



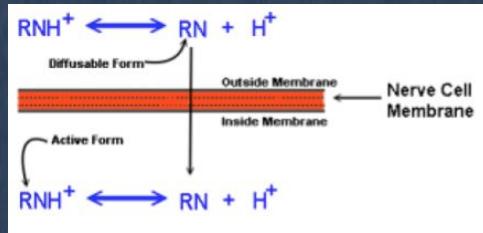
GROUP & INDIVIDUAL LEARNING

BDS 3 PCPC Review



Local Anaesthetic

- Infection = acidic environment \rightarrow RN binds to H⁺ \rightarrow no membrane diffusion = no anaesthesia.



- LA = Vasodilator \rightarrow Increase rate of absorption, decreased duration of action, increased bleeding.
 - Vasoconstrictor addition = decreased blood flow to site, slower absorption, higher concentration maintained at site, reduced bleeding, decreased risk of OD.
 - Other additives: Methyparaben (antibacterial preservative), Bisulphite (antioxidant for vasoconstrictor) \rightarrow both may cause allergy.
- Max recommended dosage: 4.4mg per kg. 2.2mL cartridge of 2% lignocaine = 44mg LA = 1 carpule per 10kg.

Local Anaesthesia

Infiltration

- 1-2mm into sulcus with needle parallel to long axis of tooth. 20mm short needle

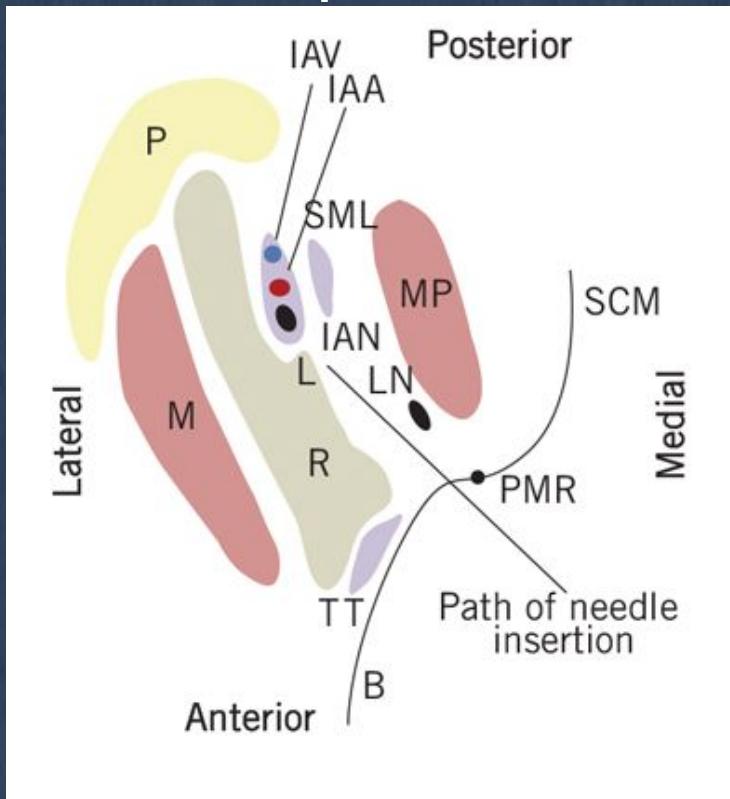
IANB

- 32mm needle (2/3 needle in), 25 gauge.
- Nerves anaesthetised? Extracting lower molar, what other nerve needs LA?

Determining location of the lingula:

- **Level:** Palpate coronoid notch. Insert at height of the coronoid notch, parallel to occ plane = just above lingula.
- **Entry Point:** Pterytemporal depression. Pterygomandibular raphe lies medial to the point of insertion, ramus of md lies lateral to point of insertion.
- **Angle:** Along line drawn from opposite lower second premolar to the pterygotemporal depression.

