IN BRIEF

- Preventive dental care for young children should be based on best evidence and delivered in a consistent manner throughout the NHS.
- To help GDPs deliver preventive care in a consistent, evidence-based way, the current scientific evidence on fluoride use needs converting into clear, easy to follow recommendations for children of differing ages and caries risk.
- To help GDPs deliver preventive advice in a consistent way, an easy to follow, evidence-based hierarchy of specific diet and oral hygiene messages needs to be developed.

Exploring the content of the advice provided by general dental practitioners to help prevent caries in young children

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Objective To increase understanding about the content of preventive advice and care offered by general dental practitioners to young children.
Design Qualitative study using semi-structured interviews.
Setting The North West of England. Interviews took place between March and September 2003.
Subjects and methods Ninety-three general dental practitioners practising within the general dental service were interviewed about the care they provide to young children. The interviews were recorded, transcribed and analysed using a constant comparative method.
Results Preventive advice given to parents of young children is usually about sugar consumption and tooth brushing behaviour but the emphasis and specific messages provided varies among general dental practitioners. Use of fluorides varied considerably, suggesting that some dentists either have reservations or are unclear about the appropriate use of fluorides. The study indicates important variation in the content of preventive care.
Conclusion There is important variation in the approach of general dental practitioners to the core activity of preventing caries in young children and some views expressed are not supported by the evidence base.

INTRODUCTION

In 1975 the Health Education Council of England set up a working group to produce the definitive Scientific Basis of Dental Health Education. This document has been in continuous publication and revision ever since and should be understood by the dental profession. The latest version was published in 2004[1] and provides four key messages to promote good oral health, which are:

1. Diet: reduce the consumption and especially the frequency of intake of drinks, confectionery and foods with sugar
2. Toothbrushing: clean teeth thoroughly twice every day with a fluoride toothpaste
3. Fluoridation: fluoridation of water is safe and a highly effective public health measure
4. Dental attendance: have an oral examination every year.

General dental practitioners (GDPs) report that they routinely provide advice to help prevent caries in young children and at any one time over 60% of children in England and Wales are registered with a GDP.[2,3] The results of the most recent national survey of children's dental health indicate that dental health is improving; the level of active decay at 15 years has fallen from 42% in 1983 to 13% in 2003.[4] Unfortunately, this dramatic improvement in the permanent dentition is not reflected in the primary dentition of children living in the UK. Data from the same national survey suggest that in 2003, 40% of 5-year-olds and 51% of 8-year olds had decay, these figures being almost unchanged from 20 years ago (41%, 49%).[4] If valid ways to prevent caries in young children are well documented and most young children see a GDP who routinely provides preventive care and advice, then why in recent years has caries in the primary teeth not reduced by a similar amount to that seen in the permanent dentition? We undertook a qualitative study to increase our understanding about the care GDPs provide for young children and explore the nature of the advice and preventive care they offer.

MATERIALS AND METHODS

The study population was drawn from GDPs practising in Lancashire, Cheshire, and Greater Manchester in 2003. Dentists were selected at random from the General Dental Council's register and sent a letter inviting them to participate. This process continued until approximately 100 GDPs had agreed to participate. The dentists were selected at random to avoid any bias associated with a convenience sample and all the dentists who replied and wanted to participate were entered into the study. The sample size was not determined by statistical considerations but aimed to be sufficiently large and varied to capture the

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full range of views and opinions of GDPs working within the region. Each participant was interviewed separately by one of three trained interviewers who were not dentists. The interviews took place in the dentists' homes or places of work and were conducted between March 2003 and September 2003. During the interviews each dentist was encouraged to speak freely about the care they provide to the primary dentition. The interviews were semi-structured around a set of themes that were agreed following group work with a panel of experienced GDPs and specialists in paediatric dentistry. One of these themes was prevention of caries in the primary dentition. All interviews were tape recorded, numbered for anonymity, and transcribed verbatim.

