Dental Health Foundation
Ireland

White Paper on The Importance of Oral Health Promotion

June 2011

Executive Summary

The burden of chronic diseases is expected to rise dramatically in the Republic of Ireland between 2007 and 2020 (IPH 2010).

The available evidence shows that oral diseases share important common risk factors with the four leading chronic diseases - cardiovascular diseases, cancer, chronic respiratory diseases and diabetes - including unhealthy diet, tobacco use, and excessive alcohol consumption. Therefore good oral health is of vital importance to the general health of everyone in Ireland. Consequently, oral health promotion and preventive measures are important approaches to improving overall health and reducing costs.

Dietary excess can lead to chronic diseases such as obesity, diabetes, cardiovascular diseases, cancer, osteoporosis and oral diseases. In 2004 the World Health Organization (WHO) / Food and Agricultural Organization of the United Nations (FAO) published a Global Strategy on Diet, Physical Activity and Health, based on the analysis of the best available evidence on the relationship between diet and physical activity patterns and the major nutrition-related chronic diseases. Recommendations are made to facilitate the formulation of regional strategies and national guidelines to reduce the burden of nutrition-related chronic diseases.

The percentage of children under 18 experiencing consistent poverty has increased significantly from 6.3% in 2008 to 8.7% in 2009 (State of the Nations Health ï Ireland, 2010). Therefore it is imperative that there is continued investment in all areas of health promotion and prevention in Ireland, including water fluoridation.

Dental cavities can be prevented by a low level of fluoride constantly maintained in the oral cavity e.g. water fluoridation and the use of fluoride toothpaste. Long-term exposure to an optimal level of fluoride results in fewer cavities in both children and adults.

Traditional curative dental care is a significant economic burden for many high-income countries, where 5-10% of public health expenditure relates to oral health. The burden of oral diseases and other chronic diseases can be decreased simultaneously by addressing common risk factors such as tobacco use and unhealthy diet. (WHO, 2007)

Concerns about escalating health costs have led to increased interest in the cost effectiveness of public health programs many health promotion interventions do result in substantial cost savings for government and the community.

The public health solutions for oral diseases are most effective when they are integrated with other chronic diseases and with national public health programmes. By using these prevention strategies, the high cost of dental treatments can be avoided (WHO, 2007).

Recommendations

The following recommendations will require multi-professional and multi-disciplinary work, collaborative working and commitment at senior level, inclusion of all stakeholders and the sharing of information and resources,

1. Water Fluoridation should continue as a public health policy in Ireland and as a key supportive environment in the management of oral care provision for people in Ireland.

2. Established oral health promotion priorities in collaboration with stakeholders for promoting oral health and integrated oral disease prevention through primary health care and general health promotion.

3. Development of information awareness campaigns for healthcare professionals and patients on the importance of good oral hygiene for diabetics. To include best practice guidelines for health professionals.

4. Promote healthier lifestyles with the aim of reducing chronic diseases, such as cardiovascular diseases, cancer, obesity and diabetes including promotion of:
   - Decreased intake of sugars and well-balanced nutrition
   - Tobacco cessation and decreased alcohol consumption
   - Increased fruit and vegetable consumption

5. Development of a suite of oral health promotion messages that will seek to enhance the publicôs capacity to develop personal skills enabling them to identify issues such as:
   - Oral health and its relevance to general health including common risk factors
   - The benefits of good oral care
   - The benefits of early detection ï particularly in relation to oral cancers
   - When and how to access appropriate oral care
   - Consumer information on new developments in dentistry

6. Increase parents/carers understanding of oral health matters for their preschool children.

7. Inclusion of annual oral health promotion school based programmes into the Social and Personal Health Education (SPHE) Curriculum. Such as the Dental Health Foundation ôMighty Mouthô School Programme for 5-6 Year Olds and ôWinning Smilesô Schools Oral Health Promotion Programme for 7-8 Year Olds.

8. Development and implementation of a National Oral Health Policy

Dental Health Foundation, Ireland

The Dental Health Foundation (DHF) is a small organisation that emerged from within organised dentistry in the late 1990s to form an independent body funded directly by the Department of Health and Health Service Executive (HSE). The Foundation is a charitable trust governed by a Board of Trustees drawn from membership of both the public and private dental profession. In 2007 an Advisory Committee was put in place to provide advice and guidance on existing and proposed work programmes.

