A survey of private pediatric dental practices in North Carolina

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Abstract

Purpose: In response to concerns about current and future demands for specialized pediatric dental care in North Carolina, a survey of private pediatric dental practices was conducted.

Methods: Data were collected on the demographics and other practice variables. Information was also collected on the ages, caries activity, Medicaid status, fluoridation status, and location of residence (urban/rural) of all new patients seen in each practice during three designated, consecutive days in November 1996.

Results: The survey response rate was 76%. The data indicated that most pediatric dentists in North Carolina are quite busy. A total of 519 new patients were seen during the three-day survey period. The mean age was 4.7 years and 22% had advanced caries. Forty-seven percent were caries free. Most of the disease was found in the primary dentitions of young children.

Conclusions: The findings indicate that the specialized pediatric dental care system in North Carolina is operating close to its capacity and is overtaxed in many areas of the state. (Pediatr Dent 21:104–108, 1999)

In lieu of the changes made by Congress to improve the health care of uninsured or underinsured children, there are many issues with which to contend regarding access to and delivery of care for a possibly increasing number of children who may receive oral health benefits. These changes have empowered individual states to make their own health benefit and coverage decisions through the Children's Health Insurance Program (CHIP). This underscores the importance of awareness needed by the private practice sector to optimize the delivery of oral health care to children in their state. 1

In late 1996, information was gathered informally from the pediatric dentists in North Carolina to evaluate the demand for specialized pediatric dental care in the state. Results suggested that a significant number of practitioners in the state were having difficulty meeting the demand for care presenting in their practices. In addition, a relatively high percentage of the children seen in these practices had serious dental disease. This reinforced the concern that the pediatric dental care system in the state was, in certain areas, unable to meet the dental care demands of the population. Concurrently, the clinics at the Department of Pediatric Dentistry at the University of North Carolina have in recent years experienced lengthy appointment waiting lists and a continuous flow of emergency patients. A comparison of clinical procedures over a 4-year period (1992–1996) showed a significant increase in the number of pulpotomies, stainless steel crowns, extractions, and other procedures associated with more severe caries in the primary dentition of a younger age group. 2 These findings have created concern regarding the demographics of the pediatric dental care system, patterns of disease presenting in the private sector, and how the expansion of oral health benefits to...
Most estimates of disease come from national surveys such as the National Health and Nutrition Examination Survey (NHANES) school screenings, and publicly funded clinics. National surveys such as NHANES III, indicate that caries rates in children are not changing significantly, with 62% of children ages 2–9 being caries-free. However, it is more difficult to access the burden of disease at a local level. Infor-

Fig 1. Questionnaire Form: New Patients
in Private Dental Practices

1. How many patients were “scheduled new patient exams” ___.
2. How many new patients were seen today ___.
3. How many new patients were emergencies ___.
4. How many new patients were referrals ___.
5. Patient number ___.
6. Child's age ___.
7. Medicaid assistance status
   - Yes ___.
   - No ___.
8. Record the amount of caries:
   - No caries-0
   - Minor caries (small pit and fissure)-1
   - Moderate caries (moderate pit and fissure and/or small smooth surface)-2
   - Advanced caries (large lesions)-3
9. Of new patients with “advanced caries”, was the decay mostly in the:
   - Primary dentition ___.
   - Permanent dentition ___.
   - Mixed dentition ____.
    - Fluoridated water ___.
    - Nonfluoridated water ___.
    - Fluoride water status unknown ___.
    - Patient lives in town ____.
    - Patient lives in rural area ___.
12. Practitioner's best estimate of number of procedures required to treat new patient.
    - Pulpotomies ___.
    - Stainless Steel Crowns ___.
    - Extractions ____.

uninsured children may influence access to care for children in North Carolina.

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The present study attempts to describe the demographics and to make estimates of the level of disease in the new patient population of private pediatric dental offices in a single state. The information, when put in context with other relevant data, is unique and useful in gaining better insight to the problems confronting a critical component of the pediatric dental care system in North Carolina and in planning for the impact of new initiatives.

