

## IN BRIEF

- British Society of Paediatric Dentistry (BSPD) guidelines recommend that preformed stainless steel crowns should be the restoration of choice.
- Data from the Dental Practice Board demonstrate that across England and Wales GPs rarely provide this type of treatment.
- In this study, GPs practising in the North West of England explain their reasons for not routinely providing preformed crowns.

# General dental practitioners' views on the use of stainless steel crowns to restore primary molars

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**Aim** To ascertain general dental practitioners' views on the use of stainless steel (pre-formed metal) crowns to restore carious primary molars.

**Method** Ninety-three general dental practitioners were selected at random from those practising in Lancashire, Cheshire and Greater Manchester in 2003 and interviewed separately about the clinical care they provide to the primary dentition. Before the interview participants recorded the care they would provide for a case scenario, describing a child with a carious lesion that the British Society of Paediatric Dentistry (BSPD) guidelines indicate should be treated with a stainless steel crown.

**Results** In answering the case scenario only six (7%) of the dentists reported that they would fit a stainless steel crown. Of the 93 dentists interviewed 71% knew of the BSPD guidelines, but only 18% had ever fitted a stainless steel crown in general practice. Reasons given for not using stainless steel crowns were they are inappropriate for many children, time consuming to fit, difficult to manipulate, expensive, and ugly.

**Conclusion** The BSPD guidelines on the use of stainless steel crowns do not reflect the views of the majority of general dental practitioners who consider these crowns unsuitable for most children and an impractical restorative technique in busy daily practice.

## INTRODUCTION

The British Society of Paediatric Dentistry (BSPD) offers guidance to general dental practitioners (GDPs) about the care of the primary dentition in the form of guidelines and a policy statement.<sup>1,2</sup> These documents recommend approaches to the care of the primary dentition by reference to currently available evi-

dence and represent the 'majority view' of this specialist society. They state that stainless steel (pre-formed) crowns are the restoration of choice for primary molars with multi-surface lesions, extensive caries and those where pulpal treatment has been performed. Despite this clear policy statement on the care of the primary molar with extensive caries, data from the Dental Practice Board indicate that GDPs do not follow this advice. For example, for the year 2002, Dental Practice Board data reveal that in NHS general practice in England only 3,129 stainless steel crowns were fitted on primary teeth by GDPs although 25,370 vital and 59,512 non-vital pulpotomies had been undertaken on primary teeth.<sup>3</sup> In a recent opinion piece in the *British Dental Journal* the evidence base supporting the BSPD guidelines was also questioned, sparking an ongoing debate in the dental profession about the appropriateness of these guidelines.<sup>4</sup> This study records GDPs' views on the use of stainless steel crowns and investigates their reasons for not following BSPD advice to fit stainless steel crowns more frequently when treating severely decayed primary molars.

## METHOD

The study population was drawn from GDPs practising in Lancashire, Cheshire and Greater Manchester in 2003. Dentists were selected at random from the General Dental Council's register and sent a letter inviting them to participate. This process continued until approximately 100 GDPs had agreed to participate. The dentists were selected at random to avoid any bias associated with a convenience sample and all the dentists who replied and wanted to participate were entered into the study and interviewed. In this way the research team had no influence on the dentists to be included in the study. The sample was not determined by statistical considerations but did aim to be sufficiently large and varied to capture the full range of views and opinions of GDPs working within the region. Each participant was interviewed separately by one of three trained interviewers who were not dentists. The interviews took place in the dentist's homes or places of work and each dentist was encouraged to speak freely about the care they provide to the primary dentition by one of three trained interviewers. The interviews were semi-structured around a set of themes that were agreed following

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group work with a panel of experienced GDPs and specialists in paediatric dentistry. As part of each interview the following quote taken from the BSPD guidelines was read to each participant: 'Stainless steel crowns are widely recognised as the most effective and durable restoration for primary molars. They are the restoration of choice for primary molars with multi-surface lesions, extensive caries and those where pulpal treatment has been performed'. Each dentist was asked if they had heard of this guidance and to comment. All interviews were tape recorded, numbered for anonymity, and transcribed verbatim. Two members of the study team reviewed all transcripts independently. Data concerning stainless steel crowns were analysed using a data matrix and the frequency of different responses in GDPs that routinely, infrequently or never use stainless steel crowns was recorded. In addition four other team members read a 30 percent sample of transcripts. At a group meeting team members presented their interpretation of these data, which were then discussed and the key findings agreed.

In advance of the interview each participant was asked to complete a data collection form describing the care they would provide if they were seeing a child for the first time in each of six hypothetical case scenarios, in which the severity of dental caries was different. The answers to the case scenarios were collected at the interview, coded, and entered into a computer database. Here we report the answers to case scenario two in which the dentists were asked how they would care for a six-year-old boy, with no recent history of pain, who calmly sat in the dental chair, but had a DO cavity in a lower left first primary molar which had lost more than half the marginal ridge. This scenario was chosen because the BSPD guidelines would encourage the use of a stainless steel crown and pulp treatment when treating this child. The responses to the other case scenarios will be the subject of future submissions for publication.

