



Purpose

To evaluate utilization patterns of Hall stainless steel crowns (SSCs) compared with conventional SSCs over a 12-year period.

Background

SSCs are the restoration of choice for:

- Extensive or multisurface caries
- Developmental defects
- Primary molars following pulp therapy

Conventional SSC placement:

- Requires local anesthesia, caries removal, tooth preparation, and occlusal adjustment
- May be difficult for young, anxious, or uncooperative children

Hall Technique (introduced in 2006):

- SSC cemented without local anesthesia, caries removal, or tooth preparation
- Seals cariogenic bacteria and arrests lesion progression
- Minimally invasive and child-friendly

Prior studies show:

- High clinical success and survival rates
- Strong child and parent acceptance

Adoption varies by:

- Provider training and experience
- Institutional protocols
- Educational exposure

Understanding utilization trends informs:

- Curriculum development
- Faculty calibration
- Evidence-based pediatric care

Methods

- **Study design:** Retrospective chart review
- **Approval:** Institutional Review Board (IRB #202411560)
- **Data source:** axiUm electronic health record
- **Study period:** January 1, 2012 – December 31, 2024
- **Key feature:** Unique procedure code (implemented in 2011) identifying Hall SSCs
- **Inclusion criteria:**
 - SSCs placed on primary molars
 - Pediatric dentistry department clinics
- **Exclusion criteria:**
 - General anesthesia cases
 - Permanent teeth
 - Incomplete or duplicate records
 - Non-pediatric clinics
- **Variables collected:**
 - Crown type (Hall vs conventional)
 - Provider type (predoctoral student, resident, faculty)
 - Patient age
 - Tooth number
- **Analysis:** Descriptive statistics and regression modeling

Results

- **Total SSCs placed:** 25,837
 - Hall SSCs: 3,526 (13.6%)
 - Conventional SSCs: 22,311 (86.4%)
- **Utilization trends:**
 - Hall crown use increased significantly over time ($p < 0.001$)
 - Highest proportion in 2024 (~28% of all SSCs)
- **Provider type:**
 - Pediatric dentistry residents placed the most Hall crowns
 - Early use primarily by residents and faculty
 - Increasing adoption by predoctoral students in later years
- **Tooth distribution:**
 - Most common: mandibular first primary molars
 - Similar temporal patterns across all primary molar groups
- **Age distribution:**
 - Range: 1–12 years
 - Most frequent: five-year-old children
- **Regression analysis:**
 - Odds of a crown being a Hall crown increased 20% per year
 - Overall odds increased more than nine-fold from 2012 to 2024

Table 1. Percentage of crowns that are Hall crown (D2930.1) by year

Year	Hall Crown	Total Crowns	Hall Percent
2012	37	1433	2.6%
2013	97	1663	5.8%
2014	110	1874	5.9%
2015	116	2094	5.7%
2016	132	2410	5.5%
2017	233	1945	12.0%
2018	263	2026	13.0%
2019	294	2079	14.1%
2020	320	1511	21.2%
2021	444	2294	19.4%
2022	353	2194	16.1%
2023	588	2412	24.4%
2024	539	1947	27.7%

