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Childsmile after 10 Years Part 1: Background, Theory and Principles

Abstract: Childsmile is the national child oral health improvement programme for Scotland. It was developed as pilots from 2006/7 in response to the public health challenge of poor child oral health. Childsmile recognizes the importance of the social determinants of health, and takes common risk factor and proportionate universal approaches to deliver complex multifaceted interventions in multiple settings and by multidisciplinary teams.

CPD/Clinical Relevance: This paper describes the theory and principles associated with the development and implementation of Childsmile.

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Dental caries is one of the most prevalent diseases of childhood. In the UK, it continues to be the commonest reason for an elective hospital procedure under general anaesthesia in children under 18 years.[1]

Biomedical model of dental caries

A traditional biomedical model of dental caries has been well documented. Intra-orally, the following factors play an important role:

- The plaque biofilm on the tooth surface;
- The concentration of fluoride in the local environment;
- Characteristics of saliva and the tooth structure; and
- The availability of free sugars in the diet – with the dominant role of sugars increasingly coming into focus.[2]

It is often stated that caries can, to a large extent, be prevented or controlled at the sub-clinical level, substantially improving quality of life and child morbidity. From a biological perspective, this involves sugar and biofilm control, and ensuring fluoride bio-availability.

In the United Kingdom, trends in child dental caries rates declined rapidly from the 1970s to the late 1980s, attributed to the introduction and widespread use of fluoride toothpaste during this period. However, by the 1990s, these improvements had slowed and inequalities in dental health were becoming very apparent, with those from the lowest socioeconomic groups bearing the greatest burden.

'So why does child caries remain so prevalent world-wide and affect particularly those from more disadvantaged groups when it can be to a large extent prevented?'

It is now understood that socioeconomic factors influence the ability and ease of adopting measures related to plaque and sugar control and exposure to optimal levels of fluoride among different individuals and population groups. There may also be other pathways from socioeconomic circumstances to disease yet to be unpacked. Child oral health shows the same social gradient as is seen for many chronic diseases and it is recognized that complex approaches are required to tackle such inequalities.

Marmot and Fenton have indicated that it is *'unjust and unfair that people from disadvantaged backgrounds experience high levels of dental disease' and that 'urgent action is therefore needed to tackle oral health inequalities'*. They state that a public health approach is required to address the underlying social determinants of oral health inequalities and that, with shared risk factors, inclusion of joint integrated action on the common risks for chronic diseases is essential.[3]

Health improvement approaches

Common and Multiple Risk Factor Approach

Diseases of the oral cavity such as dental caries, periodontal disease and

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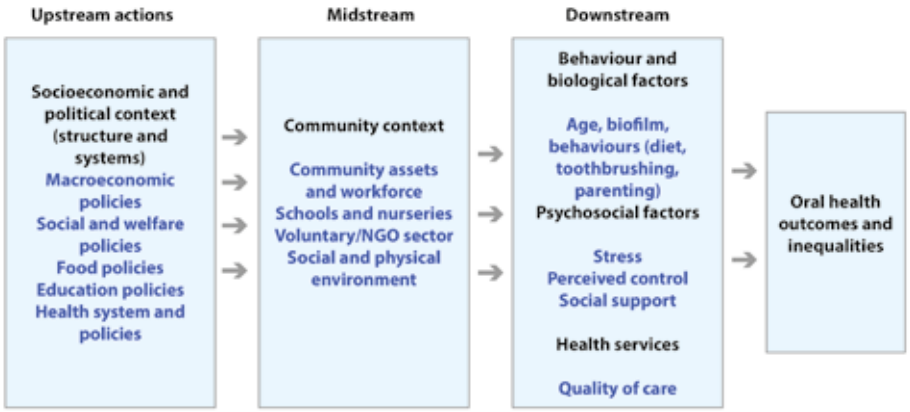

Figure 1. Model of circumstances and risks for oral health inequalities. Adapted from Watt and Sheiham, 2012.[26]

oral cancer are classified by the World Health Organization (WHO) as Non-Communicable Diseases (NCDs), sharing risk factors such as smoking, alcohol and a high sugar diet with other chronic diseases. A common risk factor approach is therefore advocated as an effective and cost-effective approach to the prevention of such diseases,[4] with sugar control being particularly important in relation to dental caries. Risk factors also cluster together and are socially patterned, indicating the need for multifaceted interventions.[5]