## RESULTS

In total 311 dentists were invited at random to participate of which 96 initially agreed to participate; two dentists later withdrew from the study due to time constraints in practice and one dentist withdrew because of illness. The year of qualification and gender of the 93 GDPs who were interviewed is shown in Table 1. Of the 93 GDPs interviewed, three (3%) reported that they routinely use, 14 (15%) reported that they infrequently use, and 76 (82%) reported that they never use stainless steel crowns to restore primary molars in practice. When asked 66 (71%) of the GDPs had heard of the BSPD guidelines on the use of stainless steel crowns. Eleven (17%) of the dentists that had heard of the BSPD guidelines had used a stainless steel crown in practice; these included the three dentists that routinely use stainless steel and eight of the dentists that infrequently use stainless steel crowns.

**Table 1** The gender and year of qualification as a dentist of the 93 general dental practitioners interviewed

Year of qualification	Males	Females
1967-1974	8	0
1975-1984	25	8
1985-1994	24	10
1995-2002	13	5

The answers to case scenario two were collected from 90 (97%) of the dentists; only six (7%) would fit a stainless steel crown to treat the carious first primary molar, 79 (88%) would restore the tooth, with the majority using glass ionomer as the filling material, two (2%) would extract the tooth, and three (3%) would give diet advice and fluoride supplements, but leave the tooth un-restored.

Of the 76 dentists reporting that they did not use stainless steel

crowns, many accepted that stainless steel crowns were an effective and durable restoration for primary molars, but had reservations about their use in practice. Dentist 365, a recent female graduate noted: 'It's probably a good thing to do, but it's just putting it into practice when a child is not being cooperative' and dentist 31, a male dentist with 17 years experience stated: '...academically it might be correct but number one they are a pig to do, they are always flying off and I can't say it is the treatment of choice because I don't do them. So obviously I disagree with that statement. I think it's old fashioned; glass ionomers are the treatment of choice now.'

The most common reasons cited for not using stainless steel crowns in practice were their cost, time to fit, and patient cooperation. Many of the dentists that did not fit stainless steel crowns believed that a child would find it difficult to tolerate the procedure. Dentist 1150, a male dentist with over 20 years experience said: 'It's a lot for a child, it's a big procedure' and dentist 1612, a female dentist with 18 years experience reported: '...doing the work would be very difficult because it's a long job. The child would have to have an injection, a lot of time in the chair, a lot of drilling, and I don't think they would cooperate.' Another reason given by these dentists was that parents did not like the look of stainless steel crowns. Dentist 2112, a male dentist with over 30 years experience said: '...parents hate them because they are metal. They don't like their kids with big metal pieces in their mouths.' Some of these dentists that did not fit stainless steel crowns believed that they were unnecessarily complicated for the primary dentition. Dentist 1694, a male dentist with 18 years experience stated: 'In my opinion multiple stainless steel crowns on multiple d's and e's is over-elaborate in a patient of that age.' and dentist 431, a male dentist with 19 years experience stated: '...to put children through procedures that are not necessary, then that seems daft to me.'

The three dentists that routinely fit stainless steel crowns felt that they were the best long term restoration for deciduous molars but acknowledged that the children must be cooperative, that fitting them took a long time, and that some parents did not like the look of them. Dentist 1491, a male dentist with 19 years experience said: 'It depends on the cooperation of the child and certainly now if a child has just one tooth that needs to be done and he's cooperative then I would do it. But if they have got two or three teeth then I just can't, I haven't got time' and dentist 2213, a female dentist with 16 years experience stated: 'Some parents have complained because they are not white and they don't like the look of them, but when you explain all the advantages, they are usually ok about it.'

Dentists that infrequently fitted stainless steel crowns also cited patient cooperation, the cost, time taken to fit crowns, and parents' dislike of their appearance as reasons for not using stainless steel crowns more frequently. Dentist 576, a male dentist with 14 years experience said: 'In a general practice time is very critical, and if you know that you have a few patients waiting in the waiting room, then probably you will do whatever is quickest'; dentist 762, a male dentist with over 20 years experience stated: 'I fit very few, mainly because the cost of the crown for me to buy is almost as much as the fee I get from the health service for them' and dentist 333, a female dentist with 19 years experience noted: '...parents aren't brilliantly happy about great big silver crowns on their children's teeth'.

