inadvertent intravascular injection.  Major regional analgesia may be initiated for pain management alone. This may be combined with, but is distinct from, regional anaesthesia which is initiated for surgical interventions and which requires continuous presence of an anaesthetist.2 |
| Brazilian Butt Lift | Gluteal augmentation, commonly known as the Brazilian Butt Lift, is the process of recontouring the lower back and loins with liposuction, reinjecting the unwanted fat to augment the upper buttocks in order to create a pert lifted effect.3 |
| Cosmetic surgery | Operations that revise or change the appearance, colour, texture, structure or position of normal bodily features with the dominant purpose of achieving what the patient perceives to be a more desirable appearance or boosting the patient’s self -esteem. 4  Cosmetic surgery is not covered under the MBS unless there is a specific medical indication. |
| Liposuction | Liposuction (suction assisted lipectomy or SAL) refers to the closed removal of fat via suction cannulas (blunt tipped metal tubes). It can be performed under general anaesthetic (with the patient asleep) or under local anaesthetic (with the patient awake)  In Victoria tumescent liposuction is the most commonly used technique.  The various techniques of liposuction are described below and each will vary regarding the volume of pre-liposuction infiltrate required as well as amount of fat (and fluid) aspirated as well as the technical aspects of the procedure.  *Dry liposuction* – a no pre-liposuction infiltration is used.  Wet or superwet liposuction – a procedure where pre-infiltration is used and usually a similar volume of fat to the amount of infiltrate used is aspirated. For wet liposuction a ratio of infiltrate to aspirate is around 1:2 and for superwet, the ratio is 1:1.  *Tumescent liposuction* – a technique where extensive infiltration is used, often with a ratio of 3:1.  *Water assisted liposuction (WAL)* – a technique with a continuous flow of water into the patient that is simultaneously sucked out.  *Power assisted liposuction (PAL)* – mechanical vibration of a power assisted hand piece help to ease fat extraction – usually used with a super wet technique.  *EVL (expansion vibration liposuction)* – similar to PAL but with the power assisted hand piece used for the infiltration as well as the aspiration.  *Laser and ultrasound assisted liposuction* – additional technology used to dissolve the fat prior to fat extraction.5 |
| Lipoaspirate volume | When referring to lipoaspirate volumes in this document this is understood to mean the total volume of aspirate, including infiltrate, blood and fat.  The aspirate (what is aspirated or sucked out) that is part of the liposuction procedure is composed of a mixture of fat, some blood and frequently a degree of pre-liposuction infiltration fluid. The composition and proportions of the aspirate depends on a variety of factors, including (but not limited to) how much infiltration is used, and how long it is left in the tissues before liposuction begins.4 |

# Background:

Liposuction is the most popular cosmetic surgery performed worldwide.1 Since its advent over three decades ago it has become a fundamental tool in the field of aesthetic surgery for neck, breast, extremity and circumferential body contouring. In addition, it is an important adjunct in revisional surgery after breast and other reconstructive surgery. It is considered by the Medical Board of Australia to be a major surgical procedure.4 Cosmetic surgery, to alter one’s physical appearance for aesthetic rather than medical reasons, primarily takes place in the private sector and is rarely available through the public system unless there are specific medical indications.

Liposuction is a service which is regulated in Victoria and can only be performed in a facility registered with the Department of Health, with the exception of when volumes of adipose tissue of 200ml or less are treated. Most liposuction procedures for aesthetic purposes are carried out as day cases with patients not requiring an overnight stay.

# Scope:

This document applies to:

* all liposuction procedures over 200mls, which are required in Victoria to be performed in a registered facility
* all health services and practitioners providing liposuction
* all forms of liposuction, irrespective of the method used, dry, tumescent, super-wet etc.
* liposuction regardless of the method of anaesthesia.
* liposuction performed in conjunction with other procedures.

This guideline should be read in conjunction with Guidelines for registered medical practitioners who perform cosmetic medical and surgical procedures Medical Board of Australia | 1 October 2016

The same principles should apply to all liposuction procedures, including those under 200mls that may be performed in practitioner’s rooms.

