Oral health inequalities: time for action

29th September 2016, EADPH, Budapest.

Professor Richard G Watt
Department of Epidemiology & Public Health, UCL
Outline of Presentation

- Outline nature of oral health inequalities & gradients
- Stress importance of social determinants framework
- Highlight need for radical public health approach to reduce inequalities
- Outline importance of international collaborative action and networks
Nature of health inequalities
HEALTH DIFFERENCES

INEVITABLE

POTENTIAL AVOIDABLE

ACCEPTABLE

UNACCEPTABLE, UNFAIR

INEQUALITIES

Dahlgren & Whitehead (1991)
Life expectancy in countries in the WHO European Region, 2010 (or latest available)

Source: WHO Health for all database, 2012
<table>
<thead>
<tr>
<th>Location</th>
<th>Life Expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK, Glasgow (Calton)</td>
<td>54</td>
</tr>
<tr>
<td>India</td>
<td>62</td>
</tr>
<tr>
<td>US, Washington D.C. (black)</td>
<td>63</td>
</tr>
<tr>
<td>Philippines</td>
<td>64</td>
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<tr>
<td>Lithuania</td>
<td>65</td>
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<tr>
<td>Poland</td>
<td>71</td>
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<tr>
<td>Mexico</td>
<td>72</td>
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<tr>
<td>Cuba</td>
<td>75</td>
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<tr>
<td>US</td>
<td>75</td>
</tr>
<tr>
<td>UK</td>
<td>77</td>
</tr>
<tr>
<td>Japan</td>
<td>79</td>
</tr>
<tr>
<td>US, Montgomery County (white)</td>
<td>80</td>
</tr>
<tr>
<td>UK, Glasgow (Lenzie N.)</td>
<td>82</td>
</tr>
</tbody>
</table>

Sources: WHO World Health Statistics 2007; Hanlon, Walsh & Whyte 2006; Murray et al. 2006
Social gradient in health
Health inequalities

Key public health challenge for 21st century
Oral health inequalities
Our teeth show the biggest gaps in equality

Once we distrusted too-perfect pearly whites. Now everyone craves a Clooney smile. And if you can’t afford it, you’re a nobody

Janice Turner

W

When my dentist began in practice, he made 200 sets of dentures a year; two decades on, he makes just a few.

Now, however, he performs a cutting-edge procedure where in a single day, suspended in half-sleep, you can have all your old teeth yanked out, titanium implants screwed in, and leave that evening with a gleaming new set. For a price...

Growing up in the 1970s, every TV ad break featuredSteradent and denture fixative. Charging into your granny’s bedroom too early, you’d find her gummy and gurning, an obscene pink thing like an organ picking by the bed. Better out than in, was the received dental wisdom for my parents’ generation. When my uncle had his teeth extracted in his twenties, they were so beautiful, family legend has it, that the poor dentist wept.

That we will most likely die with our own teeth — or ingenious metal substitutes — is one of the greatest advances of civilisation. The dentistry of bygone ages, even my own childhood with its scary knock-out gas, is one reason I’d never travel back in time. And yet we have become a country in which social inequality is inscribed in our smiles.

All this anxious debate about the need for seven-day GP surgeries and yet it is far easier to get an appointment with a doctor than a dentist. The consumer body Which?, in a report published this week, called 500 dental surgeries which claimed to accept new NHS patients and found a third would not. Half couldn’t offer an appointment within a fortnight; many had waiting lists of nine months, although private treatment was often available the next day. The nearest NHS dentist could be 40 miles away.

This is not all about dentist greed — although Which? found some pressuring patients into expensive hygienist sessions — but because they are paid by the government only to perform a fixed allocation of NHS procedures a year. Moreover, since NHS treatment is rarely free (£18.80 for a check-up) and is often perfunctory, no wonder anyone who can afford it goes private. The day I was offered a mouthful of gum metal or a discreet white filling for £50 more I never used the NHS again.

In a recent photo of Tony Blair, I noticed he still has that single discoloured incisor snuggled behind the others, which piques the eye like a dead flower in a vase. Odd that for all his other American affectations he never fixed it. Will he turn out to be our last prime minister with British teeth? Gordon Brown felt he needed soap star super-white veneers to launch his (hilariously jarring) prime ministerial smile.