Pterygomandibular Space



Local Anaesthesia

IANB Technique Complications:

- Too medial = inject into medial pterygoid = trismus
- Too lateral = hit bone too early = failure of anaesthesia
 - Or may scrape periosteum off causing pain
- Too deep = parotid gland = facial paralysis
- Too superficial = not reached pterygomandibular space = failure of anaesthesia
- Too superior = lateral pterygoid = trismus

LA complications

- **Always inform and reassure pt. Record all incidences.**
- Pain on insertion: periosteal stripping, pressure of solution, rapid injection.
- Bleeding on withdrawal: damages to blood vessels → possible haematoma.
- Trauma post Rx: Loss of protective reflexes/numbness → POI. epithelial desquamation, sterile abscess → cause: topical, ischaemia → NSAIDs, orabase (topical corticosteroid)
- Pain and limited opening: Trismus → heat packs, NaCl rinse, NSAIDs, physio
- Restless, sweaty, pale: Adrenaline IV or OD → supine, DRABC.
- Facial nerve paralysis: reassure it is transient, remove contact lenses, eyepatch to protect eye. injected too far post into parotid - correct this how?

Alginates

Irreversible hydrocolloid impression material.

What should you inspect in the oral cavity prior to taking impressions?

Why is alginate not dimensionally stable? Syneresis, evaporation, imbibition

Powder contains: Sodium Alginate, calcium sulfate, trisodium phosphate, diatomaceous earth, zinc oxide and potassium titanium fluoride.

Sodium/potassium alginate reacts with calcium sulfate → sodium/potassium sulfate and calcium alginate

Trisodium phosphate reacts with calcium sulfate to produce calcium phosphate, preventing calcium sulfate from reacting with sodium alginate to form a gel. This second reaction occurs in preference to the first reaction until the trisodium phosphate is used up, and then alginate sets as a gel.

Manipulation of setting time

- Water:powder ratio
- Control of retarder amount
- Temperature of water
 - Increase temp =
 - Decreased temp =
 - Ideal Temp =

Alginate

Components	Weight percentage	Function and role
Soluble alginate (e.g. potassium alginate)	15%	Chief active ingredient that reacts with calcium sulphate to form gel
Calcium Sulfate	16%	Main reactor providing calcium ions that cross-link with alginate sol
Water soluble phosphate salt (e.g. trisodium phosphate)	2%	Retarder added to react with calcium sulphate as calcium prefers to bond with phosphate reducing the amount of calcium present and slowing the reaction Will occur until phosphate ions exhausted
Diatomaceous earth	60%	Filler to increase strength and stiffness of alginate gel Also produces smooth texture and ensures formation of firm, non-tacky gel surface
Zinc oxide	4%	Filler material that influences physical properties and setting time of gel
Potassium titanium fluoride	3%	Gypsum hardener that accelerates setting time of casting stone (when it is poured) to ensure a hard, dense cast surface when the stone is poured into the impression

5 criteria for alginate assessment (SMART):

- **Size of tray**
- **Mix = Smooth and homogenous**
- **Amount of alginate is adequate, all sulci and Pa vault captured (muscle trimmed correctly).**
- **Removed correctly (minimal tearing)**
- **Time to set was adequate (no drag lines)**

Advantages	Disadvantages
<ul style="list-style-type: none">- Easy manipulation- Acceptable taste- Non toxic- Non irritant- Elastic- Can control setting time- Records most detail in mouth- Hydrophilic- Low viscosity	<ul style="list-style-type: none">- Lower surface reproducibility (minimal detail)- Dimensional changes- Must be cast quickly- Single use- Tear when thin/in undercuts- Silica dust = biological hazard

Pain Assessment

Questions to ask pt → COLDSPA

- **Character:** How does it feel? Sharp, dull throbbing.
- **Onset:** When did the pain start? What caused it?
- **Location:** Where is the pain? Does it radiate?
- **Duration:** How long does the pain last? Does it recur?
- **Severity:** intensity of the pain out from 1-10(worst). Does it keep you up at night?
- **Pattern:** What makes the pain worse? Hot/cold/biting/spontaneous. What makes it better?
- **Associated symptoms:** Fever, malaise, limited opening, ear symptoms (pain, blocked, sensitive), parafunction, headache.

