

Identification of Crowns in Principal Dentition by Clinicians in Pediatric Dentistry

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ABSTRACT

One of the most prevalent challenges addressed by paediatric dentists is providing aesthetically pleasing, long-lasting, and cost-effective restorations in primary and young permanent teeth. For this purpose, a variety of crowns are available, and selecting the most appropriate crown will aid in achieving better treatment outcomes. They range from crowns that are luted onto the tooth surface to those that are directly bondable to the tooth surface. Metal crowns with or without facings, as well as plastic, polycarbonate, and ceramic crowns, are all options.

This review aims to absorb and highlight the diverse range of paediatric crowns available in published data for use by Pedodontics according to the patient's needs. Knowledge of the available resources, as well as their varied advantages, disadvantages, and qualities, will go a long way toward improving the clinician's ability to choose the best option for the patient.

KEYWORDS: Pediatric Crowns, Primary Dentition, Stainless Steel Crowns, Pediatric Zirconia Crowns

INTRODUCTION

Early childhood caries (ECC) is the vicinity of you quit offering on that one alternately more cavitated or non-cavitated carious lesions in front of A child's sixth birthday. Extreme early youth caries (S-ECC) will be smooth birch surface caries clinched alongside a tyke under three quite some time old¹. Later reports from a few investigations hint at that those frequency for ecc over india will be regarding 40% to 60%. Early youth caries needs outcomes not just for the teeth of the influenced child, as well as for the child's general health by brought crazy Toward the top health spokesperson of the USA expressing —You can't a chance to be sound without great oral health¹. Those outcomes aboutecc can range from pain, sepsis, space loss, interruption of caliber about life, disturbance for development and development, workable disturbance from claiming scholarly development, higher occurrence about hospitalization, expanded medication fetches and more excellent danger about new carious lesions in both essential and lasting dentition². Thus, it gets those obligation of the Pedodontics on restore teethe influenced byecc to repair shed alternately limit the harm from caries, protect Also preserve the tooth rot structure, re-establish sufficient function, restore esthetics, furthermore provide simplicity for looking after handy oral hygiene³.

Rebuilding by elementary teethe varies starting with rebuilding of changeless teeth, because of the contrasts previously, tooth rot morphological tenet. The mesiodistal breadth of a essential molar crown will be more stupendous over those cervical - occlusal dimension⁴. The buccalAlso lingual surfaces meet to those occlusal. Those veneer and dentin need aid slenderer. The cervical veneer rods slant occlusally, completion abruptly at the cervix as opposed being turned gingivally Furthermore bit by bit getting to be slenderer as done changeless teeth. The mash chambers of grade teethe would proportionately bigger and closer of the surface. Essential teeth contact territories are expansive Furthermore smoothed instead of continuously A little different hardware contact point, as previously, lasting teeth. Shorter clinical crown statures for grade teeth likewise influence the capacity for these teethe will enough backing furthermore hold intracoronal restorations. Youthful permanency teethes additionally show aspects that compelling reason with a chance to be acknowledged done therapeutic procedures, for example, such that expansive mash chambers and more wide contact territories that are proximal with essential teeth⁵.

Tasteful crowns Also stainless-steel crowns to essential teethe offer a useful elective with uniquely improved achievement rates Likewise contrasted with multi-surface restorations. The lifespan of multi-surface amalgam restorations may be markedly shorter in the essential dentition over in the optional dentition. This review article aims to provide the dental practitioner with the various alternatives available to manage carious lesions related to ECC in primarydentition⁶.

Crowns for Anterior Teeth

A variability of aesthetic upliftingresourcesareaccessible for reestablishingprincipal incisors. Data of the exactassets, weaknesses and possessions of the materials resolve help the clinician to kind the finestexcellent for respectively situation⁷. The class III and class V refurbishments in principalteething are highly technique sensitive and depend

largely on isolation, hemorrhage controller from the gingival morphology and anatomy of primary dentition. The anterior aesthetic crowns are a more reliable alternative and can provide the child with a more aesthetic alternative⁸.

Indications for anterior Full coronal restorations:

Full coronal rebuilding from claiming carious essential incisors might be shown when: (1) caries is exhibit looking into numerous surfaces, (2) the incisal edge may be involved, (3) broad cervical decalcification, (4) pulpal help may be indicated, (5) caries might be minor, Anyway oral cleanliness may be precise poor, (6) those child's self-destructive considerations and conduct makes dampness control very difficult⁹.

Those different sorts by crowns accessible to restoring foremost teethe might a chance to be isolated under two principle sorts (1) the individuals that are preformed Also held onto the tooth rot by a luting cement, and (2) the individuals that would fortify of the tooth rot. (Table 1).

