



Comparative cost and time analysis over a two-year period for children whose initial dental experience occurred between ages 4 and 8 years

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Few comparative actuarial data are available, regarding the age of the child patient at the first dental visit and subsequent services rendered. Menczer, Parfitt, and Toverud¹⁻³ have reported arithmetical increases in DEF rates of children; however, cost and time analysis for examination, diagnosis, extractions, space maintainers, space regainers, and fluoride treatments were not evaluated.

In light of the current legislative changes in the fields of public assistance for medical and dental care, we felt that an actuarial report reflecting the financial aspect of early dental care and maintenance might be of value to fiduciary agencies responsible for reimbursing dentists and dental clinics for services rendered. The translation of dental and oral disease into financial terminology seems appropriate at this time.

Methods and materials

One hundred children with no previous dental experience were selected from the dental department of the Children's Hospital Medical Center in Boston. Twenty patients each were assigned to one of five groups according to age at the initial appointment. The ages at first ranged from 4 to 8 years. All children were

from families whose incomes were between \$5,000 and \$8,000. All were well nourished, well developed, white children with no remarkable medical history.

After prophylaxis, initial examinations were done with mouth mirror and explorer. Interproximal and periapical radiographs were exposed as indicated. Impressions for occlusion analysis were taken for all children presenting with an actual or potential malocclusion. Time was recorded with a punch clock at the beginning and end of all appointments. Length of time reflects the actual number of minutes the child was in the chair. The total time for all visits was compiled as was the type of service rendered. A fee was assigned for each procedure according to the 1966 Commonwealth of Massachusetts Welfare Schedule. Comparative data for service, cost, and time were computed for a 24-month period.

Results

The increase in money and time necessary to provide dental care to one hundred patients (for a 24-month period) whose first dental visit occurred between the ages of 4 and 8 is portrayed in Figs 1 and 2. Averaging the data produces the following costs for an individual within the different group: age 4, \$30; age 5, \$73; age 6, \$104; age 7, \$144; and age 8, \$169.

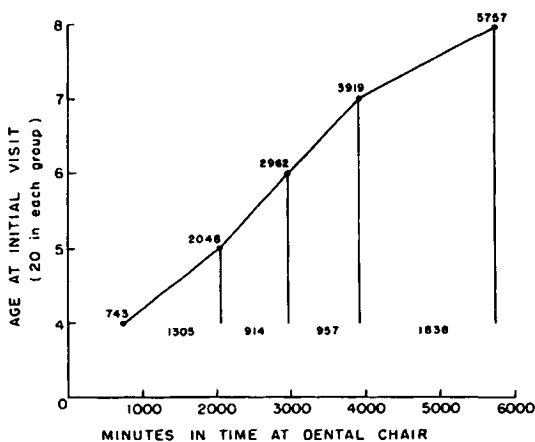


Fig 1. Minutes needed for two years of comprehensive dental care.



Fig 2. Dollars needed for two years of comprehensive dental care for 100 children.

Therefore, it appears that for two years' dental treatment, an average of \$34.75 must be added per year of postponing the initial visit.

This figure progresses arithmetically so that a four-year postponement would necessitate an additional cost per patient of \$139. The time required to provide dental services also increases at a similar rate.

Discussion

In this preliminary report, data are presented, in economic terms, that reinforce the advantages of early and routine dental care. Postponing dental treatment for one year results in an average increase in cost per child of almost \$40 for the 24-month period studied. The fiduciary agent responsible for dental services rendered to 1000 children could save \$37,000 over a two-year period by encouraging dental treatment for each child to begin a year earlier. It is hoped that such agencies will encourage groups to provide early dental care for children.

Now that we can express ourselves both in terms of the health benefits of early dental care as well as the financial advantages of such care, perhaps more children will have the advantage of preschool dental treatment.

This report is the first of several that will be made as significant data become available from this program.

Summary

The dental treatment for 100 children was recorded on both a fee for service and time schedule. One hun-

dred children were divided into one of five groups according to age at the first dental experience. Data were collected for a two-year period. The average cost by Massachusetts welfare standards were calculated.

The average expenditure for a patient who presented for the first time at age 4 was \$30. This fee increased by mean increments of \$34.75 yearly until the average patient who presented initially at age 8 required \$169 for two years of dental treatment. Time necessary for treatment likewise increased proportionally.

Further data will be presented as they are calculated.

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1. Menczer LF: Hartford's Preschool Dental Program. J Am Dent Assoc 52:698-702, 1956.
2. Parfitt GJ: The distribution of caries on different sites of teeth in English children from the ages of 2-15 years. Brit D J 99:423-27, 1955.
3. Toverud G, Finn SB, Cox GJ, Bodecker CG, Shaw JH: Survey of Literature of Dental Caries. Publication 225. Washington, DC, National Academy of Sciences-National Research Council, 1953.

[Editor's Note: Almost 30 years ago, as noted by Dr. Doykos in his study of Boston schoolchildren, the cost advantages of early intervention were evident. Although the cost savings by today's standards seem quite modest, in the current marketplace, proportional reductions in necessary services would be sizable. With today's knowledge about relative risk, it is also likely that preventive services applied judiciously would preclude the need for more expensive restorative care. Unfortunately, it has taken a generation for the concept of infant oral health to take hold. This report is reprinted to encourage contemporary research into the economic and health benefit of early dental intervention.]

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