Most of the GDPs were asked if there was anything that would make them more likely to increase their use of stainless steel crowns. Some believed that increasing the fee would make them and other dentists more likely to fit stainless steel crowns. Dentist 2529, a male dentist with over 20 years experience said: 'If the fee scale was adjusted then I and many other dentists would look at it differently' and dentist 1403, a male dentist with 20 years experience stated: 'If the government wanted you to do them, they should increase the prices for them and I can guarantee you that more dentists would do them'. However, many of the dentists believed that

increasing the fee would still not persuade them to start using stainless steel crowns. Dentist 1772, a male dentist with 18 years experience said: *'If it were priced to a reasonable level I still wouldn't do them because I don't see why we have to do something that is so long lasting on a tooth which, in most cases only lasts a couple of years. Seems very over-kill'* and dentist 1084, a male dentist with over 20 years experience stated: *'If you paid me 50 quid to do it, I don't think I would do it'*. A small number of dentists believed that a lack of appropriate training was an issue. Dentist 367, a male dentist with four years experience said: *'If someone spent a day with you telling you this is how you do it, this is how easy it is, I would without a doubt'*; dentist 1323, a male dentist with five years experience reported: *'I'd want to be trained to do one properly'* and dentist 879, a female dentist with 16 years experience stated: *'I suppose if I went on a course and was trained to use them again, so that I felt comfortable using them, then yes.'*

Many of the dentists indicated that the guidance read out to them was not realistic for daily practice and some were scathing about the authors. Dentist 392, a female dentist with over 20 years experience said: *'I think people that write these recommendations, they are never actually on the work face. I think really they are on another planet. I don't think they are in touch'*; dentist 645, a male dentist with 12 years experience said: *'... I have problems with statements that come out of these bodies. I think that some of the people that are used to research are not in touch with reality ie general practice ... I don't think that some of the guidance they give is to the best interest of the patient. Some of the guidance is a little misguided...'* and dentist 1900, a male dentist with over 20 years experience said: *'You can shred it! The BSPD, very few of them work in dental practice, they all work in hospitals and it doesn't work like that in practice.'*

## DISCUSSION

In keeping with national data, very few dentists in this cross-section of GDPs reported routinely using stainless steel crowns in their daily practice. When presented with a hypothetical case scenario describing a patient that was suitable for the placement of a stainless steel crown, only 7% reported that they would offer this treatment. It is clear that for the majority of this sample of GDPs, stainless steel crowns are not the treatment of choice when presented with the restoration of an extensively carious primary molar, despite the guidance issued by the BSPD in 1999<sup>1</sup> and reiterated in a policy document in 2001<sup>2</sup> recommending their more widespread use.

Most of the GDPs (71%) had heard of BSPD guidelines but this knowledge had little or no impact on clinical practice. Only 17% of the GDPs that had heard of the guidelines had used a stainless steel crown to restore a primary molar in general practice. This begs the question, why were the majority of the GDPs ignoring these clinical guidelines? One explanation could be that they did not believe the scientific evidence supporting the guidelines, but in this study the evidence base was not raised as a reason for not following the guidelines. Most of the dentists either did not mention or did not question the evidence base, accepting that stainless steel crowns are the most durable restoration for primary molars. The GDPs did however give personal and practical reasons for not fitting stainless steel crowns; many believed they were unnecessarily durable for the primary dentition, not cosmetically acceptable to the child or the parent, and that young patients could not tolerate the

procedure. In addition many felt that fitting stainless steel crowns was bad use of their time, as they took too long to fit and were impractical in a busy practice. Also, organisational barriers were given as reasons for not fitting stainless steel crowns; some GDPs felt they had not received sufficient training while others believed the fee structure to be inadequate. Ultimately the majority of the dentists believed that their traditional response of filling extensively decayed primary molars with glass ionomer was quicker, clinically acceptable, and more tolerable to their patients.

Clinical guidelines will not be followed if those for whom they are intended do not share their values and beliefs.<sup>5</sup> The BSPD guidance to fit stainless steel crowns considers the treatment of dental caries rather than the treatment of individual children. It is based on the view that the most durable restoration is the best restoration for the care of the primary molar with extensive caries and makes no allowance for patient differences. In contrast the GDPs for whom the guidance is written considered the child as an individual rather than a clinical task. None of the respondents believed that stainless steel crowns were correct for all children; the majority reported that the child's cooperation was important in determining if extensive treatment could be offered and many believed that fitting stainless steel crowns is too arduous a procedure for anxious children.

The perception of the specialist organisation will also influence the uptake of guidance.<sup>6</sup> Some of the GDPs felt that the BSPD guidelines were out of touch with the realities of daily general dental practice and that the guidance was therefore inappropriate. The perception was that BSPD guidelines were written by a group of hospital specialists who were unaccustomed with the time pressures encountered in a busy general practice.

The BSPD guidelines on the use of stainless steel crowns have largely been ignored because they do not reflect the views of the majority of GDPs – who consider stainless steel crowns unsuitable for most children and an impractical restorative technique in busy daily practice. The overriding purpose of clinical guidelines is to improve the quality of care for patients, and for general practitioners guidelines need to be practical and applicable to individual patients seen in daily practice.<sup>7</sup> In dentistry there is a need for generalists and specialists to work together to produce guidelines based on strong evidence, that take into consideration patient variation, and the realities of general dental practice. If guidelines could be produced with this joint ownership then perhaps the majority of GDPs would feel inclined to follow them.

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