Preventive Medicine 2030: What would the future bring?

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Preventive Medicine

Preventive medicine is practiced by all physicians to keep their patients healthy. It is also a unique medical specialty recognized by the American Board of Medical Specialties (ABMS). Preventive medicine focuses on the health of individuals, communities, and defined populations. Its goal is to protect, promote, and maintain health and well-being and to prevent disease, disability, and death.

Preventive medicine specialists are licensed medical doctors (MD) or doctors of osteopathy (DO), who possess core competencies in biostatistics, epidemiology, environmental and occupational medicine, planning and evaluation of health services, management of health care organizations, research into causes of disease and injury in population groups, and the practice of prevention in clinical medicine. They apply knowledge and skills gained from the medical, social, economic, and behavioral sciences.

What Is Preventive Medicine?

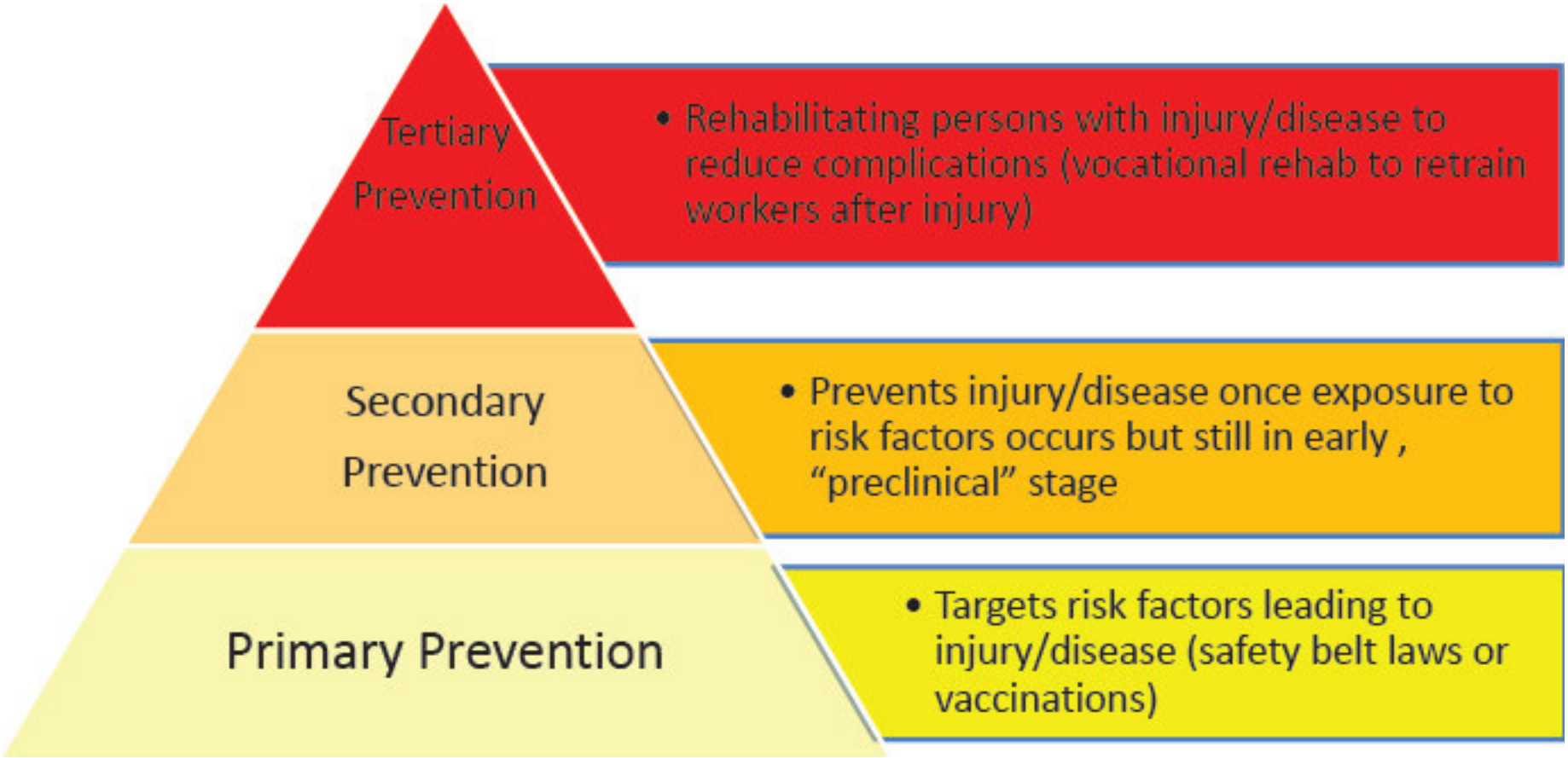
E. A. CLARKE, MD

SUMMARY

The aim of preventive medicine is the absence of disease, either by preventing the occurrence of a disease or by halting a disease and averting resulting complications after its onset. Preventive medicine can be practised by governmental agencies, primary care physicians and the individual himself.

In the past, many diseases have been conquered by doing things for the individual. The present challenge of preventive medicine is to motivate the individual to practise his own prevention. Possible means of achieving this motivation are described and many require the active participation of the primary care physician.

Canadian Family Medicine 1974


Tertiary Prevention
• Rehabilitating persons with injury/disease to reduce complications (vocational rehab to retrain workers after injury)
Secondary Prevention
• Prevents injury/disease once exposure to risk factors occurs but still in early , "preclinical" stage
Primary Prevention
• Targets risk factors leading to injury/disease (safety belt laws or vaccinations)

