

# Analysis of Stainless Steel Crowns and Resin Composite Restorations After Pulpal Therapy in Primary Second Molars



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## INTRODUCTION

Dental caries is the most common chronic disease in children in the United States and there has been an increase in younger children. Dental caries is seen more commonly in lower socioeconomic groups including minorities. Dental caries can lead to a multitude of effects including pain and premature loss of primary teeth, decreased weight gain because of the child's inability to eat, among other negative effects on their quality of life. Children are also more likely to be absent from school due to severe tooth decay. Permanent dentition can be affected by premature loss of primary teeth. It is important to recognize and rationalize one treatment modality over the other – in this case being full coverage stainless steel crown versus a resin composite restoration. It is important to consider the patient's caries risk, behavior, their parent's involvement, extent of decay and length of time the restoration will last until the tooth or teeth naturally exfoliate.

Depending on the severity of the decay and symptoms, treatment may be divided into vital and non vital pulp therapy. In primary dentition, non-vital pulp therapy is used when a tooth is diagnosed with having irreversible pulpitis or is necrotic. Treatment options for non-vital teeth may include pulpectomy or extraction.

Vital pulp therapy is completed for primary teeth in which the caries is deep, but the tooth's pulp remains vital and pulpal diagnosis is reversible pulpitis. A diagnosis of reversible pulpitis involves thorough clinical and radiographic interpretation. A tooth's pulpal status may be classified as being reversible if the provoked pain is relieved with removal of the noxious stimuli and there is absence of the following: pathologic mobility, internal or external tooth resorption, and furcation or periapical radiolucency. There are three vital pulp therapies including: indirect pulp cap (IPC), direct pulp cap (DPC) and pulpotomy.

## PURPOSE

The purpose of this retrospective study was to evaluate stainless steel crowns versus composite restorations in primary second molars that received pulpal intervention.

This study investigated the treatment outcomes in children aged 3-10 on the Eastern Shore of Maryland.

## METHOD

Records were obtained using electronic health records of children 3 to 10 years old, with at least 1 pulpal therapy in a vital tooth. The history of that tooth was then followed until exfoliation or extraction. Chesapeake Health Center provided access to EHR of patients that received pulpal treatment and restoration placement between January 1, 2011, and January 1, 2021.

The pulpotomy codes (D3220) and indirect pulp cap (D3120) were searched in both EHRs (iDentalSoft and Dentrix), and the teeth treated were recorded along with the restoration placed. All primary second molars that received any of the treatment codes were recorded. A chart was formulated that was able to compare which restoration was used, survival length and whether the tooth naturally exfoliated or was extracted.

The following demographic information was collected from electronic health records:

- Pulpal Treatment (D3220, D3120)
- Failed procedure based on extraction within 12 months of procedure or exfoliation
- Age

## DATA

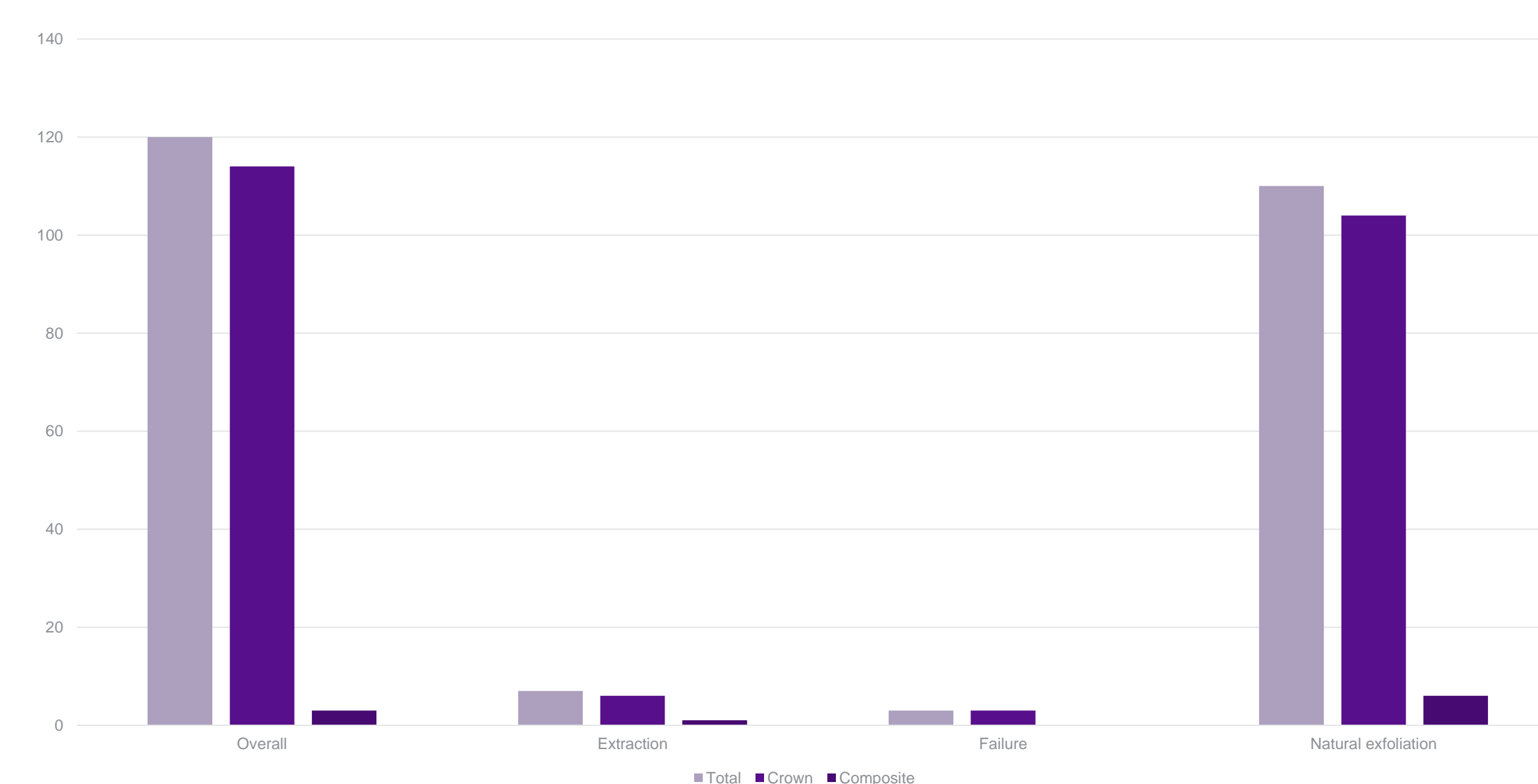


Figure 1. Restoration of primary second molar versus survivability

## RESULTS

A total of 120 primary second molars were evaluated, of which 114 received a stainless steel crown and 6 received a composite restoration. A total of 10 teeth were extracted, of which 3 teeth were deemed failures because they were prior to the 12 month mark. Of the 110 molars that resulted in natural exfoliation, 104 were restored with a stainless steel crown and 6 were restored with a composite restoration.

Overall analysis showed no significance in survival probability when restoring a primary second molar with a stainless-steel crown versus a composite restoration ( $P=.75$ ).

## CONCLUSION

Primary second molars that received pulpal therapy and were restored with stainless steel crowns were not shown to have a higher survival probability versus composite restorations.

More research is indicated on the topic with a larger data set to draw more statistical conclusions. When deciding on a restoration option, the child's age, behavior, and medical history should also be considered.

## REFERENCES

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