Once we distrusted too-perfect teeth as the props of shyster salesmen or TV evangelists: an obsessive care about surfaces made us distrustful of what lay beneath. But this is the superficial century. We have leapt to embrace the American make-up dictum of “be the best person you can be”. Even if honing our bodies takes needles, scalpels or adventures in foreign healthcare systems and produces teeth in toilet-bowl shades never seen in nature.

As horse breeders know when they prise open a nag’s mouth, teeth reveal your age, your animal vitality. Lovable imperfection is dead. Good teeth once meant “don’t ache, can chew steak”.

Now it is a Clooney smile. The British Dental Health Foundation found almost half of us would consider cosmetic work if we could afford it. And dentists position themselves as aesthetic technicians, many also injecting Botox on the side. No wonder those most likely to blow thousands on veneers are women aged 40 to 50. Meanwhile sales of expensive whitening toothpaste and dental strips are soaring. Good teeth can knock off ten years.

As Malcolm Gladwell notes in his recent book David and Goliath, the new class markers are obesity and bad teeth. A very fat woman won’t get a front-of-house job at a fancy firm; Tinder suitors won’t swipe right if you have a gappy smile. It is no longer acceptable to make character judgments based on race or sexuality, but still overweight is read as sloppy, buck-toothed as weird.

And dental inequality is growing: London, where cosmetic dentistry is most commonplace, has the highest number of people who never see a dentist. Those who never receive treatment turn up in dental hospitals as emergency patients when they can no longer bear the pain. Poorer teenagers are less likely to be fitted with braces than the better off.

And former drug addicts are doomed by their teeth. Prescription methadone, a thick sugary syrup, must be consumed in front of the pharmacist so it is not taken off and sold. Teeth are left uncleansed all day and rot. Those with chaotic lives miss appointments and are struck off dentists’ lists. Even if they quit drugs, they are branded addicts and kept out of jobs by their dentists’ mouths.

Two million people are estimated to have no access to an NHS dentist. And there are reports of an surge in DIY dentistry, using those kits you can buy in pound shops and airport lounges to stick a crown back on as a permanent solution. In April, the Gulf War veteran Ian Boynton, having failed to find an NHS dentist, used pliers to pull out 13 of his own teeth.

I would too if I had no choice. And I know about toothache, once nursing an infected, impacted wisdom tooth which couldn’t be removed for months as I was pregnant. Sleepless nights spent dabbing on whisky, ice-cubes, oil of cloves; turning up at hospital on my due-date in tears. Without adequate modern dentistry we regress to animals pawing at our faces and howling at the sky.
SES and caries: systematic review

- Low SEP is associated with a higher risk of caries lesions or experience.
- Association stronger in developed countries.
- Inequalities not due to diagnostic and treatment concepts.

Examples

Local level
Deprivation and dental disease

Dyer et al., (2010)
Avg. number of decayed (dt), missing (mt), filled (ft), teeth for 5 year old children in Islington 2003/04 by school. (Source: BASCD 2004)

- Average of dt
- Average of mt
- Average of ft

Average of dmft

School
Examples

National level
Figure 5.7 (4.2) Percentage of 15 year olds with severe or extensive decay experience in permanent teeth by country, sex and free school meal eligibility status, 2013

- Total
- England
- Wales
- Northern Ireland
- Male
- Female
- Eligible for Free School Meals
- Not eligible

Percentage
Inequalities: behaviours & impact

• Oral health behaviours varied by SES eg
  – Toothbrushing (72% vs 82%)
  – Regular dental attendance (66% vs 86%)
  – Sugar drinks (13% vs 26%)

• Significant variation by SES on subjective impacts of oral disease eg
  – Pain (27% vs 11%)
  – Two or more difficulties (39% vs 28%)
Probabilities of being edentate for adults by social class - ADHS.