Social determinants of health

Traditionally, much of the activity associated with the prevention of caries in children has focused on clinical prevention and dental health education, targeted towards parents and the child. However, systematic reviews have shown that the latter approach on its own has very limited impact on health improvement,[6] and can lead to increases in health inequalities. Those least likely to need support are more likely to access dental services – and this inverse care law is well recognized.[7] Moreover, dental health education approaches have been singled out as increasing inequalities as they are taken up by those with higher socioeconomic status, education and resources,[8,9] while those from more disadvantaged circumstances find it much more challenging.

It is important to realize that the promotion of oral health, particularly in disadvantaged communities, will best be achieved by understanding the circumstances in which people live on a day-to-day basis, and creating supportive environments conducive to promoting oral health.

The publication of the Ottawa Charter in the 1980s[10] was very influential in recognizing the need to shift away from the emphasis being on individuals and their behaviour to a more public health approach encompassing the social and environmental conditions in which people live. Important principles of the Ottawa Charter include: creating supportive environments, strengthening community action and developing personal skills. Figure 1 shows how material and social circumstances can impact on health and health inequalities. Economic, social and welfare policies at government level can affect living and working conditions, community cohesion and support, and psychosocial factors in individuals such as coping abilities, resilience and stress. The latter in turn can result in responsive behaviours such as comfort eating, smoking and excessive alcohol consumption. Additionally, financial, commercial, social and community circumstances can influence access to health promoting foods and resources (such as fluoridated toothpaste) and health services.

Watt highlights the importance of acknowledging that future actions to tackle inequalities in oral health may be very different from the strategies used previously.[11] He states that a social determinants approach to tackling oral health inequalities is essential and that reductions in oral health inequalities are more likely to be achieved by working in partnership across sectors and disciplines, through population-based public health measures.

Upstream approach

Thus health improvement, with associated reductions in health inequalities, requires a multifaceted approach. This involves implementing interventions at the structural (policy/regulation), community and individual levels, a methodology often referred to as the upstream/midstream/downstream approach.[12]

Reviews have shown that the upstream approach is likely to have a greater reach, effectiveness and cost-effectiveness, at a population level, than more downstream interventions. An example of this can be seen in relation to tobacco control, where pricing policies and clean air regulations have had a much more significant impact on reducing smoking attributable deaths than one-to-one or small group smoking cessation clinics.[13] Health professionals, including those from dentistry, have been providing education and advice to the public on sugar control for many decades with very limited impact on levels of consumption. It is now recognized that more radical upstream approaches are also required to make a significant difference in this area.

The WHO advocates combining the strategy for child caries prevention with actions against childhood obesity and with breastfeeding initiatives.[14] Other upstream and common risk factor approaches recommended include the implementation of comprehensive programmes that promote the intake of healthy foods and reduce the intake of sugar-sweetened beverages and foods. These include the introduction of sugar sweetened beverage (SSB) taxation policy, sugar product reformulation, school food policies and implementing recommendations on marketing of foods and unhealthy drinks to children. The SSB tax is to be welcomed – modelling work shows that it is likely to be effective in preventing childhood decay.[15,16]

Community-based midstream approach

In addition to upstream policies and regulations, there is good evidence that work at the community level can improve resilience, self-esteem, health behaviours and health. It is also recognized as a means of engaging the most vulnerable communities.[17,18,19] Ensuring people from local communities, community/voluntary sector organizations and statutory services work together to co-produce, plan and deliver initiatives relevant to local circumstances is considered an overarching principle of

Nature of Intervention	Theme
Supervised toothbrushing in targeted childhood settings	Supportive environment
Healthy food and drink policies in childhood settings	Supportive envinronment
Targeted peer support groups/peer oral health workers	Strengthening community action
School/community food co-ops	Strengthening community action
Oral health training wider workforce	Supporting consistent evidence informed information
Integration oral health into targeted home visits by health/social workers	Supporting consistent evidence informed information
Targeted community-based FV programmes	Community-based preventive services
Targeted provison of toothbrushes/paste (ie postal or via HVs)	Community-based preventive services

Table 1. Summary of child oral health programme community-based interventions with some evidence of effectiveness – adapted from Public Health England 2014. Local authorities improving oral health: commissioning better oral health for children and young people.[21]

Social prescribing: is a potential approach for healthcare teams, including dental professionals, to work with their patients to support them maximize their health and wellbeing. It involves linking, referring, or signposting patients to support them to make use of wider community services (activities or resources) known to improve/promote health. It prescribes activities that could not be provided within a healthcare setting (eg exercise classes, gardening clubs, cooking skills groups, debt advice, etc). These community services are often provided by community or voluntary groups/organizations.

