

## INTRODUCTION

Early Childhood Caries (ECC), commonly referred to as “baby bottle tooth decay,” is one of the most prevalent chronic diseases in young children worldwide and remains a significant public health concern.<sup>1</sup> ECC is defined as the presence of one or more decayed (cavitated or noncavitated), missing (due to caries), or filled tooth surfaces in any primary tooth of a child ≤71 months of age.<sup>2</sup> It most commonly presents between 18–36 months, a critical period for establishing dietary and oral hygiene habits.<sup>3</sup>

ECC is a multifactorial disease influenced by biological, behavioral, and socioeconomic factors. If untreated, it can progress rapidly, often affecting multiple tooth surfaces—particularly the maxillary incisors—and may result in pain, infection, impaired function, and reduced quality of life, as well as increased risk of caries in the permanent dentition.<sup>4–6</sup>

Management of anterior ECC presents both functional and esthetic challenges. While preventive approaches such as silver diamine fluoride and fluoride varnish may arrest early lesions, advanced cases often require full-coverage restorations. Zirconia crowns and anterior strip crowns are widely used esthetic options for restoring anterior primary teeth.

Anterior strip crowns are technique-sensitive, and their clinical success may be influenced by factors such as isolation and patient cooperation. Despite their widespread use, questions remain regarding their clinical performance and longevity. This study aims to evaluate the effectiveness and clinical success of anterior strip crowns in restoring primary maxillary incisors affected by ECC.

## OBJECTIVE

To evaluate the clinical success of anterior strip crowns placed on primary maxillary anterior teeth.

Clinical success was evaluated in relation to the following variables:

- Provider experience level (PGY-1 vs. PGY-2)
- Isolation technique (cotton roll isolation, DryShield, or rubber dam)
- Restorative material (composite resin vs. resin-modified glass ionomer)
- Treatment modality (chairside vs. operating room [OR])
- Patient behavior (Frankl scale)

## STUDY DESIGN AND METHODS

This study was a retrospective chart review evaluating the clinical success of anterior strip crowns placed on primary maxillary anterior teeth. Eligible cases included patients who received anterior strip crowns with a minimum follow-up period of ≥12 months.

Clinical success was defined as the presence of an intact restoration without loss, fracture, or need for retreatment at follow-up.

Clinical success was evaluated in relation to provider experience level, isolation technique, restorative material, treatment modality, and patient behavior.

Data were collected from electronic dental records, including treatment codes, clinical notes, and documented outcomes. All data were de-identified prior to analysis in compliance with HIPAA regulations.

### Inclusion criteria:

- Completion of anterior strip crown treatment
- Availability of ≥12-month follow-up

### Exclusion criteria:

- No follow-up after treatment
- Incomplete or missing documentation preventing evaluation of outcomes

## RESULTS

A total of 47 anterior strip crowns with ≥12-month follow-up were evaluated. The overall clinical success rate was 23.4% (11/47), with a failure rate of 76.6% (36/47).

Higher success rates were observed among PGY-2 residents (50.0%) compared to PGY-1 residents (15.8%). Success rates were also higher with DryShield (50.0%) compared to cotton roll isolation (20.5%), although sample sizes were limited.