Methods

The study was approved by University of North Carolina School of Dentistry Committee on Investigations Involving Human Subjects. The questionnaire was pretested on a convenience sample of practitioners and revised to correct questions that were unclear or of limited value. The survey was presented on two one-page forms, designated as form A and form B. Form A (Fig 1) included questions about demograph-
100% of these practitioners limited the number of such patients they see to some extent. The number of patients with Medicaid assistance accepted per month ranged from 1 to 120 with a mean of 21.5 (±27.4) patients. There was no association between how “busy” the practitioner reported to be and whether or not they accepted patients with Medicaid assistance. There was no significant relationship between the population of the area in which they practiced and the acceptance of patients with Medicaid assistance. The respondents recorded a total of 519 new patient exams during the days surveyed with a range of 3 to 39 new patients recorded for each practitioner. The mean age of the children was 4.7 (±2.9) years with a range of 1 to 17 years. Of these, 11% were scheduled as emergencies and 21% were classified as patients with Medicaid assistance. Two-thirds of the patients were recorded as living “in town”, with 64% of the patients having fluoridated water in their homes. Thirty-four percent of the patients reported as having nonfluoridated water with the majority of those living in rural areas. Forty-seven percent of the children examined had no caries, 18% had minor caries, 12% had moderate caries, and 22% had advanced caries. In the latter group, 38% were patients with Medicaid assistance of whom 56% lived in fluoridated areas (44% non-fluoridated) and 58% lived in town (42% rural). Of the 111 patients reported to have advanced caries, 94% of the caries was found in the primary dentition. Those patients that had detectable caries were four times as likely to be pai-

### Table 1. Practice Data

<table>
<thead>
<tr>
<th>Practice type</th>
<th>Solo practice</th>
<th>Practice with &gt; 1 dentists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Business</td>
<td>Not busy enough</td>
<td>Sufficiently busy</td>
</tr>
<tr>
<td></td>
<td>18%</td>
<td>52%</td>
</tr>
<tr>
<td>Practice Area Population</td>
<td>&gt;100,000</td>
<td>50,000–100,000</td>
</tr>
<tr>
<td></td>
<td>52%</td>
<td>30%</td>
</tr>
<tr>
<td>Another Pediatric Dentist needed in the area</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Seeing more untreated decay</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>29%</td>
<td>71%</td>
</tr>
<tr>
<td>Accept patients with Medicaid assistance</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>Hours practiced per week*</td>
<td>33.9±0.8</td>
<td></td>
</tr>
<tr>
<td>Waiting time in weeks for “new patient exam”*</td>
<td>10.0±2.3</td>
<td></td>
</tr>
<tr>
<td>Number of patients with Medicaid assistance accepted per month</td>
<td>21.5±27.4 (Range 1–120)</td>
<td></td>
</tr>
<tr>
<td>Practitioner seeing “more caries”</td>
<td>Pop.&gt;100,000</td>
<td>Pop.&lt;100,000</td>
</tr>
<tr>
<td></td>
<td>86%</td>
<td>14%</td>
</tr>
</tbody>
</table>

*Mean ± SD

### Table 2. Patient Data

<table>
<thead>
<tr>
<th>Patients screened</th>
<th>N=519</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of screenings that were emergencies</td>
<td>11%</td>
</tr>
<tr>
<td>Child’s age</td>
<td>4.7±2.9</td>
</tr>
<tr>
<td>Patient referrals per pediatric dentist</td>
<td>2.67</td>
</tr>
<tr>
<td>Patient Medicaid assistance status</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>21%</td>
</tr>
<tr>
<td>Fluoride status of drinking water</td>
<td>Fluoridated</td>
</tr>
<tr>
<td></td>
<td>65%</td>
</tr>
<tr>
<td>Residence of patient</td>
<td>Town</td>
</tr>
<tr>
<td></td>
<td>66%</td>
</tr>
<tr>
<td>Amount of Decay</td>
<td>No Decay</td>
</tr>
<tr>
<td></td>
<td>47%</td>
</tr>
<tr>
<td>Dentition with “advance decay”</td>
<td>Primary</td>
</tr>
<tr>
<td></td>
<td>94%</td>
</tr>
<tr>
<td>Procedures estimated to treat new patients with decay: N=270</td>
<td>Pulpotomies</td>
</tr>
<tr>
<td></td>
<td>N=285</td>
</tr>
</tbody>
</table>

*Mean ± SD
tients with Medicaid assistance (M antel-Haenszel Odds Ratio=3.7, 95% CI [2.3, 6.0]). Thirty-one percent of the children with Medicaid assistance had treatment needs beyond simple restorative procedures. The seriousness of the disease in the advanced caries group is illustrated by the number of pulpotomies (285), stainless steel crowns (456), and extractions (228) estimated to be needed by these children. A mean of 2.67 patients per practitioner were referred by another dentist. A mean of 2.67 patients per practitioner were referred by another dentist. Table 2 summarizes the patient-based data collected on Form B.