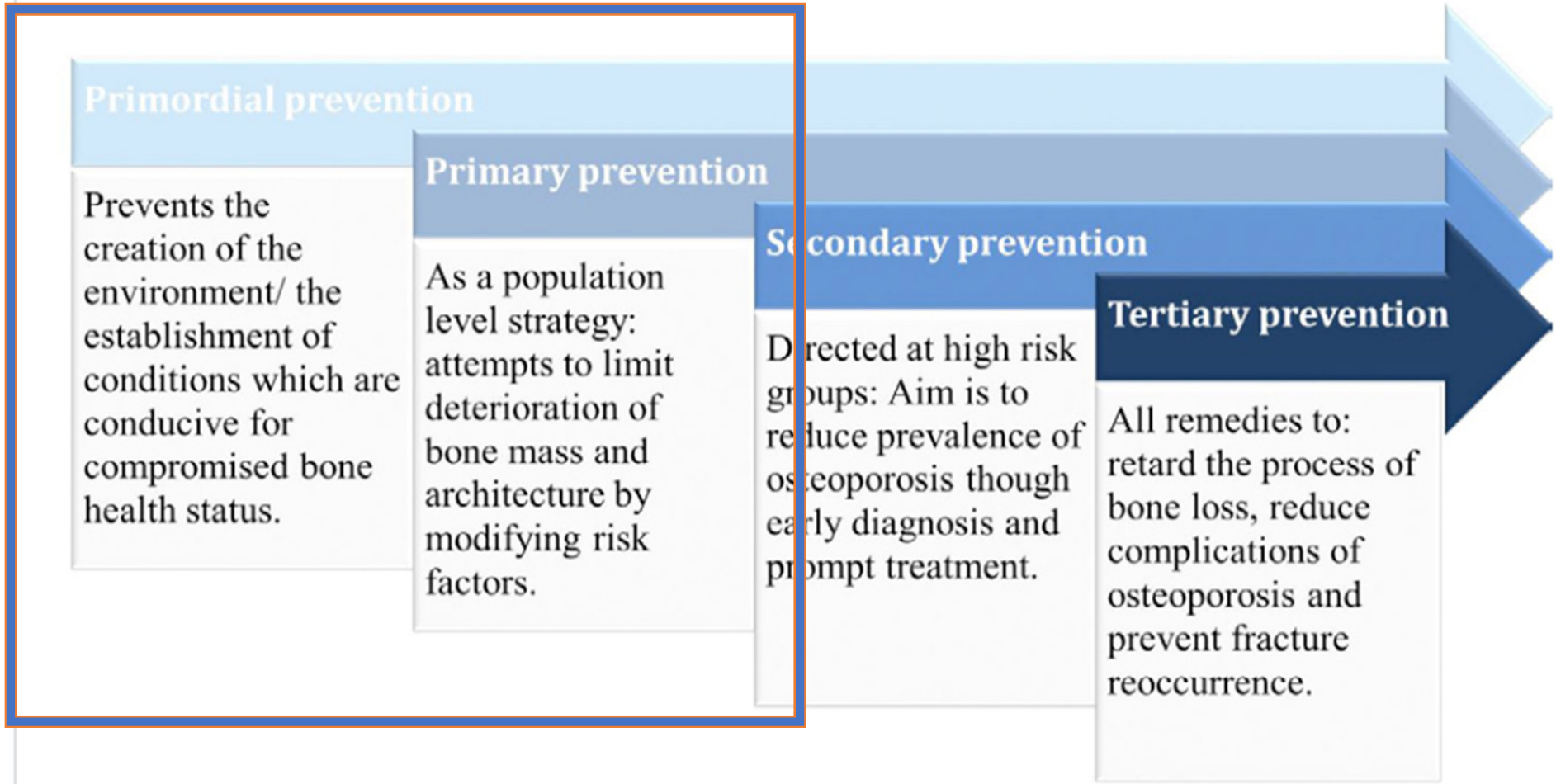


Figure 2: Levels of Prevention for Osteoporosis.

Clinics (Sao Paulo). 2016 Nov; 71(11): 667–678.
Published online 2016 Nov. doi: 10.6061/clinics/2016(11)09
PMCID: PMC5108165
PMID: 27982169

Primordial and primary prevention programs for cardiovascular diseases: from risk assessment through risk communication to risk reduction. A review of the literature

Inês Lancarotte* and Moacyr Roberto Nobre

IMPLICATIONS FOR PRACTICE

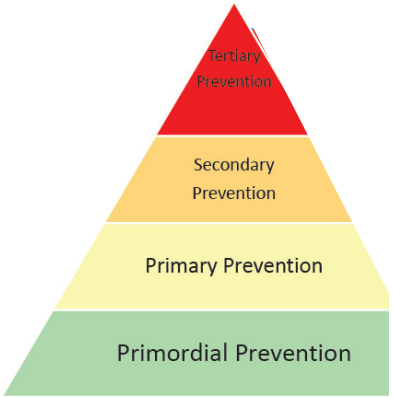
Go to:

Current evidence supports the notion that complementary strategies must be employed to improve the cardiovascular health of the population [33]:

- Individual approaches, which target healthy lifestyles and drug treatment when necessary, should be implemented while considering the following: that medical knowledge is based on biomedical rationality and is thus limited in addressing the complexity of the health-sickness process and that to be comprehensive, interventions focused on health promotion and on disease control should incorporate the autonomy, values, and preferences of the subjects regarding technical knowledge [34];

- Healthcare system approaches that encourage, facilitate, and reward healthcare providers' efforts to improve health behaviors and health factors can also be employed; and

- Population approaches that target changes in lifestyle can be conducted in schools, worksites, and communities and can include the development of public policies to support lifestyle changes.



Determinants of behavior

Personal or individual: beliefs, knowledge, attitudes, skills, genetics

Social: interaction with other people including friends, family and the community

Economic: income, cost of living/hcare/healthyfood

Environmental: the area in which an individual lives, e.g. school, work place, local shops and facilities, and wider factors including the economy (such as prices) and technology.

Health-related behavior

- NCDs caused 70% of deaths globally, ranging from 37% in low-income countries to 88% in high-income countries.