# Admission criteria for day procedures:

* The patient being considered for liposuction should be suitable for a day procedure and would not be expected to require an overnight stay. Note that day procedure cases are limited to ASA  1 & 2.
* All patients should have a preoperative clinical assessment and screening for health risks and comorbidities (see below). Patients with significant comorbidities should be managed in a hospital setting, with overnight facilities, capable of managing, perioperative cardiovascular events and respiratory compromise. Patients not suitable for treatment in a day procedure centre include, but are not limited to:
  + ASA category 3
  + Patients with obstructive sleep apnoea
  + Patients with known or family history of malignant hyperthermia
  + Patients with a history of a difficult airway (even if an anaesthetist is present)
  + Patients with a BMI>35
* **Patients under the age of 18.** As per the Medical Board of Australia there are additional responsibilities when providing cosmetic medical and surgical procedures for patients under the age of 18. The Board expects that medical practitioners are familiar with relevant legislation of the jurisdiction in relation to restrictions on cosmetic surgery for patients under the age of 18.

# Patient assessment

* Pre-admission clinical assessment by the clinician performing the liposuction procedure, as per Medical Board of Australia guidelines, at least seven days prior to admission
* The clinical assessment should include but not be limited to:
* ASA
* Height, Weight, BMI
* Clinical screening for comorbidities
* Screening for infectious foci in the skin, subcutaneous tissue or other sites
* Psychological assessment
* Social assessment, including where the patient lives, support at home and arrangements for the immediate postoperative period.

If the patient has significant underlying psychological problems, for example body dysmorphia, they should be referred to a psychologist. In these circumstances, the procedure should not proceed without clinical clearance by an appropriately qualified mental health professional. For the patient under the age of 18, the cooling off period must be a minimum of three months.4

* All patients **under the age of 18** must be referred for evaluation to a psychologist, psychiatrist or general practitioner who works independently of the medical practitioner performing the procedure. This is to identify any significant underlying psychological problems which may make the patient an unsuitable candidate for the procedure.4

## Liposuction should be delayed if the patient has:

* any infections – local or systemic – but particularly in the skin
* any flu-like, respiratory or possible COVID symptoms
* poorly controlled diabetes Hba1c >75mmol/mol (9%).
* any chest pain on the day
* any arrythmia detected. Newly detected arrythmias require appropriate investigation.
* had a recent vaccination, or has one scheduled within 2 weeks of procedure
* had COVID within 8 weeks or suffers from post COVID sequelae.

# Informed consent and shared decision making

The patient’s informed consent should cover the procedure(s) to be performed, the alternatives and options for management, including not proceeding with liposuction, what to expect in the postoperative period, the potential complications, their statistical likelihood, and what to do if they occur. Informed consent must involve a detailed conversation, not merely obtaining a signature on the consent form.

It should also include informed financial consent covering the **total** expected cost of the procedure, including anaesthetic charges and facility fees and **any** other associated costs such as compression garments.

The patient has the right to withdraw consent at any time (accepting they may incur some booking costs due to late notice).

The practitioner’s credentials should form part of the informed consent process. The patient should be made specifically aware of the proceduralist’s and anaesthetist’s training and credentialing.

Accredited practitioners include:

* Proceduralists on an appropriate liposuction register, that requires a minimum of 100 supervised liposuction procedures, some of which should include the part of the body to be treated.
* A Fellow of the Royal Australasian College of Surgeons with a Fellowship in Plastic and Reconstructive Surgery.
* A dermatologist or general practitioner appropriately registered and trained to perform liposuction and on an appropriate liposuction register.

All practitioners should be registered with AHPRA, without conditions or undertakings relating to their practice of liposuction, or other conditions relevant to the procedure.

