# Botox & Fillers

## Introduction

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## Student Training Guidelines

### Evaluation – Support – Feedback

* Evaluate your client’s experience to build confidence
* Collect feedback from client to build knowledge
* Learning to support yourself through head office

### Certification Requirements

* Question and answer time must be completed
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* Theory work completed and marked prior to physical training

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### What will we cover in theory training?

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* Confidence
* Listening skills
* Professionalism
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* How to deal with uneasy clients and the correct protocol
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* Health and safety
* Professionalism
* Customer objections
* Observational hazards
* Cross contamination/infection

**Please note:** Students must be well presented and have their hair tied back. Students that arrive any later than ten minutes into a training session will not be able to enter the session. This is a distraction for others also attending training.

Blown Aesthetics would like to take time to thank you for training with us and we hope that you enjoy your experience.

This course will enable you to deliver anti-wrinkle injectables and dermal fillers to the highest of standards. Our aim is to ensure that your standard of anatomy and physiology along with your product knowledge, injectable techniques and corrections is to a high standard alongside practical training days at our first class training facility. The course length is a minimum of 45 hours self-guided study/home learning prior to your attendance. This includes the anatomy and physiology course books, first aid and anaphylaxis prior to looking at any injectables. The guided learning takes approx. 35 hours of home study time in total, with case studies to be completed and sent in within one month. All modules are mandatory and you must have completed all assignments and case studies before you can touch injectables and therefore qualify. All non-medical delegates must be level 4 qualified or above as a beauty therapist, our medical delegates must have a medical qualification and/or experience with needles. Please note all qualifications in the following format Electronically and hard copy will need to be produced prior to any training commencing, failure to provide these will mean you are refused entry to this course.

## Botox

### WHAT IS BOTOX?

Welcome to the world of non-medical aesthetics. During this module we will look at what is Botox and Dermal fillers. What they are, where they come from and injection technique.

**Botulinum toxin (Botox)** is a drug prepared from bacterium clostridium, used medically to treat certain muscular conditions and cosmetically to remove wrinkles by temporarily paralysing facial muscles. It is administered by the route of Inter muscular injection.

Botulinum toxin (BTX) or Botox is a neurotoxic protein produced by the bacterium Clostridium. It prevents the release of the neurotransmitter acetylcholine from axon endings at the neuromuscular junction and thus causes flaccid paralysis.

Botulinum is the most acutely lethal toxin known, with an estimated human median lethal dose (LD50) of 1.3–2.1 ng/kg intravenously or intramuscularly and 10–13 ng/kg when inhaled.

There are eight types of botulinum toxin, named type A–H. Types A and B can cause disease in humans, and are also used commercially and medically. Types C–G are less common; types E and F can cause disease in humans, while the other types cause disease in other animals. Type H is considered the deadliest substance in the world – an injection of only two-billionths of a gram (2 ng) can cause death to an adult, let alone a child. Botulinum toxin types A and B are used in medicine to treat various muscle spasms and diseases characterized by overactive muscle. The commercial form is marketed under the brand name Botox, among others e.g. azzalure & bocouture.

Botulinum toxin is used to treat many medical disorders characterized by overactive muscle movement which including post-stroke spasticity, post-spinal cord injury spasticity, spasms of the head and neck, eyelid, vagina, limbs, jaw, and vocal cords. Similarly, botulinum toxin is used to relax clenching of muscles, including those of the oesophagus, jaw, lower urinary tract and bladder, or clenching of the anus which can exacerbate anal fissure. It may also be used for improper eye alignment. Botulinum toxin appears to be effective for refractory overactive bladder.

In January 2014, botulinum toxin was approved by UK's Medicines and Healthcare Products Regulatory Agency (MHRA) for treatment of restricted ankle motion due to lower limb spasticity associated with stroke in adults.

On July 29, 2016, Food and Drug Administration (FDA), of the United States of America approved a botulin toxin A for injection for the treatment of lower limb spasticity in paediatric patients two years of age and older.

In 2010, the FDA approved intramuscular botulinum toxin injections for prophylactic treatment of chronic migraine headache. Botulinum toxin is also used to treat disorders of hyperactive nerves including excessive sweating, neuropathic pain, and some allergy symptoms. In addition to these uses, botulinum toxin is being evaluated for use in treating chronic pain.

In cosmetic applications, botulinum toxin is considered safe and effective for reduction of facial wrinkles, especially in the uppermost third of the face. Injection of botulinum toxin into the muscles under facial wrinkles causes relaxation of those muscles, resulting in the smoothing of the overlying skin. Smoothing of wrinkles is usually visible three days after treatment and is maximally visible two weeks following injection. The treated muscles gradually regain function, and generally return to their former appearance three to four months after treatment. Muscles can be treated repeatedly to maintain the smoothed appearance.

Side effects from cosmetic use generally result from unintended paralysis of facial muscles. These include partial facial paralysis, muscle weakness, and trouble swallowing. Side effects are not limited to direct paralysis however, and can also include headaches, flu-like symptoms, and allergic reactions. Just as cosmetic treatments only last many months, paralysis side-effects can have the same durations. At least in some cases, these effects are reported to dissipate in the weeks after treatment. Bruising at the site of injection is not a side effect of the toxin but rather of the mode of administration, and is reported as preventable if the clinician applies pressure to the injection site; when it occurs, it is reported in specific cases to last 7–11 days. wrinkles away. Side effects from medical use can be much more varied depending on the location of injection and the dose of toxin injected. In general, side effects from therapeutic use can be more serious than those that arise during cosmetic use. These can arise from paralysis of critical muscle groups and can include arrhythmia, heart attack, and in some cases seizures, respiratory arrest, and death.