- Most NCDs are the result of 4 behaviours that lead to 4 key metabolic/physiological changes (risk factors)
  - raised blood pressure, overweight/obesity, raised blood glucose and raised cholesterol

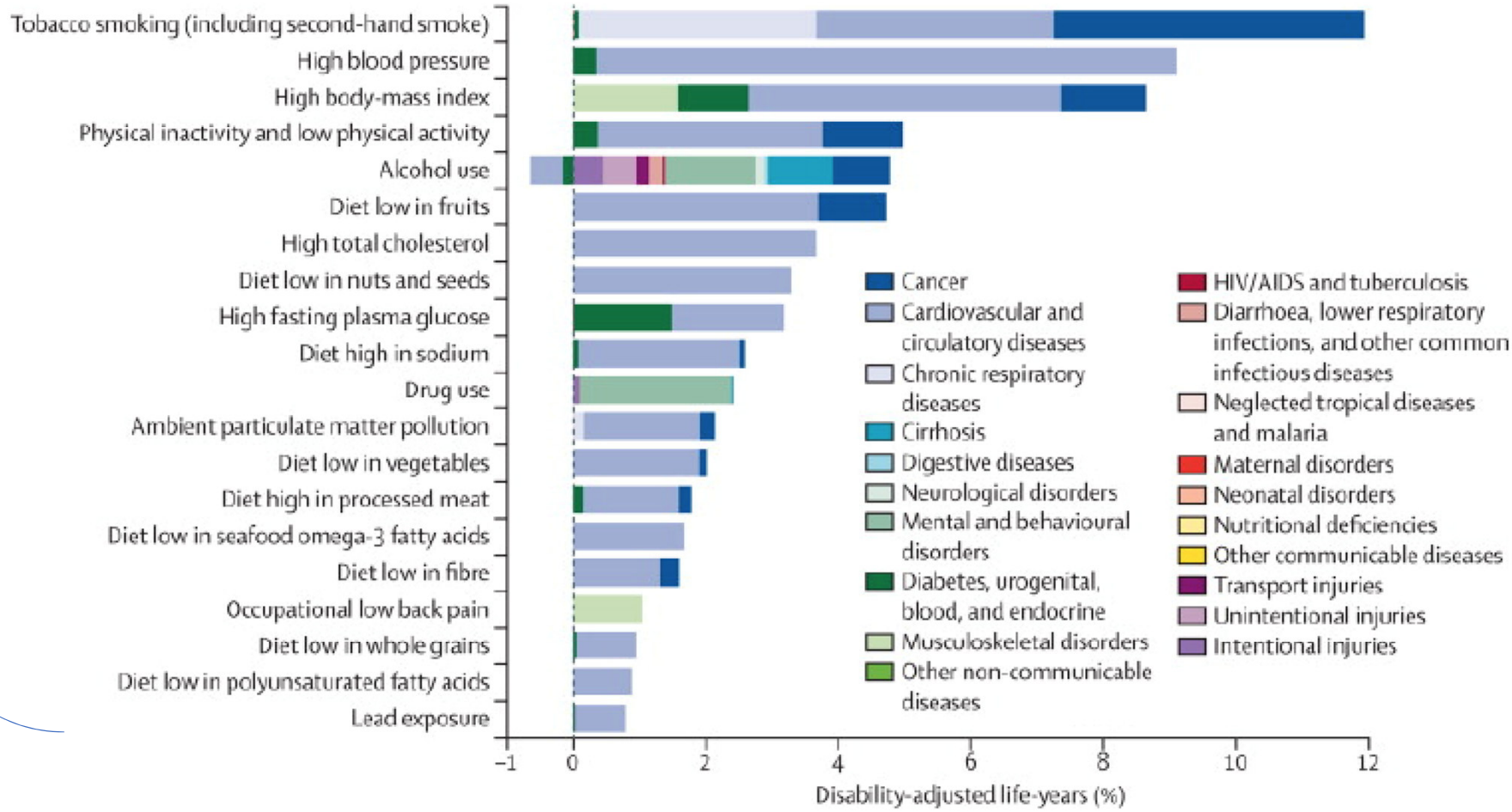
  - tobacco use,
  - physical inactivity,
  - unhealthy diet,
  - harmful use of alcohol

