

## Executive Summary

**O**besity is a major health concern for OECD countries. Using a wide range of individual-level and population data from OECD countries, this book presents analyses of trends in obesity, explores the complex causal factors affecting the epidemic and develops an assessment of the impacts interventions to combat the problem. The book provides new information on what prevention strategies are most effective and cost-effective, discussing the respective roles of individuals, social groups, industry and government, and the implications of these findings for the development of policies to address one of the largest public health emergencies of our time.

The book presents an economic approach to the prevention of chronic diseases, which recognises the importance of human goals that are potentially in competition with the pursuit of good health and the social and material constraints which influence individual choice and behaviours. An economic approach aims at identifying possible factors, technically market failures, which limit opportunities for people to make healthy lifestyle choices, and devising suitable strategies to overcome such failures.

### **What are the health and economic costs associated with obesity?**

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*Chapter 1 places obesity in the context of the growing burden of chronic disease and discusses the extent of the problem*

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Much of the burden of chronic diseases is linked to lifestyles, with tobacco smoking, obesity, diet and lack of physical activity being responsible for the largest shares of such burden. Research has shown that people who lead a physically active life, do not smoke, drink alcohol in moderate quantities, and eat plenty of fruits and vegetables have a risk of death that is less than one fourth of the risk of those who have invariably unhealthy habits. Mortality increases steeply once individuals cross the overweight threshold. The lifespan of an obese person is up to 8-10 years shorter (for a BMI of 40-45) than that of a normal-weight person, mirroring the loss of life expectancy suffered by smokers. An overweight person of average height will increase their risk of death by approximately 30% for every 15 additional kilograms of weight. In ten European countries, the odds of

disability, defined as a limitation in activities of daily living (ADL), are nearly twice as large among the obese as in normal weight persons.

An obese person generates higher health care expenditures than a normal-weight person and costs increase disproportionately at increasing levels of BMI. However, over a lifetime, existing estimates suggest that an obese person generates lower expenditures than a person of normal weight (but higher than a smoker, on average).

## **What are the trends in obesity – past and future?**

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*Chapter 2 looks at the development of obesity over time and its relationship to changes in diet and lifestyle*

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Height and weight have been increasing since the 18th century in many of the current OECD countries, as income, education and living conditions gradually improved over time. Surveys began to record a sharp acceleration in the rate of increase in body mass index (BMI) in the 1980s, which in many countries grew two to three times more rapidly than in the previous century. While gains in BMI had been largely beneficial to the health and longevity of our ancestors, an alarming number of people have now crossed the line beyond which further gains become more and more detrimental. Before 1980, obesity rates were generally well below 10%. Since then, rates have doubled or tripled in many countries, and in almost half of OECD countries 50% or more of the population is overweight.

Rates of overweight and obesity vary considerably across OECD countries, but have been increasing consistently over the past three decades everywhere. If recent trends in OECD countries continue over the next ten years, projections suggest that pre-obesity rates (a BMI above the normal limit of 25 but below the obesity level of 30) for the 15-74 age group will stabilise progressively, and may even shrink slightly in many countries, while obesity rates continue to rise.

On the one hand, obesogenic environments, including physical, social and economic environments, have contributed to higher obesity rates over the past 30 years by exerting powerful influences on people's overall calorie intake, on the composition of their diets and on the frequency and intensity of physical activity at work, at home and during leisure time. On the other hand, changing individual attitudes, reflecting the long-term influences of improved education and socio-economic conditions, have countered environmental influences to some extent.

## **Which groups are the most affected by obesity? What are the social impacts of obesity?**

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*Chapter 3 looks at how age, gender education and socio-economic status affect obesity rates and, conversely, at how obesity affects labour market opportunities and outcomes*

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There does not appear to be a uniform gender pattern in obesity across countries. Worldwide, obesity rates tend to be higher in women than in men, other things being equal, and the same is true, on average, in the OECD area. Male obesity rates have also been growing faster than female rates in most OECD countries. The gender dimension is especially important because of its significant interactions with other individual characteristics, such as socio-economic condition or ethnicity.

A complex relationship exists between socio-economic condition and obesity. For example, this relationship changes as economies become more developed, with poorer people more likely to be affected in rich countries. Analyses of data from more than one third of OECD countries show important social disparities in overweight and obesity in women and lesser or no disparities in men. Social disparities within countries are larger in obesity than in overweight, but when comparisons across countries are made, the size of disparities is not related to countries' overall obesity rates. With few exceptions, social disparities in obesity remained remarkably stable over the past 15 years.