The mission of the Dental Health Foundation is to promote oral health in Ireland, by providing effective resources and interventions and by influencing policy through a multi-sectoral, partnership approach.

The DHF has made significant contributions in promoting oral health awareness and the reinforcement of good dental habits in Ireland through its collaborative working. It has and continues to develop oral health information programmes for children; both early childhood and school-based initiatives, oral cancer suffers, people with special needs, older people and the general population. The Foundation works in conjunction with a number of organisations including the Dublin Dental Hospital, Cork University Dental School and Hospital, Irish Cancer Society, the Irish Dental Association, National University of Ireland Galway, National Heart Alliance, HSE, Oral Health Services Research Centre, National Disability Authority, Northern Ireland Public Dental Services and Safe Food.

In addition to its programme working the Foundation provides Secretariat Services to the Irish Expert Body on Fluorides and Health which continually evaluates ongoing research and identifies and implements the necessary measures to ensure that this vital element of public health policy is delivered in line with the Forum on Fluoridation Report (2002) Recommendations and that the systems employed to give effect to these are sound, transparent, and meet the highest standards of quality assurance and accountability. Numerous studies conducted throughout the world have demonstrated the effectiveness of water fluoridation in the prevention of dental caries.

Good Oral Health

Good oral health means being free of chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the mouth and oral cavity (WHO 2007).

Common Causes of Oral Disease

Oral diseases share common risk factors with the four leading chronic diseases -- cardiovascular diseases, cancer, chronic respiratory diseases and diabetes -- including unhealthy diet, tobacco use, and harmful alcohol use. Poor oral hygiene is also a risk factor.

Periodontal (gum) disease, an inflammation of the gums, if left untreated, can lead to the loss of teeth and an increased risk of more serious diseases, such as respiratory disease. The bacteria in plaque can travel from the mouth to the lungs, causing infection or aggravating existing lung conditions (Health Canada 2009).

Bleeding gums (a sign of periodontal disease) are highly prevalent among adult populations in all regions of the world; advanced disease with deep periodontal pockets (6 mm) affects 10% to 15% of adults worldwide. The available evidence shows that important risk factors for periodontal disease relate to poor oral hygiene, tobacco use, excessive alcohol consumption, stress, and diabetes mellitus. Integrated preventive strategies based on the common risk factors approach are recommended for public health practice.

WHO has designed approaches for the integration of oral disease prevention within the prevention of non-communicable chronic diseases, and global strategies are currently being implemented in all regions of the world (Peterson et al 2005a). Sound knowledge about progress made in prevention of oral and chronic disease and health promotion may assist countries to implement effective public health programmes to the benefit of the poor and disadvantaged population groups worldwide (Peterson et al 2005b)

Research shows if a child has dental decay at a young age that they are likely to have dental decay as an adult. Oral disease causes pain, difficulty in chewing (causing under nutrition), speech problems, impaired performance in school, low self-esteem and poor social interaction. It is also associated with diabetes and obesity. Therefore good oral health is of vital importance to the general health of everyone in Ireland. Consequently, oral health promotion and preventive measures are important approaches to improving overall health and reducing costs.

Oral disease is expensive to treat. In the greater Dublin area, 2,294 children underwent general anaesthetic for dental extractions in 2008 ï 22% were aged

four or less. The total cost to the state of oral care is ú300 million; approximately ú3.5m (HSE 2007, 2008) of this is spent on water fluoridation which has contributed in a major way to the reduction of the burden of oral disease.

Health Promotion

Health promotion is the process of enabling people to increase control over the determinants of their lives to improve their health (Department of Human Services 2003).

Integrated Health Promotion is the most effective disease prevention and integrated health promotion strategies are those that address the individual, social and environmental determinants of health (Nutbeam 1998).

An integrated approach that incorporates many sectors (for example, transport, urban planning, environment, sport and recreation, food policy and regulation, education, health and welfare) and adopts multiple level strategies implemented concurrently offers the greatest potential for having an impact on the health of the population as a whole, addressing health inequalities and sustaining these changes over the long term (Garrard et al 2004)

The Ottawa Charter for Health Promotion (WHO 1986) has been recently reinforced by the 7th WHO Global Conference on Health Promotion which took place in Nairobi, Kenya in 2009. For the first time in history oral health was addressed through a special session organized by the WHO Global Oral Health Programme (GOHP) (Petersen and Kwan, 2010). The session focused on community empowerment, health literacy, and health behaviour, partnerships and intersectoral action, strengthening of health systems, including capacity building for oral health promotion. The oral health inputs for the Nairobi call for action include:

1. Oral health is a human right and essential to general health and quality of life.

2. Promotion of oral health and prevention of oral diseases must be provided through Primary Health Care and general health promotion. Integrated approaches are the most cost-effective and realistic way to implementation of sound interventions for oral health around the globe.

