



NEGLECTED EPIDEMICS - THE ROLE OF ORAL HEALTH TO ADVANCE PUBLIC HEALTH

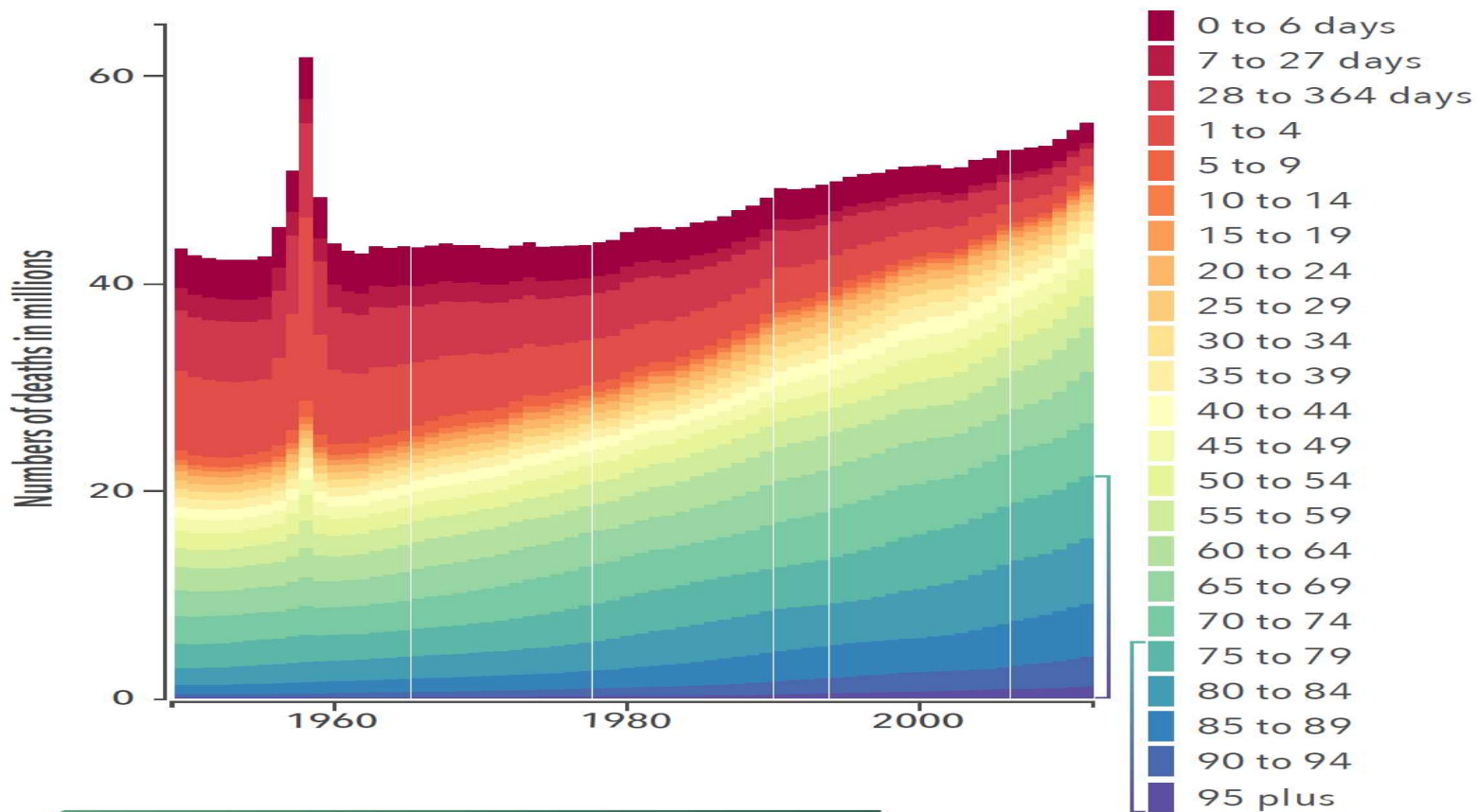
Prof. Usuf Chikte. Executive Head, Department of Global Health



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Global Health in the context of inequity

The proportion of deaths in those over age 75 increased from 12% of total deaths in 1950 to 39% in 2017.



There have been dramatic declines in under-5 mortality, but there were still 5.4 million deaths among children under 5 worldwide in 2017.

Number of people by income ?

