

# Local Anesthesia

You must be an excellent dentist I didn't feel a thing

# Shooting for Success

- Remember behaviour management
  - Tell and Do but maybe not Show
  - That said don't surprise the child with the injection
  - Don't lie to the child but you can avoid answering questions
  - Mosquito bite, Sleepy Juice
  - DO NOT SAY “THIS ISN'T GOING TO HURT”
    - The child has only heard one word in that sentence

# Shooting for Success

- Reasonable use of topical, more is not better
  - Apply to dry mucosa
  - Cooling injection site and vibration have also been used
  - Computer controlled anesthetic delivery?
- Good technique
- Selection of appropriate dose
- Do we really need to do this?

# Shooting for Success

- Managing Patient Expectations
  - Patients expect to feel nothing from their shoulders up
  - Discuss what they should expect
    - Feel like puffy lip, numb nose etc.
  - Depending on procedure patients will experience things
    - Vibration, noise/sounds, pressure

# Do I Always Need Local

- Disking teeth, fitting bands, cementing appliances don't need local.
- Suggestions its not needed for Sealants, PRR, Small Restorations (particularly buccal pits).
- How good is your rubber dam technique?
- How moisture sensitive is the materials you are using?
  - Amalgam, Glass Ionomer, Composite

# Good Technique

- Much the same as with adults
- Carpule close to body temperature
- 30 gauge needle for infiltrations and 27 for blocks
  - Smaller sizes make aspiration less reliable and can cause deflection of needle
- Topical and inject as you go very slowly
- Apply pressure prior to palatal or inject through papilla
- Right drug, right amount, right place

# Good Technique

- Aspirate before injecting the bulk of the local
- Once you start finish
  - What are you going to say to make the second attempt go better
- You and your assistant should be prepared to restrain the child
  - If you have to restrain there needs to be a discussion about this afterwards. Sorry we had to hold you but we didn't want you to get hurt. Hard part all done
- No head locks on adults
- Always contact bone on mandibular blocks

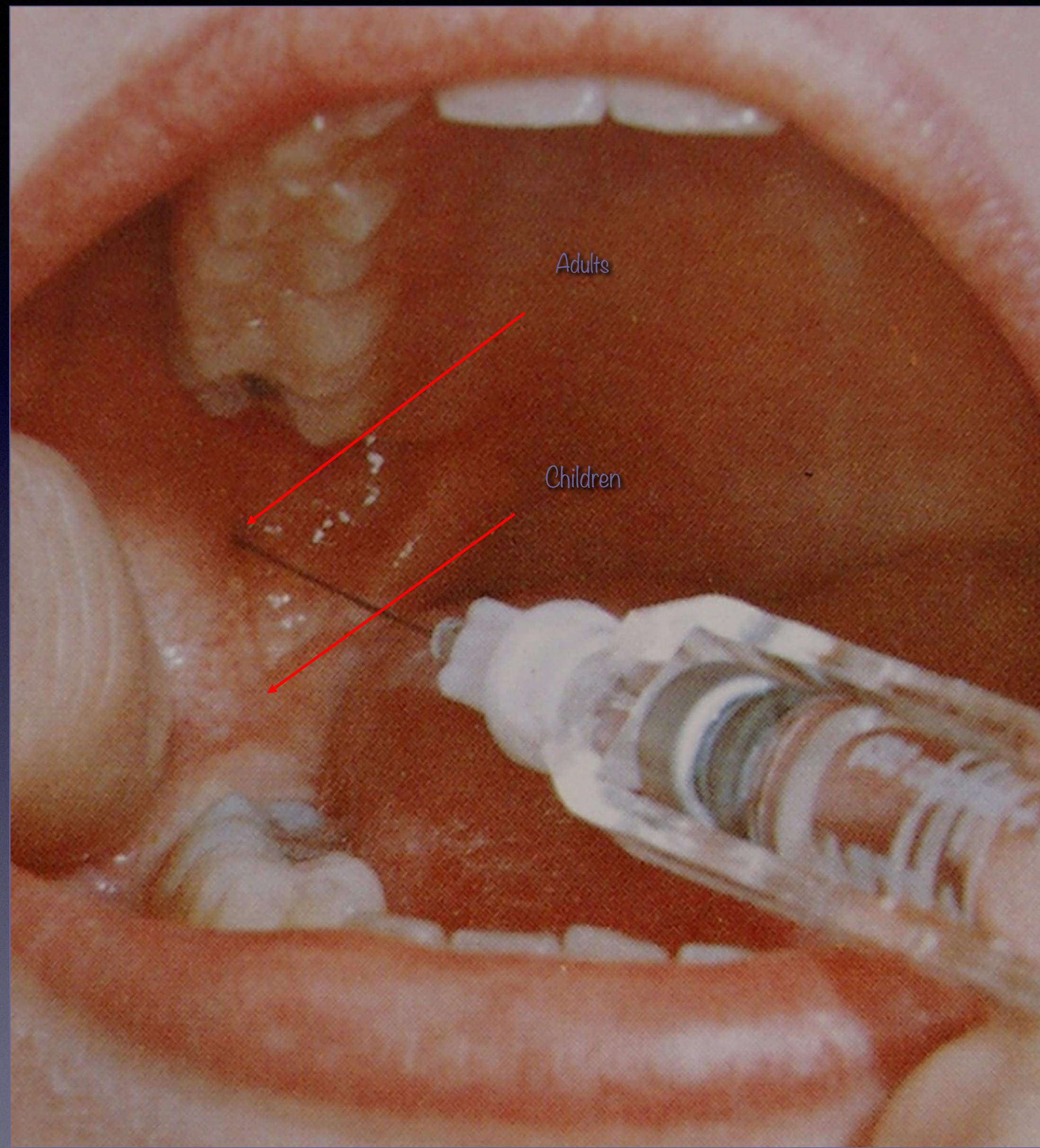
# Maxillary Differences

- More pronounced infra-zygomatic ridge
- More widely splayed roots
  - Remember the permanent tooth bud is between the roots of the D and E
- Think about patient positioning while waiting for local
  - Inject slightly mesial and leave lying back
  - Some suggest two injections



# Mandibular Differences

- Significant difference in mandibular block
  - Prior to 4 years old foramen is below occlusal plane
  - With full eruption of 6 it above occlusal plane
  - Think about positioning of the patient while waiting for the local to take effect
    - Better sitting up?



