Oral health knowledge of Plunket nurses in New Zealand: evaluation of an oral health module

BERNADETTE K DRUMMOND, HELEN M CLARKE, ANGELA M MAXWELL-McRAE, PRIYANGIKA P KONTHASINGHE, and W MURRAY THOMSON.

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SUMMARY

For many families in New Zealand, the first oral-health advice sought is from the Plunket nurse who provides well-baby care and support for their families. The oral-health knowledge of the nurses and the advice they give has not been evaluated previously. This study compared the knowledge and practices of Plunket nurses who had completed the oral-health module programme, introduced in the early 1990s, with those who had not completed it. A questionnaire was designed to assess knowledge on oral-health issues, to examine the information the nurses were giving their clients, and the mouth-examination practices. It also asked what were the most common oral-health-related questions the nurses were being asked by their clients and what they perceived were the barriers to their patients accessing oral health services.

Three hundred and eighty-five questionnaires were distributed via the regional managers and 202 were returned. Thirty-four percent of the nurses had completed the oral-health module, mostly those who had been practising 5 years or less. Compared with those who had not completed the module, a significantly higher proportion of respondents who had completed it gave appropriate advice on medical problems and teeth and on tooth-cleaning practices. There were no other significant differences between the groups.

The questions most frequently asked by clients were about tooth cleaning, teething, accidents, abnormal teeth, fluoride use, or when to enrol their child with the dental therapist. The most often cited barriers to accessing oral-health services were difficulties in accessing the dental therapist, parents' lack of awareness of the service, transport difficulties, and the parents' lack of knowledge or motivation. The findings of the study support the important role the Royal New Zealand Plunket Society is playing in promoting child oral health and in helping their clients access oral health care. Plunket nurses should be further encouraged and supported by School Dental Services and dentists in local communities.

Plunket nurses are registered nurses with post-registration training in child and maternal health. Their role is to support the health and well-being of families and whanau and their young children. The services include home visits, clinic visits, parent education, community support programmes and advocacy. They have the aim of providing an integrated package of care and support that enables families to meet their own health needs by working in cooperation with other health providers and community support services.

In most districts, informal liaison exists between dentists and dental therapists and Plunket nurses. Since the early 1990s, a specific oral-health module has been included in the training programme. Oral health is an important aspect of well-baby care. Plunket nurses may be the first contact for parents seeking oral-health advice – historically, children have not usually seen a dental therapist until they were aged 2.5 years. Recent evidence has suggested that the oral health of young children has been declining, particularly in communities that are socio-economically disadvantaged. In these communities, primary health-care workers can play an important role in promoting awareness of oral health among parents with young children. Appropriate education for these health-care workers is important to ensure that they can give appropriate advice and facilitate oral health promotion and access to care in their communities.

The critical period for determining child oral health is during early infancy, when poor diet or oral-health habits can be devastating for newly erupting primary teeth. In 1992, RNZPS commissioned the University of Otago's Department of Community Dental Health to develop a training module encompassing current information on oral health and the prevention of oral disease for the training course for Plunket nurses. The primary objective of the module is to provide nurses with the information to give accurate and relevant child oral-health information to parents. The effectiveness of the module had not previously been evaluated. Ever-increasing pressure on health-care resources, and increasingly crowded curricula for training, mean that systematic evaluation of such interventions is a key activity. The aim of this study was to evaluate the impact of the Plunket oral-health module (5 years after its introduction) by conducting a survey of oral-health knowledge among Plunket nurses throughout New Zealand.

METHODS

A questionnaire was developed to explore knowledge of oral health and related issues among Plunket nurses. Copies were sent to the Northern, Midland, Central, and Southern Regional Plunket Managers, asking that one be forwarded to every Plunket nurse currently practising in New Zealand. A total of 385 questionnaires (and stamped, self-addressed envelopes) were distributed in this fashion. Ethical approval
for the study was granted by the National Ethics Committee of the RNZPS. The nurses’ involvement in the study was voluntary; confidentiality was ensured by using Regional Managers as intermediaries, and using unique identification numbers at the analysis stage.