Crown	Company	Additional Information
Stainless Steel crowns	3M Espe-Unitek, Rocky Mountain Company	Available in two types resin veneered and facial cut out stainless steel crowns.
Pedo Pearls	Mid-West Dental	Aluminium crowns coated with epoxy paint.
PedoCompu Crowns		Frontal stainless-steel crowns by composite facing.
Whiter Biter Crowns	White Bite Inc	Polyester/Epoxy hybrid crowns by polymeric coating.
NuSmile Crowns	Orthodontic Labs	1. SSC crowns with facing - Resin facing on an SSC only lingual surface can be crimped. 2. Zirconia crowns - good aesthetics. Fabricated using CT digital scans of deciduous teeth. Available in two shades.
Cheng Crowns	Peter Cheng Orthodontic Labs	1. Pre-Veneered Crowns - Resin facing on an SSC only lingual surface can be crimped. 2. Zirconia Crowns - Precision milled monolithic ceramic crown with pre crimped margin.
Kinder Krowns	Mayclin Dental Studios	1. Pre-Veneered Crown - Resin facing on an SSC only lingual surface can be crimped. It has strengthened stainless steel crown with feathered margin for better fit. 2. Zirconia Crowns - provides excellent aesthetics. Has internal retention system in the form of retention bands. Available in two contours universal or right and left.
Dura Crowns	Space Maintainer Laboratory	Flexible facing attached to SSC. They can be crimped labially and lingually.
New Millenium Crowns	Space Maintainer Laboratory	Lab-enhanced composite resin crown form.
Pedo Jackets (Polycarbonate Crowns)	Space Maintainer Laboratory	Co polyester crown form one shade.
Strip Crowns	Space Maintainer Laboratory	Seamless plastic crown forms.
Artglass Crowns	Glasstech Inc	A polymer glass crown which provides the esthetics and lasting qualities of porcelain.
EZ Pedo zirconia crowns	Sprig	Metal free prefabricated zirconia crowns which have superior aesthetics. These crowns have mechanical undercuts to help retain cement at crown margins to prevent microleakage.

Anterior Stainless-Steel Crowns

Preformed stainless steel crowns (SSC) are recognized on a chance to be the most tough and dependable for restoring extremely carious deciduous incisors. SSCs bring been found to make simple to place, crack proof, wear resistant, furthermore connected solidly of the tooth rot until shedding. The silver metallic appearance was the main disadvantage as brought out by Croll¹⁰. The other alternative was the use of a stainless-steel crown in which a labial fenestration was made in which a resin or composite material was placed in order to improve the aesthetics. This

technique provided a great improvement in aesthetics although it was time consuming and the metal margins could be seen¹¹.

Resin-Veneered Stainless-Steel Crowns

The resin – veneered stainless-steel crowns are presented in the early 1990s. There are many commercially available brands of veneered SSCs in the market today eg Kinder Krowns, NuSmile, and Cheng Crowns. The lingual margins can be crimped improving the marginal fit of the crowns (table 1). Additionally, a resin-veneered crown—Dura crown (Success Essentials space support Laboratory, Chatsworth, Calif)—was acquainted. This crown need the labial gingival edge crimped and tar adjusted of the gingival edge of the foremost angle of the crown. The failure of the resin veneer and metal bond leading to chipping off exposing the metal margins is a major disadvantage. Disappointments happened most usually at resin-resin and resin- metal interface¹².

New Millenium Crowns

These crowns are completed up of Lab improved compound resin substantial which is expensive. They are quite similar to Pedo jacket crowns. They can be trimmed easily but are brittle. These crowns are bonded to the tooth. There are no long term studies available with respect to these crowns¹³.

Polycarbonate crowns

Polycarbonate crowns would heat-moulded acrylic pitch used to restore foremost essential teeth. In spite of the fact that that's only the tip of the iceberg stylish over those SSCs, the polycarbonate crowns would not difficult should trim Also might make balanced for pliers. These crowns don't oppose solid abrasive strengths hence prompting incidental fracture¹⁴.

Strip Crowns

Strip crowns are synthetic crown procedures which are a popularly used for reestablishing main anterior teeth. These crown forms deliver larger aesthetics when compared to other forms of full coronal anterior coverage¹⁵. The procedure of their placement is very technique sensitive and care has to be taken in patient assortment, moisture and hemorrhage control, tooth groundwork, adhesive submission and resin compound assignment. These crowns trust on dentin and enamel adhesion for retention, the presence of enough tooth structure for bonding of the composites is essential for the long term success of these crowns. The name strip crown has been coined because after the composites are cured on the tooth surface the colloid crown forms are stripped from the surface¹⁶.

Artglass Crowns

These crowns contain bifunctional and novel multi-functional methacrylates starting a cross-linked, 3 dimensional polymers. The filler content in these polymers is 75% and the fillers used are microglass and silica which provide greater durability and aesthetics. They are colour steady, attire of polymer glass is comparable to enamel, caring to contrasting teething and is plaque unaffected. They are obtainable in one shade and in 6 sizes for principal central, lateral and cuspid teeth. The major cause of failure with regard to these crowns is due to bond failures¹⁷.

