

# Your Practice Online

P R E S E N T S

## LOCAL ANESTHESIA IN PEDIATRIC DENTISTRY

Multimedia Health Education

### ***Disclaimer***

This movie is an educational resource only and should not be used to manage your health. All decisions about the management of local anesthesia in pediatric dentistry must be made in conjunction with your dentist or a licensed health care provider.

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Your Practice Online

MULTIMEDIA HEALTH EDUCATION MANUAL

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### INTRODUCTION

Local anesthetics are commonly used drugs in dentistry that are administered for the control of pain and discomfort during dental treatment.

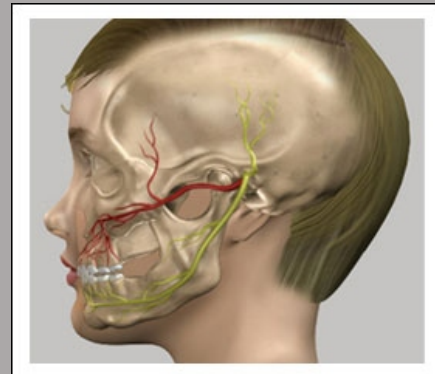
Most minor dental procedures are performed under local anesthesia where your dentist numbs part of your mouth by injecting local anesthesia into the gum or inner cheek.

### Unit 1: Normal Cranial Nerves Anatomy

#### Introduction

Very young children and very active children may require general anesthesia in order for the dentist to perform minor surgical procedures safely on the child. To learn more about local anesthesia, it is necessary to understand normal anatomy of the nerves supplying the mouth.

(Refer fig. 1)



(Fig. 1)

#### Normal Cranial Nerve Anatomy

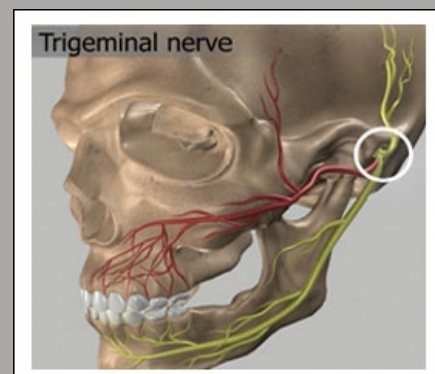
The nerves that supply the upper and lower arches and adjoining tissues of the oral cavity are derived from the maxillary and mandibular nerves respectively. Both are branches of the trigeminal nerve. The trigeminal nerve is the largest of the cranial nerves.

It is responsible for sensation in the face. It is primarily a sensory nerve, but also has certain motor functions such as biting, chewing, and swallowing.

(Refer fig. 2 & 3)



(Fig. 2)



(Fig. 3)

### Unit 1: Normal Cranial Nerves Anatomy

#### Maxillary Nerve:

This nerve runs along the cheek bone, most of the nose, upper lip and upper teeth.

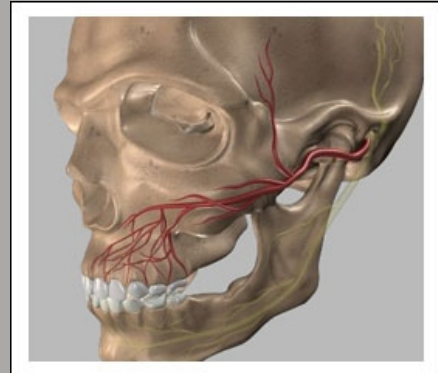
- Zygomaticotemporal
- Zygomaticofacial
- Posterior superior alveolar branches
- Middle and anterior alveolar branches
- Infraorbital
- Nasopalatine
- Greater Palatine
- Lesser Palatine

#### Zygomaticotemporal

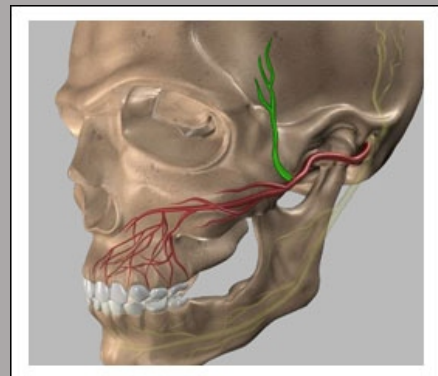
(Refer fig. 5)