DATA DOUBTS

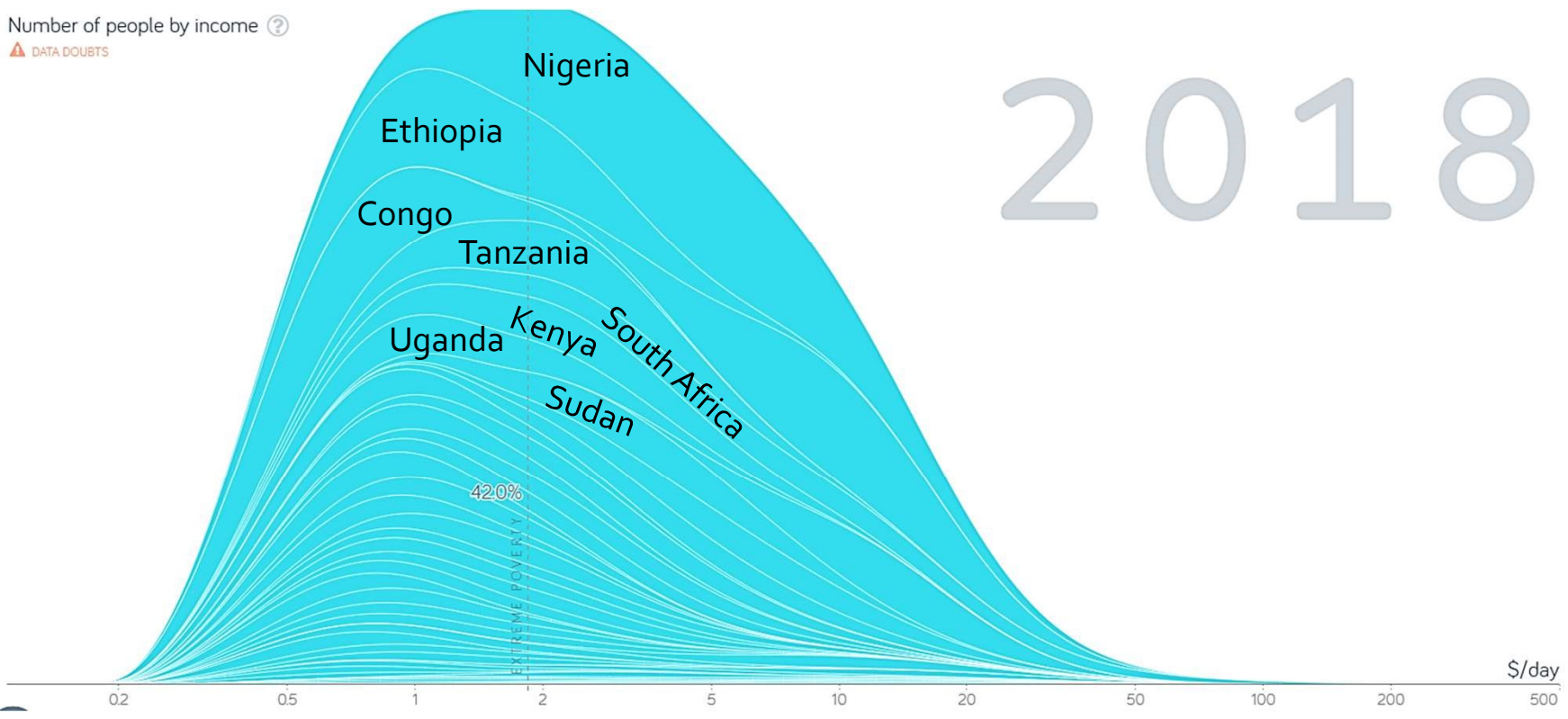
2018



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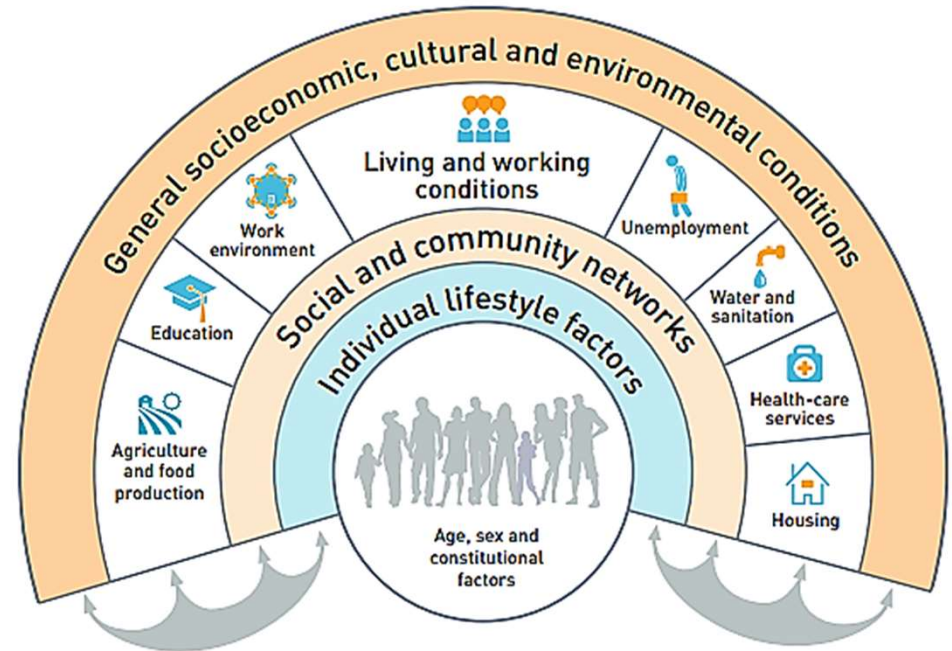
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- Angola
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- Burkina Faso
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- Cameroon
- Cape Verde
- Central African Republic
- Chad
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- Congo, Dem. Rep.
- Congo, Rep.
- Cote d'Ivoire
- Djibouti
- Egypt

Stack
 None By colors World



www.gapminder.org

HEALTH EQUITY



OVERVIEW

Oral Health Neglected Epidemic

Epidemic

Burden of Oral Diseases and Inequality

Sustainable Development Goals (SDG)

Non-communicable diseases (NCDs)

The role of oral health professionals

Universal Health Coverage (UHC)

Political priorities



The Lagoon, 1947, Henri Matisse

BURDEN OF DISEASES - GLOBAL -

1. Oral disorders
3.47 bil.

2. Headache disorders
3.07 bil.

3. TB
1.93 bil.

GBD 2017, The Lancet



WHO 2016

Oral Health Inequalities and the social gradient

- Oral diseases are more common among the disadvantaged
- Social diseases are socially patterned across the social hierarchy
- The stepwise gradient in health outcomes also occurs across the life course
- disease susceptibility increases down the social gradient

BURDEN OF ORAL DISEASES IN AFRICA

CARIES

42% 15 year old
South Africa

PERIO

5-20% severe
forms

NOMA

20 cases/100.000
per year

HIV

50-60% oral
manifestations

TRAUMA

10-19%
11-13 year old

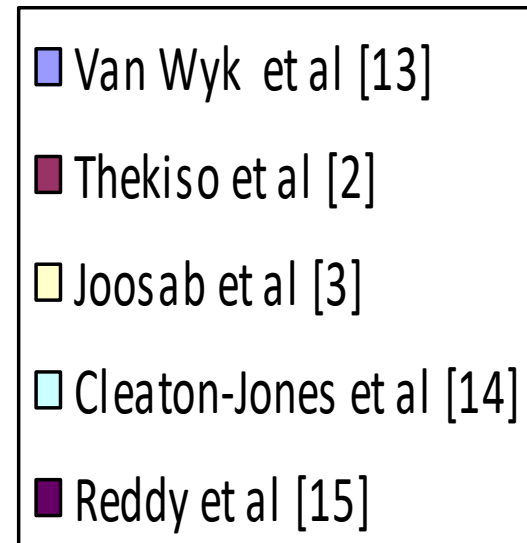
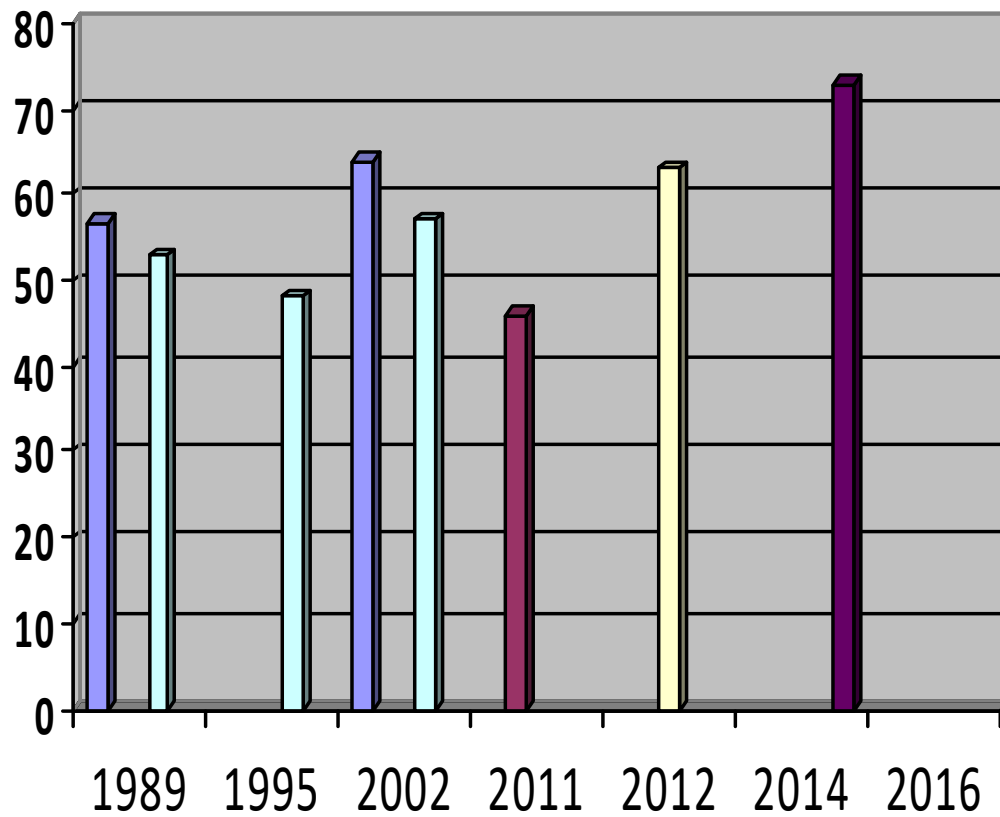
CLEFT PALATE