The content in the interview transcripts about prevention was analysed using a grounded theory approach to identify the key concepts that emerged.[5] A grounded theory approach is a qualitative research method that uses a systematic approach in order to inductively derive theory about a phenomenon. The theory derived is both generated from the data collected and also provisionally tested by that data. The purpose is to build a theory that is faithful to the data collected and illuminates the area under study.[5] In brief, the transcripts were analysed without pre-conceptions about the expected content and themes emerged by using a constant comparative method. Analysis continued until saturation of concepts was reached, that being when no new concepts can be identified. Here findings relating to the GDPs' views about prevention and the content of the advice provided are presented. The qualitative analysis was undertaken by CH and AT who are health service researchers and are not dentists.

FINDINGS

In total 311 dentists were invited to participate and 96 initially agreed to participate, two withdrew from the study because of time constraints in practice and one because of illness. Therefore 93 dentists were interviewed; of these, 70 were males and 23 females. The year of qualification of the dentists has been previously described.[6]

All the participants stated that they provide advice about diet and oral hygiene to help prevent caries in children. Superficially they all gave patients and their parents or guardians similar advice and knew the most important ways to prevent tooth decay, but a key finding that emerged from the analysis was that the content of the advice varied in terms of specifics and emphasis. In addition to advice about diet and oral hygiene instruction, two other themes emerged as important in preventing tooth decay, namely fluoride supplements and water fluoridation.

Diet and oral hygiene instruction

Most dentists believed that diet was the most important factor when providing preventive advice to children:

'I believe that diet is the key to kids' teeth.' (31, male dentist, 17 years experience.)

'Although tooth brushing is important, in the first years of life I would stress that diet control is more important. I'm not saying don't brush the teeth but control the sugar in the diet more so than being over zealous about tooth brushing.' (1000, male dentist, 19 years experience.)

'So you have to keep it simple, if you only get over what you really want to get over which is the dietary message. Mainly, 95% of it is the dietary message.' (1063, male dentist, 23 experience.)

However, some dentists focussed strongly on regular tooth brushing rather than diet, believing that it was more realistic to change brushing than eating behaviour:

'Brushing regime is the most important thing. Even higher to me than even a change in diet, it is even more important, because to be practical about things, a child will accept, you have to brush your teeth at night you have got to brush them in the morning and accept more of that than saying you have to stop eating sweets between meals.' (1150, male dentist, 20 years experience.)

'Sometimes I have say a ten year old child who wasn't brushing very well, so I call them back to the clinic every two weeks and make them brush in front of me, which I find works because they do it a little bit better then.' (725, female dentist, 10 years experience.)

In general, the diet advice provided was about reducing the intake of sugary foods and drinks, with many stressing that frequency of sugar consumption was the most important message to get across:

'Usually they will then say, that they don't eat much sugar and they don't have it very often, to which I will say, it's not so much how much you have but it's how many times a day.' (1095, female dentist, 16 years experience.)

'I always say it's better to eat 5 lbs of sweets in 20 minutes than five sweets in two and a half hours.' (18, female dentist, 23 years experience.)

Some dentists believed in providing diet advice that they thought realistic, they accepted that children enjoyed sweet things and rather than banning them suggested approaches to reduce the frequency and regulate the periods of sugar consumption. These included replacing sweets with savoury alternatives, fizzy drinks with milk, flavoured water, or weak diluted fruit juices, and eating sweets at mealtimes or in one sitting:

'Then regarding sweets, I will say look, I am not against them, we all eat them, but how about once a week you sit down and watch a video, have a bag of sweets, and that's it until the next time.' (1084, male dentist, 21 years experience.)

'Have you thought about cutting the biscuits down, piece of toast rather than biscuits?' (280, male dentist, 20 years experience.)

'Stop sugary drinks before you go to bed at night. I recognised that the child wasn't going to stop eating sugar and I said if you could limit it to ideally once a week and eat all the sweets in one go...' (1013, male dentist, 6 years experience.)

Drinks emerged as a key part of many dentists advice on prevention. Concerns were expressed about the sugar content of cordials and the need to dilute fruit juices, but for many dentists the dangers of fizzy drinks were singled out:

'I am into cordial advice, I don't bother about sweets because I think you would have to be an awful parent to give enough sweets to cause decay, but drinks are important, my kids drink like fishes.' (1900, male dentist, 22 years experience.)

