

# Summary of: The incidence of dental caries in the primary molar teeth of young children receiving National Health Service funded dental care in practices in the North West of England

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## FULL PAPER DETAILS

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**Introduction** A prospective cohort study was undertaken to describe the incidence of dental caries, as recorded by GDPs, in the primary molar teeth of children aged approximately 3–6 years attending general dental practices in the North West of England. **Method** Detailed dental records of children aged 3–6 years attending 50 general dental practices were assembled over a period of three years. Data from these records were analysed to estimate caries incidence rates at the subject and tooth level. **Results** The study population consisted of 739 children aged between 2.8 and 6.2 years; 620 children (84%) were caries free at recruitment. The incidence of developing a first carious (into dentine) lesion in caries free children increased with age. At age four the incidence of the first carious lesion was 9.5 per 100 person years and at age seven it was 19.6 per 100 person years. The tooth specific incidence of caries was found to be approximately 5–6 times greater in children with caries at recruitment than in caries free children. A sub-analysis on 566 children that were followed for more than two years revealed that of 486 children caries free at recruitment 132 (27%) developed caries in their primary molar teeth. By contrast, of the 80 children that had caries in their molar teeth at recruitment, one had eight carious molar teeth and 57 (72%) of the remaining 79 developed new cavities during the follow up period. **Conclusions** Caries incidence increases with age. There is a 5–6 times difference in the incidence of new cavities between caries free children and children with caries, irrespective of when a child developed the disease. As a consequence children with the disease and without the disease should be considered as two different populations; this has implications for care strategies applied to each population.

## EDITOR'S SUMMARY

I confess that when I first read this paper at the time it was submitted, I was slightly under-whelmed. It seemed to me unsurprising that children who had caries developed more of the disease and by contrast those who were caries free were likely to keep their much treasured status.

It therefore proves the value of the journal's robust peer review system, through which the paper has passed to the pages in front of you and online as a testament to its actual worth. I plead in my defence a superficial initial view of the actually quite complex and potentially crucially important fundamentals that the results of this study lead us to draw. Far from my rather simplistic early reaction, the inherent message for

future oral care of young children contained herein is that instead of having a one-size fits all approach to deciduous caries we should instead be creating a dual strategy based exactly on the dichotomy between the caries-free and the caries-prone groups.

Just as the complexity of the disease process is still not fully understood (surely a crucial opening for further quality research here), so too is the need for a subtle shift in oral care policy also far from thought through. Preventive management relies on many factors outside the immediate control of dental clinicians but not, perhaps, outside our influence should we choose to apply it. Caries, as we know so well, is primarily a condition mediated by social determinants and the need for greater

attention to such matters as food policies, general health services, housing, income levels and welfare will inevitably have a greater long term impact than we as individuals can have by placing (or not placing, to revisit previous debates on restorative care for deciduous teeth) fillings.

Far from under-whelming, the implications of this research could be quite overwhelming if the logical progression towards prevention that is inherent in its findings is actually acted upon.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under 'Research' in the table of contents for Volume 205 issue 7.

Stephen Hancocks,  
Editor-in-Chief

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**IN BRIEF**

- Adds to the limited literature on the longitudinal behaviour of dental caries in young children.
- Indicates that different approaches to care are required for children with caries free and the caries active mouths.
- Challenges the 'risk assessment' approach to prevention in practice and suggests a whole population approach should be adopted.

**COMMENT**

The management of caries in the deciduous dentition has become one of the most contentious areas in clinical dentistry. The stimulus for the current debate stems from the publication of two papers in this journal in 1997, giving contrasting views on our provision of dental care for young children<sup>1,2</sup>. While it was generally accepted that the standard of care was unsatisfactory in terms of the provision of restorative care recorded as *Care Index* by BASCD surveys, it became apparent that many GPs were adopting a more pragmatic, preventive based approach and the traditional restorative philosophy was questioned. The consensus was that more research was needed into the pattern of deciduous caries development and the outcome of differing management strategies.

This paper is the latest in a series from the Manchester-based team who must now be regarded as leaders in this research field. Following on from their studies into the development of symptoms from untreated carious deciduous teeth and the effect of restoration on outcome, this new prospective study examines the development of lesions in a sample of young children from North-West England. This paper is important as most of our information on caries progression comes from cross-sectional or retrospective studies. While this study involves regular attendees and we are not told the socio-economic profiles of the 50 participating dental practices, a clear pattern has emerged; once caries develops, in even one deciduous molar tooth, the disease

spreads rapidly to involve other teeth. A 5-6 times difference was found in the risk of developing new cavities between those subjects who were caries free and those with caries at their first visit to the dentist. The likelihood of developing new cavities in remaining healthy teeth was not predicted by the extent of caries at study entry, as the risk of developing a new cavity was similar in children with a single carious tooth and children with multiple lesions. This had led the authors to conclude that two populations, the caries-free and the caries susceptible have emerged and need different management strategies.

One again this study indicates the need for the systematic and effective use of caries prevention methods at primary care level and while the new Department of Health 'tool kit' provides GPs with a whole-population preventive regime, many argue that the current NHS dental contract does not provide the incentive for a preventive philosophy.

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1. Curzon M E, Pollard M A. Do we still care about children's teeth? *Br Dent J* 1997; **182**: 242-244.
2. Pitts N B. Do we understand which children need and get appropriate dental care? *Br Dent J* 1997; **182**: 273-178.

**AUTHOR QUESTIONS AND ANSWERS****1. Why did you undertake this research?**

Despite falling caries rates in older children and adults in England, dental caries rates in young children have proved stubbornly resistant to change. This research programme contained two stages designed to examine the effectiveness of NHS dental treatment for the care of young children with caries in the primary dentition. Data from the first, retrospective element of the programme has already been published. This latest paper reports the outcomes from the prospective element of the programme. The results have changed the emphasis of our thinking by identifying the critical importance of prevention rather than treatment. The study raises the key question 'what is the most effective way to prevent caries in the primary dentition in dental practice?'

**2. What would you like to do next in this area to follow on from this work?**

Future work should involve further investigation of the optimal approach to the care of young children attending NHS 'high street' dental services. The data produced from retrospective and prospective studies, whilst helpful, is insufficient to allow definitive decisions to be made. In order to inform the NHS dental commissioning process as well as offering guidance to dental practitioners, there is a need now for appropriately designed practice-based randomised controlled trials to be undertaken. These trials should consider first how best to prevent caries from developing in young children and also how best to manage dental caries in young children once the disease has been contracted.