Global Health Observatory (GHO) data

http://www.who.int/gho/ncd/risk_factors/en/

Human Behavior

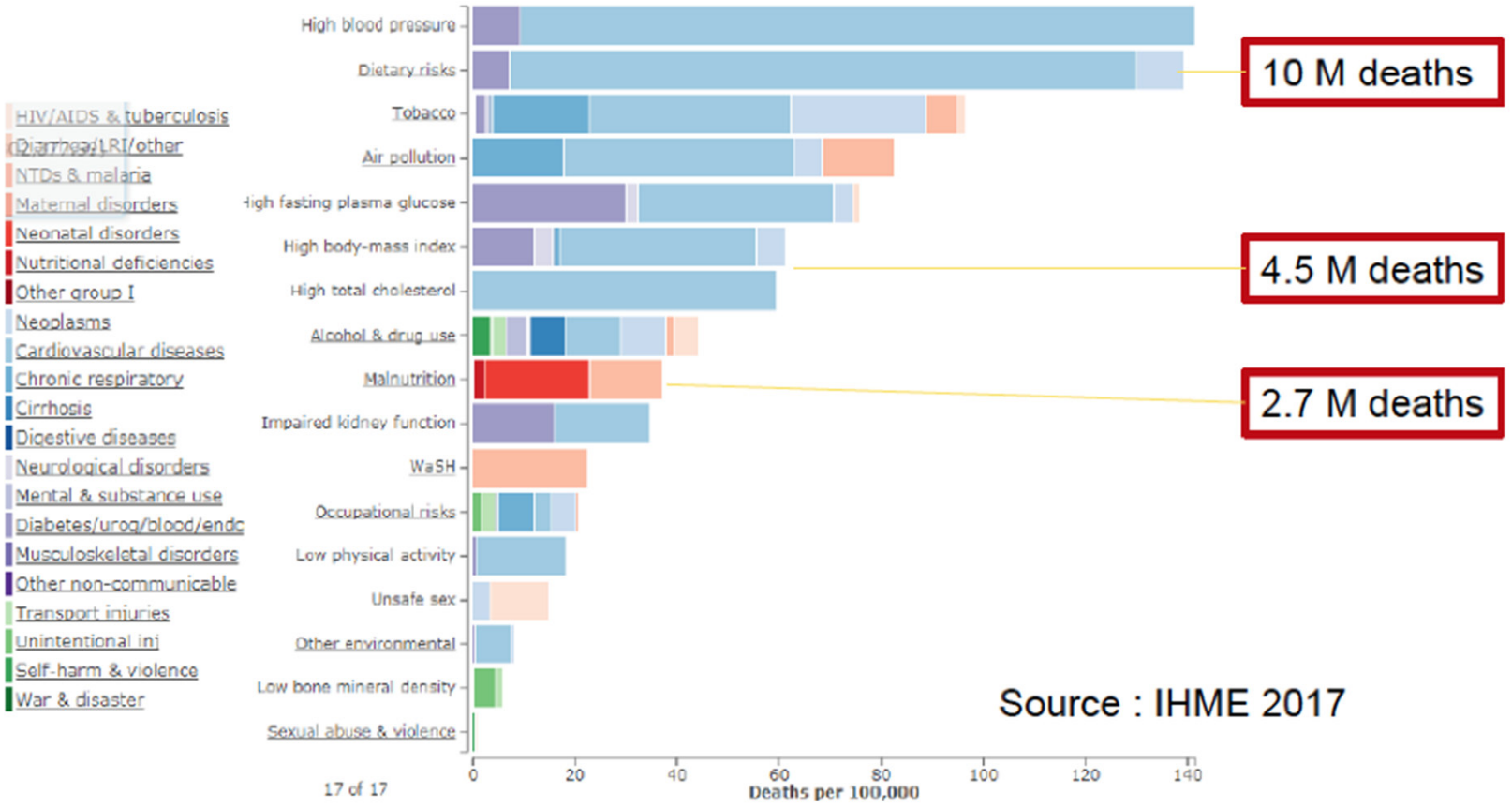
Burden of disease attributable to 20 leading risk factors, expressed as a percentage of global disability-adjusted life-years



The Lancet 2012 380, 2224-2260DOI: (10.1016/S0140-6736(12)61766-8)