1/500-700
births

Promoting Oral Health in Africa, WHO Regional Office for Africa 2016



Fang Ngil mask, Gabon

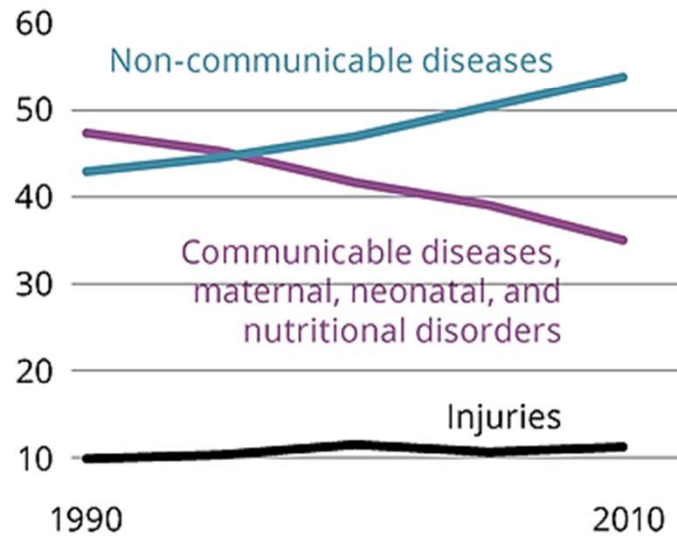


Inability to
attract political
attention

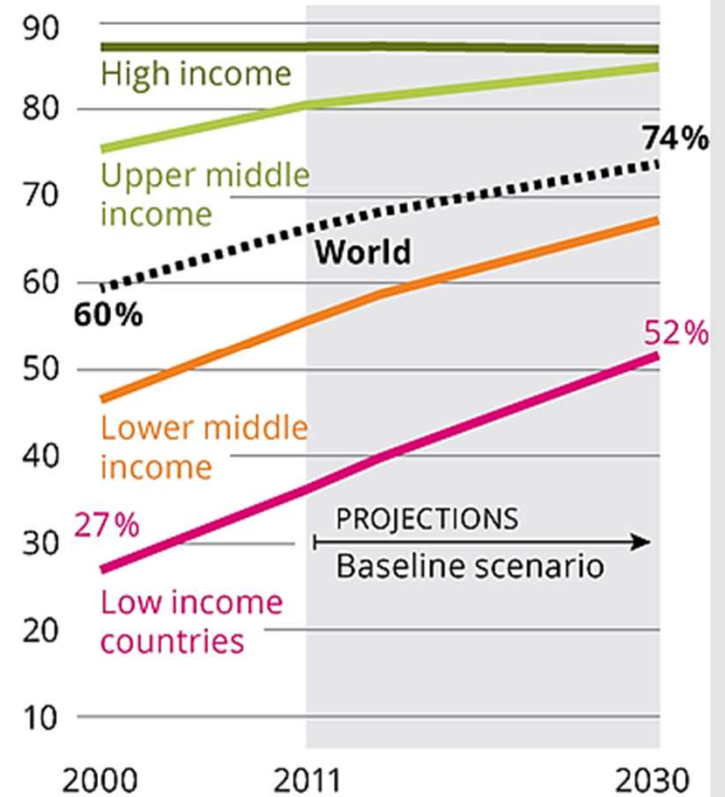
- Public health & political priorities not aligned
- Misleading focus on dentists for service provision
- A hidden burden of oral disease
- Communication gap and knowledge translation

NCDs – The shift

Loss of healthy life years
(in percentage of total DALY)