In 2009, the FDA announced that boxed warnings would be added to available botulinum toxin products, warning of their ability to spread from the injection site. Additionally, the FDA announced name changes to several botulinum toxin products, meant to emphasize that the products are not interchangeable and require different doses for proper use. Botox and Botox Cosmetic were renamed botulinum toxin A, Myobloc was renamed rimabotulinumtoxinB, and Dysport name renamed abobotulinumtoxin A.

In conjunction with this, the FDA issued a communication to health care professionals reiterating the new drug names and the approved uses for each. A similar warning was issued by Health Canada in 2009, warning that botulinum toxin products can spread to other parts of the body. Both Dysport and Botox are types of neurotoxins that block muscle contractions. While both injections are sometimes used to treat spasms from neurological disorders and other medical conditions, they’re more widely used as facial wrinkle treatments. They’re both derived from botulinum toxins, which are safe in small amounts.

Before injection with botulinum toxin, use of anticoagulants should be discontinued for two weeks to minimize bruising. Pain at the injection site can be minimized with use of a small-gauge needle, application of a topical anaesthetic or icing the area before injection. Furthermore, treatment with botulinum toxin should be started at a lower dose and gradually increased.

### The History of Botox

Botox is not a new product. It has been used and involved many times throughout history.

In 1820, **Justin’s Kerner**, a small-town German medical officer and romantic poet, gave the first complete description of clinical botulism based on extensive clinical observations of so-called “sausage poisoning”. Following experiments on animals and on himself, he concluded that the toxin acts by interrupting signal transmission in the somatic and autonomic motor systems, without affecting sensory signals or mental functions. He observed that the toxin develops under anaerobic conditions, and can be lethal in minute doses. His prescience in suggesting that the toxin might be used therapeutically earned him recognition as the pioneer of modern botulinum toxin therapy.

Seventy five years later, In 1895 **Émile van Ermengem**, professor of bacteriology and a student of Robert Koch, correctly described Clostridium botulinum as the bacterial source of the toxin. Thirty-four attendees at a funeral were poisoned by eating partially salted ham, an extract of which was found to cause botulism-like paralysis in laboratory animals. Van Ermengem isolated and grew the bacterium, and described its toxin, which was later purified by P Tessmer Snipe and Hermann Sommer.

Over the next three decades, 1895-1925, as food canning was approaching a billion-dollar-a-year industry, botulism was becoming a public health hazard. **Karl Friedrich Meyer**, a prodigiously productive Swiss-American veterinary scientist created a centre at the Hooper Foundation in San Francisco, where he developed techniques for growing the organism and extracting the toxin, and conversely, for preventing organism growth and toxin production, and inactivating the toxin by heating. The California canning industry was thereby preserved.

With the outbreak of World War II, weaponization of botulinum toxin was investigated at Fort Detrick in Maryland. **Carl Lamanna** and **James Duff** developed the concentration and crystallization techniques that **Edward J. Schantz** used to create the first clinical product. When the Army’s Chemical Corps was disbanded, Schantz moved to the Food Research Institute in Wisconsin, where he manufactured toxin for experimental use and generously provided it to the academic community.

The mechanism of botulinum toxin action – blocking the release from nerve endings of the neurotransmitter acetylcholine – was elucidated in the mid-1900s, and remains an important research topic. Nearly all toxin treatments are based on this effect in various body tissues.

Ophthalmologists specializing in eye muscle disorders (strabismus) had developed the method of EMG-guided injection (using the electromyogram, the electrical signal from an activated muscle, to guide injection) of local anaesthetics as a diagnostic technique for evaluating an individual muscle’s contribution to an eye movement. Because strabismus surgery frequently needed repeating, a search was undertaken for non- surgical, injection treatments using various anaesthetics, alcohols, enzymes, enzyme blockers, and snake neurotoxins. Finally, inspired by Daniel Drachmann’s work with chicks at Johns Hopkins, **Alan B Scott** and colleagues injected botulinum toxin into monkey extraocular muscles. The result was remarkable: a few picograms induced paralysis that was confined to the target muscle, long in duration, and without side-effects. After working out techniques for freeze-drying, buffering with albumin, and assuring sterility, potency, and safety, Scott applied to the FDA for investigational drug use, and began manufacturing botulinum type A neurotoxin in his San Francisco lab. He injected the first strabismus patients in 1977, reported its clinical utility in 1980, and had soon trained hundreds of ophthalmologists in EMG-guided injection of the drug he named **Oculinum** ("eye aligner").

In 1986, Oculinum Inc, Scott's micro manufacturer and distributor of botulinum toxin, was unable to obtain product liability insurance, and could no longer supply the drug. As supplies became exhausted, patients who had come to rely on periodic injections became desperate. For 4 months, as liability issues were resolved, American blepharospasm patients travelled to Canadian eye centres for their injections.

* Based on data from thousands of patients collected by 240 investigators, Allergan received FDA approval in 1989 to market Oculinum for clinical use in the United States to treat adult strabismus and blepharospasm, using the trademark **Botox**. This was under the 1983 US Orphan Drug Act.
* **William J. Binder** reported in 2000 that patients who had cosmetic injections around the face reported relief from chronic headache. This was initially thought to be an indirect effect of reduced muscle tension, but it is now known that the toxin inhibits release of peripheral nociceptive neurotransmitters, suppressing the central pain processing systems responsible for migraine headache.

## Anatomy & Physiology of the Face

During this section of your course we will be revisiting the anatomy and physiology of areas such as the skin and face. Please note that the anti-wrinkle and dermal filler course cannot be started until your level 4 A&P manual including assignments and exam have been completed and marked.

Skin consists of three layers:

* Epidermis
* Dermis
* Subcutaneous

The skin is the largest human organ of the human body and on average consists of 19,000 square cm’s of skin. The human skin is thinner on the eyelids and thicker on the feet.

