

The experience and self-reported confidence of a group of foundation dentists in placing stainless steel crowns

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Key points

Explores the experience and confidence of a group of foundation dentists in placing SSCs.

Discusses possible implications and the need to re-incentivise the use of SSCs in NHS general dental practice.

Highlights the benefits of the Hall technique in managing primary molar caries.

Objectives Explore and discuss the experience and self-reported confidence of foundation dentists (FDs) in placing stainless steel crowns (SSCs) during undergraduate and foundation training (FT). **Methods** An anonymous, electronic voluntary survey was distributed to foundation dentists within the Thames Valley and Wessex deanery. The survey was open to participants for a three-month period ending in March 2017. The data were analysed using Google Docs. **Results** A total of 32 foundation dentists participated in the survey. Undergraduate training: over 40% of respondents had placed between one and four SSCs, with a similar percentage (40.6%) having not placed a single SSC. Of the respondents, 46.9% stated they are 'not very confident' in placing SSCs. Foundation training: self-reported confidence levels were equally distributed between the 'confident' categories and 'not confident' categories. Of FDs, 78.1% had not placed a SSC during FT. Over 26% attributed the limited experience to a lack of confidence, while 47.8% stated their practice did not stock SSCs. **Conclusion** Adoption of the Hall technique must not be limited to undergraduate training, but instead promoted during foundation training and re-incentivised in NHS general practice. The authors recommend compulsory investment of SSCs by foundation training practices, and the inclusion of placing SSCs as a clinical requirement for satisfactory completion of foundation year.

Introduction

Following graduation, newly-qualified UK dentists undergo dental foundation training (DFT), a year-long programme aimed at developing clinical competence and safe, reflective practice. The DFT curriculum published in 2015 describes a 'competency framework' through which foundation dentists (FDs) are assessed in delivering holistic patient care within general dental practice. A range of clinical domains are assessed throughout the year including the management of the developing dentition. The framework specifies that FDs must demonstrate

the ability to restore primary teeth using appropriate restorative materials and full coverage techniques.¹ However, despite strong evidence supporting the use of SSCs for 'biologically' managing caries in paediatric patients,^{2,3} training practices are not required to facilitate FDs to deliver such treatment during DFT. Subsequently, we aim to identify and present the experience and self-reported confidence of a group of FDs in placing SSCs during undergraduate and foundation training (FT); and discuss the use of SSCs in the Hall technique.

Method

An anonymous, electronic voluntary survey was constructed using Google Forms and distributed to all FDs within the corresponding author's foundation training deanery, Thames Valley and Wessex. The survey comprised of eleven questions; four rating-scale and seven closed-ended questions, two of which were follow-up questions. Participants received the survey through a variety of social media

platforms and the deanery's mailing list. Reminder emails and messages were regularly sent throughout the survey period. We emphasised the voluntary, self-reporting and retrospective nature of the survey, thus meeting ethical approval. The survey was open to participants for a three-month period ending in March 2017. The data were collated and processed into pie and column charts using Google Docs and Microsoft Excel.

Results

Demographic

A total of 32 FDs participated in the survey, achieving a 58.1% response rate. Only three FDs responded from both the Portsmouth and Berkshire foundation training schemes.

Undergraduate training

All respondents had received teaching on SSCs and the Hall technique – the majority (87.5%) having a combination of lecture and practical-based teaching. Over 40% of respondents had

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placed between one to four SSCs, with a similar percentage (40.6%) having not placed a single SSC. Approximately 19% recorded five or above. Self-reported confidence in placing SSCs varied (Fig. 1A), however, the majority stated they were either 'not confident at all', 9.4%, or 'not very confident', at 46.9%.

Foundation training

Despite 34.4% of respondents having not received teaching on SSCs and/or the Hall technique during FT, self-reported confidence levels were equally distributed between the 'confident' categories and 'not confident' categories, (Fig. 1B). Interestingly, 78.1% of

FDs had not placed a SSC during foundation training (Fig. 1C), and the most common reason was that their dental practice did not stock SSCs (47.8%). Over 26% attributed the limited experience to a lack of confidence.