'So even fruit juices try and dilute them for children because of citric acid and the sugar that's in the fruit juice.' (18, female dentist, 23 years experience.)

'Fizzy drinks are dangerous, some of them things like Coca-Cola are really, really dangerous' (1150, male dentist, 20 years experience.)

'My own children vary from ... and none of them have got any decay, and all I have done is fuss with the fizzy drinks.' (2332, male dentist, 35 years experience.)

Advice about reducing fizzy drinks differed, with some but not

all dentists passionate about reducing their consumption. Reasons given for not drinking fizzy drinks also varied; some stressed the importance of acid erosion whilst others stressed the risk of decay from the high sugar content:

'I could ban fizzy drinks. It's one of those problems that's growing and growing, and with kids teeth it's the enamel it's disappearing.' (686, male dentist, 16 years experience.)

'It's the drink sugar not the acid. I'm not bothered about the acid they can dissolve their teeth rather than decay. Erosion is not such a big problem it's not significant.' (1900, male dentist, 22 years experience.)

Extrinsic sugars were another source of variation in diet advice. Some dentists were especially concerned about sugars in savoury foodstuffs and foodstuffs that were commonly considered as healthy, for example yoghurt, but most of the dentists did not mention hidden sugars:

'Things like tomato sauce has got a lot of sugar in, and I just try and point that out, baked beans and tomato sauce just things like that I just try and get them to cut as much out as possible.' (367, male dentist, 4 years experience.)

'...talking about hidden sugars; tomato ketchup has sugar in, baked beans has sugar in.' (1000, male dentist, 19 years experience.)

Fluoride supplements

Approximately half of the dentists indicated that they currently prescribe fluoride supplements to their child patients. Some dentists prescribing fluoride supplements did so to most of their child patients whilst others only prescribed to specific patients, for example those who had not responded to dietary and oral hygiene advice.

'We initially prescribe fluoride for the first visit. ... It depends on the age but it's fluoride drops until they are 3 and then onto tablets.' (308, female dentist, 26 years experience.)

'I'm not convinced about giving out fluoride tablets, willy nilly. If a parent asks for them then I will supply them but I'm not sure I approve of mass medication with fluoride tablets.' (1538, male dentist, 26 years experience.)

'As most toothpastes contain fluoride the patients don't need additional fluoride. Especially with younger children as they are swallowing some of the fluoride anyway.' (748, male dentist, 30 years experience.)

Some of the dentists that do not currently prescribe fluoride supplements feared fluorosis and some prescribed in the past but changed because of difficulties with compliance and fear of fluorosis:

'I am not a big fan of fluoride because of what happened to my son. ... He's only got white marks. They are mottled and it is unlucky but I know several dentists who have done the same thing and got the same result because maybe we have done it perfectly and so they have slightly higher than the anticipated dose. I don't know. He never took an overdose and the toothpaste was at the recommended level. So it is disappointing to see and therefore I do not recommend it.' (1917, male dentist, 17 years experience.)

'We used to have a policy of giving fluoride supplements but I was scared that people would get fluorosis and such things so we went off it. I never saw any. Rumours.' (118, male dentist, 14 years experience.)

'Fluoride tablets, we gave a prescription to every child that came in ... and waited for the parents to ask for repeated prescriptions and only two did. So we thought compliance must be zero.' (1900, male dentist, 22 years experience.)

Water fluoridation

The majority of the dentists that mentioned water fluoridation were advocates.

'Yes I would say that fluoridation of the water would help to prevent decay as it has in those areas.' (716, male dentist, 12 years experience.)

'I would like the water to be fluoridated.' (797, male dentist, 10 years experience.)

Dentists that had worked in areas with fluoridated and non-fluoridated water gave compelling accounts of the benefits of fluoridating water:

'I first started practising in an area that bordered two water boards, one was fluoridated and one was not. The difference was unbelievable. Also, the fluoridated area was a working class area where you would expect to see a lot more caries than the middle class area that wasn't fluoridated and it was the other way around.' (348, male dentist, 16 years experience.)