3. National and community capacity building for promoting oral health and integrated oral disease prevention requires policy and appropriate human and financial resources to reduce the gap between the poor and rich.

(Peterson 2010)

Oral Health and General Health

The ôOral health: action plan for promotion and integrated disease preventionô (World Health Assembly 2007) acknowledges the intrinsic link between oral health, general health and quality of life.

Oral health is not only important to your appearance and sense of well-being, but also to your overall health. Cavities and gum disease may contribute to many serious conditions, such as diabetes and respiratory diseases. Untreated cavities can also be painful and lead to serious infections.

Studies are also currently examining whether there is a link between poor oral health and heart disease and between poor oral health and women delivering pre-term, low birth rate (PLBW) babies. Maintaining good oral health includes keeping teeth free from cavities and preventing gum disease.

Poor oral health has been linked to sleeping problems, as well as behavioural and developmental problems in children. Poor oral health can also affect your ability to chew and digest food properly. Good nutrition is important to helping build strong teeth and gums that can resist disease and promote healing.

Oral health is important at all stages of life. The current cohort of older Irish people has low expectations in relation to their oral health and most only attend the dentist when they require treatment. Older people may suffer from tooth loss, affecting their quality of life. Ill fitting dentures can affect their ability to eat and speak properly. Older people in long-term care facilities are at particular risk of complications from poor oral health because of frailty, poor health and increased dependence on others for personal care (HSE, 2010).

In the editorial ôIts Never Too Late: Health Promotion and Illness Prevention in Older Personsô it states there is evidence that healthy lifestyle habits postpone and reduce morbidity. Health promotion and illness prevention range from simple but highly effective interventions to screening. Additionally, Geriatricians need to be active promoters of the concepts of preventative medicine and a healthy lifestyle for older persons. (Morley et al, 2002)

The burden of chronic diseases is expected to rise dramatically in the Republic of Ireland between 2007 and 2020 (IPH 2010). These chronic diseases include coronary heart disease, obesity and diabetes which have links to oral health. There is a strong association between obesity, diabetes, impaired glucose tolerance (IGT) and cardiovascular disease (CVD).

In 2006, diseases of the circulatory system accounted for 9,662 of all deaths in Ireland or an annual rate of 2.3 per 1,000 pop. Of these, 4,860 were due to coronary heart disease (CHD) and 1,903 to stroke (Central Statistics Office 2007).

Diabetes and Oral Health

Diabetes mellitus is now considered to be the leading public health problem in all developed countries.

In Ireland, 200,000 people have type 2 diabetes and a further 100,000 have high blood glucose levels and will only be diagnosed with diabetes when they present with a complication of diabetes. This figure is expected to double in the next ten years due to the current trends of increasing obesity levels, a major risk marker for type 2 diabetes. Other factors that contribute to the increasing number of people with type 2 diabetes are reducing physical activity levels and an ageing population. Type 2 diabetes accounts for 90% of the cases of diabetes (Strategy of the Diabetes Federation of Ireland 2006-2010)

There is also a link between diabetes and gum disease. People with diabetes are more susceptible to gum disease and it can put them at greater risk of diabetic complications (Health Canada 2009)

Healthcare professionals should be empowered to explain the need for oral hygiene and the background to enquiries about gum disease. Communication between diabetes and oral healthcare professionals could facilitate this empowerment (International Diabetes Federation 2009)

Obesity and Oral Health

Obesity is related to several aspects of oral health, such as caries, periodontitis and xerostomia (dry mouth) (Mathus-Vliegen et al, 2007)

There is a global epidemic of obesity affecting all ages. The prevalence of overweight and obesity is high and increasing in Ireland. Research shows that 38% of the adult population are overweight and 23% obese. By 7 years of age, 26% of girls and 18% of boys are overweight or obese. The Department of Health and Children's 2010 healthy eating targets are welcomed. They include:

- Increase by 20% the proportion of adults consuming the recommended 5 or more daily servings of fruit and vegetables (from 65% to 78%) by 2014.
- Reduce to less than 10% the dietary energy intake from foods with added sugars

A child who is overweight or obese is more likely to take this into adulthood. The health conditions associated with overweight and obesity will also be carried into adulthood and increase the likelihood of developing disease where obesity is a contributing factor. Not only that, but it is likely that the manifestations of these diseases are more likely to occur at a younger age than if the adult did not have existing overweight or obesity issues. Adults who are obese and have been since childhood are at a greater risk of suffering weight-related ill health and have a

higher risk of facing an early death than those who may have only became obese later in adulthood (Department of Health, Social Services and Public Safety 2011).

Intervention programmes show that schools have an important role in obesity prevention in children. (James et al 2007)

The costs of obesity have been assessed as contributing to between 2 and 7% of total healthcare costs (WHO 1997).

Oral Health and Nutrition

Market globalisation has a significant and worldwide impact on dietary excess leading to chronic diseases such as obesity, diabetes, cardiovascular diseases, cancer, osteoporosis and oral diseases. Diet and nutrition affects oral health in many ways. Nutrition, for example, influences cranio-facial development, oral cancer and oral infectious diseases. Dental diseases related to diet include dental caries, developmental defects of enamel, dental erosion and periodontal disease. Behavioural risk factors for cardiovascular disease and Type 2 diabetes include poor nutrition.

The WHO / Food and Agricultural Organization of the United Nations (FAO) has published a Global Strategy on Diet, Physical Activity and Health, based on the analysis of the best available evidence on relationship between diet and physical activity patterns and the major nutrition-related chronic diseases. The strategy aims at reducing the growing burden of non-communicable diseases in both developing and developed countries. Recommendations are made to facilitate the formulation of regional strategies and national guidelines to reduce the burden of nutrition-related chronic diseases. Among other recommendations, free (added) sugars should remain below 10% of energy intake and the consumption of foods/drinks containing free sugars should be limited to a maximum of four times per day.

In order to minimize the occurrence of dental erosion which particularly seems related to consumption of acidic beverages, the amount and frequency of intake of soft drinks and juices should be limited. Elimination of undernutrition prevents enamel hypoplasia and other potential effects of undernutrition on oral health (e.g. salivary gland atrophy, periodontal disease, oral infectious disease) (WHO)
The total worldwide mortality currently attributable to inadequate consumption of fruit and vegetables is estimated to be up to 2.635 million deaths pear year. Increasing individual fruit and vegetable consumption to up to 600g per day would reduce the total burden of disease by 1.8% and reduce the burden of ischaemic heart disease and ischaemic stroke by 31% and 19% respectively. (Lock et al, 2005).

Fluoride and Oral Health

The aim of water fluoridation is the adjustment of the natural fluoride concentration in fluoride-deficient water to that recommended for optimal dental health.

Fluoridation of drinking water remains the most effective and socially equitable means of achieving community-wide exposure to the caries prevention effects of fluoride (National Health and Medical Research Council Australia, 2007)

For optimal dental health WHO suggests a level of fluoride of between 0.5 and 1.0 mg/litre, and recommends that where caries rates are moderate to high, or where there is evidence of increasing caries rates, fluoride levels should be increased to this optimal level (World Health Organization Expert Committee on Oral Health Status and Fluoride Use, 1994).

The most recent national survey of childrenôs oral health in Ireland found that of those living in areas with fluoridated water 37% of children has dental decay by the age of 5. In areas where there is no fluoride in the water, 55% of all 5 year olds have experienced dental decay. The percentage of children under 18 experiencing consistent poverty has increased significantly from 6.3% in 2008 to 8.7% in 2009 (State of the Nations Health ï Ireland, 2010). Therefore it is imperative that there is continued investment in all areas of health promotion and prevention in Ireland, including water fluoridation.

Oral Cancer

Smoking is a major risk factor for oral and dental disease, including oral cancer. Tobacco smoke is very harmful to gum tissues and other tissues in the mouth. Toxins in smoke can cause oral cancer and also damage the bone around the teeth, a major cause of tooth loss. In fact, smoking is one of the biggest risk factors for gum disease cancer (Health Canada 2009).

