Treatment policies among Israeli specialists in paediatric dentistry

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Abstract. Aim This was to evaluate some suggested diagnostic procedures, treatment policies and professional attitudes of specialists in paediatric dentistry, in light of the periodically published guidelines by The American Academy of Pediatric Dentistry, The European Academy of Paediatric Dentistry and The British Society of Paediatric Dentistry. Methods Using a structured questionnaire, 67% of the Israeli specialists in paediatric dentistry, who agreed to participate in this study, were personally interviewed. Results Only 7.5% of the participants reported that they carry out pulp capping of primary teeth in cases of pulp exposure. Over 50% reported restoring teeth after pulpotomy with preformed crowns. Most indicated sealing pit and fissure with amalgam after considering depth and morphology of the fissures and correlation with the patient’s risk to caries. Cleaning teeth after eruption of the first tooth was suggested by 75.5% of the participants. A striking majority (96%) claimed that they restored permanent anterior teeth with composite resins and most used these materials for occlusal restoration in both primary and permanent posterior teeth. Most specialists advocated the use of amalgam in proximal posterior restorations. The presence of a parent in the operatory/surgery was preferred by 85% of the dentists. Conclusions Israeli specialists in paediatric dentistry mostly comply with the mentioned guidelines. Further studies of this nature should also be encouraged in other countries to emphasize the importance of monitoring compliance with established and evidence based guidelines.

Keywords: Treatment policies, Professional attitudes, Professional conduct.

Introduction

The American Academy of Pediatric Dentistry (AAPD) [Reference Manuals, 1999-2000], the European Academy of Paediatric Dentistry (EAPD) [Espelid et al., 2003; Welbury et al., 2004] and the British Society of Paediatric Dentistry (BSPD) [Nunn et al., 2000] periodically publish guidelines for treatment policies and professional attitudes. These cover strategies, standards and treatment modalities, as well as suggested diagnostic procedures to assess growth and development, dental, periodontal and oral pathology, and general behavioural or mental conditions. The guidelines also specify acceptable preventive and treatment modalities, using advanced evidence based methods and materials. While assuming that specialists in paediatric dentistry (SPD) worldwide are familiar with, and mostly implement these guidelines, to the best of our knowledge the extent of this implementation has not been challenged or investigated. That is, it is questionable whether standards and treatment policies among SPD reflect guidelines that professional bodies suggest. Additionally, these standards may also have a legal aspect in cases of litigation against SPD, who are expected to act within and according to these frameworks. This is particularly important in an era of evidence based dentistry.

Differences among SPD may be the result of either personal preferences or diverse backgrounds in education. In 1977, the Israeli Ministry of Health established regulations for specialization in nine fields of dentistry, including paediatric dentistry. For a limited time, dentists who had fulfilled certain criteria, such as evidence of experience in a specific field and participation in official and unofficial courses in that field, were granted a specialty license as part of a “grandfather” clause. Dentists who have successfully completed approved graduate courses in different countries, or attend accredited graduate programs in Israel, have to pass examinations given by the Scientific Committee of the Israeli Dental
Association to be certified as specialists by the Ministry of Health. Israel is a country of immigrants from diverse countries and cultures, with significant differences in perception, knowledge, attitudes and treatment standards among the dentists. In the year 2000, out of 7,926 dental practitioners in Israel, 79 (1%) were registered specialists in paediatric dentistry. Of the total population of approximately 6,289,200, there were 2,237,800 children and adolescents up to the age of 18 years old [Central Bureau of Statistics of Israel, 2000].

The purpose of this study was to examine the treatment policies among Israeli specialists in paediatric dentistry and to evaluate some relevant parameters in the light of established guidelines and accepted standards.

**Materials and methods**

A structured questionnaire consisting of professional and personal background questions was prepared for personal interviews with the specialists. It was validated by interviewing 15 SPD, who were later interviewed again after refining the questions. Of the 79 SPD in Israel, 53 agreed to participate in the study. Of the 53 participants, 36 obtained their professional studies in Israel, 11 were trained in North America, 4 in Western Europe and 2 elsewhere. One author (SS) subsequently interviewed 47 participants personally and the remaining 6 were interviewed by telephone.