Zirconia Crowns

These crowns are new to pediatric dentistry and have the advantage of superior aesthetics. They are commercially available in the market as various brand names e.g. EZ Pedo , Nu Smile ZR , Zirconia Kinder Krowns and Cheng Zirconia Crowns. Zirconia is one of the maximum talented ceramics with enhanced mechanical properties and excellent aesthetics . It has the added advantage when used for pediatric crowns over preveneered stainless steel crowns of higher fracture resistance and flexural strength¹⁸.

Crowns For Posterior Teeth

Those morphological tenet of a essential molar tooth rot contrasts essentially starting with its permanency successor, particularly with admiration to its best convexity at the cervical third of the crown. This undercut camwood make used to the maintenance of the crown whose edge camwood be crimped will fit under the cervical constriction¹⁹. Those veneer Also dentin of the essential molar crown would proportionally significantly more slender over in the lasting press and would moderately defenseless to caries assault. The grade mash may be extensive for conspicuous mash horns and is arranged for end vicinity of the mesial surface of the tooth rot crown, especially On mandibula elementary molars. This is important as it makes cavity design to be very conservative. This conservative cavity design coupled with difficulty in isolation and hemorrhage control is the cause for most failures in restorations in

posterior primary dentition. The various types of crowns available for refurbishment of posterior main teeth include stainless steel crowns, custom **made composite and acrylic crowns**.



Figure 1: Crowns for Posterior Teeth

Stainless Steel Crowns

Stainless steel crowns were acquainted to pediatric dentistry toward the rough mountain particular organization done 1947 also settled on prominent Toward w. P. Humphrey in 1950. Until that point those medicine for grossly rotted elementary teethe might have been extractions. Stainless steel crowns need aid prefabricated crown manifestations that would adjust should distinct teethe Furthermore cemented for a biocompatible luting agent²⁰.

Signs to full scope coronal restorations done deciduous elementary teeth: Full scope coronal restorations might make shown on posterior essential teeth At 1.

1. Youngsters In high hazard exhibiting foremost tooth rot caries or molar caries might make dealt with crowns with secure the remaining at-risk tooth rot surfaces²¹.
2. Know youngsters for broad decay, vast lesions, alternately multiple-surface lesions On essential molars, developmental defects (e. G., hypoplasia, hypocalcification) should a chance to be dealt with crowns.
3. Solid thought ought be given of the utilization of crowns On Youngsters who oblige general anesthesia. E. G. Uncommon know youngsters who might not have the capacity with look after handy oral cleanliness.

Over secondary caries-risk children, conclusive medication for grade teethe for SSCs is exceptional About whether over multisource intra-coronal restorations. Survey of the written works comparing SSCs Furthermore population ii amalgams²². inferred that, to multisource restorations to elementary teeth, SSCs are better than amalgams²².

Composite Crown-Form

Aesthetics have become increasingly crucial as parents and children's expectations for aesthetics and function have grown, as have diagnostic and material improvements. Improved composites for anterior and posterior application have become available as a result of these advancements. To treat badly decaying primary molars, composite crown-form crowns might be employed. Etching is done first, followed by bonding and halogen light curing. The crown form matrices were then filled with composite resin and put from lingual to buccal over the decaying teeth. The crowns are then cured for 20 secs on each side of the tooth. The crown form matrix is removed with a sharp carver and the margins are polished. The occlusion is checked using an articulating paper and high points are then reduced²³.

Zirconia Crowns

The success and reliability of stainless-steel crowns for refurbishment of primary teeth has been proven, however they have the disadvantage of poor aesthetic appearance. Zirconia crowns for refurbishment of principalsubsequent teeth is a more aesthetic option. The other advantage of zirconia crowns is that they have good mechanical properties in terms of high fracture resistance and flexural strength , however to achieve these properties these crowns are thicker compared to stainless steel crowns and hence have the disadvantage of greater tooth preparation. The other significant drawback is the increased cost of zirconia crowns in comparison to stainless steel crowns. These crowns are available in the market in brand names such as EZ Pedo, Nu Smile ZR, Zirconia Kinder Krowns and Cheng Zirconia Crowns.

CONCLUSION

Early youth caries may be a critical general population wellbeing issue over both Creating Furthermore industrialized nations which proceeds should influence babies Furthermore preschool know youngsters around the world. 2 early youth caries (ECC) may be not life-undermining Atcauses symptoms e.g tooth ache, systemic infection, affect on speech articulation, growth, and dietary practices. This ultimately influences nutrition, concentration and subsequently school participation. Numerous selections happen to reparation carious primary teeth, as restorations in

primary teeth are more difficult to do and may not last for a long period because of their anatomical and morphological considerations. There are a variety of crowns available for restoration of deciduous teeth and these crowns have been in use for a long time with a great part triumph. Driver preferences, stylish requests toward parents, the child's behavior, and dampness and discharge control would be the sum variables which influence the choice. Furthermore, extreme Conclusion by whatever therapeutic result is decided.³⁰ It is therefore very important to take into account findings of various clinical studies before choosing the restorative techniques for a child. The Pediatric dentist needs to keep abreast with the latest restorative techniques and keep in touch with the newer techniques available to provide comprehensive care for children using these crowns to not only restore function but also to provide superior aesthetics.

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