Examples of community and voluntary organisations can be found here:

- Community Food and Health Scotland – information and community directory **http://www.communityfoodandhealth.org.uk/**
- Community Health Exchange – information and community led health database **http://www.chex.org.uk/**
- Voluntary Health Scotland – **http://www.vhscotland.org.uk/**

The essential components of successful social prescribing include:

1. Identify needs of family/child via a social history;
2. Identify local community-based/voluntary/or public-sector initiatives or projects which aim to improve health by meeting the specific needs; and
3. Facilitate linking via a support or link worker.

Table 2. Social prescribing to local services and agencies.

good practice; and the more stages of the work people are involved in, the greater the benefits.[20] The importance of a ground-up approach is emphasized, ie working with, not doing things to, communities. Time and opportunities to build good working relationships amongst all stakeholders are required. This includes discussions relating to power, decision-making authority and responsibility.[17]

Examples of approaches include community-run food initiatives ('co-operatives') and opportunities to integrate oral health improvement into other voluntary programmes and action groups. Such programmes can also support families via the provision of skills and advice in a range of areas, such as parenting, resilience, welfare benefit and debt management, as well as providing a local social network of support. Community-based approaches can also involve integrating oral health into existing health services, such as ante-natal classes, breastfeeding initiatives and universal child development checks. These can be linked to community-based oral health workers. Free provision or sales of subsidized toothbrushes and toothpastes can take place through community clinics. Nurseries and schools also provide opportunities for oral health to be integrated into the curriculum as part of health and wellbeing plans. Initiatives include healthy food policies, daily supervised toothbrushing and fluoride varnish programmes.

Examples of ways of promoting child oral health via community action have been outlined in a toolkit for local authorities prepared by Public Health England,[21] and those with existing or emerging evidence of effectiveness, and included in Childsmile, are summarized in Table 1.

Role of the primary dental care team

Another principle of the Ottawa Charter is reorienting services to be more preventive orientated. The Scottish Government Fairer Scotland Action Plan aims to change deep-seated, multi-generational, poverty and inequalities.[22] It acknowledges that 'this may mean we have to take tough decisions or shift priorities, look at how we deliver services in a new or different way, but that will be part of the challenge we face'.

The sections above make it clear that clinical prevention and advice within the primary care setting will not be enough, on their own, to improve population child oral health and tackle oral health inequalities. However, that is not to say that the primary care dental team does not have an important role in the overall public health approach.[23]

Clinical guidance documents have been produced across the UK, outlining evidence-based guidance and good practice approaches to child oral health promotion in the dental practice setting.[24,25] The clinical preventive treatment approaches for children proposed in these documents include fluoride varnish and fissure sealants. However, the importance of advice on toothbrushing and

sugar control is recognized to be essential, and this must be tailored to the individual needs of children and their families. Practice team members need to understand how specific social and economic factors influence the ability of implementing oral health promoting approaches within the family home. Where a need is identified outwith the direct remit of the team, social prescribing to local services and agencies of the type described in Table 2 should occur.[23]

Conclusions

In conclusion, the available evidence recommends that efforts to tackle child oral health and health inequalities in the UK will require input at various levels, recognizing the individual, community and national policy contexts. Watt has highlighted that this has profound implications for strategy development.[11] He suggests that dental practice staff can work to strategies focusing on individuals and the local community, while dental public health professionals and dental professional organizations can operate and influence change predominantly at the more upstream level by participating in and advocating for national policy development. At all levels, an inter-sectoral style of partnership working is required with a wide and diverse range of stakeholders.

The development and implementation of the Childsmile Programme in Scotland have been based on the principles outlined above.

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