Addressing oral health inequalities: where do we stand?

24\textsuperscript{th} September 2017, ICOHIRP/UoA, Adelaide, Australia

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

- Outline importance of international collaborative action
- Highlight nature of oral health inequalities & gradients
- Stress importance of social determinants framework
- Highlight need for radical public health approach to reduce inequalities
Collaborative international action
Researchers & policy makers from 16 countries

Aim to explore nature of oral health inequalities

Inform policy recommendations
Achievements so far

• Seminar series in London & Berlin

• Publications

• Engagement with policy makers & dental associations

• International agenda

• Next conference – London 24th July 2018 (IADR)
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.

DATE:
Wednesday 5th October
6.00pm - Registration
6.30pm - Presentations
8.30pm - Buffet dinner

VENUE:
Royal College of General Practitioners, 30 Euston Square NW1 2FB

CPD for dentists, dental hygienists and dental therapists:
2 hours verifiable CPD
Meets expected standards
Framework for Quality Assurance for Dental CPD:
COPDEND UK (2016)

Please RSVP by 30/09/2016 by registering for your complimentary place online at www.colgatecpd.co.uk/ or telephone: 0161 665 5883 Places are limited so please book early to avoid disappointment.
Broader agenda
Health in All Policies

Seizing opportunities, implementing policies

Edited by
Kimmo Leppo
Eeva Ollila
Sebastián Peña
Matthias Wismar
Sarah Cook
Analytical Framework for HiAP
Kingdon’s non-linear framework for policy-making

Alignment of problems, policies and politics allows health to come through
Health inequalities

Key public health challenge for 21st century
38 times increased risk of death for unemployed
Life expectancy 16 years shorter for most deprived men
Grenfell Tower fire – a tragic case study in health inequalities

R. G. Watt

In brief

<table>
<thead>
<tr>
<th>Highlight</th>
<th>Suggests that, seen through a public health perspective, this tragic incident is ultimately about social inequality in the UK.</th>
<th>Suggests that as general and oral health inequalities are caused by the same underlying factors, the lessons learnt from this tragedy have relevance to oral health professionals committed to tackling social inequalities.</th>
</tr>
</thead>
</table>

At least 80 people died in the recent Grenfell Tower fire in Kensington and Chelsea, West London. This incident has provoked much anger, debate and reflection on how such a tragedy could happen in London, one of the richest cities in the world. Seen through a public health lens, this disaster is ultimately about social inequality in modern Britain. Kensington and Chelsea is a deeply divided community, where many billionaires and very wealthy people live cheek by jowl with poor and disenfranchised people struggling to make ends meet. It is therefore not a surprise that such a terrible incident should happen in this socially unequal setting where very stark health inequalities already exist. This paper explores some of the broader underlying factors that may have contributed to this tragedy, the political determinants of health. As these factors are linked to both general and oral health inequalities, the lessons learnt from this incident have direct relevance and salience to oral health professionals concerned about tackling social inequalities in contemporary society.
How windows of opportunity shape long-term policy-making
Combined force of knowledge power, social power and state power

Creation of relevant knowledge

Technical health and other knowledge, including health professionals

Civil society, private sector, media, traditional knowledge

Social movement

Politicians, local administrative organisations and government services

Political involvement
Public health priorities
## Distribution of Oral Disorders Globally

*(age-standardized, both sexes, DALYs per 100,000)*

<table>
<thead>
<tr>
<th>Rank (291)</th>
<th>Condition</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Untreated caries (permanent)</td>
<td>35</td>
</tr>
<tr>
<td>6</td>
<td>Severe periodontal disease</td>
<td>11</td>
</tr>
<tr>
<td>10</td>
<td>Untreated caries (primary)</td>
<td>9</td>
</tr>
<tr>
<td>36</td>
<td>Severe tooth loss</td>
<td>2</td>
</tr>
</tbody>
</table>

*WHO, 2013*

Source: IHME, Global Burden of Diseases (2013)
Impact of oral diseases

- Poor educational performance
- Cost of Treatment
- Functional Limitation
- Pain/Discomfort
- Social Attractiveness
- Cost to the NHS
- Social Isolation
- Self Esteem
- Aesthetics
- Fear/Anxiety
- Time attending services
- Time off Work
- Reduced productivity of the workforce
- Time off School
- Work
- School
- Reduced productivity of the workforce
- Poor educational performance

Source: Modified from Department of Human Services (1999)
Highlights

The appearance of their mouth and teeth affected their ability to interview for a job.

- **29%** low income adults
- **28%** young adults

Bar chart showing:

- **Low** income: 29%, 16%, 15%
- **Middle** income: 71%, 84%, 85%
- **High** income: 72%, 80%, 84%, 92%

- **18-34** age: 28%, 20%, 16%, 8%
- **35-49** age: 72%, 80%, 84%, 92%
- **50-64** age: 72%, 80%, 84%, 92%
- **65+** age: 72%, 80%, 84%, 92%

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The cost of extracting multiple teeth in children in hospitals in 2011-2012 was £673 per child with a total NHS cost of nearly £23 million.

