Oral Health Inequalities In LMICs

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

Source: IHME, Global Burden of Diseases (2013)
Distribution of Dental Caries in Young People Aged 6-19 yrs
(% affected, 1982 - 2008)

Source: WHO (2013)
Distribution of Periodontal Diseases Globally
(age-standardized, both sexes, DALYs per 100,000)

Source: IHME, Global Burden of Diseases (2013)
Distribution of Edentulism Globally
(age-standardized, both sexes, DALYs per 100,000)

Source: IHME, Global Burden of Diseases (2013)
Distribution of Oral Cancer Globally using age-standardized mortality rates per 100,000 population data for 15+ years old

Source: FDI data hub for global oral health, 2015
Global Tobacco Trends 1980 to 2012

**COUNTRIES WITH BIGGEST REDUCTION IN SMOKERS***

<table>
<thead>
<tr>
<th>Country</th>
<th>Change in Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>13.9</td>
</tr>
<tr>
<td>Japan</td>
<td>9.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>6.0</td>
</tr>
<tr>
<td>Germany</td>
<td>3.9</td>
</tr>
<tr>
<td>Canada</td>
<td>3.0</td>
</tr>
<tr>
<td>Poland</td>
<td>2.5</td>
</tr>
<tr>
<td>Italy</td>
<td>2.2</td>
</tr>
<tr>
<td>Ukraine</td>
<td>1.9</td>
</tr>
<tr>
<td>Mexico</td>
<td>1.6</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.8</td>
</tr>
</tbody>
</table>

*Change in millions of smokers, 1980-2012

**COUNTRIES WITH BIGGEST INCREASE IN SMOKERS***

<table>
<thead>
<tr>
<th>Country</th>
<th>Increase in Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>99.6</td>
</tr>
<tr>
<td>India</td>
<td>35.7</td>
</tr>
<tr>
<td>Indonesia</td>
<td>29.1</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>12.7</td>
</tr>
<tr>
<td>Pakistan</td>
<td>9.0</td>
</tr>
<tr>
<td>Turkey</td>
<td>7.1</td>
</tr>
<tr>
<td>Philippines</td>
<td>7.0</td>
</tr>
<tr>
<td>Egypt</td>
<td>5.9</td>
</tr>
<tr>
<td>Vietnam</td>
<td>5.8</td>
</tr>
<tr>
<td>Brazil</td>
<td>5.8</td>
</tr>
</tbody>
</table>

*Change in millions of smokers, 1980-2012

Source: IHME, Infographics tobacco (2014)
Dental Caries

- Most prevalent chronic condition globally (Do 2012; Moysés 2012)
- Dramatic change in pattern and distribution – decline in developed and sharp increase in developing countries. (Peterson 2005, Moriera 2012)
- Transitioned from a disease of affluence to a disease of deprivation
- 70% to 90% school children experience dental caries of which the highest were observed in India, Thailand, Indonesia and Korea (Moreira 2012)

Source: IHME, Global Burden of Diseases (2013)
Malaysia - Higher proportions of rural children were affected by dental caries compared to urban populations (Pau 2012)
Periodontal Diseases

- Tobacco – sharp increase in LMICs and major risk factor
- Incipient beginning in adolescence – 20% teenagers are current tobacco users
- Similar trend to dental caries – decreasing in developed and increasing in developing
- Severe periodontitis - leading cause of DALYs in 9 regions (Australasia, Sub-Saharan Africa East, Central, East, and Southeast Asia, and Southern, Central, Tropical, and Andean Latin America)
  (Marcenes 2013)
- 5-20% of adult populations, and most children and adolescents exhibit signs of gingivitis (Jin L 2011)

![Graph showing changes in rankings of health conditions over time]

Source: IHME, Global Burden of Diseases (2013)
• A systematic review on Brazilian epidemiological studies between 1999 to 2008 corroborate that poor socioeconomic conditions are associated with periodontal outcomes, primarily by income and schooling indicators. (Bastos et al; 2011)