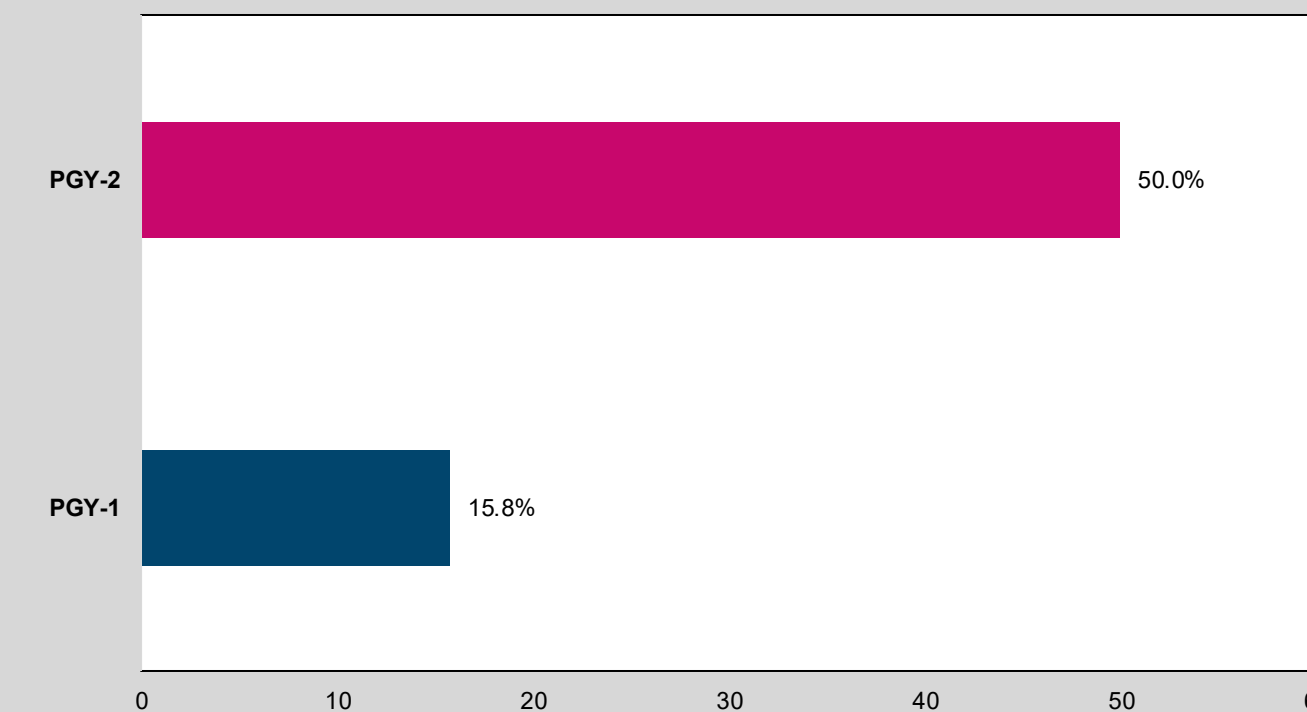
Most restorations were completed using cotton roll isolation and resin-modified glass ionomer, which demonstrated a success rate of 24.4%.

Procedures completed in the clinic demonstrated higher success rates compared to those performed in the operating room, though this may reflect differences in patient behavior and case complexity.

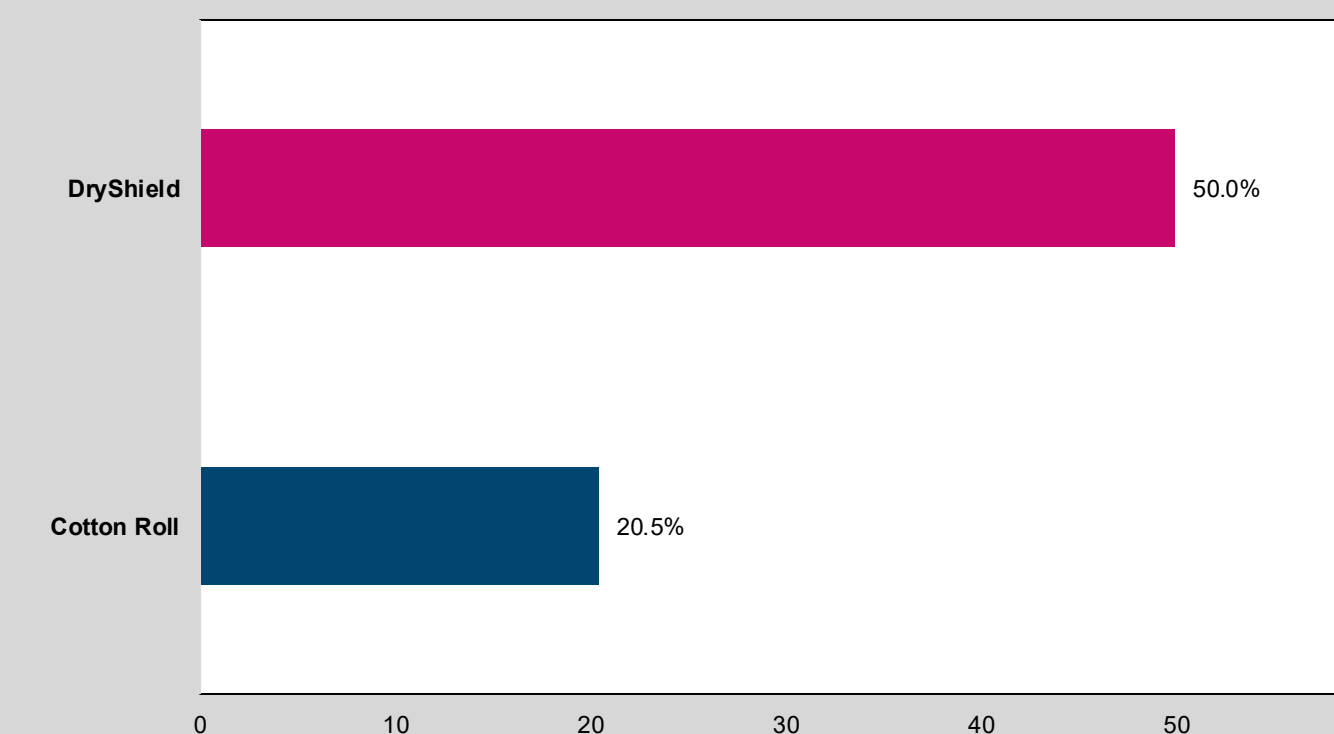
Due to the limited sample size, statistical comparisons were not performed.