Figure 2: Number of people admitted to hospital for a primary diagnosis of dental caries by age group

Treatment costs of care

COST OF DISEASES
Direct expenditure (public and private) for selected diseases in the 27 European Union countries, average yearly expenditure 2008–12

- Cancer: €51.0bn
- Respiratory diseases: €55.0bn
- Alzheimer’s: €71.1bn
- Oral diseases: €79.0bn
- CVDs: €105.0bn
- Diabetes: €137.0bn
- Stroke: €38.0bn
- Multiple sclerosis: €14.6bn
- Neuromuscular disorders: €7.7bn

Listl et al., 2015
Nature of health inequalities
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

London

England

Camden
Croydon
Islington
Merton
Redbridge
Hackney (including...)
London
Waltham Forest
Hounslow
Kensington and...
Enfield
Westminster
Haringey
Barnet
Newham
Tower Hamlets
Brent
Barking and...
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.
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%)
Inequalities in preventive and restorative dental services in England, Wales and Northern Ireland

J. Cheema¹ and W. Sabbah*²

In brief

Demonstrates that the least educated individuals and those at the bottom of social hierarchy are less likely to seek/accept dental services that require asymptomatic visits.

Suggests that indirect cost of use of dental services such as cost of transportation, taking time off work and waiting time at the office are potential barriers for the use of preventive/restorative services.

Highlights that changes in the oral healthcare delivery system and at societal level could possibly promote asymptomatic dental visits to seek preventive care by those at the lower end of social hierarchy.

Aims  The objective of this study is to assess socioeconomic inequalities in the use of selected dental procedures.

Methods  Data is from the Adult Dental Health Survey 2009, a nationally representative cross-sectional survey of England, Northern Ireland and Wales. Overall, 6,279 participants were included in the analysis. Occupational classification and education were used to assess variations in the use of preventive, restorative services and tooth extraction using a series of logistic regression models, adjusting for age, sex, ethnicity, DMFT, self-reported oral health, dental visits and country.

Results  There were clear socioeconomic variations in the utilisation of preventive and restorative services. In the fully adjusted model those with no educational qualification were less likely to report ever having preventive services than those with a degree (OR 0.48, 95%CI: 0.36,0.65). Similarly, individuals in routine/manual occupation were significantly less likely to report ever having preventive services than those in managerial/professional occupation (OR 0.58, 95%CI: 0.46,0.74) in the fully adjusted model. Conclusion  The findings imply that despite relatively equitable access and higher use of dental services in UK, the least educated and those at the bottom of social hierarchy are less likely to have preventive and restorative dental services.
Lifetime use of preventive, restorative dental services and dental extractions by education.

Examples

International level
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 ≤ 0.01

Guarnizo-Herreno et al, 2012
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

CHRISTMAS 2015

A CROSS SECTIONAL COMPARISON OF NATIONAL ORAL HEALTH SURVEYS

Austin Powers bites back

Carol C Guarnizo-Hererra,1,2 Georgios Tsakos,1 Aubrey Sheiham,1 Michael G Marmot,1 Ichiro Kawachi,3,4 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 analyses 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 of the Adult Dental Health Survey 2009 for England, and the 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 (RII) 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 (1.97 (0.09)), 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. Interestingly, higher RII and SII values were found in the US than in England, particularly for self-rated oral health. RII estimates for self-rated oral health by education were 3.67 (95% confidence interval 3.33 to 4.11) in the US and 2.81 (1.59 to 2.12) in England. In turn, SII values were 2.45 (1.18 to 4.66) in the US and 1.40 (1.01 to 2.25) 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.

References

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 abound in popular culture, ranging from the Hollywood character Austin Powers to the video game character IGN. However, 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 Dental Health Surveys (ODHS). Data were nationally representative surveys with comparable information about oral health and socioeconomic position. The NHANES 2005–08 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 3563 adults, of whom 3422 completed the clinical examination. The NHANES 2005–08 collected information on oral health from 11791 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 9715 (England) and 9746 (US) for analyses by education, and 7184 (England) and 9904 (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 5047 (England) and 17218 (US) for analyses by education, and 6081 (England) and 72734 (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 from those who did not. For oral impacts, both surveys included a single question about perceived oral impact on daily life.

Educational attainment and household income were the socioeconomic position indicators. Education was categorised by a high (college degree or above), medium (high school diploma), and low (less than high school in US, no qualifications in England). Household income was calculated in categorical terms rather than in absolute numbers; we therefore divided the variable into three hierarchical groups: approximately to tertiles. To make comparable the income data in US and England, we used the same categorisation.

Age, sex, marital status, and ethnicity were covariates.