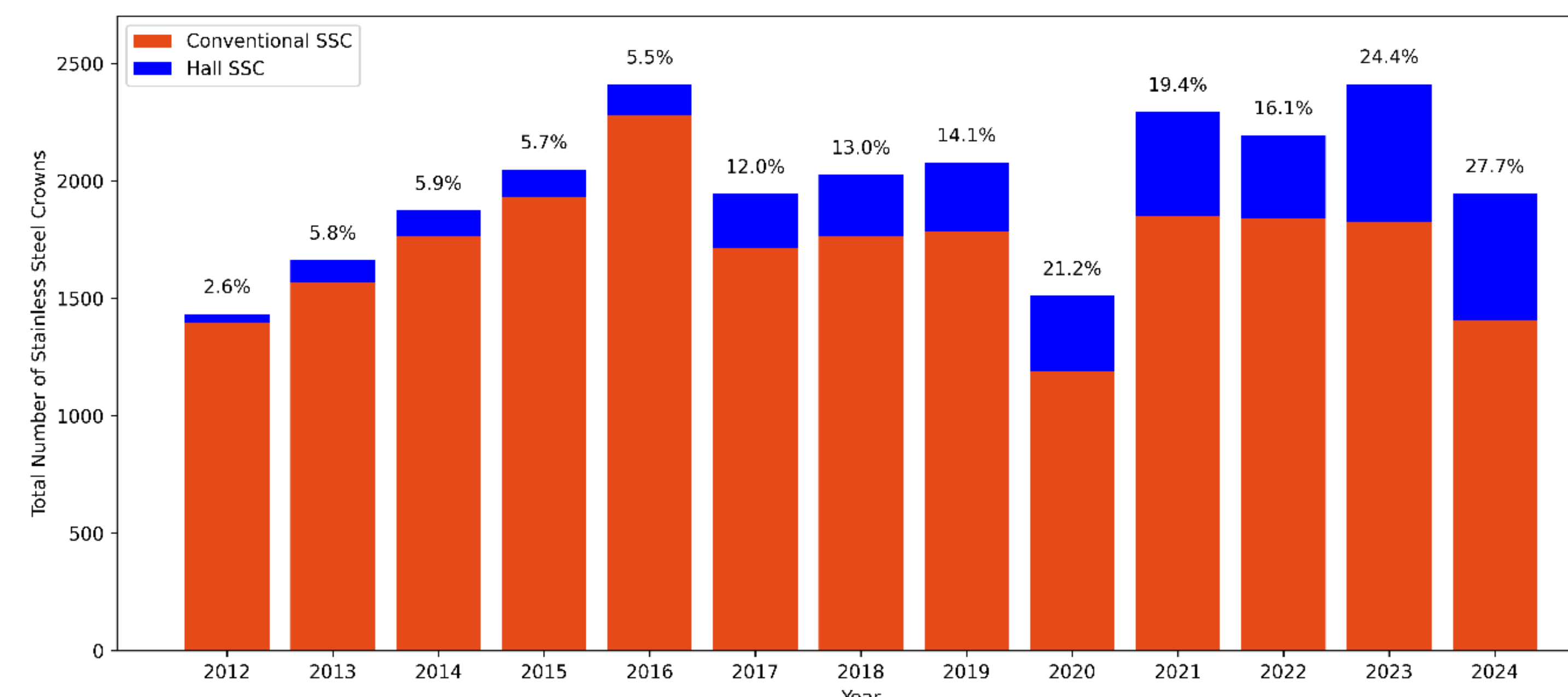


Figure 1. Annual number of stainless steel crowns placed by type (2012-2024)

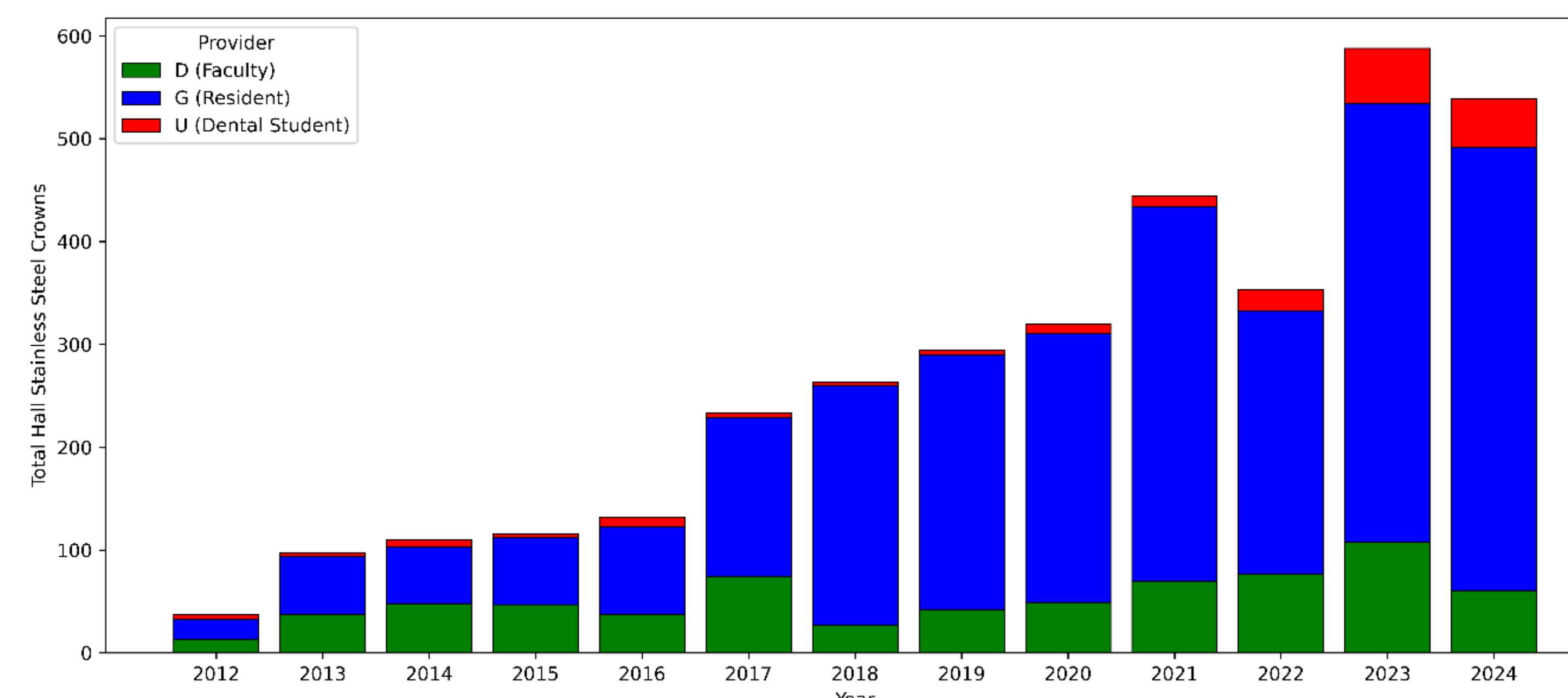


Figure 2. Annual number of Hall stainless steel crowns placed by provider type (2012-2024)