The Skin has six main functions:

1. Sensation
2. Heat (regulates our temperature)
3. Absorption
4. Protection
5. Excretion
6. Storage

* **Sensation:** We have sensory nerve endings in the skin and these allow the body to be able to feel things such as heat, cold, pain, pleasure and so on.
* **Heat:** Our skin helps the body in many ways and one of these is to regulate our bodies temperature and it does this in various ways.
* **Absorption:** The skin is also capable of absorption and it does this via the epidermis. The skin can absorb Oxygen, fat soluble vitamins, small amounts of water, carbon dioxide and ultra violet radiation. It can also help convert various chemicals into vitamin D.
* **Protection:** The skin has what is known as the Acid Mantel this is an anti-bacterial film of sweat and sebum which helps the skin prevent the multiplication of bacteria and mica-organisms which accumulate on the skins surface.
* **Elimination:** This is simply where the skin has what we call eccrine glands which produce sweat and this helps us to eliminate waste such as urea, uric acid, ammonia and lactic acid through us sweating.
* **Storage:** Finally, Fat and water are stored in the skin. The subcutaneous layer holds about 15% of our body’s fluid.

(Please complete the diagram below)

### The Muscles of the Face (revisited)

The facial muscles are subcutaneous (just under the skin) muscles that control facial expression. They generally originate from the surface of the skull bone and insert on the skin of the face. When they contract, the skin moves in a wave like motion which creates the wrinkles of the face.

There are around twenty muscles in the face and we are going to discuss some of them on the following pages.

#### The frontalis muscles

The frontalis muscles are also known as the frontal belly of epicranius muscle, with assistance from the occipital belly, pulls the scalp back so that the eyebrows are lifted and the forehead can wrinkle. The epicranius muscle is a wide musculofibrous layer that wraps around one entire side of the vertex of the skull, from the occipital bone to the eyebrow.

The frontalis muscle takes on a thin, quadrilateral form. This muscle is wider than the occipitalis and its fibres are lighter in colour and longer. There are no bony attachments. The medial fibres relate to those of the Procerus; the corrugator and the orbicularis oculi mix with its immediate fibres. Its lateral fibres also mix with the latter muscle over the zygomatic process of the frontal bone.

At these attachments, the fibres move up and join the galea aponeurotic beneath the coronal suture. The medial margins of the frontalis move together for a while above the root of the nose; however, between the occipitals there is a significant, though changing interval taken up by the galea aponeurotica.

#### The temporal muscle

The temporal muscle, also known as the temporalis, is one of the muscles of mastication. It is a broad, fan-shaped muscle on each side of the head that fills the temporal fossa, superior to the zygomatic arch so it covers much of the temporal bone.

#### Procerus Muscle

A muscle that arises in the skin over the nose and is connected to the forehead. It acts to draw the eyebrows down.

The procerus muscle is the pyramid-shaped muscle extending from the lower part of the nasal bone to the middle area in the forehead between the eyebrows.

#### The corrugator supercilii

The corrugator supercilii is a small, narrow, pyramidal muscle close to the eye. It is located at the medial end of the eyebrow, beneath the frontalis and just above orbicularis oculi muscle. The name corrugator supercilii is Latin, meaning wrinkle of the eyebrows.

#### The Orbicularis Oculi

The orbicularis oculi muscle is a ring like band of muscle, called a sphincter muscle, that surrounds the eye. It lies in the tissue of the eyelid and causes the eye to close or blink. At the same time, it compresses the nearby tear gland, or lacrimal gland, aiding the flow of tears over the surface of the eye. Contraction of the muscle also causes the appearance of folds or crow’s feet that radiate out from the outer corner of the eye.

### Arteries, Nerves and Veins

(Above is a picture of where the arteries and veins run in the face which is vital to your understanding of injectables if you are going to practice injectables safely.)

(Above is a diagram of nerves in the face)

It is important that you understand the important of where your injecting in the face and how dangerous this can be.

**As part of your safe practice please document the implications of injecting anti-wrinkle injections or dermal fillers into a nerve, vein or artery in detail below.**

## Hand Hygiene During Practise

Effective hand hygiene is the single most important strategy in preventing healthcare associated infections. Hand hygiene is a general term applying to the use of soap/solution (non-antimicrobial or antimicrobial) and water, or a waterless antimicrobial agent to the surface of the hands.

An infection spread by unclean hands can have a devastating impact on a patient and the practitioner.

This makes it vitally important for aesthetic practitioners to practice good hand hygiene. In fact, good hand hygiene is one of the simplest, most effective ways to prevent the spread of infections, which makes it a key patient safety priority.

Washing your hands properly should take about as long as singing "Happy Birthday" twice (around 20 seconds). Use the following steps from the World Health Organization while you hum:

1. Wet your hands with water (warm or cold).
2. Apply enough soap to cover all over your hands. You can use alcohol-based hand rub if you don't have immediate access to soap and water.
3. Rub hands palm to palm.
4. Rub the back of your left hand with your right palm with interlaced fingers. Repeat with the other hand.
5. Rub your palms together with fingers interlaced.
6. Rub the backs of your fingers against your palms with fingers interlocked.
7. Clasp your left thumb with your right hand and rub in rotation. Repeat with your left hand and right thumb.
8. Rub the tips of your fingers in the other palm in a circular motion, going backwards and forwards. Repeat with the other hand.
9. Rinse hands with water (warm or cold).
10. Dry thoroughly, ideally with a disposable towel.
11. Use the disposable towel to turn off the tap.

## ANTT

### What is ANTT?

ANTT means an **aseptic none touch technique**. This is important to keep all areas of your station and equipment sterile as stated below. It also highlights the importance of equipment you may not think of such as needle caps and the importance that they too must also remain sterile in both anti-wrinkle injections and dermal fillers.