# Mandibular Differences

- Angle of Ramus is more obtuse
- Overlying muscle is thinner
- Alveolar/cortical bone is thinner
  - Most do not recommend infiltration



# Can you feel me now?

- Understand where the patient should be numb and question them to determine if your local is effective prior to commencing.
- Think about length of duration and top up in longer procedures if patient looks to be feeling discomfort.

# Anesthetic Selection

- Look back at what you were taught in adult anesthetic regarding amide/ester, allergic reactions, toxic effects etc.
- Most people who report allergic reaction will tell you they had a racing heart after a local injection. Intervascular? If you think you have done this talk the patient through it and explain its not an allergy.
- Allergy testing? Never know when a local might be needed for stitches etc?

# Use of Epinephrine

- Vasoconstriction
- Reduces toxicity and increases length of action by slowing absorption
- Side benefit when doing procedures such as extractions
- Get a medical consult in cases of significant cardiovascular disease, thyroid issues and people taking tricyclic antidepressants, monoamine oxidase inhibitors or phenothiazines.

# Lidocaine

- Considered the gold standard
- What almost everyone uses

# Articaine

- Traditional hesitance to use Articaine in children
  - Approved by FDA over the age of 4
  - Literature supporting the safe use in younger ages
  - Potential for better bone penetration for infiltration
  - Higher rate of nerve damage/paresthesia?

# Know your Local

- 2% Lidocaine 1:100,000 epi
  - Maxillary infiltration
    - Pulp 60 minutes
    - Soft tissue 170 minutes
  - Mandibular block
    - Pulp 85 minutes
    - Soft tissue 190 minutes

# Know your Local

- 4% Articaine 1:100,000 epi
  - Maxillary infiltration
    - Pulp 60 minutes
    - Soft tissue 190 minutes
  - Mandibular block
    - Pulp 90 minutes
    - Soft tissue 230 minutes

# Maximum Doses

## LIDOCANE

4.4 mg/kg to a total of 300mg

Total in a 1.8ml carpule of 2%

1.8ml = 1800mg

$1800\text{mg} \times 0.02 = 36 \text{ mg/1.8ml}$

## ARTICAIN

7.0 mg/kg to a total of 500mg

Total in a 1.7ml carpule of 4%

1.7ml = 1700mg

$1700\text{mg} \times 0.04 = 68 \text{ mg/1.7ml}$

In higher epinephrine concentrations it can become the limiting factor but anything more than 1:100,000 is not appropriate in children

# Complications

- All the same issues as with adults. Biggest difference is stress to child and care giver that they need to take care not to injure the tissues while numb. Can drink but should not eat while area is numb.
- Novel feeling and some children can't resist experimenting with the numbness.
- Use shortest acting local in the smallest amount possible to minimize risk.

# Pain Management

# Acetaminophen

- Exact mechanism of action unknown
  - Dosing on bottle is usually appropriate.
  - Can go as high as 10mg to 15mg/kg q4-6h
  - Maximum 90mg/kg/day or 5 doses
  - Ya I know that math doesn't work but its what the books say. Keep it to 5 doses/day. Other options if they need more.

# Acetaminophen

- Liquid has:
  - Infants 80 mg/ml
  - Childrens 160 mg/5 ml
- Tablets 80 mg each

# Ibuprofen

- Probably superior to Tylenol
  - Some studies show efficacy equivalent to morphine
  - Gastic irritant
  - May impair clotting
- Dosing on bottle is appropriate but can go to 4 mg to 10 mg/kg q6-8h with a maximum of 40 mg/kg/day.

# Ibuprofen

- Liquid has:
  - Infant 50 mg/1.25 ml
  - Children 100 mg/5 ml
- Tablets 200 mg

# Sever Pain

- In cases of sever pain Ibuprofen and Acetaminophen can be mixed at normal dose of each
  - Try to stagger doses to maintain effective pain control
  - Question why the patient has this much pain and is there sometime else that can be done
  - There are some combination products on the market and some cold medications do not make it very clear that they contain Ibuprofen or Acetaminophen so care must be taken to avoid overdose.

# Paediatric Oral Surgery

# Teeth to be extracted

- Unrestorable
- Blocking eruption of a permanent tooth
  - Usually not needed on lower anteriors but assess mobility of primary tooth
- Orthodontic/Serial Extraction
- Can we leave this one for the Tooth Fairy?

# Patient Preparation

- Try to convince parents not to prepare the child in advance
- Teeth are wiggled not pulled
- Discuss with child what to expect
  - Pushing, pressure, funny sounds
  - Realistic time estimate

# Differences

- Bone is less dense
- Roots are shorter but more fragile
- Often less clinical crown which makes getting low on the tooth even more important
- Do not damage permanent tooth bud
  - Don't go digging for broken bits of root you can't see

# Get er' Done

- Be certain of you local before you start
- Once the forcep goes in it doesn't come back out without a tooth
- What you going to say to make the second attempt better?

Questions concerns problems