A detailed questionnaire containing professional questions included subjects on pulp treatment of primary teeth and their restoration, pit and fissure sealants, oral hygiene measures, choice of restorative materials, diverse treatment policies of the SPD, such as referral of patients to specialists in other fields, and presence of parents in the operatory/surgery and dentists appearance.

**Results**

Participants’ background. There were 27 males and 26 females. Ages ranged from 34-75 years (mean 50.4 SD±11.6; median 48) (Table 1). Figure 1 presents the distribution of the professional experience of the participants. Most worked in private offices. One half (n=27) has been associated with academic institutions, partially or full-time, 15 were not associated with any institution, and 11 served in community dental services.

**Reported use of various techniques.** Pulp treatment of primary teeth and their restoration. Pulpotomy was the treatment of choice by 49/53 (92%) of the dentists when faced with minor pulp exposure during caries removal in a primary molar tooth of an 8-year-old

![Fig. 1 - Distribution of years of professional experience by participating Israeli specialists in paediatric dentistry in a survey of clinical practice.](image)

<table>
<thead>
<tr>
<th>Types of specialists in paediatric dentistry</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Age range (years)</th>
<th>Mean age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official graduation programs</td>
<td>13</td>
<td>19</td>
<td>32</td>
<td>34-55</td>
<td>42.3</td>
</tr>
<tr>
<td>Grandfather’s clause</td>
<td>14</td>
<td>7</td>
<td>21</td>
<td>48-75</td>
<td>61.8</td>
</tr>
<tr>
<td>All participants</td>
<td>27</td>
<td>26</td>
<td>53</td>
<td>34-75</td>
<td>50.4</td>
</tr>
</tbody>
</table>

**Table 1 - Personal and professional backgrounds of the participating Israeli specialists in paediatric dentistry in a survey of clinical practice.**

54.7% of the participants were under 50 years old.
child. Direct pulp treatment was reported by 4 dentists. Formocresol was the medicament of choice for pulpotomy in primary teeth by 28/53 (53%), while 25/53 (47%) would use a different medicament, such as paraformaldehyde, calcium hydroxide, ferric sulphate, or an individually prepared mixture.

A preformed metal crown was the preferred restoration in over 50% of those who suggested pulpotomy as the treatment of choice for the patient. Use of amalgam or a composite restoration was reported in less than 10%. One third reported that they would choose the type of restoration according to the residual tooth crown and the expected duration until exfoliation.

**Pit and fissure sealant.** Only two of the participants reported that they routinely seal primary molars and 16/53 (30%) permanent teeth. The remainder claimed that they considered sealing primarily according to depth and morphology of the pit and fissures (81% and 74% for primary and permanent teeth, respectively) and/or the caries risk group of the child (28% for both primary and permanent teeth) (Table 2). While all SPD perform pit and fissure sealants in permanent teeth, Only 4 (7.5%) of them claimed that they do not seal primary teeth.

**Oral hygiene measures.** All participants recommended the use of small amounts of fluoridated dentifrices according to a child’s age. Most 40/53 (75.5%) suggested cleaning the teeth as soon as the first tooth erupted; the remainder recommended cleaning at least by the age of 2 years. In the dental office, 10 out of the 53 respondents (18.9%) reported using disclosing solution during instruction of oral hygiene maintenance. The child’s personal toothbrush was used by 36/53 (68%) of the participants to instruct tooth cleaning, while 17/53 (32%) reported providing a new brush to the child. A demonstration model was used by 20 (38%) of the participants. Referral of children to dental hygienists was reported by 16/53 (30%) and the same number instructed the parents in maintaining the oral hygiene of their children.

**Choice of restorative materials.** The commonest material used for anterior teeth was composite resin by 44/53 (83%) for primary teeth and 51/53 (96%) for permanent teeth. Compomers were used only by 9 (17%) and 2 (3.8%) respondents respectively. Distribution of the reported restorative materials used by the SPD in posterior primary and permanent teeth is presented in Table 3.