#### Zygomaticofacial

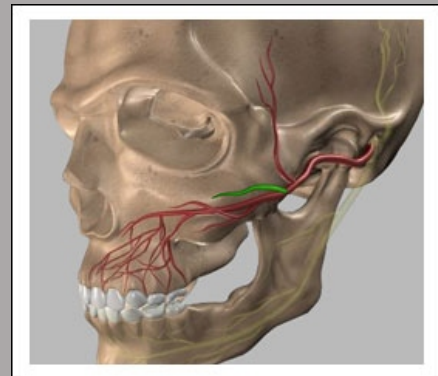
(Refer fig. 6)



(Fig. 4)



(Fig. 5)

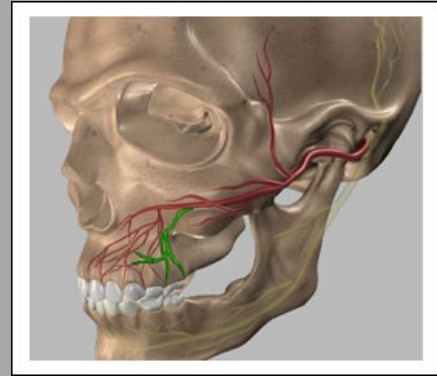


(Fig. 6)

### Unit 1: Normal Cranial Nerves Anatomy

Posterior superior alveolar branches

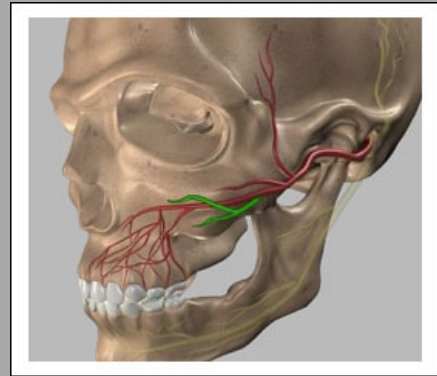
*(Refer fig. 7)*



**(Fig. 7)**

Infraorbital

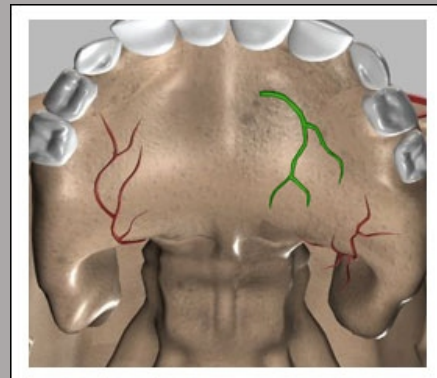
*(Refer fig. 8)*



**(Fig. 8)**

Nasopalatine

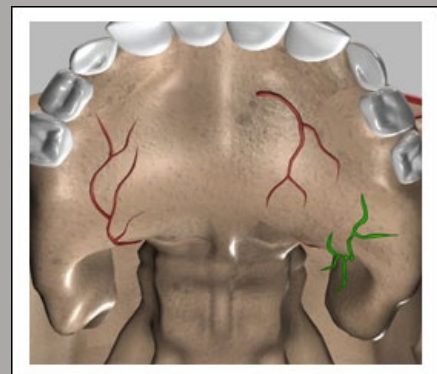
*(Refer fig. 9)*



**(Fig. 9)**

Greater Palatine

*(Refer fig. 10)*

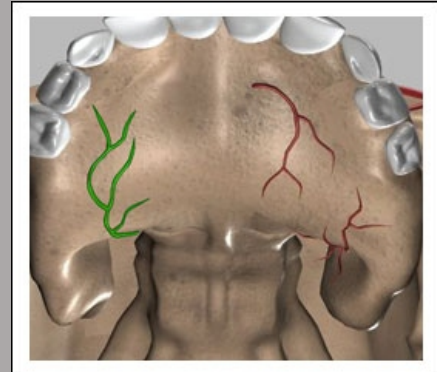


**(Fig. 10)**

### Unit 1: Normal Cranial Nerves Anatomy

#### Lesser Palatine

(Refer fig. 11)



(Fig. 11)

#### Mandibular Nerve:

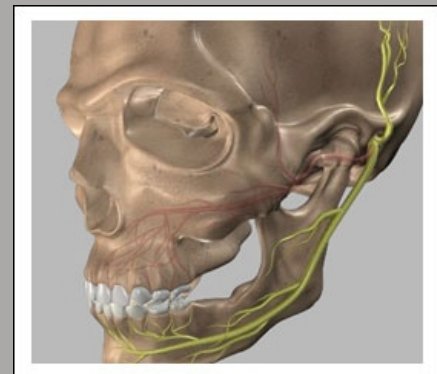
This is the largest of the 3 branches of the trigeminal nerve.

