Anterior crowns used in children
Objectives of this session

- Discuss strip crowns, temporary crown use and acrylic jacket crowns.
- Discuss the possible use of porcelain jacket crowns in paediatric dental patients.
Introduction

• Anterior crowns are important because of their aesthetic significance.
• Such crowns should maintain and enhance the beauty of the mouths of infants, children and adolescents throughout the period of use.
Porcelain Jacket Crown

• This has limited use in children because:
  o It is expensive
  o Can fracture easily
  o Preparation requires extensive tooth tissue loss
• Use is limited to the permanent dentition.
Porcelain Jacket Crown - 2

- A Porcelain Jacket Crown would only be used as an anterior crown in children age 15 years and above for a number of reasons.
First reason

- By age 15 years, there is reduction in the width of the pulp chamber reducing the tendency for pulpal exposure during tooth preparation.
Second reason

• By age 15 years, active eruption of the anterior teeth should be completed. This reduces the risk for pulp exposure during crown preparation.
Third reason

- By age 15 years, the tendency for crown fracture resulting from fall or contact is reduced.
Porcelain Jacket Crown use - 6

- Before the age of 15 years, the most appropriate material for anterior jacket crown is acrylic (not expensive, tissue removal is minimal and appropriate as a temporary material).
Acrylic Jacket crown

• This is used as a temporary crown restoration material because of two reasons: The colour changes very quickly especially in children who eat colour staining foods like soup, tea (colour stability is poor). Secondly, it can fracture very easily.
Acrylics, just like porcelain, are not used as anterior jacket crown materials in the deciduous dentitions for a number of reasons.
First reason

- Acrylic has a tendency to release polymers that are toxic to the pulp. Tendency for pulp toxicity in the primary teeth is high since the dentine is more porous and thin when compared to the permanent teeth.
Second reason

- Acrylic also act as gum strippers leading to an increased tendency for gingival recession. Gingival recession could also occur due to gingiva reactions to the leached materials at the gum margins.
Acrylic jacket crown - 5

Third reason
• The amount to tooth material that needs to be removed for both acrylic and porcelain crowns during tooth preparation will lead to pulpal exposure.
Full coronal restorations in children

Strip crowns

- They are cellulose acetate crowns used to adapt composite to the teeth.
- Minimal enamel is removed prior to placement.
- They have superior aesthetics.
- Proper moisture and haemorrhage control is important when using composite
Open faced stainless steel crown

- They take advantage of the strengths of preformed stainless steel crowns.
- The labial surface of stainless steel crowns are cut away and replaced with tooth coloured plastic materials.
- Metals may appear at the edge and back of the crown.
Veneered steel crown

- Tooth coloured materials are bonded to the labial surface of the stainless steel crowns.
- These come as pre-veneered stainless steel crowns.
- Examples are NuSmile Primary Crown, Cheng Crowns, Kinder Crowns, Whiter Biter Crown.
Disadvantages of pre-veneered steel crown

- There is limited dentists choice on the resin shade.
- The labial section of the margin cannot be crimped otherwise the bonded resin can detach.
Full coronal restorations in children - 5

Disadvantages of pre-veneered steel crown

• Crown forms that are tried in but do not fit cannot be sterilised under heat pressure because heat would destroy the resin.

• The veneers can easily detach from the crowns.
Paedo jacket crown

• This is like a strip crown. It is made of tooth coloured polyester material which can be filled with resin and left on the tooth after polymerisation.

• It comes only in a single shade which makes matching to adjacent non-restored tooth difficult.
Paedo jacket crown

- Also, because the crown is made of copolyester, it cannot be trimmed or reshaped with a high speed finishing bur otherwise the material will melt to the bur.
- Older types of crowns used were polycarbonate crown forms.
Paedo Pearls

- This is a metal crown form similar to the stainless steel crown but it is completely coated with a tooth coloured epoxy paint.
Paedo Pearls

- The crowns are made from aluminum instead of stainless steel because the epoxy coating adapts better to aluminum.
Full coronal restorations in children - 10

Paedo Pearls

• They are relatively soft thus creating a problem for long term durability.
• In areas of heavy occlusion, the white coating will wear off.
Artglass crowns

• They are made of bifunctional and new multifunctional methacrylates.
• The fillers are microglass and silca which gives it greater durability and aesthetics than composite strip crowns.
Full coronal restorations in children - 12

Artglass crowns

- They contain 75% fillers compared to composite that contains 85% fillers.
- Available in a single shade with six sizes for each anterior tooth.
- Crown failure is usually as a result of bond failure.
Indications for anterior jacket crown in deciduous teeth

- Following pulp therapy
- Following extensive caries (caries present on multiple surfaces) leading to gross loss of crown tissue
- Crown fracture involving the incisal edge
- Intrinsic stains associated with tooth structure damages
Quiz 1

The following are forms of full coronal restorations with aesthetic value for the deciduous dentition:

- Stainless steel crowns
- Composite veneer
- Porcelain jacket crowns
- Artglass crowns
Strip crowns

- They are made of polycarbonates
- They contain reinforced GIC
- Their main disadvantage is that it requires extensive tooth preparation
- They give superior aesthetic results
Paedo Pearls

• It is made of stainless steel crown
• The crown is completely covered by composite
• The white coating easily wears off in areas of heavy occlusion
• They are not very durable
Acknowledgement

• Slides were developed by Morenike Ukpong, Associate Professor in the Department of Paediatric Dentistry, Obafemi Awolowo University, Ile-Ife, Nigeria.

• The slides was developed and updated from multiple materials over the years. This includes materials from Malik RS, EJPD, 2012: 13(1): 6-12

• We hereby acknowledge that many of the materials are not primary quotes of the group.

• We also acknowledge all those that were involved with the review of the slides.