The questionnaire was designed to assess the nurses’ knowledge of oral-health issues and to seek information on the nature of the oral-health advice they were giving to clients, and the conduct and timing of oral examinations. It also sought information on the most common questions asked by the nurses’ clients about oral health. Nurses were asked to note what they perceived were barriers to their clients accessing oral-health services. Open questions predominated, allowing respondents to respond in their own words. At the analysis stage, the reported oral advice was assessed as being either ‘appropriate’ or ‘not appropriate’, based on current oral-health knowledge and practices. The data were analysed using the Statistical Package for the Social Sciences (SPSS). Chi-square tests were used to determine statistical significance, and the alpha level was set at 0.05.

**RESULTS**

Two hundred and two of the 385 issued questionnaires were returned, giving an overall response rate of 52.5 percent. In the Midland and Auckland regions 63 percent of the nurses responded, but only 42 and 43 percent responded in the Central and Southern regions respectively. The distribution of respondents across the four regions is presented in Table 1, together with information on their length of experience as Plunket nurses. The greatest number of respondents was from the Northern region. One-third of all respondents had 5 or fewer years experience as Plunket nurses, and over one-fifth had been practising for over 15 years. Overall, 69 respondents (34.2 percent) had completed the oral health module, with 35.3, 23.5, 25.0 and 16.2 percent having done so in the Northern, Midland, Central, and Southern regions respectively. Of those who had completed the module, almost two-thirds had less than 5 years experience as Plunket nurses. Only 16 percent of those practising more than 10 years reported having completed the module.

<table>
<thead>
<tr>
<th>TABLE 1 – Number of respondents by region, completion of module, and years in practice (percentages in brackets)*.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Northern</td>
</tr>
<tr>
<td>Midland</td>
</tr>
<tr>
<td>Central</td>
</tr>
<tr>
<td>Southern</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Completed module†</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 (65.2)</td>
<td>42 (32.1)</td>
<td>20 (14.3)</td>
</tr>
</tbody>
</table>

*Data missing for two respondents
†P<0.01

Data on the appropriateness of advice to parents are presented in Table 2. A significantly higher proportion of respondents who had completed the training module gave appropriate advice on medical problems and teeth, and on tooth cleaning, but there were no other significant differences between the two groups. The two groups did not differ in their reported examination practices for children’s teeth; 79 percent routinely inspected a baby’s mouth during an examination, and only 7 percent reported that they never looked in the mouth.

The most common oral health questions asked by the nurses’ clients related to tooth cleaning (53 percent), managing teething (48 percent), advice about accidents or abnormal teeth (25 percent), using fluoride (21 percent), and when to enrol in the School Dental Service (18 percent). The most frequently cited barriers to clients accessing oral-health services included: difficulty in accessing the school dental clinic (unable to find a dental therapist because the therapist was working in another school), parents’ lack of awareness of the School Dental Service, cost of care for parents, lack of parent knowledge or motivation, and transport difficulties. Some nurses also noted financial barriers such as some families not able to afford the transport costs to access dental care, even though the care itself was free.

**DISCUSSION**

The survey response rate was relatively low by modern standards, and this may have been due to the questionnaire method. It had been agreed with RNZPS that the questionnaire distribution would be at the discretion of the Regional Managers, who had been asked beforehand for details on the numbers of nurses in their regions. All responded with the numbers of nurses, but it is not known if all nurses in each region did in fact receive questionnaires. Participation was entirely voluntary, and it is possible some nurses did not consider the information being asked was that important to their area of practice. In addition, only one contact was made with potential respondents, and no incentive was used to try and maximise the response rate.

The findings indicate that the majority of Plunket nurses surveyed have very appropriate and up-to-date knowledge of oral-health issues. This is reassuring, because the nurses are often in a position to give oral-health advice and information to the parents of very young children who have not yet accessed the School Dental Service. In general, the advice being given was mostly appropriate, irrespective of whether the oral-health module had been completed or not. This suggests that this group of health providers is accessing up-to-date information about oral health, whether through the module, their own study efforts, or by contact with oral-health care workers in the community. It may also be that experience played a significant role in the replies given. For those nurses in practice for 5 years or more, the years of experience may have allowed them to gain a wide knowledge of the oral-health issues asked about.