Oral cancer has been predominantly an older personôs disease but there is now an increasing trend with younger people. Smoking or drinking alcohol are the most important risk factors for mouth head and neck cancer. However the risk of mouth head and neck cancer is even greater if a person smokes and drinks. Early diagnosis greatly improves the chance of successful treatment, it is therefore imperative that the public is encouraged to attend the dentist on a regular basis for opportunistic screening at every check visit (Kaplan et al, 2002).

Osteoporosis and Oral Health

Children in the Republic of Ireland (RoI) have amongst the highest frequency of consumption of foods and drinks sweetened with sugar when compared with 34 other countries (WHO). The Irish Health Behaviour in School aged Children (HBSC) Study (2006) showed that overall, 26% of children reported drinking soft drinks on a daily basis.

ôDental Caries is caused by the action of organic acids on the enamel surface of the teeth. The acid is produced when sugars, mainly sucrose in foods and drinks, metabolises with bacteria present in dental plaque.ô (National University of Ireland, Galway and the Dental Health Foundation, 2010).

The UK national dental health survey suggested that dental erosion is common in young adolescents and assumed that it was caused predominantly by acidic drinks (Moazzez et al 2000)

Consumption of cola carbonated drinks (but not other carbonated soft drinks) is also associated with low bone mineral density (BMD) as outlined in the Framingham Osteoporosis Study 2006. Cola drinks were associated with significant lower BMD at each hip site in women. This is of considerable public health importance as BMD is strongly linked with fracture risk and also because cola is a popular beverage.

Cost Efficiencies

Concerns about escalating health costs have led to increased interest in the cost effectiveness of public health programs many health promotion interventions do result in substantial cost savings for government and the community.

A recent study commissioned by the Commonwealth Department of Health and Ageing ó*Returns on investment in public health*ôreported an economic analysis of public health programs to reduce tobacco consumption, coronary heart disease, HIV/AIDS, measles and Hib-related diseases, and road trauma (Commonwealth Department of Health and Ageing 2002b).The study estimated the costs of the public health programs and the benefits of the programs in terms of longevity, improved health status, and lower health care expenditures.

Diabetes

A recent *cost-effectiveness* evaluation indicated that intensive diet/physical activity interventions are more cost-effective than drug treatments ($24,400 and $34,500 respectively per case of diabetes prevented) (Diabetes Prevention Program Research Group 2003).

Coronary heart disease
Public health campaigns were estimated to have contributed to 10 per cent of the reduction in smoking, 30 per cent of the reduction in cholesterol, and none of the reduction in blood pressure.

The estimated net benefit (1968-1998) of the public health program was $8.478 billion. Maintaining and improving the health of community members is universally seen as a worthwhile investment of resources. (Garrard et al, 2004).

Traditional curative dental care is a significant economic burden for many high-income countries, where 5-10% of public health expenditure relates to oral health. The burden of oral diseases and other chronic diseases can be decreased simultaneously by addressing common risk factors such as tobacco use and unhealthy diet:

- Decreased intake of sugars and well-balanced nutrition prevent tooth decay and premature tooth loss.
- Tobacco cessation and decreased alcohol consumption reduce risk for oral cancers, periodontal disease, and tooth loss.
- Fruit and vegetable consumption is protective against oral cancer.
- Effective use of protective sports and motor vehicle equipment reduces facial injuries.

(WHO, 2007)

Dental cavities can be prevented by a low level of fluoride constantly maintained in the oral cavity e.g. water fluoridation and the use of fluoride toothpaste. Long-term exposure to an optimal level of fluoride results in fewer cavities in both children and adults.

The public health solutions for oral diseases are most effective when they are integrated with other chronic diseases and with national public health programmes. By using these prevention strategies, the high cost of dental treatments can be avoided (WHO 2007)

Effect of recession
Increased unemployment and the abolishing of some PRSI related dental benefits has led to fewer people attending the dentist (Davis, cited in IrishHealth.com, 2011).

In 2008 the average at risk of poverty rate for the EU-27 was 16.5%. Ireland (using the EU methodology) had an at risk of poverty rate of 15.5%, the 13th highest in the EU-27 (Central Statistics Office 2010)

The NHS Information Centre poll of more than 11,000 people in England, Wales and Northern Ireland found a fifth had put off treatment over price. The Adult Dental Health Survey, which is carried out every decade, also found a quarter said cost influenced the kind of treatment they opted for (NHS 2009).

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