



## Fluoride and Dental Health in Europe

### Dental Health in Europe - A Problem for Disadvantaged Groups



#### Report of an EU-funded Conference



A conference of dental and public health experts drawn from every Member State of the European Union has recognised the key role of fluoride - in toothpaste, in salt and in water - over recent years in reducing the level of tooth decay (dental caries).

Held in Edinburgh, Scotland in March 1996, the conference unanimously backed a call for continued emphasis on the prevention of dental caries within the EU.

#### **On guard**

Collectively and individually, Member States were urged to guard against any influence that might reverse the improvements in dental health which had been achieved.

As a result of the dramatic reduction in tooth decay since the 1970s, the quality of children's lives has been improved - less toothache, less anxiety and a much lower chance of having to have a general anaesthetic for a tooth extraction.

At the same time, health services have made savings on dental costs. For example, in the UK the government has been able to close two of its 15 university dental schools and reduce the intake of students by ten per cent in the remaining 13 schools. Similar cost savings have been reported in Scandinavia and the Netherlands.

However, speakers at the Edinburgh conference drew attention to the absence of uniform progress in

reducing tooth decay across all EU countries and across all social groups within individual countries.

### **Gap between best and worst**

In the UK, for example, data for 5-year old children show a three-fold variation between the best and the worst regions.

The best dental health in the UK is in the West Midlands of England, where over two thirds of the population receive fluoridated water, and in the affluent South East. Generally speaking, the worst dental health is in those parts of the country with the highest levels of social deprivation, such as the North West of England and Scotland.

This pattern is repeated in other countries. Across the EU, the children of poor or migrant parents seem to be at particular risk.

### **Need for strategy**

In the light of the evidence presented, the conference concluded that Member States and the EU as a whole need an oral health promotion strategy which disseminates best practice, targets the population groups with the highest levels of disease, consolidates the already hard-won improvements in dental health and sets goals for the future.

### **Focus on prevention**

Sugar is a significant factor in causing dental caries but the conference found no evidence to suggest reduced consumption in the EU during the 1990s. Prevention through the use of fluoride remains, therefore, of vital importance.

Whether this is achieved through fluoride in toothpaste, salt, water or milk (or a combination) depends on the particular social and economic circumstances of individual countries and, in the case of water, on the nature of water distribution systems.

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**The European League for Teeth -**  
*How the nations compare*

<b>Rank</b>	<b>Country</b>	<b>Average number of teeth decayed, missing or filled among 5-7 year olds.</b>
1	Eire (Eastern Health Board)	0.9 (1993)
2	Spain	1.0 (1994)
3	Denmark	1.3 (1994)
4	Finland	1.4 (1991)
	Italy (Milan area)	1.4 (1994)
	Norway	1.4 (1993)
7	Greece	1.5 (1994)
8	Belgium (Flanders)	1.7 (1989-91)
	France	1.7 (1993)
	Netherlands	1.7 (1992-93)
11	United Kingdom	2.0 (1993)
12	Austria	2.1 (1991)
13	Switzerland	2.2 (1988)
14	Germany (East)	2.5 (1991-94)
15	Germany (West)	2.6 (1994)
16	Czech Republic	2.7 (1993)
	Slovak Republic	2.7 (1987)
18	Hungary	3.7 (1991)
19	Slovenia	3.9 (1993)
20	Portugal	4.2 (1990)
21	Lithuania	4.4 (1993-94)
	Romania	4.4 (1995)
23	Poland	5.4 (1993)

*NB No recent data were available for Sweden.*

The table above ranks EU and some neighbouring non-EU countries by the dental health of their children.

The league rankings are based on the average number of decayed, missing or filled teeth found in 5, 6 or 7-year old children during surveys conducted at various points in time from the late 1980s to the mid 1990s.

The reasons for relatively high or low levels of dental caries among children are many and complex.