### DEFINITIONS

* **Aseptic technique:** the method by which precautions are taken during invasive clinical procedures to prevent the transfer of microorganisms from the healthcare worker, procedure equipment or the immediate environment to the patient. Regardless of the setting the aim is always to prevent the transfer of pathogenic micro-organisms from the healthcare worker, procedure equipment or the immediate working environment into or onto the patient
* **Aseptic Non-Touch Technique (ANTT):** A specific type of aseptic technique with a unique Theoretical and Practice Framework. (NICE 2012).
* **Aseptic field:** a designated aseptic working space that contains and protects the procedure equipment, in ANTT there are differing aseptic fields:
  + **General aseptic field:** is used to promote asepsis rather than ensure it, this may be using a clean tray or trolley.
  + **Micro critical aseptic field (MCAF):** is used to ensure Key-Part asepsis and requires general management
  + **Micro critical aseptic field (MCAF):** a small critical aseptic field used to protect a specific key-part, e.g. a syringe cap or needle cover, other examples may include ‘backing’ to dressings
* **Critical management:** The whole main aseptic field (usually a sterile drape) is maintained aseptically. i.e. Only sterile or aseptic equipment can meet the critical aseptic field, sterile gloves are used to maintain aseptic continuity
* **General management:** Whilst the main aseptic field (Usually a plastic or paper tray) is still managed aseptically and helps to promote a safe working space, it is not as aseptic as a sterile drape and therefore is not relied upon as the primary method of equipment protection. Equipment asepsis is maintained by protecting Key-Parts individually with micro critical aseptic fields (caps and covers).
* **Healthcare associated infection (HCAI):** any infection acquired by a person because of healthcare interventions regardless of where care is delivered
* **Key-Part:** the critical part of procedural equipment that meets the patient (a Key-Site) or other procedural equipment i.e. liquid infusion during the procedure.
* **Key-Site:** can be a wound, insertion and access sites for a medical device

ANTT will be visited during your practical session also.

## Client Consultation Forms

Below are some of the information that your client consultation form should include.

* NAME
* DOB
* Address
* Medical conditions
* Allergies
* Medical History
* Next of Kin
* Informed Consent

**Assignment:** explain why it is important that all the above information is on your client assessment form.

Other information that you will need your client to sign are noted below. Discuss with your tutor why you think they are needed:

1. You will need a topical anaesthetics form for your client to sign
2. You will need a Facial analysis mapping form
3. You will need an Informed Consent Form
4. You will need a Disclaimer Form

It’s also important during consultation that you discuss social factors with your client such as lifestyle choices and any genetics you may feel to be important. It’s also important that you point out to clients any imperfections such as lack of symmetry in the face or scars on the face that may affect the treatment you are to be provide as this may affect the outcome your client is hoping to achieve which may also be affected. These areas must be discussed, documented and signed by the patient. You must then review the consultation and take into consideration any contra – indications which may affect the treatment provided.

### Contraindications

A **contra-Indication** is where the client upon consultation has informed you that they have a certain condition or are on certain medications which would prohibit them from receiving the treatment.

A **contra-action** is what happens after you have given the treatment, the client has a reaction and some type of first aid care is required.

Common contra-Indications include:

* Clients with a hypersensitivity to Botulinum Toxin A or indeed any other formulas in this area
* If infection/s are present especially in the area you are looking to inject for example cold sores
* Neuromuscular disorders are a definite contra-indication
* Pregnant/breastfeeding
* Under 18
* Has a history of aspiration and or dysphagia
* Doctors have said it is not recommended

(Below I have attached a common chart often used for aesthetic consultations. This can be found on the internet. Areas of the face can be discussed and the treatment you intend to provide can be documented. This will be required if you are to remember previous treatments provided alongside treatments you will provide in the future.)

### Customer Expectations

It important that you are straight forward with you clients and do not tell them what they want to hear. Often, they will ask to be made to look like a certain person or celebrity. As a practitioner it is your duty to be honest an explain that your unable to do that but explain what you can do for them to achieve the best look and outcome possible.

When an ageing client expectations take photos of their face and show them the areas that are a problem, how one side is probably deep than the other and what the possible cause of that is and how the treatment may differ or not be as effective. Explain in detail to her, what you can do for her and what the result should be.

You must always remember that your client will always arrive with very high expectations especially if she/he has not had it done before and how you handle it will be what sets you apart from any other cosmetic practitioner!

At this stage it’s good to take before pictures, they can later be looked at if he/she is disputing any areas of the face you have already pointed out as problem areas and advised them about or that the treatment hasn’t worked to compare to after pics with both anti-wrinkle injections and dermal fillers.

## Practical Anti-Wrinkle

Ensure that your client up against a white or cream coloured wall and take:

* Photos of front of face in normal position
* Now ask them to frown and take a photo
* Now ask them to scowl and take a photo
* Now ask them to do a big smile and take a photo

Repeat this for both sides of the face.

Now ensure you do the correct facial analysis which also incorporates what the client is looking for (within reason).

Now mark the areas where the Anti-wrinkle injections are to go please use a white mark or equivalent. This could be a makeup pencil also such as an eyeliner.

### SAFETY!

Brow ptosis is the most common significant site-specific side effect. The chances of affecting an eye are remote. Be conservative in people who are older with less elastic skin in the areas where partial movement should be preserved to support the brow.

### Forehead

A broad thin muscle that is highly variable in size and strength, and occasionally connects all the way to the occipital bone via an aponeurosis to form the frontalis muscle. It supports and raises the eyebrow and causes horizontal lines in the forehead.

Observe the muscle in action to see the vector it applies to the eyebrows near its insertion. The aponeurosis is present superiorly here but is highly variable.

General muscle actions include Lifting and supporting the eyebrows. Expressions, including surprise, worry, and many other subtler ones.

We’ve all seen this: the face absolutely doesn’t move. The result looks slightly robotic, not natural. In the beginning, when working with frown lines, the corrugator muscle (the muscle that operates when people frown) may need to be completely relaxed, for a while. Once the frown line dissipates, though, it makes sense to adjust the Botox dose to allow for a little movement so that the expression looks natural. Remember, the goal is no wrinkles, not no movement.