Education gradients in self-rated oral and general health, periodontal disease and heart disease

(Sabbah et al, 2007; JDR)
Examples

International level
Distribution of Oral Disorders Globally
(age-standardized, both sexes, DALYs per 100,000)

Source: IHME, Global Burden of Diseases (2013)
The State of Oral Health in Europe

Report Commissioned by the Platform for Better Oral Health in Europe

Dr. Reena Patel, Dental Advisor

September 2012
Figure 1: Changes in mean national Decayed Missing Filled Teeth (DMFT) scores for 12 year olds from profiled Member States between the 1980s and first decade of 2000 (WHO 2012b)
Income-related inequalities in dental service utilization, Europeans aged 50+ years

* non-significant

Welfare state regimes in Europe: **Anglo-Saxon, Bismarckian, Scandinavian, Southern** (Ferrera’s typology) + Eastern
Results

Age-standardized prevalence of edentulousness by welfare state regime
Age-standardized prevalence of edentulousness by occupation and welfare state regime (Participants aged ≥45 years from 21 European countries)

* $P$ for trend $\leq 0.01$

Guarnizo-Herreno et al, 2012
## Results

**Relative inequalities in no functional dentition by welfare state type**

<table>
<thead>
<tr>
<th>Welfare State Regime</th>
<th>Socioeconomic position measure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Education</td>
<td>Occupational class</td>
</tr>
<tr>
<td></td>
<td>RII 95% CI</td>
<td>RII 95% CI</td>
</tr>
<tr>
<td>Scandinavian</td>
<td>3.81 2.68 - 5.42</td>
<td>3.79 2.65 - 5.41</td>
</tr>
<tr>
<td>Anglo-Saxon</td>
<td>1.89 1.22 - 2.92</td>
<td>2.36 1.53 - 3.65</td>
</tr>
<tr>
<td>Bismarckian</td>
<td>2.22 1.74 - 2.84</td>
<td>1.59 1.27 - 2.00</td>
</tr>
<tr>
<td>Southern</td>
<td>1.79 1.21 - 2.65</td>
<td>1.91 1.24 - 2.94</td>
</tr>
<tr>
<td>Eastern</td>
<td>1.57 1.34 - 1.84</td>
<td>1.88 1.53 - 2.31</td>
</tr>
<tr>
<td><em>p</em>-value&lt;sup&gt;a&lt;/sup&gt;</td>
<td>&lt;0.001</td>
<td>0.925</td>
</tr>
</tbody>
</table>

<sup>a</sup> *p*-value of the interaction between each SEP score and welfare state regime
DOCTORS OF THE WORLD APPEAL

Putin and the gunslingers p 6
Austin Powers bites back p 14
Where is the Christmas spirit? p 16
Fighting zombie infections p 22
How to avoid the anger of ghosts p 29

A CROSS SECTIONAL COMPARISON OF NATIONAL ORAL HEALTH SURVEYS

Austin Powers bites back
Carol C Guzman-Herrero,1,2 Georgios Tsakos,1 Aubrey Shaheen,1 Michael G Marmot,1 Ichiro Kawachi,3 Richard G Watt1

Objective To compare oral health in the US and England and to assess levels of educational and income related oral health inequalities between both countries.

Design Cross sectional analysis of US and English national surveys.

Setting Non-institutionalised adults living in their own homes.

Participants Oral health measures and socioeconomic indicators were assessed in nationally representative samples: the Adult Dental Health Survey 2009 for England, and the US National Health and Nutrition Examination Survey 2005-08. Adults aged 25 years were included in analyses.

Main outcome measures Number of missing teeth, self rated oral health, and oral impacts on daily life were outcomes. Educational attainment and household income were used as socioeconomic indicators. Age standardised estimates of oral health were compared between countries and across educational and income groups. Relative and absolute inequalities were measured using the relative index of inequality (RI) and the slope index of inequality (SII).

Results The mean number of missing teeth was significantly higher in the US (2.31 (standard error 0.15)) than in England (0.97 (0.02)), while oral impacts were higher in England. We found no difference in self rated oral health between the two countries. There was evidence of significant social gradients in oral health in both countries. Conclusively higher RI and SII values were found in the US than in England, particularly for self rated oral health. RI estimates for self rated oral health by education were 3.47 (95% confidence interval 3.33 to 3.61) in the US and 0.73 (95% confidence interval 0.63 to 0.82) in England. In turn, SII values were 4.25 (9.18 to 44.96) in the US and 1.4 (1.01 to 22.85) in England.