**Composite resins were the materials of choice for anterior restorations and occlusal posterior primary and permanent teeth. For proximal restorations in posterior teeth, amalgam still prevailed as the material of choice to restore both primary and permanent dentitions.**

**Diverse treatment policies of the SPD.** Root canal treatment in permanent teeth was routinely referred to a specialist in endodontology by 32/53 (60%) of the SPD. Impacted teeth were routinely referred to a specialist in oral surgery by 45/53 (85%) of the SPD. Additionally, 43 (81%) reported that they would perform minor tooth movement and interceptive orthodontics as part of their routine treatment.

**Presence of parents in the surgery/operatory and the dentist’s dress.** The presence of a parent in the dental office during the first visit of the child was advocated by nearly all, 51/53 (96%), by 45 (85%) during any recall visit, and by 40 (76%) at any visit. More than half (58%) of the SPD reported not wearing a traditional gown during treatment. A

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**TABLE 2 - Percentage of Israeli specialists in paediatric dentistry who are guided by the following criteria for performance of pit and fissure sealants in primary and permanent teeth.**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>For primary teeth*</th>
<th>For permanent teeth*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth of pit and fissures</td>
<td>81.1</td>
<td>73.6</td>
</tr>
<tr>
<td>Caries risk group</td>
<td>28.3</td>
<td>28.3</td>
</tr>
<tr>
<td>Routinely</td>
<td>3.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Time elapsed since tooth eruption</td>
<td>15.1</td>
<td>18.9</td>
</tr>
<tr>
<td>Pigmentation in the pits and fissures</td>
<td>9.4</td>
<td>3.8</td>
</tr>
<tr>
<td>Child cooperation</td>
<td>5.7</td>
<td>1.9</td>
</tr>
</tbody>
</table>

*More than one criterion is possible*
A decorated substitute dress is used by 12/53 (23%). Only 10 (19%) said they wore the traditional white coat.

**Discussion**

Decisions, personal conducts and attitudes are not necessarily homogeneous among practicing professionals. A reasonable range of professional performances is expected of each caregiver and paediatric dentists are not different in this regard.

Clinical guidelines and manuals are compiled with reference to evidence based scientific literature. These guidelines and manuals are significant in providing suggestions and setting boundaries for the practicing dentist to operate and be regarded as a rational and suitable practitioner.

Specialists are considered leaders and guides in establishing professional standards in specific dental fields. However, due to personal variations, they deviate from accepted norms as expressed in the guidelines and reference manuals. The present study evaluated the treatment policies among specialists in paediatric dentistry in Israel.

Most participants work in private offices. Nevertheless, half are completely or partially involved with academic institutions, which indicates that they tend to be involved with the scientific and professional aspects of their specialty. Diverse professional conduct was naturally observed, probably due to differences in age, professional backgrounds and personal characteristics.

Compliance of general dental practitioners (GDP) with published guidelines was examined through questionnaires. Knowledge, attitudes, diagnostic methods, prevention and restoration approaches, timing of recall appointments, and radiographic examinations relating to the patient's risk factors show mostly traditional approaches [Swan and Lewis, 1993a,b; Lewis and Main, 1996; Rushton et al., 1996; Main et al., 1997].

Dental problems can be solved by various approaches. Therefore, it was not the intention of this study to determine the “right” approach for a specific dental problem among SPD, but to delineate the spectrum of commonly used treatment methods and to compare, when possible, with the accepted professional guidelines.

In this study, participants were interviewed by a non-paediatric dentist to ensure anonymity. This probably improved the response (67%) of the SPD in Israel. Participants (n=47) who were interviewed in person could elaborate and clear misinterpretation of questions with the interviewer. However, the response rate in this study did not exceed those of mailed questionnaires in other countries [Swan and Lewis, 1993a,b; Tan and Burke, 1997; Carr et al., 1999]. A personal meeting with each participant, although expensive and time consuming, could improve the clarity of the questions. Participants receive an explanation letter in mailed surveys, whereas in a personal interview, vague questions can be explained, elaborated, and clarified by the interviewer.