The Lancet, Vol. 390, No. 10100. Published: September 16, 2017

UNHEALTHY DIET AND MALNUTRITION IN THE TOP TEN RISK FACTORS FOR THE GLOBAL DISEASE BURDEN



Bad diets killing more people globally than tobacco, study finds

Eating and drinking better could prevent one in five early deaths, researchers say

▲ While sugar and trans-fats are harmful, the biggest problem is the lack of healthy foods in our diets, researchers found. Photograph: Philip Toscano/PA

- "Unhealthy diets are responsible for 11m preventable deaths globally per year, more even than smoking tobacco"
- The biggest problem is not the junk we eat **but the nutritious food we don't eat,** say researchers, calling for a global shift in policy to promote vegetables, fruit, nuts and legumes.
- While sugar and trans-fats are harmful, more deaths are caused by the absence of healthy foods in our diet."

- **Poor diets** were responsible for 10.9m deaths, or 22% of all deaths among adults in 2017.
- **Cardiovascular disease was the leading cause**, followed by cancers and diabetes.
- Heart attacks and strokes are the main diet-related causes of death, followed by cancers and type 2 diabetes
- Eating and drinking better could prevent one in five deaths around the world.
- “Our findings show that suboptimal diet is responsible for more deaths than any other risks globally, including tobacco smoking, highlighting the urgent need for improving human diet across nations,”.

'The Mediterranean diet is gone': region's children are fattest in Europe

The diet Greece, Spain and Italy are famous for - rich in fruit, vegetables, fish and olive oil – is supposedly the healthiest in the world, but obesity is rocketing

▲ The Mediterranean diet is said to be the healthiest in the world. Photograph: Alamy Stock Photo

The Mediterranean countries which gave their name to the famous diet that is supposed to be the healthiest in the world have children with Europe's biggest weight problem.

Children in **Sweden** are more likely to eat fish, olive oil and tomatoes than those in southern Europe.

Swiss National Health Survey 2017

- **Fruit and veg:**
  - 21% of adults meet recommendations for fruit & veg consumption (women 28%, men 15%).
- **Overweight**
  - 42% overweight or obese
  - 11% obese (5% in 1992): 12% Men and 11% women obese
  - 39% Men and 23% women overweight
    - clear social differences: people who had completed only compulsory school were more likely to be obese than those with higher qualifications (21% vs 8%)

Switzerland

Adults in Vaud who meet SSN recommendations

- Fruits: 39.4%
- Vegetables: 7.1%
- Meat: 61.3%
- Fish: 66.4%
- Dairy: 8.4%

- N=4371

Children's daily consumption of F&V is less than 50% for girls and 40% for boys
(Federal Office of Public Health (FOPH) et al., 2012; Lamprecht & Stamm, 2012)

De Abreu, D., Guessous, I., Vaucher, J., Preisig, M., Waeber, G., Vollenweider, P., & Marques-Vidal, P. (2012). Low compliance with dietary recommendations for food intake among adults. *Clinical nutrition*
mean age ± SD: 57.6 ± 10.5 years

Bringolf, B; Kayser, B; Suggs, L.S; Probst, N. et al. SOPHYA study
ages 6-16

Meier, et al., (2010). Who eats healthily? A population-based study among young Swiss residents. *Public health nutrition*, *13*(12), 2068–2075.
ages 15-24

Contents lists available at ScienceDirect

Preventive Medicine Reports

journal homepage: http://ees.elsevier.com/pmedr

Low adherence of Swiss children to national dietary guidelines

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ABSTRACT

Introduction. Dietary guidelines aim to inform people of the types of foods and qua
consume each day or week to promote and maintain health. The aim of this study was to
dietary behaviors in terms of adherence to the Swiss Society for Nutrition (SSN) dietary gui
determinants.

Methods. A cross-sectional study was conducted in September 2010 with 568 children
living in Ticino Switzerland. Food intake was collected using 7-day food logs. Adherence with t
from the SSN was assessed according to age group.