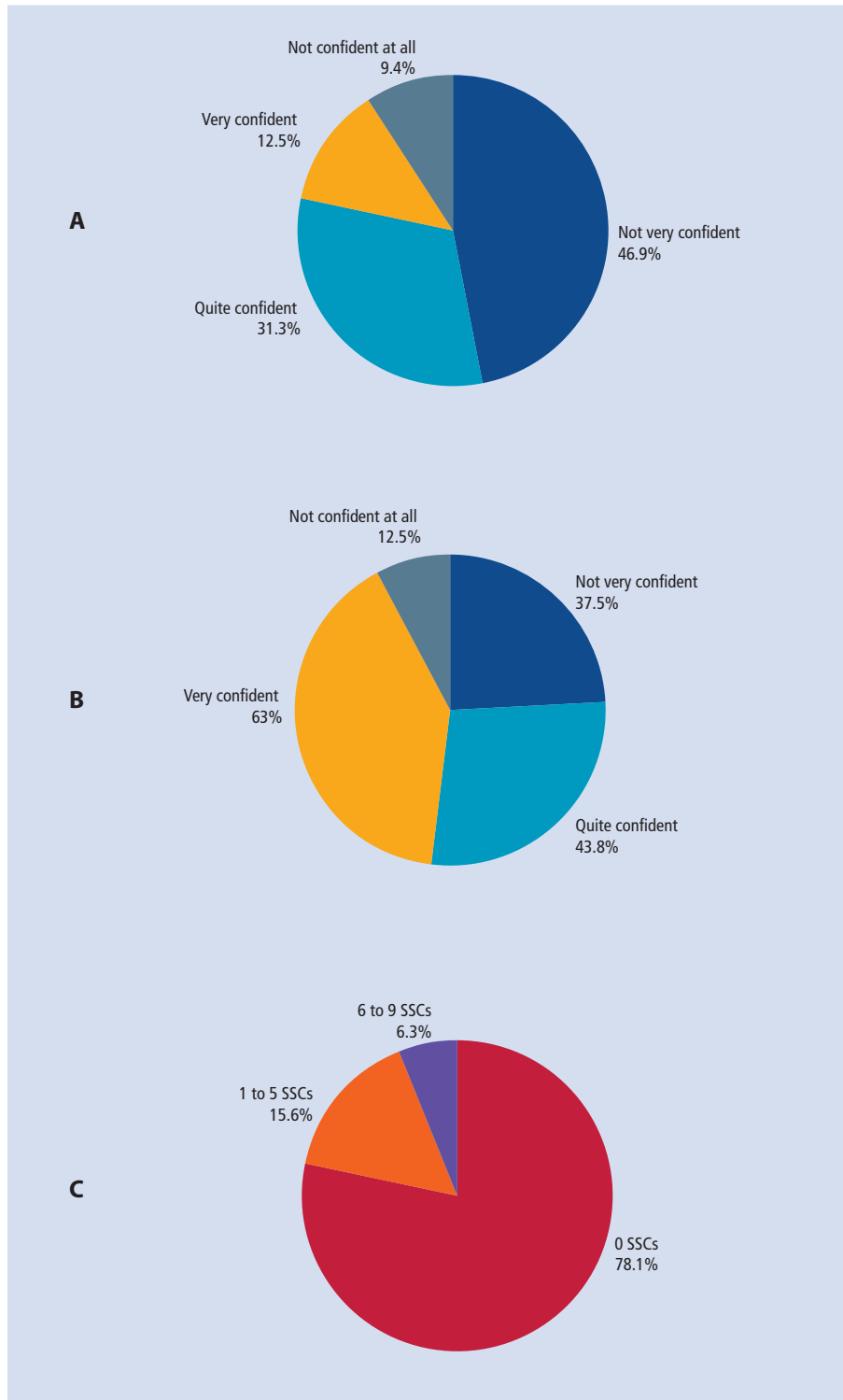
Discussion

Worldwide, the annual direct economic impact of dental disease has been estimated at \$298 billion. Indirect economic losses equate to approximately \$144 billion.⁴ NHS primary care services face a challenge to close the five-year projected funding gap of £30 billion. Additionally, within England, £3.4 billion is spent on primary and secondary dental services, with over one million patient contacts every week.⁵ Recent UK figures reveal that 31% of 5-year-olds and 46% of 8-year-olds suffer from dentine caries.⁶ Within this age group, dental caries is the most common reason for children requiring general anaesthetic, costing the taxpayer over £34 million, annually.⁷ The psychological morbidities associated with general anaesthesia have been well documented,⁸ and as described by Gazal and Mackie,⁹ both children and parents experience notable levels of distress. A recent study found adolescents who received general anaesthesia as children, were 2.5x more at risk of suffering from dental anxiety.¹⁰ The authors did not find a causal link between general anaesthesia and dental anxiety, however, the negative impact on attendance and the subsequent increase in dental disease has been established.¹¹

The Hall technique (HT) offers dental practitioners a minimally-invasive, pain-free and efficient method to treat carious primary molars. Compared with conventional primary molar crown preparations, the HT requires no local anaesthesia, no caries removal and no tooth preparation. First described in 2006 by Innes *et. al.*,¹² albeit novel to the dental community at the time, the HT had been practiced by Dr Norna Hall for over ten years. Using retrospective analysis of Dr Hall's clinical records, the authors found carious primary molars that were sealed using preformed metal crowns boasted survival rates of 80% over five years. Studies continue to support the clinical efficacy of the HT and its acceptance by both parents and children alike.^{2,13-15}