### Safety Margins

Treatment can cause a drop in medial or lateral brow in some people. The middle of the muscle is most sensitive to over treatment, particularly above the eyebrows. A brow drop is one of the most common side Affects you encounter. For Botox to remove lines, it must reduce movement. With movement is also support for the brows, so most treatments are better with some movement which keeps the brows mobile and supported. the result of over-Botoxing the forehead, specifically the frontalis muscle, which goes all the way across the forehead and is used to raise the eyebrows. Too much Botox relaxes the forehead too much, which results in a heavy feeling. When the forehead comes down, so do the eyebrows. Since some of us raise our eyebrows to make the eyes feel more open when there is excess eyelid skin (called hooding), then dropping the eyebrows makes the eyelids look worse—or more hooded. If the doctor doesn’t correctly perceive how much the patient uses this muscle, then too much Botox will make the forehead feel heavy.

### Common Injection Patterns

There are more possible variations, but illustrated are common ways to Treat the glabella in different people.

### Injecting Technique

1. Always start in the middle and work sideways when novice-the implications of overshooting a dose are much higher laterally.
2. Support the skin if required.
3. Needle angled at 45 degrees, bevel up.
4. Insert needle so bevel is directly below the dot in the body of the muscle. You will feel a small ‘give’ as it passes under the dermis.
5. Withdraw and apply pressure if any sign of bleeding Foundation Knowledge.

### Treatment of the Glabella Area (frown)

The glabella complex consists of seven individual muscles, Frown lines are vertical lines between and above your eye brow that are the result from frowning and ageing skin. Like forehead lines, as we age these frown lines become more prominent.

Treatment of frown lines can be beneficial to patients who are suffering the negative social effects of their frowning, or who would simply like to reverse the effects of aging. Persistent or deep frown lines often may cause individuals to look angry, stressed, tired, intense or concerned. Elimination of frown lines leads to a more rested, approachable and fresh appearance.

**SAFETY:** Local risks here are mainly related to diffusion of product from the glabella region into the eye. The risk is higher as you move laterally, and could be more risky injecting too deep laterally. If you stick to safety margins and correct depth and you should enjoy a very low rate of eye side effects.

### Treatment of the Corrugator Muscle

The expression of frowning is mainly caused by the corrugator muscles, but the brow is also depressed by the procerus, the depressor supercilia and by the orbicularis oculi. The entire complex must be understood to assess and treat the area correctly.

The corrugators’ origin is deep and becomes superficial as it goes laterally and inserts into the skin. The insertion point is usually visible and is the most lateral point Botox should reach (keeping in mind 1 cm diffusion). This is your guide to the lateral injection point.

The bulk of the corrugators and some supercilli fibres usually occur roughly above the inner canthus. Look for where contraction seems strongest. This is usually where the second injection point would go. Looking at the placement of those medial and lateral points, depending on the width of the individual corrugators muscle, there may or may not be room for a third injection point in-between.

### The Depressors muscles for the frown

The procerus and the depressor supercilli pull the medial brow down. The orbicularis occuli also does this laterally. The orbicularis oculi do this more so when the eye is shut tight- not something we want to stop, so assess with the patient’s eyes fully open.

### The Orbicularis muscle

The orbicularis oculi surrounds the eye and causes lines, holds down the brow, Narrows the eye and helps lifts the cheek during a smile. A fabulous result can be gained by relaxing it in a targeted manner using botulinum toxin. (Botox) The orbicularis oculi are, as the name suggests, a circular muscle surrounding the eye. Its bony origin is near the inner canthus via the medial palpebral ligament (MPL) and it has many very superficial insertions all around the dermis surrounding the eye. It is divided into pretarsal, perceptual and orbital sections. Lateral fibres of the orbital section are the primary focus in aesthetics, but the whole complex must be understood to be a competent safe and thoughtful clinician.

Marking the injection points along the rest of the muscle. The product diffuses 1cm, so place your marks 1cm apart in way that is both within the safety margins but also covers the thickest part of the muscle. This is usually 3 or four points at 2.5 units each.

And remember to always protect the Orbital Rim! By placing your finger there to feel the space in which you should not inject. You are not doing advance techniques so at no point must you attempt to do them as you will not be qualified and will not have been shown.

Your aim as a cosmetic aesthetic practitioner is to ensure there is movement but no wrinkles!

### Common Errors

* One eyebrow lifting of both causing the face to look permanently shocked.
* Droopy eyelid/s and heavy forehead, usually the therapist's fault by over injecting into the frontalis muscle
* Lopsided Face (Facial droop on one side) - This usually only happens when the Anti-Wrinkle migrates from the crow’s feet to a corner of the lip and cheek
* The lopsided smile - This is simply where you the therapist have incorrectly injected the area and the result is the clients lip either goes up or down.
* The Lower Eyelid looks far worse after you have treated it - If you treat this area with too much Anti-wrinkle then it will cause the muscle to relax to much

What can you do if the above happens? **NOTHING!** Only Time will sort it out! - it is important to ensure this is documented in your client disclaimer.

### Adverse Events

In medicine, an adverse effect is an undesired harmful effect resulting from a medication or other intervention such as surgery.

An adverse effect may be termed a "side effect", when judged to be secondary to a main or therapeutic effect. If it results from an unsuitable or incorrect dosage or procedure, this is called a medical error and not a complication.

Adverse effects are sometimes referred to as "iatrogenic" because they are generated by a physician/treatment. Some adverse effects occur only when starting, increasing or discontinuing a treatment.