Based on Hx determine differential diagnosis and commence diagnostic tests:

- Odontogenic pain
- Non-odontogenic pain

Endodontics

Healing or elimination of apical periodontitis

Diagnosis:

Pulpal + Periapical + Cause

- Irreversible pulpitis w/ acute apical periodontitis due to caries/ restoration breakdown.
- Necrotic and infected pulp w/ acute apical perio due to crack.

Causes?

Pulpal

Reversible pulpitis

- pulp with some localised area of inflammation
- High potential to heal
- Mild, short, sharp pain in response to stimuli
- cold +ve, no TTP, EPT normal
- No radiographic changes

Irreversible pulpitis

- vital pulp, extensive inflammation. Low chance of healing with conservative therapy.
 - Initial sharp pain in response to hot/cold → dull lingering pain. Removal of stimulus does not alleviate pain.
- no TTP. EPT normal/delayed.

Necrotic pulp

- sterile or infected.
- +/- symptoms. Continuous dull ache.
- Cold -ve, EPT -ve. Not TTP.

Apical periodontitis

changes at the apex of tooth.

Symptomatic

- Spontaneous, aching, severe, lingering pain
- Well localized – pt able to identify the tooth in pain.
- Tooth may be in high occlusion
- Tender to percussion and palpation
- Tooth may be mobile
- May show widened PDL or periapical lesion.

Asymptomatic

- Often no signs or symptoms.
- Slight TTP. no reaction to pulp sensibility tests
- periapical RL on radiograph.

Apical Abscess

Symptomatic

- swelling visible in mouth
- Severe, intense, throbbing pain → lack of drainage = pressure.
- pain on eating
- fever, malaise, lymphadenopathy

Asymptomatic

- No pain. Draining sinus. Cold -ve, EPT -ve.

Endodontic Scenarios

1. Pt presented for his check up and when asked if he had any problems he stated that his URHS molar was very painful to cold and sweets several months ago but it seems to have gone away now which is good. On examination there is a large amalgam filling with open margins and secondary caries, the tooth is slightly TTP and feels high in occlusion when the pt bites.

- How would you expect the tooth to look on a PA? What reaction would you get from pulp sensibility testing?
- Differential diagnosis?

2. Pt presents with LL molar pain. He really enjoys a nice cold glass of water but recently he's been having a very sharp pain when he drinks which goes away soon after he stops. He can still have tea and coffee though. He had previously been having trouble chewing on his left side as it hurt. On examination, the LL molars appear unrestored and caries free.

- Further questions and diagnostic tests?
- Differential diagnosis?

Pt present complaining of pain.

1. Describe 3 key features evident on this radiograph:
2. Indicate 4 key clinical features you would may find during an intraoral exam of this tooth.
3. Differential diagnosis?



Pt present complaining of pain.

1. Describe the key features that are evident in the radiographic image.
2. What are the key features that allow you to differentiate between reversible and irreversible pulpitis as a provisional diagnosis?



Panoramic Radiography

- Tomography = imaging by sections. Panoramic tomography used narrow slit beam.
- Beam rotates around back of head so that high kV x-rays pass through bony structures/soft tissues and therefore do not superimpose on the image.
- 8 degree upward tilt to clear base of skull from superimposition = magnification + vertical distortion (bone loss may look increased)