Conclusions The oral health of US citizens is not better than the English, and there are consistently wider educational and income oral health inequalities in the US compared with England.

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CHRISTMAS 2015

Introduction There is a longstanding belief in the United States that the British have terrible teeth, much worse than US citizens. Contemporary examples of this belief include popular US culture range from The Sopranos to the Hollywood character Austin Powers and his.php (competing smile). Few studies have directly compared the oral health of US and UK populations. No study has assessed levels of oral health inequalities between the US and UK.

We aimed to fill these gaps using data from the US and England.

Methods Data Our analysis was based on data from the US National Health and Nutrition Examination Survey (NHANES) and the US National Health and Nutrition Examination Survey (NHANES). Both are nationally representative surveys with comparable information about oral health and socioeconomic position.

In the NHANES 2009-10 eligible adults were invited to an interview and those with at least one natural tooth were also invited to a clinical examination. In England, interview data referred to 5663 adults, of whom 6072 completed the clinical examination. The NHANES 2005-06 and 2007-08 collected information on oral health from 12,791 adults.

We selected participants aged 25 years and older. Analyses were conducted separately for educational and income inequalities, and only for adults with complete data. The analytical samples were 8,779 (England) and 9,786 (US) for analyses by education, and 7,184 (England) and 9,994 (US) for analyses by income. For clinical oral health, we considered only data for dentate participants in the US to achieve comparability with the English data. The samples for clinical data were 5,568 (England) and 7,718 (US) for analyses by education, and 4,068 (England) and 7,234 (US) for analyses by income.

Variables Number of missing teeth, self rated oral health, and oral impacts on daily life were outcomes. Number of missing teeth was derived from the clinical examination. For self rated oral health, we derived a binary variable distinguishing individuals who perceived their oral health as good or better than those who did not.

For oral impacts, both surveys included identical questions from the Oral Health Impact Profile-14 (OHIP-14) assessing pain, function, and social impacts. We derived a binary measure assessing the worst of the sample from those who reported “very often” or “frequently” to any OHIP-14 question.

Educational attainment and household income were the socioeconomic position indicators. Education was categorised as high school degree or above, medium school degree, some qualifications but not college degree (England), and less than high school in US, no qualifications in England. US income was available as numerical rather than in absolute numbers; we therefore divided the variable in three hierarchical groups approaching tertiles. To make comparable the income data in England, we used the same categorisation age, sex, marital status, and ethnicity were covariates.

Statistical analysis First, we estimated age standardised inequalities of oral health in each country. Second, regression models were fitted to assess
Relative inequalities in oral health measures, England & the US

A. Education

BRIT BAD TEETH
JIBE BITES DUST

BRITS have better teeth than Americans, researchers say.

Experts claim Yanks are wrong to mock us for having wonky or missing gnashers.

Spoof Brit spy Austin Powers has trademark goofy teeth.

And telly cartoon The Simpsons featured a dentist showing a patient horrific grins in The Big Book of British Smiles.

But scientists found our teeth are significantly healthier than those in America.

A University College London team looked at the oral well-being of 18,000 Brits and Americans. They found the average number of missing teeth was 7.31 in the US and 6.97 in the UK.

The team said it was thanks to NHS dental care and better lifestyles here, while people in deprived areas of the States were more likely to suffer from tooth decay.

The study, which was published in the British Medical Journal, concludes: “We have shown that the oral health of Americans is not better than the English.

“And there are consistently wider educational and income-related oral health inequalities in the US compared with England.”

By NICK McDERMOTT, Health Editor
Summary

- Significant association between clinical & subjective oral health outcomes and various SEP markers
- Universal social gradient
- Pattern across the life course
- Inequalities exist in different populations and settings

(Watt and Sheiham, 1999; Locker 2001; Hobdell et al., 2012)
Determinants of health inequalities
Oral health determinants

- Bio-medical perspective
  - Oral hygiene
  - Sugars consumption
  - Smoking and alcohol
  - Exposure to fluoride
  - Use of dental services
Paradigm shifts in aetiological perspectives

- Biological - biomedical approach
- “Lifestyle” - public health behaviourism
- Social determinants agenda
Social determinants of health
Closing the gap in a generation