Results. With the exception of fish and cereal/potato intake (adherence rates of 68.5% and
adherence to SSN guidelines was low: 26.9% for meat; 22.7% for eggs; 10.4% for fruit; 9.5%
soft drinks; 3.5% for milk & dairy, and 0% for vegetables. Multivariate analysis showed no c
between the child or their parent's socio-demographic characteristics and adherence to SSN
a higher likelihood of adhering with fruit and meat guidelines: multivariate adjust
confidence interval) 1.98 (1.10–3.56) and 1.80 (1.08–2.99), respectively. Children aged 10 to 12 had a lower likelihood of adhering with cereals and potatoes 0.48 (0.29–0.78), and a higher likelihood of adhering with the guideline for eggs 1.78 (1.00–3.15).

Conclusion. Dietary intake of Ticinese children shows poor adherence with SSN guidelines. Given the lack of specific socio-demographic factors associated with adherence, population-wide interventions to improve dietary intake are necessary.

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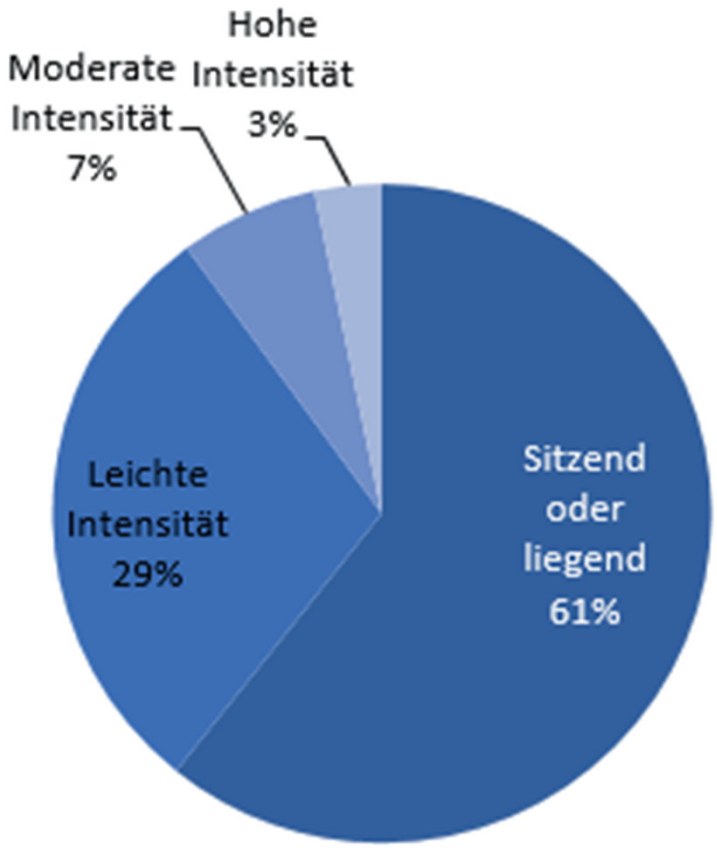
568 children in Ticino ages 6-12.

Adherence to recommendations for:

- Vegetables = 0%
- Fruit = 10.4%
- Sweets snacks and sugar drinks = 9.5%
- Meat = 27%

SOPHYA (2014-2015)

- Children spent most of the day (~90%) sitting or lying down, or had low activity.
- On average, children spent only 10% of the time in moderate to high activity.



World Health Organization

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Home / Emergencies / Ten threats to global health in 2019

3 are vaccination related

- Global influenza pandemic
- Ebola and other high-threat pathogens
- Vaccine hesitancy

Vaccination is one of the most cost-effective ways of avoiding disease – it currently prevents 2-3 million deaths a year, and a further 1.5 million could be avoided if global coverage of vaccinations improved.

- “In **1987**, the Swiss Federal Office of Public Health announced a vaccination strategy that it hoped would eradicate measles by the year 2000.
- To eradicate measles, the WHO advocates a vaccination coverage of 95% of the population.
- Swiss coverage is: 87% for two-year-olds and 93% for 16-year-olds.”

https://www.swissinfo.ch/eng/public-health_rise-in-measles-cases-in-switzerland-/44865680

INFECTIOUS DISEASE

Why some Swiss people still get measles

Measles, a potentially deadly virus, is still breaking out in Switzerland, despite the availability of vaccinations.