Social disparities are also present in children in three out of four countries examined, but no major differences between genders are observed in degrees of disparity. The gap in obesity between children who belong to ethnic minorities and white children in England and in the United States is larger than that observed in adults.

Disparities in labour market outcomes between the obese and people of normal weight, which are particularly strong in women, are likely to contribute to the social gradient in overweight and obesity. The obese are less likely to be part of the labour force and to be in employment. Discrimination in hiring decisions, partly due to expectations of lower productivity, contributes to the employment gap. White women are especially disadvantaged in this respect. The obese are likely to earn less than people of normal weight. Wage penalties of up to 18% have been associated with obesity in existing research. The obese tend to have more days of absence from work, a lower productivity on the job and a greater access to disability benefits than people of normal weight. The need for government intervention to protect the obese in labour markets and ensure they enjoy the same opportunities as

anyone else in terms of employment, type of job, sector of occupation and pay naturally follows the evidence presented in Chapter 3.

### **How did obesity become a problem?**

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*Chapter 4 explores some of the key dynamics that have contributed to the obesity epidemic, including the role of factors which have made it difficult for individuals to handle increasing environmental pressures*

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The obesity epidemic is the result of multiple, complex and interacting dynamics, which have progressively converged to produce lasting changes in people's lifestyles. The supply and availability of food have changed remarkably in the second half of the 20th century, in line with major changes in food production technologies and an increasing and increasingly sophisticated use of promotion and persuasion. The price of calories fell dramatically and convenience foods became available virtually everywhere at any time, while the time available for traditional meal preparation from raw ingredients shrunk progressively as a result of changing working and living conditions. Decreased physical activity at work, increased participation of women in the labour force, increasing levels of stress and job insecurity, longer working hours for some jobs, are all factors that, directly or indirectly, contributed to the lifestyle changes which caused the obesity epidemic.

Government policies have also played a part in the obesity epidemic. Examples include subsidies (e.g. in agriculture) and taxation affecting the prices of lifestyle commodities; transport policies, some of which have led to an increased use of private means of transportation; urban planning policies leaving scarce opportunities for physical activity, or leading to the creation of deprived and segregated urban areas that provide fertile grounds for the spread of unhealthy lifestyles and ill health.

The question must be asked of whether the changes that fuelled obesity and chronic diseases in the past decades are simply the outcome of efficient market dynamics, or the effect of market and rationality failures preventing individuals from achieving more desirable outcomes. In the design and implementation of prevention policies special attention must be placed on the role of information, externalities and self-control issues, including the role of "social multiplier" effects (the clustering and spread of overweight and obesity within households and social networks) in the obesity epidemic. Evidence of similar failures is reviewed and the scope for prevention to address some of the consequences of those failures is discussed in the book.

## What can governments and markets do to improve health-related behaviours?

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*Chapter 5 looks at the broad range of actions taken in recent years to improve nutrition and physical activity in OECD countries*

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Governments can increase choice by making new healthy options available, or by making existing ones more accessible and affordable. Alternatively, they can use persuasion, education and information to make healthy options more attractive. These are often advocated as minimally intrusive interventions, but governments may not always deliver persuasion effectively and in the best interest of individuals, and it is difficult to monitor whether they do so. Regulation and fiscal measures are more transparent and contestable interventions, although they hit all consumers indiscriminately, may be difficult to organise and enforce and may have regressive effects. Interventions that are less intrusive on individual choices tend to be more expensive, while interventions that are more intrusive have higher political and welfare costs.

A survey of national policies in 2007-08 covering all OECD and EU countries shows that governments acknowledge that individuals are often exposed to large amounts of potentially confusing information on health and lifestyles from a variety of sources, and assert that it is primarily their responsibility to act as a balanced and authoritative source of information, thus providing clear guidance to individuals who struggle to cope with increasingly powerful environmental influences.

Many governments are intensifying their efforts to promote a culture of healthy eating and active living. A large majority of them have adopted initiatives aimed at school-age children, including changes in the school environment, notably regarding food and drink, as well as improvements in facilities for physical activity. The second most common group of interventions involves the public health function of health systems. These interventions are primarily based on the development and dissemination of nutrition guidelines and health promotion messages to a wide variety of population groups through numerous channels, as well as promotion of active transport and active leisure. Governments have been more reluctant to use regulation and fiscal levers because of the complexity of the regulatory process, the enforcement costs involved, and the likelihood of sparking a confrontation with key industries.