(Refer fig. 12)

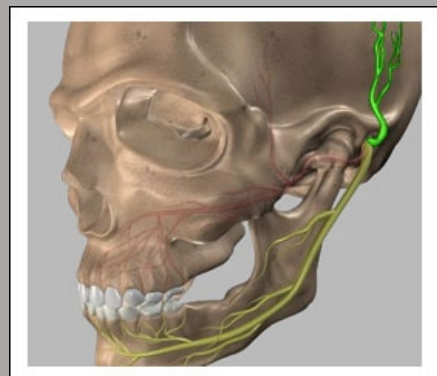
- Auriculotemporal
- Lingual
- Inferior Alveolar
- Nerve to Mylohyoid
- Mental
- Buccal

#### Auriculotemporal

(Refer fig. 13)



(Fig. 12)



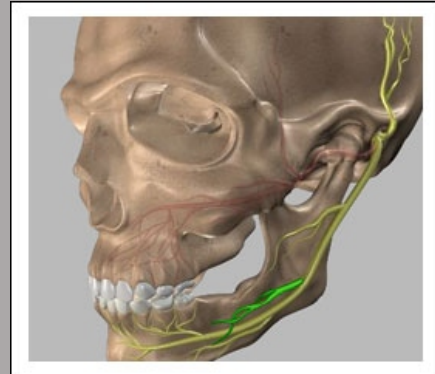
(Fig. 13)

(Continued in next page)