- ”A total of 166 measles cases were recorded in Switzerland from January 1st to May 6th this year, according to the Federal Office of Public Health. (FOPH) **That is eight times the figure of 21 cases recorded in the same period in 2018.**
- There have also been two deaths from the disease.
- Swiss health authorities say that a vaccination rate of 95 percent is required to eliminate the disease in the country. Currently, however, this rate is 87 percent for two-year-olds and 92 percent for 16-year-olds.”

https://www.swissinfo.ch/eng/public-health_rise-in-measles-cases-in-switzerland-/44865680

https://www.thelocal.ch/20190508/swiss-mps-call-for-fines-for-parents-who-fail-to-vaccinate-kids-against-measles-mmr-anti-vaxxer

REVIEW ARTICLE: CURRENT OPINION

An academic perspective of the United Nations High-Level NCD Meeting

Prevention – a cost-effective way to fight the non-communicable disease epidemic

DOI: https://doi.org/10.4414/smw.2011.13266
Publication Date: 07.09.2011
Swiss Med Wkly. 2011;141:w13266

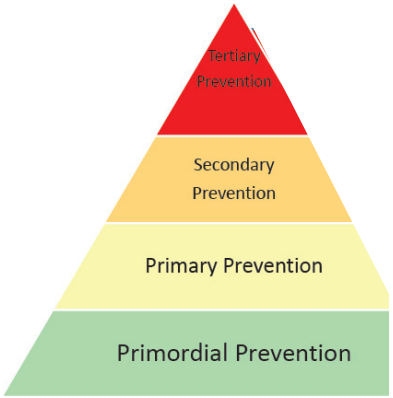
Nicole Probst-Hensch[a,b], Marcel Tanner[a,b], Claudia Kessler[a,b], Christian Burri[a,b], Nino Künzli[a,b]

term, in many cases lifel[illegible] therefore often very expensive investment. The model [illegible]come countries with the emphasis on tr[illegible]t is unaffordable, as seen in the ever increasing costs for health care. This is [illegible]ming particularly evident in [illegible]dle and low income countries [1] where health care coverage for treatment is usually lacking [illegible]tly and prolo[illegible]d care therefore diverts a substantial part of family resources to medical care. These families are at ris[illegible] fi[illegible]cial ruin. For example, in India the costs of diabetes treatment add up to 15–25% of a household's income and p[illegible]h many families into poverty [12].

The primary prevention of NCDs and their risk factors is the most cost-effective control of the epidemic and its adverse socio-economic effects. The strengthening of primary prevention has also been recommended for Switzerland in a recent evaluation of its health care system [13]. Primary prevention allows efficient tackling of risk factors and patterns that are shared by several NCDs. The implementation of primary prevention measures at the individual and structural levels are urgent. Many NCD's have aetiologic roots in early life with a long latency period until the expression of diseases, thus preventive action taken (or not taken) today will impact public health in the distant future.

An academic perspective of the United Nations High-Level NCD Meeting

Prevention – a cost-effective way to fight the non-communicable disease epidemic



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Environmental: the area in which an individual lives, e.g. school, work place, local shops and facilities, and wider factors including the economy (such as prices) and technology.

Passive smoking

Secondhand smoke contains more than 7,000 chemicals. There is no risk-free level of exposure to **secondhand smoke**.

Long-term effects from exposure to second-hand smoke include increased risk of:

- coronary heart disease (risk increased by 25-30%)
- lung cancer (risk increased by 20-30%) and other cancers
- stroke (risk increased by 20-30%)
- increased risk of COPD and other breathing problems
- increased risk of blood clots forming, even with brief exposure.

Note: smoking in cars with children on board has been banned in Scotland since December 2016.

(CDC)

Swiss train stations start to go 'smoke free'

Vaping will also be confined to designated smoking areas. Photo: SBB

Primordial Prevention!

Thank You

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