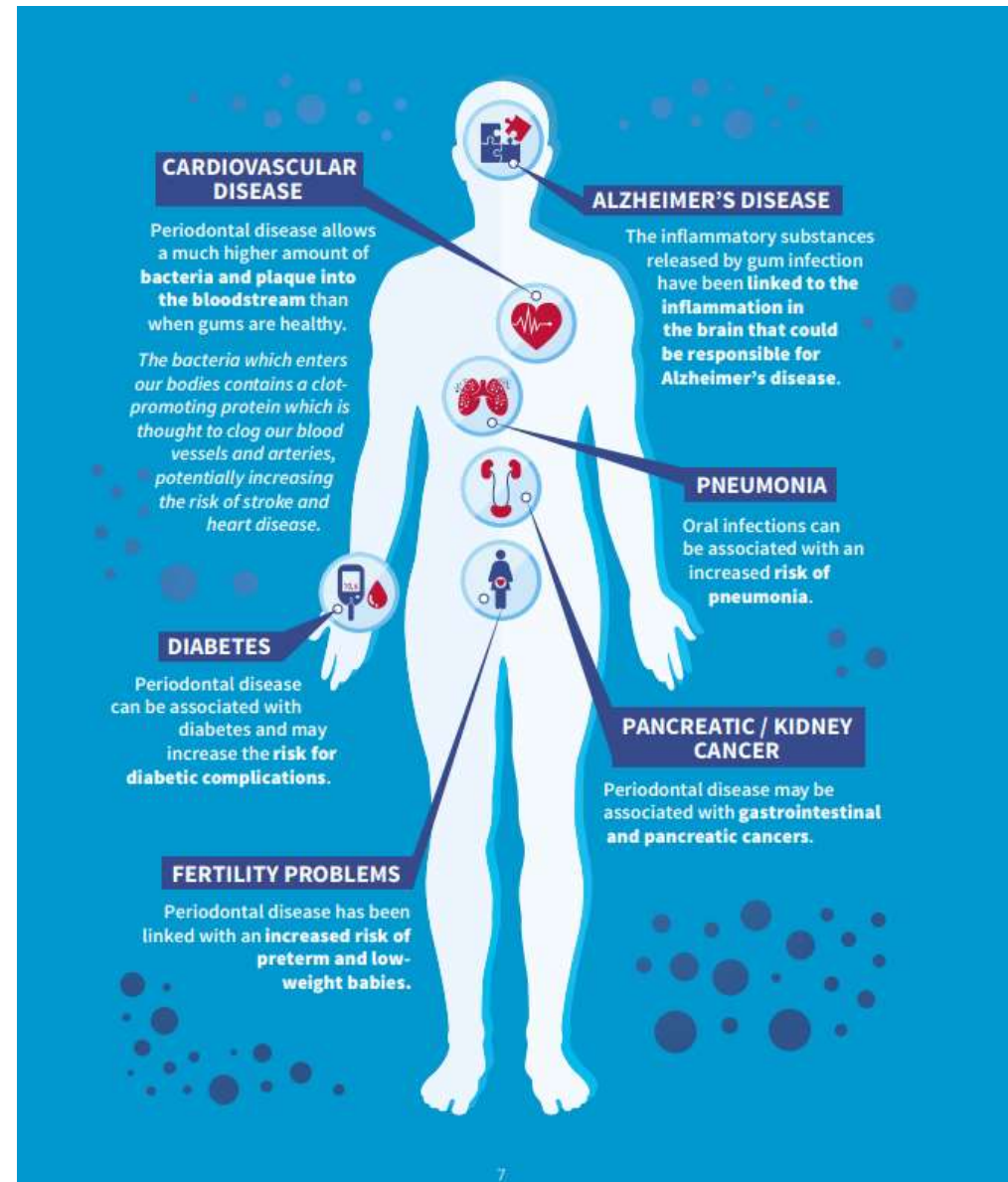
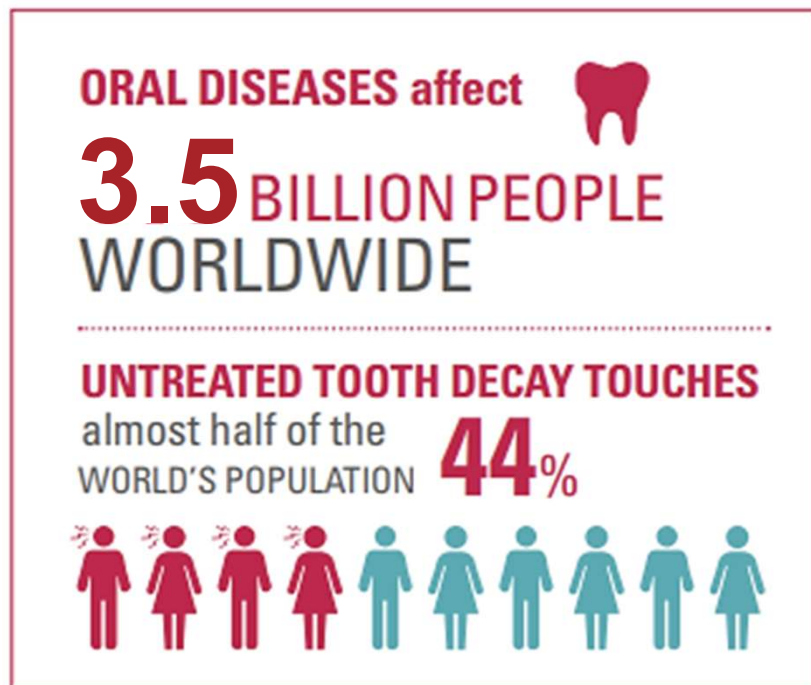
Deaths related to non-communicable diseases
(in percentage of total deaths)



European Environment Agency

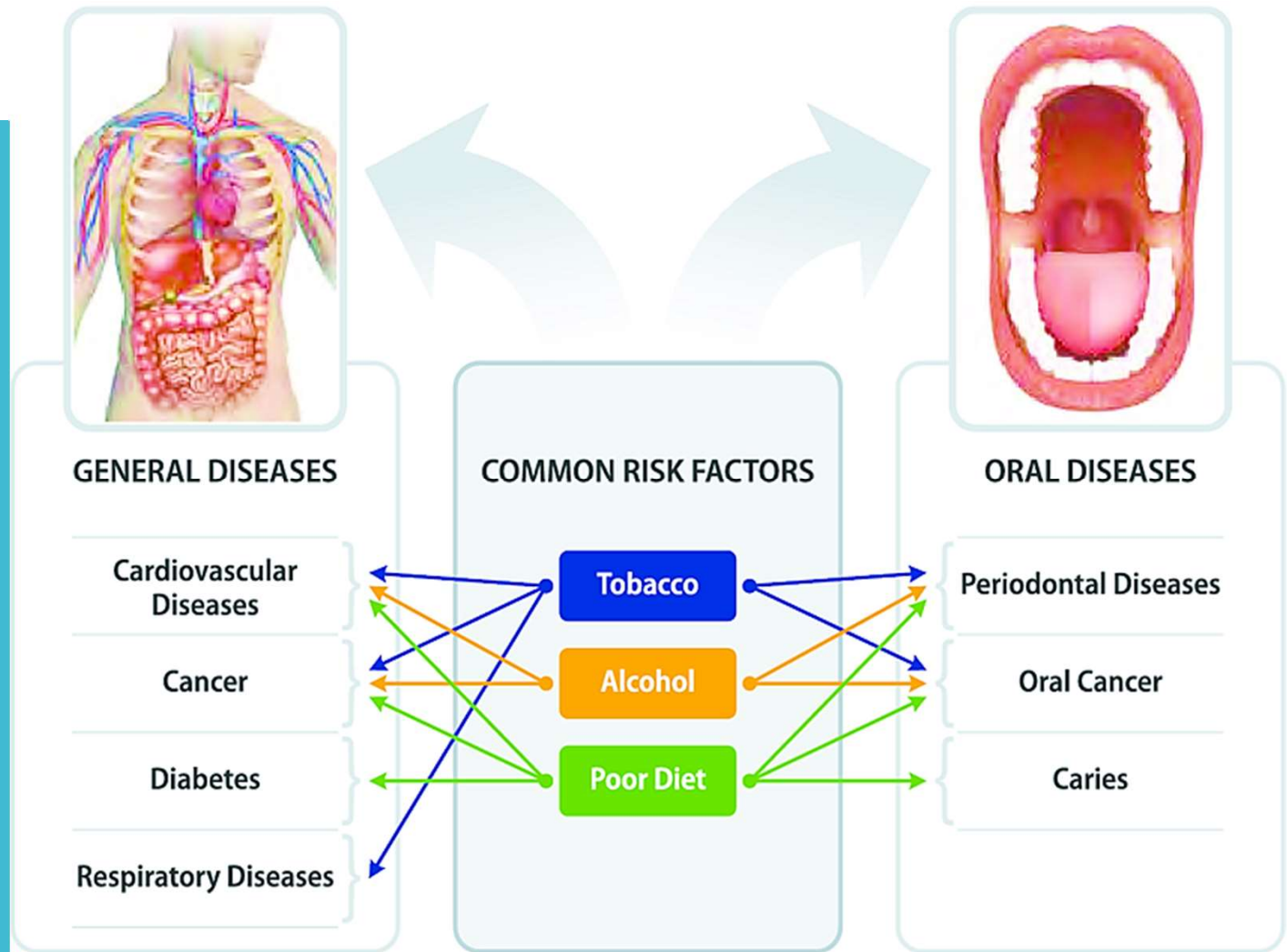
<https://www.eea.europa.eu/data-and-maps/figures/the-shift-in-global-disease>