Health equity through action on the social determinants of health
The poor health of the poor, the social gradient in health within countries and the marked inequities between countries are caused by:

**Structural determinants**
The unequal distribution in power, money, goods and services, globally, nationally and locally

**Conditions of daily life**
The consequent unfairness in the immediate, visible circumstances in people’s lives - access to schools, education, health care, conditions of work and leisure, their homes, communities, towns or cities

Commission on Social Determinants of Health, 2008
Social determinants of health

Socioeconomic and political context
- Governance
- Policy (Macroeconomic, Social, Health)
- Cultural and societal norms and values

Social position
- Education
- Occupation
- Income
- Gender
- Ethnicity / Race

Material circumstances
- Social cohesion
- Psychosocial factors
- Behaviors
- Biological factors

Health care system

Distribution of health and well-being

Social determinants of health and health inequities
Complex influences on health

Wider influences

Lifestyle factors

Health

individuals & communities
Conceptual Framework for Social Determinants of Oral Health Inequalities

Structural Determinants (Political and economic drivers)

**Socio economic & political context**
- Macro economic policies
- Social & welfare policies
- Political autonomy
- Discrimination
- Globalisation

**Intermediary Determinants (Circumstances & risk for oral disease)**

**Socioeconomic Position**
- Social Class
- Gender
- Ethnicity
- Occupation
- Income

**Material & social circumstances**
- Living & working conditions
- Food security
- Social capital

**Behaviour & biological factors**
- Age, genetics
- Inflammatory Processes
- Infections

**Psychosocial Factors**
- Stress
- Perceived control
- Social support

**Health Services**
- Quality of care
- Appropriate Access
- Evidenced based preventive orientation

**Oral health inequalities & Social gradient**

Adapted CSDH Framework (WHO 2008)
Evaluating the role of dental behaviour in oral health inequalities


Abstract - Objective: The aim of this study was to describe differences in dental attendance and dental self-care behaviour between socioeconomic groups and to investigate the extent to which the socioeconomic gradient in oral health was explained by these behaviours. Methods: We used data from a representative sample of adults in Australia, surveyed by telephone interview and by self-complete questionnaire. The dependent variables were self-reported missing teeth and the social impact of oral conditions evaluated with the 14-item Oral Health Impact Profile (OHIP-14). Socioeconomic position was measured at the small-area level. We conducted bivariate analysis using one-way analysis of variance and 95% confidence intervals (95% CI) and adjusted for the effect of confounding factors on the health behaviour variables.

The role of health-related behaviors in the socioeconomic disparities in oral health

Wael Sabbah*, Georgios Tsakos, Aubrey Sheiham, Richard G. Watt

Epidemiology and Public Health, J M Swire Building, University College London, London WC1N 8XY, United Kingdom

Abstract

This study aimed to examine the socioeconomic disparities in health-related behaviors and to assess if behaviors that influence socioeconomic disparities in oral health in a nationally representative sample of adults in the UK. Data are from the UK Third National Health and Nutrition Examination Survey (1998-1999). Behaviors were identified by asking: how often do you brush your teeth; frequency of eating fruits and vegetables and extent of calculus, used as a marker for oral hygiene. Oral health outcomes were gingival bleeding, loss of periodontal attachment, tooth loss and perceived oral health. Education and income indicated socioeconomic position. Sex, age, ethnicity, dental insurance and diabetes were adjusted for in the regression analysis. Regression analysis was used to assess socioeconomic disparities in behaviors. Regression models were adjusted for and not adjusting for behaviors were compared to assess the change in socioeconomic disparities in oral health. The results showed clear socioeconomic disparities in all behaviors. After adjusting for behaviors, the association between oral health and socioeconomic indicator attenuated but did not disappear. These models imply that improvement in health-related behaviors may lessen but not eliminate socioeconomic disparities in oral health, and suggest the presence of more complex determinants of these disparities which should be addressed by oral health preventive policies.
Prevailing preventive paradigm
Does this approach work?
Effectiveness Reviews

- Brown (1994)
- Schou and Locker (1994)
- Kay and Locker (1996)
- Sprod, Anderson and Treasure (1996)
- Kay and Locker (1998)
- Department of Human Services (1999)
- Watt and Marinho (2005)
- Yevilahova and Satur (2009)
- PHE (2014)
Limitations with education & clinical prevention

- Ineffective in reducing inequalities - fails to tackle causes
- Costly - high professional input
- Non sustainable
- Duplication of effort
- Public apathy and resistance
Inverse prevention law

Even when interventions are successful at improving health across the population, they may increase health inequalities.