The primary aim of this study was to evaluate the impact of the oral-health module that had been developed for the Plunket training programme. There were differences observed between those who had and had not completed the education module in the areas of information that was being given about medical problems and teeth, and in the appropriate use of fluorides, but the latter difference was not significant. More nurses who had completed the module were giving appropriate information about the relationships of cardiac problems and teeth, and about the impact of medications containing sugar on teeth. They also were more aware of current information on the effects of particular drugs on developing teeth. The nurses who had completed the module reported more accurate information on the use of fluorides for young children and recorded appropriate knowledge and understanding of the role of fluorides in preventing dental caries. Although only the area of information being given about medical problems and teeth was significantly different between the two groups, these findings suggest that the module was moderately successful, and that regular updating of oral-health information for all Plunket nurses would be useful. The nurses were very aware of the dietary practices that
TABLE II – Number of respondents giving appropriate child dental health advice to clients, by module completion (percentages in brackets).

<table>
<thead>
<tr>
<th>Appropriate advice to clients on:</th>
<th>Yes</th>
<th>Completed module</th>
<th>No</th>
<th>No answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teething</td>
<td>58 (85.3)</td>
<td>114 (86.4)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Medical problems and teeth</td>
<td>46 (66.7)</td>
<td>68 (51.5)*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cleaning teeth</td>
<td>36 (52.9)</td>
<td>41 (31.5)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Using fluoride</td>
<td>33 (48.5)</td>
<td>49 (37.4)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Diet</td>
<td>29 (42.6)</td>
<td>60 (45.5)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Bottle, breastfeeding</td>
<td>38 (56.7)</td>
<td>71 (54.2)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Use of pacifier (dummy)</td>
<td>34 (53.1)</td>
<td>67 (53.2)</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Trauma to teeth</td>
<td>60 (90.9)</td>
<td>115 (90.6)</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Age for enrolment in SDS</td>
<td>67 (100.0)</td>
<td>132 (100.0)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Costs involved in child dental care</td>
<td>28 (44.4)</td>
<td>51 (39.2)</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Examination of children’s teeth:
- At all ages                      | 50 (72.5) | 109 (82.0)       | 1        |           |
- Up to 1-2 years                  | 8 (11.6)  | 12 (9.1)         |          |           |
- On parent’s request only         | 4 (5.8)   | 4 (3.0)          |          |           |
- Not done                         | 7 (10.1)  | 7 (5.3)          |          |           |

*P<0.05; **P<0.01

increased the risk of dental caries, and were using opportunities to pass on appropriate information. It was also of note that the majority of nurses were examining babies’ mouths looking for signs of congenital problems initially, but later looking for problems with tooth eruption and changes to teeth such as those caused by poor oral hygiene or tooth decay. It appears that the nurses do indeed view the health of the mouth as part of their well-baby examination. This suggests that they are in an extremely important position to give oral health advice to parents of babies and should be complimented and supported in their efforts to promote oral health. Thus, the links between the Plunket system and the School Dental Service should be encouraged and enhanced particularly in the support of Plunket nurses in the promotion of oral health.

A number of important barriers to the uptake of preschool dental care were identified, and similar barriers for accessing care have been noted by other studies. It does seem that, given the excellent opportunity for Plunket nurses to encourage enrolment in the School Dental Service, there needs to be enhanced communication between these two services at the local level. Nurses need to know exactly how and where their clients can access the dental therapist, to allow them to help parents make contact at an early stage.

This study has found that oral health knowledge of New Zealand Plunket nurses is sound. It suggests that the module developed in conjunction with the Department of Community Dental Health in the early 1990s was successfully providing some of the knowledge the nurses required to practise up-to-date oral-health promotion. It also suggests that their role in oral-health care for young children should be widely recognised and encouraged by dental therapists and dentists in our New Zealand communities.

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REFERENCES


BERNADETTE K DRUMMOND, BDS, MS, PhD, FRACDS
School of Dentistry
University of Otago
PO Box 647
Dunedin

HELEN M CLARKE, BDS
142 Bartholomew Road
Levin

ANGELA M MAXWELL-MCRAE, BDS
112 Tomahawk Road
Andersons Bay
Dunedin

PRIYANGIKA P KONTHASINGHE, BDS, MSc, MD
Maharagama
Sri Lanka

W MURRAY THOMSON, BDS, MComDent, MA (LEEDS), PhD
School of Dentistry
University of Otago
PO Box 647
Dunedin