Adverse effects that can occur once anti-wrinkle injections have been administered include:

#### Nervous System Disorders

* **VERY COMMON** – Headache
* **COMMON** - Facial Paresis
* **UNCOMMON** – Dizziness

#### Skin and Subcutaneous tissues disorders

* **UNCOMMON** – Pruritis and or Rash
* **RARE** – Urticaria

#### General Disorders around injection site and conditions

* **VERY COMMON** – Injection site reactions (itching, redness, stinging etc)

#### Eye disorders

* **COMMON** - Dry Eye, Muscle Twitching, Droopy eye (PTOSIS)
* **UNCOMMON** – Visual Disturbances and or blurred vision

There are many different brands on the market of the Botulin Toxin. Each brand will have inside a prescription which will confirm how the product is to be diluted prior to being administered. It’s also important that the units given are also checked. Botox is a brand name alongside the product Azzalure. Despite both being brands of the botulin toxin, they are diluted differently! Safe practice always.

### What dose of Botox do I need to inject? And how much of saline do I combine/mix it with?

| Botox 50 units diluted with | 100 units diluted with | 1 Botox unit | 2 Botox units | 4 Botox units |
| --- | --- | --- | --- | --- |
| 1.25ml saline | 2.5ml saline | 2.5 on insulin syringe | 5 on insulin syringe | 10 on insulin syringe |

| Azzalure 125 Spey wood units diluted with |  | 5 Spey wood units | 10 Spey wood units |  |
| --- | --- | --- | --- | --- |
| 0.63ml saline |  | 2.5 on insulin syringe | 5 on insulin syringe |  |

These doses are to be given in practise.

* **Small injections** used in areas where incomplete muscle relaxation is wanted, such as the orbicularis Oris or lateral frontalis.
* **Medium injections** where muscle may be thin but where we desire complete relaxation, for example the lateral most point in the corrugator, the most superior point in the orbicularis oculi, or most forehead injections.
* **Large doses** tend to be used in stronger muscles like the medial corrugators and procerus, the bulk of orbicularis oculi.
* **Extra Large doses** can be used too, with experience you may use 15 Azzalure units or 6 to units in a strong corrugator in 1 or more injection sites. Larger doses do naturally increase the risk of side effects.

### Aftercare

Reiterate the potential for slight bruising and discomfort around the injection sites. The client should seek medical attention in the event of any major concerns. Advise the client not lie down, fall asleep or rub / massage the treated areas for at least 4 hours after treatment. Gently exercising the muscles that have been treated (i.e. frowning / smiling) can help to activate the toxin and expedite results. Clients should avoid consuming alcohol or wearing makeup for at least 24 hours after treatment. Advise the patient that the effects can take up to a few days to become apparent. Clients should be provided with your contact details in the event of wanting a follow up assessment / further treatment.

## Dermal Fillers

During foundation dermal fillers the areas which you will cover are the vermillion border of the lips, nasolabial and marionette lines.

Dermal fillers are injectable materials used to reduce wrinkles and treat deficits in facial volume.

Products work to mitigate the signs of ageing and improve facial contouring, ultimately providing long-term facial aesthetic enhancement.

* Hyaluronic acid (HA) fillers are the most widely used type of dermal filler. The cosmetic industry boom has transformed the world of dermal fillers.
* The popularity of dermal fillers can be attributed to the quick, reliable and long-lasting cosmetic enhancement achieved with minimal downtime and minimal invasiveness.

Hyaluronic acid (HA) is a naturally occurring component of human soft tissue. Therefore, there is no need for allergy testing prior to treatment. The affinity of HA to water helps replace age related volume loss. The nature of dermal fillers also allows for incremental administration, giving the client a sense of control and security.

### Vermillion Border

The vermilion border (sometimes spelled vermillion border), also called margin or zone, is the normally sharp demarcation between the lip and the adjacent normal skin. It is where lipstick is sometimes applied. It represents the change in the epidermis from highly keratinized external skin to less keratinized internal skin. It has no sebaceous glands, sweat glands, or facial hair.

It has a prominence on the face, creating a focus for cosmetics and is also a location for several skin diseases. Its functional properties, however, remain unknown. The lips are composed wholly of soft tissue. The skin of the face is thicker than the skin overlying the lips where blood vessels are closer to the surface. The margin of the lips shows a transition between the thicker and thinner skin, represented by the vermilion border. It therefore has the appearance of a sharp line between the coloured edge of the lip and adjoining skin.

It has been described as a pale, white rolled border and as being a red line. This fine line of pale skin accentuates the colour difference between the vermilion and normal skin. Along the upper lip, two adjacent elevations of the vermilion border form the Cupid's bow.

### Marionette Lines

Marionette lines are long vertical lines that laterally circumscribe the chin. They are important landmarks for the general impression of the face. Marionette lines are an ideal target for injectable fillers.

Marionette lines appear with advancing age and some people never get them, depending on facial structure and anatomy. They tend to appear as the ligaments around the mouth and chin relax and begin to loosen and sag, and fatty tissues of the cheek deflate and descend during the aging process. It can be difficult to get rid of them, but they can be minimized with facelifts that lift cheek tissue away from the area of the mouth combined with synthetic facial fillers, or with facial fillers alone. Marionette lines and wrinkles are two different types of folds or fine lines, yes both are a result of the aging process, both make your face look older, but the one major difference is that marionette lines give you that unhappy or mad expression where some people may misunderstand your face expressions just because of marionettes.

### Nasolabial Lines

The nasolabial folds, commonly known as "smile lines“ or "laugh lines”, are facial features. They are the two skin folds that run from each side of the nose to the corners of the mouth. They are defined by facial structures that support the buccal fat pad. They separate the cheeks from the upper lip. The term derives from Latin nasus for "nose" and labium for "lip".

Dermal fillers, such as Restylane and Juvederm, work quickly to restore your skin's youthful look and minimize the appearance of lines and wrinkles along your brow, around your lips and more. These fillers also plump up your lips and give you a fuller, pouty look. Just like anti-wrinkle injections there are many brands of Dermal Filler.