(Gordon et al., 1999; Lorenc et al., 2012)
Scottish dental health education intervention

Plaque index=0

Before intervention 1 month after 4 month after

Non-deprived Deprived

No bleeding

Before intervention 1 month after 4 month after

Non-deprived Deprived

Summary

- Dominant preventive approach ineffective in tackling inequalities
- Too clinical, narrowly focused on high risk groups
- Urgent need to adopt a radically different approach
Time for change in approach
Implications for health improvement
What does the evidence show?
Effective policies to reduce inequalities

- Structural changes in environment
- Legislative and regulatory controls
- Fiscal policies
- Starting young
- Community action
- Improving accessibility of services
- Prioritizing disadvantaged population groups

(WHO 2003; Bambra et al., 2010; Lorenc et al., 2012)
Ineffective interventions – increase inequalities

- Information based campaigns (mass media programmes)
- Written materials (leaflets and posters)
- Campaigns reliant on people taking the initiative to opt in
- Health education campaigns designed for the whole population

(MacIntyre, 2007; Lorenc et al., 2012)
Policy Levels for Tackling Inequalities in Health

1. Strengthening individuals
2. Strengthening communities
3. Improving infrastructure and access to services
4. Making structural changes to economic, cultural and environmental conditions
Proportionate universalism

Proportionate targeting = greater change in gradient
Role of clinical staff
Working for Health Equity: The Role of Health Professionals
Role of clinical teams

- Population focus
- Delivery of evidence based prevention
- Organisational review of practice policy – access, equity
- Partnership working
- Local advocacy role
Role of dental associations
Oral health and the United Nations Political Declaration on NCDs
A guide to advocacy
Role of national dental associations

- Recognition of the importance of addressing inequalities & role of profession
- Training and capacity building across profession
- Advocacy and lobbying role – policy arena
- Partnership working across professional groups
Public health approach
Is sugar the new tobacco?
Guideline:

Sugars intake for adults and children
UK sugar intake compared to the recommended maximum of 5% energy

UK sugar intakes 2008/09 - 2011/12

% Total Energy

1.5 - 3 years  4 -10 years  11 - 18 years  19 -64 years  65+ years

Male  Female  Both
Theme 1: Produce and import less

Theme 2: Use less

Theme 3: Sell less

Theme 4: Market less

Theme 5: Advise to eat less

Theme 6: Eat less

Upstream:
- Taxes on sugary products
- Retail restrictions on high sugar foods
- Reduce portion sizes of sugary foods

Downstream:
SUGAR TAX PROPOSAL
Obesity & type-2 diabetes linked to high sugar intake
At least 6 systematic and narrative reviews of international evidence

Published from 2010-2015

Evidence from economic modelling, lab experiments, ecological analysis and limited number of experimental studies (very few RCTs)

Range of diet and other outcomes assessed (very few health outcomes)
Effects of Taxing Sugar-Sweetened Beverages on Caries and Treatment Costs