Furthermore, university tutors have noted an increase in confidence and the subsequent use of SSCs on undergraduate clinics.¹⁶ Ideally this enthusiasm should transfer across into general practice, however, our findings suggest otherwise; with 50% of FDs either 'not very

Fig. 1 A) Self-reported confidence in placing SSCs during undergraduate training; B) self-reported confidence in placing SSCs during DFT; C) number of SSCs placed during DFT



confident' or 'not confident at all' in placing SSCs. Additionally, with over 40% of FDs not having placed a single SSC during dental school, undergraduate curriculums should be appropriately scrutinised to identify why a significant number of students graduate with little to no experience. A greater emphasis should be placed upon minimally-invasive treatment modalities, such as the HT, as they have been shown to be cost-effective alternatives to conventional treatments.¹⁷ Of course, one must not overlook the potential for differences in undergraduate training between dental schools.

Of the respondents, 47.8% stated that their practice did not stock SSCs. One could speculate as to why there is reluctance by practice principals investing in SSCs. One reason may be related to NHS remuneration. The incentive for general dental practitioners to place SSCs ceased following NHS England's announcement that SSCs would change from Band 3 to Band 2 claims.¹⁸ Primary care practitioners were left at a crossroad, balancing what may have been within the patients' best interest and what was financially viable. Interestingly, however, a study by Taylor,¹⁹ found a positive uptake of SSCs within a practice following the FD's eagerness to implement the HT during his foundation training. Perhaps this highlights a lack of training among older practitioners, or even that they have become deskilled. More importantly, the long-term direct and indirect economic burden of treating preventable dental disease within secondary care should highlight the need for appropriate remuneration for placing preformed metal crowns within general dental practice.

Moreover, as our results suggest, limited experiences in placing SSCs can affect confidence; 26% of respondents attributed their 'limited experience' to a lack of self-reported confidence. If this trend is consistent among UK-graduate FDs, a whole cohort of young dental practitioners risk losing skills developed during undergraduate training. This calls into question whether the U.K. taxpayer truly sees long-term oral health benefits for subsidising dental education and training.

Since the introduction of 'direct access' by the GDC in May 2013,²⁰ there has been a greater emphasis on adopting a multidisciplinary approach in managing patients' oral health. Dental care professionals (DCPs) are able to execute a range of treatments including the placement of SSCs in paediatric patients. A recent study found there to be high patient and parental satisfaction with this treatment

modality when performed by Scottish dental hygiene and therapy vocational trainees.²¹ By expanding the role of the dental hygiene-therapist within general dental practice, dentists can re-allocate their clinical time to more complex procedures, while also offering a solution to the financial viability of placing SSCs within primary care.

There are some limitations to this study. The cohort of respondents represents only five DFT schemes within the UK. A nationwide survey may shed light on the true extent of the problem. Incorporating the survey questions as part of the DFT 'feedback interviews' may have also increased the response rate. However, efforts were made to minimise researcher bias. Additionally, the survey was distributed mid-way through DFT, so the FDs still had the opportunity to place a SSC during the remaining five-months. However, the majority of training practices did not stock SSCs at the time. Moreover, the perceived self-reported confidence in placing SSCs is subjective, and most-likely multi-factorial. Although a 'lack of experience' was attributed towards confidence levels for 28% of respondents, exploring this further may have identified confounding variables. Further research is required to identify the reasons for a lack of SSC provision within DF training practices.

Conclusions

Dental caries continues to burden the national health budget. With an ever-increasing squeeze on public finances, practitioners and public health bodies alike must direct their focus on promoting prevention and early intervention before patients enter a downward path towards dental extractions. The Hall technique equips the competent practitioner with an evidence-based efficacious treatment option to biologically manage primary molar caries. Adoption of this technique must not be limited to undergraduate training, but instead be promoted during foundation training and beyond. The authors recommend compulsory investment of stainless steel crowns by foundation training practices, and the inclusion of placing stainless steel crowns as a clinical requirement for satisfactory completion of the foundation year. Further research is required to determine whether our findings are limited to our group of FDs or, more likely, follow a nationwide trend among recent UK graduates.

Moreover, dental health authorities must see the Hall technique as an integral part of

the dental practitioner's armamentarium, and re-incentivise its implementation into NHS general dental practice; potentially reducing the life-long economic burden of dental disease and general anaesthesia for primary molar extractions.

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