• 97.1% of urban disadvantaged population had high prevalence of periodontal diseases in Kuala Lumpur, Malaysia (Jaffar et al; 2014)

• **Latin America** – extremely deficient oral hygiene and prevalence varied from 40-80%. SES considered as a major risk factor (Oppermann; 2007)

• A cross sectional study in **Arush, Northern Tanzania** identified older age, belonging to the poorest household category and having parents who did not afford dental care across both genders as socio-behavioural factors associated with poor oral hygiene. (Mbawalla H et al; 2010)
Oral Cancer

- Biggest burden on LMICs
- Ranks 2\textsuperscript{nd} for men and 3\textsuperscript{rd} for women in SEARO among common cancers. (Fox 2009)
- India – ‘Oral cancer capital’ of the world
  - High intake of both smoked and smokeless tobacco products
- Tobacco use and excessive consumption accounts for 90\% of oral cancers
- Disease of the poor and dispossessed (Johnson et al; 2011)

Source: IHME, Global Burden of Diseases (2013)
Inequalities In Oral Cancer

• **Conway et al, 2008** - found significant association between low SES and increased oral cancer risk in high and lower income-countries, across the world; along with low educational attainment; low occupational social class; and low income

• Low level of education and lower income level associated with increased tobacco & alcohol consumption (Hashibe et al 2003; Neufeld et al 2005)

• **Brazil** – Oral cancer related mortality presented a higher increase among women than in men, and it doubled in minority ethnic groups. (Antunes et al 2013)
“Do we not always find the diseases of the populace traceable to defects in society?”

“ If disease is an expression of individual life under unfavourable circumstances, then epidemics must be indicative of mass disturbances.”

- Rudolf Virchow
Q. IS POOR ORAL HEALTH A THREAT TO DEVELOPMENT?

A. Yes, because of
   - Loss of productivity (Premature Deaths; Prolonged Disability)
   - High Health Care Costs
WHY THE LONG NEGLECT?

• Lack of Information
  (On: Disease Burdens; Economic Impact)

• Lack of Awareness

• Lack of Advocacy

• Lack of Resources

• Competing Priorities

• False Perceptions
FALSE PERCEPTIONS (MYTHS)

Problem only of HIC

In LMIC

• Only rich are affected
• Only urban elites are affected
• Only elderly are affected
• Mainly men are affected
Poverty Poses A Major Challenge Even In The Causation Of Oral Diseases

- **Individuals**:
  - Illusory Choices (limited availability, affordability and access)
  - Information Gaps (limited health literacy)

- **Nations**:
  - Caged Policies (due to debt trap)
  - Limited Resources (inadequate health system response)

- **Global**:
  - Trade Policies (insensitive to public health)
Power of Policy For Chronic Disease Prevention

TOBACCO

Evidence is available from many countries (including LMIC) that

- Taxation
- Ad Bans
- Smoke Free Policies
- Health Warnings

are effective

Power of policy for chronic disease prevention

DIET

- Evidence of preventive potential of policy interventions available from
  - Mauritius (Price of Edible Oils)
  - Poland (Import of F-V and Healthy Fats)
  - Finland (Farming; Marketing; Community Education)

New Initiatives

- Food Labeling
- Reduced Salt in Processed Foods
- Ban on Trans-Fats
- Advertising Restrictions
## Policy Needs: Interdisciplinary Research

### Enlightened policy needs

- **Scientific credibility**
  - (evidence & rationale?)
- **Financial feasibility**
  - (cost effective? affordable?)
- **Operational stability**
  - (sustainable? scalable?)
- **Political viability**
  - (is the community ready & receptive?)

### Aided by

- Biomedical & Epidemiological research
- Health economics research
- Health systems research
- Social sciences research
The compass of research must extend from MOLECULES to MARKETS
The arena of advocacy and action must expand from RISK FACTORS to HUMAN RIGHTS