F. Schwindicke, W.M. Thomson, J.M. Broadbent, and M. Stolpe

Abstract
Caries increment is affected by sugar-sweetened beverage (SSB) consumption. Taxing SSBS could reduce sugar consumption and caries increases. The authors aimed to estimate the impact of a 20% SSB sales tax on caries increment and associated treatment costs (as well as the resulting tax revenue) in the context of Germany. A model-based approach was taken, estimating the effects for the German population aged 14 to 79 y over a 10-y period. Taxation was assumed to affect beverage-associated sugar consumption via empirical demand elasticities. Alterations in consumption affected caries increments and treatment costs, with cost estimates being calculated under the perspective of the statutory health insurance. National representative consumption and price data were used to estimate tax revenue. Microsimulations were performed to estimate health outcomes, costs, and revenue impacts in different age, sex, and income groups. Implementing a 20% SSB sales tax reduced sugar consumption in nearly all male groups but in fewer female groups. The reduction was larger among younger than older individuals and among those with low income. Taxation reduced caries increment and treatment costs especially in younger (rather than older) individuals and those with low income. Over 10 y, mean (SE) net caries increments at the population level were 82.37 (11.55) million and 83.02 (1.08) million teeth at 10% and 0% SSB tax, respectively. These generated treatment costs of 2.64 (0.39) billion and 2.72 (0.35) billion euro, respectively. Additional tax revenue was 37.99 (3.41) billion euro over the 10 y. In conclusion and within the limitations of this study’s perspective, database, and underlying assumptions, implementing a 20% sales tax on SSBS is likely to reduce caries increment, especially in young low-income males, thereby also reducing inequalities in the distribution of caries experience. Taxation would also reduce treatment costs. However, these reductions might be limited in the total population.

Invited Editorial

Taxes on Sugar-Sweetened Beverages: A Strategy to Reduce Epidemics of Diabetes, Obesity, and Dental Caries?

J.Y. Lee and W.V. Giannobile

Keywords: diet, oral health, health promotion, disease prevention, metabolic syndrome, sugar taxation

According to the Global Burden of Disease Study, diet is the leading cause of health loss (Lim et al. 2012). The dietary impact of sugar-sweetened beverages (SSBs) in addition to tobacco, alcohol, and salt serves as a major contributor to death (Blakely et al. 2014). SSBS have demonstrated putative effects on diabetes, obesity, metabolic syndrome, cardiovascular diseases, and certain cancer types (Hruby et al. 2016). Furthermore, the increasing risk in dental caries experience due to SSBS has become a global public health problem that has attracted the attention of clinicians, scientists, and policy makers (Listl et al. 2015; Meyer and Lee 2015). In this month’s issue of the
Opportunities for action

- Action possible in wide range of levels and settings
- Role of EADPH at international level lobbying & evidence
- Community and local level
  - Local Authority settings eg leisure facilities
  - Schools, nurseries etc – part of food policy
- Inequalities agenda
- Partnership working essential
- Need for careful community engagement
Collaborative international action
Launch Conference
In Partnership with Public Health England

Thursday 21st May 2015
Royal College of General Practitioners, London, UK

www.icohirp.com
Social inequalities in oral health: from evidence to action

Edited by Richard G Watt, Stefan Listl, Marco Peres and Anja Heilmann
London Charter on Oral Health Inequalities

R.G. Watt¹, A. Heilmann¹, S. Listl²,³, and M.A. Peres⁴

Keywords: social determinants of health, social epidemiology, oral health policy, public health dentistry, health status disparities, preventive dentistry

Burden of Oral Health Inequalities
Oral diseases, despite being largely preventable, remain a

social determinants (World Health Organization 2008). Theoretical approaches highlight the fundamental causes of health inequalities as the underlying social conditions in soci-

Figure 1. The London Charter on oral health inequalities
Your invitation to an exclusive event
‘Tackling Oral Health Inequalities’

Oral health inequalities - an overview - Professor Richard Watt
Professor and Honorary Consultant in Dental Public Health, UCL and International Centre for Oral Health Inequalities Research and Policy

Extent of oral health inequalities in England - Dr Sandra White
Director of Dental Public Health, Public Health England

Economic costs of oral health inequalities - Professor Stefan Listl
Department of Quality & Safety of Oral Health Care, Radboud University, The Netherlands

What is the role of the dental profession in tackling oral health inequalities? - Dr Peter Ward
Chief Executive, British Dental Association

Refreshments will be provided on arrival, followed by a buffet after the presentation. All attendees will receive a Colgate® ProClinical® Pocket-Pro™ electric toothbrush for personal use at the end of the evening.

Please RSVP by 30/09/2016 by registering for your complimentary place online at www.colgatecpd.co.uk/ or telephone: 0161 665 5883 Place are limited so please book early to avoid disappointment.
Conclusions

- Global challenge of addressing oral health inequalities
- Need to recognise limitations of biomedical preventive model
- Time to adopt a social determinants approach in oral health policy at local, national & international levels
- Importance of collaborative international action
Thank you

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