Statistical analysis

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

A. Education

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
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

Social determinants of health and health inequities

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

CSDH (2008)
Complex influences on health

Wider influences

Lifestyle factors

Health

individuals & communities
Evaluating the role of dental behaviour in oral health inequalities

Anne E. Sanders, A. John Spencer and Gary D. Slade
Australian Research Centre for Population Oral Health, Dental School, The University of Adelaide, Adelaide, Australia

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 confounders using multiple linear regression analysis.
Preventive approach
Key features of preventive approach

- Individualistic
- ‘Top down’
- Paternalistic & prescriptive
- Focuses on knowledge to change “lifestyle”
- Uses threats and fear arousal
- Ignores broader context
- Theoretically flawed
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)
- Yevlahova 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

Such a two-faced Nanny...
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

There is insufficient information to determine whether initiation of a water fluoridation programme results in a change in disparities in caries across socioeconomic status (SES) levels.

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

(Maclntyre, 2007; Lorenc et al., 2012)
Proportionate universalism

Proportionate targeting = greater change in gradient
Role of clinical staff
Role of clinical teams

- Population focus
- Delivery of evidence based prevention
- Organisational review of practice policy – access, equity
- Partnership working
- Local advocacy role

The role of the dental team in promoting health equity

R. G. Watt, D. M. Williams and A. Sheiham

A recent important report endorsed by several prestigious and influential medical and dental organisations has outlined what health professions can do to reduce health inequalities. Despite overall improvements in oral health in recent decades, there are unacceptable inequalities in oral diseases. Urgent action is needed to reduce these unfair and unjust oral health inequalities that exist across society. Primary care dental teams are in an important position to become actively engaged in promoting oral health equity, both for their patients and the wider community. This paper highlights practical ways that dental teams can become involved in action to reduce oral health inequalities.

INTRODUCTION

The UCL Institute for Health Equity recently published a major report outlining how health professions can contribute to reducing the unfair and unjust health inequalities that exist across society. The report Working for health equity: the role of health professionals was endorsed by a host of prestigious and influential medical professional organisations including the Royal Colleges of Physicians, Psychiatrists, General Practitioners, Paediatrics and Child Health, and Obstetricians and Gynaecologists, and many other allied health professional groups.

In recognition of the relevance and importance of the topic of oral health, a number of important dental professional groups

This paper highlights practical ways that the primary care dental team can promote oral health equity for their patients and their wider community. The NHS is going through yet another period of major structural, organisational and policy change. In England, a totally new commissioning and organisational landscape has been created with the formation of NHS England. A unique opportunity now exists to integrate action on tackling both oral and general health inequalities. The time for this action is now.

NATURE OF CHALLENGE

In recent decades in the UK and other developed countries, oral health has steadily improved for the whole population. Caries oral health are socially graded in the same consistent stepwise fashion. The social gradient in oral health is a universal phenomenon found across different countries and populations, for general and oral health outcomes. Reduced health inequalities is therefore everybody’s business as it affects the whole of our society, not just the poorest. To reduce the social gradient in health actions must be universal, because with a scale and intensity that is proportionate to the level of disadvantage.

An extensive body of international research has explored what causes this universal social gradient in health: “The conclusion is that the overriding importance of what is termed the social determinants of health inequalities: the conditions in which people are born...”
It’s Time

to take action on the Social Determinants of Health
The social patterning of oral disease is similar to other chronic non-communicable diseases as they share causes.

Joint integrated action on the common risks for chronic diseases is therefore essential.
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
ACCELERATING ACTION ON ORAL HEALTH AND NCDs
Achieving an integrated response

SUGARS AND DENTAL CARIES
A practical guide to reduce sugars consumption and curb the epidemic of dental caries
Public health approach
Upstream - downstream interventions

- National &/or local policy initiatives
- Legislation/Regulation
- Fiscal Measures
- Healthy Settings - HPS
- Community Development
- Training other professional groups
- Media Campaigns
- School dental health education
- Chair side dental health education
- Clinical Prevention

Watt, (2007)

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

Downstream
SUGAR TAX PROPOSAL
Obesity & type-2 diabetes linked to high sugar intake
Remaining challenges
Combined force of knowledge power, social power and state power

Creation of relevant knowledge

Technical health and other knowledge, including health professionals

Civil society, private sector, media, traditional knowledge

Social movement

Politicians, local administrative organisations and government services

Political involvement
Engaging with civil society

- Importance of developing ‘social movement’ for oral health

- Public support for oral health key lever for policy change

- Need for advocacy for public engagement
Putting Oral Health on Political Agenda

- Need for effective engagement with politicians
- Integration with NCD agenda offers most potential
- Politicians at local, national and international level all have role

State Power
Conclusions

- Need to move beyond information gathering and analysis
- Need for more effective engagement with politicians and policy makers
- Importance of enabling a social movement for oral health
Thank you

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