# Staffing and credentialing

## Medical staff

The clinical staff must be registered with AHPRA, trained and certified in resuscitation and compliant with regulatory and specialist/professional CPD requirements for their profession. The proceduralist must be trained and experienced in liposuction, and on the liposuction register of ACCSM or other appropriate professional body. Training should include 100 supervised cases and at least 5 for the relevant body part or have acquired the fellowship of the Royal Australasian College of Surgeons in Plastic and Reconstructive Surgery.

Anaesthesia and higher risk sedation should be provided by a specialist anaesthetist (fellow of the Australian New Zealand College of Anaesthetists) or, in some circumstances, a GP anaesthetist who will be a fellow of RACGP and/or ACRRM) and has received further training in anaesthesia.

## Nursing staff

The nursing staff must be registered with AHPRA, trained and certified in resuscitation, compliant with the regulatory and professional CPD requirements for their profession, and have recent experience in perioperative practice, have a good understanding of both the Australian College of Perioperative Nurses (ACORN) and the Australian & New Zealand College of Anaesthetists (ANZCA standards/guidelines, including those related to postoperative recovery and the recognition of clinical deterioration. It is preferable that nurses have a postgraduate perioperative qualification. It is recommended that nurses be members of a relevant perioperative nursing group such as (ACORN) or the Australian College of PeriAnaesthesia Nurses (ACPAN).

# Facilities and equipment

The day procedure centre must be an accredited, registered facility, with acceptable infection-control practices, resuscitation equipment must be available, treatment rooms must be accessible to emergency services, and the facility must be safe in terms of equipment, ventilation, and other hazards. Such a facility should be subject to planned and random inspections as part of its accreditation. The facility must be able to provide evidence that clinically facing staff are appropriately credentialed. The facility must be able to provide evidence of audit and peer review in relation to its clinical activity and perioperative outcomes (see below).

All equipment must be TGA approved, with an audited service/maintenance register.

# Procedure

Liposuction is performed to remove unwanted adipose tissue (fat), improve body contouring or provide fat cells for tissue augmentation. In the latter, 30 to 50 per cent of the fat cells transferred might be expected to implant in normal circumstances.

## Liposuction volumes

Any facility in Victoria performing more than 200 ml of liposuction is required to be registered by the Department of Health.

**Five litres (5 L) is the maximum amount of volume that should be removed at any one time**. If a technique of liposuction is used that leaves fluid in the body, the predicted volume of this tumescence should be included in the 5 L. This maximum volume should be lower for smaller patients.

## Sterility

All liposuction needs to be performed in a sterile manner, using surgical aseptic techniques, including a sterile field, according to the regulations in relation to accredited facilities.

## Prophylactic antibiotics

Liposuction carries a small risk of infection. Practitioners vary in whether they give a single dose of prophylactic antibiotics for every case. The use of prophylactic antibiotics should be certainly considered in selected higher risk patients.

Studies have shown that those at higher risk of infection include patients who smoke, and those who suffer from diabetes or other comorbidities that impair the immune system. Patients with higher BMI's are also more prone to surgical site infection.

When infection occurs, prompt antibiotic treatment is required. A patient with signs or symptoms of infection patient requires early review as any infection can become more serious potentially resulting in the development of necrotising spread of infection throughout the whole area that has been treated, requiring intensive management with extensive resection and multiple procedures to manage.

### **Tumescent protocol for liposuction under local anaesthesia this represents major regional analgesia:7**

The **maximum** dose of lignocaine is recommended to be **45 mg/kg** lignocaine for local tumescent liposuction.

For tumescent liposuction with **general anaesthetic** anaesthetic drugs affect the pharmacokinetics of lignocaine and therefore **35 mg/kg** lignocaine is the **maximum** recommended dose.

## Formulation of tumescent anaesthesia

It is expected that the concentration of lignocaine would be 800 mg/l to 1000 mg/l.

(This can be varied as some areas are more sensitive/painful for example the upper abdomen.)

To this fluid adrenaline and bicarbonate may be added.

The dose of adrenaline should be 1 mg to 2 mg /l (1:1000) and dose of sodium bicarbonate should be 10 ml of 8.4 per cent.