They relate partly to diet, including the amount and frequency of sugar consumption; partly to the availability, affordability and use of fluoride toothpaste and the length of time it has been on the market; partly to the presence of fluoride in other forms, including water and salt; and partly to preventive programmes targeted at 'high risk' children from poorer social backgrounds.

Given the wide variations in circumstances between countries, the league table is not therefore comparing like with like.

However, it underlines the wide variations within the EU and between many EU countries and those outside the EU in the east of Europe.

According to the table (overleaf), the best country in Europe is the Irish Republic, where the average child in its Eastern Health Board area (including the city of Dublin) has less than one tooth decayed, missing or filled. This is known as the dmft score.

A group of countries, including Spain, Denmark, Finland, Norway, Belgium, France, the Netherlands and the UK, have scores of between 1.0 and 2.0. In Portugal, Lithuania, Romania and Poland, the scores are between about 4.0 and 5.4. This means that in some parts of Europe the level of caries is five times higher than in others.

Of course, it should be remembered that within all countries, the level of caries will probably vary considerably between regions and between social groups.



How Tooth Decay in the EU has declined -  
*with more than a little help from Fluoride*

Tooth decay (dental caries) is still a widespread disease in the EU. Almost all adults have experienced it. Most of them have had teeth filled. Many have had teeth extracted. A significant number of people have lost all their teeth.

The good news is that it is possible to report a marked decline in dental caries between 1970 and 1990 in six EU Member States - Denmark, Sweden, Finland, the Irish Republic, the United Kingdom and the Netherlands (96 million people representing 26% of the total EU population).

A measurable decline in dental caries has also occurred in a further five EU Member States since 1980 - France, Germany, Spain, Portugal and Greece (199 million people representing 54% of the EU population).

For example, between 1985 and 1994, the average number of decayed, missing and filled deciduous (first) teeth in Spanish 6 and 7-year olds has fallen from 3.6 to 1.0.

Much of the improvement is attributable to the increasing use of fluoride in toothpaste, salt and water.

## **Safety**

Major reviews of the evidence by leading medical scientists from Australia, Canada, Denmark, New Zealand, the UK and the United States have shown time and time again that fluoride used in these ways is safe as well as beneficial to teeth.

## **Toothpaste**

Fluoride toothpaste is now widely sold in every EU Member State, although it was introduced in some countries much earlier than elsewhere, which may partly explain why the decline in dental caries started sooner in some places than others. Dietary factors, including different patterns of sugar consumption, have almost certainly also played a role.

In many Member States, including Germany, France, Denmark, Italy and the United Kingdom, fluoride toothpastes represent more than 90% of the sales of toothpaste products.



## **Water**

Fluoridated water has played a significant role in some Member States (the Irish Republic, Spain and the United Kingdom).

Whilst fluoride exists naturally in all water supplies, in Europe it is generally present at lower than the optimum level at which measurable dental benefits are achieved.

Within the EU around 12.1 million people are currently supplied with water whose natural

fluoride content has been artificially adjusted up to the optimum level (1.0 parts of fluoride per million parts of water in a temperate climate).

In the Irish Republic, 67% of the population are benefiting from this public health measure. Fluoridation started in that country in 1964, which helps to explain why it is near the top of the European children's dental health league table with a very low number of decayed, missing and filled teeth per 5-year old child.

In the United Kingdom, fluoridated water is supplied to around 5.5 million people. The most extensively fluoridated region - the West Midlands - has the lowest level of dental caries, which is comparable with that of the Irish Republic.

## **Salt**

The addition of fluoride to salt, at a level of around 250 parts per million, has been taken up by a number of countries as an alternative to water fluoridation where water distribution systems are too fragmented or where there are other obstacles to fluoridation. European countries which now have fluoridated salt on the market include Switzerland, Germany, France and Belgium.

## **Milk**

The World Health Organisation's Oral Health Unit is currently coordinating a 'demonstration programme' for Fluoridated milk, which is being provided to 35,000 children attending nursery and primary schools in Bulgaria, Russia and the UK.

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