All areas of consultation must also be discussed as previously covered in the consultation of Botox including the completion of all client-based forms.

The key to dermal fillers is to deposit the material at the correct depth and using the correct volume. This is determined by the product used (viscosity) and the area / problem being treated.

* If dermal fillers are injected at too great a depth, the client will be left with unnoticeable and disappointing results
* If injections are too superficial, you may create undesirable lumpiness or granuloma formation
* By altering the angulation of your needle, you can adjust the depth of administration
* As a rule, you should be able to visualise the outline of the needle under the skin but not its grey colour.

Techniques of delivery vary depending on the indication, site, product and experience and preference of the injector. Techniques include:

* Linear threading
* Serial puncture
* Fanning
* Cross-hatching
* Depot
* Fern
* Cone

As a foundation practitioner you will only look at the **Linear threading** technique when injection dermal fillers. You will not be qualified or insured to use other techniques at present. The linear threading method –the product is deposited in a linear fashion as the needle is steadily withdrawn. This is the most commonly used method.

This will be demonstrated by your tutor.

### Injection Techniques

#### Nasolabial Folds

The nasolabial folds (also known as laughter lines) occur between the cheeks and the upper lip and can become more pronounced with ageing. Dermal fillers can be used to replace volume into these folds and reduce their appearance.

**The Technique:**

* Treat the folds in a ‘top down’ approach
* Inject the length of the folds using the linear threading technique
* Inject at the corners of the notes using the fanning technique
* Use bleeding points to determine the subsequent end points for the needle
* Remember to massage the treated areas to prevent lumpiness

#### Marionette Lines

These are the wrinkles that extend downwards from the corners of the mouth, separating the cheeks from the chin. Marionette lines become more pronounced with age and can result in a downturned and depressed look.

* When treating the marionette lines, use a combination of linear threading, and cross-hatching to elevate and support the skin
* Assess the lines in both the relaxed and dynamic state
* Be mindful of symmetry
* Massage the areas after treatment to prevent lumpiness

#### Vermillion Border

Today, a plump and full look to the lips is considered attractive and desirable but not all of us were gifted with this look naturally the process of ageing can often reduce the volume of the lips.

**Treatment objectives:**

* Natural fullness
* Well-defined vermilion border and cupids bow
* Good projection
* Smooth and soft appearance
* Balance between upper and lower lips (ideally 7:10)

**Technique:**

* Focus your volume replacing injections to the middle 2/3rds upper lip and middle 1/3rd lower lip. Be mindful of symmetry and keep track of how much product you have used on each side
* When treating the vermillion border, start by advancing the tip of the needle to the corner of cupids bow on one side. Inject using the linear threading technique. Use the puncture mark to define the end position of the needle in subsequent injections to ensure a smooth and even distribution of product.
* Treat any bruising with brisk and firm pressure using cotton wool / gauze
* If treating the central portion of the upper lip, ensure that the corners of cupids bow remain prominent and defined and in line with the philtrum columns
* Massage the lips after treatment to help evenly distribute the product and prevent lumpiness

**Important!**

With every insertion of your filler needle you must always draw back to ensure no blood is collected in the chamber of the needle. This has been an indication you have injection into an artery and may increase your chance of causing any vascular occlusions or necrosis of the artery.

### Contraindications

* Allergy to any component of dermal fillers
* A history of severe allergy defined as an anaphylactic response or the presence of multiple severe allergies
* Allergy to gram-positive bacterial proteins
* Allergy to Lidocaine
* Active infection at the proposed treatment site
* Clients under the age of 21

### Cautions

* Do not inject into blood vessel. Intravascular spread of these products can cause embolization, thrombosis, ischaemia and infarction of local or distant tissues
* Do not use at sites which are actively affected by inflammatory skin disorders
* Do not use if there is a history of keloid or hypertrophic scarring
* Pregnant/Breast-feeding
* Patients receiving immunosuppressive therapy
* Patients with bleeding disorders or a tendency to bruise easily
* Recent laser treatment, chemical peel or other therapy that induces an active dermal response

(I will now add some images of Vascular Occlusions.)

**Vascular occlusion** is a blockage of a blood vessel, usually with a clot. It differs from thrombosis in that it can be used to describe any form of blockage, not just one formed by a clot. When it occurs in a major vein, it can, in some cases, cause deep vein thrombosis.

This can be caused when the filler is inserted blocking the vessels.

If you think this may have occurred advise your patient to seek urgent medical attention immediately.

**Assignment:** explain in further details what a Vascular occlusion is and how they occur?

## Safe Disposal of Sharps

Incidents involving the unintentional inoculation of healthcare practitioners with used needles or other sharp materials (collectively known as 'sharps incidents') are the most important factor in the transmission of blood-borne viruses (Department of Health, 2014).

To reduce the risk of this occurring, all sharps must be used and disposed of safely in accordance with this guidance. It is the responsibility of the user to ensure compliance. Where this task is delegated, e.g. operating theatres, the user must be sure that 'at risk' staff are aware of the presence of the hazard and their responsibility for disposal.

Where it is reasonably practicable to do so, the use of traditional, unprotected medical sharps should be substituted with safety-engineered devices (Health and Safety Executive (HSE) 2013).

Health and safety law applies to risks from sharps injuries, just as it does to other risks from work activities. Relevant legislation includes:

* The Health and Safety at Work etc Act 1974.
* The Control of Substances Hazardous to Health Regulations (COSHH) 2002
* The Management of Health and Safety Regulations 1999
* The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR)

Prior to attending your session please bring yourself up to date with the above guidelines.

### Blood or body fluid contaminated needles

Contaminated needles MUST NOT be re-sheathed.

