Survival Rates of Restorations in Primary First Maxillary Molars: A Claims Data Analysis

T Bakala, J Yepes, A Scully, J Jones, G Eckert, G Maupome

Indiana University School of Dentistry, Indianapolis Indiana – Riley Hospital for Children

BACKGROUND

- Morphological characteristics of the primary dentition, facilitate rapid caries progression[1, 2]
- Dental professionals have **two** main restorative options for proximal caries:
  - Direct restorations (Composites or Alloy)
  - Full coverage restorations (Stainless-steel crowns (SSC))
- There is a lack of quantitative data on **expected retention** outcomes for direct and full coverage restorations [5]

PURPOSE

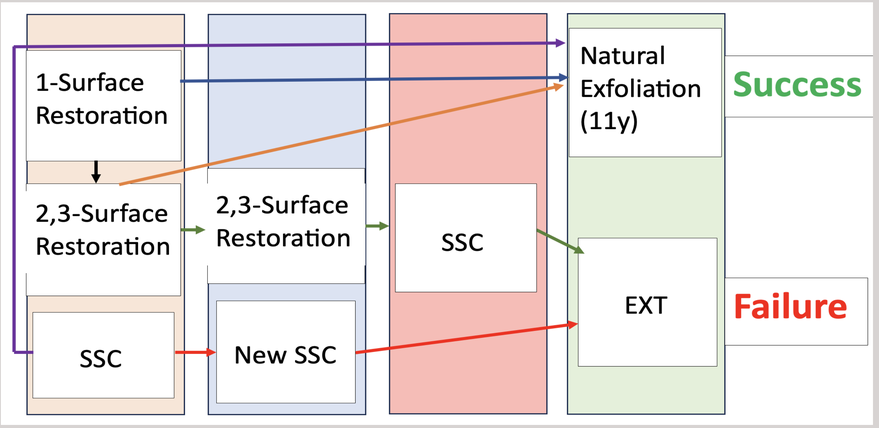
- Examine the survival rates of **primary maxillary 1st molars** initially restored with a **direct restoration versus full coverage.**

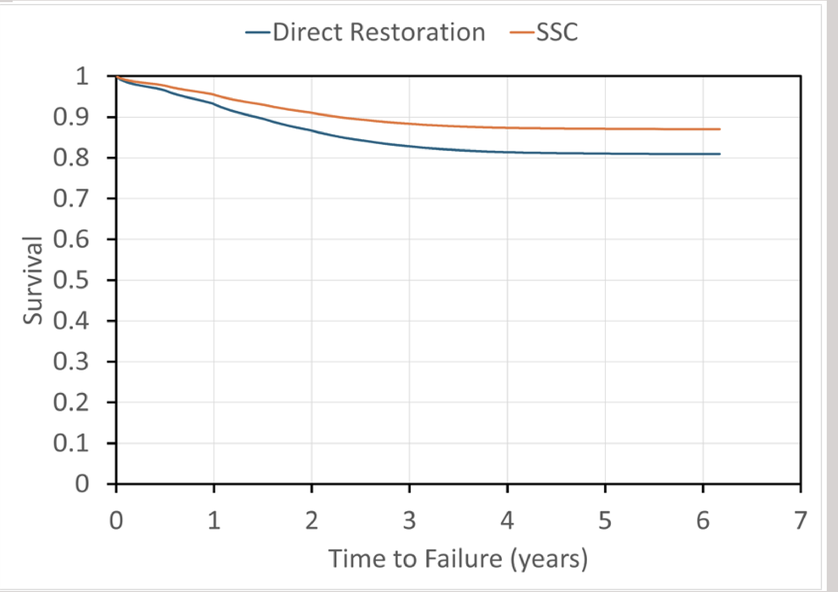
METHODS

- Private insurance data claims from 2004-2023 obtained through Fluent Dental Strategies
- **Data collected**
  - Initial CDT codes
    - Direct restorations, SSC
  - Follow-up CDT codes
    - Track success over time
  - Demographic Data
    - Provider specialty
    - Patient age and gender
- Time to first re-treatment was compared between the direct restoration and SSC groups using **Cox proportional hazards survival analysis**
- A survival, model-based hazard ratio (HR, with 95% CI) was adjusted for patient gender, patient age, and provider specialty.

RESULTS

- 502,863 total observations
- **Direct restorations** performed (n=426,033) / Failed 48,397 **(11.4%)**
  - 28,2819 (66.4%) by GP
  - 143214 (33.6%) by pedodontist
- **Stainless steel crowns** performed (n=76,830) / Failed 6,071 **(7.9%)**
  - 27659 (36.0%) by GP
  - 49171 (64.0%) by pedodontist
- Total **cost** was significantly higher for SSC than direct restoration ($p<0.001$).
  - Average paid claim for direct restoration **($97)**
  - Average paid claim for stainless steel crown **($110)**
- Risk of failure was significant higher for direct restoration than SSC (HR=1.53 (1.48-1.57), p<0.001) ('**time to failure was significantly lower for SSC than direct restoration**').





DISCUSSION/CONCLUSION

- Direct restorations failed more than SSCs.
- **SSCs had a lower failure rate than direct restorations**, regardless of patient age, gender and specialty type that performed restoration.
- SSC cost was significantly higher than direct restoration.
- Primary maxillary first molars initially restored with a full coverage crown have a lower risk of failure
- **SSCs should be considered as primary when diagnosing and treatment planning for Primary Maxillary 1st Molars**

REFERENCES