It is expected that each litre of tumescent fluid infiltrated equates to the same volume of lipoaspirate out.

The dose of lignocaine is weight dependent.

### **Examples**

If the maximum dose is **45 mg/kg** lignocaine then:

**100 kg person** – maximum does of lignocaine is 45 x 100 which = 4500 mg

In the scenario of the 100 kg person above using a concentration of 1000 mg of lignocaine per litre the maximum tumescent infiltration is therefore 4.5 litres and to **each** litre bag of tumescent infiltration fluid between 1 and 2 mg of adrenalin (1:1000) and 10 ml of 8.4 per cent sodium bicarbonate is added.

**If the person is 60 kg -**maximum dose of lignocaine is45 x 60 which = 2700 mg total lignocaine

In the scenario of the 60 kg person above using a concentration of 1000 mg of lignocaine per litre the maximum tumescent infiltration is therefore 2.7 litres.

## Procedural monitoring

Intravenous access should be obtained prior to commencing major regional analgesia and maintained for the duration of administration of medication for that analgesia.2,7

The monitoring of a patient undergoing any type of anaesthesia, which includes a major regional analgesia, should include regular assessment and recording of the following:

* Circulation - by detection of the arterial pulse and supplemented by measurement of arterial blood pressure. Where blood pressure monitoring is omitted this decision must be clinically justifiable. The intervals between recordings of this data will depend on clinical circumstances and the stability of the patient but should be no less frequent than every 10 minutes.
* Ventilation - continuously monitored.
* Oxygenation – in conjunction with clinical observation of the patient. Adequate lighting must be available to aid with the assessment of patient colour.6

For further guidance on procedural monitoring please refer to ANZCA PG18A (2017) Guideline on monitoring during anaesthesia and ANZCA PG03A (2014) Guideline for the management of major regional analgesia.

## Avoiding inadvertent injury

Performing liposuction around the trunk, chest and abdomen carries a risk of perforation of the internal viscera. Therefore, liposuction in this area should only be performed by practitioners who are experienced and credentialed and have a clear understanding of the anatomical location of the tip of the canula at all times.

Only one proceduralist should be performing liposuction at any one time.

# Liposuction combined with other procedures

**Background**

It is well documented that patients undergoing liposuction combined with other procedures, particularly abdominoplasty, have a higher risk of complications. 9,10

**Radical abdominoplasty**

Alone or in combination with liposuction, **radical abdominoplasty is not deemed to be a suitable procedure to be conducted in a day procedure setting.**

**Wedge excision of soft tissue in combination with liposuction**

Where the volume of lipoaspirate exceeds 1000 ml the maximum **weight of the soft tissue should not exceed 500g** or the liposuction should be conducted at a separate, additional procedure.

**Fat transfer**

The maximum volume of fat transfer at any one session should be limited to 1000 ml.

**Brazilian butt lift (BBL**)

In 2018 the Multi-Society Gluteal Fat Grafting Task Force issued a safety advisory urging practitioners to re-evaluate their technique in relation to this procedure and made the statement that the death rate of approximately 1/3000 is the highest for any aesthetic procedure.11 This advisory has been supported by the Australasian Society of Aesthetic Plastic Surgeons.

Due to the risks associated with this procedure **the authors of this guideline strongly recommend that the BBL should not be performed.**

**Postoperative monitoring**

The patient should be monitored by a registered nurse with experience of perioperative care for 1-4 hours depending on the volume of fat and tumescence aspirated.

For further guidance refer to ANZCA PG15(POM) Guideline for the perioperative care of patients selected for day stay procedures 2018

**Delayed fat transfer**

In the rare circumstance where fat is to be stored it must be stored in an alarmed, ultra low temperature storage -80 freezer. There needs to be clear documentation and labelling of the fat and the process by which it was harvested, stored and reintroduced, including date of harvest and continuous monitoring of the temperature of which the fat is stored. All elements of harvesting, storage and reintroduction must be conducted in a sterile manner according to bio-tissue regulation. Clinicians must be familiar with and abide by specific contraindications to delayed transfer of any tissues.