The private sector, including employers, the food and beverage industry, the pharmaceutical industry, the sports industry and others, has made a potentially important contribution to tackling unhealthy diets and sedentary lifestyles, often in co-operation with governments and international

organisations. Evidence of the effectiveness of private sector interventions is still insufficient, but an active collaboration between the public and the private sector will enhance the impact of any prevention strategies and spread the costs involved more widely. Key areas in which governments expect a contribution from the food and beverage industry are: food product reformulation; limitation of marketing activities, particularly to vulnerable groups; transparency and information about food contents.

## **What interventions work best and at what cost?**

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*Chapter 6 presents a comprehensive analysis of the impacts of nine different health interventions on obesity and related chronic diseases in five OECD countries: Canada, England, Italy, Japan and Mexico*

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Interventions aimed at tackling obesity by improving diets and increasing physical activity in at least three areas, including health education and promotion, regulation and fiscal measures, and counselling in primary care, are all effective in improving health and longevity and have favourable cost-effectiveness ratios relative to a scenario in which chronic diseases are treated only as they emerge. When interventions are combined in a multiple-intervention strategy, targeting different age groups and determinants of obesity simultaneously, overall health gains are significantly enhanced without any loss in cost-effectiveness. The cost of delivering a package of interventions would vary between USD PPPs 12 per capita in Japan to USD PPPs 24 in Canada, a tiny fraction of health expenditure in those countries, and also a small proportion of what is currently spent on prevention in the same countries.

Most of the interventions examined have the potential to generate gains of 40 000 to 140 000 years of life free of disability in the five countries together, with one intervention, intensive counselling of individuals at risk in primary care, leading to a gain of up to half million life years free of disability. However, counselling in primary care is also the most expensive of the interventions considered in the analysis. Interventions with the most favourable cost-effectiveness profiles are outside the health care sector, particularly in the regulatory and fiscal domain. Interventions, especially those aimed at children, may take a long time to make an impact on people's health and reach favourable cost-effectiveness ratios.

Interventions add years of healthy life to people's health expectancy, reducing health care costs. However, the health benefits of prevention are such that people also live longer with chronic diseases, and years of life are added in the oldest age groups, increasing the need for health care. The interventions

assessed may, at best, generate reductions in the order of 1% of total expenditure for major chronic diseases. At the same time, many such interventions involve costs which outweigh any reductions in health expenditure. These costs may arise in different jurisdictions. Some are typically paid through public expenditure, but do not necessarily fall within health care budgets (e.g. the costs associated with regulatory measures, or interventions on the education or transport systems). Others fall outside public budgets altogether (e.g. most of the costs associated with worksite interventions).

The distributional impacts of interventions are mostly determined by differences in morbidity and mortality among socio-economic groups. Fiscal measures are the only intervention producing consistently larger health gains in the less well-off. The distributional impacts of other interventions vary in different countries.

Those reported in Chapter 6 are likely to be conservative estimates of the impacts to be expected in real world settings. Key drivers of success for preventive interventions include high participation (on both supply and demand sides), long-term sustainability of effects, ability to generate social multiplier effects, and combination of multiple interventions producing their effects over different time horizons.

## **How can an unhealthy societal trend be turned around?**

*Chapter 7 outlines the role of information, incentives and choice in designing policies to combat obesity and discusses the relevance of a multi-stakeholder approach to chronic disease prevention*

The main question addressed in this book is how to trigger meaningful changes in obesity trends. The short answer is by wide-ranging prevention strategies addressing multiple determinants of health. The reality is that every step of the process is conditioned not just by public health concerns, but by history, culture, the economic situation, political factors, social inertia and enthusiasm, and the particularities of the groups targeted.

Individual interventions have a relatively limited impact; therefore, comprehensive strategies involving multiple interventions to address a range of determinants are required to reach a "critical mass" – one that can have a meaningful impact on the obesity epidemic by generating fundamental changes in social norms. The development of comprehensive prevention strategies against obesity needs to focus on how social norms are defined and how they change; on the influence of education and information on obesity but also on the potential for government regulation to affect behaviours; and

on the role of individual choice and values. A sensible prevention strategy against obesity would combine population and individual (high-risk) approaches, as the two have different and complementary strengths in the pursuit of effectiveness, efficiency and favourable distributional outcomes.

The adoption of a "multi-stakeholder" approach is increasingly invoked as the most sensible way forward in the prevention of chronic diseases. But while few if any of those involved would argue with this in theory, the interests of different groups are sometimes in conflict with each other and it is not always possible to find a solution where nobody loses out. Yet at the same time, no party is in a position to meaningfully reduce the obesity problem and associated chronic diseases without full co-operation with other stakeholders.