**Reported use of various techniques.** Pulp treatment of primary teeth and their restoration. A significant amount of success can be expected in direct pulp capping of primary teeth [Kopel, 1992]. Nevertheless, only 7.5% reported that they perform this conservative procedure in pulp exposure of a primary tooth. Most preferred more invasive techniques.

In pulpotomies of primary teeth, formocresol was used by SPD more than any other method. The AAPD and BSPD guidelines [AAPD Reference Manuals,
Participants used a disclosing solution and the child’s personal toothbrush or provided a new toothbrush during oral hygiene instructions, while others used the services of a dental hygienist to prevent oral diseases. These findings intuitively indicate diverse approaches towards oral hygiene education and maintenance.

**Choice of restorative materials.** In modern dentistry, aesthetic dental restorations are becoming more popular. The AAPD indications for the use of composite resins and glass ionomer cements are related to anterior and posterior restorations of primary and permanent teeth with no discrimination or specifying different types of size, location and caries risk group of the patient. The indications for the use of amalgam are related to (posterior) primary and permanent teeth [AAPD Reference Manuals, 2002-2003]. As expected, most of the participating SPD preferred to restore anterior teeth with composite resins, whereas compositers were used for primary anterior teeth. For permanent anterior teeth, nearly all preferred to use composite resins, because of aesthetics, durability and refraining from removal of unnecessary healthy tooth structure. In posterior occlusal restorations, composite resins were also the restoration of choice both in primary and permanent dentitions. These findings reflect the growing tendency to extensively use composite resins, especially in posterior occlusal restorations, mainly in primary teeth, where a shorter existence is expected. In the present study, the material of choice for proximal restorations in primary and permanent teeth was still amalgam. This preference is based on long-term and evidenced experience of using amalgam, whereas composite resin proximal restorations, with the use of adhesive systems, are perceived as technique sensitive, requiring longer operative time and meticulous maintenance.

The negative stigma towards composite materials for tooth restoration was common among some dentists until the late 1990s. Since then, their physical properties justified their use in posterior proximal restorations [Christensen, 1998]. In a survey, Mjor et al. [1999] found in Norway that out of 24,000 restorations, 40% were composites and 32% amalgams. However, amalgam was still the preferred material for posterior Class II restorations with two or more surfaces, which is consistent in the present study for both primary and permanent teeth. In Britain, Burke et al. [1999] found 54% amalgams and 30% composites in a survey of 9,031 restorations. Among GDP who were treating
children. Roshan et al. [2003] found a decline in preference of using amalgam from 80% to 35%, between 1986-1996, in favour of glass ionomer cements. It is important to note that there was a definite distinction between primary and permanent teeth in the present study, unlike the other studies.

Presence of parents in the operatory room. It has been recommended that the child be separated from the parents during treatment sessions [Johnsen, 1988]. It is doubtful whether this approach is now suitable, where parents are more aware and involved. Guidelines for this particular conduct do not exist and obviously there is no consensus. In a study of attitudes of paediatric dentists toward parental accompaniment and behavioural management techniques in the UK, 80% support parents being present in the room during treatment [Crossley and Joshi, 2002]. A slightly higher trend was also found in the present study. The change in attitude of the parents’ presence in the operatory may be primarily explained by the growing awareness of the legal considerations, the need for informed consent, and updating the medical and dental history.

Assuming that the answers to the questions reflected the true picture of the treatment policies and the personal conduct of the participants and not just the “desired right” answers, the results of this study are encouraging and should encourage further studies of this nature also in other countries. Updated and evidence based guidelines for paediatric dentists are published routinely and randomly and should be well-known by all practitioners who treat children. The authors suggest that studies should be conducted to continuously monitor the compliance of SPD with established and updated guidelines. This could contribute to accepted, proven and evidence based standards and minimize professional gaps.

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References