# Discharge and follow up care

In the event of post discharge deterioration, on the night of surgery, an appropriate adult must be present with the patient who can make contact with the treating proceduralist, and/or take the patient to an emergency department (consider Social factors). Patients who live alone and/or have nobody appropriate to stay with them overnight should not undergo liposuction in a day procedure centre.

The treating proceduralist or their delegate **must** be available and contactable in the 24 hours after surgery, and review the patient’s progress 1-3 days after surgery, and follow up after one week.. There must be a specific plan in place in the event of deterioration following discharge from the facility. The treating proceduralist should be available for an in person review on the night following surgery if there is a major event or significant deterioration.

For further guidance please refer to ANZCA PS15 Guideline for the perioperative care of patients selected for day stay procedures 2018

# Reporting and audit

The facility should provide timely, accurate and verifiable data to Victorian Admitted Episodes Dataset (VAED) on activity, and conduct longer term audit of patient experience and outcomes, including any complications that occur in the first 30 days after surgery. These audits should be subject to peer review appropriate to the craft group of the practitioner.

Audit should include, at a minimum:

* lipoaspirate volumes and total local anaesthetic dose
* adverse reactions to medications or procedure
* discharge information provided to patient including contact information
* any post procedural complications, eg infection, inadvertent injury,
* need for post procedural antibiotics
* unplanned return to theatre, at any facility
* unplanned presentations to emergency department and admissions to hospital
* patient, family/significant other and colleague complaints.

# Complaints and open disclosure

In addition to listing individual complaints, practitioners and facilities are required to adhere to the regulatory requirements and standards for complaints management and open disclosure, including the Health Services (Health Service Establishments) regulations 201, Australian Open Disclosure Framework and the Complaint Handling Standards under the *Health Complaints Act 2016*

Patients and their significant others have a right to complain and to escalate their complaint to the appropriate authorities including but not limited to, AHPRA, the Health Complaints Commissioner and the Victoria State Government Department of Health. A person making a complaint must not be adversely affected because the complaint has been made.

In the event of settling a complaint about a complication, or conducting open disclosure, patients should not be asked to sign non-disclosure agreements or similar undertakings

# Medical tourism

Credentialing and regulatory requirements vary between countries. It is important to be aware of the credentials and experience of those performing the procedure. This document provides a guide to the credentialing and training requirements in Victoria.

Facilities and their practitioners providing liposuction are expected to provide high standards of sterility, but even where these exist, any cosmetic procedure carries a small risk of infection.

Patients considering travelling overseas for cosmetic procedures should be aware that the regulatory standards vary between countries. There is the risk that facilities may not provide a similar standard of sterility to those in Victoria. It is also important, just as it is in Australia, to be aware of the credentials of those providing the cosmetic procedure and responsible for monitoring recovery afterwards.

There have been cases of serious and life-threatening infection developing in procedures performed overseas, although these have also occurred in Victoria. There is also an added risk of infection with antibiotic resistant micro-organisms which may limit the options for antibiotic treatment.

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# Further reading

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[M Mark Mofid, MD, FACS](javascript:;), [Steven Teitelbaum, MD, FACS](javascript:;), [Daniel Suissa, MD, MSc, FRCSC](javascript:;), [Arturo Ramirez-Montañana, MD](javascript:;), [Denis C Astarita, MD](javascript:;), [Constantino Mendieta, MD, FACS](javascript:;), [Robert Singer, MD, FACS](javascript:;) Report on Mortality from Gluteal Fat Grafting: Recommendations from the ASERF Task Force  Aesthetic Surgery Journal, Volume 37, Issue 7, July-August 2017, Pages 796–806, [https://doi.org/10.1093/asj/sjx004 21 March 2017](https://doi.org/10.1093/asj/sjx004%2021%20March%202017)

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