Discussion

A significant but undefined amount of dental care is provided to North Carolina children by general practitioners in the state. A separate study is to be undertaken to estimate the amount and kind of dental care provided to North Carolina children by general practitioners. The current study focused only on the specialty pediatric dental care system as a critical segment in the state’s system of dental care providers. It is a segment of the system where a significant number of very young children with advanced dental disease, handicapping conditions, and other circumstances that complicate dental care receive treatment. The relative accuracy and usefulness of the type of survey used in this study has been documented.

The use of three designated days for data collection is an accepted method of randomizing the day-to-day variations that occur in practice activity and to avoid possible bias that may have been introduced if practitioners were allowed to select the three days of data collection.

The survey results included 76% of the practitioners known to be active in the private practice of pediatric dentistry in North Carolina. This was a relatively high response rate, suggesting that the findings of this study were representative of North Carolina’s privately practicing pediatric dentists. It also indicates that there was considerable interest in the practitioner group in obtaining information about the issues addressed in the survey.

While only 30% of the respondents indicated that they were too busy, the mean waiting time for a nonemergency new patient examination was ten weeks, suggesting that the typical practice was very busy. This perception is re-enforced by the fact that 50% felt that another pediatric dentist was needed in their area.

Medicaid fees have been deemed unrealistically low in North Carolina and there is a perceived problem of access to care for some of the patients with Medicaid assistance. Nevertheless, 21% of all new patients seen had Medicaid assistance. In the case of the respondents who stated that they accepted Medicaid, 21% of all new patients seen had Medicaid assistance. The number of actively practicing pediatric dentists in the state was very busy and that at least 30% of them were having difficulty meeting the demand for care in their locality. The number of North Carolina children being seen by general dentists is unknown, but the system for the delivery of specialized pediatric dental care is currently overtaxed in certain locations in the State. In 1993; the number of pediatric dentists per 100,000 children was 3.4, one of the lowest ratios in the United States. The number of actively practicing pediatric dentists in the state apparently has not increased since then, and projections indicate that it will be difficult to keep the ratio from becoming more unfavorable in the future.

These collective observations and projections support the concern that the problem of insufficient access to specialty care for North Carolina children will become even more severe. This situation requires further study to define the problem concerning untreated decay in younger children, especially in light of impending changes in federally funded dental care programs for children in North Carolina. The need for new interventions to reduce the prevalence of caries in young North Carolina children seems clear. The concerns identified in this study may apply to other states with similar demographic and socioeconomic characteristics.

Conclusions

The results of this survey indicate that the specialty pediatric dental care system in North Carolina is experiencing difficulties in meeting the demand for dental care. It is clear that the most serious dental disease observed by pediatric dentists in the state is seen in the primary dentitions of young children.

The authors express their sincere gratitude to the pediatric dentists and their staffs who participated in the survey. Each of the forms received was completely and carefully completed. This research was conducted with the support of NIDR grant T32-DE-071991 and MCH grant M CJ 379494. We wish also to thank Dr. Rosemary McKnight for her assistance with statistical evaluation of the data.

References


**Abstract of the Scientific Literature**

**Prilocaine-Phenylephrine Topical Anesthesia for Repair of Mucous Membrane**

In this prospective, randomized, blinded trial that compared the effectiveness of prilocaine-phenylephrine (Prilocphen), a new topical anesthetic that does not contain codeine, to that of lidocaine infiltration during repair of lacerations on or near mucous membranes in children when used in an emergency department (ED) setting.

In this ED, a combination of topical tetracaine, adrenaline, and cocaine (TAC) is routinely used as an anesthetic agent during dermal laceration repair. However, serious adverse reactions, including seizures and death, can occur if the solution comes into contact with mucous membranes and a sufficient amount of cocaine is absorbed.

Prilphen is comprised of prilocaine local anesthetic and phenylephrine, a vasoconstrictor. Forty children one year of age or older with a laceration of 5 cm or less in length on or near a mucous membrane were randomly assigned to one of two anesthetic treatment groups. One group received 3.56% prilocaine with 0.1% phenylephrine (Prilphen) topically and the other group received 1% lidocaine infiltration.

As an outcome measure, pain during suturing was scored by five different individuals using a visual analog scale (VAS). The performance of Prilphen was rated by two of the observer groups as statistically inferior to that of lidocaine infiltration; however, the differences in pain scores were small and may not be clinically significant.

**Comment:** This study is important for its documentation of a topical anesthetic used in the ED. If we asked to use it for our dental trauma cases, knowledge of the results of this study seem to indicate that lidocaine infiltration may be as good or better.


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38 references