Economic impact of oral health inequalities

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1. **costs = costs = costs?**

2. **Economic impacts of oral health & inequalities**
   - → direct costs
   - → indirect costs
   - → intangible costs

3. **Conclusions**

costs = costs = costs?

Costs of health care: total expenditure spent (per specialty)

Cost-of-illness (COI): costs attributable to illness

→ treatment costs

→ productivity losses

→ intangible costs

Cost of health inequalities: excess costs due to rich-poor differences

→ **Counterfactual:** cost-of-illness if everyone is on equal terms as those better off

> Question is **not** how to reduce/contain costs
>
> Rather: *how to optimize population wellbeing given available resources*?
>
> → **opportunity costs:** could resources be spent better?

Direct costs

Dental care in industrialized countries: **about 5% of total health expenditure** (OECD 2013)

Worldwide dental expenditures in 2010: ca. **US-$ 300 billion** (own estimate)

Treatment costs

↓

preventive
restorative
periodontal
endodontic
orthodontic
prosthodontic
surgical

Costs attributable to inequalities

↓

non-trivial

(limited data, non-harmonized reporting across countries etc.)

Pragmatic approach: simplifying assumptions → approximate estimates [lower bound]

Baseline: current expenditure level (ca. US-$ 300 billion; own estimate)

Three steps:
(1) estimate current expenditure shares by SES
(2) adjust for disproportionate dental care use (expenditure ~ morbidity)
(3) assume all have same morbidity as high SES

Data source: Survey of Health, Ageing and Retirement in Europe (SHARE)

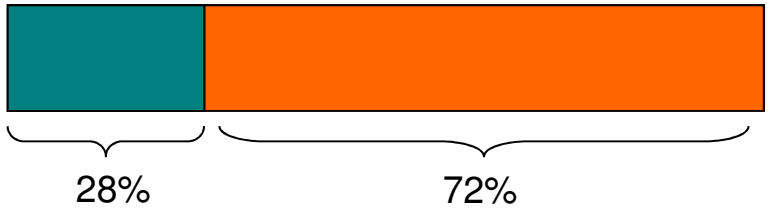
→ wave 5 (collected in 2013)

→ 20 European countries

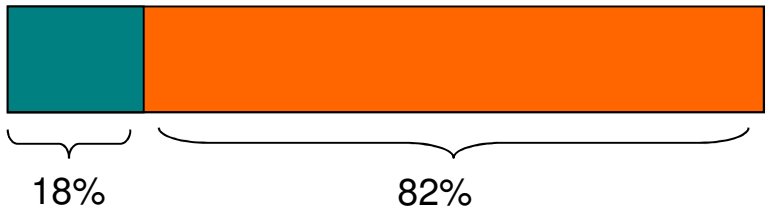
→ compare high SES [ISCED 5-6] vs. low/middle SES [ISCED 0-4]

	high SES	low/middle SES
% of population	21 %	79 %
dental care use p.a.	72 %	50 %
any missing teeth	67 %	80 %

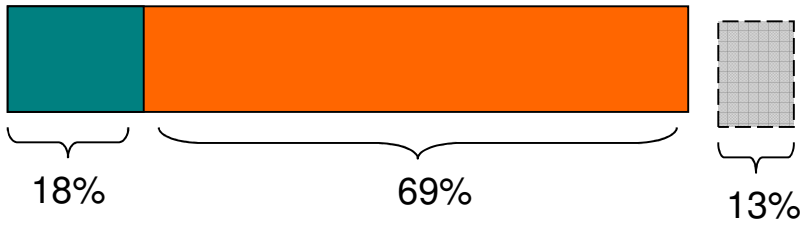
(1) current expenditure shares by SES:
[inverse care law; Hart 1971]



(2) dental expenditure ~ morbidity:
[vertical equity; Wagstaff 2000]



(3) all have morbidity of high SES:
[horizontal equity; Wagstaff 2000]



costs by about 13% lower
in absence of inequalities

World: **US-$ 300 billion for dental care (2010); US-$ 39 billion due to inequalities**

Indirect costs

- usually estimated as productivity losses due to illness (Berger et al. 2001)

- Glied & Neidell (2010): children who grow up in US communities with fluoridated water earn approximately 2% more in adulthood; effect mainly attributable to reduced morbidity amongst low SES, particularly women (natural experiment → causal effect!)