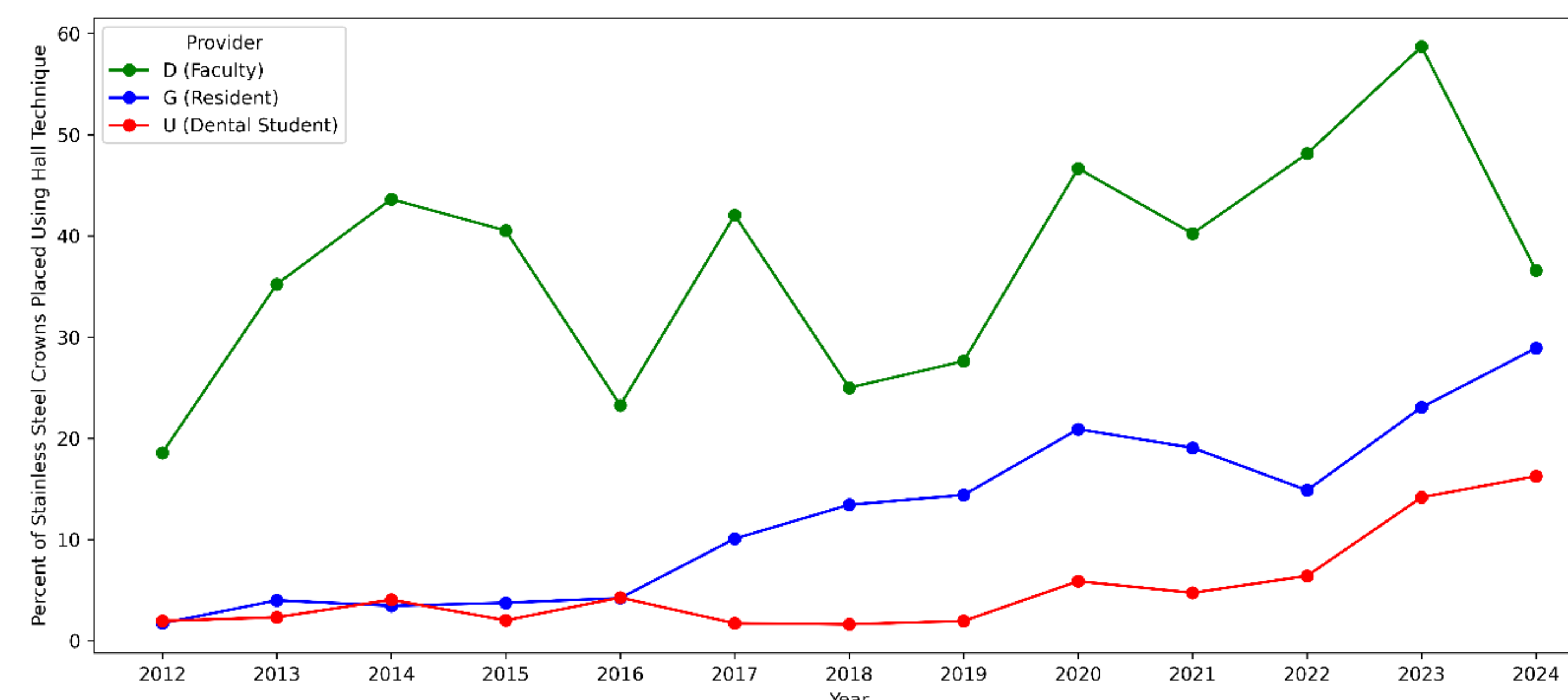


Figure 3. Hall stainless steel crown utilization by provider type (2012-2024)

Discussion

- Demonstrates a significant shift toward minimally invasive Hall Technique
- Growth reflects:
 - Acceptance in education and clinical practice of Hall Technique
 - Successful integration into pediatric dental education
- Resident-driven adoption highlights role of advanced training
- Use aligns with caries prevalence and behavioral management needs
- Rising predoctoral student use suggests:
 - Effective curricular incorporation
 - Faculty support and calibration
- Utilization trends complement existing evidence of Hall crown success

Clinical Significance

The Hall Technique is increasingly utilized for restoration of carious primary molars in an academic pediatric dentistry setting. Integration of this technique into dental education supports minimally invasive, child-friendly care and prepares future clinicians to manage caries effectively in young patients.

Conclusion

Utilization of the Hall Technique for stainless steel crown placement increased significantly over a 12-year period in a U.S. dental school setting. Growth in use among pediatric dentistry residents and predoctoral students suggests successful integration of this minimally invasive technique into pediatric dental education.

Selected References

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3. Clark W, Geneser M, Owais A, Kanellis M, Qian F. Success rates of Hall technique crowns in primary molars: a retrospective pilot study. Gen Dent. 2017 Sep-Oct;65(5):32-5. PMID: 28862586.
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Keywords

- Hall Technique
- Stainless steel crowns
- Pediatric dentistry
- Minimally invasive dentistry
- Retrospective study