THE IMPACT OF ORAL DISEASES



Accelerating action on oral health and NCDs. FDI 2017
<https://www.fdiworlddental.org/resources/brochures/accelerating-action-on-oral-health-and-ncds>

COMMON RISK FACTOR APPROACH



WHO, Regional Office for Africa 2016. Promoting Oral Health in Africa: Prevention and control of oral diseases as part of essential noncommunicable disease interventions. <http://www.who.int/iris/handle/10665/205886>

SUSTAINABLE DEVELOPMENT GOALS (SDGs)



SDG PROGRESSION SOUTH AFRICA



South Africa

Southern

Rank : 9 out of 51

OVERALL PERFORMANCE

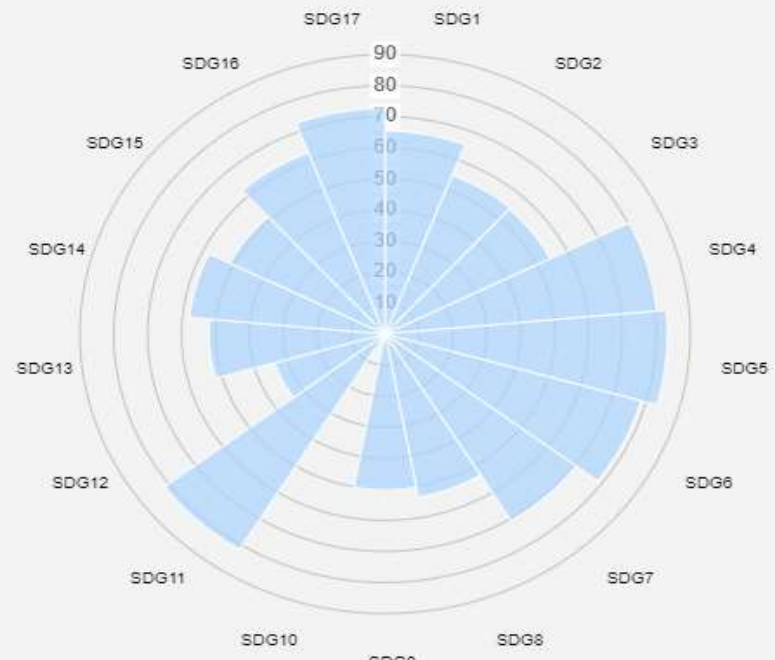
Index score



Regional average score



AVERAGE PERFORMANCE BY SDG



x

South Africa

SDG17 →

Partnerships for the Goals	Value	Trend
Tax revenue (% GDP)	31.4	→
Government Health and Education spending (% GDP)	14.8	••
Governmental Statistical Capacity	75.5	↓
Level of customs duties on imports	0.0	••
Visa Requirement score	120	••

Complexity

Global systems
with staggering complexity...

Discipline defying

Massively
networked

Generate problems
with confounding ambiguity

Global systems

World Economic Cooperation and association ©1999-2000
Photo: "Green" Digital Camera
©1999-2000
http://www.earthlink.net/~p1000000

2 NO HUNGER



2.2 End malnutrition

Tooth decay contributes to malnutrition

Edentulousness contributes to nutrition deficits

12 RESPONSIBLE CONSUMPTION



12.5. Reduce, reuse, recycle and prevent

Green dentistry,
Minamata convention
Environmentally conscious practice

4 QUALITY EDUCATION



4.1. Free education, effective learning

Oral problems (mainly decay) among most common reasons for missing school and lack of concentration

17 PARTNERSHIPS FOR THE GOALS



17.14. Policy coherence

inclusion of oral health in all policies and coherence of benefits and entitlements for basic oral care for everyone

SUSTAINABLE DEVELOPMENT GOAL 3 AND ITS TARGETS

SDG 3: ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

TARGET 3.8: ACHIEVE UNIVERSAL HEALTH COVERAGE, INCLUDING FINANCIAL RISK PROTECTION, ACCESS TO QUALITY ESSENTIAL HEALTH-CARE SERVICES, MEDICINES AND VACCINES FOR ALL

UNIVERSAL HEALTH COVERAGE

MDG UNFINISHED AND EXPANDED AGENDA

- 3.1:** Reduce maternal mortality
- 3.2:** End preventable newborn and child deaths
- 3.3:** End the epidemics of AIDS, TB, malaria and NTDs
and combat hepatitis, waterborne and other communicable diseases
- 3.7:** Ensure universal access to sexual and reproductive health-care services

NEW SDG 3 TARGETS

- 3.4:** Reduce mortality from NCDs and promote mental health
- 3.5:** Strengthen prevention and treatment of substance abuse
- 3.6:** Halve global deaths and injuries from road traffic accidents
- 3.9:** Reduce deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

SDG 3 MEANS OF IMPLEMENTATION TARGETS

- 3.a:** Strengthen implementation of framework convention on tobacco control
- 3.b:** Provide access to medicines and vaccines for all, support R&D of vaccines and medicines for all
- 3.c:** Increase health financing and health workforce in developing countries
- 3.d:** Strengthen capacity for early warning, risk reduction and management of health risks

LEADING THE WORLD TO OPTIMAL ORAL HEALTH



No Health without Oral Health: How the dental community can leverage the NCD agenda to deliver on the 2030 Sustainable Development Goals