Do not send syringes with needles to other departments e.g. laboratories. Use syringe caps or other appropriate devices. DO NOT BREAK the hub off the hypodermic needle to obtain blood from neonates. This has led to adverse incidents (Scottish Executive Health Department, 2001). Use appropriate safe equipment for neonatal use.

For injuries with blood-or-body-fluid-contaminated-sharps the GOSH ‘Sharps injuries and exposure to blood borne viruses’ guideline must be followed.

### Non-blood contaminated needles

Care must be taken with needles which have been used for drawing up purposes to prevent inoculation of syringe contents into the employee with possible deleterious side effects. An approved method can be seen on the GOSH video for 'Aseptic non-touch technique' which is on each ward. Follow normal first aid measures for a contamination incident. For non-blood contamination further information can be obtained from: The relevant Control of Substances Hazardous to Health (COSHH) assessment available in the unit.

### Safe use of other non-disposable sharp items

The following procedure must be adopted to render these items safe:

* Scalpel blades must be removed from handles using purpose-made blade removal kits, as appropriate, or forceps.
* Needles are to be removed from needle holders.
* Sharps requiring return to HSDU must be packaged safely and securely.

### Disposing of sharps and syringes

* Discard sharps items and complete needle and syringe units directly into sharps box immediately after use.
* Where possible, used sharps should not be taken to the sharps box, the box should be taken to the patient.
* Place sharps boxes at eye level and within arm’s reach.
* Establish means for the safe handling and disposal of sharps devices before the beginning of a procedure (Royal College of Nursing, 2013).

### Sharp Box

The following procedure must be adopted with regards to the use of containers provided for the disposal of used needles and other sharp objects. The sharps container:

* Must be taken to patient when using sharps, where possible.
* Must have been approved by the Infection Prevention & Control Team and will comply with the requirement of UN 3291 as required by the Carriage of Dangerous Goods Legislation.
* Must be easily available in all areas where clinical sharps are used, but must not be accessible by children/young people.
* Must be assembled correctly and checked to ensure all connections are solid.
* MUST NOT be overfilled (not more than 75 per cent full).
* Must be made secure prior to placing for collection and must not be left where there may be access by children/young people.
* Must be labelled with the:
  + Hospital name, ward/department/clinic.
  + Name of the individual who assembled box, and date of assembly.
  + Name of individual who closed and locked/disposed of it.
* The box must be dated before being sent for incineration as stated in.
* If any sharps are protruding through the container or opening, DO NOT attempt to remedy the situation by pushing the items inside.
* If a container has been overfilled, DO NOT decant any of the contents. If possible, place inside a larger sharps container and arrange for disposal. This is booked through CARPS.
* An incident form should be completed as a 'near miss’s and the head of department informed.

### Sharps in Use

The following should be taken into consideration when sharp instruments or objects, including needles, are in use:

* DO NOT separate needles from syringe routinely. Blood contaminated syringes together with needle should be placed in the sharps containers.
* If it is necessary to re-sheath the needle for an overriding safety reason, slide the needle into the sheath on an even surface using one hand, thus avoiding the risk of injury (HSE, 2013).
* Large pieces of broken glass and crockery etc. should be disposed of according to the Trust Waste Management Policy.

Blood borne pathogens that cause the most concern is Hepatitis B virus (HBV), Hepatitis C (HCV) and of course the HIV virus. However, there are other infectious agents that have the potential for transmission through receiving needlestick injury (Please see a list below to give a brief idea):

* GB virus (GBV-C) formerly known as Hepatitis G virus (HGV)
* Cytomegalovirus (CMV)
* Parvovirus B19
* Transfusion transmitted virus (TTV)
* Human T-Lymphotropic retrovirus (HTLV-1 AND 11) (HTLV-11)

### Needle Stick Injury

Some people, such as health care workers are at increased risk of needlestick injury, which occurs when the skin is accidentally punctured by a used needle. Blood-borne diseases that could be transmitted by such an injury include human immunodeficiency virus (HIV), hepatitis B (HBV) and hepatitis C (HCV). This module can only offer general guidelines, so see your doctor or occupational health and safety officer for further information and advice.

#### Immediately After Injury

Suggestions include:

* Wash the wound with soap and water.
* If soap and water aren’t available, use alcohol-based hand rubs or solutions.
* If you are at work, notify your supervisor or occupational health and safety officer - you will need to fill out an accident report form.
* Go straight to your doctor, or to the nearest hospital emergency department.

Your doctor or the emergency doctor should:

* Take detailed information about the injury, including how long ago it happened, how deeply the skin was penetrated, if the needle was visibly contaminated with blood, and any first aid measures used.
* Explain the transmission risks, which are small.
* Offer blood tests to check for pre-existing HIV, HBV and HCV. You should be offered counselling about these tests before the blood specimens are taken.
* Inform the original user of the needle about the needlestick injury - if they are known. They will be asked to consent to blood tests to check their HIV, HBV and HCV status. They should be provided with counselling before the tests are done.
* Advise you about reducing the risk of transmission until the test results are received. You should practise safe sex and avoid donating blood.
* Ask your doctor about additional counselling if you think that you will require it.

## Customer Complaints

Each complaint that arises must be taken seriously despite the nature of the claim whether it be small or major. Discuss with your client what their issues are and how you can rectify them for the client. You must remain friendly, have open body language and a professional manor always.

(It is important that even if the client is happy with the outcome you write it all down and ask the client to sign that they are happy with the outcome after procedures in the case of this arriving later). If they are not happy and want to take the complaint further then you need to get the manager or owner in to deal with it (if this isn’t yourself).

Once you have done all you can do to try and resolve the dispute but to no avail and they want your insurance details you will have no choice but to give this to your client, however, it is important to note here that you must **NEVER ADMIT LIABLILITY, EVER!** If you have admitted liability direct to your client your insurance will not take on the claim! This is a major legal problem for yourself and your business.