- two common approaches:

  (1) lost wages approach (neoclassical approach, human capital theory)

  (2) friction costs approach (Koopmanschap et al. 1995)

- here: method of WHO Commission on Macroeconomics and Health (2001)

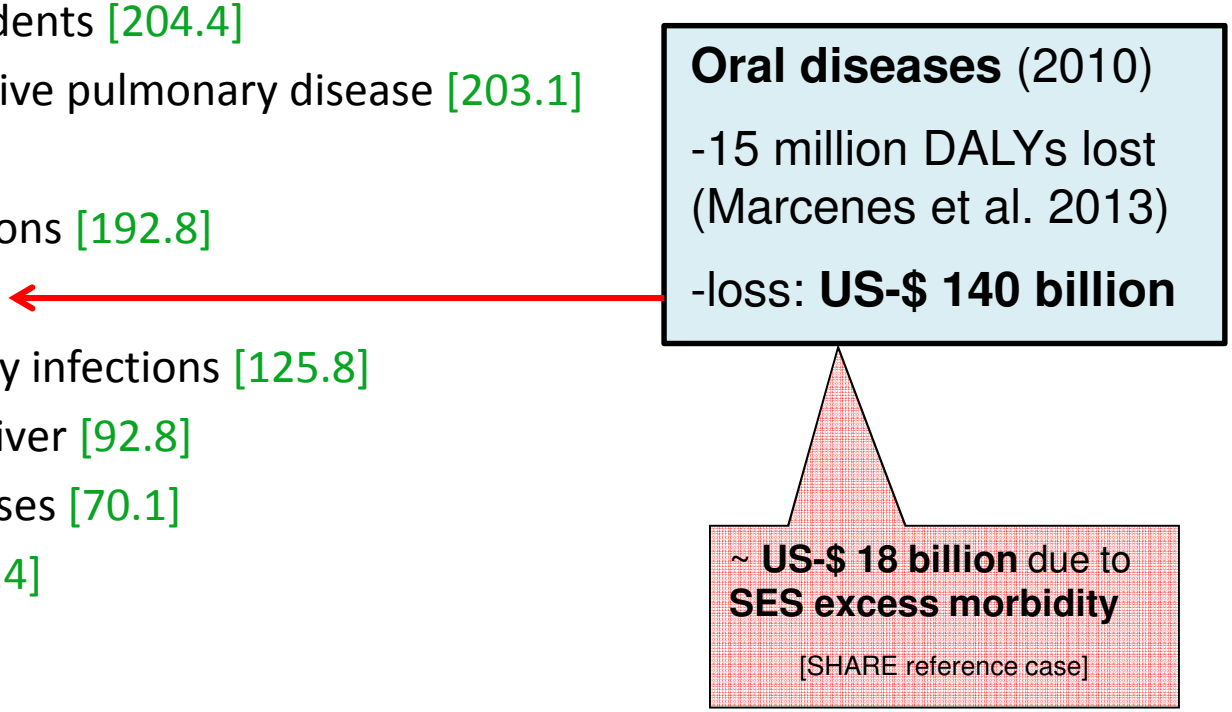
  → approximate estimate: ca. US-$ 140 billion (own estimate)

Economic loss from top 15 global causes of death

[Economic value of DALYs lost in US-$ billions in 2008]

1. Cancer [895.2]
2. Heart diseases [753.2]
3. Cerebrovascular disease [298.2]
4. Diabetes mellitus [204.4]
5. Road traffic accidents [204.4]
6. Chronic obstructive pulmonary disease [203.1]
7. HIV/AIDS [193.3]
8. Perinatal conditions [192.8]
9. Suicides [140.8]
10. Lower respiratory infections [125.8]
11. Cirrhosis of the liver [92.8]
12. Diarrhoeal diseases [70.1]
13. Tubercolosis [45.4]
14. Malaria [24.8]
15. Measles [8.1]

source: http://www.cancer.org



Intangible costs

- impacts of oral diseases on quality of life; effects on leisure time; impacts on family & friends; marriage & dating market…

- those worse off are less likely to receive treatment if ill, i.e. suffer more than the better off → amplified burden of illness

- captured by (health) outcomes other than monetary costs [generic & disease-specific QoL, e.g. EQ5D, OHIP, OIDP, ECOHIS]

Conclusions

Substantial economic burden of oral diseases:

→ worldwide (2010): ca. US-$ 440 billion (treatment costs & productivity losses)

→ thereof: ca. US-$ 57 billion yearly due to inequalities [lower bound estimate]

Ultimate challenge: **implement** policies that yield the best possible balance of **equity** and **efficiency** in **patient-centred oral health** care given **available resources**

Health economic target points

Efficiency
maximize health outcome (population average) given available resources

Equity
reduce social disparities in health and health care

→ focus on patient-centred wellbeing (QoL) as endpoint

→ address common risk factors (*economies of scale & scope*)

→ research, debates, and policies fall short if people don‘t feel like changing…

“If you think education is expensive try ignorance!“

“Bok’s Law” (1978)

Questions?

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