Proceedings of the FDI-NCD Alliance joint session

30 August 2017, Madrid, Spain

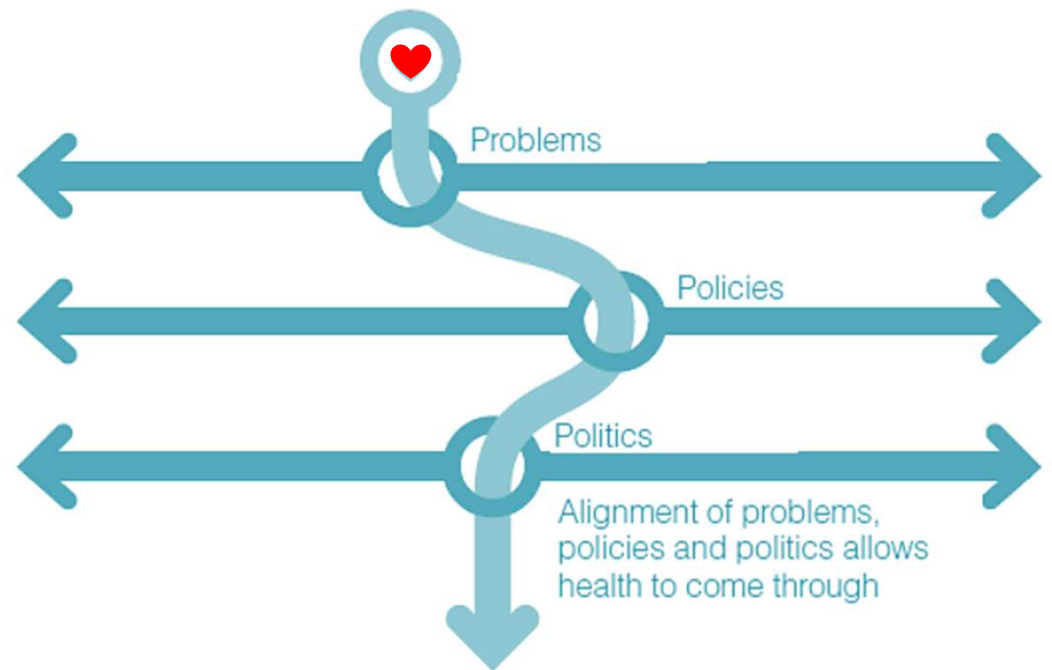


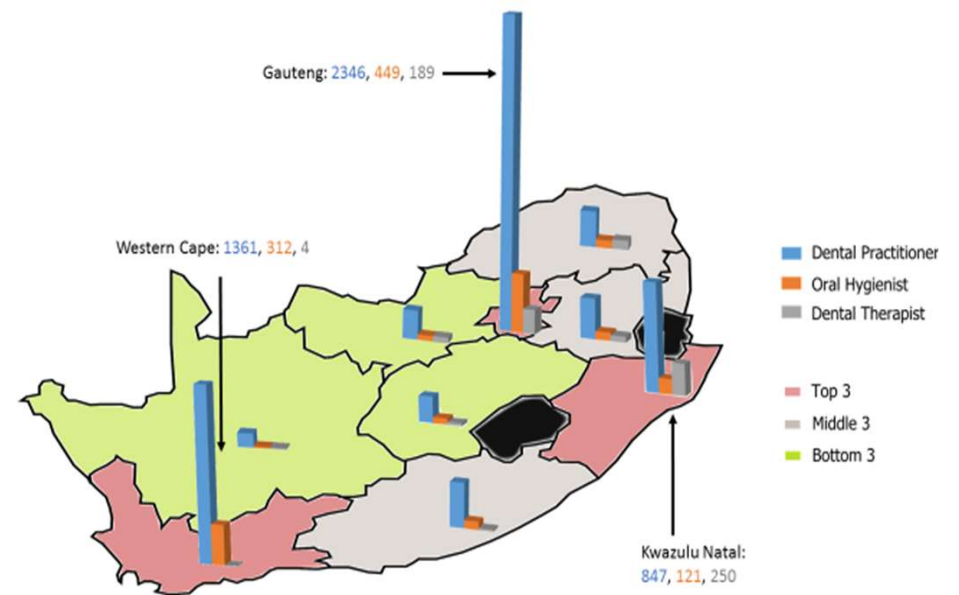
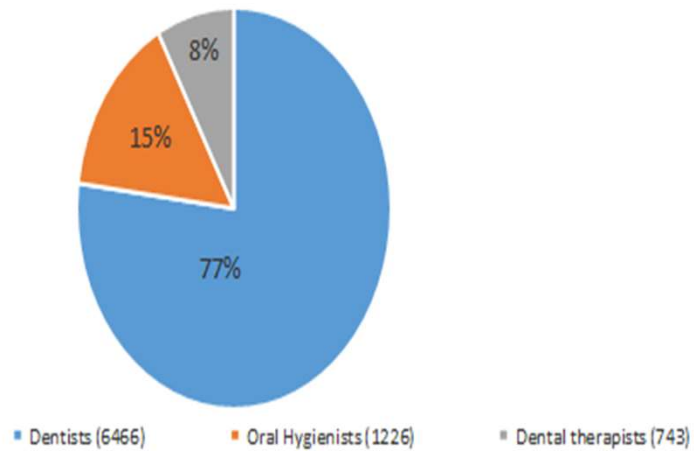
Figure 4: Kingdon's non-linear framework for policymaking.



Specialists registered in SA (N=481).

Type of specialist	Number (%)
Maxillo-facial and oral surgeons	144 (30)
Orthodontists	142 (30)
Prosthodontists	83 (17)
Periodontists	57 (12)
Community dentists	36 (7)
Oral pathologists	19 (4)
Total specialists	481 (100)

Number (%) of oral health personnel



ORAL HEALTH IN NCD CONTROL AND PREVENTION

Policy

Tobacco
Sugar
Diet
Excer

Community

Health
literacy
and
promotion

Health system

Health
literacy
and
promotion

3 GOOD HEALTH AND WELL-BEING



SUSTAINABLE DEVELOPMENT GOALS

The goals within a goal: Health targets for SDG 3

3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)

3.8.2 Proportion of population with large household expenditures on health as a share of total household expenditure or income

TAXING SUGARY DRINKS AROUND THE GLOBE

www.ncdfree.org

NCD
FREE

DO TAXES REDUCE CONSUMPTION?

IN MEXICO, IN ITS FIRST 2 YEARS, SUGARY DRINK PURCHASES DECREASED BY 7.6% PER YEAR. OVER 10 YEARS THIS WILL LEAD TO A 2.54% REDUCTION IN OBESITY AND



PREVENT 86-134,000 CASES OF DIABETES.



6.7%

FRANCE SAW A 6.7% DECLINE IN DEMAND FOR REGULAR COLA IN THE FIRST 2 YEARS AFTER INTRODUCING A SUGAR-SWEETENED BEVERAGE TAX.

IMPLEMENTED SUGAR TAXES WORLDWIDE

* LISTS ACCURATE AT TIME OF PRODUCTION.