## RESULTS

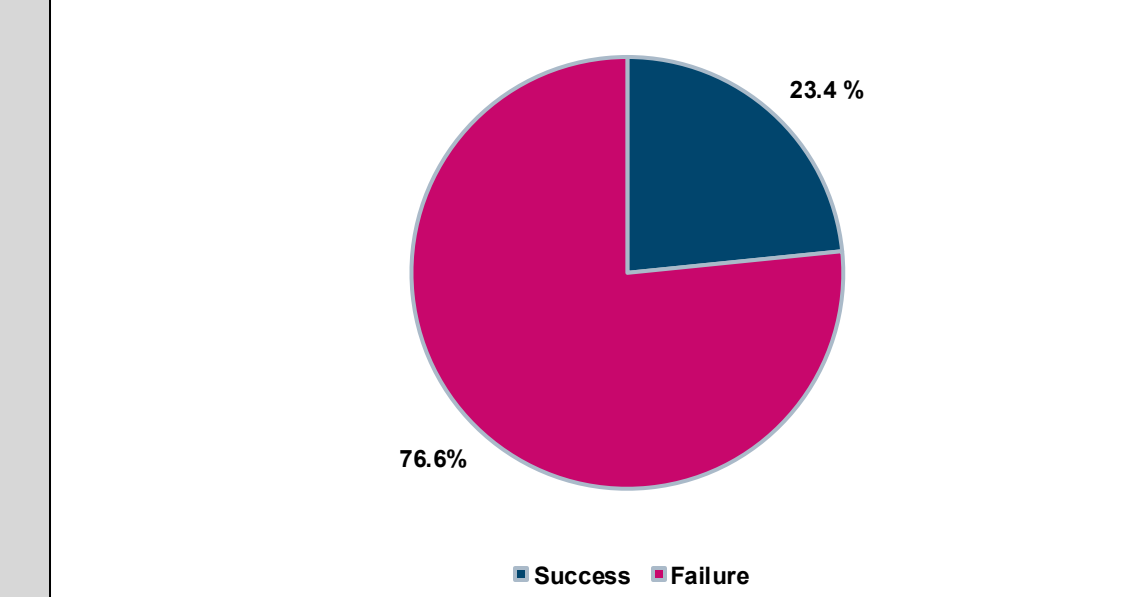
Clinical Success by Provider Experience



Clinical Success by Isolation Technique



Overall Outcomes



## DISCUSSION

This study evaluated clinical factors associated with the success of anterior strip crowns in primary maxillary incisors. Higher success rates were observed among more experienced providers and with improved isolation techniques.

These findings reinforce the technique-sensitive nature of strip crown restorations, where adequate moisture control, operator experience, and patient cooperation play important roles in clinical outcomes.

The overall success rate of 23.4% reflects the challenges of restoring anterior teeth in young pediatric patients, including limited cooperation, difficulty achieving isolation, and high caries risk. These factors highlight the importance of careful case selection and treatment planning.

While a larger number of anterior strip crowns were performed, only cases meeting inclusion criteria, including ≥12-month follow-up, were eligible for analysis, resulting in a reduced sample size. The small sample size, partly attributable to limited follow-up, may have introduced selection bias, as patients with available follow-up may not be representative of the overall study population.

Additional limitations include the retrospective design and reliance on available documentation, which may have introduced selection and information bias. The predominance of certain materials and isolation techniques may have further limited comparisons between groups.

Further studies with larger sample sizes and prospective designs are needed to better evaluate factors influencing strip crown success.

## CONCLUSION

Anterior strip crowns demonstrated a low overall success rate in this study, reflecting the challenges of restoring primary maxillary incisors in young pediatric patients.

Outcomes appeared to be influenced by operator experience and isolation technique, emphasizing the technique-sensitive nature of strip crown restorations.

These findings highlight the importance of careful case selection and optimal clinical conditions when considering anterior strip crowns as a restorative option.

Attention to technique and clinical conditions may be critical to improving outcomes.