Patient Positioning

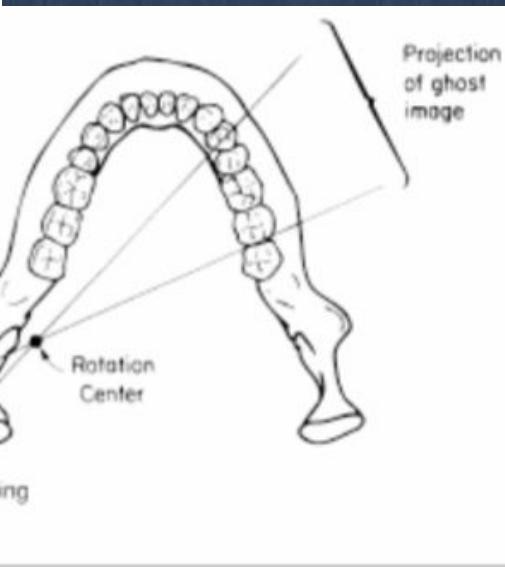
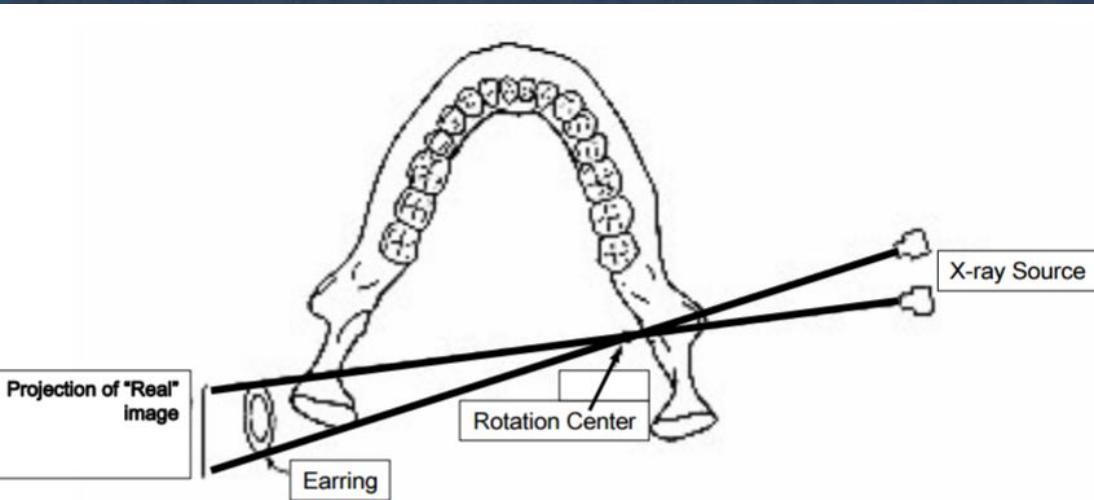
- Patient positioned too far forward → structures of jaws too close to the detector → image reduced in horizontal plane → anterior teeth minified. Narrow due to minimal horizontal distortion from beam movement.
- Patient positioned too far back → structures of jaws too far from the detector → image increased in horizontal plane → anterior teeth magnified. Wide due to horizontal magnification from horizontal beams movement.
- Same applies to objects Bu and Li to the focal trough.
 - structures lying buccally in/to the trough → closer to the image detector → reduced (minified) in horizontal plane.
 - structures lying lingually in / to the trough → further from the image detector → magnified in horizontal plane.
 - Can be utilised for localising structure e.g. ectopic canines.

Panoramic Radiography

Primary and secondary images

- Primary image = real image. Object is in between the axis of rotation and the film.
 - Double primary images: Real images replicated twice, mirrored. Structure located in central region captured twice e.g. hard palate, soft palate, hyoid bone.
- Secondary image = artifact/ghost image. Object between source and axis of rotation.
- Why are there no secondary images of teeth present?

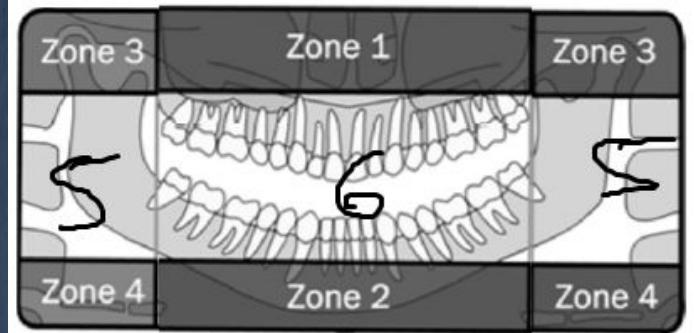
http://www.stedmansonline.com/webFiles/Dict-Dental2/23_med_dent_Panoramic%20_osition%20Error.pdf (pdf explaining errors and how to correct)