### Unit 1: Normal Cranial Nerves Anatomy

#### Lingual

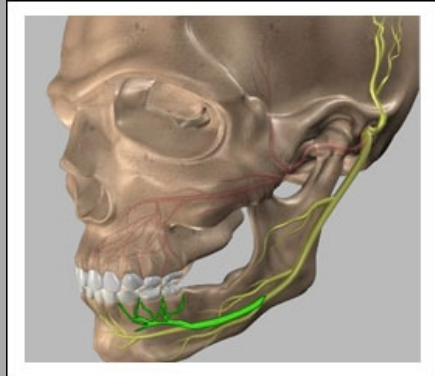
*(Refer fig. 14)*



**(Fig. 14)**

#### Inferior Alveolar

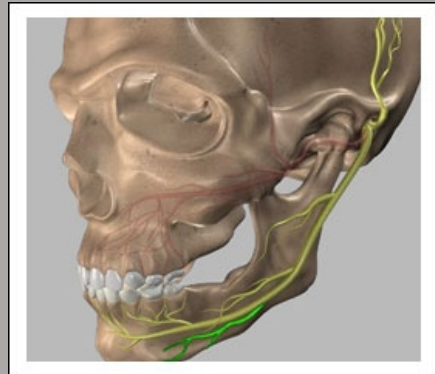
*(Refer fig. 15)*



**(Fig. 15)**

#### Nerve to Mylohyoid

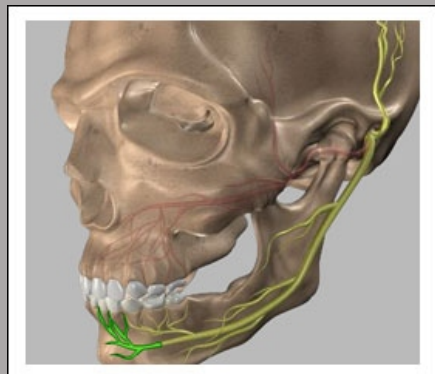
*(Refer fig. 16)*



**(Fig. 16)**

#### Mental

*(Refer fig. 17)*



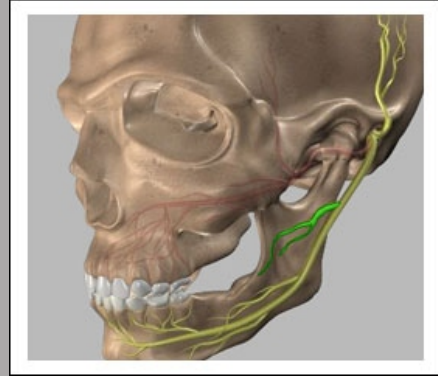
**(Fig. 17)**



### Unit 1: Normal Cranial Nerves Anatomy

Buccal

*(Refer fig. 18)*



**(Fig. 18)**

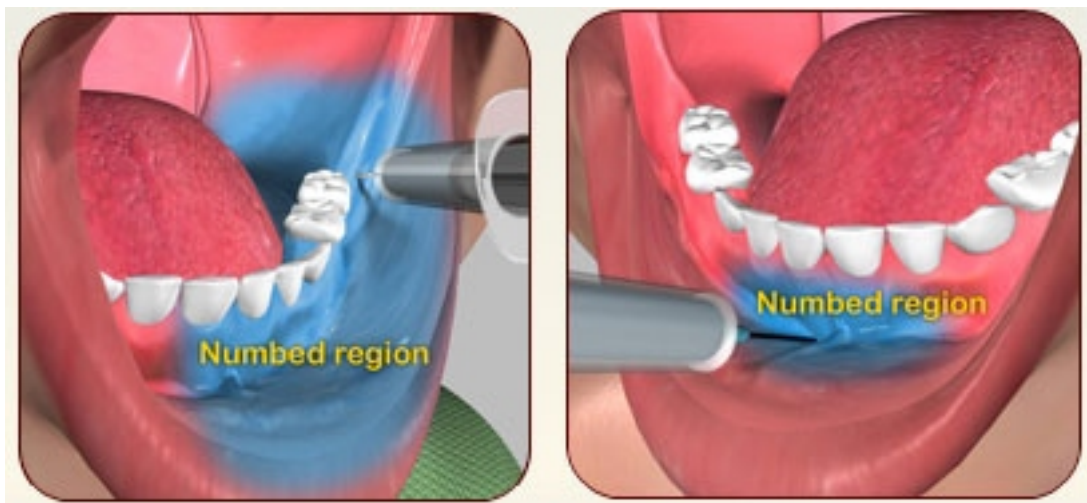
### What is Local Anesthesia?

Local anesthesia is loss of sensation in a small localized area of the body. It allows patients to undergo surgical and dental procedures with reduced pain and distress. It is a technique to render part of the body insensitive to pain without affecting consciousness. Local anesthesia stops pain during dental procedures by blocking pain signals from being carried by nerves to the brain. A person having local anaesthesia will be awake during the procedure.

There are several types of anesthesia and local anesthesia is one of the types used for minor surgical dental procedures.

### Types of Local Injections

There are two types of local injections:



Block injection: This type numbs an entire region of the mouth, such as one side of the lower jaw.

Infiltration: This type numbs a smaller area of the mouth.

(Fig. 19)

### Side Effects

Side effects of local anesthesia are mild and temporary and include:



Headache

Nausea

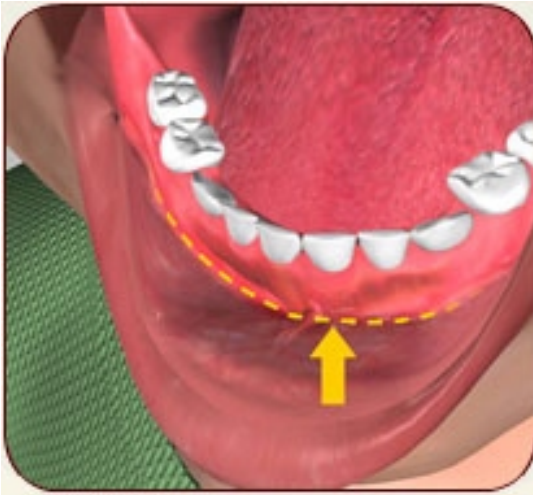
Vomiting

Drop in blood pressure

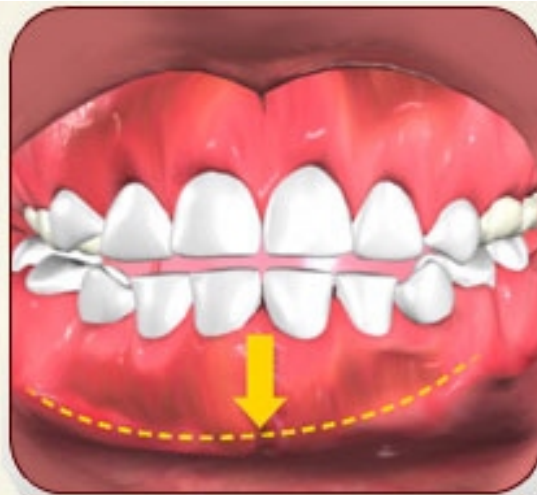
**(Fig. 20)**

### Inferior Alveolar Nerve Block

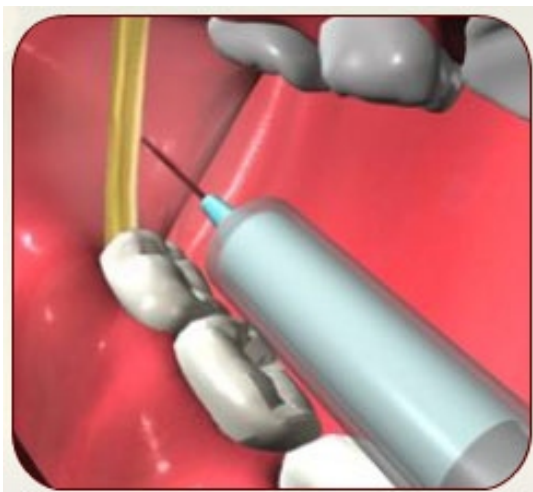
The needle penetration site is determined by two anatomical landmarks: Mucobuccal fold and Muccogingival junction.



Mucobuccal fold: The fold formed by the oral mucosa where it passes from the mandible or maxilla to the cheek.



Muccogingival junction: The junction between the soft, fleshy mucus membrane of the oral cavity and the tough, collagen rich gingiva.



Inferior alveolar nerve block: This is the most common type of nerve block used for dental procedures and is the only block required for pain control in pediatric patients.

**(Fig. 21)**

*(Continued in next page)*

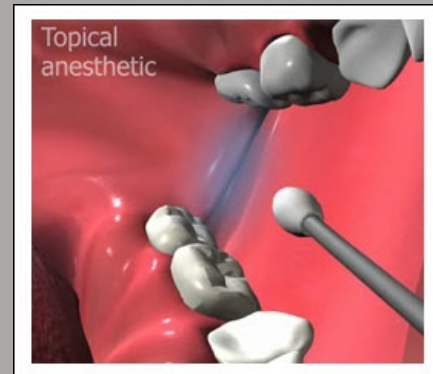
### Unit 3: Techniques of Local Anesthesia

Apply topical anesthetic to the target area. Place the thumb of the other hand on the coronoid notch to stretch the tissues over the junction site.

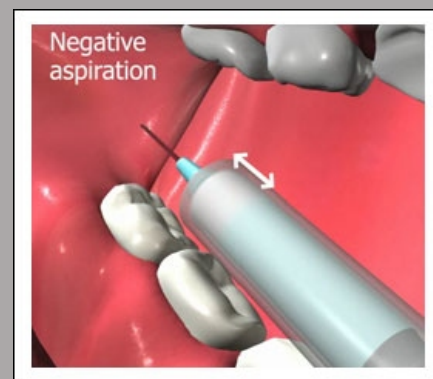
The coronoid notch is the greatest concavity on the anterior border of the ramus of the mandible.

Orient the syringe so that the barrel is in the opposite corner of the mouth, resting on premolars.

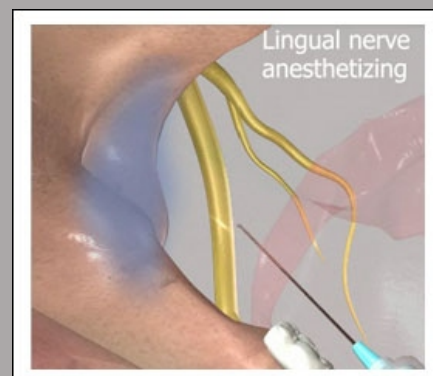
Aim and slowly penetrate the mucosa until bone is contacted, about 2.5 centimeters. Withdraw slightly and aspirate. If aspiration is positive then repeat.