1. COOK ISLANDS
2. KIRIBATI
3. FRENCH POLYNESIA
4. MEXICO
5. CHILE
6. DOMINICA
7. BARBADOS
8. PORTUGAL
9. SPAIN (CATELONIA)
10. IRELAND
11. UNITED KINGDOM
12. FRANCE
13. BELGIUM
14. NORWAY
15. FINLAND
16. ESTONIA
17. HUNGARY
18. ST HELENA
19. SOUTH AFRICA
20. SAUDIA ARABIA
21. UNITED ARAB EMIRATES
22. MAURITIUS
23. SEYCHELLES
24. BRUNEI
25. NAURU
26. FIJI
27. SAMOA
28. TONGA



28 COUNTRIES & 7 US CITIES (so far...)*



1. SAN FRANCISCO, CA
2. BERKELEY, CA
3. ALBANY, CA
4. OAKLAND, CA
5. SEATTLE, WA
6. BOULDER, CO
7. PHILADELPHIA, PA

DO TAXES IMPACT RETAILERS?

AFTER 1 YEAR, IN LOW-INCOME NEIGHBOURHOODS IN BERKELEY, USA, SUGARY DRINK CONSUMPTION



DECLINED BY 21%. HOWEVER, SALES OF UNTAXED BEVERAGES IN BERKELEY ROSE, SUCH THAT OVERALL BEVERAGE SALES ROSE.

THE WORLD HEALTH ORGANIZATION RECOMMENDS SUGARY DRINKS TAXES AS AN EFFECTIVE MEASURE TO

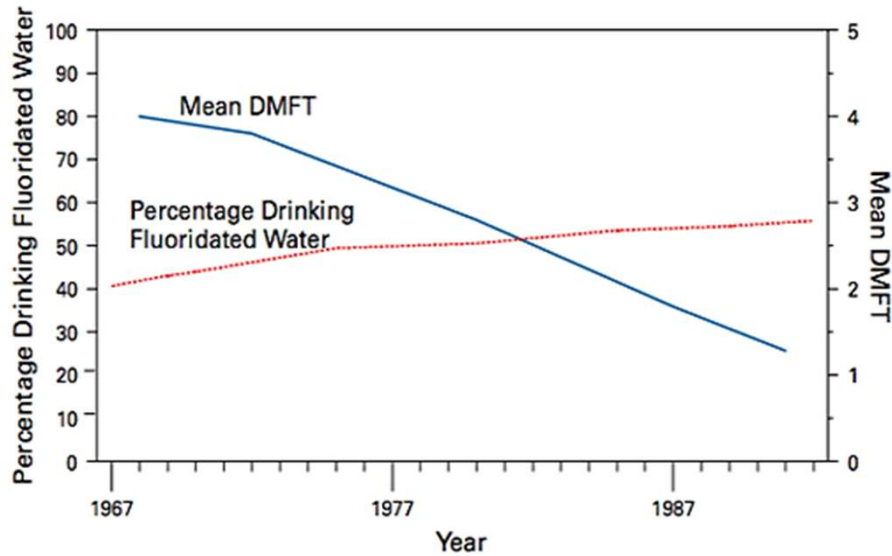


"REDUCE OVER-CONSUMPTION OF SUGAR & HALT THE EPIDEMIC OF OBESITY AND DIABETES"

SOURCES
1. Cochran, M., Arantxa, et al. "In Mexico, Evidence Of Sustained Consumer Response Two Years After Implementing A Sugar-Sweetened Beverage Tax." *Health Affairs*, vol. 36, no. 3, 2017, pp. 564-571.
2. Barrientos-Gutierrez, Tenatich et al. "Expected Population Weight and Diabetes Impact of the 1 Peso-per-Litre Tax to Sugar-Sweetened Beverages in Mexico." Ed. Rodrigo Huerta-Quintanilla. *PLoS ONE* 12,5(2017): e0174336. PLoS.
3. Fabre J, et al. "Impact of the Berkeley Excise Tax on Sugar-Sweetened Beverage Consumption." *American Journal of Public Health* 106, no. 10 (October 1, 2016): pp. 1845-1851.
4. Silver LD, et al. "Changes in prices, sales, consumer spending, and beverage consumption one year after sales on sugar-sweetened beverages in Berkeley, California, US: A before-and-after study." *PLoS Med* 14(4):e1002283. <https://doi.org/10.1371/journal.pmed.1002283>
5. World Health Organization. "Fiscal policies for diet and the prevention of noncommunicable diseases." May 2016, Geneva. Available at: <http://www.who.int/dietphysicalactivity/publications/fiscal-policies-diet-prevention/en/>
6. Food taxes and their impact on competitiveness in the agri-food sector. Rotterdam, The Netherlands: European Competitiveness and Sustainable Industrial Policy Consortium; 2014.

@NCDFREE #NCDFREE

Water fluoridation



Source: Centers for Disease Control (1999). Achievements in public health, 1900-1999: Fluoridation of Drinking water to prevent caries. *NMWR*; 48: 933-40.



Petersen PE, Ogawa H. Prevention of dental caries through the use of fluoride –the WHO approach. *Community Dental Health* (2016) **33**, 66–68

The common risk factor approach – MEDICINES

Fluoride

The only realistic way to decrease the burden of dental caries

WHO, FDI. Global Consultation on Oral Health through Fluorides 2006.

FLUORIDE



$\text{Ca}_5(\text{PO}_4)_3\text{OH}$
HYDROXYAPATITE

Main constituent of tooth enamel, which can be dissolved in acidic conditions. Ions lost can be replaced by those in saliva; cavities form if the replacement rate is lower than the rate of loss.

$\text{Ca}_5(\text{PO}_4)_3\text{F}$
FLUORAPATITE

Fluoride ions can replace hydroxide ions in hydroxyapatite, forming fluorapatite, which is stronger and more resistant to acidic conditions. As a result, it greatly reduces cavity formation rate.

Countries with artificial fluoridation programs
35 COUNTRIES 377 MILLION PEOPLE



There are a further 28 countries which supply naturally fluoridated water to more than 280 million people. Some countries which do not fluoridate water instead fluoridate table salt (such as Germany, Switzerland & France), and a select number fluoridate milk.

Fluoridated toothpastes have also aided declining tooth decay rates worldwide.

Skeletal fluorosis may occur in those who have ingested 10-20mg of fluoride per day for 20 years.



1mg OF FLUORIDE PER LITRE
RDA OF 3 LITRES = 3mg PER DAY



1450mg OF FLUORIDE PER LITRE
BRUSHING TWICE = 0.4mg PER DAY

Significantly below 10-20mg per day.



Tea actually contains more fluoride than drinking water, in the range of 1.0-2.0mg per litre. Even factoring this in, you'd still be below the 10-20mg per day range.

FACTS ABOUT FLUORIDATION

1

Fluoridation reduces dental caries
Fluoridation is estimated by consideration of a number of studies to reduce tooth decay by 29%. It's effective in both children & adults.

2

Fluoridation does not cause cancer
There is no statistically significant link between the levels of fluoride in artificially fluoridated supplies and cancer, IQ, or Down's Syndrome.