Panoramic Radiography

Assessing radiographs (Template for exam Qs):

- Type of radiograph (OPG)
- Quality: Artifacts, patient positioning errors, distortion, sharpness, contrast, density.
- 6 Pathology zones:
 - Zone 1: Nose and sinuses.
 - Zone 2: Md body
 - Zone 3: Upper corners - TMJ, coronoid, zygomatic arch
 - Zone 4: Lower corners - pharynx, spine, hyoid.
 - Zone 5: Ramus, Md canal
 - Zone 6: Teeth present, unerupted, associated pathology.
- Describe abnormalities:
 - Location
 - Size
 - Border (well/poorly defined, multilocular)
 - Density
 - R/L, R/O, Mixed
 - Impact on adjacent structures



Clinic Tips

- **Report systemically to your tutor**
 - E.g. "Pt is X years old, CC is sharp pain in his front teeth, MHx: takes cyclosporin after a liver transplant etc."
- **Base Chart**
 - Some teeth can drift mesially so use anatomy of tooth to ID the tooth, or ask patient if they had a tooth extracted in the past
- **All Chart**
 - Use your triplex and dry the tooth completely
 - If you see a discolouration or anything out of the norm, **NOTE IT DOWN**
 - Tip: Summarise any generalised features to save time
 - E.g. generalised brown staining in upper palatal surfaces of teeth
- **Periodontal Charting**
 - You will have one session with a Periodontal Support tutor
 - Depending on your tutor, they may allow margin of error in pocket depth readings
 - Do not treat Periodontal Health lightly, you can fail clinic just from perio

Clinic Tips

- Periodontal Charting Continued..

- When reporting perio health use the following format:
 - Location (generalised/localised) + Severity (mild/moderate/severe) + Diagnosis + Cause (e.g. induced by plaque)

- General Tips

- Ask patient to hold suction cause you have no DA
- Restorations: margins sealed, contact points are present
- Manage your time well, Semester 2 -> 2 patients in 3hr block
- Always ask pt if they have taken their medications today
- Keep count of how many cons and perio you have done for each tutor
- Always check on your pt a day or two before appt to mentally prepare yourself
- Use rubber dam where applicable, areas where RD will not work use gauze, cotton rolls and dryguard
- Give pt free samples to get them to like you :)

Treatment Planning

Chief Concern: Elicit CC and ensure this is addressed in diagnosis & tx plan.

Pt consent gained

Radiographs, additional tests, further information, referrals

- Comprehensive examination: E/O, I/O soft tissues, gingival health, Occlusal assessment, TMJ, Pros assessment.
- Periodontal examination
- Diagnostic tests: Diet diary, saliva test, risk assessment, cultures.
- Radiographs: BWs, PA, OPG

Pt Education:

- Explain diagnosis, cause, consequences, Rx options.

Emergency & Stabilisation Phase (ROP):

- E.g. Lost a filling → dentinal hypersensitivity → 1st appt will address this issue then continue with treatment plan.

Preventative Care:

- Identify risk factors and address (erosive diet, smoker, high cariogenic diet)
- Behaviour modification (OHI, dietary advice, smoking intervention)
- Remineralising agents/cariostatic agents (F- Tx)
- Antibacterial agents (CHX)

Periodontal Care:

- Supra and subging plaque and calc debridement.
- SPT (Supportive perio therapy) → maintenance.

Treatment Planning

Restorative care:

- Teeth to be restored + restorative material to be used → provide rationale for selection if asked.

Endo, Pros, Oral Surg, Ortho:

- E.g. Referral to OS for exo of 37; Referral 990 to Rem Pros WL for construction of PU CoCr denture.

Recall/Review:

- After completion of initial rehab indicate recall period. E.g. 1 month recall for SPT (Reassess periodontal health, identify areas of recurrent disease and treat, re-motivate pt to continue OH).