Approximately half of the dentists did not mention water fluoridation during their interviews and water fluoridation was not supported by all dentists. Some objected to the principle of mass medication, but none objected because of the risk of fluorosis:

'Personally I have objections to mass fluoridation, to the general public.' (67, male dentist, 11 years experience.)

'There is a lot of muttering about fluoridation of water. I am completely against that it should be a choice of the individual and the individual should be able to make that choice.' (2160, male dentist, 11 years experience.)

DISCUSSION

The dentists in this study were aware of the basic principals of preventive dentistry, but their care and advice varied in content and emphasis. The majority felt that diet control should be the cornerstone of their preventive advice, but others were more concerned to stimulate regular tooth brushing habits. Only half of the dentists reported prescribing fluoride supplements or applying fluoride varnish as part of their preventive care.

The focus of most dietary advice was the consumption of sugar. Some of the dentists emphasised reducing the overall amount of sugar consumed, others the frequency of sugar consumption. Some dentists suggested replacing sugary snacks with savoury snacks, others recognised that sweet eating is very much part of societal norms and advised eating sweets only at mealtimes or all in one go provided that attempts were made to limit this behaviour.

The consumption of fizzy drinks was singled out as very important by some but not all dentists and advice about these drinks also varied. Some dentists stressed the danger from acid erosion but others stressed the sugar content. Taken together, these data on food and drinks suggest that GDPs have an understanding of the overarching preventive message about limiting sugar consumption, but are unclear about the relative importance of the many different aspects of diet control.

A surprising finding was the degree of variation amongst the GDPs in their attitude towards fluoride and their use of fluoride supplements. Whilst some use these supplements widely, others adopt a targeted approach, yet others prescribed them on demand and some did not prescribe them because they are frightened of the possible side effects. Similarly attitudes about water fluoridation varied, with some GDPs being strong advocates and others not supporting the measure. Interestingly, dentists who

had worked in fluoridated areas and had then changed their location were shocked by the relatively poor levels of child oral health in non-fluoridated areas. The lack of enthusiasm for fluorides delivered either within primary care or as a public health measure amongst some GDPs is concerning given that the most recent guidance on care of the primary dentition recommends both approaches.[7]

In this qualitative study, a wide cross section of GDPs practising in a region of the UK with high dental caries rates were interviewed. The study indicates that important variation in preventive care is occurring and taken collectively, the findings demonstrate that these GDPs do not deliver caries preventive messages in a similar and consistent manner. Whilst there is an acceptance amongst them that the key messages of oral hygiene and sugar control need to form the basis of practice-based caries prevention, there is no unified approach to the emphasis that should be placed on the practical delivery of information to children and their carers. If the findings from this large group of GDPs are transferable to GDPs practising in other regions of the UK, and we have no reasons to believe otherwise, then UK dentists are selectively delivering a range of preventive messages and care based in part on their own experiences and possible prejudices. Perhaps the inconsistency of approach toward caries prevention in young children among GDPs, especially in their use of fluoride, offers a partial explanation for the lack of recent progress in reducing caries in the primary dentition of UK children.

It was worrying to find so much variation in approach to the core activity of preventing caries in young children. There is a need to develop and test a widely accepted, evidenced-based dental health advice and fluoride use programme with clear and concise messages that primary care dentists can deliver in practice. Such a development would discourage a piecemeal, subjective approach to prevention and instead ensure the delivery of an appropriate set of messages that could be delivered in a consistent and quality-assured manner. The development of Clinical Care Pathways within the new dental contract offer an opportunity to introduce an evidenced-based priority list of specific preventive messages that can be adopted by NHS dentists.

CONCLUSION

Preventive advice given to parents of young children is usually about sugar consumption and tooth brushing behaviour but the emphasis and specific messages provided vary among GDPs. Use of fluorides varied considerably, suggesting that some GDPs either have reservations or are unclear about the appropriate use of fluorides.

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