3

Fluoridation can cause mild fluorosis
Mild fluorosis can usually only be spotted by a dentist. It doesn't cause pain, or affect the health or function of the teeth.

4

Water naturally contains fluoride
Fluoride is in a majority of natural water supplies at some level, and also in bottled water. It's just not always at the optimal level of 1mg/L.



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FOR FURTHER INFORMATION AND REFERENCES FOR THE INFORMATION IN THIS GRAPHIC, GO TO WWW.COMPOUNDCHEM.COM/2014/07/22/FLUORIDE



The common risk factor approach – SUGAR

WHO recommends reduced intake of free sugars throughout the life-course (strong recommendation)

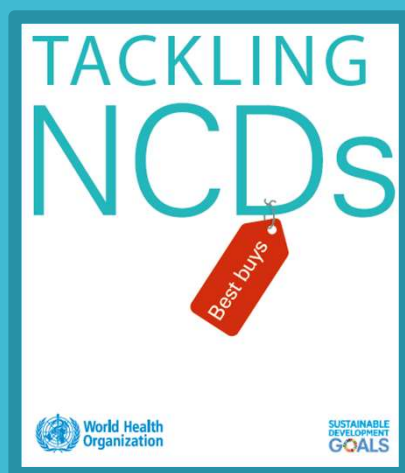
- In both adults and children, WHO recommends that intake of free sugars not exceed 10% of total energy (strong recommendation)
- WHO suggests further reduction to below 5% of total energy (conditional recommendation)



Guideline:

Sugars intake for adults and children

ACTION PLAN EXERCISE



'Best buys': effective interventions with cost effectiveness analysis (CEA) \leq I\$100 per DALY averted in LMICs



Implement community wide public education and awareness campaign for physical activity which includes a mass media campaign combined with other community based education, motivational and environmental programmes aimed at supporting behavioural change of physical activity levels*

Effective interventions with CEA $>$ I\$100 per DALY averted in LMICs



Provide physical activity counselling and referral as part of routine primary health care services through the use of a brief intervention¹⁴

Other recommended interventions from WHO guidance (CEA not available)



Ensure that macro-level urban design incorporates the core elements of residential density, connected street networks that include sidewalks, easy access to a diversity of destinations and access to public transport¹⁵

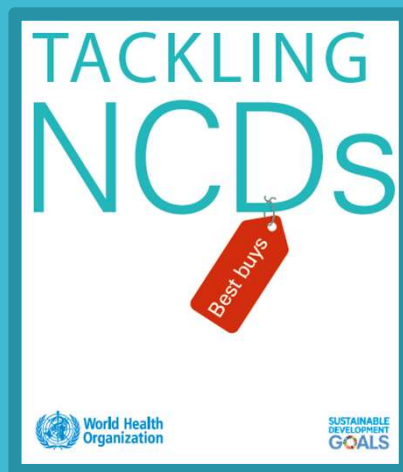
Implement whole-of-school programme that includes quality physical education, availability of adequate facilities and programs to support physical activity for all children

Provide convenient and safe access to quality public open space and adequate infrastructure to support walking and cycling

Implement multi-component workplace physical activity programmes

Promotion of physical activity through organized sport groups and clubs, programmes and events

ACTION PLAN TOBACCO



'Best buys': effective interventions with cost effectiveness analysis (CEA) \leq I\$100 per DALY averted in LMICs,



Increase excise taxes and prices on tobacco products

Implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages⁵

Enact and enforce comprehensive bans on tobacco advertising, promotion and sponsorship⁵

Eliminate exposure to second-hand tobacco smoke in all indoor workplaces, public places, public transport⁵

Implement effective mass media campaigns that educate the public about the harms of smoking/tobacco use and second hand smoke⁵

Effective interventions with CEA >I\$100 per DALY averted in LMICs,



Provide cost-covered, effective and population-wide support (including brief advice, national toll-free quit line services) for tobacco cessation to all those who want to quit⁶

Other recommended interventions from WHO guidance (CEA not available)

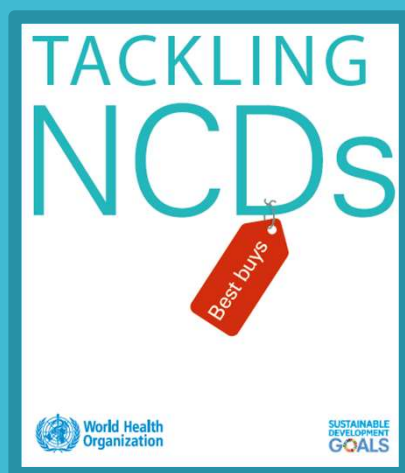


Implement measures to minimize illicit trade in tobacco products

Ban cross-border advertising, including using modern means of communication

Provide mobile phone based tobacco cessation services for all those who want to quit.

ACTION PLAN ALCOHOL



'Best buys': effective interventions with cost effectiveness analysis (CEA) \leq I\$100 per DALY averted in LMICs



Effective interventions with CEA $>$ I\$100 per DALY averted in LMICs



Other recommended interventions from WHO guidance (CEA not available)



Increase excise taxes on alcoholic beverages⁷

Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media)⁸

Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced hours of sale)⁹

Enact and enforce drink-driving laws and blood alcohol concentration limits via sobriety checkpoints¹⁰

Provide brief psychosocial intervention for persons with hazardous and harmful alcohol use¹¹

Carry out regular reviews of prices in relation to level of inflation and income

Establish minimum prices for alcohol where applicable

Enact and enforce an appropriate minimum age for purchase or consumption of alcoholic beverages and reduce density of retail outlets

Restrict or ban promotions of alcoholic beverages in connection with sponsorships and activities targeting young people

Provide prevention, treatment and care for alcohol use disorders and comorbid conditions in health and social services

Provide consumer information



THE GLOBAL GOALS
For Sustainable Development

INEQUITY

GOALS FOR GLOBAL HEALTH



Action to
control NCDs



Progress on
SDGs



Implementation
UHC



Social
determinants
of health



Sustainable
prosperity



NCDs, SDGs
Political priorities

iShack Video



UNIVERSAL HEALTH COVERAGE



Fragmentation, Fatma Abodoma, 2016

ORAL HEALTH



ORAL HEALTH PROVIDERS

Play a crucial role in preventing NCDs due to impact of oral diseases

Should stay connected, strategize, build capacity



INTEGRATION ORAL HEALTH-NCDS

National/global strategies

Programs for UHC

Common risk factors

Social determinants disease

Inter-professional collaborations

Research, interventions

Health/oral health in all policies

CRFA

- Integrate oral health into health
- Health behaviours account for little variation in health outcomes by SE position
- Current practices not sustainable and increases inequality isolates behaviour from their social contexts
- Health literacy has little effect lower down the social gradient
- Social determinants drive the patterns of behaviour