(Fig. 22)



(Fig. 23)



(Fig. 24)

If aspiration is negative then slow deposition of local anesthesia is done. The syringe is then repositioned on same side as the teeth which are being anesthetized and 0.5 ml of local anesthetic solution is deposited for anesthetizing for the lingual nerve.

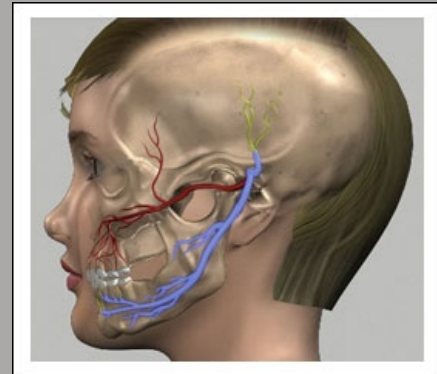
*(Refer fig. 22 to 25)*

*(Continued in next page)*

### Unit 3: Techniques of Local Anesthesia

Following this, local anesthetic solution is deposited for anesthetizing the buccal nerve. It is a sub mucosal infiltration distal to the most posterior tooth.

(Refer fig. 22 to 25)



(Fig. 25)

### Risks and Complications

Complications of local anesthesia can include the following:



Soft tissue injury

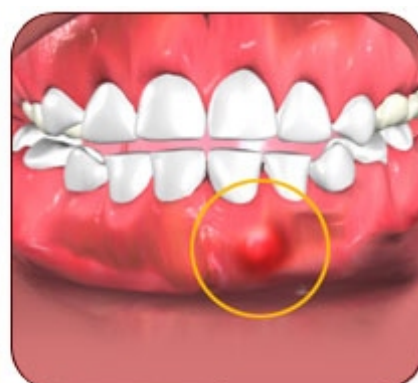
Infection

Needle breakage

Visual disturbances



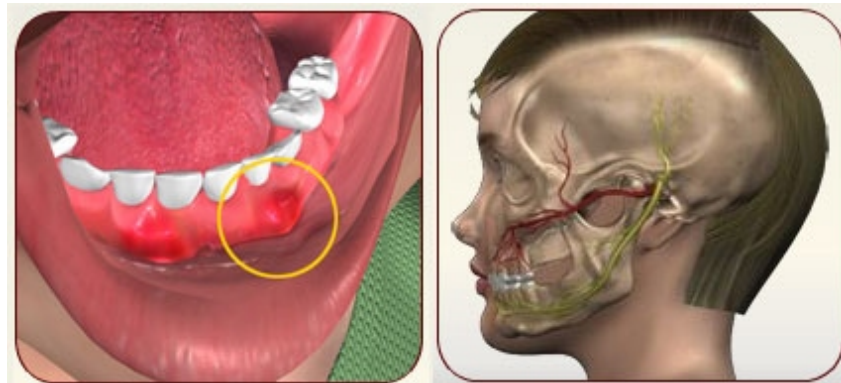
**Trismus:** Inability to open the mouth fully due to spasm of the jaw muscles.



**Hematoma:** A collection of blood outside of a blood vessel. It occurs because of damage to the blood vessel wall causing blood to leak into the tissues where it does not belong.

(Fig. 26)

(Continued in next page)



(Fig. 26)

**Edema:** Edema is swelling caused by the accumulation of abnormally large amounts of fluid in the tissues.

**Facial nerve paralysis:** Loss of voluntary movement of the muscles on one side of the face due to abnormal function of the facial nerve which supplies those muscles.

### Disclaimer

Although every effort is made to educate you on local anesthesia there will be specific information not discussed. Talk to your dentist or pedodontist about any concerns you have about local anesthesia.



YOUR SURGERY DATE

READ YOUR BOOK AND MATERIAL

VIEW YOUR VIDEO/CD/DVD/ WEBSITE

PRE - HABILITATION

ARRANGE FOR BLOOD

MEDICAL CHECK UP

ADVANCE MEDICAL DIRECTIVE

PRE - ADMISSION TESTING

FAMILY SUPPORT REVIEW

Physician's Name : \_\_\_\_\_

Patient's Name : \_\_\_\_\_

Physician's Signature: \_\_\_\_\_

Patient's Signature: \_\_\_\_\_

Date : \_\_\_\_\_

Date : \_\_\_\_\_